

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF ECONOMICS



**THE EFFECTIVENESS OF MODERN INFORMATION COMMUNICATION
TECHNOLOGY ON PROCUREMENT PROCESSES OF PARASTATAL
COMPANIES IN ZIMBABWE DURING COVID-19 PANDEMIC: THE CASE OF
ZIMBABWE GRAIN MARKETING BOARD (GMB)**

BY

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

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RELEASE FORM

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APPROVAL FORM

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DECLARATION FORM

I, Tatenda Comfort Matendere, affirm that this research report is entirely my own work, as indicated by the acknowledgements, references, and comments included in the body of the report. I further declare that this work has never been submitted, either partially or wholly, for any other degree at any other university.

Signed.....Date...../...../.....

DEDICATION

I devote my study endeavour to my family. In particular, I am grateful to Charles Bere for believing in me and supporting me throughout the past four years.

ABSTRACT

The study investigated the effectiveness of Modern Information Communication Technology (ICT) on procurement processes of parastatal companies in Zimbabwe during Covid-19 pandemic. A qualitative survey approach was employed more frequently than quantitative research methods where a sample of 80 employees were randomly selected from a population of 100. The data collection instruments used included questionnaires and interviews. Ethical considerations were adhered to in questionnaires. The study findings shows that ICT increases speed in procurement procedures. The study further indicates that contemporary ICT promotes information sharing, communication with suppliers, enterprise resource planning, and materials resource planning, all of which contribute to improved ordering process transparency and decreased errors and delays in GMB procurement processes. The study also shows that using current ICT in procurement procedures encourages strategic sourcing. The study therefore recommends GMB to keep utilizing and promoting the usage of modern ICT in its procurement process.

Key terms: Effectiveness, Modern Information Communication Technology, procurement process, parastatals.

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LIST OF ACRONYMS

ASYCUDA:	Automated System for Customs Data
GMB:	Grain Marketing Board
ICT:	Information Communication Technology
IT:	Information Technology
PMIS:	Project Management Information System
PPC:	Public Procurement Process
PRAZ:	Procurement Regulatory Authority of Zimbabwe
PTP:	Public Technology Procurement
SAP:	Systems Application Programmes
SPB:	State Procurement Board
SPSS:	Statistical Package for Social Sciences
TAM:	Technology Acceptance Model
TOE:	Technology-Organization- Environment Theory
ZIMRA:	Zimbabwe Revenue Authority
ZIMSTATS:	Zimbabwe Statistics Agency
ZINARA:	Zimbabwe National Road Administration
ZUPCO:	Zimbabwe United Passengers Company

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CHAPTER 1

1.0 Introduction

This study investigates the effectiveness of modern Information Communication Technology (ICT) on procurement processes of Grain Marketing Board (GMB) during Covid-19 pandemic. The focus of this introductory chapter is to establish the research's context through providing background of the study. This is followed by the statement of the research problem. Next, research objectives and research questions will also be presented. Thereafter, assumptions, study delimitations and limitations, significance of the study will also be presented. And ultimately it provides definitions of key terminology and conclusion of the chapter.

1.1 Background Study

Handfield et al. (2011) and Lysons and Farrington (2012) illustrate how sophisticated material management systems began to emerge in the midst of the 1960s and how globalization has affected purchasing and outsourcing operations that began in the late 1970s in their historical records of procurement practices since 1850 up to the present. The procurement process has seen significant modifications as it has matured, moving from a tactical function to a digitalized, strategic process, (Jiang 2005). The procurement process was traditionally carried out and highly depending on Excel spread sheets, paperwork, telephone conversations, and in-person interactions.

Over the past ten years, procurement function has altered and advanced significantly. The onset of this trend can be attributed to the virtualization of procurement processes, where the main advantage of electronic procurement is to increase the efficiency of numerous procurement-related professions. In other words, there is a variance from the traditional procedure, which is backed by a framework that compiles all acquisition related data and actions and facilitates one to one dialogue between the buyer and the vendor, (Bienhaus and Haddud 2018). However, as suggested by Reck and Long (1988), that there are four stages of development which comprise of passive, independent, supportive, and integrative, purchasing operations that can assist the firm's strategy.

The internet has changed over the past several years from being a network exclusively for scientific to a venue that is empowering a new generation of businesses (Jeyaraj, Rottman & Laicity, 2006). Dai & Kaufmann (2000) postulates that, business-to-business virtual markets and supply chain systems are viewed as a new purchasing conduit bolstered by the internet and

cutting-edge World Wide Web technologies. Use of these innovations is essential to the achievement of several corporations as the global network has morphed into source of information on products and services, (Huang & Lin, 2010; Verissimo, 2009). By using ICT, corporations may increase their responsiveness, flexibility, and competitiveness, (Bailey et al, 2008; Gunasekaran & Ngai, 2004).

According to a forum post by The Financial Gazette (2014) titled "Procurement challenges facing Zimbabwean parastatals," manual procurement hindered ZUPCO operations and its ability to succeed financially by depending on tedious, repetitive tasks that required a lot of time and effort to complete but generated little in the form of savings or profit. This traditional technique simply does not appear to have a place in today's turbulent and digitalized environment, especially in firms like ZINARA, where SAP is now used and all order processing is now done electronically. This automated method improved openness in the public sector by reducing errors in supplier selection and invoice processing.

Despite the fact that there is a basic network for information and communication, local government parastatals have been slow to implement electronic procurement methods. This is apparently due to some resistance to change brought on by reliance on paperwork and records. The lack of essential medicinal requirements and the low quality of products purchased in Zimbabwe are signs of poor service delivery which is caused by inadequate planning; bad contract execution and, most importantly, a lack of sufficient technology for public procurement (Chimberengwa et al., 2015). Systems Application Programmes (SAP) and websites that are currently employed in public procurement.

When the Maize Control Board was founded in 1931, the Grain Marketing Board (GMB), the nation's top grain trade and marketing company, was tasked with ensuring that local maize producers received their fair share of the domestic and export markets as well as a secure market for any excess maize they produced. Following the country's declaration of independence in 1980, the GMB increased the number of collection points that covered nationwide from 37 to 1 349 by 2021 whilst they were targeting 1 800 collection points across the country. Farmers were encouraged to sell their produce to the Grain Marketing Board, which advocated large grain stockpiles to prevent food insecurity, especially small-scale commercial and communal producers, (Mukumbu Chisvo and Soroko 2007)

GMB mainly relied on traditional procurement techniques before modern ICT was incorporated into the process during the COVID-19 pandemic. The majority of actions in the supply chain were done manually, including the purchase requisition, the solicitation process, and order tracking. Requests for Quotations were placed on the notice board at the company's head office. Due to the limited access that suppliers had to the company's facilities, the response was extremely subpar. The manual processing and evaluation of the tenders caused a delay in the implementation of the tender. Manual procurement methods led to the possibility of fraud, escalating expenses, low-quality products, and delivery problems, (ZIMTRADE, 2019).

After observing inefficiencies and corruption, GMB developed Modern ICT methods of procurement. There was biased supplier selection where there was partiality prior to the implementation of Modern ICT on procurement processes in GMB (Transparency International 2020). The opening of the tender was done ineffectively, costing GMB millions of dollars across all county depots. The adoption of antiquated procurement procedures has an impact on this. Modern technology, including SAP, was introduced during the Covid-19 pandemic, and the firm immediately began to enhance its procurement procedures. Both order handling and tracking were now done electronically.

The GMB has adopted a digital strategy from manual methods of payment with the launch of an e-wallet for example during Covid-19 pandemic in 2020. ICE cash has worked with GMB before, as payment platform way back in 2015. Along with improving its efficiency, GMB has realized that farmers require simple access to their money. An electronic wallet is a kind of online account that is password or encryption-protected. The user's mobile phone, tablet, laptop, or any other mobile device can be used to access these wallets, therefore this was a good improvement in procurement, (Muhamba, 2021)

With the goal to provide everyone an opportunity to participate in the supplier selection process regardless of location, the Procurement Regulatory Authority of Zimbabwe (PRAZ) encourages all parastatal firms in Zimbabwe to adopt electronic techniques for procurement, such as emails. All procurement processes are streamlined and expedited when procurement operations are moved to a digital platform, which brings up chances to increase value and make cost savings in the procurement process.

1.2 Statement of the Problem

Conventional procurement practices in Zimbabwe's public sector are marked by numerous issues, such as inefficiency and unethical behaviour. In the case of GMB, they are still experiencing challenges such as market risks, potential frauds, rising costs, poor quality materials, and delivery risks. Notwithstanding the implementation of modern information communication technology, organizational procurement process is still ineffective exacerbated by outbreak of COVID -19 pandemic. It is still unclear whether the management's suggested modern technology intervention has produced the desired outcomes. In light of the foregoing, the linchpin of this study therefore seeks to investigate the effectiveness of modern information communication technology on procurement processes of GMB during Covid-19 pandemic.

1.3 Research Objectives

The key objective of this research is to investigate the effectiveness of modern ICT on procurement processes in GMB. The study specifically sought:

- i. To establish the role of modern ICT on procurement processes in GMB during COVID-19 period.
- ii. To analyse the effects of modern ICT on purchase requisition, solicitation process and ordering in GMB.

1.4 Research Questions

- i. What are the roles of modern ICT on procurement processes in GMB?
- ii. What are the effects of using modern ICT on purchase requisition, solicitation process and ordering in GMB?

1.5 Significance of study

This dissertation places a high value on the researcher, the Grain Marketing Board (GMB) and the university. Additionally, it responds to queries that other studies had posed.

1.5.1 To the researcher.

- To add proficiency on the effectiveness of ICT on procurement processes of parastatal companies.
- It is a prerequisite for the Bachelor of Honours in Purchasing and Supply program at Bindura University of Science Education

- It made it possible for the researcher to develop the knowledge and expertise needed to conduct future studies as well as to integrate theoretical concepts with actual techniques.

1.5.2 To (GMB)

- The findings shed light on how modern ICT can aid procurement department to perform its functions in a cost effective manner and how it influence the overall organizational performance.
- It can also include the results into their budgets because they will enable the firm to decide how much to invest in cutting-edge technology.

1.5.3 To Bindura University of Science Education

- The study will provide literature to other academics that might conduct research or cite sources in this topic.

1.6 Assumptions of the study

- The population being studied would be accurately represented by the sample that is taken.
- The chosen participants would respond in a timely manner, allowing the researcher to accomplish the study on time.
- The sample size will be adequate to conclude the study and enable the accomplishment of the aforementioned goals.

1.7 Delimitation

The analysis was limited to GMB's procurement procedures. The study investigated how the procurement processes at GMB was affected or enhanced by modern ICT during Covid-19. The study had no negative effects on the organization's other operations. Instead, it discussed the impact of modern information communication technologies on an organization's procurement procedures. The study will only focus on procurement processes during Covid-19 pandemic.

1.8 Limitations of the study

Given that the research was conducted in addition to working hours, there was limited amount of time devoted to it. However, the researcher exploited the weekend and mid-semester breaks to collect some data for the study. The response rate was incredibly low, so the researcher had to send out reminders to raise it. Additionally, there was a lack of participation among the

respondents, which made it difficult to collect data. The researcher conducted numerous follow-ups and in-person interviews.

1.9 Definition of terms

Modern Information Communication Technology

As stated by the Mid-Pacific ICT Centre in 2014, Information Communication Technology encompasses the knowledge and skills related to computing and communication devices, the software that enables them, the applications that make use of them, and the systems that are built around them.

Parastatal

Cloete (1996:54) defines parastatals as "organizations that are founded by legal legislation but are not explicitly a pillar of state but operate within the public sphere and are generally funded via the Treasury on the basis of advancing public interests and advancement rather than profit motive."

Procurement

Procurement is the method by which a company enters into a contract with a third part to promptly and economically acquire the products and services necessary to achieve its business goals (Lysons and Farrington, 2012).

1.10 Conclusion

The research subject was introduced in this chapter along with the study's background and a definition of the problem statement. Additionally, it highlights the research's objective, research questions and assumptions while providing an illustration of what the study is about. This chapter also highlighted the delimitations that define the scope of the study. The next chapter emphasizes literature reviews where both the theoretical and empirical literature would be reviewed.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

The prior chapter examined the research's background, problem statement, research objectives, and research questions, as well as its assumptions, delimitations, and limitations. This chapter delves into theoretical and empirical literature related to effectiveness of Modern Information Communication Technology on purchasing procedures. Literature review was defined by Taylor (2011) as a synopsis of the material that has been presented on a subject by reputable intellectuals, authors and researchers. This chapter included the subsections of theoretical literature review, conceptual framework, and empirical literature review.

2.1 Theoretical Framework

The topic of the study is subject to a wide variety of theories and models. A cogent description, justification, and presentation of observed or encountered phenomena are the components of a theory, Gioia and Gooley (2011). The principal hypotheses examined in this study include, Technology Diffusion Innovation Theory, Public Technology Procurement and Innovation Theory, Technology Acceptance Model (TAM), Technology-Organization- Environment Theory (TOE), Resource Based View Theory and Public Interest Theory.

2.1.1 Technology Diffusion Innovation Theory

The concept was first introduced in the early 1900s by Gabriel Tarde, who tabulated the first S-moulded diffusion bend. Ryan and Gross (1943) proposed the adoptive categories that were later utilized in the present hypothesis promoted by Everett Rogers. According to Rogers (1995), diffusion is the technique by which creativity is passed down to members of the social system over time. To put it another way, the diffusion of creativity is founded on the assumption that the introduction of innovativeness necessitates the accidental or planned dissemination of new ideas. According to Rogers (1995) creativity is an idea, method, or entity considered as new.

