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## **Examination of the Public Sector Reform Programme Implementation in Zambia: The Efficacy of the Integrated Financial Management Information System**

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**ABSTRACT:** *This study was to examine the Public Sector Reform Programme and implementation of the Efficacy of the Integrated Financial Management Information Systems (IFMIS) in Zambia. The focus is on the country's central government with 1300 users of IFMIS in forty-four sites. The study used a quantitative research design to draw conclusions from a sample of 150 day-to-day users of IFMIS. Data was collected through a survey analysed using descriptive and causal-effect relationships. The system usage is far from satisfactory with misapplication of funds, and challenges in cooperating with partners. The public did not derive satisfaction in this outcome. However, IFMIS influences public resource management processes through ease of access to information, quick retrieval, easy tracking of documents and provision of an audit trail, among others. The system provides restricted access to the IFMIS system, creates the order of operations, defines and reduces the roles and duties of different users, which reduces the level of risk. Some users doubted the system's ability to detect and report fraud cases. This study, therefore, recommends that IFMIS should be upgraded to protect documents from being attacked by viruses or getting lost, including stronger fraud detection, reporting and a broad application and use of IFMIS in all country departments with new features for fraud detection and reports to facilitate quick remedy. Lastly, the IFMIS should be decentralized to each department to ensure the processes of the supply chain are secured and efficient.*

**KEYWORDS:** IFMIS, efficiency, public sector reform, Zambia

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### **INTRODUCTION**

The evidence from the Auditor-General's report and other reports such as the Public Accounts Committee report (2019) and financial report (2019) in Zambia have shown dissatisfactory trends (Auditor-General Report, 2016) and subsequent years (2017 to 2019). These reports have all indicated that there is no prudent financial management as they all showed irregularities. For instance, the Auditor-General's report has indicated that in the past five years there have been several irregularities ranging from misappropriation and lack of expenditure tracking (Auditor-General Report, 2018). Furthermore, there has also been a lot of public complaints and dissatisfaction from different stakeholders arising from the reports

issued by the Auditor-General's office. Other complaints and dissatisfaction have arisen from the donors and other cooperating partners as to why the Budget did not provide a credible position and also why the financial report processes still exhibited some errors year in year out (Auditor-General Report, 2018; World Bank Group, 2016). These financial errors incurred are affecting the overall government performance in terms of public service delivery.

Despite the government introducing the IFMIS system into financial management, there seem to be several challenges faced by a public institution in ensuring prudent financial management. Having identified the challenges associated with the system and effective implementation, this paper is aimed at exploring the efficacy of the IFMIS implementation. The study will mainly focus on the effectiveness of the system implementation and will make a policy recommendation to ensure that the intended purpose of the system is attained.

### **Aim of the study**

This research aims to examine the efficacy of the Integrated Financial Management Information System (IFMIS) in the Public-Sector Reform Programme implemented in Zambia.

## **LITERATURE REVIEW**

The objective of the current study is premised on an important observation made by Metcalfe and Richards (1993) when they state, "A strong organizational culture offers a means of inculcating the motivation and sense of purpose that more mechanistic management techniques have failed to provide" (p 107). This indicates that organizational culture can be used to explain the decline and improvement of public sector productivity (McGregor and Doshi, 2015).

The reform process can be very challenging to deal with. It was observed that the connection between Public Service Management, reformation and social and economic development is evident to any government officer or staff, but could be difficult to pinpoint exactly as there is a lack of tangible information. Therefore, members of staff depend mainly on strong implied or craft knowledge to develop practical reforms (Manning, 2012). Additionally, Manning (2012) noted that there is great lack of assurance about the institutional forms that are saved for improving public service performance in this circumstance and also another cardinal issue challenging is the change of current public service agents, as this work would require some persistent effort to make management changes effective. It was also learned that even if the PSM reforms could be implemented, in practice it may be difficult to make intended differences for development outcomes (Manning, 2012). Meanwhile, Mbaka (2017) indicates that Public Financial Management Reforms have been implemented around the globe over the last 10 decades but many simply have not met the expectations. The financial collapse of 2008 instigated the urgency from governments to embrace reform due to dual pressures of pursuing austerity measures while ensuring they can deliver. Effective reforms are envisaged to depend on political and organisational change, which requires a deep understanding of national traditions, capacities and needs (Mbaka, 2012). Furthermore, there was an emphasis on having a country-specific approach, government ownership, political

will, time and patience for organisational culture and behavioural change, coordination with other donors and ensuring there was the sequencing of the Public Sector Reforms in these entities (Flynn, 2008; Rao, 2013). The Public Sector was perceived equally as an ever-changing and increasingly complex environment and, in this regard, had a lot of drivers of change influencing the future and it was observed that some known and unknown emerging and yet to appear in the set horizon (Rao 2014) And to achieve a better response it was advised that a roadmap was to be identified to the public management which required to deal with issues.

### **Need and benefits of public sectors reforms**

According to Schacter, public sector reform (PSR) is about strengthening the way that the public sector is managed. Schacter further argued that public sector reform is a political and social phenomenon driven by human behaviour (Schacter, 2000, 3). According to Manning, reforms in the public sector are carried out to reduce government expenditure by retaining aggregate costs, improve policy responsiveness, attract skilled workers and build public and private sector confidence in government as regulator/service providers. On the informal or implicit side, reforms are undertaken to achieve or strengthen public sector discipline. That is to say, equal access and equal treatment, thus no impartiality about employment in the government where it should be representative of the people (Manning, 2003). There have been several reforms in most public sectors, especially in the area of (ICT), which has been termed as being pivotal to the modern government and Fundamental to the strategies of the Public Sector Reform Programmes in Africa (Molokwane, 2019; Andrews, 2010).

