EFFECTIVENESS OF SAP PFMS AS BUDGETING TOOL IN PUBLIC PROCUREMENT:

CASE OF MINISTRY OF FINANCE AND ECONOMIC DEVELOPMENT

BY

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SUPERVISOR:

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE BACHELOR OF COMMERCE (HONOURS) DEGREE IN PURCHASING AND SUPPLY

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DEDICATION

I dedicate this report to my family and friends because they have borne of my commitment, involvement and preoccupation during my studies. I have been blessed by their unwavering support. I would like to say your love is worth mentioning but indescribable. May God supply all your needs to his Glory and riches.
ABSTRACT

The research study sought to identify the effectiveness of SAP system as a budgeting tool in public procurement. The study identified the usefulness of the system in controlling public spending through procurement highlighting how the system has to be implemented and used to ensure its effectiveness and efficiency. The study used a descriptive research design on a population of 150 and a sample size of 108 using the Krejice and Morgan Matrix, the respondents were taken only from procurement, administration, technical and accounting department using purposive sampling technique to gather required data. Data was gathered by questionnaires and interview guide and it was then analysed using excels software and results were presented using tables, pie charts and graphs. The research found that the key challenges in the use of SAP system in the purchasing functions were lack of requisite knowledge to fully utilise all modules offered by the system. The research recommends extensive training, development of SAP consultants and infrastructure as well as ensuring of success factors of the system by Government to safeguard the system compatibility.
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CHAPTER I

INTRODUCTION

1.0 Introduction

The focus of this research study looks at the background to the statement of the problem and the research objectives. The significance of the study is highlighted. This chapter also looks at the limitations, delimitations and definition of terms to the study.

1.1 Background of the study

The government of Zimbabwe (GOZ) has since 1980 been operating a manual system of accounting which was managed by ministry of Finance and Economic Development (MOFED) under the Accountant General’s Department (AGD) as affirmed by Chambati (1995). The manual system has been dogged by numerous problems such as failing to submit reports in time, over expenditure and financial related frauds emanating from both procurement and accounting departments.

In October 1999, the GOZ adopted a strategic management computerized accounting system called Public Finance Management System (PFMS) to ensure that all financial matters of the republic of Zimbabwe are carried out effectively and efficiently all the time. The PFMS is a financial management system that uses Information Computer Technology (ICT) in an innovative way to manage public finances in collecting revenue, purchasing and payment of services rendered to the GOZ. It runs on the state-of-art software known as System Applications Products (SAP). The government was facing difficulties in controlling revenues, managing expenditure and timely payment for services and goods procured in all its ministries.

The major driving force was the need for an integrated computerized accounting and financial management system that is efficient, effective, and easy to use and provides policy makers with quality information to make timely economic decisions when doing procurement. This led to a decision to replace the now defunct Central
Payments Office (CPO) and manual based systems with the state-of-the-art accounting information technology System, which uses the SAP software.

SAP PFMS has assisted MOFED to have access to all the line ministries’ financial information, and be able to control, monitor and supervise procurement of goods and services and account for donated products. This has been achieved by centralized control of budget target releases whilst processing of individual line ministries revenues and expenditures that have been decentralised and currently extended to the provincial headquarters of all ministries. The government of Zimbabwe has plans in place to extend system to districts (MOFED, 2018). It also emphasises that, by 2020, the Transitional Stabilisation Programme (TSP) will priorities strengthening of PFMS under the World Bank managed Zimbabwe reconstruction fund and to roll out the system to cover all the districts.

1.2 Statement of the problem

The ministry is faced with a problem of mismanagement and failure to account for public funds resulting in overspending through procurement. This problem is also highlighted by the Treasury Circular No.5 of 2001 refl/27/10 on mismanagement and failure to account for public funds. The 2008 budget statement and the audit reports on the state of finances in the various stations have highlighted the following as some of the causes of this malpractice; committing and transacting payments outside the system that resulted in unaudited expenditures making it difficult to manage cash flow requirements and budget in general, mis-posting which occurs when the procurement consultants enter the wrong vendor number, use money from wrong General Ledger account (GL), transactions not supported by vouchers, use of cash at hand instead of cheques or funds transfer, incomplete records that is, no entries in the PFMS or cashbook, no procurement meetings, non-compliance with annual financial systems requirements or plan and buying of goods and services on credit before regularising the public procurement procedures as postulated by Mumbengegwi (2008).
1.3 Research objectives

- To evaluate the suitability of SAP PFMS as a budgetary control measure in public procurement
- To investigate the efficiency and effectiveness of SAP PFMS utilization in public procurement
- To establish the compatibility of the system with security support mechanisms and measures used by the GOZ to control fraudulent activities in procurement.
- To assess the government’s ability and capability in controlling and monitoring public procurement.

1.4 Research questions

- How suitable is SAP PFMS as a budgetary control measure in public procurement?
- How effective is the implementation and use of SAP PFMS in procurement functions in the GOZ?
- How effective and efficiency is the utilization of SAP PFMS in public procurement?
- What are the standards operating procedures in place to support the system?
- Is there any system review done in order to reduce fraud in public procurement?

1.5 Assumption of the study

Key assumptions to this research are that:

- The administration, procurement, technical and accounting department cooperated, thus providing adequate information to the research.
- The research methods used were ethical.
- Some information was regarded as confidential; hence, the researcher was not in a position to report on matters that might be viewed as compromising the Official Secrecy Act.
- The research environment remains constant.
1.6 Study delimitation

The study will be mainly concentrated to MOFED. The research project is being done as from July 2018 to April 2019 and it is focused on procurement, administration, technical and accounting department.

1.7 Study limitation

The researcher was constrained by financial and time restraints and opted to use emails and phone calls in communication to counter the above limitations.

Some of the information in government is confidential therefore there was restrictive and limited access to information. The researcher seeks the authority from the management to access confidential information of the ministry.

1.8 Definition of key terms

SAP – This stands for System Applications Products which is a business software package designed in a way that it integrates business processes as affirmed by Al-Mashari (2006). The system also provides end to end solutions of manufacturing, logistics, distribution and financials. All business processes is executed in one system and it shares the common information with everyone.

PFMS-these are activities that relate to financial resources that are available to the government to results: allocation of funds, accounting and reporting, cash flow management, asset management, debt management, internal controls, procurement and financial statements as postulated by Dull (2012).

Budget- A budget is an estimation of the revenue and expenses over a specified period of time and is compiled and re-evaluated on a periodic basis. A balanced budget means that revenues are expected to be equal to expenses, a surplus budget means profits are anticipated and lastly a deficit budget means expenses exceed revenue.
Treasury Circulars—these are written internal authoritative communication documents issued by MOFED (Zim Treasury) for the financial control, administration and effective way of ensuring continuity to achieve the missions of line ministries.

Treasury—Ministry of Finance and Economic Development

Materials Management— A handbook that contains the rules and regulations and procedures of how to deal with procurement of goods and services.

Accounting Officer— Permanent Secretary of the Ministry.

Vendor—Supplier

1.9 Abbreviations

PFM—Public Financial Management

PFMS—Public Finance Management System

SAP—System Applications Products

ERP—Enterprise resource Planning

ICT—Information Computer Technology

RBZ—Reserve Bank of Zimbabwe

AGD—Accountant General Department

CPO—Central Payments Office

GOZ—Government of Zimbabwe

MOFED—Ministry of Finance and Economic Development

TSP—Transitional Stabilization Program

GL—General Ledger

SCM—Supply Chain Management

SrM—Supplier relationship Management

CrM—Customer relationship Management
1.10 Significance of the study

To the ministry of finance

The research assists the organization in realizing and highlighting the areas that need to be improved in the use of PFMS and whether there is need to upgrade its current system through the recommendations given at the end of this research.

Line ministries

Other government ministries will also benefit from this research since it highlights the problems encountered in using PFMS and their counter solutions. This will make them to be accountable for all their procurement and payment processes.

To the government of Zimbabwe

This research is of paramount important to the GOZ as a whole, it will be used as a bases for evaluating the implementation, effectiveness of PFMS and making informed decisions on strategies and policies to be implemented so as to control overspending through procurement.

Reserve Bank of Zimbabwe

The rBZ will benefit by knowing how the Public Funds are being utilised by the Government in a sustainable manner. This will help them in formulation of policies and controlling of money which avoid problems such as bank overdraft.

To the university

The college from which this researcher comes from will also benefit from this study as it is going to be archived at the college for the benefit of the future generation. This
research project will be used as the basis for literature review for anyone who wishes to carry out further research or any other research related to the subject in question.

To the student

The research is carried out in partial fulfilment of the Bachelor of Commerce Honours Degree in Purchasing and Supply. The researcher benefited from widening her knowledge on computer packages making her marketable in both private and public sector.

1.11 Research outline

The research is made up of five major chapters and it is organised in the following manner;

Chapter one-it comprises of the background of study which is SAP PFMS. A brief account of the manual system of purchasing and payment before the adoption of the PFMS system. The problem statement is clearly spelt out in this chapter. research objectives, questions, assumptions, study limitations and delimitations, definition of key terms and abbreviations, significance of the study as well as the chapter summary are also explored in that order.

Chapter two- this is the literature review which has a conceptual theoretical aspect of SAP in public procurement.

Chapter three- contains the research methodology in which data collection and presentation procedures were examined.

Chapter four- the presentation and analysis of the data gathered and captured from respondents is presented in this chapter.

Chapter five- this chapter finally presents the conclusions drawn from the research and numerates the recommendations for an improved and efficient PFMS in the Public sector.
1.12 Chapter summary

This chapter laid the foundation for the whole research, giving the background of the study to give the reader a brief knowledge of the area to be studied, statement of the problem, objectives of the study, research questions and the statement of proposition. It also sighted the limitations of carrying out effective research and the delimitations of the study as well as the definition of key terms used in the research paper. The following chapter is the literature review which focuses on the theoretical and conceptual appreciation of relevant literature in implementation and use of PFMS as a budgeting tool in procurement.
CHAPTER II

LITERATURE REVIEW

2.0 Introduction

The previous chapter covered the background of the study, statement of the problem, research questions and objectives, assumptions and delimitations, limitations and definition of terms. The present chapter present the theoretical and conceptual framework that informs the study as well as the empirical findings, gap analysis and the chapter summary.
2.1 Theoretical review

This research is grounded on the model called, ‘mySAP Business Suite’ which was postulated by Dull et al (2012).

