

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS



**ASSESSING THE EFFECTIVENESS OF INFORMATION TECHNOLOGY IN CONDUCTING
PROCUREMENT PROCEEDINGS IN THE PUBLIC SECTOR. A CASE STUDY OF PIG
INDUSTRY BOARD OF ZIMBABWE.**

BY

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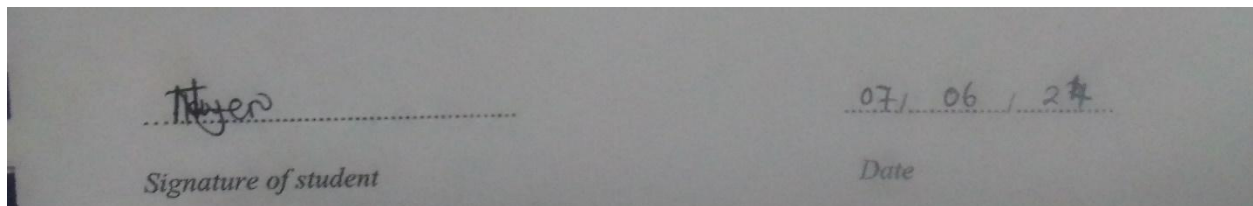
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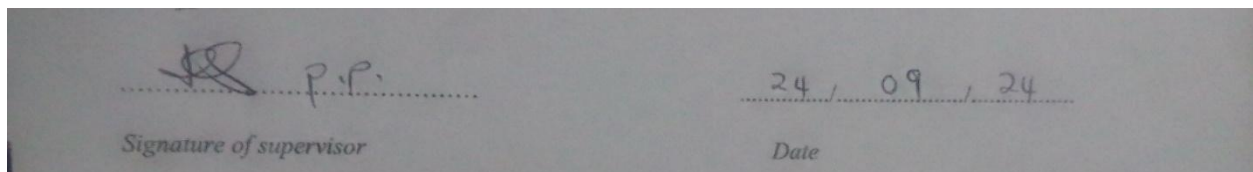
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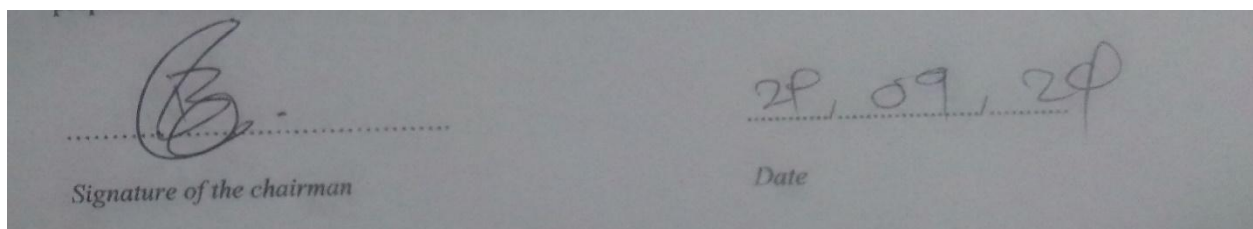
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DEDICATION

I dedicate this dissertation to my family for your unwavering belief in me and unconditional support that have been the driving force behind my academic pursuits

ABSTRACT

The intention of the project was to assess the impact of Information Technology in conducting procurement proceedings. Research objectives were to identify the information technology tools being utilised at Pig Industry Board of Zimbabwe; find out the impact of IT in conducting procurement proceedings and to identify the problems associated with the adoption Information Technology in conducting procurement proceedings. The research utilised a descriptive survey as its design. It included the data collection, computing data, findings tabulation and data interpretation. The population comprised of the top management, finance, procurement and the IT departments. Data collection from sample was conducted using questionnaires and afterwards analysed using percentages and frequencies. The results showed that Pig Industry Board of Zimbabwe adopted an Electronic Data Interchange (EDI) system which it is using in conducting procurement proceedings. In addition to that, the outcome also highlight that Information Technology has a strong effect in conducting procurement proceeding in supply chain management. The researcher recommends that Information Technology systems must be implemented in the public sector for effective supply chain management.

Key words: procurement proceedings, Information Technology, service delivery

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LIST OF ACRONYMS

ICT	Information Communication Technology
EDI	Electronic Data Interchange
SCM	Supply Chain Management
ERP	Enterprise Resource Planning

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section introduces the study which is an assessment on the effectiveness of IT (Information Technology) in conducting procurement proceedings in the public sector at Pig Industry Board of Zimbabwe. Presented in this chapter is the introduction, problem statement, research background, objectives of the research, research questions, significance of the research, limitations and delimitations, and research assumptions and definitions that are being used in this paper.

1.1 Background of the study

The public sector has been reluctant to implement Information Technology systems although they are aware of the basic technologies such as emails. The main reason for this is because of some resistance to revolutionise by being narrow-minded and bonded to documents (Chimberengwa et al., 2015). About 60% of Zimbabwe's expenses are allocated to procurement in the public sector. The amount is very high taking into account that liquidity problems followed by a balance of expenses arrears (Mushanyuri, 2014). That's the major basis why people have held responsible procurement in the public sector and consequences of its crash to offer public utilities and services (Chigudu, 2014).

Information Technology improves sharing of information, performance and eliminate risks in procurement proceedings by offering software, process implementation of responsibilities and show information to those who make decisions in formats that is required. Moon (2017) stated that Information Technology is of great significance in incorporation of customers and suppliers to guarantee the exact amount of goods are delivered. Adopting Information Technology can be useful to data capturing, regularisation of transaction and real time processing that shall generate stability involving supply and demand in the midst of supply chain associates. Information technology is very important in controlling and management of procurement proceedings.

At Pig Industry Board Zimbabwe, poor service delivery is shown by low quality of purchased services and deficiency of needs. The challenges are originating from lack of planning, poor execution of contracts and the main cause of the problems has been shortage of enough information technology tools in the public sector. Through the implementation of Information Technology, procurement proceedings can be done online through the internet. Orders can be approved online and all the necessary procedures can be conducted within a little moment in time (Chigudu, 2014). The systems that are presently being utilised in public sector are not entirely implemented as several firms don't completely utilise it (Chimberengwa et al., 2015). The systems must be utilised by the Pig Industry Board of Zimbabwe to invite suppliers and submission of quotations.

Bertschek, Cerquera and Klein (2013) assessed the impact of Information Technology on company performance stated that technology had turn out to be the main foundation of information, services and products and the use of internet in procurement has develop into one of the most debated subjects in procurement and shall refurbish the technicalities and approaches of procurement in the future. Craig, Carter and Washispack (2018) indicated that mutually developing and developed nations have implemented IT to enhance service delivery in the public sector, improve the general access to information by the people and boost contribution of civil society in political and economic matters. Chebii (2016) researched the situation in Kenya and noted that generally countries have appreciated public participation in bidding processes and were on a route that generates chances for every supplier to advance service delivery in the public sector.

Information Technology is a crucial part in conducting procurement processes. An information technology system is composed of top notch management in procurement proceedings. E-procurement comprise of e-auctioning, e-tendering, management, and contract management. The systems also involves tender or bids preparations. The systems can also be used to enhance interaction between company stakeholders and suppliers of diverse types of goods and services. The levels to which Information Technology systems are used for procurement processes at Pig Industry Board of Zimbabwe is low. Therefore, this paper is aimed to examine the effectiveness of IT in conducting procurement proceedings at Pig Industry Board of Zimbabwe.