There are 5 steps taken in the adoption of innovation that is the Knowledge, Persuasion, Decision, Implementation and Confirmation. The user decides whether or not to keep using the innovation (Rogers, 1962). According to Rogers (1995) diffusion of development is liable to five key trademarks consisting of its relative leverage, similarity, multifaceted nature, trialability, and recognisability. This characteristic describes the anticipated value that users

will receive from the transformation and is mostly compared to what is currently available (Wani & Ali, 2015).

In actuality, the study is able to understand the importance of financial technology to procurement firms and give perspectives, reasons and extent to which they have or are yet to adopt the technologies. It has been noted that procurement innovation such as e-Procurement is breaking new ground within the public sector of the advanced as well emerging economies by providing the procurement firms with a wealth of supply chain information via the Internet. E-procurement has been on the political agenda in a number of countries (Henriksen & Andersen, 2003).

Although the theory suggests relative advantage, compatibility, complexity, trialability, and observability as desirable qualities (Rogers, 1995), only two factor have consistently been found to be positively correlated, namely relative advantage (i.e., the degree to which an innovation is perceived as being better than the idea it supersedes) and compatibility (the degree to which an innovation is compatible with existing practices and values) and only variable complexity (i.e. degree to which an innovation is perceived as relatively difficult to understand and use) has been consistently shown to be inversely correlated with the adoption of innovation (Tornatzky & Klein, 1982; Vaidya, 2005).

The compatibility of application software used by partner firms leads to improved supplier collaboration and lower procurement process costs, therefore this theory also promotes the usage of variable application software (Zhu et al., 2006). This theory, therefore, is pertinent to this research as it guides the study to seek to improve their innovative strategies in light of technological improvements for the benefit of the performance of the procurement organizations. The adoption of innovative strategies by the procurement firms is encouraged, particularly with regard to financial technological advancements in public financial management. Running a paperless system helps increase the efficiency of procurement (Lysons & Farrington, 2012). The Technology Diffusion hypothesis is significant in assisting the company in leading change and implementing technologies in procurement as it transitions to world-class procurement

Technology revolution has impacted on purchasing; the drivers for change in purchasing function must include the objectives of eradicating paper transactions to a 7 secure system that facilitates procure to pay as an objective of a world class procurement which is seen to enhance the performance of the procurement function (Lysons, 2012). The Technology Diffusion theory

is important in guiding the firm to initiate change and adopt technologies in procurement in the shift towards world class procurement.

2.1.2 Public Technology Procurement and Innovation Theory

When a government entity put forth a request for a system or product that is not quite in existence but might (probably) be produced in less than a realistic time frame, this is known as public technology procurement (PTP). This is an epitome of the perfect model of public technology acquisition. Unlike public technology procurement, conventional public procurement takes place when government organizations purchase pre-made, basic goods like pens and paper without any Research and Development Policy. When choosing a supplier, only the (current) product's price and performance are taken into account (Edquist and Hommen 2000).

One can also compare and contrast private and public technology procurement. These procedures entail a buyer purchasing from a supplier, a system or product that has not yet been created and whose flair and manufacture will necessitate additional, if not entirely ingenious, technologically sophisticated work. The primary distinction among the two types of technology acquisition is that the buyer in private technology procurement is a private commercial entity, not a public agent, (Chieu, Pinel & Yih, 2003).

Public technology has not had a proportionate amount of due consideration in the study and theoretical literature on advancement, despite its excellent utility as a tool for innovation framework. Also, there now seems to be a commensurate contempt for public technology procurement in economic policy making (Edquist and Hommen 1994; Edquist and Hommen 1996). Subsequent legislative changes, particularly in the European Union, show that this scenario is largely the result of systematic negligence rather than just consequence of oversight.

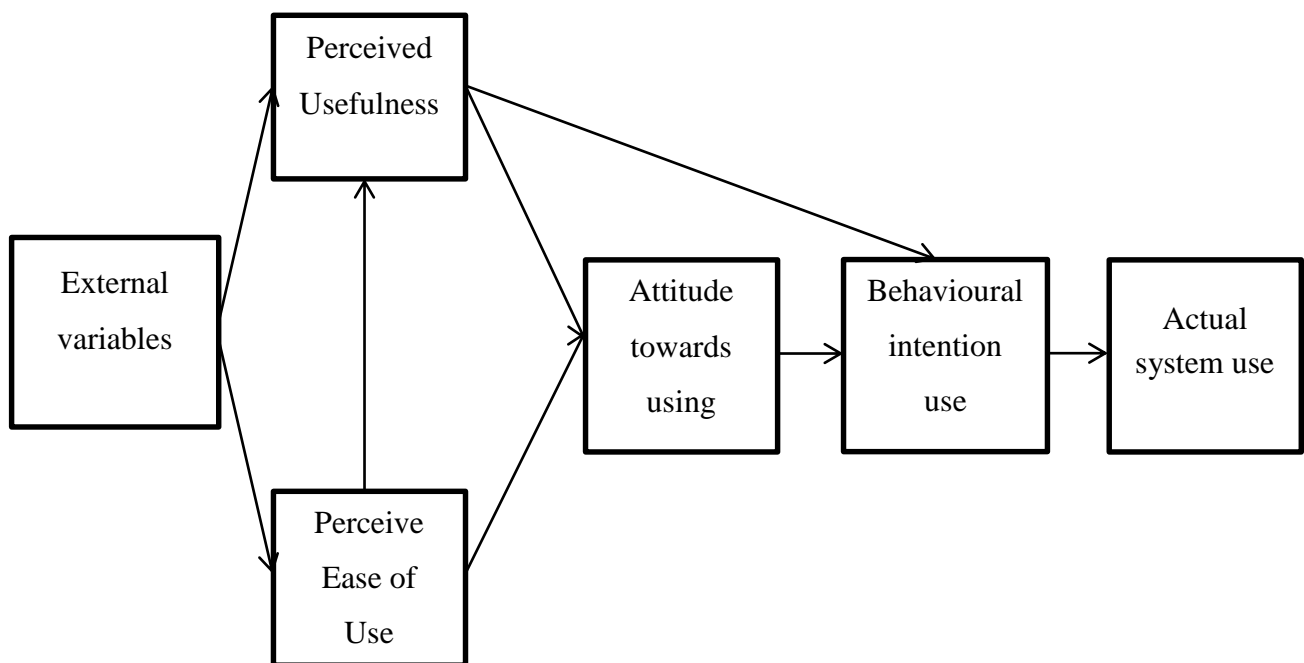
2.1.3 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) has been developed by Davis (1989). It is research model to predict use and acceptance on information systems and technology by individual users. Technology acceptance model is consistent with Rogers (1983) theory of diffusion innovation where technology adoption is a function of a variety of factors including, relative advantage and ease of use. In TAM model, there are two factors perceived usefulness and perceived ease of use is relevant in computer use behaviours (Davis, 1989). Perceived usefulness is defined as being the degree to which a person believes that the use of a system

will improve his performance. Perceive ease of use is defined as the degree to which the prospective user expects the target system to be free of effort.

Technology acceptance model attempts not for prediction but also for explanation to help researchers and practitioners identify why a particular system may be unacceptable and pursue appropriate steps. This theory can be applied in procurement perspective where stakeholders in the supply chain make use of Information, Communication and Technology. The TAM supports that procurement stakeholders in the supply chain have belief that the use of technology will improve their procurement process as explained by two factors of the model which are perceived usefulness and ease of use.

Figure 2.1: Technology Acceptance Model



Source: Davis et al., (1989) Technology Acceptance Model (TAM)

This theory supports the variable information technology since users perceive that use of information technology enhances procurement performance by eliminating delays, improving supplier relationship and reducing transactional costs. Use of computers, internet and other communication technologies in public organizations has enhanced their performance by providing better communication, access to information, knowledge and promoting innovation and efficiency (Dewett & Jones, 2001). This theory therefore, has been used to link the use of information technology by energy sector state corporations in Kenya towards procurement performance. By use of such applications as websites, procurement databases digital

applications to schedule trips, control and monitor the supply chains and time, the energy sector state corporations in Kenya are seen to have taken over the digital era and bridge the gap of security issues, assurance of travel times and destinations among others.

While used repeatedly, TAM has received harsh opprobrium, which engenders its original proponents to literally endeavour and redefine it. TAM as a theory has been criticized for its shady heuristic value, meagre explanatory and envisages capability, and paucity of any use (Chuttur 2009). TAM has redirected academics' attentiveness away from other significant research concerns and has produced a phantom of progress in knowledge acquisition. According to Chuttur (2009) the paradigm of perceived utility and usability ignores other considerations, such affordability and structural requirements that push people to adopt the technology.

2.1.4 Technology-Organization-Environment Theory (TOE)

The complete innovation process is explored by this theory from the discovery of advancements by technologists and entrepreneurs to their reception and execution by individuals within the confines of a corporation. The corporate environment has an impact on the acceptance and application of innovations, which is symbolized by one step of this process in the TOE framework, (Tornatzky and Fleischer 1990).

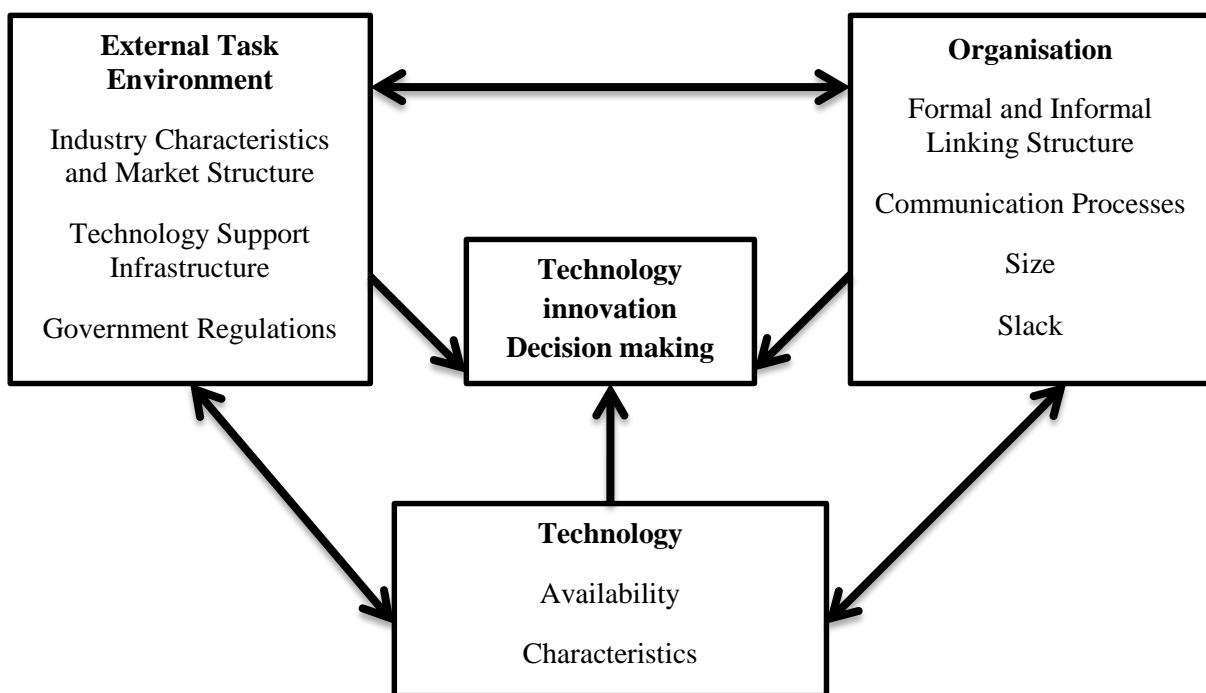
Diverse components of the business are taken into account in terms of the organizational framework. They include challenges linked to the firm's size and the business model, management commitment, ethics, management philosophy, human capital competence, and internal resources and specialization, (Jeyaraj, Rottman, and Lacity, 2006) According to Sabherwal, Jeyaraj and Chowa, (2006) the technical aspects of an organization are essential to the environmental setting. They support technology through rivalry, trading partner preparation, sociocultural concerns, government assistance, and infrastructures, Scupola (2009)

In terms of organizational context, various aspects of the business are put into consideration. These include the business scope, management support, culture, managerial structure, human resource quality and the size of the firm related issues such as internal slack resources and specialization (Jeyaraj, Rottman, & Lacity; Sabherwal, Jeyaraj & Chowa). On the other hand, the environmental context revolves around the operational factors of an organization. These

include competition, readiness of trading partners, socio-cultural issues, government support and the technology support infrastructures (Scupola, 2009).

It may be noted that the TOE framework underscores Rogers' (1995) three groups of adoption predictors- leader characteristics relating to change. These include the internal characteristics (centralization, complexity, formalization, interconnectedness, organizational slack and size), and external characteristics (system's openness). The major snag of TOE is that some of the constructs in the adoption predictors are assumed to apply more too large organizations, where clients are sure of continuity and less complaints, than to SMEs. However, integrating TOE with other models such as TAM, with each adoption predictor offering larger number of constructs than the original provides richer theoretical lenses to the understanding of adoption behaviour.

Figure 2.2: Technology-Organization-Environment Theory (TOE)



Source: DePietro, Wiarda and Fleischer, (1990) Technology-Organization-Environment Theory

Figure 2.2 depicts that, this theory reinforces dynamic communication technology because in order to have an effect on strategy implementation in procurement, communication technologies must remain user-friendly and interoperable with other innovations both inside

and outside the company. To continue exploiting these technologies, the company must have the required resources.