MySAP Business Suite model


Figure 2.1 MySAP Business Suite model

According to Dull et al (2012), the SAP ERP is a software package that is used for the core systems necessary to support enterprise systems. The author postulated a model called mySAP Business Suite which comprises of eight SAP modules and the SAP NetWeaver which is a supporting platform of capabilities constructed from a number of SAP products that work together for the system to function effectively.
2.1 **SAP system in procurement function**

SAP is one of the top ERP software packages available for data processing. The system aims at efficiency and measures to the bottom line of fundamental, mid-size and today smaller firms by redefining how business should be done (Laundon, 2003). SAP materials management package system was adopted by ministry of finance in-order to support the procedures and optimise the procurement process as explained by Hall (2013). The capabilities of this package that is required for procurement and inventory management which includes:

- Allocations of tasks to requirements for procurement offices
- Procurement process management
- Contract management (Contract duration and payments)
- Vendor management
- Inventory management (Units of stock available, types of stock available, replenishment required)

Currently, MOFED is using SAP for procurement and inventory management as it is a core financial system.

2.2 **SAP System in controlling public spending through procurement**

Dull et al (2012) portrays the procurement departments as hybrid, meaning that they have segments of both centralisation and decentralisation. Goods such as furniture, stationery, machines and printers can be procured across all divisions on national level with a national contract. Strategic commodities however are bought on departmental level as required by each division, thus making it decentralised as alluded by Eskom module (number 21188). These are items such as, transformers, poles, cables and conductors that are used for individual projects. Dull et al (2012) and Oliver (2006) highlighted the services provided by procurement which are to:

- Determine the exact requirements of the organisation in terms of the most economic qualities and quantities
- Continuously searching for and locating suitable suppliers
- Placing orders and providing an expediting function to ensure on-time delivery
- Negotiating with suppliers, as well as selecting and evaluating them in terms of reasonable process and other relevant conditions
- Conducting purchasing research in order to improve purchasing efficiency

Oliver (2006) postulated that, the procurement process further extends to vendor management and selection, tendering and awarding of contracts. The upper outer part of mySAP Business Suite model above highlighted four SAP modules which are directly linked to supply chain management which are Supplier relationship Management (SRM), Product Life Cycle Management (PLM), Supply Chain Management (SCM) and Customer relationship Management (CRM) that an organisation should adopt to extent the core system’s functionality as alluded by Dull et al (2012).

According to Dull et al (2012), the adoption of all ERP vendors on SAP package enhances the suitability of SAP system as a budgetary control measure and its effectiveness and efficiency in procurement. This is because the model postulates the modules which has a fundamental role in procurement which are SCM, SRM, PLM and SCM and they are used by procurement consultants enabling the procurement function to have a budget constrain which control them in utilising government funds. The model depicts the integration in the SAP system which is also supported by Hurt (2011) who highlighted that the processes and systems in the organisation are interrelated and highly independent on one another.

2.2.1 Supply Chain Management

This module aid the procurement department in planning and execution of the steps in organisation’s supply chain which includes demand planning, acquiring inventory and distribution of products. According to World Bank (2017), procurement plans are done in accordance with the budget allocation to the products that need to be procured by the entity. The planning process involves an analysis of the Total Cost of Ownership (TCO) which involves acquiring, transporting, maintenance and disposal cost as alluded by CIPS (2011). This is monitored by SCM module which aids
efficiency and effectiveness in coordinating procurement arrangements across the supply chain of the company.

2.2.2 SAP system in monitoring and controlling purchases of products and inventory management

According to Whittington et al (2012), inventory is kept at warehouses to balance supply and demand of products required for projects. SCM assists with the scheduling of material and is done at the logistics department. Starlin (2011) affirmed that, a requirement is sent to logistics department where the material will be checked at the warehouse. If this material is not available, Material resource Planning (MRP) will be used to balance demand against supply amongst all the warehouses. A copy of a summary of outstanding material that has to be checked and balanced on a daily basis by a demand side scheduler is sent to procurement function. This is the stock that is required for projects but is not yet available at the warehouse. The material will be transferred on the system and then transported to the warehouse or location where it is required. At each warehouse, there is a receiving area where the incoming material from suppliers is packed into the warehouse. This material will be stored until it is fetched by the contractors or owners of the project as postulated by Terry (1996). The store-man will then pick it from where it is stored and place it at the dispatch area, where it awaits the contractor to fetch it.

2.2.3 Supplier relationship Management

According to Dull (2012), SrM manages the interactions of the organisation with its suppliers. This includes procurement and contract management. Its goal is to reduce production cost and enhancing quality products and service as alluded by Oakland et al (1995). Hence, the adoption of SRM module of SAP system can aid the efficiency and effectiveness of PFMS utilisation in procurement.

2.2.4 Customer relationship Management

CrM as a module in the mySAP Business Suite model builds and maintain the organisation’s client-related database. The data is however collected from user/customer interactions and it will be aggregated, managed and coordinated across the entire organisation to support the identification, acquisition and retention of users. This ensures satisfaction of the organisational internal clients (users).
2.2.5 Customer Self-service

This is an extension of CRM which allows the organisation’s product users to complete an enquiry, perform task and troubleshoot problems without the aid of the goods issue (administration) department as alluded by Hurt (2011). This module allows the users to check the status of their orders and review inventory availability without referring to the procurement department.

2.3 SAP NetWeaver

Quarter part of the mySAP Business Suite model above comprises of the SAP NetWeaver which is a SAP proprietary platform that supports all SAP applications. This concurred by Dull (2012) who highlighted that, the SAP NetWeaver is the underlying of all SAP modules. It supports new cross-functional business processes and helps to lower the organisation’s total cost of ownership by reducing the need for custom integration and by offering complete life cycle management for the solution. It integrates every SAP analytics tool making the data from all the SAP modules accessible to the users. This was supported by Hall (2013) who postulated that, the SAP NetWeaver is the foundation for enterprise service architecture, the SAP blueprint for service oriented business solutions, and helps align people, information and business process across organisational and technological boundaries.

2.3.1 People integration

The model depicts the integration of people within the organisation. This is done through the use of portals where business communication can be done irrespective of the location of employees. Such platform allows people to do business in the comfort of their homes as long as they have internet access as alluded by Oakland et al (1995).

2.3.2 Application Platform

According to Dull et al (2012), the application platform gives users access on a single screen user interface to software and data that they need for day to day operations for example, email, calendar, an internet and the intra-net. This eases procurement arrangements thereby enhancing efficiency and effectiveness in purchasing planning and arrangements as alluded by Murphy et al (1993).
2.3.3 **Information Integration**

Business intelligence integrates information from various processes and sources within and across the supply chain. It comprises of master data, management which provides consistency and standardisation of data within and across applications systems. Hall (2013) highlighted that, consistency and standardisation of data leads to transparency which eliminates fraudulent activities which normally emanate from the procurement department thereby promoting effectiveness on the utilisation of public resources.

2.3.4 **Process Integration**

This explains the exchange infrastructure that is the integration broker and business process management which allows the different applications within the organisation and across the supply chain to communicate by sending and receiving messages for example. According to Murphy et al (1993), the business process management component will also allow the system to monitor a complex series of events and react to them automatically. This module allows the system to act as a control mechanism by automatically monitoring the communication process evidenced by giving the feedbacks which are not controlled by humans. Hunger (2003) highlighted that, limiting human hand in business communication reduces fraudulent activities thereby increasing the effectiveness of the system in utilising government resources due to reduction or elimination of wastages which are subject to human errors such as quoting wrong prices and giving wrong updates when doing cargo tracking as an example.

2.4 **Other capabilities of SAP system**

The middle part of mySAP Business Suit model above presents the last four SAP angels which are; mySAP financial, corporate services, operations and human resources and like other modules, they both need to be powered by the SAP NetWeaver platform that enable change.
2.4.1 Financials solutions

MySAP ERP financials solutions according to Hall (2013) provides a complete platform for effective financial management. The solution is an essential building block of the enterprise software business strategy by providing a solid foundation to expand business, gain insight into every aspect of the enterprise and ensure transparent accounting and financial reporting.

2.4.2 Human resources

The aim of mySAP human resources implementation according to the corporate Common Template in all the group’s units is to enable a homogenous human resources policy and creating critical reports on request. This helps in unifying the management rules of personnel and payroll data and recording to standards required for the entire corporation as affirmed by Oliver (2006).

2.4.3 Corporate services

Corporate services allows the organisation to manage the real estate, enterprise assets, project portfolios, corporate travel, environment, health, and safety compliance, quality, and global trade services more effectively. Al-Mashari (2006) alluded that, it supports the administration of commercial and residential real estate enabling automation and process control, supports preventive and predictive maintenance cost budgeting, provide a flexible and comprehensive solution for managing a portfolio of projects, reduce travel administration processes, enables unifying approach to total quality management and finally can secure your global supply chain, connect and communicate with government systems.

2.4.4 Operations

ERP logistics Operations covers supply chain execution and logistics functionalities. It includes the supply chain execution applications related to SAP SCM as well as core ErP modules like material management and sales and distribution. This caters for both inbound and out bound logistics of products and services.

2.5.1 Sales force automation

According to Oliver (2006), sales force automation automates order processing, contract management, inventory monitoring, order tracking and employee
performance evaluation. This ensures sending and receiving of electronic documents. This includes business documents in procurement such as request for quotations, invoices and delivery notes.

2.5.2 SAP system and fraud in procurement

The author Sharma (1999) highlighted that, the PFMS SAP system is compatible to be a security support mechanism in controlling fraud in procurement. This is because SAP system maximises electronic transfer of information thereby minimising physical contact of people. This is supported by Oliver (2006) who postulates that, documents can be transmitted electronically using Electronic Data Interchange (EDI) or the Extensive Business reporting Language (XBRL). According to Oliver (2006), elimination of manual work in allocating government resources reduces the rate of fraudulent activities.