1.2 Statement of the problem

Procurement departments embraced utilisation of IT in procurement process through the use of competent software programs in the 21st century. Unfortunately up to date, not much audit has been done on the adequate, required practical installation and use of necessary IT equipment in each Public Institution. As such, the sector has not been aware of the effects that inadequate implementation of IT systems continues to have on the day to day running of departments of procurement. Unfortunately again, despite IT's critical and indispensable role, there exists evident partial competency in the use of IT tools by some key personnel as well as partial implementation of the crucial IT systems in Public Institutions (Shamhu et al,2016). Effective implementation and use of IT impacts on procurement performance in ways that reflect cost effectiveness, timeous decision making and advance anticipation of impending problems affecting the institution, since suppliers are selected on a bidding system. However, the absence of adequate and effective IT implementation and use results in Public Institutions getting comprised. Poor IT system use results in heavy impact in the cash flow and expenses besides expected service provision to the nation. Therefore in order for such effects of IT to be considered, Government institutions have to acknowledge how effective competent IT implementation and use continue to affect procurement processes in a way that ensures transparency and accountability, improved efficiency of procurement proceedings, informed decision making, that is mostly cost effective and improving communication for best relations between the public sector and suppliers. Reluctantly, it is crucial to investigate the level of IT implementation and its effects in the Public sector procurement proceedings using Pig Industry Board of Zimbabwe.

1.3 Purpose of Research

The reason of this research is to examine effects Information Technology has in conducting procurement proceedings using Pig Industry Board of Zimbabwe.

1.4 Objectives

1. To discover IT tools that are being used in conducting procurement proceedings at Pig Industry Board in Zimbabwe
2. To establish the role of Information Technology in conducting procurement proceedings at Pig Industry Board in Zimbabwe

3. To examine the effectiveness of implementing Information Technology systems in conducting procurement proceedings at Pig Industry Board in Zimbabwe
4. To identify the strategies that can be used to implement effective Information Technology systems that can be used in conducting procurement proceedings at Pig Industry Board in Zimbabwe

1.5 Research questions

1. What are the Information Technology utilities that are being utilised in conducting procurement proceedings at Pig Industry Board in Zimbabwe?
2. What is the role of Information Technology in conducting procurement proceedings at Pig Industry Board in Zimbabwe?
3. What are the effects of implementing Information Technology systems in conducting procurement proceedings at Pig Industry Board in Zimbabwe?
4. Which strategies can be proffered in order to ensure effective implementation of Information Technology systems that can be used in conducting procurement proceedings at Pig Industry Board in Zimbabwe?

1.6 Significance of study

The project would be crucial to both the employees in the procurement department, to the university, to the researcher and to the government in various ways as below:

1.6.1 Procurement employees

If an employee is able to recognize the effectiveness of using information technology in conducting procurement proceedings, then he or she might be in a position to enhance service delivery. The use of E-learning makes it easier for the employees to have impact on procurement performance in ways that reflect cost effectiveness, timeous decision making and advance anticipation of impending problems affecting the institution, since suppliers are selected on a bidding system. The employees shall be able to improve their procurement skills through the utilisation of Information Technology. Furthermore, if the research is used well, it shall have helpful effect on the Pig Industry Board of Zimbabwe in general.

1.6.2 The researcher

The research outcomes will benefit researcher's own professional growth since it helps to increase problem solving skills. The researcher will have an appreciation of what is actually taking place in conducting procurement proceedings at Pig industry Board of Zimbabwe. In addition, this dissertation is in inequitable completion of the researcher's degree program. The project outcomes will assist the researcher to acquire positive research techniques like interviewing as a strategy of data collection. The researcher will also be equipped with a number of skills on how to carry out a research project, record data collected and to find out answers to a problem.

1.6.4 The management

The research will help the management at Pig Industry Board of Zimbabwe to see the need to implement the use of effective Information Technology systems.

1.7 Assumptions

- Participants who took part in this research provided information willingly based on their own awareness and their daily experiences.
- The managers and the employees collaborated and assisted the researcher genuinely as they provided accurate information about the cohort under investigation.
- The researcher was allowed by the organisation under study to have access to all the required information.

1.8 Delimitation

The research was centred at Pig Industry of Zimbabwe, Harare. It was chosen generally because of the closeness to the researcher and she could effortlessly get access to the organisation, cutting the expenses. The research is focused on the employees and administration at Pig Industry Board of Zimbabwe as these were the users of the Information Technology system in conducting procurement proceedings.

1.9 Limitations

The project was conducted in an atmosphere flooded with a quite number of barriers. The researcher had a challenge of limited resources in the form of funds. The research sample was very

small as the number of participants from Pig Industry Board of Zimbabwe was very few within the area of study.

1.10 Definition of terms

Information Technology

IT is a set of linked fields that include computer, software, programming language, processing of information and data storage.

Stakeholder

A stakeholder is an individual or group of people with interest in the making of decisions and running of a business or a project.

Service delivery

Service delivery refers to level of fulfilment of the needs of a customer at the smallest possible total cost of procuring, possession, and utilisation. This is attained when demands are met wholly, dependably, and cost efficiently.

Procurement

It is the procedure of establishing and agreeing to terms and buying services from an outside source, regularly using of a tendering or bidding process.

1.11 Summary

This chapter has gone over an introduction of the study, providing an insight of what the study is all about providing the research background. It outlined the objectives and questions of the research. It also highlighted limitations, delimitations and assumptions of the research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter shall put its focus on reviewing related literature. It shall show other similar studies which were conducted locally in Zimbabwe, regionally in Africa and globally other continents. More so, it will expose the perceptions of other researchers and authorities on the effectiveness of IT (Information Technology) in conducting procurement proceedings in the public sector. This chapter shall be centred on types of IT tools existing for procurement proceedings, the role of Information technology in conducting procurement proceedings and the effects of implementing Information Systems in conducting procurement proceedings.

2.1 Conceptual Framework

The always transforming business atmosphere sets the competitive atmosphere in which the public institutions are operating in. Therefore, for them to keep up with competition organisations must adopt Information Technology which can make sure firms sustain in the economical atmosphere. Implementation of IT enables procurement department to balance its requirements to fulfil customer needs and control cost for them to get profits. Information Technology establishes the technological strength of e-procurement adoption thus create better environment for better flow of information for supply chain management which leads to procurement effectiveness. IT links all departments in the firm. IT allows the firm to change their approach of supply chain management and eliminates all paper based processes for procurement efficiency. Effective procurement is when deliveries are timely and fast, procurement processes are short.

