Barriers to the implementation of e-procurement in the public sector: Focusing on the Government Pensions Administration Agency (GPAA)

by

PHINDILE SIMPHIWE JENNET MDLETSHE

submitted in accordance with the requirements for
the degree of

MASTER OF COMMERCE: BUSINESS MANAGEMENT

in the subject

SUPPLY CHAIN MANAGEMENT: PURCHASING

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: **Prof BADENHORST-WEISS JOHANNA**

(07 February 2024)

DECLARATION

Name: PHINDILE SIMPHIWE JENNET MDLETSHE

Student number: 5587-638-2

Degree: MASTER OF COMMERCE- BUSINESS MANAGEMENT

Exact wording of the title of the dissertation as appearing on the electronic copy submitted for examination:

Barriers to the implementation of e-procurement in the public sector: Focusing on the Government Pensions Administration Agency (GPAA).

I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

(The dissertation will not be examined unless this statement has been submitted.)

SIGNATURE

07 February 2024
DATE

DEDICATION

This dissertation is dedicated to my mother, Mornitar Ntshangase; my siblings, Zipho, Siyabonga, and Thandazile; cousins Mahlengi and Mondli; and, finally, my dependents, Ayabonga, Lesizwe, Uvukile, and Simnene. Their love inspires me to work hard and be the best that I can be.

ACKNOWLEDGEMENTS

I would like to quote the words of the famous author, Napoleon Hill: *"Whatever the mind can conceive and believe, it can achieve."*

What started as an idea is now a full research dissertation that will contribute to the body of knowledge.

I want to express my gratitude to God for carrying me throughout this journey, and to my supervisor, Prof Hannie Badenhorst, for her unwavering encouragement and guidance during this process.

I would like to thank the Government Pensions Administration Agency (GPAA) for allowing me to conduct this study with their Supply Chain Management staff and for encouraging them to participate in the interviews, especially Miss Renne Stander, Mr Fortune Mogwatjana and Dr Sefiso Khumalo.

Furthermore, I would like to thank Miss Nomsa Chirisa who assisted me, particularly with the analysis of the results, interpretation, and editing.

I also want to thank Mr Sibusiso Gwala for his support and assistance on this journey. To Mr Erick Morudu, thank you for being the best study partner. I wish you all the best with your Doctoral studies. My mentor, Miss Zanele Ntshakala, I appreciate your inspiration and guidance in this field. My sister, Zipho, who persuaded me to enrol for this course. My partner, Nqabayesizwe, I am grateful for your mental, emotional, and spiritual support.

Finally, I want to express my gratitude to family, friends and everyone who stood by my side and prayed for me during this journey.

ABSTRACT

Previous studies show that e-procurement can improve public procurement tremendously. However, due to many factors, the South African government has experienced challenges in the implementation of a comprehensive widely accepted e-procurement system. A qualitative study was conducted to explore the barriers to the full implementation of e-procurement in the public sector, specifically at the Government Pensions Administration Agency (GPAA). Face-to-face and online interviews were conducted with the Supply Chain Management (SCM) staff at the GPAA. Thematic analysis was used to interpret and analyse the data from the interviews. Findings from the study revealed that barriers emanate from budget constraints, resistance to change, dynamics in institutions, complexity in systems, security reasons, time to implement, lack of infrastructure, and no applicable legislation to support e-procurement. The findings also revealed that integration, legislation, staff training, centralisation, budgeting and/or investing, stakeholder engagements, fast tracking the process, staff buy-in or senior management support and data security are necessary requirements for the transition from manual to electronic procurement. This study made several important suggestions for future research in the areas of the implementation of e-procurement in the public sector in South Africa which include the cost of e-procurement, legislation for e-procurement, security threats associated with e-procurement, capacitation for e-procurement, and the mechanisms of e-procurement.