An improved budget process will emanate into a credible and predictable budget process (Molokwane, 2019). The other benefit is the aspect of enhancing user confidence in the usage of the IFMIS system and efficient processing of payments. Some of the noted benefits as indicated by the World Bank Group (2016) are a couple of benefits which they felt could be achieved as the result of the reforms taken by the countries, especially those which have been supported by the World Bank; that the reforms in the public sector enhance the quality of the public sector which entails a strong relationship with growth and poverty reduction. The World Bank group further noted that these reforms would build efficiency and accountability in the public sector as well as budget planning and execution. On the other hand, the (Molokwane, 2019) equally observed that as derived from their objectives, that reforms in the Public Service would provide stable, reliable and impartial service for the government of the day.

### **Public sector reforms and organizational culture**

Savoie (2003) defines NPM as a process to break down formal systems of control and instil a new 'bias for action' in government bureaucracies and public sector management theory that seeks to make government more efficient and responsive by employing private sector techniques and creating market conditions for the delivery of public services. Some contemporary researchers define NPM as the best blend of dividing large bureaucracies into a smaller competition between public sector departments, public and private sectors and incentivization on an appropriate economic basis (Lengnick-Hall, et al., 2009). Christopher Cropper Hood, Gladstone Professor of Government in 1991, defined NPM as "the

government policy which is meant to enhance public sector efficiency” (Hood, 1991). For this study, we will consider the definition of Hood as an operational definition of NPM.

Owusu (2004) is of the view that some of the public sector reforms undertaken during the 1980s and 1990s in the developing countries succeeded only in reducing the size of the public service and its wage bill but failed to improve performance. Even the reforms that focused on improving the quality of public sector employment also failed to produce the desired results. According to Owusu (2004), the failure of various public sector reforms justifies the need to adopt a different approach that is “flexible enough to accommodate country-specific constraints on the organizations” (p 5).

Drawing on the works of Schein (1992), Owusu contends that how organizations adapt to internal and external forces should be given the attention that they deserve mainly because, “How organizations adapt to the external environment and ensure internal integration, create the culture and corporate identity of the organization” (Owusu, 2005, p 8). In the same vein, Owusu (2004) argues that public sector reforms cannot yield the much-desired results if a concerted effort is not made to understand how organizational culture is created, sustained, changed and transmitted, as well as its effects on performance. According to Owusu, “public sector reforms must be viewed as changing, or in some cases sustaining, organizational culture” (2004, p 3).

But according to Seel (2000), “changing conversation is not the focus of most change programmes, which tend to concentrate on organizational structures or reward systems or other large-scale interventions” (p 2). For Seel (2000), as long as we continue to overlook and fail to change the paradigm at the heart of culture, then all efforts geared towards changing the structures, systems and processes of public organizations will continue to have limited success. This is because he sees a paradigm as a “constellation of concepts, values, perceptions and practices shared by a community, which forms a particular vision of reality that is the basis of the way a community organises itself” (Seel, 2000, p 3).

This compelling observation regarding the need for a proper understanding of organizational culture was also made by Parker and Bradley (2000) about the change process that takes place within public organizations. Commenting on public sector reforms implemented in Australia since the 1980s to attain cost-efficiency, budget accountability and improved customer focus, Parker and Bradley (2000) argue that, “These changes have been pursued with a relatively limited empirical understanding of organizational culture in the public sector and are, therefore, potentially lacking insensitivity to the cultural characteristics of public organisations” (Parker and Bradley, 2000, p 125).

By the same token, Parker and Bradley (2000) indicate that “Concern has been raised that the new management techniques will conflict with the attitudes, values and culture within public sector organisations” (p 125). They go further to state that, “There is a further argument that organizational strategies designed to achieve new forms of public management need to be developed with an awareness of existing organisational culture within public sector organisations” (p 125).

The foregoing sentiments have been amplified by Alas and Vadi (2003) when they assessed the impact of task and relationship orientations of organizational culture on the preference for individual and collective learning in groups made up of people with different socio-demographic characters in Estonia. In their study, which was prompted by the merger of six hospitals in Tallinn in 2002 as recommended by Swedish consultants, Alas and Vadi state that there is a mutual relationship between organizational learning and organizational culture. In the same vein, Alas and Vadi indicate that organizational culture plays an important part in bridging the gap between individual and collective learning. They point out, "Cultural change is intimately tied to individual change: without individuals willing to engage in new behaviours, without an alteration of the fundamental goals and values of individuals, change remains superficial and short-term in duration" (Alas and Vadi, 2003, p 86). One of the most important observations made by Alas and Vadi is that organizational culture can be viewed from a "functional perspective as an adaptation mechanism which helps an organization to adapt and survive in a changing environment" (p 86).

It is clear from the foregoing discussion that an improved understanding of organizational culture is important as it provides managers with a platform to explain and assess the appropriateness and outcomes of the strategies embraced to improve organizational performance. Drawing on the work of Bergquist (1993), Alas and Vadi (2003) argue that any effort geared toward changing how people within public organizations perform their duties should be premised on a proper understanding of all the cultural components of the affected people. They aptly stated that "efforts to bring about change in post-modern organizations typically focus on the domains of process and attitude; and attitudes are embedded primarily in culture. So, to change the organization, cultural components should be more fully understood and addressed" (Alas and Vadi, 2003, p 84).

Efforts geared towards enhancing performance and accountability within the public sector can yield the expected positive results if the concept of culture is given the attention that it deserves. This is very important in the sense that Schein (1993) reminds us that culture is nowadays used by organizational researchers and managers "to indicate the climate and practices that organizations develop around their handling of people or to refer to the espoused values and credo of an organization" (p 360). That public organizations exist and operate in environments that change from time to time is not in dispute given the fact that they are in constant competition with others for resources (be they human, financial, or otherwise), power and influence.

### **Management of financial programmes in the public sector**

Public financial management (PFM) concerns the management of money through the entire budget cycle. This includes budget planning and execution, in particular, financial management information systems and medium-term expenditure frameworks (MTEFs), procurement, auditing, and monitoring and evaluation (PEFA Secretariat, 2017).