Hall (2013) alluded that, the SAP system is structured in a way that fraudulent activities will collide between two or more individuals with compatible responsibilities since no individual has the sufficient to access the accounting records to perpetrate fraud in another consultants’ profile. The thought of approaching another consultant with a proposal of colliding in fraud presents a psychological barrier due to fear of rejection and disciplinary actions against solicitations of this sort.

2.5.3 Segregation of duties

Dull et al (2012) believes that holding buyers and accountants accountable for their actions yields a better result in eliminating fraud, creation of six different SAP profiles made each consultant to be answerable for any transaction in one’s profile. The use of profiles stresses the issue of security and privacy which is explained by Hall (2013), where he explains that, security systems attempt to prevent fraud and other misuse of computer systems and that consultants desires to be in full control of what and how much information is available to others and to whom it is available at a given period of time.

Hall (2013) argues that, segregation of duties is the best approach adopted by SAP system since it minimises incompatibility of functions. This should be such that, the
authorisation of transaction is separate from its transaction, that is, the purchasing department should not initiate purchases until the inventory control department gives authorisation. Also, the responsibility for the custody of assets should be separate from the record keeping responsibility.

2.5.4 Internal control and fraud in procurement

Whittington (2012) alluded that, many people interpret the term internal control as the steps taken by a business to prevent fraud both employee fraud and fraudulent financial reporting done after cosmetic or imaginative accounting. According to William et al (2008), it is managerial control which function by measuring and evaluating effectiveness of other controls. This includes adequate management of organisation’s procurement and revenue operations. Accounting and procurement staff appears to be knowledgeable about their duties and the systems used in the procurement process using the SAP systems. There should be clear lines of reporting and communication within the departments and within the organisation as a whole to maximise transparency as alluded by CIPS (2011). Internal control should make use of looking into individual responsibility and accountability and evaluates the entire organisation to make recommendations.

2.5.5 Computerized internal controls

Hearn et al (2014) cited that most businesses today use computerized accounting systems. The control activities in a computerized environment depends on two aspects which are operating controls, systems development controls, access controls and disaster recovery plans and general controls. The latter are pervasive and include organization.

According to Oliver (2006), PFMS should provide a wide range of non-financial and financial information required for decision making are subject to be audited regularly so as to minimize fraudulent activities such as cosmetic accounting and flickering of procurement procedures as highlighted by Hall (2013). For this purpose it is anchored in the government procurement and accounting system as well as generates custom reports for both internal and external use. The management will require other non-
financial information for example personnel information such as numbers of employees, their grades and rates of remuneration.

2.5.6 Internal audit as part of internal control

Nakyeyune et al (2016) described that, the statement of responsibilities of the internal auditors refers to internal auditing as an independent appraisal activity within an organization for the review of operations as a service to management. It is managerial control that functions by measuring and evaluating effectiveness of other controls. They went on to say they could be no controls unless there is a plan to be controlled. A satisfactory organization, which establishes individual responsibilities, is likewise an essential component of controls. Staffing must be appropriate for control to be effective. This means that the auditor reviews an enterprise’s arrangement for internal control; the evaluation is of the entire management process, embracing all functions of management.

MOFED instructions and PFM regulations are in the process of being rolled out to all line Ministries to ensure compliance and adherence to accounting and international control provisions. The educational campaigns on the strengthening of procurement, accounting and internal control systems are currently being undertaken across all provinces (Mumbengegwi 2008). To make this feasible, the Treasury drafted from accrual accounting and developed a Chart of Accounts for central government effective on the 1st of January 2018. This ensures transparency and accountability as well as uniformity in reporting. It is now in the process of drafting an accounting manual that sets out the standards, polices, procedures and frameworks to be followed in procurement and accounting for various transactions and aspects of public funds (Mumbengegwi 2008).

2.5.7 Transparency in controlling fraud in procurement

Transparency is a feature of a performing PFMS which is being promoted and encouraged by both internal and external auditors. It is actually one of the major pillars of good corporate governance practice as highlighted by Bob (2009). Its role is to connect, accumulate, process and then provide information to all parties in the budget system on a continuous basis. This involves providing useful information in a timely manner so that all stakeholders are informed about the use and impact of public
spending on procurement. All consultants need to be able to access the system and to derive the specific information they require to carry out their different functions. By automation of procurement and accounting procedures, financial controls will be strengthened since it promotes internal control and accountability

2.6 Evaluation

According to Ian (2009), evaluation is referred to as the system design, collection analysis and reporting of data and findings relevant to a specific project being considered by a business. Oliver (2006) defines evaluation as the systematic examination of a programme to provide information on the full range of its short-term effects on citizens. “Is the programme delivering?” The answer to this question provides a sound basis for deciding whether to continue or discontinue the programme.

2.6.1 Purpose of evaluation

Evaluation seeks to give an answer(s) to the question: Is it effective-that is, is the project achieving or able to achieve its objectives? as alluded by Bob (2009) . This forces decision makers to take closer look and their programmes. For a programme to be meaningful, it must provide information and analysis that allows for a reasoned decision to be taken (Hearn et al 2014). Programme evaluation study methodically covers all relevant factors and issues that will affect the operation, and can have a wide scope, covering trends in national and international businesses.

However, Hearn et al (2014) quickly points out that such a study calls for an investment of funds, but a small investment in planning reduces the risk of losing a far larger amount, possibly in the event of total failure.

2.6.2 Types of evaluation

Croxton et al (2001) identified three major types of evaluation that are of interest to policy makers:

- National programme impact assessment
- Demonstration projects
- Field experiments
Monobayeva (2015) suggests that evaluation of programmes in the public sector is probably the more important than in the private sector because it has to do with transparency and accountability. He points out that the public pays for those programmes and therefore deserves to know how the public funds are being allocated and utilised.

2.7 **SAP system requirement for compatibility in budgeting public funds at MOFED**

According to Hurt (2011), software requirement is defined as a software capability needed by the user to solve a problem to achieve an objective, that must be met by a system component to satisfy a contract, standard, specification or other formally imposed documentation. MOFED requires software that will fulfil all the elements of mySAP business suite quadrant to ensure that the system will do what it is intended for. This system should also be cost effective for the company and user friendly so as to make sure that all the procurement professionals do not get confused and end up making mistakes that could be costly to the company. This system must not only meet procurement requirements but should be able to be used by all the other departments in the supply chain and in the company, i.e production, accounting, human resources and administration.

2.7.1 **Systems integration**

The adoption of all ERP vendors on SAP system as shown by the mySAP suite enhances the suitability of SAP system as a budgetary control measure in procurement. This is because the model postulates SCM and SrM as some of the SAP modules and they are used by procurement consultants enabling the procurement function enabling it to have a budget constrain which control them in utilising the government funds. The model depicts the integration in the SAP system which is also supported by Hurt (2011) who highlighted that the processes and systems in the organisation are interrelated and highly independent on one another.

The square at the centre comprises the core of the suite which includes;

- Financials (financial and managerial accounting, treasury and risk management)
- Operations (procurement and logistics as well as product development and manufacturing)
The best-of-breeds approach combines modules from various vendors to create an information system that better meets the organisation goals and objectives than a standard ERP system. Meeting of the intended objectives is a measure of the efficiency and effectiveness of PFMS utilisation in public procurement.

2.8 Critical success factors for ErP implementation

Kingsley (2014) researched on the factors for ERP implementation which includes top management commitment and support, change management, project management, business process reengineering and system customization.

2.8.1 Top management commitment and support

According to Kingsley (2014), top management support has great impact in successful ERP implementation since senior management are involved in overall strategy of the entity. Top management commitment and support leads to overall organizational commitment across an organization.

2.8.2 Change management

O’Brian (2002) alluded that ErP implementation involves changing software by reengineering business processes as well as managing the change. The implementation is subject to changes that lead to resistance among employees as alluded by O’Brian (2002). Consequently, balancing conflicts between staff and technology and effectively managing employees in the change process are key elements for the successful ERP implementation.

2.8.3 Project management

There is need for continuous review and management of new systems. Effective project management is critical for the successful ErP implementation as highlighted by O’Brian, (2002). Effective project management should define clear project objectives, develop a work and resource plan and carefully track the project’s progress.
2.8.4 Business process re-engineering and system’s customization

According to Al-Mashari (2006) there are two approaches to implementing ErP systems in an organization which includes reengineering business processes and ErP customization. The former creates deep changes in organizational processes so as to fit them to ErP functions. The system enables maintaining the existing processes by customising ErP functions. However, according to Holland and Light (1999), ErP customisation has to be avoided where necessary so as to achieve the full benefits offered by ERP systems.

2.8.5 Training

Due to the complexity of the integrated of ErP systems, SAP consultants training has been recognized to be a critical factor for ErP as implementation as alluded by (Dull et al (2004). This enables the users to understand how the system works and how to use it. Consequently, appropriate SAP consultant education and training will maximize the benefits of the system and increase user satisfaction.

2.8.6 Consultant selection and relationship

ErP consultants play a critical role in ERP implementation. Consultants can be essential knowledge resources for ERP’s hardware, software, and personnel. They also can help staff in having the responsibility for project audit and management. On the other hand, in-order for the system to be successful, there is need for system maintenance after post-implementation hence knowledge transfer from consultants is crucial for the organization.

2.8.7 Communication plan

Strong communication within the entire organization during the implementation process increases success for ERP implementation. It allows the organization’s stakeholders to understand the goal and the expected benefits of the project as well as to share the progress of the project. An “open information policy” protects the various communication failures for the project as highlighted by Al-Mashari (2006).

Al-Mashari (2006) highlighted that, while the critical success factors can lead to success of ERP implementation, they do not guarantee the success of the implemented system. On the same spot, Hurt (2011) states that the delivery of the
critical success factors is one major condition to lead to benefits from ERP implementation, and the author suggests that ERP projects can be considered successful as according to the following terms:

- Correspondence success, which occurs when there is a match between ERP systems and the specific planned objectives.
- Process success, which occurs when ERP project is completed within time and budget.
- Interaction success, which occurs when users’ attitudes towards ERP are positive.
- Expectation success, which occurs when ERP systems match users expectations

2.9 MySAP suite model in ensuring compatibility and effectiveness of the system in procurement

According to Dull (2012), all modules of the SAP ERP system should be adopted so as to fruitful results. This promotes the following qualities of the system in allocation of public funds and controlling procurement as a cost centre.