THE CONCEPTUAL MODEL

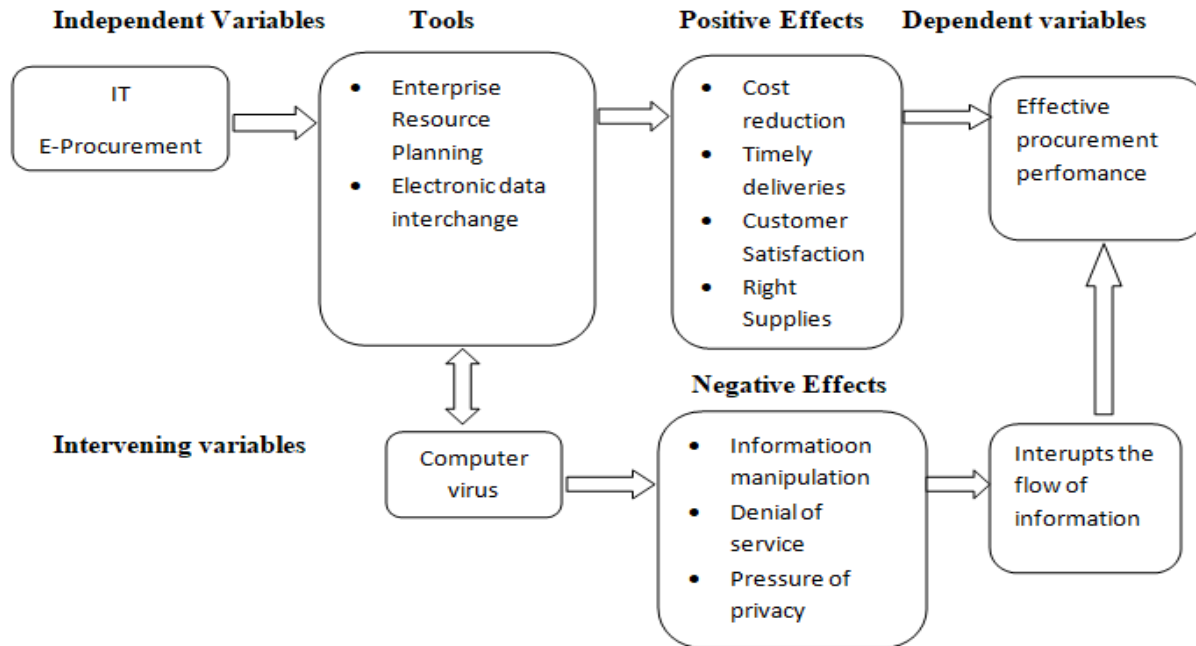


Figure 1: A conceptual diagram of Information Technology and procurement performance

Source: Self Conceptualisation (2017)

The variables shown by figure 1 are Information Technology as an independent variable and procurement performance as dependent variable and the other variables incorporate; viruses in computers, pressure for privacy, ever transforming technology, and denial of services attacks. This paved the way to the research topic as stated 'the effectiveness of IT in conducting procurement proceedings.

2.2 Theoretical Framework

Creswell (2009) described theoretical framework as a collection of ideas which are related so as to offer supervision to a research project. Furthermore, it links the person who reads to existing facts. This research put down facts relating to the impact of IT in conducting procurement proceedings highlighting available of IT tools for procurement processes, the role of Information technology in conducting procurement proceedings and the effects of implementing Information Systems in conducting procurement proceedings.

2.3 The Information Technology tools used in conducting the procurement proceedings

2.3.1 Enterprise Resource planning

ERP is the incorporation of organisational processes by providing a single application with one database. According to Monczka, et al., (2009), ERP system is an incorporated business processing and reporting software. The system provides an entire set of application including order processes and significant benefits to an organisation if it is well installed (Barbara and Sprangue, 2012). ERP is intended to gather and categorize information across departments and processes in an institution and making it strappingly available in accounting, procurement and HR. It is the high-tech in incorporated modernization in human resource management. The system is designed to hold data for big organisations functional in an international environment.

2.3.2 Electronic Data Interchange (EDI)

EDI is the switch over of data from one computer to another for automatic processing. It can be utilised in procurement to exchange vital information which is essential for efficient operations of an organisation. The formulated connections are generally built among firms with lengthy-term relations. EDI has several benefits in conducting procurement proceedings which include enhancing timely data about its client sales, high accuracy and incredibly effective since EDI does not need employees to gather data manually. EDIs are used to exchange data, mail invoices and any information connected to the firm.

2.4 The role of Information Technology in procurement proceedings

Electronic procurement is the buying and selling of labour and services such as data network and information systems. There are several forms of electronic procurement and these comprise of e-contracts, e-ordering and e-sourcing. Electronic procurement can be described as the process of incorporating and reorganization of procurement practices of an organisation (Muhia & Afande, 2015). Incorporation of customers and suppliers has been getting better over the years but problems are still present for some small scale manufacturers since they lack of information technology infrastructure and financial capital needed to implement Information technology systems (Mullins, 2010). Information Technology is linked with improved efficiency, cost effectiveness in transactions, transparency and accountability of public procurement process.

2.5 The impact of Information Technology on procurement proceedings

2.5.1 Transparency and security

Information Technology warrants security and transparency of the information in an organisation. A study done by Nair (2012), the results were that the participants reflected that adoption of IT in procurement effortlessly manages and controls the exchange of information within major organisational functions. In addition, it contributes to profits in the organisation by enhancing excellence and decreasing expenses.

2.5.2 Timely deliveries and customer satisfaction

IT plays a crucial part in the incorporation of customers and suppliers to make sure that the exact quality and quantity of goods and services are supplied so as to guarantee the customer is satisfied. Auramo et al. (2005) in the examination of advantages of Information Technology in discovered that IT was useful to information capturing, and normalization of business that were likely to generate stability among deliver and customer requirements. Brooks and Davenport in their 2004 study of ERP and procurement agreed that IT was a vital requirement for monitoring and controlling procurement processes.

2.5.3 Creates value

Information Technology enhances procurement as it creates value. IT makes it possible for businesses to enhance procurement processes and redesign procurement proceedings thereby improving operations of an organisation. (Katayama and Banet, 2009). More so, the use of Information Technology in procurement resulted in quality, huge efficiencies, and timely flow of relevant organisational information.

2.5.4 Competitive advantage

IT enhances the competitive advantage offered by the buying part in a firm. The exchange of data between customers and suppliers for the automatic replacement of stock also indicates the significance of EDI in procurement as it provides the firm with an enhanced competitive advantage over other firms (Lysons, 2016). The allocation and utilisation of organisational resources in a way that others cannot imitate is the competitive advantage. Adoption of IT can be considered a competitive advantage. IT wires firms in building a sustainable and length competitive advantage

by dealing with the task of information generated by various functions that take part in procurement.

2.5.5 Flexibility

IT has an essential positive influence to procurement because it increases information technology flexibility thereby improves procurement agility. Procurement agility is the capacity of procurement entirely and its staff to quickly partner the internet and its functionalities. Timely responses will flourish if Information technology supports the operations and activities. IT provides the gathering of data from the market, data processing and application. It enables the firms to centre its attention more on value accumulation processes such as helping customers more willingly than operational matters.

2.6 Challenges faced in adopting ICT in procurement proceeding

2.6.1 The information systems investment challenge

There is high cost of introducing new ICT systems. This problem is caused by the development of powerful and expensive computers. Accepting the costs and advantages of implementing an IT system is complicated (Donald Water, 2009). It is very difficult for companies in the public sector to effectively implement Information Technology systems due to these costs.

2.6.2 Computer viruses

IT utilises computer hardware and software that can be attacked by computer viruses. A virus is a program that can affect or alter the performance of the computer without the owner's knowledge or permission. It can be transmitted from one computer to another by infecting file systems.

2.6.3 Denial of service attack

The attacks are caused by hackers. In this attack, lawful users of the system are deprived of access to the system because a hacker will be in control of the system through a zombie account. A computer system is overloaded with requests of (DOS) Disk Operating System, which is used for file management, disk management, process management as well as input/output operations and

they close down and decline to respond any request as from lawful users. Authorized users are denied access.

2.6.4 The globalization challenge

Fast development in business and the surfacing of worldwide financial system require IT infrastructure that sustain both manufacturing and exporting services in diverse nations.

2.6.5 Pressure for privacy and security

This arises from high-tech inventions from public requirements of consumers and suppliers as well as from data protection policies and their effects on procurement. Data protection is a key organisational requirement in information economy that raise ethical questions. IT tools such as e-mails encompass security of a firm since insightful data can effortlessly be dispersed unintentionally.