This theory supports the variable communication technology because for the communication technologies to have an effect on procurement performance, they must be easy to use and compatible with other technologies existing in and outside the organization. The organization must have the necessary resources to continue using these technologies. The theory takes into account the need for the parastatal corporations in Zimbabwe to adopt and utilize communication innovation and channels. These technologies come in handy to help the parastatal corporations in Zimbabwe achieve competitive advantage and gain external support for example by use of the e-procurement services in making procurement decisions and making contact with suppliers and consumers.

However, the theory overlooked the necessity for Zimbabwe's parastatal corporations to adopt and make use of communication innovation and channels. The TOE framework is extremely broad, according to Zhu and Kraemer (2006) and provides a substantial amount of flexibility to adjust factors and measures, therefore there is little need to change the theory itself. Another crucial factor is that the theory too well correlates with other theories of technology adoption and lacks competing explanations. Finally it fails to elaborate the effectiveness of ICT on procurement process of parastatal companies in Zimbabwe.

2.1.5 Resource Based View Theory

According to the resource-based view theory, materials and the capacity of the business determine its reliability and a competitive edge. Wernerfelt (1984) affirmed this notion, stating that a firm's competitive advantage is dependent on its assets and aptitude to use them. It also outlines how these resources are integrated into the organizations' operational procedures (Ray et al., 2004). ICT and organizational processes are just two examples of a company's resources that, if carefully handled, could give it a competitive advantage (Barney, 1991).

Intangible assets, such as copyrights and brand reputation, can be considered assets. The idea presupposes that these resources are immobile and heterogeneous (they vary from firm to firm, for example, in terms of skills and capacities). According to this notion, a firm's internal resources can be utilized in an effective and efficient way to create a long-lasting competitive advantage (Kraaijenbrink, Spender, & Groen, 2010). Benefits like reductions in costs, paper

extermination, and time savings can be realized when Information Communication Technology (ICT) is integrated into particular organization activities, such as procurement. Whilst using ICT to do transactions online can enhance openness, it can also expose the firm to competitive threats (Loh & Venkatraman, 1992). Also, an integrated system's synergistic effects give company sources of long-term competitive advantage, Bharadwaj (2000).

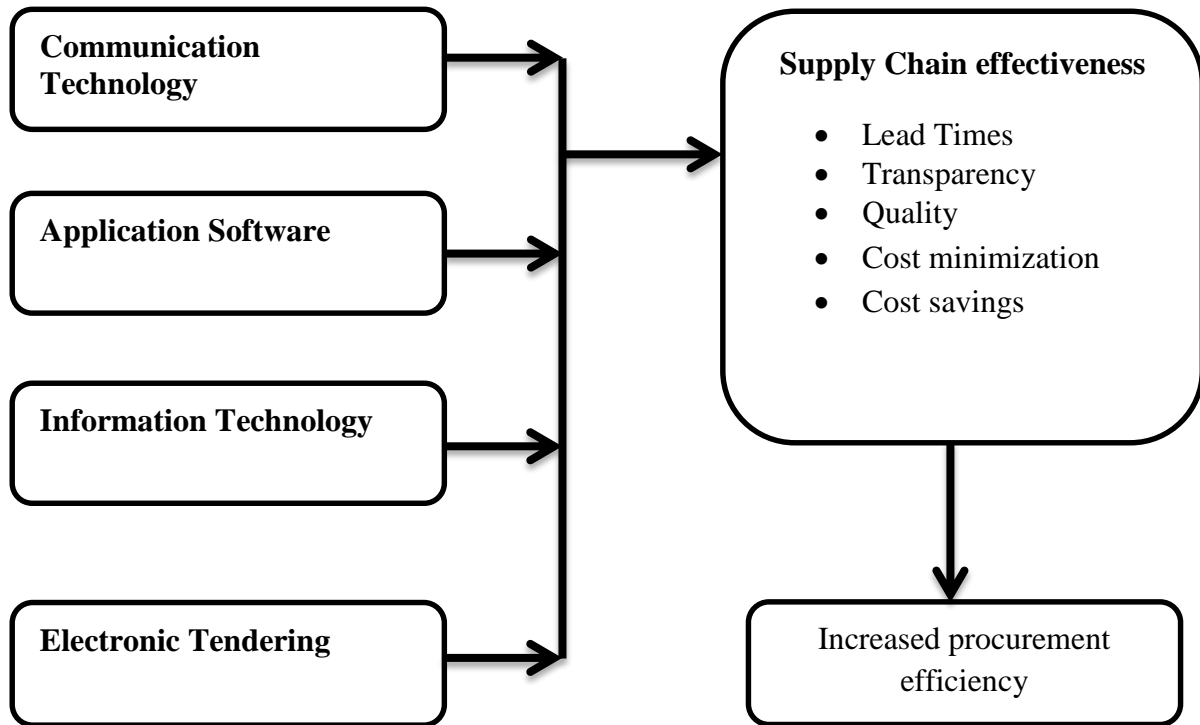
The resource-based theory has been criticized for its inadequacies. A number of criticisms of the resource-based paradigm are evaluated by Kraaijenbrink et al. (2010). It is impossible to maintain achieve a competitive advantage. Nowadays, businesses must not resist innovating and changing to stay in competition dynamic economy. If resources match the Valuable, Rare, Inimitable and Non-Substitutable criteria, a Consistent competitive advantage is conceivable, according to the resource-based approach. Contrary to what Barney (1991) claims, the competitive advantages, meanwhile, will be temporary in this context of continual change.

2.2 Conceptual Framework

A conceptual framework is an instrument for investigation designed to help researcher to gain proficiency of and comprehension of the subject under investigation and to convey it, Smyth (2004). Raps and Kauffman (2005) defined conceptual framework as the assemblage of broad ideas and guiding principles derived from relevant fields of application and applied to assemble a forthcoming presentation. A conceptual framework could be beneficial as a tool to assist a researcher interpret subsequent findings if it is well-articulated.

In this study, among the exogenous variables are communication technology, application software, information technology and electronic tendering whereas dependent variable is conceived as supply chain effectiveness, Mugenda and Mugenda (2019), postulates that a conceptual framework is a pictorial depiction of the conceptualization of the correlation between study variables (See Figure 2.4).

Figure: 2.3: Conceptual Framework



Independent Variables

Dependent Variables

Source: Author (2023)

Communication Technology use can enhance procurement processes by overhauling current work procedures to mitigate breakdowns, blockages, and repetitions on procurement cycle, hence reduces lead time, (Bajjal 1999). Application software use for example e-wallet, streamline the whole process of payment and therefore improves effectiveness of procurement processes. The use of online techniques for conducting the procurement process has helped to reduce lengthy, laborious procedures and copious documentation on the procurement process. The procurement processes has been made more efficient by the deployment of modern software technologies, which will also guarantee accountability and transparency while minimizing gaffes and inconsistencies on procurement processes (Caldwell, Roehrich & Davies, 2009).

E-tendering enables transparency in public procurement processes, (Ohashi 2009). Therefore, an ethical e-tendering system will guarantee financial stability while establishing a robust procurement process thus enhancing efficiency and bandwidth. According to Ohashi (2009), an e-Tendering System streamlines the entire tendering process, from the request for proposals to the contract award. A significant distinction in e-procurement is e-tendering. It

improves the efficiency of parastatals by simplifying the purchasing procedure and bringing up a network of better vendors.

2.3 Empirical Literature

A close examination into studies on effectiveness of modern information communication technology on procurement processes confirms that there is a couple of empirical research that has been carried out in this field. For example, Calipinar and Soysal (2012), Yao-Chuan and Che-Hao (2013), Jane Ileri Muriuki (2021), Glory A. Mtana (2019), Cynthia Mupfiga Tagwireyi (2019) and Masokwedza (2014) examined the effects of ICT on procurement processes.

2.3.1 Calipinar and Soysal (2012)

Calipinar and Soysal (2012) conducted research on the importance of email usage in the procurement of drugs in hospitals located in Ankara, Turkey. In their study, Calipinar and Soysal utilized non-participant observations and semi-structured interviews to collect data. The study explored the adoption of e-procurement applications, along with the advantages and disadvantages of integrating technology in procurement procedures. The study's findings suggested that utilizing e-procurement techniques, including email and phone calls, can lead to considerable time and cost savings with minimal financial investment. The study highlighted that using emails was more efficient since one email could be sent to all vendors at once, and it was easier to track and document. Although communication with multiple vendors was not immediate, the phone remained a valuable tool for negotiating.

Nonetheless, Calipinar and Soysal's study focuses on the importance of using e-mails in procurement of drugs in hospitals only. It gives a shallow investigation of the effectiveness of the modern ICT on procurement processes in companies and sectors such as parastatals. This study therefore seeks to give a high depth analysis of how modern ICT have affected parastatal companies here in Zimbabwe in their procurement processes.

2.3.2 Yao-Chuan and Che-Hao (2013)

Chang, Yao-Chuan, and Che-Hao (2013) carried out a study on the effectiveness of e-procurement and supply chains in Taiwan enterprises. Chang, Yao-Chuan, and Che-Hao's study was conducted through interviews to gather empirical data. The study examined the e-design, e-sourcing, and e-negotiation components of electronic procurement. Findings from the study indicate that using electronic procurement systems lowers the cost of the purchase

process. E-procurement solutions can improve integration by facilitating information flow and activity coordination.

Nevertheless, Chang, Yao-Chuan, and Che-Hao's study focused on the enterprises in Taiwan only hence failed to highlight the effectiveness of modern ICT on procurement processes of the enterprises in Zimbabwe. Due to lack of investigations and clear explanations of the study, it gives the researcher persuasion to investigate and establish the effectiveness of modern ICT on procurement processes in parastatal companies in Zimbabwe during the era of Covid-19.

2.3.3 Muriuki (2021)

Muriuki (2021) conducted a research study that examined the effects of Information Communication Technology (ICT) on procurement performance in state-owned energy companies in Kenya. The study utilized questionnaires to gather data, and the results indicated that ICT had a significant impact on procurement performance. Furthermore, the study showed that the use of ICT in procurement resulted in a reduction of lead times, an increase in transparency, improvement in supplier and contract performance. Additionally, the tracking of procurement transactions and communication between suppliers and customers have seen significant improvement.

However, Muriuki's study focused on the impact of ICT in Kenya only and did not evaluate the effectiveness of ICT on procurement processes of parastatal companies in Zimbabwe. Therefore this study pursues to have an understanding on the effectiveness of ICT on procurement activities of the parastatal companies in Zimbabwe.

2.3.4 Mtana (2019)

Mtana (2019) conducted a research on the factors influencing ICT adoption in public procurement and disposal of assets in Tanzania. The study applied questionnaires and interviews to collect data. It is clear from the study's outcomes that ICT technologies used in public procurement have had a favourable effect. Findings of the study show that the internet is a crucial instrument in procurement. Data analysis shows that Project Management Information System (PMIS) use in e-Procurement is crucial since the tool can manage a large number of suppliers and speed up procurement procedures in public procurement.

However, Mtana's study concentrated on the situation of Tanzanian public sector organizations only but failed to make generalizations to parastatals in Zimbabwe. The analysis of the literature makes clear that there are no studies demonstrating the effectiveness of Modern Information and Communication Technologies on the procurement procedures of parastatals in Zimbabwe. Therefore this research is pursued by the high probability of difference in findings due to difference in geographical location.

2.3.5 Tagwireyi (2019)

Mupfiga Tagwireyi (2019) carried out a research on the impact of information technology as a driver for improved supply chain management in the Zimbabwean retail sector. The data was gathered through structured questionnaires in the form of 5 point Likert scale to 10 selected retail managers. The study findings demonstrated that information technology is crucial to supply chain management because it increases speed, decreases the likelihood of errors, and enhances operational effectiveness. Recommendations were made that the retail industry in Zimbabwe must continuously keep up with technological advancements in order to survive.

However, Mupfiga Tagwireyi's study was conducted using retailers in Zimbabwe as case study. Therefore it does not consider the fact that some of the retailers are private sectors companies which have an objective of profit maximisation. This study therefore seeks to understand the effectiveness of ICT in public sector procurement such as parastatals.

2.3.6 Masokwedza (2014)

In a study done by Masokwedza (2014), the author examined the importance of electronic procurement for improving the efficiency of procurement systems in the public sector. The study focused on the example of Thornhill Air Base in Gweru, Zimbabwe, with data collected through questionnaires and in-depth interviews. The findings were presented through tables and graphs, indicating that Thornhill Air Base used a combination of manual and electronic methods for procurement activities, with a small amount of electronic purchasing.

Given that the prior research was focused only on public sector businesses in Zimbabwe, it becomes crucial to examine the impact of modern Information Communication Technology on procurement processes in Zimbabwe's Grain Marketing Board (GMB), especially considering the evolving business landscape and the impact of the Covid-19 pandemic.

2.4 Conclusion

This chapter covered the literature review of the study that is theoretical framework, and empirical literature. Theoretical framework defines key concepts in this research, suggests the

relationship between them and discusses the relevant theories. Empirical evidence gives findings of other researchers on the areas related to this study. The next chapter focuses on the research methodology which includes research design, data collection method and data presentation and analysis.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

The theoretical framework and empirical literature examined in the preceding chapter indicates a positive relationship between ICT and procurement efficiency. This section elaborates the methodology used for the study. It highlights the various phases and stages that were taken to finish the investigation. It commences by unpacking the research design and tools used to acquire data on the effects of Modern ICT on the procurement processes. The target population, the research instrument, and the validity of the instrument were all further discussed.