2.9.1 Discipline

According to MFMI (2008) discipline of the system is evidenced by adherence of the SAP system to the budget ceiling and that public financial regulation is followed and controlled by the system automatically. The system locks the GL when procurement of a certain product reaches the amount allocated to its purchase as per procurement plan submitted to the PFMS office. According to Starlin (2011), planning and implementation has to tally MRP. This is of fundamental important since it ensures that public funds are spent according to government financial regulations and that spending is done within the agreed targets ie fiscal discipline is maintained. This eliminates budget deficit and over expenditure thereby ensuring that government receives value for money, and reduces wastage and eliminate corrupt practices.

2.9.2 Consultation

According to William (2008), the implementation of all modules of the PFMS system increases the level of consultation within governments and between governments and
their stakeholders. The development of budget ceilings involves wide consultation and enables the organization to have an input into the setting of the ceilings. This is done through presenting the budgets to the PFMS system to the head office - Zim Treasury as alluded by World Bank (2017). The budgets should be reasonable and clarification on ambiguous areas will be needed so as to ensure efficiency in public finance management system.

2.9.3 Flexibility

Dull (2012) explains that, the system is flexible to reallocate public resources that are, changing the use of funds from one type of expenditure to the other. This done to make efficient use of public funds. A number of budget implementation systems and regulations involve a high level of control over the use of funds. For a ministry to change spending from equipment to operational cost, there is need for approval from MOFED as highlighted by Hunger (2003).

The level of flexibility is highly linked to the level at which the budget is appropriated by the parliament and the degree of control exercised by the Zim-Treasury over ministries’ ability to switch public funds.

However, recent reforms are focusing on providing line ministries with greater freedom and flexibility in the use of public funds. This does not necessarily mean that, the ministries can reallocate government resources as they wish but just the degree of flexibility is increased over time particularly, if government is moving from to performance focused system which held ministries accountable for delivering agreed levels of performance.

2.9.4 Predictability

Government ministries are given some reliable indication of the funds they will receive over the medium term so as to improve their planning activities. The ministries will be able to plan ahead for implementation of their programs rather than attempting to implement all activities within a year as highlighted by Dull (2012). However, the estimation of resources over a medium term has a challenge of encouraging ministries to focus on the medium term rather than on only the next budget year.
2.9.5  Legitimacy

Hurt (2011), most aspects of the budget preparation and management process is ruled by public financial regulations and laws which gives the process its legitimacy. This means that, the budget approved by the parliament and presented to the PFMS office is a legally binding document. This involves the issue of price ceilings which is automatically controlled by the system.

2.9.6  Inter-linkages between systems

Most of the elements of PFMS system have to operate with other systems hence there is the need for adoption of the sap Netweaver components which includes people, process and information integration as highlighted by Dull (2012). Development of budgets are often prepared and managed by the system. Consultants can send and receive messages on the SAP system which eliminates the use of emails or phone calls when communicating challenges they encounter on the SAP system. Also reforms are being made on improving the integration of the various systems.

2.9.7  Empirical review

2.9.7.1. Effectiveness of SAP system as a budgetary control measure in procurement and public spending

Mwansa (2005) conducted a research to evaluate the performance of PFMS system in government spending in Zambia. The main objective of the study was to check the effectiveness of the system as a budgetary control measure in procurement and public spending. This includes production of procurement budgets, internal controls and evaluation, as well as training of SAP consultants. The results of the study prove that, their system was effective in production of procurement budgets and have effective internal controls. The reform process slowed markedly from the late 1990s and had completely stalled by 2005.
2.9.7.2 PFMS in assisting budget processing and public spending (planned versus actual purchases and expenditure).

Oakley B (2004) conducted a research in which he examined the effectiveness of public expenditure in government ministries of Nigeria. The methodology of the study merged both primary and secondary based data. The latter involved the use of relevant public finance data relating to planned and actual recurrent and capital purchases and expenditure from government documents of the ministries. relevant output indicators available in published documents were also gathered. A field survey was carried out in 36 states using structured questionnaires in respect of primary data. A number of issues which includes budget process, service delivery, audit systems, compliance with rules and public procurement procedure.

The primary analytical method used in this design was descriptive analysis. This encompassed frequency counts, proportional distributions, ratios, and percentages. The analysis of government spending on procurement of goods and services showed that the state had the best practices as far as expenditure on education financing. The findings of the study also indicated that Nassarana state had been exceeding its budget since year 2000, especially with respect to recurrent expenditure on education. The study further revealed that most states had serious problems with financing their education and health sectors. The findings also reveal that, the PFMS system would also assist in budget process, internal controls and training of end users on the use of the SAP package.

2.9.7.3 Utilisation of PFMS and result based budgeting programme in curing overspending

The study by Mashumba (2013) was conducted to determine the effectiveness of SAP system in government line ministries. According to the study, the glitches with the performance of the PFMS system became evident in early 1990s characterised by routine overspending by government ministries (exceeding the procurement budgets), cosmetic accounting and increased fraudulent activities and negative external audit opinions. The GOZ engaged a range of public financial management and accountability reforms which includes drafting of public financial management and
audit acts as well as embarking in on results-based budgeting programme. However, the hyper-inflation (2005) of Zimbabwe negatively impacted on the effectiveness of PFMS and accountability systems. The results of hyperinflation were technical short fall which reduces the effectiveness of the PFMS due to failure to maintain the system and inability to cope with the number of digits. The outcome has been loss of confidence in the use of PFMS resulting in increasing volume of transactions taking place outside the SAP system.

For the researcher to understand how the PFMS works in Zimbabwe, several data collection methods were adopted, and the findings of the study were as follows, the overall budgetary system was sound and involved the development of an annual procurement plan that is tabled in Parliament and approved prior to the start of the financial year. Moreover, the internal controls were found to be effective.

2.9.7.4 SAP system in controlling fraudulent activities in public procurement through detection of vendor fraud based

A study was carried out by Varma and Khan in 2017 on SAP system as a vendor fraud detector in India. The objective of the study was to show whether SAP ERP system can improve productivity and profitability of the organisation through controlling of fraud in procurement. The research highlighted that, SAP is a leading market player in ErP systems. The vendor master file in SAP is responsible for keeping critical and sensitive data of vendors and this data is targeted by fraudsters. The research also reveals that, fraud is increasing and becoming a risk to supply chain management. The research used the development of the prototype model for detection of vendor fraud based on the analysis of SAP security log data, segregation of duties and fraudulent scenarios. The researchers used the red flag which is a set of circumstances which are unusual in nature or vary from normal activity, these are indicators that fraudulent activity could exist, they are not absolute, but they should be investigated to ensure fraudulent activity is not present.

The research reveals that, the vendor fraud is a major component of supply chain fraud. The detection and controlling of fraud in procurement are challenging both private and public organisations because of the adoption of new strategies committed by fraudsters.
The researchers went on to say that, detection and controlling of fraud in procurement requires an in-depth knowledge about the nature, *modus operandi* for auditing investigating agencies responsible for corporate governance. The major challenge is how to integrate continuous fraud detection in the SAP system.

2.9.7.5 **Compatibility of SAP system in promoting effective budget preparation and procurement planning**

Stefan et al (2007) carried out a research on PFMS for public expenditure in Malawi which was conducted within the framework. The major purpose of the study was mainly focused on whether the use of PFMS should provide for effective fiscal and expenditure planning, budget preparation, accountability structures, human and technical capacity and functioning information system.

The researchers used the descriptive research design which mainly involves observing and describing the behaviour of the research without influencing in any way. Their research reveals that, the use of SAP PFMS in an organisation can help in planning and budget preparation.

SAP PFMS ErP system provides the creation of the appropriation account in the system which shows the actual expenditure and budgeted expenditure for each month hence government can control the its public purchases.

In their study, they highlighted that adequate accountability structures are an important result of legal and institutional PFMS framework. The study reveals that, the degree to which every single actor of the budget process can be held accountable for budgetary practices and outcomes is a very important factor to guarantee that public resources are allocated in line with strategic policy priorities and spent effectively and efficiently.

2.9.7.6 **Government can ensure discipline, transparency and accountability on public expenditure through audit trails**

A similar study was carried by Core (2006) on PFM in Sierra Leone. The objective of the research was to show whether the implementation of integrated financial management information system in June 2005 have enhanced greater accountability, transparency and improve public expenditure management across all government
Ministries and agencies. The implementation of the system was as a result of excess budget deficit due to spending more than the procurement plan, lack of accountability and transparency across all government ministries and agencies.

Like the provision research, Core used descriptive research design where he observed the impact of PFMS without influencing it. The study reveals that, there was an improvement in transparency and accountability.

The researcher went on to say the improved control over operation was a result of effective and efficient budgetary and expenditure controls as well as the audit trails, and savings.

2.9.8 Gap Analysis

The researcher discovered that other studies were mostly focused on the impact of PFMS on the accounting function of organisation. Therefore, this study aims to identify and evaluate the impact of PFMS SAP system on procurement function highlighting how it controls public spending in either cost or time factor. It is going to be different from other studies that have been carried out in the sense that; firstly, the researcher is going to look at one ministry which allows in-depth acquiring of knowledge due to reduction of the scope of the study. Secondly, researcher has the practical knowledge of how the PFMS works as she was employed at MOFED which is the head office of PFMS of all government line ministries. This gives the advantage to the researcher as she will have hands on the research.

2.9.9 Summary

Literature on the effectiveness of SAP system as a budgeting tool in procurement has been reviewed in this chapter. It has provided the bases on how SAP ErP system can influence an organisational performance and how it is used to gain competitive advantage across the whole supply chain. The next chapter will explain the methodology used in conducting the research, how the sample of the survey was chosen and the justification for choosing it. The chapter will also indicate the type of instruments used in the analysis and the reasons why they are chosen.
CHAPTER III

RESEARCH METHODOLOGY

3.0 Introduction

Research methodology is a systematic way of solving a problem in question. Hence, this chapter will show how the data was collected from different sources, how it is analysed, presented and its population and how it was sampled out. In addition, the research procedures followed as well as the limitations encountered during the research on the impact of the use of PFMS SAP system in controlling public funds in procurement is highlighted.