2.7 Solutions to challenges in adoption of Information Technology in procurement

Researchers have recommended that stakeholders should be systematically inducted on the use of IT so as to fully utilise the benefits of adopting it. Bhasin (2012) was in support of a view above when he stated that it is a renowned truth that experts of staff training in supply is an answer to successful adoption of IT in supply chain. Stakeholders' skills should be well sharpened for them to improve skills of using IT infrastructure.

Lack of capital investment was mentioned as the main challenge in conducting procurement processes. The firms should solicit funds from all sources possible for them to utilise Information Technology. A change in mind set of leaders in the public sector can lead to effective implementation of Information Technology in conducting procurement processes

2.8 Empirical Evidence

2.8.1 IT in conducting procurement proceedings in the of Malaysian public sector

A research by Aman and Kasimin (2011) on adoption of Information Technology in Malaysia public sector was conducted so as to understand the effects of IT in the public sector. Results indicated that Information Technology implementation in public sector improves accessibility of suppliers through e-procurement. Through e-procurement, the purchasers have access to suppliers worldwide, which explains the wider selection of services. Additionally, the Malaysian public

sector through the adoption of Information technology has improved accountability in procurement of public goods by removal of direct human contact on tendering processes.

2.8.2 IT in conducting procurement proceedings in Kenya's Public sector

Orina (2013) carried out a research on willingness to adopt IT in Kenya as to establish degree of IT stages in public firms. The outcome of the research also reflected that resistance to transform, lack of interest and poor purchasing policies affected the willingness to adopt IT in public firms. Furthermore, research results also indicated that good procurement performance can be appreciated and if technology is implemented. Cheptora (2018) studied the effects of information technology in Kenya and discovered that IT system encompassed serrate monitoring, e-auctioning, and contract management.

2.8.3 Information technology and procurement in the public sector in Zimbabwe

Waigwa and Njeru (2016), in their research on variables affecting management of purchasing contracts in the public safety industry, indicated that communal industries entities use electronic procurement to get benefits such as improved effectiveness and save money from expenses, lesser procurement time and improved accountability to lessen fraud in supply chain by staying away from face to face business with suppliers. According to Chimberengwa et al. (2015), in the study on procurement practices at Gwanda Provincial Hospital, Matabeleland South Province Zimbabwe stated that Zimbabwean public industry is yet to completely appreciate electronic procurement.

For some time the Zimbabwean public procurement has accounted for 20-25% of the country's annual budget. Procurement in the public sector was centralised and it had bottlenecks and delays. According to www.herald.co.zw the Zimbabwean government introduced the electronic government procurement system (E-GP) in order to curb the increase in corruption in awarding of tenders in the public sector. E-GP is an efficient and current public procurement system which boost value for money, enhance transparency and improve accountability. The electronic government procurement system also helps in eliminating the need paper work. Most of public institutions in Zimbabwe adopted the e-gp system for them to carry out procurement processes effectively.

2.9 Research gap

From the above, research work has been done globally in Malaysia, regionally in Kenya, Africa and locally. Besides the utilisation of emails and implementation of mobile transactions by the public sector in Zimbabwe, the software's implemented for procurement the public sector in Zimbabwe are not well known and the levels to which IT tools are being used in purchasing and supply by the public sector need further research. Additionally, the impact of Information Technology. This study sought to assess on the effectiveness of Information Technology in conducting procurement proceedings in the public sector at Pig Industry Board of Zimbabwe.

2.10 Summary

This section discussed the effectiveness of Information Technology in conducting procurement proceedings in the public sector. The viewpoints included on types of media tools available for procurement processes, the role of Information technology in conducting procurement proceedings and the effects of implementing Information Systems in conducting procurement proceedings.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous section reviewed literature related to objectives of the research raised by various authors. This chapter's focal point is on methodology utilised to acquire the research data that is useful for this research to be a success. It comprises of the following sub-headings: the target population, ethical consideration and the designs.

3.2 Research design

Bless and Smith (2015) indicated that the research design includes setting up of a research from the initial step to the final step. It is a procedure which the researcher shall use for her to collect, analyse and interpret the results. The researcher utilised a descriptive survey.

3.2.1 Descriptive Survey

A descriptive survey was used since it offers a true account of the attributes of the respondents in the study. The design assisted to decrease the disadvantage of generalization of the results as it is vigorous and more consistent. It allowed the researcher to use suitable research tools for data collection. A descriptive approach assisted in acquiring first-hand information from the participants. The author selected the survey design for its reliability and credible results on studying effects of Information Technology in conducting procurement proceedings at Pig Industry Board in Zimbabwe, despite the fact that it takes time to complete the research. The approach was utilised in this research so as to increase more knowledge and to amplify the validity of the study findings, thus additional facts and applicable conclusions on possible remedies which could be drawn from results, (Brown, 2020).

3.2.2 Research method

Shepherd (2002) indicated that a paradigm is the methodical exploration of a matter to gather significant information. For this paper, a combination of both quantitative and qualitative research (**The Mixed-method Approach**) was adopted. The author opted for this method since it also centres its attention on gathering data whilst mixing both quantitative and qualitative methods. However, data collection and analysis can be a very long and take a lot of time to complete.

3.2.3 Qualitative Method

The qualitative approach is frequently utilised to capture non-numeric data which cannot be quantified (Ramsey and Schafer, 2002). Qualitative methods are mostly helpful in responding the “why” and “how” questions.

3.2.4 Quantitative Method

Quantitative approach deals with the numerical values and statistical analysis to give quantitative information (Lund 2007). Typically, the approach makes use of a structured questionnaire with answers already provided for the respondents.

3.2.5 Mixed Method Approach

A mixed method research design combines methods of investigation with philosophical presumptions. As a technique, it comprises philosophical presumptions that influence the course of data collection and analysis as well as the combination of qualitative and quantitative methodologies in several stages of the research process, according to Creswell and Clark (2011). In a single research or set of studies, it concentrates on gathering, analysing and combining qualitative and quantitative data. The researcher had the benefit of utilizing data to provide more accuracy to words, images and stories while employing the mixed method technique. The researcher conducted interviews in addition to using a questionnaire to gather qualitative data. Given that the researcher is not restricted by the precepts of a certain research technique, the application of the mixed method approach allows the researcher to address a wider and more comprehensive spectrum of all topics. To counteract the limitations of the quantitative approach,

the researcher leveraged the strength of the qualitative approach. Put differently, the idea of complementarities is incorporated into the mixed method approach.

3.3 Target Population

Gidden (2001) proclaims a target population is a whole group of people which are of interest to the topic under study. The targeted population in this research comprised of staff and management at Pig Industry Board of Zimbabwe.

3.4 Sample

A sample is a group of procedures and objects taken from the target population. Mhaka, (2016) stated that a sample is the set of objects or people representing a huge population. The study encompassed staff and management members at Pig Industries Board of Zimbabwe and a sample of 12 staff members and 4 managers was utilised. It was confined within Pig Industry Board in Zimbabwe. Sampling was done in this study because it reduces time since a tin group of individuals can represent the entire firm.

3.4.1 Sampling procedures

3.4.1.1 Purposive Sampling

. The researcher opted for this procedure because she wanted to pick the right candidates for the study. She had to choose a sample which incorporated people of interest in relation to the use of Information Technology in conducting procurement proceedings and these were purchasing professionals, marketing professionals and accounting professionals. The researcher also used purposive sampling to select the top or senior management.

3.5 Data Collection Instruments

Research instruments are utilities which are utilised for data gathering from both primary and secondary sources. The reason of using the descriptive design was to assess effects Information Technology has in conducting procurement proceedings and to come up with strategies that can be used to implement effective Information Technology systems that can be used in conducting procurement proceedings at Pig Industry Board in Zimbabwe. In this particular research study, questionnaires and interviews are utilised. They catered for the shortcomings of each other.