3.1 Research design

The phrase "research design" refers to a comprehensive and systematic plan that integrates various elements of a study in a logical and coherent manner, aimed at effectively addressing the research topic. This plan encompasses guidelines for data collection, measurement, and analysis according to Bryman and Bell (2007). In order to investigate the impact of modern ICT on procurement processes of GMB during the Covid-19 pandemic, the researcher utilized a descriptive research approach in the form of a case study, which was theoretical in nature since reference to earlier theories and research findings was made. Sekaran (2010) suggests that a descriptive research is the most cost-effective and flexible method of gathering data from numerous participants.

The study also adopts a qualitative research methodology. According to Creswell (2003) qualitative research is a systematic process of investigation into the meanings that individuals employ to comprehend their experiences and determine how they act. Qualitative research methods are used to evaluate and comprehend people's perspectives, experiences, attitudes, interactions, and behaviour. It produces non-numerical data, such as opinions and remarks from procurement practitioners about the effectiveness of Modern Information Communication Technology on procurement processes.

3.2 Justification of a case study

The case study was adopted since it consisted of a longitudinal aspect. A longitudinal feature is present when a researcher frequently participates over a lengthy period of time, such as several months or year in an organization as a stakeholder. The case study is the most malleable research design because it permits the researcher to maintain the overall attributes of actual

events while analysing empirical events. However, case study research design has been criticized, with some claiming that it is subjective, leaves too much leeway for the researcher's interpretations, and therefore lacks validity, and because of the arrow study, prejudice and discrimination may emerge when examining a social unit (Creswell & Plano 2007).

3.3 Target Population

Sekaran (2010) defines target population as the complete set of hypothetical cases that are relevant to a given research study, including all people, services, and other elements from which inferences are derived. Similarly, Borg and Gall (2009) define target population as a broad group of study that comprises all participants in a hypothetical or real group of individuals, events, or objects to which the researcher intends to generalize the findings.

The study's target population was gathered from 100 staff workers at GMB Head Office because the procurement of GMB is centralised at head office whilst all depots plays a central role in providing grain handling, storage facilities and distribution of grains. Procurement is responsible for buying grains and oilseeds, rice, vehicles of the staff, promotional material, packaging material for all departments and any other equipment used by the GMB across all depots. ICT mostly affect the procurement department than other departments. Numerous departments are affected by Modern ICT employed in the procurement procedures and they are only beneficiaries of ICT.

Table 3.1 Population

Respondents	Population
Operations	15
Procurement	50
Admin & Human Resources	10
Finance	10
Transport and Logistics	15
Total	100

Source: Primary Data HR data base

Table 3.1 indicate that, target population comprised 15 employees from Operations, 50 from Procurement, 10 from Administration and Human Resources, 10 from Finance and 15 from

Transport and Logistics. The majority of the target population were comprised of procurement staff.

3.4 Sampling Technique

To estimate population parameters in a way that the sample accurately reflects the population, sampling is the deliberate selection of sampling units from the overall population (Singh et al, 2018). It physically portrays the target population and encompasses every ingredient that might possibly make up a sample. The researcher used probability-sampling techniques. The population was stratified by the researcher into strata, such as operations, procurement, admin and human resources, finance and transport and logistics. As the researcher anticipated that respondents in the same stratum had the same knowledge concerning the subject, therefore the researcher used stratified random sampling.

3.4.1 Stratified Random Sampling

According to some factors, such as gender, educational level or age, the population is split up into two or more subgroups, known as strata, and data samples are randomized from strata. The composition of the population demonstrates that masculine co-workers rule the organization. The population indicates that the majority of workers had bachelor degrees hence they can produce the highest quality data. This can also be presumed that greater proportion of workers was aged 35-44 years. Johnson and Christensen (2004) note that stratified sampling techniques yield more precise estimates of the general population parameters.

3.4.2 Sample size

Yamane's formula was used in determining the sample size. The formula assumes an error of 5% with a confidence coefficient of 95% (Yamane, 1967). The formula is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = the optimum sample size

N = Total population

e = probability error (the desired precision 0.05 for 95% confident level)

Therefore,

$$n = \frac{100}{1 + 100(0.05)^2}$$

$$n = 80$$

Therefore, a sample size of eighty (80) members was drawn from the population of hundred (100). The table 3.2 below shows this.

Table 3.2 Sample

Respondents	Population	Sample
Operations	15	12
Procurement	50	40
Admin & Human Resources	10	8
Finance	10	10
Transport and Logistics	15	10
Total	100	80

Source: Primary Data

3.5 Research Instruments

There are multiple ways to collect data, and the choice of data collection instrument hinges on the design, validity, reliability, and type of data to be gathered. According to Discover PhDs (2020), a research instrument is any device that may be used to gather, quantify, and interpret information that is pertinent to the research's topic. Questionnaires and key informant interviews were the instruments that the researcher utilized in this study to gather primary data. Newspapers, old publications, and journals were also used to gather secondary data.

3.6 Sources of data

Primary and secondary data have been used as the two main data sources.

3.6.1 Primary data sources

Singh (2007) defined primary data as the first-hand information gathered by the researcher concerning the organization under investigation. To collect the data, both questionnaires and interviews were utilized. The decision to use primary data collection methods was based on the fact that this approach provided a significant amount of up-to-date and relevant information, which is considered reliable for making conclusions and recommendations related to the topic of the study.

3.6.2 Questionnaire

According to McLeod (2018), a questionnaire is a research tool consisting up of a multitude of questions designed for gathering information from respondents. Both closed-ended and open-ended questions were formulated by the researcher to collate data. The questionnaire was chosen by the researcher as the method of data collection due to its excellent compatibility with the survey research design. In comparison, designing, creating, and administering a questionnaire is relatively easier and requires less technical knowledge or understanding. Responses to the questionnaire can be obtained quickly without the need for personal contact with the respondent or lengthy data collection periods (McLeod 2018).

3.6.3 Interviews

Interviews can provide valuable insights and help researchers to gain a deeper understanding of their subjects' experiences, beliefs, and attitudes. By conducting interviews, researchers can probe more deeply into the answers that participants provided in the questionnaire, as well as explore other topics or issues that may not have been covered in the questionnaire. Additionally, interviews can be particularly beneficial in cases where participants may not have fully understood the questions or their meaning. Overall, interviews are a powerful tool for gathering qualitative data and adding richness and depth to survey research.

3.6.4 Secondary data sources

In addition to primary data, secondary data was also utilised. The information in the sources was pre-existing and had been gathered for purposes other than the research being conducted at the moment. Data was collected from journals, theses, and various studies and reports on contemporary technology and procurement procedures.

3.7 Data Collection Procedure and Administration

The method used to collect primary and secondary data is known as the data collecting procedure (Singh, 2007). Using research questionnaires and key informant interviews, the researcher gathered qualitative data. The research employed a self-administered survey which incorporates both open-ended and closed-ended questions to cover all facets of contemporary technology and its influence on procurement procedures. After finishing, the researcher gathered the completed questionnaires that were ready for examination.

Due to a lack of time and resources, the respondents were emailed questionnaires and allotted two weeks to complete them. After two weeks, the researcher anticipates receiving the completed questionnaire. Regarding interviews, responses were recorded on the interview guide while interviews were conducted via Google Meet and phone calls to individuals who were unable to connect to Google Meet. Five non-sampled respondents served as the pilot respondents for the surveys, ensuring that the established questionnaire questions and interview questions were excellently clear and specific as well as perfect to gather the necessary information. According to Cooper & Schindler (2011), a pilot test is an important preliminary step in the research process that helps to identify potential issues, refine design and instrumentation, and generate data that can inform the selection of a probability sample.

3.8 Data analysis and presentation procedure

According to Shamoo and Resnik (2017) data analysis is another important step in research, where statistical and logical approaches are used to make sense of the data that has been collected. The use of software such as SPSS can be very helpful in creating visual aids such as graphs and tables, which help to summarize and communicate the findings of the data analysis in a clear and understandable way. Tables are a precise and efficient way to display summary data. The semi-structured interview guide's open-ended questions were analysed thematically. Column graphs, charts, and bar graphs are frequently employed because they are appropriate for the straightforward presentation of data.

3.9 Data Reliability and Validity

This section demonstrates how reliable the data obtained from this study was, how exact the data used was, and how reliable and precise a measure was.

3.9.1 Reliability

The degree to which a research tool generates robust and consistent results is known as reliability (Business Research Methodology, 2019). To assure the reliability of the responses, the questionnaire should be made to a bearable length. Questions that are succinct and concise are designed to limit uncertainty. Using the retest approach, questionnaires were pilot tested, and any necessary adjustments were made. An attribute of the instrument itself is reliability. It relates to a measurement whereby consistent findings are produced across time and in many circumstances, (Popescu and Carayannis 2005). The reliability of the questionnaire was evaluated by the researcher using test-retest reliability. In order to do this, a survey was given to a group of respondents, and the same group took the survey again. The responses from the two times were then compared, (Croom and Brandon-Jones, 2005)

3.9.2 Validity

The degree to which a notion is explicitly calibrated in a study is known as validity (Middleton, 2019). Middleton continued by saying that a study tool is considered valid if it achieves the goals for which it was designed. Also, information is considered valid if it accurately depicts the subject under study. The researcher employed a variety of questions, both open-ended and closed-ended, to verify validity. The researcher specifically selected the respondents by giving questionnaires to four experts who made decisions based on their knowledge. The content validity formula was then used to gather and evaluate these questionnaires. As a result, the content validity index of 0.91 was found. According to Shi, Mo et al. (2012), content validity of 0.78 or higher was judged acceptable, while content validity of 0.9 or above was regarded as good (Shi et al., 2012).

3.10 Conclusion

An outline of the research methodology used to carry out this study was provided in this chapter. Research design which gives the guidelines for data collection, measurement, and analysis was elaborated. The research population, research sample, and sampling techniques were all covered in this chapter. The chapter also covered the processes for collecting the data, analysing it, and presenting it. The next chapter will thoroughly illustrate the findings obtained from the study.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

The study's methodology was the primary emphasis of the preceding chapter, which also briefly described the research topic and cross-sectional survey research design. It also presented the fundamental methods involved in data collection, sampling, and analysis. This chapter appears to focus on data analysis, which was conducted using the statistical package for social sciences (SPSS) application. The results are presented through bar graphs, tables, and pie charts, and descriptive statistics, particularly frequencies and percentiles, are used to summarize the data. Both questionnaires and interviews seem to have been used to collect the data.

4.1 Response Rate

According to Brett (2012), it is of extreme significance to take into consideration the sample's rate of the questionnaire and interview response in order to make certain the validity and relevance of the study discoveries. According to Stat Pac Inc. (2014), advocating a larger response rate can elevate optimism in the research findings.

Table 4.1: Response Rate

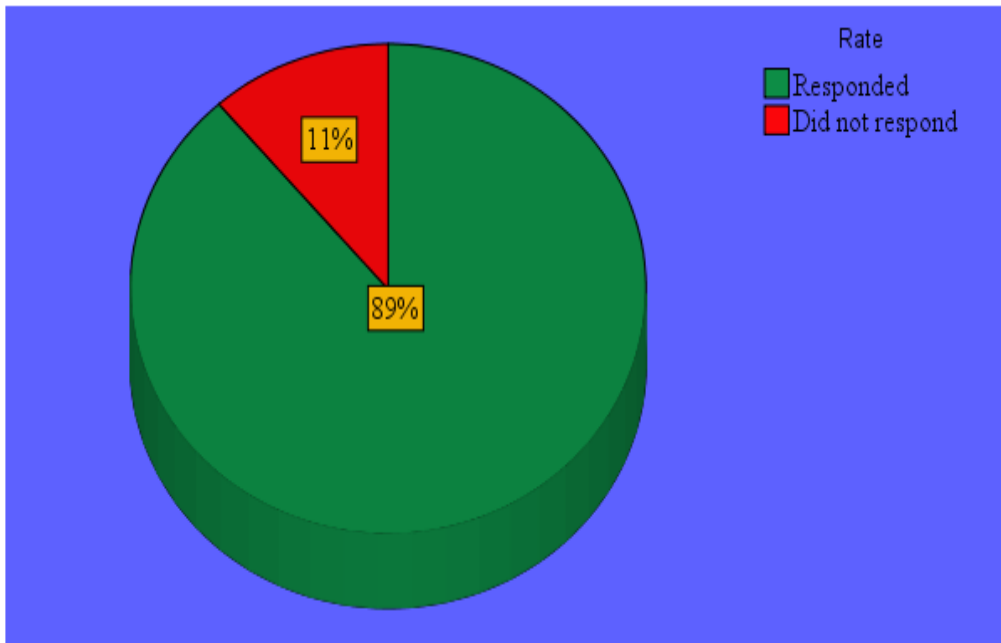
Respondents	Administered Questionnaires	Responded	Did not respond	Response rate
Operations	12	10	2	83%
Procurement	40	36	4	90%
Admin & Human Resources	8	6	2	75%
Finance	10	8	2	80%
Transport & Logistics	10	10	-	100%
Total	80	70	10	89%

Source: Primary data

Table 4.1 indicates that 80 questionnaires were given out to GMB employees. Only 10 of the 12 questionnaires given to the operations department were completed, yielding an 83% success rate. Out of 40 questionnaires submitted to procurement, only 36 were returned, yielding a 90%

response rate. Out of 8 questionnaires sent to Human Resources management, only 6 were returned and yielding a response rate of 75%. Of the 10 questionnaires submitted to the finance department, only 8 were returned and an 80% response rate was achieved. The researcher also sent 10 questionnaires to Transport and Logistics staff and all of the respondents responded indicating a success rate of 100%.