3.1 Research Design

Research design is defined as a science and art of planning procedures for the investigation to obtain answers to research questions. The plan contains overall program of the research and it involves the outline of what the investigator undertakes to do from writing the hypothesis and the operational implication of the final analysis of data that would have been gathered using the designed instruments as affirmed by Schindler (2003). According to Saunders (2009), a research design is not highly a specific plan to be followed without deviation but rather a series of guideposts to keep one headed in the right direction. In addition, Khan (1993) affirmed that research design expresses both the structure of the research problem and plan of investigation used to obtain empirical evidence in relation to the problem. There are three major types of research design which are descriptive, explanatory and exploratory research design.

3.2 Descriptive research

For this study, descriptive research design was chosen which involves a scientific method which includes describing the behaviour of a subject without influencing it in any way. This research design was chosen because of its uniqueness that is involvement of case studies and that it can be based on various sources such as
newspaper reports that can provide information on the effectiveness of SAP PFMS system as a budgeting tool in public procurement in public sector. Furthermore, a descriptive research design provides a multifaceted approach for data collection which is of fundamental importance to data gathering.

Descriptive research design according to Leedy (2010) provides facts upon which the decisions can be based rather than generating conclusion solely. It is a normative survey which is implemented and used to process the data that comes through observation. Surveys gives generalised statistics abstracted from a number of individual cases as alluded by Saunders (2009). A sample survey is more efficient than a population survey size, cost and its capability of minimising generalisation of data abstracted from the whole population.

Descriptive research design was used to obtain general impression of the subject and it shows the relationship between two or more variables. In the study, it was used to show the relationship between PFMS, public spending and budgeting in procurement. Descriptive research method bridges the gap between qualitative and quantitative research. However, when its purpose is misunderstood, it might be misused hence it requires an in-depth understanding.

The process of descriptive research includes description, recording, analysis and interpretation of gathered data rather than concentrating only on gathering of data as affirmed by Leedy (2010).

3.3 Case study

A descriptive research design was adopted in form of a case study which is an intensive investigation into the aspects of an individual or small group of the population. Case study as alluded by Schindler (2003) is described as a useful way of obtaining descriptive and explanatory information. In this regard, the study therefore focused on Zim-Treasurer. This will guide the study by eliminating researcher bias such as diligence and consistency in the tracking process as highlighted by Leedy (2010).
3.4 Population

research population according to Khan (1993), is defined as the set of objects that possess some common set of characteristics with respect to the research problem. The population of public sector consist of all government ministries and parastatals but this research is ear marked on MOFED as a sample. The research subjects being the procurement, accounting, administration and technical departments which are directly involved in PFMS utilisation and functioning.

3.4.1 Population size

Table 3.1

<table>
<thead>
<tr>
<th>Department</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>43</td>
</tr>
<tr>
<td>Administration</td>
<td>38</td>
</tr>
<tr>
<td>Finance</td>
<td>38</td>
</tr>
<tr>
<td>Technical</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: Primary Data

The research has a population of 150 SAP users excluding human resources department.

3.5 Sampling

Sampling is the process of selecting participants and in this case they are selected to the following departments which include procurement, administration, finance and technical department. The sample size of 108 was determined using the Krejice and Morgan table. It involves the division of the sampling frame into groups in order to ensure that the sample is representative as affirmed by Leady (1993). Consideration from data collected from a subgroup which will be used to generalize on the total group. The sample taken from those four departments possessed all the characteristics to represent the whole population.


3.5.1 Sampling techniques

Sampling technique is a method that was used to select a part of the population of the respondents. The researcher adopted purposive and convenience sampling technique to gather data.

3.5.2 Purposive sampling

The study targeted the technical, finance, administration and procurement departments of MOFED because they are the SAP users who are directly involved in purchasing of organizational requirements hence are able to provide information on public spending through procurement than other staff members from different functions. The study followed the necessary steps of purposive sampling in order to produce quality data which includes consideration of the problem statement. Amongst the population of 150 staff members the study used a sample of 108 as they were directly linked to supplier relationship management and are also SAP consultants. This approach will be useful in selecting individuals that has the required information and could greatly contribute to seek knowledge. This was supported by Saunders (2009) who highlighted that process will be deliberate done by grouping participants according to pre-selected criteria that will address the research questions and objectives. Also, the research size will depend on the resources in terms of time and financial resources.

This sampling technique is described as an emergent sampling technique that involves serial sampling of participants as highlighted by Khan and Best (1993). It is portrayed as selective or subjective sampling where the judgement of the researcher is implicitly used to choose a sample which suite the needs of the study as affirmed by Leedy (2010).

The assumption of the technique is that, the sample would be a representative of the whole population from which they were selected as highlighted by Vaus (2006). This made the study to be in a position to generalise the results making the reference from the selected sample.

3.5.3 Population distribution per category
Table 3.2

<table>
<thead>
<tr>
<th>Department</th>
<th>Population</th>
<th>Sample</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>43</td>
<td>33</td>
<td>76.74419</td>
</tr>
<tr>
<td>Administration</td>
<td>38</td>
<td>28</td>
<td>73.68421</td>
</tr>
<tr>
<td>Finance</td>
<td>38</td>
<td>27</td>
<td>71.05263</td>
</tr>
<tr>
<td>Technical</td>
<td>31</td>
<td>20</td>
<td>64.51613</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>108</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: Primary data

The researcher made the appointments with the selected participants before the site visit and appropriate techniques for data collection such as interviews and questioners were applied to the sample of 108 participants using convenience sampling method. The participants were selected basing on the availability and willingness to take part. However, 102 respondents returned the questionnaires and the researcher managed to interview 6 participants from the four departments in question.

3.6 Research Instruments

A research instrument according to Leedy (2010) is defined as the method used to collect data which include interviews, observation and questionnaires. The characteristic for an effective research instrument is that it must be reliable, valid and objective as affirmed by Khan and Best (1993). The study considered the arguments for and against each method before making a selection and chooses to use questionnaires and interviews to collect data and a copy of which is annexed.

3.6.1 Questionnaires

Self-administered questionnaires were used to collect primary data from the respondents because it is applicable to the interpretive survey research design. It involves collection of both qualitative and quantitative data as highlighted by Schindler (2003). The major advantage of using the self-administered questionnaire was that it could be administered to a number of employees at the same time. Moreover, this method was cost effective and convenient in collecting data. The researcher administered 108 questionnaires to procurement, accounting, administration and technical department. The major key outlined in the questions
being evaluating whether PFMS can act a budgeting tool in procurement of public goods and services. The questionnaires probe to relevant ideas in relation to employees and their views on the effectiveness of SAP system as a budgeting tool in public procurement.

A questionnaire according to Khan and Best (1993) has an advantage of promoting anonymity and therefore respondents will freely answer without fear of victimization since it is namelessness which increases the response rate. Self-completion questionnaires according to Vaus (2006) enable respondents time to complete it when they want and at their own speed. In addition, questionnaires are cheaper to administer than interviewing especially if the researcher’s sample is geographically concentrated as highlighted by Leedy (2010). Furthermore, many issues of questions and concern can be addressed in an efficient way which will make it easy for the researcher to gather and analyse data.

Qualitative evidence was obtained through the use of open ended questions where the researcher cannot predetermine possible responses. On the other hand, on quantitative data the use of pre coded questions and responses are predetermined.

Closed ended questions assisted in eliminating irrelevant or confusing answers to questions by giving a quick answer which is also easier to compare. This is because the questions give the respondent a list of responses to choose from, to ensure that the respondents consider all possible responses. According to Saunders (2009), closed questions provide uniformity of questions and they provide standard responses which will make evaluation easier.

Contrastingly, open ended questions help the study in that respondents answer sensitive topics such as those to do with fraudulent activities in procurement department. This is because; open ended questionnaire will be unstructured thereby ensuring that respondents use their own words freely in describing their views.

The questionnaires used contained both structured and unstructured questions so as to have an appreciation of both quantitative and qualitative data respectively. Each section of the study will be developed to address a specific objective or research
question. To yield fair view and options, the researcher will give the respondent enough time to respond to the questions.

3.7 Procedures for data collection

MOFED has a number of confidential information which is secured by the Administration department through the OPC; hence, the researcher will seek permission to collect data from the top management to avoid interruption of productivity caused by illegal abstraction of data. To enable progress, the researcher made an appointment with the management of the listed departments where the sample was taken from seeking the consent for data collection. The questionnaires were delivered in person in hard copies so as to have an opportunity of explaining the organisation and the respondents on the reason behind carrying the study. The respondents were given five days to complete and the collection of the questionnaires was done by the researcher also.

The responses from the administration of the semi-structured questionnaire were coded and therefore reliability was determined. The researcher noted that most of the respondents could not comprehend what “overall quality” in ErP refers to, therefore the researcher simplified by including the factors that constitute overall quality that is precision, accuracy, transparency, discipline and appropriateness.

3.7.1 Reliability

Similar questions were included in questionnaires and interviews, responses were reliable shown by uniformity of answers. The research instruments used has managed to solve a problem and reach new knowledge, reliable and applicable. The instruments used for data collection were reliable because a pilot study was conducted to examine and determine the reliability of the instrument. The aim of the analysis being to ensure the questionnaires distributed were properly responded to and do not give bias. Some of the questions were altered or rephrased basing on the outcome from the pilot study (pre-test). reliability according to Schindler (2003) concerns with the accuracy and precision of measurement procedures. It can also be described as the proportion of
variance which attributable to the time measurement of a variable and estimates the consistency of such measurement over time from research instrument.

3.7.2 Pilot study

In order to test that the instruments to be used to collect data were valid, a pilot study was carried out. A pre-test were done to see whether the respondents would react by giving their responses. In this regard, the researcher designed a questionnaire and an interview guide and tested it to five different representatives from procurement, accounting, and administration and technical department at MOFED head offices in Harare. However, there were an overwhelming response from procurement staff hence areas of improvement on the questionnaire were then detected and corrected such that a final questionnaire was altered and developed hence, the study was carried out on the two research instruments used in data collection validity and reliability aspects. According to Leedy (2010), this perspective will give confidence to the researcher that the instruments would work as designed and helps the researcher to understand better the subject to be ascertained for efficacy.