Keywords: Procurement, public procurement, e-procurement, South Africa

Table of Contents

LIST OF TABLES

LIST OF FIGURES

APPENDICES

ABBREVIATIONS AND ACRONYMS

ICT	Information Communication and Technology
GPAA	Government Pensions Administration Agency
OECD	Organisation for Economic Operation and Development
NT	National Treasury
GEPF	Government Employees Pension Fund
SLA	Service Level Agreements
GEP	Government Employees Pension
CSD	Central Supplier Database
CIPS	The Chartered Institute of Purchasing and Supply
RDP	Reconstruction and Development Programme
SMME's	Small Medium and Micro Enterprises
HDI's	Historically disadvantaged Individuals
PPPFA	Preferential Procurement Policy Framework Act
CPAR	Country Procurement Assessment Review
SCM	Supply Chain Management
BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
SARS	South African Revenue Services
OCPO	The Office of the Chief Procurement Officer
IFMS	Integrated Financial Management System

IT	Information Technology
PPR	Preferential Procurement Regulation
RFQ	Request for Quotation
RFI	Request for Information
CSFs	Critical Success Factors
ERP	Enterprise Resource Planning
HR	Human Resources
SITA	State Information Technology
UN SDG	United Nations Sustainable Development Goals

CHAPTER ONE
INTRODUCTION AND OUTLINE OF THE STUDY

1.1 Introduction

Since the late 1990s, various new electronic commerce technologies have emerged and revolutionised working practices. Consequently, new procurement technology and applications like e-procurement have been significantly adopted by organisations globally. Experts suggest that this technology can be a powerful tool for enhancing transparency and accountability hence reducing corruption (Elhassan Gadour, 2024: 1-2). The primary goal of organisations implementing e-procurement systems is to reap the benefits that they provide (Chimtengo, Hanif & Mvonye, 2016: 1547). E-procurement is the practice where organisations use information and communication technology (ICT), particularly the internet, to close procurement agreements with suppliers and acquire products and services (Premathilaka & Fernando, 2018: 337). E-procurement offers several advantages that may be realised when it is implemented successfully. Cost saving, enhanced effectiveness and efficiency, better openness and visibility in supply chain management, and higher productivity are just a few of the benefits (Kanyambo, 2017: 4). While the advantages of an e-procurement system are well established, its implementation in most public institutions throughout the world remains a difficulty (Chimtengo *et al*., 2016: 1549).

The qualitative research method was used in this study to explore the challenges for the adoption of e-procurement in the South African public sector and the extent to which e-procurement has been implemented at the Government Pensions Administration Agency (GPAA). The findings were used to offer recommendations for further implementation and improvement of e-procurement in the public sector.

1.2 Background of the study

This section of the study begins with an introduction to public procurement, followed by e-procurement in the global or African context, e-procurement in South Africa, and an overview of the GPAA's procurement process.

1.2.1 Public procurement

The acquisition of products, services and works by the government and state-owned organisations, mostly from private sector suppliers (vendors), is known as public procurement. The public procurement process is a series of actions that begin with a requirement assessment, then moves on to supplier selection, contract award, contract management, and payment (OECD, 2015). The procurement of products and services in government organisations is a major problem since it considers financing sources, one of which is derived from mandatory community contributions, namely, taxes (Nani & Ali, 2020:35). According to Ambe (2016), efficient public procurement will save money that can be used for the building, operations and repair of hospitals, schools and roads that benefit the public. Furthermore, public procurement is utilised to promote socioeconomic goals such as job creation, fair labour standards and providing opportunities for formerly disadvantaged populations to expand their businesses. Technology, programme evaluations and political expectations are all driving more scrutiny and rapid change in the public procurement sector. One of the technological improvements that might help with more effective public procurement is e-procurement (Ambe, 2016).

1.2.2 E-procurement in a global context

E-procurement has been highlighted as one approach to improve procurement procedures by a number of organisations across the world. These organisations have developed or are in the process of adopting an electronic procurement system. The primary goal of organisations implementing an e-procurement system is to reap the benefits that it provides. Countries that have used e-procurement to a considerable extent have been able to increase market access while lowering marketing expenses (Chimtengo *et al*. 2016: 1547-1548).