3.5.1 Questionnaire

A questionnaire is a paper with a set of written questions that given to the participants which they are required to complete Brown (2001). The researcher opted for this instrument because there was no room for her to influence the outcome of the research since they were send to the participants. The participants also answered the questions freely during their free time since the author was not putting pressure on them. The instrument had structured questions hence it was easy to quantify and analyse the search. A questionnaire also has its own drawbacks. There was no guarantee that the participants will not withhold information, the questionnaires that were sent by mail would be delivered and some might not understand the questions.

Questionnaires were dispatched and administered to the management and the staff members. The questionnaires were utilised to collect information on the effects of Information Technology in conducting procurement proceedings at Pig Industry Board of Zimbabwe and to come up with strategies that can be used to implement effective Information Technology systems that can be used in conducting procurement proceedings.

3.5.2 Interviews

Cohen and Manion (2009) concluded that it involves a conversation that is between two participants, whereby interviewer initiate it so as to solicit data from the participants. Interviews made it possible for the researcher to have a high response because all the respondents were successfully interviewed. The instrument allowed face to face interaction hence the research had a well detailed evaluation the participants and authenticated the information focusing on the respondents' body language. However, it has disadvantages. The respondents were on a busy schedule so they complained about time.

3.6 Data Collection Procedure

Data gathering was conducted in three sessions. The initial stage was of getting permission to access information from the staff and management at Pig Industry Board of Zimbabwe. The researcher wrote a formal letters and she was granted permission to access information at the organisation. The second stage was of liaising with the respondents. It was conducted with both management and the staff and management at Pig Industry Board of Zimbabwe. The final stage

was the genuine collection of data from respondents, administering of questionnaires to management and staff members was done as she carried out interviews with all the respondents.

3.6.1 Ethical Considerations

Ethics assists in distinguishing between acceptable and unacceptable behaviours. Ethical guidelines prevent against the untruth or falsifying of data and therefore, endorse the search of facts and truth which is the main aim of a study, (Creswell, 2012; Ceker and Keser, 2019). The researcher made sure that all the required processes did no harm anyone in any way. The researcher revealed all the necessary components of the research. She also educated the respondents of their rights in context of the study.

3.6.2 Confidentiality and Anonymity

Confidentiality and anonymity can be assured. The researcher was work mates with the most of the respondents during her attachment at the company therefore she was familiar with manners and attitudes in the firm. The researcher managed to conduct the firm and explained the significance of this paper. This allows trust and complimentary provision of the necessary information and help without unfairness. Consent was then acquired on use and distribution of gathered data.

3.6.3 Informed Consent

ACeker and Keser, (2019), stated that informed consent means that respondents must be completely knowledgeable about the processes and risks concerned in the study and must provide their consent to contribute. The researcher requested for permission to conduct the research from the management of the firm.

3.6.4 Data Presentation and Analysis

Data analysis refers to the significant evaluation of the implicit data and making conclusions (Kombo & Tromp, 2009). The answers from each area covered by the study were coded to aid processing of information and cross – referencing. Table, graphs and pie charts were used as the media of data presentation. The analysis of data and explanation of results was carried out utilising both qualitative and quantitative approaches.

3.7 Summary

The chapter described the methodology used in the study. This research used a descriptive survey to collect data from the participants. It adopted mixed methods, thereby utilising both qualitative and quantitative methods. The chapter defined the target population and indicated the number of participants to be used in its sample. Purposive sampling was used as the procedure the chapter also highlighted the research instruments that were used.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The main objective of this chapter is to present the collected data, analyse it and to explain results of the study. The chapter shall begin with a demographic description of the sample, and then explanation on the results for each of the study question. Interpretation of the data is given being guided by the requirements of the research questions. Data presentation was done in form of tables, graphs and pie charts.

4.2 Response Rate of Questionnaires

The first stage of the study was carried out using questionnaires. Sixteen questionnaires were dispatched to Pig Industry Board of Zimbabwe.

Table 1

Respondents	Number of questionnaires issued	Number of questionnaires completed	Response rate (%)
16	16	16	100%
Total	16	16	100%

Source: Primary data

From table 1 above, of the 16 questionnaires dispatched to Pig industry board of Zimbabwe employees, all of the questionnaires were successfully answered and returned. The table shows an overall response rate of 100% which means that the gathered data in the study is good enough to be a representation of the population. The response rate guaranteed the researcher that information obtained from the study is dependable or reliable.

4.2.1 Distribution of the participants by professional qualifications

Table 2

Level of qualification	Frequency	Percentage (%)
Undergraduate degree	9	56.3
Post graduate degree	4	25
Diploma	3	18.7
‘A’ Level certificate	0	0
‘O’ Level certificate	0	0
Total	16	100

Source: Primary data

The table above indicates the levels of education of the Pig Industry board of Zimbabwe participants for the interviews and the questionnaire. The attained qualification of the participants was good since it is guaranteed that respondents with higher qualifications provide dependable results. 56.3% had undergraduate degrees and 25% of the participants who had managerial posts were post graduates. The diploma holders were 18.7% of the total participants. With the respondents having at least a diploma, the researcher noted that the respondents were all qualified and suitable for answering questions in context of this study.

4.2.2 Category of the respondents

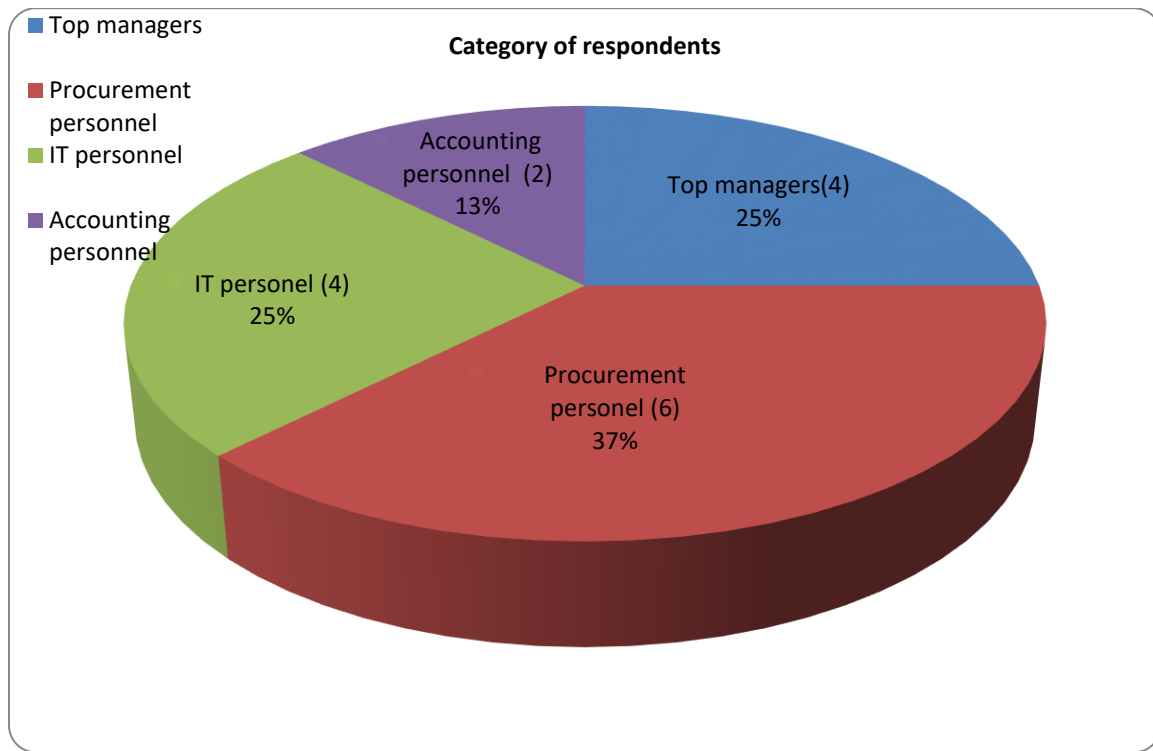


Figure 4.0 Distribution of respondents by category

Source: Primary data

The figure shows the participants' departments in their percentage. From the total of 16 participants, the procurement has more participants with 6 of the participants which is 37%. The participants were the well-informed individuals who use Information Technology in conducting procurement proceedings because they are the ones who conduct the procurement processes. Both IT department and the top managers had 25% of the sample. These participants are also important for this paper as they are crucial in the implementation of ICT tools and maintenance processes. Lastly the accounting department has 13% of the respondents and it is also crucial because the accounting department works in hand with the procurement.