Parry (2010) has emphasized the need for governments to ensure prudent financial management which has impacts on broad areas such as, aggregate financial management, fiscal sustainability, resource mobilisation and allocation of resources, operational and performance management, value for money and budget management. Furthermore, aspects



such as governance issues cover transparency and accountability and, finally, fiduciary risk management, which has aspects of controls, compliance, and oversight.

Furthermore, Molokwane, (2019) notes that Sub-Saharan African Countries have been diagnosed with weak Financial Management systems and one core problem is the arrears of payments. Thus, the core element of PFM, which is accounting, provides a measurement of the implementation and impact of budget and economic policy.

With regard to the Zambian Scenario, Public Expenditure Management has been noted as an issue that for years needed refinement in the entire budget execution process with the key elements depicted in the Logic table such as (i) Strategic budget (ii) Budget preparation, (iii) Resource Mobilisation, (iv), Internal Control and monitoring, Accounting and Reporting and (vi), External Evaluation (Welham, 2017). Furthermore, the PFM was perceived as the major bottleneck for effective service delivery in the entire Government Service and among the identified shortcomings were the strength of the existing regulations, compliance with the regulations, poor budgetary allocation, not enough links between policy, planning and budgeting implementation(ibid).

As was noted as such, other factors which supported the budget cycle are the contributing factors, such as the i., IFMIS, ii. human Capacity, iii, Organisational Capacity, iv, Laws, Rules and procedures, confounding factors and to it are the outcomes such as (i), Fiscal discipline (, ii), Strategic allocation of resources, and finally operational efficiency (ibid).

### **Status of PFM before reforms**

There was an evaluation of the Zambia Public Financial Management (PFM) system on the basis of several indicators before the current reforms started in Zambia. The following were the major indicators that necessitated the reformation programmes, such as the PSCAP, PEMFAR and others (PEFA Secretariat, 2017). The PEFA assessment framework undertook much of the work to resolve the findings of the gaps.

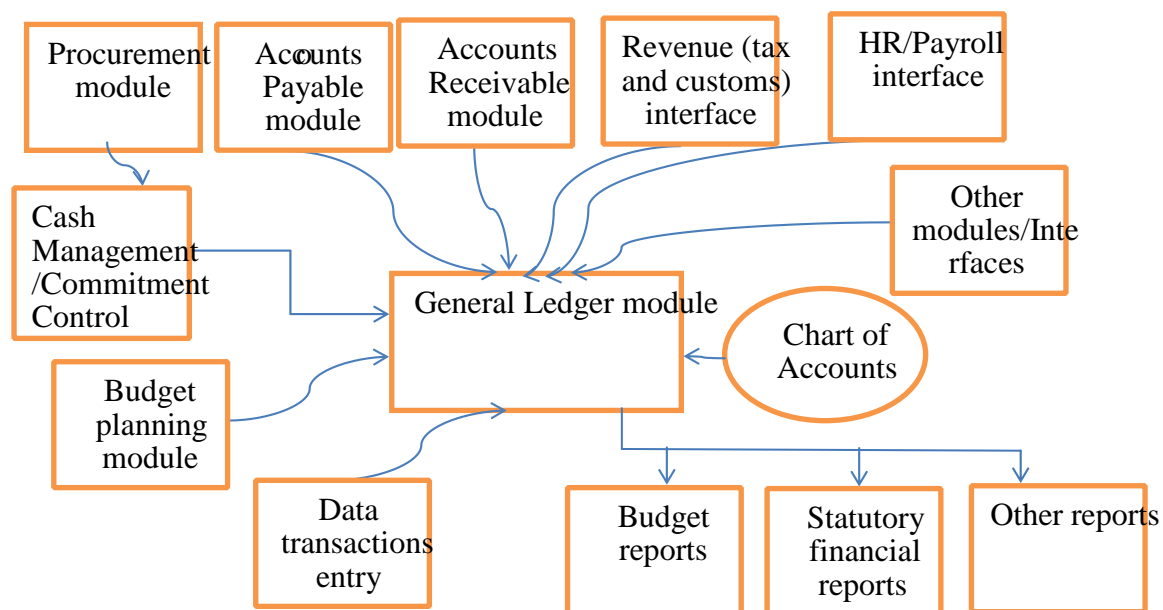
Before the PFM system reforms started, the PFM was challenged by several institutional and capacity issues which were a constraint that undermined the efficient fulfilment of the systems and procedures at the time (PEFA Secretariat, 2017). The following were the itemized issues that needed to be worked on to enhance performance in the Public Sector before the reformation process commenced; Budget Credibility, Budget Transparency, Budget Predictability, Accounting, Recording and Reporting, External Scrutiny and Audit

### **Meaning and benefits of IFMIS**

The financial management information system, or integrated financial management information system (IFMIS), is an information system that tracks financial events and summarizes financial information. 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 (Brown, 2008). The definition as presented by Brown (2008) is important to the current study as it recognises IFMIS as a tool used by government institutions. In the current study, the efficacy of this tool in serving the public has been assessed. Meanwhile, the World Bank (2013) presents a broadly used definition of IFMIS as

a financial set of automation solutions that enable governments to plan, execute and monitor the budget. The definitions as presented by Brown (2008) and the World Bank (2013) contain substantive information informing the nature or meaning of IFMIS in the Zambian context. In the Zambia context, Bwalya (2015) asserts that IFMIS is a tool used by the government in managing financial resources. It is used for planning, as well as public financial expenditure purposes. On the other hand, Hendrix (2012) posits that a well-designed integrated Financial Management Information System (IFMIS) contained the characteristics such as a management tool to provide a wide range of non-Financial and Financial information as it was a system and it impacts on corruption. In the same vein, in her study of IFMIS, Chene (2008) contends that when well implemented, IFMIS would enhance the effectiveness and transparency of public resource management through a computerised budget and accounting system. She further added that integration of IFMIS across the board ensures that all users adhere to common standards, rules and procedures with the view of reducing mismanagement of public resources. The other aspects which Chene (2008) insights on the benefits of IFMIS were that it also enhances confidence and credibility of the budget and Financial Reporting and, not only that, but seeks to strengthen the efficiency of financial controls by making comprehensive, reliable and timely financial information available.