3.7.3 Validity

In testing the validity of questionnaires and interviews, it was tested to what extent the instrument measures and what it purports to measure and the response obtained highlighted the validity of the instruments. According to Al-Mashari (2006), validity is defined as an attempt to establish whether the methods used by the researcher were appropriate for the scientific research under investigation. Validity of the study according to Leedy (2010) establishes the relationship between the data.

3.8 research ethics

There are set of standard ethical consideration within the society considered by the researcher, the researcher gained physical entry and informed consent from the management and participants before commencement. Confidentiality of participants
and information were maintained. The questionnaire was designed in such a way that it does not ask sensitive and personal information of respondents. The fact that that the upper line of the questionnaire was written that the research is mainly done for academic purposes makes respondents to participate freely and voluntarily.

3.8.1 **Data presentation and analysis techniques**

Completed questionnaires were checked for quality and analysed using data analysis software called excel. Data was then transferred to tables, graphs and charts using excel and micro-soft word with an effort to bring about the findings of the study.

The data obtained was analysed based on the objectives of the research and research questions to be answered. These interventions helped to highlight the effectiveness of the use of PFMS SAP system as a budgetary tool in public procurement at MOFED. The research instruments chosen for this study were questionnaires and interviews. The two methods were used in order to capture the desired information and consequently to produce valid results.

3.9 **Summary**

The chapter discussed the research methodology and methods adopted by the study, and it further presented the research design to be used, the research philosophy, research instruments, data collection procedure and data analysis. Purposive sampling technic was identified as the appropriate for this research. The following data will detail chapter the presentation, analysis, discussion and findings of the data collected.
CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter focuses on the results of the study. Data presentation, analysis and discussion of the findings on the effectiveness of SAP system as a budgeting tool in public procurement. The use of tables, graphs, pie charts and verbal description in a systematic way has been used to give a more meaningful data interpretation and analysis. The findings were linked to the research questions and objectives of this research study.

4.1 Classification of sample

Table 4.1

<table>
<thead>
<tr>
<th>Department</th>
<th>Population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>43</td>
<td>33</td>
</tr>
<tr>
<td>Administration</td>
<td>38</td>
<td>28</td>
</tr>
<tr>
<td>Finance</td>
<td>38</td>
<td>27</td>
</tr>
<tr>
<td>Technical</td>
<td>31</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>108</td>
</tr>
</tbody>
</table>

Source: Primary Data: 2019

Table 4.1 above shows that, data was gathered from different departments which have an effect to the procurement of public goods and services at the ministry. Human resources department also use SAP system but it was excluded because none of their consultants has an effect to procurement and transactions of public funds.
4.2 Analysis of the response rate

Table 4.2: response rate

<table>
<thead>
<tr>
<th>Department</th>
<th>Questionnaires Sent</th>
<th>Questionnaires response</th>
<th>response rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>33</td>
<td>32</td>
<td>97%</td>
</tr>
<tr>
<td>Administration</td>
<td>28</td>
<td>27</td>
<td>96.4%</td>
</tr>
<tr>
<td>Finance</td>
<td>27</td>
<td>25</td>
<td>92.6%</td>
</tr>
<tr>
<td>Technical</td>
<td>20</td>
<td>18</td>
<td>90%</td>
</tr>
<tr>
<td>Total</td>
<td>108</td>
<td>102</td>
<td>94.4%</td>
</tr>
</tbody>
</table>

Source: Primary Data: 2019

Table 4.2 above shows that, 108 questionnaires were distributed to procurement, administration, finance and technical department; however, only 102 were completed and returned, giving a total response rate of 94.4%. This response rate is significant to justify the study as well as the credibility of the research findings. This is supported by Khan and Best (1993) who postulated that, a 50% response rate is adequate whilst a 70% is very good.

4.3 Demographic profile of the respondents

The study makes use of four demographic items which includes gender, age, educational qualifications and working experience respectively. The main purpose being ensuring representation from all demographic components.
4.3.1 Gender Distribution of respondents

Table 4.3 Gender distribution

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Per cent %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>45</td>
<td>44.1%</td>
</tr>
<tr>
<td>Male</td>
<td>57</td>
<td>55.9%</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Primary Data: 2019

Data from table 4.3 above shows that more male participated with the rate of 55.9% and female has 44.1% response rate. It was observed that at MOFED, the number of male staff overwhelm that of female staff. The researcher was interested in the gender distribution of respondents since gender has a significant influence in practicing of fraudulent activities. An appreciation of both male and female’s view helps in gathering of quality data since the two gender groups are said to have a different personality on the use of technology and fraudulent activities.

This concurs with Darrell Steffensmeier a professor of sociology and criminology in Swayne (2013), who postulated that, women are less likely to take part in corporate crime and fraud. His research highlighted that about three out of four conspiracies to commit corporate fraud were all-male and there is no report four all-female conspiracy. Hence, it was of fundamental importance to have an appreciation of both two gender respondents since the questions are highly depending on procurement activities which are highly vulnerable to fraudulent activities such as StM and tender adjudication process to mention only the few.
4.3.2 The age of respondents

Table 4.4 Age distribution

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Per cent</th>
<th>Cumulative Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>33</td>
<td>32.353</td>
<td>32.353</td>
</tr>
<tr>
<td>31-35</td>
<td>10</td>
<td>9.804</td>
<td>42.157</td>
</tr>
<tr>
<td>36-40</td>
<td>13</td>
<td>12.745</td>
<td>54.902</td>
</tr>
<tr>
<td>41-45</td>
<td>8</td>
<td>7.843</td>
<td>62.745</td>
</tr>
<tr>
<td>46-50</td>
<td>28</td>
<td>27.451</td>
<td>90.196</td>
</tr>
<tr>
<td>50-55</td>
<td>10</td>
<td>9.804</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>102</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Source: Primary Data: 2019

Table 4.4 above shows that the majority of the respondents were of age between (18-30) years with 32.35%. In this digital age, youthful respondents has a better appreciation of ErP systems unlike their elders hence, greater percentage of the respondents between (18-30) years can lead to the collection of quality data since they are innovative and have the capability of exploiting all modules of the system. This was supported by O’Brien (2002) and Holland et al (1999) who highlighted that, the youthful stage are innovative and can interpret technological systems faster as compared to their elders. The second place is an age of (46-50) with 27.45%. This range constitutes more of the management team at MOFED hence the data from the top management such as deputy director procurement and finance can add to the validity of the research. On the third place is the age group of (36-40) years with 12.75%. This age constitutes more of ordinary officers who are directly involved in utilisation of SAP system (SAP consultants). Use of SAP system is their day to day activity hence they have a greater appreciation on the effectiveness of SAP system in monitoring public procurement. The users of the system according to Kingsley (2014) are expected to have a clear understanding of the system. ranking fourth is the age group of (31-35) years and (50-55) years with 9.8% on each age group. The system was introduced in 1999 by the GOZ as highlighted by Chinamasa (2018) hence; the age group of (55-55) years has more experience in utilising it since it is being upgraded in their presents. In addition, the age of (31-35) years can accept change and
are flexible enough to know the upcoming problems and benefits of SAP system since this range is within the youthful stage. This was highlighted by Holland et al (1999) and O’Brien (2002) who states that the youthful stage is more innovative and technologically advanced than their elders. Lastly, the age group of (41-45) years constituted 7.84%, this is the age where experienced ordinary officers who deal with the PFMS system directly are nucleated. This shows that all age groups add the quality of data gathered for the study.

4.4 Level of Education

![Educational资格](image)

Source: Primary Data: 2019

Figure 4.1 Educational qualifications

As illustrated on figure 4.1 above, 37.25% of the respondents are degree holders, 17.65% have professional courses, 12.75% have attained a master’s qualification, 7.84% attained a diploma and the last 25% consist of qualifications other than the listed ones. The level of education indicated shows that the respondents have at least knowledge to interpret on the issues of SAP system and public procurement under study.
4.4.1 Analysis of work experience

Source: Primary Data: 2019

Figure 4.2 Working Experience

Figure 4.2 above shows that 29% of the total respondents have got a length of service of 0-5 years. This means that the majority of the respondents that is 69% have been in the organisation for a period more of than 5 years including service range of (15-20) years constituting 27.45%. Lack of experience among users of the system as affirmed by O’Brien (2002) can be a major contributor to the current problems being faced by the users. User experience according to Vaus (2006) can affect the system functionality as it becomes difficult for users to exploit all the options and tools provided by the system if they are in-experienced. This finding indicates that, the respondents were fairly experienced and could be considered as sufficiently informed and experienced to provide measured, accurate, valid and reliable information.
4.5 The effectiveness of SAP system as a budget control measure in public procurement

There are several modules of SAP system which represents the heart of the system as affirmed by Beard (2007)). These modules may not all be implemented or utilised. The effectiveness of the system is measured by the level of system exploitation which needs knowledge, commitment and resources to support the driving factors. Hence, the performance of the system can be measured by the users basing on the results it yields in controlling public procurement. The respondents’ perceptions on the effectiveness of SAP PFMS as a budgeting control measure in public procurement are highlighted by the study.
4.5.1 How SAP system is suitable in monitoring and controlling the budget in public procurement

Source: Primary Data: 2019

Figure 4.3 Suitability of SAP systems in monitoring and controlling the budget

The participants were asked to rank the suitability of the system in monitoring and controlling the budget in public procurement and the results are presented on figure 4.3 above.