4.2.3 Respondents' years of experience

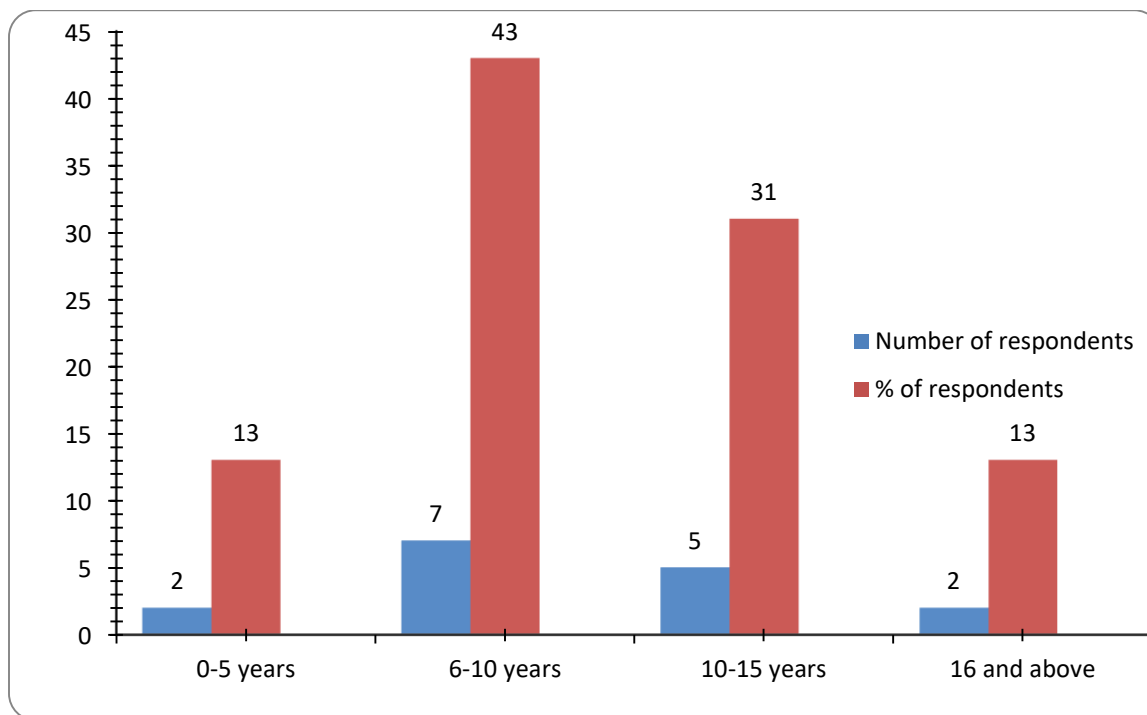


Figure 4.1 Distribution of respondents by experience

Source: Primary data

The figure above shows the participant's years' experience at Pig Industry Board of Zimbabwe. 13% of the participants had 0-5 years of experience, 43% of the respondents had 6-10 years of experience, there were 31% at the range of 10-15 years and lastly 13% the total respondents had 16 and above years of experience. The more the number of years with the company the more the experience therefore, they are more likely to provide valid and reliable responses which is of greater importance to this paper.

4.3 Distribution of the Information technology tools that are used in conducting procurement proceedings.

Response	Frequency	Percentage Frequency (%)
ERP	0	0
EDI	16	100
Other	0	0
Total	16	100

Source: Primary data

Table 3 depicts that most of the participants 100% (16) used Electronic Data Interchange tools in conducting procurement proceedings. They indicated that the institution adopted E-government procurement system (E-GP) that was implemented by the Zimbabwean government. According to www.herald.co.zw the Zimbabwean government introduced the electronic government procurement system (E-GP) in order to curb the increase in corruption in the awarding of tenders in the public sector. Most of the public institutions in Zimbabwe adopted the e-gp system for them to carry out procurement processes effectively.

4.4 Knowledge gained by the use of Information Technology tools

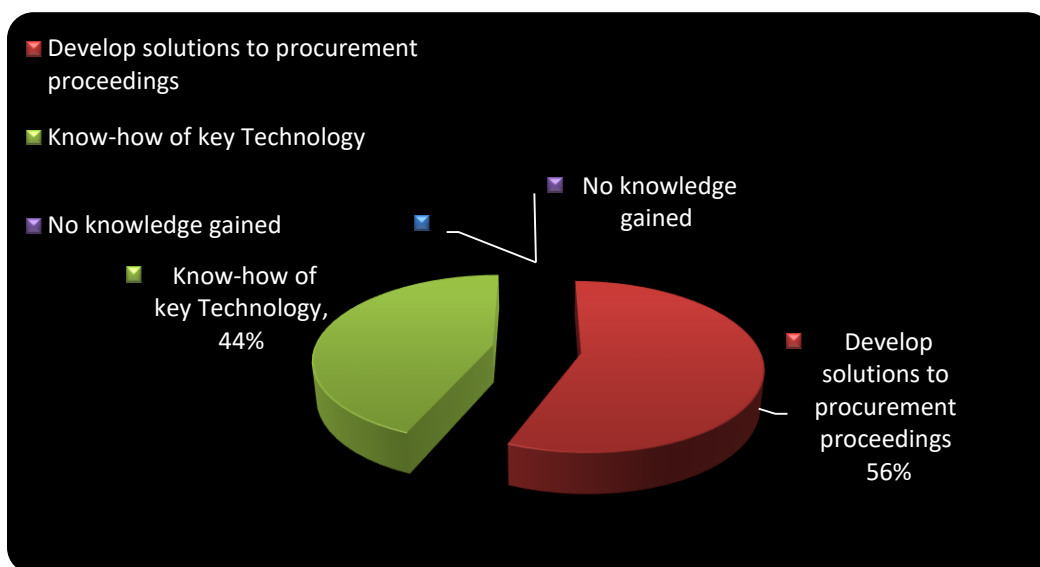


Figure 4.2 Information obtained from IT

Source: Primary data

Above are the figures containing the information or knowledge that Information Technology add to Pig Industry Board of Zimbabwe projects. A majority among respondents, 56% strongly agreed that information technology offers advantageous options for effective acquisition procedures. Mullins (2010) presented verification for this assertion, noting that information technology contributes to enhanced control and scrutiny of public procurement process, decreased transaction costs, fewer conflicts of interest and enhanced effectiveness. In addition to that 44% also agreed that the respondents gained the know-how of the technology used in conducting procurement proceedings through the use of Information Technology. None of the respondents indicated that no knowledge was gained from using Information Technology in conducting procurement. This is further supported by Brooks and Davenport's 2004 study on supply chains and enterprise systems, which discovered that technological innovation was crucial in regulating and overseeing the procurement process.