Figure 2.1 an example of the typical model of IFMIS various modules



Source (Brown, 2008:5)

Brown (2008) alluded that IFMIS improvement when fully functional would enhance and improve governance by the provision of real-time financial data and other staff can use it to dispense with programmes effectively, create budgets and manage the funds. Brown (2008) adds that IFMIS could help developing countries gain effective control over their finances and also enhance transparency and accountability, which would serve as a deterrent to corruption and fraudulent activities. On the other hand, Hendrix (2012) regarded the introduction of IFMIS as an organization reform that deeply affected work processes and institutional arrangements governing the management of public finance. He also noted that the sheer size of it and its complexity posed some significant challenges and several risks to

the implementation process that could go beyond the technological risks of failure and deficiencies of the system, and Brown also (2008) conceptualized Integrated Financial Management Information System, which has data that tracks financial activities and summaries and financial data. Brown (2008), in the sphere of government operations, referred IFMIS to as computerization of public financial management processes, from budget preparation, execution to accounting and reporting.

### **Issue in the usage of IFMIS**

Kimwele (2012) laments that it is hard for accountants to focus on one aspect as they have to deal with issues of competing needs. Political Factors facing the implementation of IFMIS in Tanzania as identified by Kimwele (2012) include Information Technology (IT) reforms that are perceived as complex, risky, resource-intensive and requiring major procedural changes, often involving high-level officials lacking incentives for reform. Many IFMIS projects have also failed due to the lack of clarity in ownership of the system and unclear authority to implement it (Kimwele, 2012). Capacity building is a major factor affecting the success of IFMIS implementation, especially in developing countries (Mbaka, 2017). Training is therefore essential to unlocking client readiness and is the best way to ensure the sustainability of a system (World Bank, 2017). The salary structure and terms of employment in the public sector are usually not attractive enough to compete with the private sector and to incentivise candidates with the required IT skills levels (Muwan, 2019). Trained personnel also leave the government service, often for better job opportunities. Diamond and Khemani (2011) argue that low capacity for system implementation at the sub-national level, such as provincial and regional governments, is one of the major factors affecting the implementation of an IFMIS in developing countries. Diamond and Khemani (2011), however, argue that the training will not only include training in the use of the IFMIS for the respective operations and functions, but will also entail training in the new legal and regulatory framework, the new codes and classifications, and the new business procedures put in place. Given the nature of institutions and organizations, capacity building is a never-ending process. It needs to be ongoing and permanent (Brown, 2013).

It demands a commitment to change: change in technology; processes and procedures; as well as changes in skills, responsibilities and behaviours (Rodin- Brown, 2008). Considering the nature and complexity of the project, all participants need to be fully aware of the magnitude of the undertaking. Decision-makers must be convinced that the benefits of an IFMIS exceed the risks, and participating departments must recognize the need for a new system (Chêne, 2009). According to IDB (2019), the commitment of senior managers is one of the most frequently cited factors deciding the success or failure of an information system. Mbaka (2017), however, argues that the Ethiopian case study has proven that what matters most in the process is midlevel management's commitment to reform, as the changes ultimately have to be implemented at this level. The World Bank (2017) reveals that project commitment at the highest levels of the political system, as well as bureaucracy, and continuous participation from the direct users of the system and other stakeholders in all phases of the project, is necessary for success.

Various writers such as Mbaka (2019) as well as IDB (2019) argue that the importance of commitment by politicians and management is vital to ensure the success of the



implementation of an IFMIS. Thus, IDB (2019) posits that ensuring project commitment at the highest levels of the political system and of management and continuous participation from the direct users of the system is necessary for all phases of the project. The introduction of an IFMIS involves more than only the automation of public finance tasks and processes. Rodin- Brown (2018) identifies several institutional issues that should be anticipated and planned. These issues include, amongst others, organizational arrangements and the legal framework. It involves organizational reform, which deeply affects work processes and institutional arrangements governing the management of public finance. Institutional reform is, however, not easily achieved and it takes time, commitment, champions and courage to achieve (International Consortium of Governmental Financial Management, 2008). Indeje and Zheng (2010) contend that the introduction of ICT fundamentally changed the operationalisation of how business is carried out and therefore required people to be careful about how the processes are managed. Equally, (Ali Hashin, 2014) mentioned that aspects that should be seriously looked at were the review, design of the business functionality and processes of the information flow and, if the need arises, redesigning was inevitable. An IFMIS must be underpinned by a coherent legal framework governing the overall public finance system (IDB, 2019). Many IFMIS projects have failed because the basic system functionality was not specified from the onset of the intervention. Mbaka (2019) posts that an IFMIS must be carefully designed to meet the needs and functional requirements, including the accounting and financial management tasks the system should perform.

### **Conceptual framework**

The current study is guided by two (2) theories, such as the Change management theory and Contingency theory (Nivens, 2017) and (Tiessen and Waterhouse, 1983). Having justified certain attributes concerning some theories, the conceptual framework presented in this section links the independent variables to the dependent variables. The dependent variable is the efficacy of IFMIS implementation in the public sector. While the independent variables are;

1. automated system, 2. training style, 3. transparency and accountability 4. internal control environment. 5. Audit Queries

An increase in the level of Audit queries influences the way IFMIS is managed, especially in the reporting system. Responding to audit queries would always undermine the efficiency of the system, whether automated or not.

It has been observed to a larger extent, that the moderating variables have got an effect on the efficiency outcome of IFMIS. The moderating variable determines the implementation of IFMIS largely through the adoption of system automation.