Figure 4.1: Response Rate



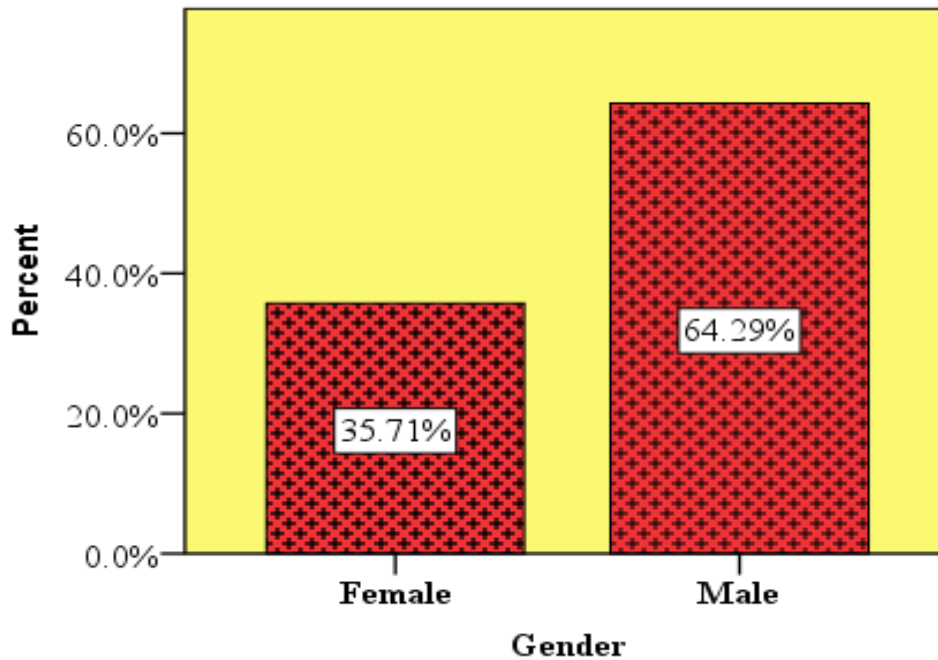
Source: Primary Data

Figure 4.1 demonstrates that 12% of participants declined to complete the questionnaire, possibly for personal reasons, despite being assured that their responses would be kept confidential, whereas 88% of responders accomplished the questionnaire. According to Mugenda & Mugenda (2016), an acceptable response rate should be higher than 65%. High response rates diminish the possibility of partiality in responses. Therefore, the 88% response rate displayed in the above chart was adequate to conduct analysis in this study.

4.2 Demographics

4.2.1 Gender

Figure 4.2: Gender



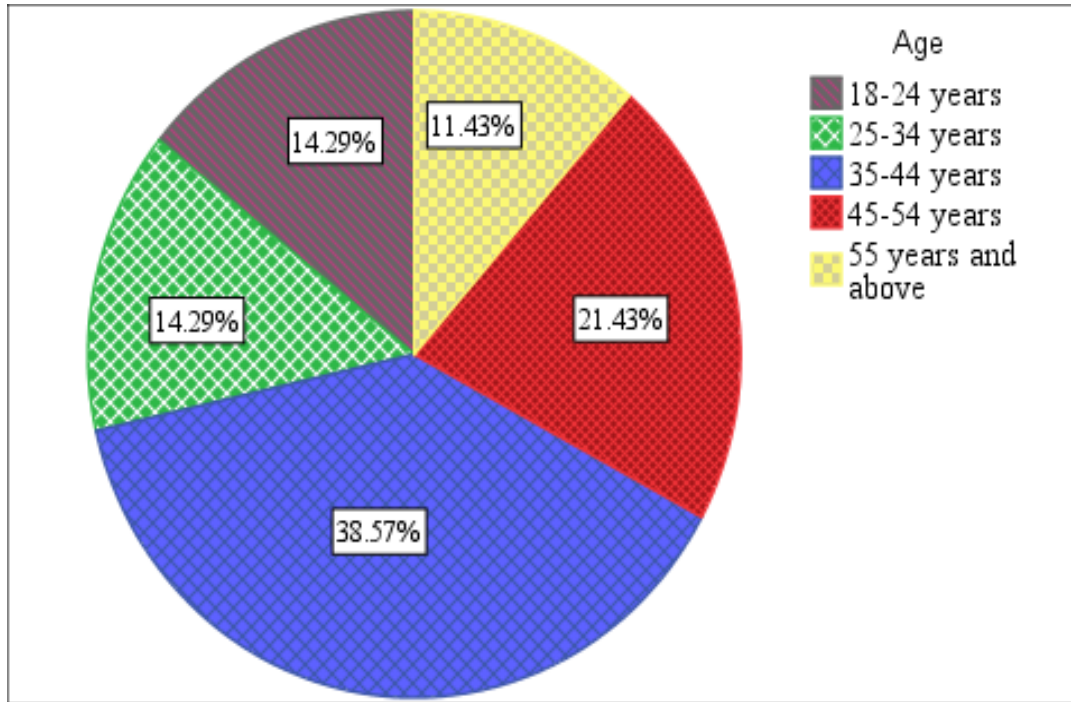
Source: Primary Data

The above figure illustrates that men dominate the workplace, as shown by the ratio of 25 women to 45 men, or 35.71% women to 64.29% men. The fact that Zimbabwe improved its score on achieving gender parity from position 76 in 2006 to position 47 in 2020 out of 153 nations is evidence of the growing representation of women in management (World Economic Forum, 2020). As a result of including both males and females in the study, the research findings are balanced and impartial.

4.2.2 Age Classification of Respondents

Fig 4.3 below reveals the respondents' characteristics by age group according to how the questionnaires were circulated. The results show that 38.57% of those who responded were between the ages of 35 and 44, while 21.43 of the participants were between the ages of 45 and 54. It can be speculated that a greater proportion of 39% were from the permanent workforce, as opposed to 14.29% of those between the ages of 18 and 24, where there is a greater number of interns and trainees for a short period of time at GMB. Additionally, they were also 14.29% of people aged 25-34 years and 11.43% of people aged 55 and above.

Figure 4.3: Age Group



Source: Primary Data

The above findings are consistent with the findings of Thrulogachantar and Zailani's (2017) study on the effect of ICT on the effectiveness of procurement: An analysis of survey-based empirical research in Malaysia, where the vast majority of the respondents were in the 35–44 age range.

4.2.3 Working Experience of Respondents

Table 4.2: Working Experience of Respondents

	Frequency	Percent%	Valid Percent	Cumulative Percent
0-10 years	12	17.1	17.1	17.1
11-15 years	20	28.6	28.6	45.7
16-20 years	30	42.9	42.9	88.6
21 years and above	8	11.4	11.4	100.0
Total	70	100.0	100.0	

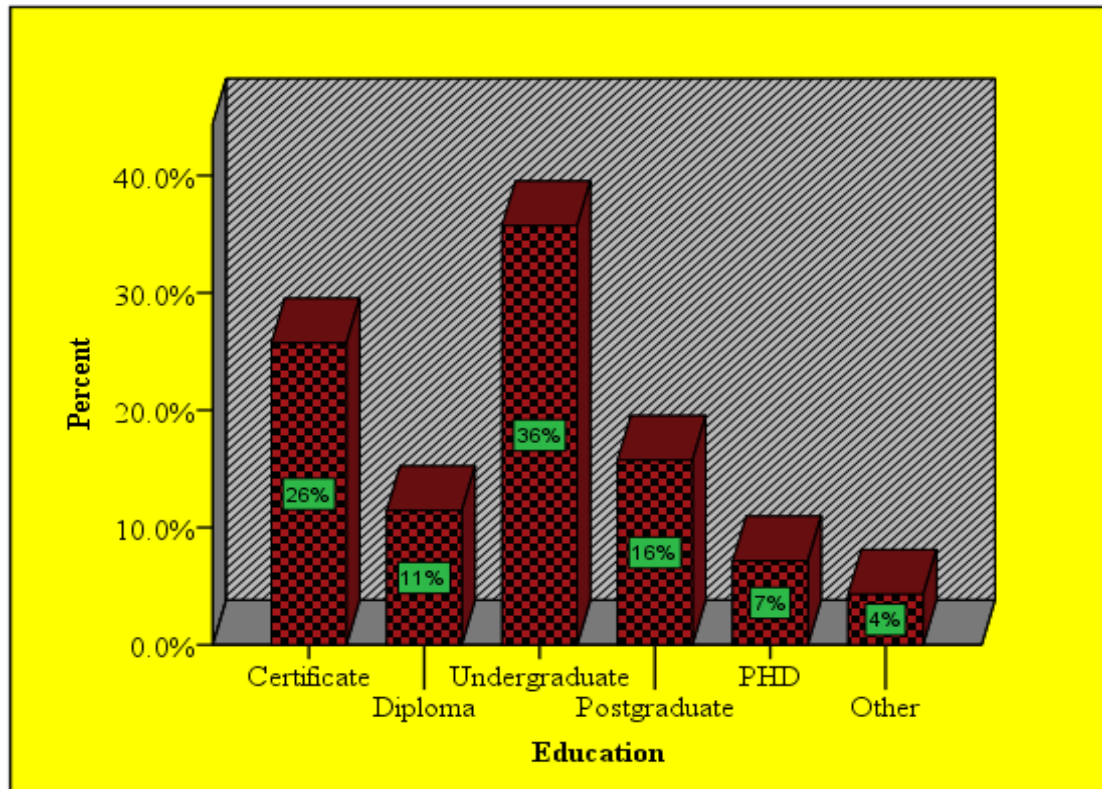
Source: Primary data

In the table above, it is evident that just 12, or 17.1%, of the GMB workforce, has more than 10 years of experience. According to the poll, most respondents (42.3%) had worked between 16 and 20 years, 28.6% for between 11 and 15, and 11.4% for between 21 and above. The

duration of service was crucial to this study because it encapsulates the respondent's experience with the business. According to Saunders et al. (2000), the respondents' comprehension of the operations of the firm grows as they gain more experience. The majority of respondents, as can be seen from the table above, have had excellent interactions with the company, so it is likely that their responses are reliable.

4.2.4 Educational Level

Figure 4.4: Respondent educational level



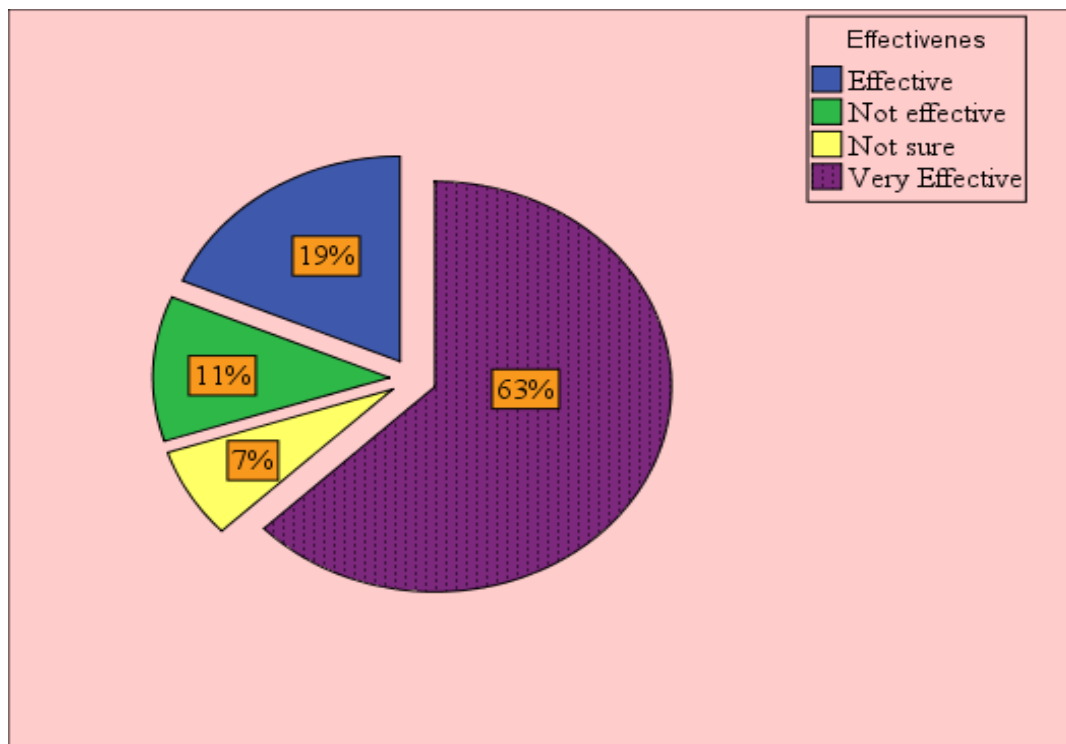
Source: Primary Data

According to the findings, 26% of respondents only have certificates, whereas 36% of respondents have undergraduate degrees. Since the senior management team was represented in the sample, it is likely that the majority of them possess degrees in their respective fields. Of those who responded, 16% of them hold master's degrees. Only 4%, 7%, and 11% of respondents had other qualifications, PHD, and diplomas respectively. However, the researcher was impressed with the credentials of the respondents because they suggest that most of them have the knowledge necessary to create data of the highest possible standard, as stated by (Campbell, 2010).

4.3 The effectiveness of modern ICT on procurement processes in GMB during Covid-19 pandemic.

The main objective of this study is to investigate the effectiveness of modern ICT on procurement processes in GMB. The results obtained are illustrated in the following fig 4.6.