Developed countries such as Japan, United Kingdom (UK) Australia, United States of America (USA) and Singapore have effectively deployed e-procurement systems and are now reaping the benefits (Ernest, 2022:4). Many other nations are still in the process of implementing the agreement. There are numerous different adoption

patterns for e-procurement in different nations. For example, the Danish central government has chosen a private e-market as its e-procurement infrastructure. The task of developing functional, technical and organisational requirements has been assigned to the Spanish Ministry of Public Administration. The German government has committed 4.5 million euros to the development of e-vergabe platform, an initiative which is used as the “model for public procurement in Europe” (Addo, 2019:45).

Although corporations and organisations in wealthy nations have been highly successful in implementing e-procurement technology and procedures, this is not the case in many developing countries, where implementation is slow and poor (Aduwo, Ibem, Uwakonye, Tunji-Olayeni & Ayo-Vuaghan, 2016:133). Due to the anticipated potential benefits that may come from effective technology deployment, e-procurement is presently gaining greater attention in developing countries. However, many people believe that e-procurement is still in its early stages and that its full potential has yet to be realised. In Malaysia, for example, the benefit of e-procurement is viewed as confined to operational and tactical advantages, with little to no value gained in market access and customer or supplier relationships (Kabanda, Pitso & Kapepo, 2019:234).

According to reports, Turkey's public e-procurement programme which targeted small business suppliers did not produce the desired benefits of more competition and cheaper procurement rates. This is due to a lack of essential success elements including organisational size, human resources and technical variables, as well as the existence of hurdles for small firms. In Iran, the adoption of e-procurement is hampered by a lack of technology infrastructure and government regulatory and legal restrictions. The intertwined legal framework, infrastructure, working culture and the position of the head of local government were determined to have a major impact in Indonesia (Kabanda *et al.* 2019:234). On the other hand, the Indian government has made several steps to make public procurement more transparent. E-publishing, e-procurement and the government e-marketplace are among the most important efforts put in application (Panduranga, 2016:7).

In Africa, the concept of e-procurement is just gaining popularity especially in the public sector. To deal with the problems of lack of accountability and transparency in procurement activities in the public sector, most African countries have resorted to

legal reforms and adoption of e-procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Jules, 2022: 167).

According to the World Bank, e-procurement has not been widely used in Africa, and the three main reasons for this are: first, African governments have been slow in putting in place the necessary capacity; second, a lack of information technology infrastructure; and third, antiquated administrative cultures that exist in African governments (Anthony, 2018:40). Sub-Saharan African countries, for example, confront many e-procurement implementation problems, such as technological, organisational, and environmental issues, which, if not addressed, might delay the implementation process (Mohungoo, Brown & Kabanda, 2020).

According to Chimtengo *et al*. (2016:1547), Malawi, like other countries, is a member of the global market that cannot afford to fall behind in areas such as procurement operations. As a result, it was suggested that they explore using an e-procurement system. Malawi's government enacted the Public Procurement Act (2003) to foster improved procurement procedures. Even though the Act's framers gave sufficient grounds for the adoption of current technologies, Malawi's public procurement processes are still paper based (Chimtengo *et al*., 2016:1547; IDFI, 2018:2).

Maryan (2022) reported that in their attempt to improve transparency and efficiency as well as reducing costs associated with public procurement, Ghana has implemented the e-procurement system called Ghana Electronic Procurement System (GHANEPS). The system was launched on 30 April 2019 and roll out phase was initiated in November 2019. Even though there were challenges at early stages of implementation, statistics continue to show an increase in the adoption of the system by procurement entities. In the Nigerian context, deficiencies in public procurement have contributed in part to a poor level of governance and weak state capacity. This is due to the leakages, inefficiencies, and corruption that characterize government procurement (Adeniran & Raifu, 2024). Recognizing the deleterious development outcomes of a frail procurement system, the government has launched a series of reform initiatives over the past two decades. For example, the 2007 Procurement Act

was created and underwent a considerable reform in 2018. The Nigerian Open Contracting Platform (NOCOPO) was launched to enable more transparency, competitiveness, and openness across the procurement lifecycle (Adeniran & Raifu, 2024).