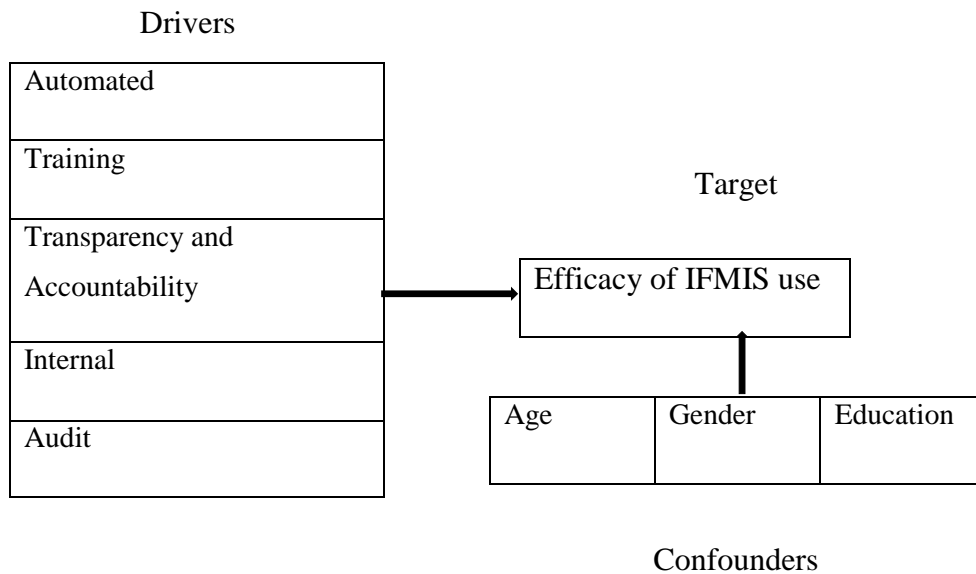


Figure 2.2: Conceptual framework model

Source: Fieldwork

## METHODOLOGY

This study employed a pragmatic worldview, a position that was thought to be well suited to mixed methods research (Creswell and Plano Clark, 2007). The pragmatic approach prescribes that the research question is of primary importance and should drive the research into whatever areas seem most appropriate to answer the question at hand (Creswell and Plano Clark, 2007). The deductive approach or deductive reasoning is widely used once the theory and hypotheses are developed and have to be tested. Bryman (2012) suggests that any researcher using deductive reasoning would have to start with theory and move on to the research question or hypothesis, which is tested through data collection afterwards. The deductive method was appropriate in establishing causal relationships among variables, they were cardinal in generalising the study population.

### Population of interest and Sampling

The target population of this study is 1300 users of IFMIS in the 44 sites where IFMIS is up and running. The population was drawn from these lines by ministries in the Central government of Zambia. The line ministries are those ministries that play an active role in serving the public in terms of the payments system, internal audit processes and procurement of goods and services and use the IFMIS system to undertake the processes. The workers in the Finance Department, Internal Audit Units and Procurement Units in each of the ministries were targeted since they are the users of IFMIS. And these should have been in employment at least 2 years and above and have the age group of at least 18 years and above. The population of interest is those IFMIS users, which include the Accountants, Internal Auditors, Procurement Officers and Human resources managers. The populations of interest further include the other government staff in (Ministries) such as the Directors of finance under the Ministries.

Table 3.1: Sample setting

Cohort	Sample size
1. Ministry of Education with 25 sample users	25
2. Ministry of Finance with 25 sample users	25
3. Ministry of Tourism with 20 with sample users	20
4. Ministry of Higher Education with 20 sample users	20
5. Ministry of Justice with 20 sample users	20
6. Home affairs 20 sample users	20
7. Lusaka Province 20	20
.	
Total	150

Since the population numbers and sample size are not uniform in the respective ministries a stratified method was used. Since the population numbers and sample size are not uniform in the respective ministries, a stratified method was used. Multistage sampling was used stage by stage. First, starting with simple random sampling, it is used to select the individual ministries. Followed by a cluster of cadres according to professions, represented for each selected ministry, selected using stratified sampling method. The researcher obtained the register of all Accountants, Internal Auditors, Procurement officers spread across the public sector. Numbers for sections were assigned to each unit in the population. These enhanced chances of each unit being selected regardless of the ministry being represented. A simple random sampling was thought to be best for this study because all elements would have an equal chance of being considered for the survey. However, since the population numbers and sample size are not uniform in the respective ministries, a stratified method would be ideal in this regard.

### Data Analysis

In determining the causal relationships between variables, the linear regression models were used to fit the assessment of the aggregated influence of the independent variables on the dependent variables. The coefficients and their confidence interval were to be reported as well as p- values. The regression model suggested for the study was presented as follows, as adopted by Gopal (2017) and Saunders et al, (2009).

$$Z = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e$$

Whereas:

**b<sub>0</sub>** is the regression intercept

**z** is the dependent variable (efficacy of IFMIS implementation)

**x<sub>1</sub>** is the automated system

**x<sub>2</sub>** internal control and compliance

**x<sub>3</sub>** audit queries

**x<sub>4</sub>** transparency and accountability in payments, internal Audit and procurement processes.

**x<sub>5</sub>** is training styles

**b<sub>1</sub>** to **b<sub>5</sub>** are the regression coefficients.

**e** is the error term

### Reliability/Normality Test Results

Cronbach's alpha was used in the test for normality. The minimum threshold is 0.70 (Tavakol and Dennick, 2011).

Table 4.1: Reliability test for the variables

Variable	Cronbach's Alpha	Cronbach's Alpha Based on standardized item	No of items
IFMIS efficiency in the public sector expenditure through automated financial systems in Zambia	0.819	0.846	17
IFMIS in Financial Reporting and its contribution to compliance in the Internal Control environment.	0.772	0.847	23
Training style and efficiency in the use of IFMIS	0.747	0.730	9
Attributing audit queries to efficient use of IFMIS in transaction processing.	0.884	0.891	17
Efficacy of IFMIS in Financial management.	0.787	0.819	11

Source: Fieldwork (2020)

Arising from the above results of Cronbach ( $\alpha$ ) done by other scholars, Mulenga (2015) and Bosire (2016), it can be asserted that the items on the questionnaire in the current study are reliable in measuring what it intends to measure. The Shapiro-Wilk and the Kolmogorov-Smirnov tests is used to test normality for a data set containing less than two thousand elements.