Figure 4.5: The effectiveness of modern information communication technology on procurement processes in GMB



Source: Primary Data

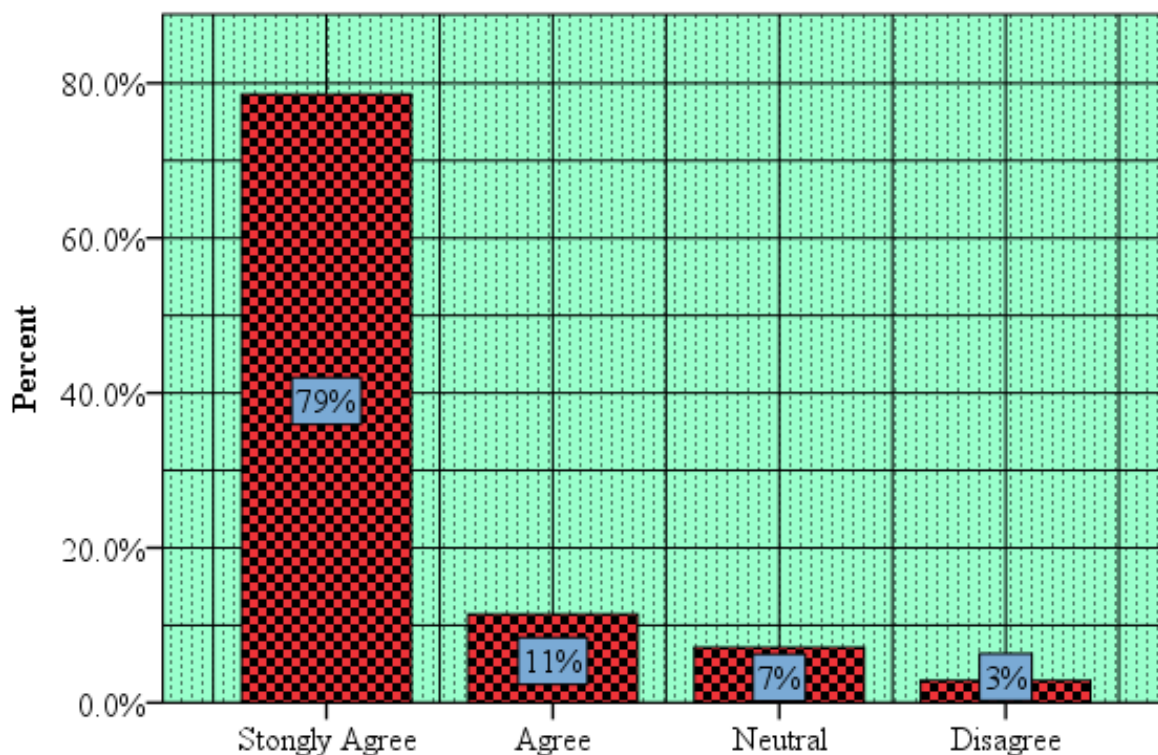
The above figure depicts that, in comparison, 13 respondents agreed that ICT is effective and gave 19%, whereas 44 respondents felt that modern ICT is extremely effective in GMB's procurement operations hence show a response rate of 63%. The results also suggest that 8 respondents, or 11% of the total, agreed that current ICT is ineffective for GMB procurement operations, while 5 respondents were uncertain, making up 7% of the total.

4.4 The roles of modern ICT on procurement processes in GMB.

The intent of the study was to establish the role of modern ICT in procurement processes in GMB. The use of several statements that represented key roles of ICT in procurement operations and exhibited the frequency of participants assisted the participants as they provided their answers.

4.4.1 Better inventory management.

Figure 4.6: Modern ICT lead to better inventory management.



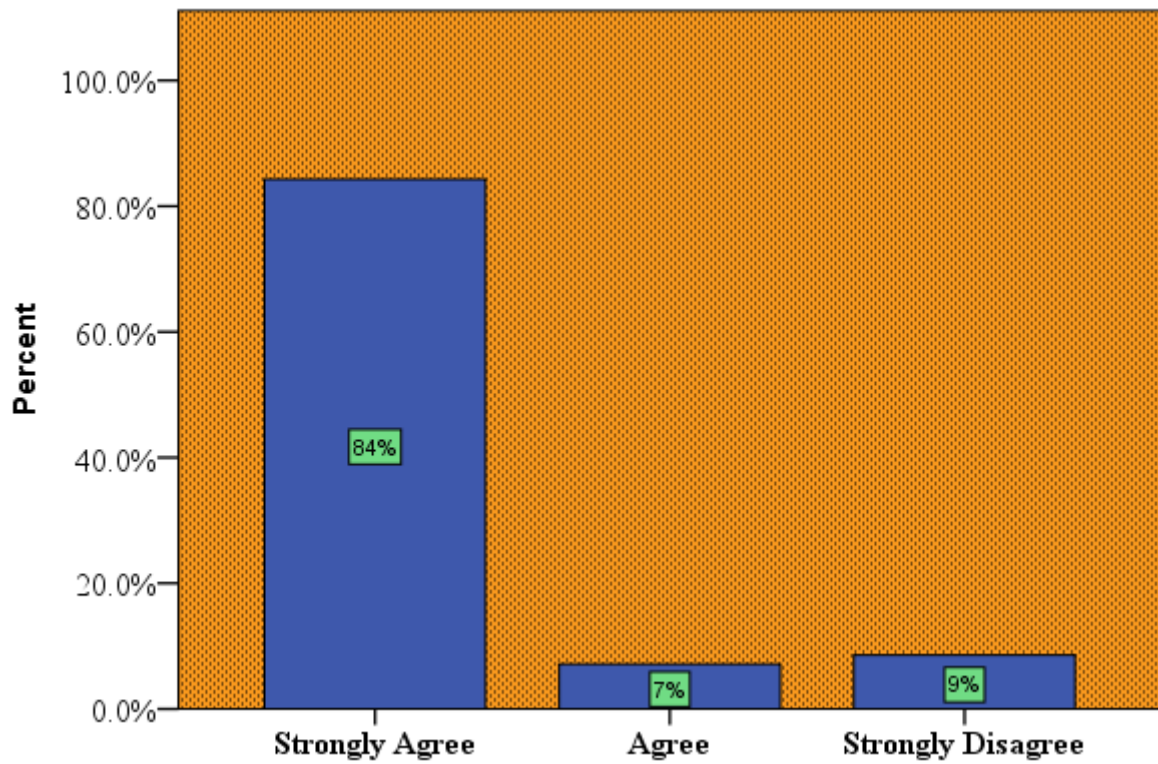
Source: Primary Data

The figure 4.6 above depicts that, improved inventory management is facilitated by modern ICT. Only 3% of respondents disagreed, with 90% of respondents believing it improves inventory management. Only 7% were neutral on the role of improving inventory management. Consequently, it aids in spotting possible to organise if the organisation run out of stock, (Gunasekaran & Ngai, 2004).

4.4.2 More effective order tracking and delivery

Additionally, figure 4.7 bellow depicts that current ICT employed in procurement processes increase efficiency of order tracking and delivery tracking. 84% and 7% of participants strongly agree and agree respectively with the role of improvement in order tracking and delivery, while (9%) disagreed. This supports what Bailey et al (2008) postulate. ICT can assist with order management, as well as procedures like bid submitting and delivery.

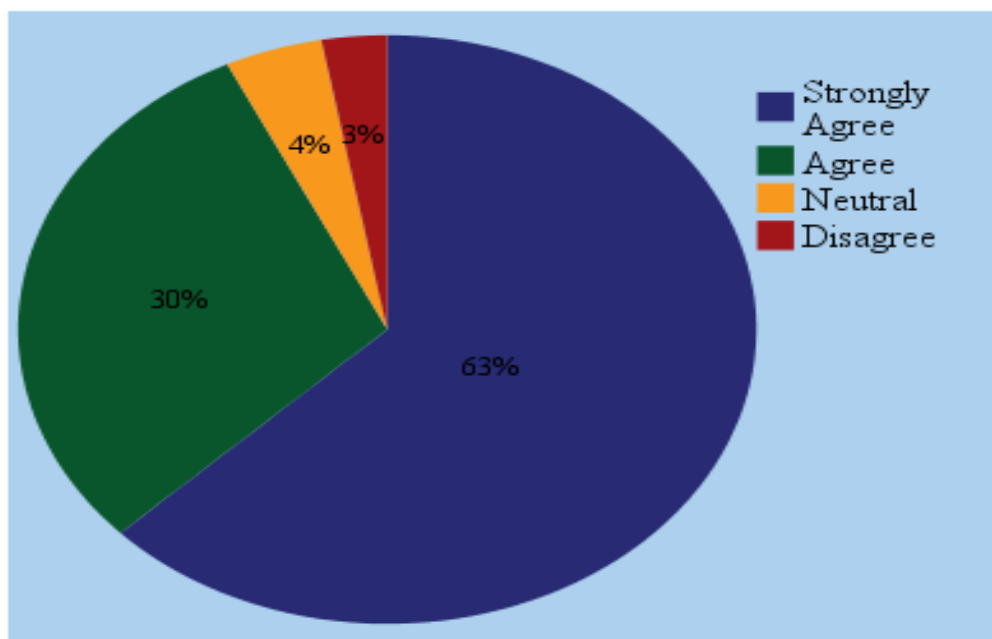
Figure 4.7: Modern ICT has more effective order tracking and delivery



Source: primary Data

4.4.3 Streamline procurement processes

Figure 4.8: Modern ICT streamline procurement processes

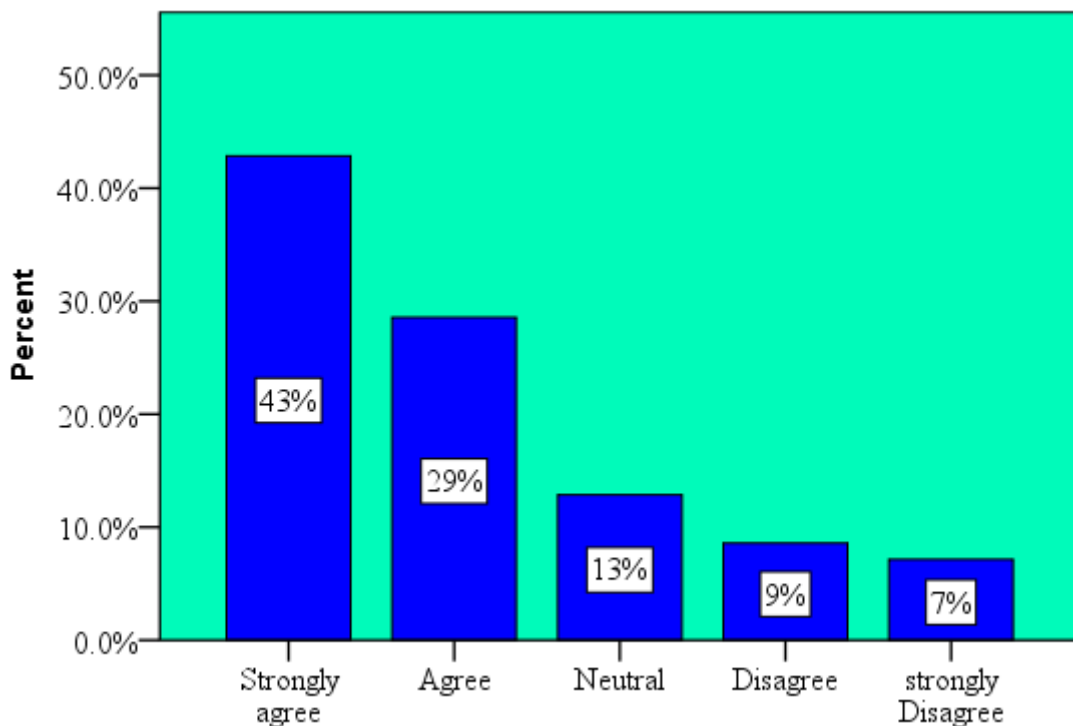


Source: Primary data

From the Figure 4.8 above, it can be inferred that contemporary ICT streamline the procurement processes of GMB. This is supported by 93% of respondents who agreed that modern technology has a huge role it plays in the production process, whilst 4% of participants were neutral and 3% disagreed. The findings above concur with Lysons and Farrington (2012) in the sense that ICT can speed up procurement operations by automating these processes, which will cut down on the time needed to complete each phase of the procurement process. For businesses, this might result in streamline of procurement processes.

4.4.4 Enterprise resource planning

Figure 4.9: Modern ICT enhances enterprise resource planning



Source: Primary data

In addition to those roles already indicated, the findings above on figure 4.9 shows that enterprise resource planning as agreed by (72%) of respondents, were also the other role played by modern ICT on the procurement process. 13% of respondents were neutral whilst 16% disagreed that, modern ICT enhances enterprise resource planning.