Thorough questionnaires, respondents rate the effectiveness of SAP system in monitoring public procurement in relation to users’ day to day running of their duties. Figure 4.3 above shows that, most of the respondents which constitute 37.25% rate the system as excellent meaning that their expectations are being met by the system’s operation. The second place constitutes 25% of the respondents who rate the system as good followed by 20% of the respondents who rate the system as satisfactory meaning that they are fairly satisfied. Contrastingly, figure 4.3 above shows that 5% of the respondents highlighted that the system is totally unsatisfactory in controlling and monitoring public procurement.
Findings from the interviews differ from that from questionnaires in that, none of the interviewed respondents rated the system as unsatisfactory but they highlighted that they were satisfied by the system. One of the respondents said that:

“We are deriving high value from the SAP system in terms of controlling public spending through procurement and also from its user friendliness”

The figure 4.3 above shows that 86.27% of the interviewed respondents portrays SAP as an excellent ErP system in-terms of user satisfaction by meting their expectations and they appreciated its features such as transparency, flexibility and discipline. Non-existence of system features such as transparency, accountability, discipline, flexibility shows that the system is poorly performing as highlighted by Laundon (2003). The last 13.73% however views the system as good in-terms of user friendliness.
4.5.2 How SAP tools and options (modules) are being utilised in public procurement

![Utilisation of SAP modules in procurement](image.png)

**Source: Primary Data: 2019**

**Figure 4.4 Utilisation of SAP modules in procurement**

Figure 4.4 above presents that, SAP system has SCM tool where 30.39% of the respondents rated it as poorly utilised, 50% rated it as good and finally 19.61% view that the system as being utilised in an excellent way. This shows that the majority are deriving satisfaction in utilising the SAP system on SCM.

SrM according to Dull (2004) is a systematic approach of assessing suppliers’ contributions and influence on success plays a fundamental role in procurement since it creates a positive buyer-supplier relationship and determines which activities to
engage with each supplier. This will minimise wastages in public procurement through purchasing from the write suppliers at the right time as affirmed by World Bank (2017). Figure 4.4 above shows that on this module of SRM, 27.45% of respondents rate the system as poor, 50% rated it as good and lastly 22.55% rated it as excellent. This shows that, 72.55% of the total respondents are exploiting the StM module offered by SAP system.

The customers of the procurement department as affirmed by CIPS (2011) are the internal clients that are other departments of the same organisation which are expecting to get goods and services from the procurement and administration department. Hence, CRM deals with satisfying the needs of other departments by providing quality services and can be done starting with the first stage called need identification as alluded by (Van Weele, 2002). Figure 4.4 above shows that, 15% of the respondents view the system as poor on utilising CRM, 37% rated it as good and the remaining 48% views it as excellent.

Through the module people integration, the system will bring together the right functionality and the right information to the right people (Dull, 2012). The results of the findings will show whether the users are utilising and enjoying the benefits of boundless collaboration functionality and pervasive access.

The figure 4.4 above highlights that, 80.39% of the respondents rated the system as being utilised in an excellent way on people integration module with 14.71% rating it as good and lastly 4.90% which viewed it as poor.

The system also provides information integration which yields almost half of the respondents rating the system as poor in utilising that tool with the rate of 43.14%. In addition, figure 4.4 shows that, 37.25% rated it as good and the last 19.61% highlighted that it’s excellent.

Segregation of duties according to Whittington et al (2012) takes form of profiling where the consultants can only access their profiles with their confidential passwords and the system is engineered in a way that it can’t be hacked in any ways and it gives only two options of entering the correct log in code and password before the profile blocks according to the interviewed respondents. The findings on the figure 4.4 above
prove that SAP system is being utilised in an excellent way on segregation of duties since it constitutes 92.16% of the respondents, 7.84% rated it as good and none of the respondents view the system as poor in utilising this module. In addition, the interview findings highlighted that, segregation of duties is being exploited and the process of handover take-over of profiles are strictly monitored by the technical department with help of the heads of the SAP consultants who wish to exchange profiles and this is mostly done when one is taking a leave or resigning the job Hunger et al (2003). Three reports have to be submitted to the head of section of the consultant, technical department and the last one to the internal auditors for accountability purposes.

Utilisation of the system according to this study ranges from poor to excellent. The later occurs when the company is utilising more than 60% of the SAP tools as affirmed by Kingsley (2014), who postulated that effective utilisation of the system is evidenced by exploitation of at least 60% of the total modules.

Findings show how SAP system is being utilised by the ministry in-terms of exploiting all its procurement modules it offers. The respondents were given all procurement modules offered by the system which cover the whole procurement process as highlighted by Dull et al (2012).

However, the implementation of the system raises high expectations according to the promises which include increasing the efficiency and effectiveness of the procurement process as highlighted by Sharma (1999). This calls for frequent training and constant re-engineering of the system. The respondents highlighted the extent in which they are utilising procurement SAP modules.

During the assessment of the questionnaires, it was realised that, when SAP was introduced, everyone who was there was trained by SAP professionals and it was established that after the implementation everyone else who join the ministry were trained but internally. Consultants are also receiving training annually as per the interview findings.

The aim of SAP professionals is to impart the technological know-how of utilising the system efficiently, which is, exploiting all the modules offered by the system. This is
supported by Holland and Light (1999) on the case study of wide shared services when they concluded that training and user involvement were the key elements for the system’s success.

4.5.3 Compatibility of the system with the security support measures and mechanism used by the ministry to control fraud in public procurement

Source: Primary Data: 2019

Figure 4.5 Compatibility of the system with measures that control of fraud

Procurement fraud according to Laundon (2003) refers to violations of the procurement process that can occur either in private or public sector and it can be hard
to detect especially within large organisations with complex operations. The major aim of procurement strategy is to purchase the best possible goods and services for the lowest possible price at the same time mitigating risks, building strong relationships with trusted vendor partners and ensuring a smooth payment process that takes advantage of cost-saving opportunities (Maponga, 2018).

Bearing this in mind, the respondents were asked to highlight whether the SAP system is compatible with the security support measures and mechanisms employed by MOFED as a way of paving away fraudulent activities in procurement.

Findings from the interviewees unearthed that:

“Some types of fraudulent activities such as kickbacks are hard to be detected by the system”

However, the researcher’s aim was to explore whether the security support measures used by the ministry are working hand in hand with SAP system.

The figure 4.5 above shows that Computerised Internal Control (CIC) is highly compatible with the system by constituting 90% of the total respondents labelling it as compatible and the remaining 10% views the system as not compatible to work with CIC. The later might be amongst users who have a short working service of usually between (0-5) years who are probably unaware of computer fraud which is being described by the Business Dictionary (2019), as a diverse class of electronic crimes that involve some form of electronic information theft and often monetary gains for the perpetrators. The interviewed respondents unearthed that:

“Those who know or once attempted to practice computer fraud are aware that it can be automatically detected by CIC system which operates hand in hand with the SAP system”

Internal and external auditors audit public expenditure electronically using the SAP system for transparency and accountability purposes as affirmed by Holland (1999). The respondents were also asked to rate whether Internal and external audit as a security measure is compatible with the system and 52.94% highlighted that it’s compatible whilst 47.06% views it as incompatible.
Transparency is a major feature of a performing PFMS SAP system. World Bank (2017) affirmed that, transparent procurement system ensures that all the team members as well as the qualified suppliers have equal access to all system elements, including all procurement stages.

Figure 4.5 above shows that, 75% of the total respondents view the system as compatible with transparency as a security measure in control of fraud and the remaining 25% rated it as not compatible.

The respondents were also asked to highlight whether SAP system is compatible with Evaluation as a measure in controlling fraudulent activities. The results shows that less than half of the respondents which constitutes 57.84% rated it as incompatible and only 42.16% view it as compatible. This measure yields the highest percentage of disagreeing with the fact that SAP system is compatible with evaluation as a fraudulent security control measure.
4.5.4 The ability and capability of government in controlling public procurement

Source: Primary Data: 2019

Figure 4.6 Government ability and capability in controlling public procurement

Findings from the questionnaires presented by figure 4.6 above shows that 50% of the respondents strongly agree with the fact that the government has the ability and capability of controlling public procurement, 25.5% agree on the same notation. On the other hand, figure 4.6 above shows that 17.65% disagree and 7.84% strongly disagree. The interviewed respondents who agreed with the notation constitute 33.33% which constitutes top management. The other respondent highlighted that:

“the GOZ is showing its capability and ability to control public procurement evidenced by the formulation of new public procurement act called Public Procurement and Disposal of Public Assets Act [Chapter 22:23] which led to the formation of Procurement regulatory Authority of Zimbabwe (PrAZ) formally the State Procurement Board (SPB)”

The main aim of the Authority as highlighted by Maponga (2018) is to supervise public procurement proceedings to ensure transparency, fairness, honesty, cost
effectiveness and competition as required by Section 315 of the Zimbabwean constitution. In addition, none of the interviewees disagree on the note that the government has the ability and capability of controlling public procurement.

One of the interviewed respondents highlighted that:

“Settings of tight regulations which are based on comply or else approach proves to be the only way that can make the government able and capable to control public procurement.”

This sensitive data was gathered using both questionnaires and interviews so as to get an in-depth understanding since the researcher gave the interviewed respondents a room to give a further explanation of their opinions.
4.6 How the government is exercising its power and authority in enabling success factors for SAP ERP implementation and use.

Source: Primary Data: 2019

Figure 4.7 How the government is exercising its power and authority.

Figure 4.7 above shows that 45.10% of the respondents highlighted that the government is excellently exercising ERP success factors on top management support. Second place is 32.35% which rated that it’s satisfactory and lastly 22.55% rated government effort toward ERP implementation and use as poor. The top management efforts are shown by treating the system’s functionality as a priority following any form of malfunctioning as well as setting aside the budget for system re-engineering and training (Al-Mashari, 2006).
There is a great need for balancing the conflicts between staff and technology to avoid resistance to change by staff members who felt threatened about their job securities. Holland (1999). Hence, the whole process of change management has to be done so as to ensure excellent performance of the ERP system.

The above figure 4.7 shows that, 47.06% of the respondents highlighted that the change management process is poor at the ministry, 27.45% portrays it as satisfactory and lastly the last 25% highlighted that the change management process is practiced in an excellent way.

A successful project according to Al-Mashari (2006) has to be initiated after formation of the intended objectives, developing of a work and resource plan as well as the project tracker as affirmed by Saunders (2009). The above data on figure 4.7 shows that 54.9% of the respondents rate government efforts on project management as excellent, 27.45% as satisfactory and lastly 17.65% as poor. From the interview conducted by the researcher, it was highlighted that this is done through the Project Management Unit (PMU) thus showing that the government is putting effort on project management evidenced by the formation of the PMUs in the public sector.