Table 4.2: Normality testing results

Variable	Kolmogorov-Smirnov sig	Shapiro-Wilk sig
IFMIS efficiency in the public sector expenditure through automated financial systems in Zambia	0.00	0.00
IFMIS in Financial Reporting and its contribution to compliance in the Internal Control environment.	0.00	0.00
Training style and efficiency in the use of IFMIS	0.00	0.00
Attributing audit queries to efficient use of IFMIS in transaction processing.	0.00	0.00
Efficacy of IFMIS in Financial management.	0.00	0.00

Source: Fieldwork (2020)

#### Hypothesis testing on the moderating variables Results

The hypothesis testing was done on the three moderating variables of the study. The hypothesis of the study was as follows;

RH 1. Gender has no significant influence on the Efficacy implementation of IFMIS.

RH 2. Age has no significant influence on the efficacy implementation of the Implementation of IFMIS.

RH 3 Education has no significant influence on the efficacy implementation of IFMIS.

The results of each hypothesis are presented in this section.

Table 4.3: Independent Samples Test moderating variable 1

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
DV_IFMIS_Efficacy <b>Gender</b>	Equal variances assumed	2.38	.125	.140	124	.889	.0089	.0641	-.1180	.1359
	Equal variances not assumed			.140	123.82	.889	.0089	.0639	-.1176	.1355
DV_IFMIS_Efficacy <b>Work Experience</b>	Equal variances assumed	.222	.640	2.554	46	.014	.26275	.10288	.05565	.46985
	Equal variances not assumed			2.564	45.994	.014	.26275	.10246	.05650	.46900
		Sum of Squares				df	Mean Square	F	Sig.	
Between Groups		.790				4	.197	1.564	.188	
Within Groups		15.277				121	.126			
Total..... <b>Age group</b>		16.066				125				

These results infer age group, work experience and gender have no significant influence on the efficacy of IFMIS.

### Regression Test on Introduction of automation system enhancing Efficacy Financial Management

The test was done at a 95% confidence level with an alpha value ( $\alpha$ ) of 0.05. The R of 0.683 on the model of fit implies that there is a positive relationship between the dependent variable and the use of the automation system in public financial management. The R square from the model summary is 0.466. This result explains 46.8% of the total variation in the model while 53.4% are explained by factors that are catered for in this model.



Table 4.4: Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.683 <sup>a</sup>	.466	.462	.18052

## ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.530	1	3.530	108.332	.000 <sup>a</sup>
	Residual	4.041	124	.033		
	Total	7.571	125			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.577	.100		25.833	.000
	Automation_system_ado ption	.291	.028	.683	10.408	.000
	Training_style	.280	.041	.526	6.888	.000
	Transparency_accountab ility	.157	.090	.155	1.748	.083
	Internal_Control_complia nce	.206	.054	.323	3.797	.000
	Audit_queries	.246	.024	.677	10.232	.000

a. Dependent Variable: Mean\_Efficacy\_of\_IFMIS

The one-way ANOVA table below illustrates if the adoption of IFMIS would increase efficiency in public management of finance. Table 4.4 below illustrates the findings. The coefficients of the regression test are shown in table 4.4. The simple linear regression equation was given as follows;

$$Y = 2.577 + 0.291(\text{Automation system adoption}) + 0.280(\text{Training Styles}) + 0.206$$

$$(\text{Internal Control compliance}) + 0.246(\text{Audit queries})$$

Transparency and accountability in payments, internal audit and procurement processes is insignificant and dropped from the equation. The results imply that the transparency and accountability has not significantly improved the efficacy of IFMIS.

## DISCUSSIONS CONCLUSIONS AND RECOMMENDATIONS

The results from the quantitative approach revealed the following findings;

- IFMIS is regularly stable and reliable for public financial management.
- All the activities are run through an automation system. IFMIS was user-friendly.

The results implied that automation adoption in the public sector had improved efficacy in financial management. From the findings, IFMIS was found to be effective on the performance of the public sector, in both quantitative analysis and regression analysis. This agrees with the IMF's (2015) findings on the use of IFMIS in public finance management. The study found that financial reporting had improved due to the use of IFMIS. This also agrees with World Bank (2016) and Otieno, et. al, (2017) that reporting systems have been improved by the use of a single reliable platform for financial reporting summary since IFMIS tracks financial events and summarize reports effectively. The findings in the current study are not consistent with those revealed in Malawi by Laizer and Suomi (2017), whose study revealed that IFMIS was not reliable in financial management in the local government. In Tanzania, Laizer and Suomi (2017) revealed that both the use of the manual and automation systems were attributed to major factors that led to the ineffectiveness of IFMIS implementation. Contrary to the study on Malawi, the findings in the current study reveal that IFMIS is stable and the users have adopted automation system fully in public.

➤ Studies by Maina (2015) have clearly shown how the adoption of the automated system has improved financial management in the public. Thus, the finding of the current study reaffirms the assertion made by Mbaka that IFMIS is key in financial management as it improves efficacy, informs transparency and reduces corruption. The current finds further confirm Welham's (2019) observation that there is a weak adherence to the automation system by most users of IFMIS in Africa, which leads to impropriety and mismanagement of finance. Indeed, IFMIS is an integral tool for improving the management of public finance. Nevertheless, incorporation of the manual process is equally important. The manual process can be done before transferring all the planned automation systems. This is to improve efficiency as suggested by the respondents.

### **The use of IFMIS in Financial Reporting and its contribution**

There was a consensus among all the respondents derived from the survey that IFMIS had improved financial reporting and contributed to compliance in the internal control environment. The results in the current study show that IFMIS:

- is highly reliable to manage the accounts payables and accounts receivables modules process.

One area which was found to be wanting in the auditor general's report was that of management accounts payables and receivables modules (Auditor-General report, 2018).

- The effective management of the receivable modules and accounts payables is anchored on rigorous adherence to the control environment.