4.4.5 Material resource planning

Table 4.3: Modern ICT enhances material resource planning

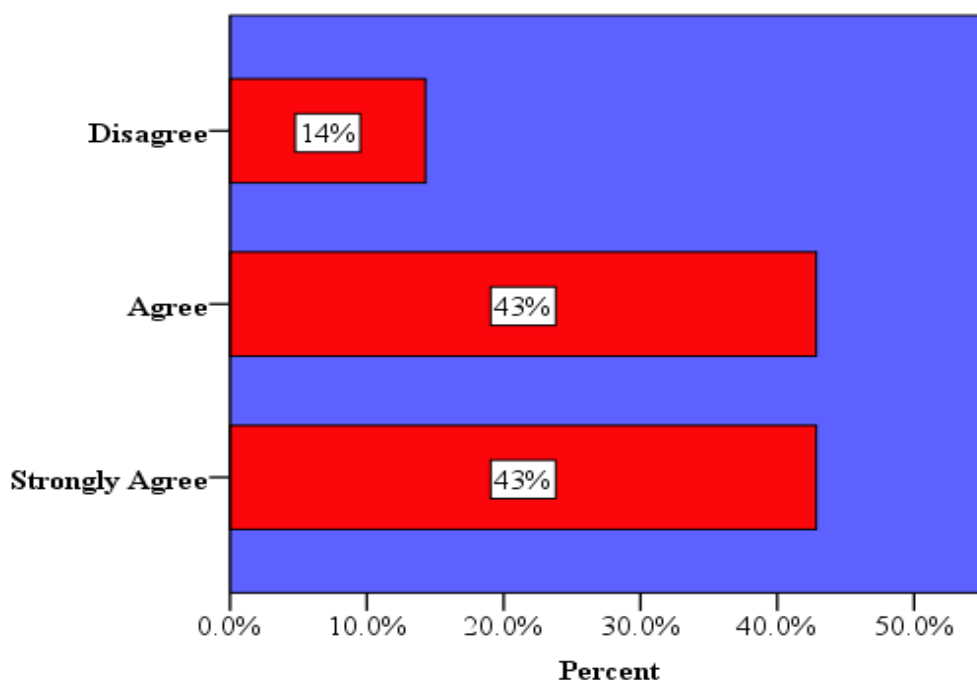
	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	15	21	21.4	21.4
Neutral	10	14	14.3	35.7
Strongly Agree	40	57	57.1	92.9
strongly Disagree	5	7	7.1	100.0
Total	70	100	100.0	

Source: Primary data

Finally, from the findings above, material resource planning is facilitated by modern ICT. Only 7% of respondents disagreed, and with 78% of respondents believing it enhances material resource planning.

4.4.6 Automate communication between procuring entity and suppliers

Figure 4.10: ICT automate communication between procuring entity and suppliers



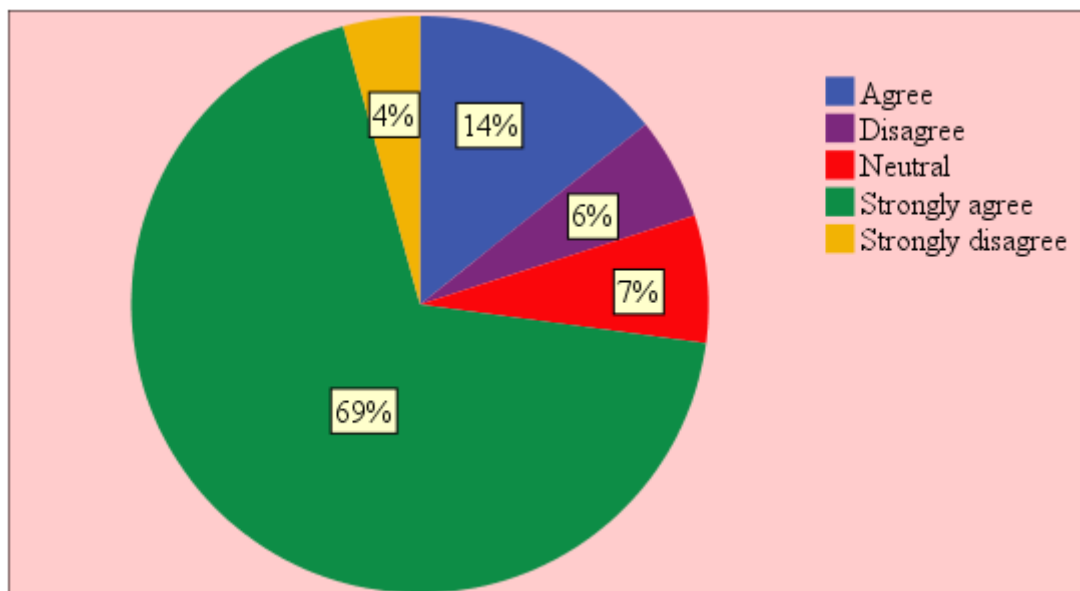
Source: Primary Data

According to respondents, modern ICT plays a key role in the procurement process, which is to automate communication between procuring entity and suppliers, this was agreed by (86%) of respondents whilst 14% disagreed. This finding refutes what Wu et al. (2015) identified to be the essential roles of ICT to procurement processes. ICT can automate supplier and procurement department communications.

4.5 Effects of modern ICT on purchase requisition, solicitation process and ordering in GMB.

4.5.1 Reduces delays and errors

Figure 4.11: modern ICT reduces delays and errors on purchase requisition, solicitation process and ordering.

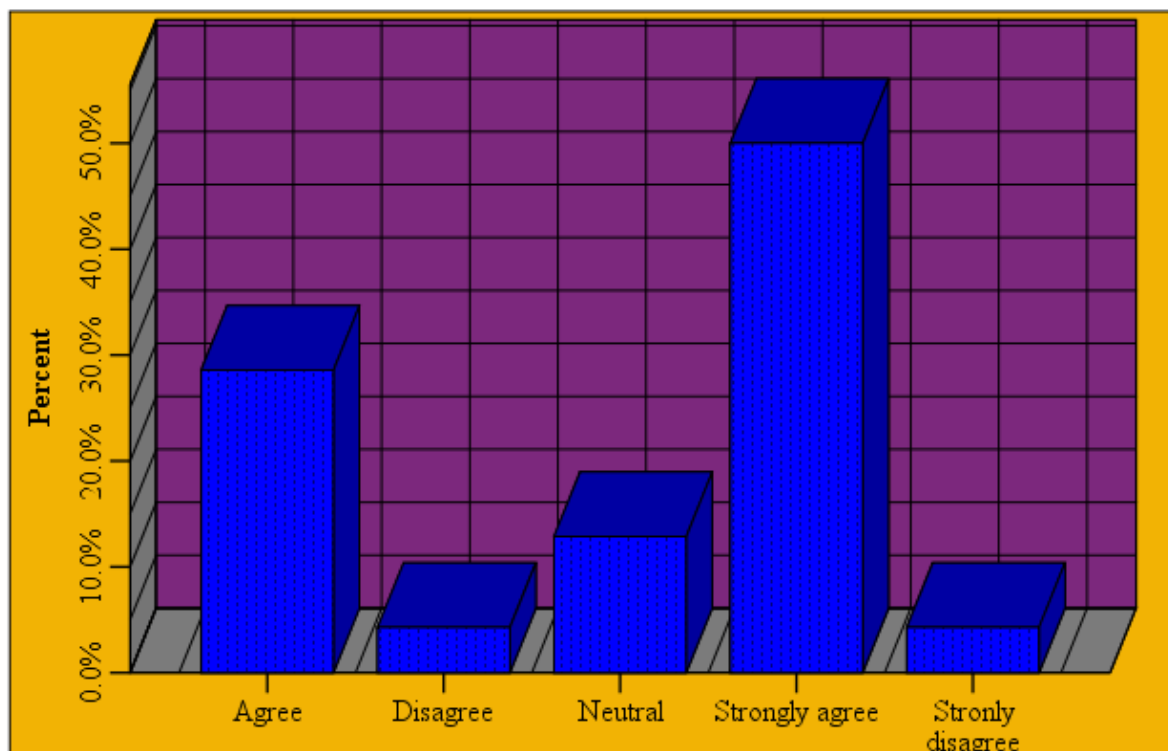


Source: Primary Data

The findings in Fig. 4.11 above show that using contemporary technologies at GMB reduces errors. As 83% of respondents agreed, modern ICT shortens wait times and eliminates errors during the ordering, solicitation, and purchase requisition processes. Only 10% legitimately dispute the claim that ICT decreases errors and delays in the ordering, solicitation, and purchasing requisition processes. 7% of workers were unconcerned about the impact of ICT. ICT plays a critical role in procurement, according to Bauld and Guinness (2016), by expediting the process and providing a wealth of information to support better decision-making. By automating a number of procedures and so decreasing delays, IT helps to eliminate errors and speed up the procurement process.

4.5.2 Increased transparency

Figure 4.12: Modern ICT Increases transparency in the ordering.

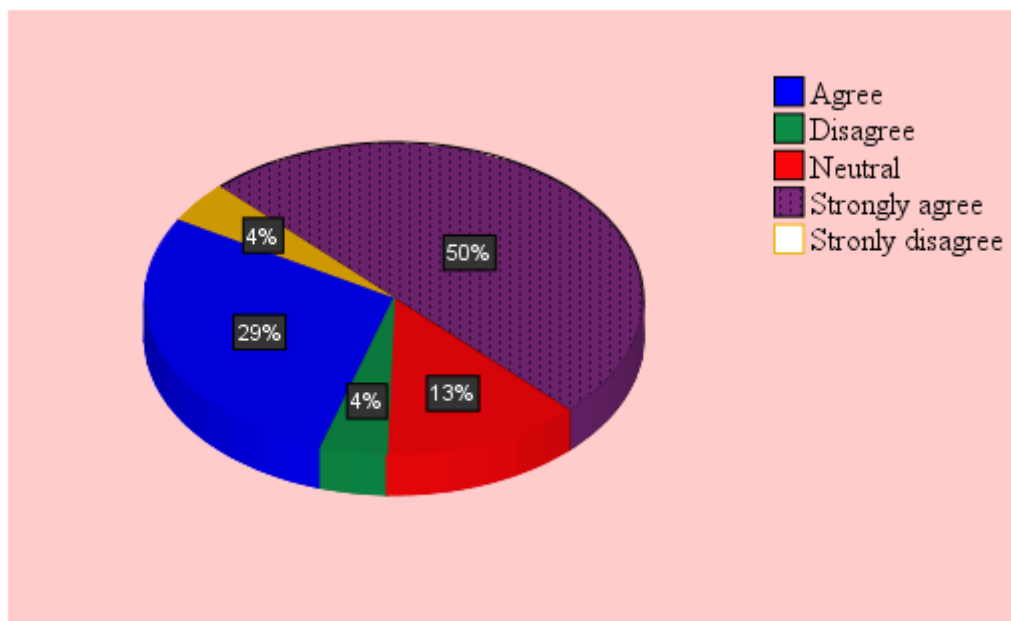


Source: Primary Data

According to the aforementioned data, 50% of respondents (35 people) and 30% of respondents (21 people), respectively, highly agreed and agreed that modern ICT fosters transparency on purchase requisition, solicitation procedure, and ordering. In addition, 9% (6 individuals) agreed that ICT promotes transparency on purchase requests, the solicitation process, and orders, while 7% (5 people) disagreed and 4% (3 people) severely opposed. The results of the study indicate that ICT is an important positive indicator of purchase requisition, solicitation procedure, and order, according to the majority of respondents. According to Zuzana (2012), solid public financial management and effective budget execution depend on effective technological policies and purchasing practices.

4.5.3 Encourages strategic sourcing

Fig: 4.13: Modern ICT encourages strategic sourcing

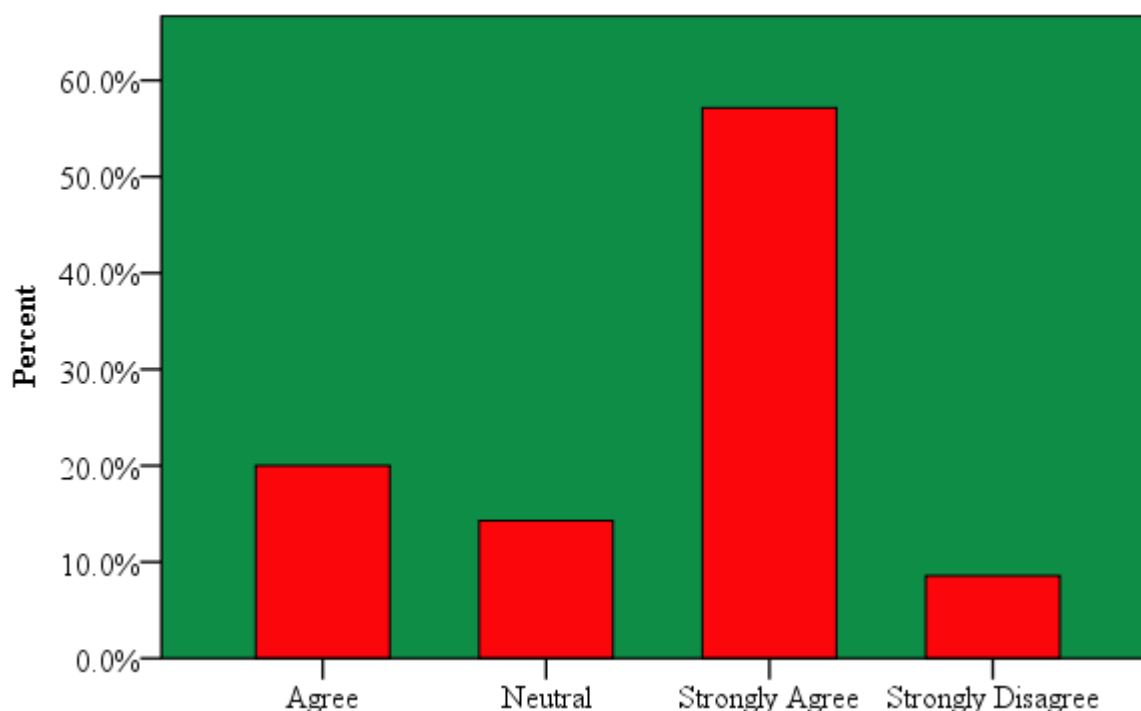


Source: Primary Data

According to the aforementioned data, Fig. 4.13 shows that 30% of respondents and 50% of respondents agreed that contemporary ICT facilitates strategic sourcing of goods and services at GMB. While 7% of respondents were neutral, 13% of respondents disagreed. The vast majority of those who responded indicated that they agreed with how much ICT was being used for strategic sourcing. The results support those of Lysons and Farrington (2012). This remark is also on par with Chimberengwa et al. (2015), who pointed out that the Zimbabwean public sector has not yet adopted e-procurement to its fullest extent. According to Chigudu (2014), there are significant incentives for entities to recognize and use ICT, such as e-procurement networks and systems. According to Dzuke and Naude (2017), parastatals in Zimbabwe must set up ICT frameworks for improved strategic sourcing.