Conclusively, Information Technology is important to Pig Industry Board of Zimbabwe because it develops valuable solutions to effective procurement and it provides the technological know-how on how to effectively conduct procurement proceedings. This is in line with Mullins (2010) who purported that Information Technology is essential in conducting procurement proceedings since it is associated with increased efficiency.

4.5 Benefits of the implementation of IT at Pig Industry Board of Zimbabwe

The researcher categorized the participants' knowledge on the positive effects of establishing information technology systems into effect with the Pig Industry Board in Zimbabwe. Questions on the positive aspects of the company's utilization of information technology systems were put forward to the respondents and the viewpoints of the respondents are shown below in Figure 4.3.

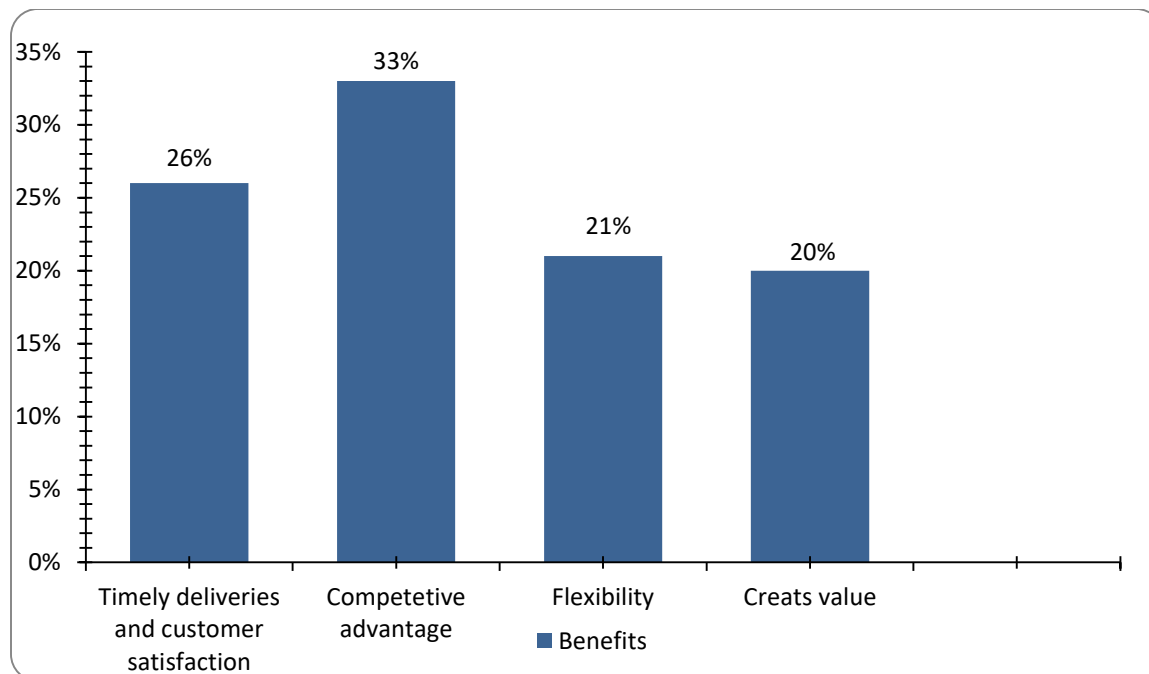


Figure 4.6 Distribution of the benefits of Information Technology in procurement

Source: Primary data

33% of the participants indicated that through Information Technology the organisation is able to have competitive advantage over other organisations. The other, 26 % of the participants also indicated that Information technology results in enhanced timely deliveries and customer satisfaction. Furthermore, 21% of the participants believed to that flexibility was the other benefit of Information Technology. The remaining 20% were of the view that Information Technology creates value. .

The above results showed that Information Technology at Pig Industries Board of Zimbabwe lead to advantages which are competitive advantage, customer satisfaction, timely deliveries, flexibility and value. Findings from the participants link with the results of Malhotra at al. (2016) who stated that Information Technology sustain firms in developing maintainable and competitive gain for a long time by attending to the function of information generated by diverse parties implicated in procurement.

4.6 Challenges for implementing Information Technology at Pig Industry Board of Zimbabwe

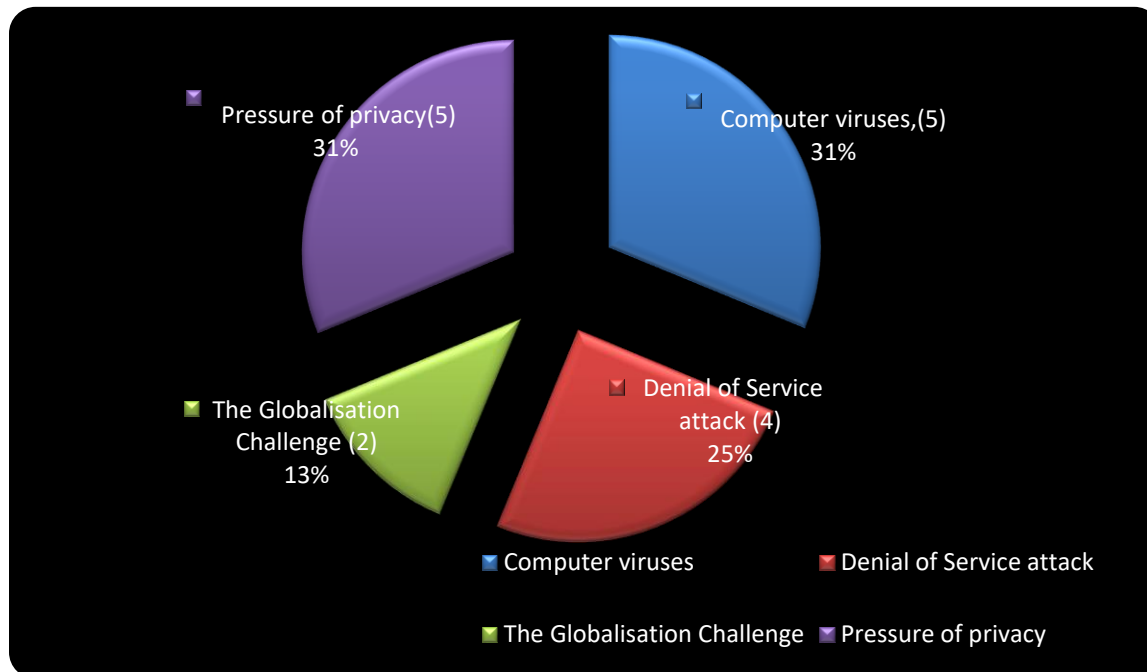


Figure 4.7 Distribution of the challenges of Information Technology in procurement

Source: Primary data

The above result shows that 31% of participants indicated that computer viruses and pressure of privacy are the main problems faced when adopting Information Technology in procurement. The other 25% of the participants indicated that denial of service attacks were also a challenge in implementing. The remaining 13% of the participants highlighted globalisation challenge. The outcome shows that, the challenges that are faced when implementing Information Technology at Pig Industry Board of Zimbabwe are; computer viruses, pressure of privacy, the globalisation challenge and denial of service attacks.