Whenever the system has been developed to align with new era business requirements, the users will notice the changes and benefits as well being informed about the idea. The findings show that only 4.9% of the respondents highlighted that the government is directing an effort towards SAP re-engineering excellently, 69.61% are saying it’s satisfactory and lastly 25.49% rated government’s effort as poor.

The users of the SAP system according to the findings of the interviewed respondents are satisfied with the frequency at which they are receiving training which they unearthed that it’s annually. In addition, findings from the questionnaires shown on figure 4.7 above shows that 74.51% of the respondents rated government’s effort as excellent, 17.65% as satisfactory and only 7.84% portrays it as poor on training SAP consultants. Those consultants who constitute 7.84% highlighted that, they are expecting to receive training more frequently such as semi-annually or quarterly.

A solid communication plan increases the consistency of how the system has to be utilised (Laundon, 2003). The users of the system have to receive the necessary
information through official media such as meetings, memos and emails. The findings on figure 4.7 above show that, none of the respondents rate the government’s effort as excellent on the issue of communication, 62.75% labelled it as poor and the remaining 37.25% rated it satisfactory. This might be due to bureaucratic type of leadership used in public sectors where top management just impose changes to the lower staff without proper communication.

The research findings on figure 4.7 above show that 50.1% labelled government effort in exercising consultant selection and relationship as poor, 45% as satisfactory and 4.9% as excellent. Half of the respondents are not satisfied by government effort directed towards consultant selection and relationship. This means that the users of the system who has the knowledge base for SAP system are not being recognised and motivated.

4.7 Summary

This chapter presented an outline of data presentation, analysis and discussion of findings in line with key areas of the research guided by the questionnaires and interviews sent to the target population of the study. All the researched questions were answered through questionnaire and interviews. Data was presented and analyzed through tables and graphs, pie charts and content analysis. The next chapter presents summary of the research findings, conclusions and recommendations together with a summary of the whole research.
CHAPTER V

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction
This chapter presents a summary of the work achieved in this research from the first chapter up to chapter four. It then proceeds to conclusion derived from the set out objectives. recommendations are then provided basing on the answers of the research questions. This chapter concludes by suggesting specific areas that further study can be probed.

5.1 Summary
The study analysed the effectiveness SAP PFMS as a budgeting tool in public procurement at MOFED. The researcher had many findings and this section summarises them.

- It was discovered that the staff at the MOFED is highly educated but lacks the professional skills of using SAP system hence;
- Some of the SAP modules are being under-utilised
- The security measures and mechanisms that are computer aided were found compatible with the system.
- Computer fraud can be automatically detected by SAP system through a mechanism called CIC
- The government is exercising its power and authority in controlling public spending

5.2 Conclusions
The following conclusions have been made in consideration with research objectives laid out in this study. The following conclusions were made;
Well performing purchasing professionals should turn procurement to be a profit rather than a cost center by buying the best possible quality products at the least cost price. A profit center department should work with SMART set objectives and this call for procurement plans that are directly linked to the budget. To ensure this, the government adopted PFMS system to act as a budgeting control measure in public spending so as to avoid overspending through procurement.

This study support that SAP PFMS is suitable and effective in controlling and monitoring public procurement thus acting as a budgeting tool.

In the quest to establish if all the procurement modules offered by SAP PFMS system at MOFED are efficiently utilized, the research project had many findings;

- It was established that SAP ERP can offer six modules that are useful in procurement but the users are failing to efficiently exploit all of them.
- Profiling and segregation of duties were found to be tight, passwords and restrictions of unauthorized users, the system is less prone to hacking and it provides tracing of transactions. The findings show that the ministry is effectively utilizing the system since it promotes some of the features of a performing system such as transparency, accountability and discipline.
- The ministry is enjoying high level of people integration which is beneficial to all users.
- SAP users are underutilizing some of the SAP procurement modules which include SCM, SRM and Information integration. The findings show that under-utilization of the system is due to lack of adequate knowledge since the upcoming SAP users are being trained internally rather than by SAP professionals who are the experts of their system.
- The system can automatically detect computer fraud through Computerized Internal Control mechanism. An ERP system has to be flexible in working with the security measures and mechanisms imposed by the organization in controlling fraudulent activities.
- All measures and mechanisms that can be integrated to the system require an aid of a computer and internet access for it to be compatible with SAP system.
- The success factors of SAP ERP are backed by government efforts directed towards its implementation and use;
  - Communication plan, motivating the users as well as managing change
- Training of users
- Top management support on reengineering of the system

The GOZ is showing its effort in controlling public spending evidenced by the creation of new public procurement act; Public Procurement and Disposal of Public Assets Act [Chapter 22:23] which led to the formation of a new board called PRAZ which replaces SPB clearly shows that its capable of controlling public spending.

5.3 recommendations

Basing on the research findings and comments from respondents, the researcher makes the following recommendations:

- The government should ensure the success of SAP implementation and use through prioritizing it in-terms of financial support as well as including the system maintenance and use in public corporate objectives. This depends on how the government is exercising its power and authority in enabling success factors for ERP implementation and use.
- The government should efficiently utilize all angels of the system so as to enjoy all the benefits of the system.
- Training schedules must be arranged where users of the system will be trained by the SAP professionals on regular bases to keep abreast with the system changes and modifications. Since the government is particular in reducing the cost of training, the study recommends that, besides hiring external professionals, it should employ a full time qualified SAP professional for continuous training and to deal with the problems arising on daily use. Continuous training will motivate the users of the system and they will develop an interest in using SAP which a remedy of eliminating resistance to change.
- The government should practice e-procurement to increase efficiency at the same time cutting cost.
5.4 Areas of further research

➢ This research study was qualitative in nature thus a more comprehensive quantitative research on the effectiveness of SAP PFMS as a budgeting tool in public procurement can be of interest.

➢ Further research needs to be carried out on the effectiveness of SAP system in mitigating procurement risks.

5.5 Chapter Summary

This chapter has looked at the summary of the research project, the conclusions that have derived from the study and lastly the recommendations that have been made by the researcher.
REFERENCES


CIPS (2011) Developing contracts in purchasing and supply. 5th edn. Lincolnshire: Profex publishing company.


**APPENDIX 1: INTRODUCTION LETTER**
04 February 2019

To whom it may concern

**REF:** research Project Assistance

I am a Bindura University of Science Education student studying towards a Bachelor of Commerce Honours Degree in Purchasing and Supply. It is a requirement of the university that all students should carry out research projects in partial fulfilment of the degree requirement. In partial fulfillment of the degree program, the university requires that each student chooses a research topic pertaining to his/her area of study. My research title is: **the effectiveness of PFMS SAP system as a budgeting tool in public procurement**. Attached to this letter is a questionnaire which will aid me in data gathering. The questionnaire is divided into 4 sections. Please read instructions in each section before answering the questions. All the information provided is strictly confidential and will be solely used for this academic purpose.

Your assistance in completing the attached questionnaire will be greatly appreciated.

Thank you for your help.

Yours faithfully,

.....................

B1542503
APPENDIX 2: QUESTIONNAIRE

INSTRUCTIONS

Do not write your name or cell number on this questionnaire

May you please attempt all 17 questions

Please tick (√) in the box of your preferred and/or answer in the place provided if narrative

SECTION A

1. Gender

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
</table>

2. Age

<table>
<thead>
<tr>
<th>18 ≤ age ≤ 30</th>
<th>31 ≤ age ≤ 35</th>
<th>36 ≤ age ≤ 40</th>
<th>41 ≤ age ≤ 45</th>
<th>46 ≤ age ≤ 50</th>
<th>age ≤ 51</th>
</tr>
</thead>
</table>

3. Profession/ Work department

<table>
<thead>
<tr>
<th>Procurement</th>
<th>Administration</th>
<th>Finance</th>
<th>System Administrators</th>
</tr>
</thead>
</table>

4. Professional qualifications
<table>
<thead>
<tr>
<th>A’ Level</th>
<th>Diploma</th>
<th>Degree</th>
<th>Professional course</th>
<th>Post graduate</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**SECTION B**

5. Kindly rate the suitability of SAP system on budget control in your department

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<tr>
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</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

6. Is there a possibility that a department or an individual who is not directly involved in the procurement process might have access in SAP system?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If yes, which department(s) has an access and how does it being affected

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………

7. Does the use of SAP system promote a fixed budget ceiling?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. The procurement plans highly depend on the budget set
Yes

No

If no, what are the likely causes of such a scenario?

…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………

SECTION C

9. Kindly rate how SAP system is being utilised in procurement

|-------------------|----------------|--------|--------------|--------------|

<table>
<thead>
<tr>
<th>Supply chain management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier relationship management</td>
</tr>
<tr>
<td>Customer relationship management</td>
</tr>
<tr>
<td>People integration</td>
</tr>
<tr>
<td>Information integration</td>
</tr>
<tr>
<td>Segregation of duties</td>
</tr>
</tbody>
</table>

10. rate the compatibility of SAP system with security support measures and mechanisms in control of fraud
1. highly compatible  2. compatible  3. neutral  4. not compatible

11. Does segregation of duties and profiling minimise fraudulent activities in procurement

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

12. What can be done to eliminate or minimise fraudulent activities in procurement

a) .............................................................................................................................................

.............................................................................................................................................

b) .............................................................................................................................................

.............................................................................................................................................

13. Do you think the system can accommodate fraudulent activities in procurement?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

85
SECTION D

14. The government has the ability to control and monitor purchase of goods and services

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. The government exercise its power and authority in controlling public procurement?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>1. Poor</th>
<th>2. Satisfactory</th>
<th>3. Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System re-engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultant selection and relationship</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
17. Do you think the government should implement other measures to complement SAP system in controlling and monitoring public spending through procurement?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

If yes, kindly list them

a)..............................................................................................................

b)..............................................................................................................

c)..............................................................................................................

THANK YOU
APPENDIX 3: INTERVIEW GUIDE

1. How long have you been using SAP system?

2. How frequently do you receive training and SAP manuals?

3. How do you rate the effectiveness of SAP system in monitoring and controlling public procurement?

4. Do you think the government has got the ability and capability of controlling public procurement?

5. What could be a cause of processing of transactions outside the SAP system?

6. Does the procurement plans and adjudication of tenders done in a transparency way?

7. Does the handover takeover of profiles done in a way which ensures accountability?