4.5.4 Creating a plan of action

Figure 4.14: Modern ICT enables creating a plan of action



Source: Primary Data

According to the results from the above data, 77% of respondents (54 persons) believed that contemporary ICT improves the development of action plans in procurement procedures at GMB. Modern ICT creates a plan of action, strongly disagree with 9% (6 persons), and apathetic (14%, 10 people). This supports Magnus' (2016) claim that ICT is a critical organizational component in procurement processes like solicitation with the potential to, among other things, develop a plan of action thereby reducing costs, boosting operational efficiency, providing access to reputable suppliers, and improving product or service quality.

4.5.5 Decreases the average cycle time

Table 4.4: Modern ICT decreases the average cycle time

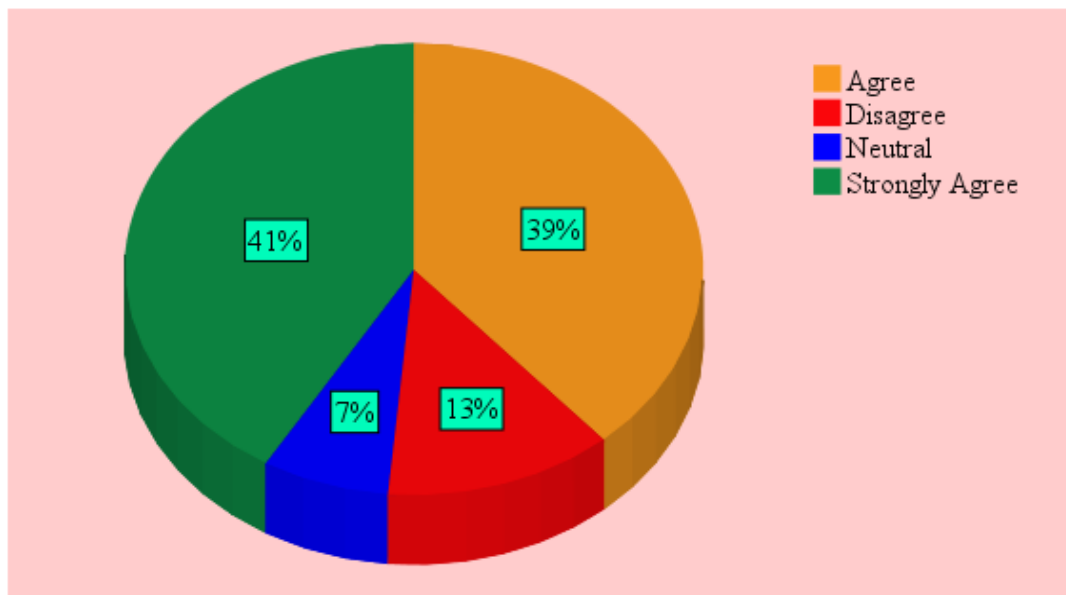
	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	10	14.3	14.3	14.3
Disagree	6	8.6	8.6	22.9
Neutral	9	12.9	12.9	35.7
Strongly Agree	45	64.3	64.3	100.0
Total	70	100.0	100.0	

Source: Primary Data

The Table 4.5 above depicts that, 64% of the respondents and 14% of the respondents strongly agree and agree respectively, that modern ICT decrease the average cycle time of the procurement process as in tandem with, (Lysons and Farrington, 2012). 13% of the respondents were neutral on the notion that modern ICT decrease average cycle time of the procurement process. However 9% of respondents disagreed with the effect of decreasing of average cycle time in procurement processes

4.5.6 Organisational purpose

Figure 4.15: Modern ICT enhances better organisation of information



Source: Primary data

According to the above chart, 80% of respondents acknowledged that contemporary ICT enhances data organization in GMB procurement processes. According to the responses, 7% of respondents had a neutral opinion on the idea and 13% disagreed. Data organization and timely processing are made simple and uncomplicated by the use of electronic data processing tools like SAP.

4.6 Conclusion

The study's findings were presented, examined, and debated in this chapter. All questionnaires were returned, and after evaluation, it was determined that the data was reliable and comprehensive enough to support the results and suggestions. Additionally, the response rate was adequate to generate accurate and valid data. The summary, conclusion, and recommendations are the main topics of the next chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The study findings were illustrated, examined, and debated in the preceding chapter. All questionnaires got returned, and after appraisal, it was determined that the data was reliable and comprehensive enough to support the results and suggestions. This chapter provides a summary of the entire study, concluding observations and recommendations on the usefulness of contemporary technology on procurement processes in parastatal firms based on the findings reported in the preceding chapter.

5.1 Summary

The goal of the study was to determine how well-developed ICT impacted GMB's procurement procedures during the COVID-19 epidemic. A descriptive survey with an 80-person sample from the GMB head office was conducted. The study, which employed a qualitative methodology, discovered that contemporary ICT had a favourable effect on GMB's procurement procedures. Because some of the employees were extremely defensive and unwilling to reveal information, therefore conducting the survey was challenging. Additionally, some respondents had a tendency to overstate the impact of ICT on the GMB procurement process. People involved were reluctant to discuss the impact of ICT on procurement processes because some respondents resisted change and lacked computer literacy.

5.2 Conclusions

The study looked at how contemporary information and communication technologies are used in (GMB) procurement processes. According to the study, the role of contemporary ICT in GMB is to improve inventory management, which lowers costs like equipment deterioration. The effectiveness of order tracking and delivery in the GMB's procurement processes is also improved by modern ICT. The increased speed in procurement procedures accelerates the procurement procedures and brings openness, which will cut down on corrupt and unethical behaviours. The study also discovered that contemporary ICT promotes information sharing, communication with suppliers, enterprise resource planning, and materials resource planning, all of which contribute to long-term organizational competitiveness.

The study examined the impact of modern ICT on Grain Marketing Board (GMB) procurement processes. In order to reduce the difficulties associated with using conventional techniques of procurement, the company included current ICT in its procurement operations. Delivery delays and longer purchase cycle, communication problems, inefficiency, market risks, potential fraud, low-quality products, and higher procurement expenses were all effects of employing traditional procurement procedures. According to the study, GMB's procurement procedures benefit from modern ICT. Results also showed that contemporary ICT improved ordering process transparency and decreased errors and delays in GMB procurement processes. The study also shows that using current ICT in procurement procedures encourages strategic sourcing, which maintains an organization's long-term competitiveness.

However, it was discovered through interviews that several departments were hesitant to upgrade from the out-dated system and adopt new strategies for contemporary procurement. Three departments were effectively using SAP, but the other departments were not. This presents a problem because all the departments must integrate for the system to function well.

5.3 Recommendations

GMB must keep utilizing and promoting the usage of modern ICT in its procurement process. Since automating the entire procurement process has advantages over using conventional ways, GMB must automate the procurement process. To have few or no faults in the storage and management of grains and goods, it is necessary to completely utilize computerized systems. The entire supply chain, from the manufacturer to the buyer, should be automated for GMB. The purchase procedures will become more efficient as a result. Technology spending puts GMB in a better position to compete. The organization must completely teach its workers in order to ensure that they are aware of the benefits of an automated system over an older one and how to overcome opposition to change.

5.4 Recommendation for future study

Further study should be done on other non-government firms because this study specifically focused on the GMB parastatal company. Since private businesses represent a different field of study with different factors, they were deliberately excluded. Instead of focusing on the public sector for future studies, academics should strive to analyse how well current ICT affects procurement processes in the private sector, particularly in industrial enterprises.

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<https://www.bbc.com/news/world-africa-5311998>

APPENDIX 1

Bindura University of Science Education
P Bag 1020
Bindura

15 December 2020

The Human Resources Management
Grain Marketing Board
179-187 Samora Machel Ave, Eastlea
Box CY77 Causeway
Harare

Dear Sir/Madam

**REF: APPLICATION FOR PERMISSION TO CONDUCT A RESEARCH WITHIN
GRAIN MARKETING BOARD.**

I am a student at Bindura University of Science Education pursuing a Bachelor of Commerce Honours in Purchasing and Supply. I would like to inquire for your permission to conduct my research within your company on the subject: **THE EFFECTIVENESS OF MODERN INFORMATION COMMUNICATION TECHNOLOGY ON PROCUREMENT PROCESSES OF PARASTATAL COMPANIES DURING COVID-19 PANDEMIC: A case of Grain Marketing Board (2021-22).** The data will be utilized solely to further the objectives of this research only.

Yours Faithfully

Matendere Tatenda C

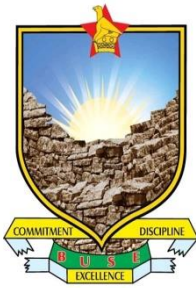
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Approved by.....

Date.....

APPENDIX II

QUESTIONNAIRE



BINDURA UNIVERSITY OF SCIENCE EDUCATION



Promoting science education for human development

FACULTY OF COMMERCE

QUESTIONNAIRE

I am Tatenda Comfort Matendere, a senior student at Bindura University of Science Education. As part of my degree in Purchasing and Supply, I am conducting a research study on how modern information communication technology (ICT) has affected procurement processes in Zimbabwe's parastatal companies, using the Grain Marketing Board as a case study.

Please note that this questionnaire is strictly for academic purposes and your responses will be kept confidential. The information you provide will only be used for this research and will not be published. The study aims to provide valuable insights for improving procurement strategies in the future. Bindura University guarantees that your information will not be misused.

Your cooperation in filling the questionnaire is greatly appreciated.

NB: Please tick in the relevant box as well as writing your responses on space provided.

SECTION A: DEMOGRAPHIC

1. Gender:

Male

Female

2. Age group

18-24 years

25-34 years

35-44 years

45-54 years

55 and above

3. Post held.....

4. Years of experience in the organization

0-10 years

11-15 years

16-20 years

21 and above

5. Level of education

Certificate	
Diploma	
Undergraduate	
Postgraduate	
PHD	
Other Qualifications	

6. Which department do you work?

Operations	
Procurement	
Human Resources	
Finance	
Logistics	

SECTION B

7 How can you rate the effectiveness of modern information communication technology on procurement processes in Grain Marketing Board? Please share your view by ticking in the box.

Rating

a) Very effective

b) Effective

c) Not effective

d) Not sure

Support your answer

.....
.....

.....

8 The roles of modern information communication technology on procurement processes in (GMB) are as follows? Please share your view by ticking in the box.

Kindly indicate your agreement or disagreement with the following statements concerning roles of modern information communication technology on procurement processes in (GMB) by ticking in the yes or no box

STATEMENTS	SA	A	N	D	SD
Better inventory management					
More effective order tracking and delivery					
Streamline procurement processes					
Enterprise resource planning					
Material resource planning					
Automate communication between procuring entity and suppliers					

SECTION C

9 Below are the effects of modern information communication technology on purchase requisition, solicitation process and ordering in (GMB).

Key:

SA.....Strongly Agree

A.....Agree

N.....Neutral

D.....Disagree

SD.....Strongly Disagree

STATEMENTS	SA	A	N	D	SD
Reduces delays and errors					
Increased transparency in the ordering.					
Strategic sourcing					
Create a plan of action					
Decrease average cycle time					
Organisational purposes					

10. What are your recommendations as far as Modern ICT on procurement processes is concerned in an organization?

.....

.....

.....

.....

.....

.....

.....

APPENDIX III

INTERVIEW GUIDE FOR THE EMPLOYEES AT GRAIN MARKETING BOARD (GMB)

The following is an extract of interview questions that were used to gather information from employees of Grain Marketing Board.

- 1) What are the roles of modern information communication technology on procurement processes in (GMB)?
- 2) What are the effects of using modern information communication technology on purchase requisition, solicitation process and ordering in (GMB)?

THE EFFECTIVENESS OF MODERN INFORMATION COMMUNICATION TECHNOLOGY ON PROCUREMENT PROCESSES OF PARASTATAL COMPANIES IN ZIMBABWE DURING COVID-19 PANDEMIC

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**BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF COMMERCE
ECONOMICS DEPARTMENT**

25 May 2023

To Whom It May Concern

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO COLLECT DATA

This letter serves to inform you that Matendere Tatenda Comfort (B192420B) is pursuing bachelor of commerce in Purchasing and Supply degree with our department. Please assist him with data for his dissertation titled "The effectiveness of modern information communication technologies on procurement processes of parastatal companies in Zimbabwe during covid-19 pandemic: The case of Zimbabwe Grain Marketing Board (GMB)."

The information gathered from this research will be used purely for academic purposes and your response will be classified as private and confidential.

Your cooperation will be greatly appreciated.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'S. Mutsvangwa'.

Dr. S. Mutsvangwa (Chairperson)