In 2013, the Kenyan government commissioned procurement regulations requiring all public institutions to adopt and implement e-procurement practices. In this regard, efforts have been made to guarantee that government agencies implement e-procurement, including procurement Regulation (2013), and it was not long ago that the implementation of e-procurement in Kenya was hailed as a huge success. Corruption has been a big problem in public procurement in many African countries, as well as other parts of the world, and the adoption of e-procurement was viewed as one means to prevent this (Orwejo & Alia, 2018: 2024).

1.2.3 Public procurement in South Africa

South Africa's Finance Minister, in his budget address in February 2015, reported that the country's public procurement system is not flawless, and that there are regular charges of corruption and inefficiencies (Minister of Finance, 2015). As a result, the National Treasury, in 2016, undertook a study on the public procurement system, soliciting input from government, business and the civil society. They discovered that the present system needs to be re-examined to ensure procurement efficiency and transparency. The ability of electronic technologies to improve the efficiency and effectiveness of government spending was recognised. Consequently, as part of the reforming process, a transition from manual to electronic public procurement was set in motion (National Treasury, 2016).

It appears that South Africa had a dual public procurement system, partially paper-based with some electronic elements, as public organisations had begun with a partial deployment of electronic public procurement systems (National Treasury, 2015). The Department of Public Service and Administration (DPSA), National Treasury (NT), and the State Information Technology Agency (SITA) had a joint initiative to introduce the Integrated Financial Management System (IFMS) to modernise and integrate the

public service transversal information technology for human resources, financial management, supply chain management and business intelligence. Obstacles such as the lack of capacity, a lack of commitment, and institutional and technical challenges pose a risk to successful implementation of IFMS (Hendricks, 2012:12). Furthermore, Ndenze (2017) on Times Live reported that the National Treasury was accused of “wasting” R1 billion which was spent on the IFMS system which, after a decade, has failed to implement.

Maepa, Mpwenya and Phume (2023) indicated that, to fully benefit from e-procurement adoption and experience better efficiency, government departments should be ready in terms of legislative framework, finances, leadership support, staff enthusiasm and training and cost-cutting initiatives. Understanding the factors that affect e-procurement readiness provides National Treasury with reasons why e-procurement must be used as end-to-end system to prevent system fragmentation, lack of transparency and corruption. This can allow for better e-procurement adoption planning and fewer system implementation challenges.

1.2.4 Government Pensions Administration Agency (GPAA): An overview

The GPAA is a National Treasury department and component. Section 7A (4) of the Public Service Act of 1994 was used to form this organisation which was gazetted in March 2010 (Proclamation No. 103 of 1994). The Government Employees Pension Fund (GEPF) and the National Treasury's Programme 7 funds are the GPAA's two customers, and the GPAA's duty is to offer benefits administration services on their behalf. Service Level Agreements (SLAs) with the GEPF and the National Treasury govern the supply of benefits administration services. The processing and payment of benefits and claims to the clients, who are pensioners, members, spouses and orphans, are included in the benefits administration services. All of this is accomplished by adhering to the Government Employees Pension (GEP) Law of 1996, as well as a number of other laws that fall under the purview of the National Treasury's Program 7 funds and schemes (GPAA, 2021/2022).

The GPAA is a government institution and, therefore, its procurement processes are supported and governed by the National Treasury of South Africa. The current

procuring technologies introduced by the National Treasury are the e-Tender Publication portal, Central Supplier Database (CSD), gCommerce, and e-Procurement. The e-Tender Publication portal publishes government notices, bid advertisements and awards online, whereas the CSD maintains a single comprehensive and consolidated database of information on organisations, institutions and individuals who can provide goods and services to national, provincial and local levels of the government. The gCommerce platform is designed specifically to transact on centrally negotiated contracts. Approximately over 10 000 commodities are loaded on gCommerce and are available to buyers in government to procure directly (National Treasury, 2016).