4.8 Analysis of the results

Investigation indicates that Information Technology impacts the organization and effectiveness of procurement all the way through the boost in quick deliveries and monitors the movement of information. The qualitative revealed some barriers are; computer viruses, pressure of privacy, the globalisation challenge and denial of service attacks. The results also revealed that employees have to be well educated on how to utilise e-procurement platforms. The results also highlighted that a change in the mind-set of the leaders in the public sector can lead to effective implementation of IT in conducting procurement processes. Pressure of privacy, the globalisation challenge and denial of service attacks are also some of the barriers in the adoption of IT at Pig Industries Board of Zimbabwe

4.9 Conclusion

This chapter has presented the data that was gathered for the research. I also analysed the data and then interpreted it. The following section shall focus on the research conclusions and the summary.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This part of the research shall describe the conclusions made about the study and a summary of the findings shall also be given. From the outcome of the study, the researcher shall give recommendations and suggestions for potential studies.

5.2 Summary of the findings

In general, the research was meant to assess effectiveness of IT in conducting procurement procedures using the ICT at Pig Industry Board of Zimbabwe. The researcher used a descriptive design and used the mixed-approach. The researcher collected data using questionnaires and interviews. A total of sixteen (16) questionnaires were dispersed to the managers and staff members at Pig Industry Board of Zimbabwe.

The study went ahead to find out that the Information Technology tools used at Pig Industry Board of Zimbabwe are Electronic Data Interchange (EDI) soft wares that are designed to automate and streamline the procurement process at Pig Industry Board of Zimbabwe. Research findings also show that information technology in conducting procurement proceedings allowed smooth and fast flow of information within the organization enhancing efficiency and cost saving through the elimination of manual processes and installing electronic exchange of procurement documents.

Information Technology outweigh the challenges of its adoption. It was found out that the benefits of Information Technology at Pig Industry Board of Zimbabwe are; timely deliveries and customer satisfaction, competitive advantage, flexibility and value creation. On the other hand, challenges in acceptance of Information Technology were; computer viruses, denial of service attacks, the global challenge and pressure of privacy and security.

5.3 Conclusions

5.3.1 The role of Information Technology on procurement proceedings

The study concludes that Information Technology is very essential in conducting procurement proceedings. This is so because the respondents concluded that the adoption of Information Technology at Pig Industry Board of Zimbabwe is associated with effectiveness, lesser costs, and decreased levels of corruption, and improved management of public procurement practices. More so, Information Technology also appreciate decreased lead time and facilitate better collection of services. However, there were also costs which are associated with the adoption and maintenance of Information Technology systems as per the respondent's views. .

5.3.2 Benefits of Information Technology at Pig Industry Board of Zimbabwe.

The study also concludes that Information Technology play an essential role to make sure that the exact amount and specifications of items are supplied and delivered in time so as to ensure customer satisfaction. This was based on the fact that Information Technology enables the employees to manage and trail the deliveries. This was highlighted on the basis that Information Technology enables the company to reach customers worldwide.

5.3.3 Challenges that are associated with the adoption of Information Technology

The main problems faced by Information Technology in conducting procurement proceedings are computer viruses, denial of service attacks, the global challenge and pressure of privacy and security.

5.4 Recommendations

- It is recommended that Pig Industry Board of Zimbabwe should adopt fully to Information Technology because it enhance procurement operations in all areas including the procurement department understudy when utilized. Firms shall have a competitive gain in the sector as it would be able to reach a wide range of suppliers as well as have digital accessibility whilst ensuring compliance with accessibility standards and regulations.
- There is need to implement IT across all departments at Pig Industries Board of Zimbabwe so as to boost the flow of information in linking departments.
- For the company to reduce corruption in the awarding of tenders and to remain competitive in the sector, the companies must adopt IT as it brings accountability and transparency.

- The management should change their mind set towards IT and E-procurement so as to enjoy the gains that are brought by the use of IT.

5.5 Suggestions for further research

Further research must be done on the effects of Information technology on small and medium enterprise. In addition there is need for further studies on the effects of IT on the organisation profitability. In addition, this study was a case of only one company hence a similar study must also be done using more companies or different firms.

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APPENDIX

INTERVIEW GUIDE

My name is **Tayero N** studying at Bindura University of Science Education towards a Bachelor of Education degree in Purchasing and Supply. I am conducting a research on the effectiveness of IT (Information Technology) in conducting procurement proceedings. A case study of Pig Industry Board of Zimbabwe. I am gently requesting you to respond to all questions and I promise you that the data gathered shall be handled with privacy and shall simply be utilised for educational reasons.

1. For how long have you worked at Pig Industry Board of Zimbabwe?
2. How long have you been using the Information Technology tools?
3. Which type of Information Technology tools do you have at your organisation?
4. What do you think are the benefits of Information Technology in conducting procurement proceedings at Pig Industry Board of Zimbabwe?
5. What do you think are the challenges faced by the organisation in using Information Technology in conducting procurement proceedings at Pig Industry Board of Zimbabwe?
6. In your view could be done to make sure implementation of Information Technology systems is successful at Pig Industry Board of Zimbabwe?

QUESTIONNAIRE

My name is **Tayero N** studying at Bindura University of Science Education towards a Bachelor of Education degree in Purchasing and Supply. I am conducting a research on the effectiveness of IT (Information Technology) in conducting procurement proceedings. A case study of Pig Industry Board of Zimbabwe. I am gently requesting you to respond to all questions and I promise you that the data gathered shall be handled with privacy and shall simply be utilised for educational reasons.

Please note:

1. Don't write your name
2. The data supplied is for educational reasons and will be handled with the essential confidentiality.
3. There are no incorrect answers.
4. Show your answer by ticking on the given boxes

SECTION A

1. What is qualifications do you have?

'O' level ☐ 'A' level ☐ Diploma ☐
Under-graduate ☐ Post-graduate ☐ No qualification ☐

2. What is the position you a holding currently at Pig Industry Board of Zimbabwe?

Manager ☐ Supply Chain Management ☐ Information Technology ☐
Accounting ☐

3. For how long have you worked at Pig Industry Board of Zimbabwe?

Less than a year ☐ 1-5 years ☐ 6-10 years ☐
11-15 years ☐ 16 years and above ☐

4. Tick your gender

Male ☐ Female ☐

SECTION B:

5) What are the information Technology tools that are be used in conducting procurement proceedings at Pig Industry Board in Zimbabwe?

Enterprise resource planning ☐ Electronic Data Interchange ☐ Others ☐

6) Which information do you attain from Information Technology at your organisation?

Key SD-strongly Disagree ☐ D-Disagree ☐ N-Neutral ☐

SA-Strongly Agree ☐ A-Agree ☐

Variable	SD	D	N	A	SA
modernised solutions to procurement proceedings					
awareness of main equipment					
No knowledge gained					

6) What are the benefits of implementing Information Technology systems in conducting procurement proceedings at Pig Industry Board in Zimbabwe?

Key: SD-strongly Disagree ☐ D-Disagree ☐ N-Neutral ☐

SA-Strongly Agree ☐ A-Agree ☐

Benefit	SD	D	N	A	SA
Timely deliveries and customer satisfaction					
Competitive advantage					
Flexibility					
Creates value					

7) How important is Information Technology to Pig industry board of Zimbabwe?

Key: SD-strongly Disagree ☐ D-Disagree ☐ N-Neutral ☐
SA-Strongly Agree ☐ A-Agree ☐

Answer	SD	D	N	A	SA
extremely important					
reasonably Important					
Important					
Not significant					

10) What are the challenges of implementing Information Technology systems in conducting procurement proceedings at Pig Industry Board in Zimbabwe??

Key: SD-strongly Disagree ☐ D-Disagree ☐ N-Neutral ☐
SA-Strongly Agree ☐ A-Agree ☐

Challenges	SD	D	N	A	SA
Computer viruses					
Denial of service attack					
The globalization challenge					
Pressure for privacy and security					