In contrary to the current study, findings in Nigeria by Okerekeoti and Okoye, (2017) and Mosee (2018) all point to non-adherence to the internal control environment that has led to poor management of the account's payables and receivable modules. In line with the study by

Okerekeoti and Okoye, (2017), the results in the current study show that just like Treasures' Single Accounts, IFMIS is an effective platform for bringing all the financial transactions to one forum. Okerekeoti and Okoye (2017) reveal that it is best achieved when there is strict adherence to the internal controls. The results in the current study:

- Revealed that IFMIS, like TSA, is highly reliable for managing the accounts payable and accounts receivables modules process. It is in the same vein that IFMIS has led to the improved budgeting process. One of the main advantages of IFMIS, like TSA, is its good adherence to the internal control environment, and funds are well accounted.
- IFMIS has enhanced the consolidation in financial transactions.
- IFMIS has enhanced controls at each level, such there was strict authorisation expenditure and authorisations of transactions are done by the supervisors.
- The results further revealed that the use of IFMIS in financial management strongly supports the cash management policy.
- The results further showed that the organisation is comfortable and committed to the implementation process of IFMIS.

The implication of the foregoing assertion is that the roles assigned to each individual using IFMIS are key, as every person has a limited function in the module. Thus, the study does not conform to the findings in Malawi presented by Laizer and Suomi (2017) that the IFMIS installed in the local government had several administrators. Having several administrators manning IFMIS is a risk as some illegal payments or operations may be conducted. Thus, increasing adherence to internal controls is dependent on the number of segregated roles for each user. Regarding segregation of duties such as entry, approval levels and authorization was a major security boost. These features were noted by Hendriks, (2012), who indicated that IFMIS had specifically embedded internal controls including segregation of duties and access controls such as passwords and user names, with the intent of curbing fraud and increasing efficiency and effectiveness in the supply chain.

Thus, arising from the findings emerging from the quantitative approach as shown thereon, IFMISs have improved adherence to the internal environment. However, the R reading of 0.323 as shown on the model of fit on table 4.22 in the model summary implies that there is a weak positive correlation between the independent variable, which is the compliance and internal control, and the dependent variable; efficacy. This shows that compliance in the internal control environment explained about 10.4% of the impact on the efficacy of IFMIS whilst 89.6 % was explained by other factors. This gave the impetus to ask the financial managing directors about the extent to which adherence to the internal control environment is present in the public sector. IFMIS,

In addition to the foregoing discussion, the finding conforms to the findings by Hendriks, (2012) who alluded that some controls such as different levels of authority and approval and control of the flow of information were meant to make supply chain operations effective and efficient on the IFMIS module. The study noted that internal controls in IFMIS monitored the procurement process, which made users more vigilant when doing procurement-related activities. The system also provided audit trails and trackers to track all the activities happening within the system. A similar assertion was made by Laizer and Suomi (2017) who

argued that IFMIS would provide and support audit by providing the required audit trail. In general, internal controls in IFMIS promote accountability among the supply chain staff and stakeholders.

However, despite the positive implications of the system, the study found that the system could not adequately detect or report fraud. Similar perceptions were expressed by Kahari Gathogo and Wanyoike (2015), who said that reports indicate high corruption levels in the counties, high levels of manipulation of systems, fraud and inefficiencies in counties. A regression test done on the effect of internal control on the effectiveness of the supply chain indicated that there existed a significant statistical effect of internal control on the effectiveness of the supply chain processes. This aspect was also significant when combined with other aspects of IFMIS, implying that internal controls had a significant influence on the supply chain processes. Ayagre, Appiah-Gyamrah and Nartey (2014) held that internal control systems represented all the approved policies and procedures which the top leadership used to achieve effective management of business.

It was further emphasised by most respondents that performance auditing, as well as transaction auditing, should be implemented in most departments to identify the gaps with regards to adhering to the internal control environment. The ethical issues raised by the respondents in the current study are consistent with the finding by Mbaka (2017) that lack of adherence to internal controls for the environment, which manifested through the lack of commitment to ethical standards, has a negative effect on the procurement systems. Mbaka (2017) and Wilham (2019) confirmed the findings of the current study when they made an assertion that commitment to change requires observation of ethical issues and adhering to internal control, which has not been the case in most African nations. Wilham (2019) further adds that weak political will contributes greatly to non-adherence to the internal control environment.

#### **Attributing audit queries to ineffective use of IFMIS in transaction processing.**

Since the introduction of IFMIS in the public sector, there has been a rise in audit queries. The third objective of the study attempted to examine if the audit queries could be attributed to ineffective use of IFMIS in transaction processing.

The findings in the current study revealed that:

- Failure to abide by system rules is what brings about audit queries. The respondent was cognizant of the fact that IFMIS provides auditable authentic financial statements though their failure to abide by the system rules is what brings about the audit queries.
- The result emerging from the interview schedule shows that poor communication between the auditing office and the financial department.
- The results revealed that auditors must come into an audit when it is almost time to close the financial year.
- Enough time for all the outstanding issues can be attended to earlier before the auditors can issue their queries.
- IFMIS is not user-friendly to some of the users. The foregoing assertion confirms the findings emerging from the survey that the failure to abide by the IFMIS procedures is what brings about audit queries. Failure to abide by the IFMIS procedures can be a product of the

unwillingness of the participants to use IFMIS or they could not be very conversant with the transactional processes on the IFMIS. Respondents perceiving IFMIS as not user-friendly is the excuse for the use of the manual process.

➤ There was a consensus among the participants interviewed that the users of IFMIS in the Lower management should be actively engaged to ensure efficiency in the management of finance.

The findings in the current study are consistent with the findings of Mbaka (2017), who revealed that audit queries in procurement are common. Mbaka (2017) attributed the more queries in the procurement system to IFMIS being prone to more users who could be unauthorised or have intentions of doing defrauding transactions on the system. Regarding strict adherence to the internal control environment, supervision of IFMIS users as revealed in the study, the findings in the current study conform to Okerekeoti and Okoye, (2017) who argued for IFMIS to be effective as attached to the Treasure Single Account, it required automating all repetitive operations in organisation, embedding authorizations, checks and controls. However, the users of the system as well as the key informants had mixed views on its security levels. Some key informants as well as the users indicated that information stored in IFMIS could be corrupted or could get lost. This resonates with the views of the World Bank (2017) as well as Hashim and Piatti (2018), who cited that IFMIS projects did not provide the expected results in developing countries, as institutional, political, technical and operational challenges affect its successful implementation.

Arising from the above findings, audit queries cannot necessarily be attributed to the use of IFMIS. It is due to some user's perceptions that IFMIS is not user-friendly. Changing the perception that IFMIS is user-friendly and can be taught to any age group is integral. By clarifying such misconception, it would facilitate the adoption process of IFMIS in the public sector as well as adherence to internal controls.

### **IFMIS implementation enhancing transparency, accountability and efficiency in the procurement system**

The next aim of the study attempts to examine if IFMIS implementation in the public sector has had enhanced transparency, accountability and efficiency in the procurement system. The procurement aspect is an area where there are more audit queries than any other.

➤ The results revealed that most of the transactions are done on IFIMS. However, it must be stated that there was a considerable number of the participants indicated disagreement, implying that some procurement transactions are not done on IFMIS.

➤ The results further revealed that there were no strict corruption regimes in the organisation where IFMIS was installed in the public sector. Considering that the procurement system is prone to corruption, a no-to-corruption regime is important to adhere to good procurement practices (Mbaka, 2017).

➤ The respondent indicated that each user has their password which they use to login. That gives the procurement officers more personalised security when handling IFMIS.

➤ The results further revealed that IFMIS has enhanced supplier performance and delivery of goods and services at the right time.



The results imply that IFMIS has improved the supply chain as there has been no delay in the process of payments and procurement of items. Mbaka (2017) asserts that IFMIS has improved the performance of the supply chain in Kenya. Thus, the results of the current study are consistent with the findings as presented by Mbaka (2017). The results further revealed that the IFMIS has had improved transparency in the procurement and payment system. With regards to corruption, there was a consensus among the respondents that the IFMIS had reduced corruption. This implies that IFMIS has attained its objectives of reducing corruption in public management.

Arising from the discussion on the findings as presented above, it can be observed that the findings are in tandem with those of Lunda and Shale (2015) and Mbaka (2017) when they asserted that electronic transactions are key in achieving a quality supply chain, unlike using the manual processes which had the challenges whereby prices were exaggerated from the actual normal. The findings in the current study are not consistent with the findings revealed by Mamuwena (2019) whose study on IFMIS' efficacy in improving transparency and accountability in the procurement system of the Public Sector was that IFMIS had not meant its objective of enhancing transparency. In the current study, the findings point out that the use of IFMIS has brought about transparency in the management of finance in the public sector.

The implications of the results in the current study are that if the controlling officers continue to bypass the system by transacting manually, audit queries will continue in the procurement systems and IFMIS will be seen as if it is irrelevant in public financial management. The onus is on the controlling officers to ensure that all that is budgeted for is transacted on IFMIS.

### **Relationship between training style and efficiency in the use of IFMIS**

Training is integral for effective change management in the organisation. IFMIS, as a new project implemented in the public sector, requires that the users are adequately trained. It is expected that the more knowledgeable the user of IFMIS, the more they are likely to be more conversant with IFMIS, which would subsequently lead to the efficacy of IFMIS.

The findings emerging from the survey revealed that the:

- Users of IFMIS are well trained and knowledgeable. Management of the public sector has taken measures to develop the requisite skills and capacity.
- This training was done through in-service training organised by the Ministry of Finance.

The findings confirm the assertion made by Mbaka (2017) that effective running of IFMIS requires that the users are well trained and subjected to continuous professional development. However, the respondents retaliated to Welham's (2019) assertion of the need for universities and learning institutions to introduce some IFMIS training courses.

The respondents engaged in the interview schedule expounded on the quantitative findings that;

- Introducing an IFMIS tailored curriculum in learning institutions would bring about trained accountants who are competent in the use of IFMIS.

➤ Talking of in-service training such as a workshop, it must be mentioned that a significant number of the participants indicated that they did not attend workshops. The results imply that though the user is trained in the use of IFMIS, a significant number of them are not engaged. The lack of training through the workshop is likely to result in poor handling of IFMIS in the public sector.

Arising from the above discussions, training is important if the purpose of IFMIS is to be achieved. The trained personnel are key in the operational and maintenance of IFMIS. CPD must be implemented inequitably and fairly whereby all the IFMIS users have equal chances of being selected, unlike selecting a few. The implications of selecting a few staff to be trained to leave a gap in terms of implementing IFMIS adequately. Incorporating the training of IFMIS users in the accounting curriculum in higher learning institutions would enhance the skills of IFMIS users. It must be mentioned that in countries like Brazil and USA that have incorporated IFMIS and web IFMIS respectively, the goals of IFMIS have been adequately achieved (Hashim and Piatti 2018). From the findings of the current study, the inadequate training of IFMIS users impedes effective implementation of the system. Training the users of IFMIS by aligning them to the tasks available on the system is imperative. The accountant training curriculum in Zambia has no some sort of IFMIS training to equip graduates with some skills in operating IFMIS. Having readily trained accountants on the use of IFMIS is advantageous to the government as they will not be able to spend much on CPD. Thus, it can be concluded that the lack of pieces of training offered on IFMIS training may lead to unreliability, inaccuracy and irrelevant financial reporting.

### Conclusions and comments on the implication of findings

As a reminder to the readers, this study looked at the effectiveness of IFMIS in financial management in the public sector. The problem that was identified for investigation in this study was that there have been reports of financial misappropriation and misapplication in the public sector despite implementing IFMIS, a tool for use in public financial accounting. Several conclusions are emerging from this survey. The summary of the main findings is presented here below as guided by the research questions.

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