According to Supply Chain Management review (2015), the public sector procurement system is paper-based, inefficient and regarded as the largest source of corruption. The National Treasury started the process of phasing in a uniform e-procurement system for quotations (National Treasury, 2015). In 2016, such a system was procured from Oracle Corporation (Pty) Ltd South Africa. The initial implementation was to focus on ensuring that the system adequately supports the business requirements of the public service by implementing a limited number of pilot and lead sites. The national rollout was to commence after in a phased manner. Businesses were requested not to procure any ERP system in-house which could result in duplication of functionality on the following IFMS modules: Human Resources, Payroll, Finance, SCM and Business Management (National Treasury, 2017). Despite the National Treasury's efforts to enhance and modernise procurement in the public sector by using the e-Tender site, CSD, gCommerce and e-Procurement, these technologies remain scattered and underutilised, with 45 percent of public procurement being performed manually (National Treasury, 2016). The National Treasury e-procurement platform has only succeeded in modernising the public procurement system by making electronic contact between government procuring organisations and potential vendors (suppliers) possible. There are just a few technologies in use that allow the actual procurement activity to be carried out electronically (Kramer, 2016:6, Manyati 2019:113).

1.3 Problem statement

Many nations, states and local governments have pushed the adoption of a more effective procurement system, including, in many cases, an e-procurement system, over the previous two decades (Gulwa, 2017:1). The key goal for embracing emerging internet-based ICT technologies such as e-procurement is to reduce costs, increase efficiency and reduce lead times (Yessuf, 2019: 94). Despite the numerous benefits of e-procurement, public entities still face challenges with e-procurement adoption (Addo, 2019: 46). Jules (2022: 168) stated that the seven main challenges with development and implementation of e-procurement in developing countries are as follows; ICT infrastructure, policy issues, human capital development, change of management, strategy, leadership role and collaboration among others. Furthermore, Antony (2018) agreed that management's failure to offer proper infrastructure and support to employees influences the rate at which e-procurement is adopted in South Africa, leading in a lack of readiness to move to an electronic environment.

The (IMF) International Monetary Fund (2023) reported that an introduction of e-procurement system that covers all stages of the procurement process can improve public procurement. However, due to many factors, organisational culture, resistance to change, lack of leadership, inadequate availability of IT infrastructure, and high costs associated with the system and security of information, the South African government has not succeeded in the implementation of a comprehensive, widely accepted e-procurement system (Kweyama, Masiya & Lubinga, 2023: 2).

GPAA SCM policy and Standard Operating Procedures (SOP) 2021/2022 does not make provision for all procurement processes to be conducted online or on the system. For starters, it allows tenders to be advertised online through the e-tender portal and the agency's website. Second, vendors are sourced through the CSD, but requests for quotations are sent via email. Third, purchase orders are generated online using the SAGE AccPac system and issued to service providers via email. All of these systems are not integrated, prompting the researcher to investigate why the GPAA lacks a single e-procurement system that handles all of its procurement operations.

The question can be asked, “In view of the problems and inefficiencies associated with traditional procurement and the benefits that e-procurement offers, why do

government departments or agencies not implement e-procurement?" For this reason, this study aimed to investigate the implementation of e-procurement by public sector organisations in general (literature) and more specific at the Government Pensions Administration Agency (GPAA) (empirical), focussing on the barriers to the implementation of e-procurement in the agency.

1.4 Objectives of the study

The primary objective was to:

- Explore the barriers to full implementation of e-procurement at GPAA.

The secondary objectives were to:

- Explore the development of public procurement over time;
- Explore what the use of e-procurement entails;
- Determine the benefits of using e-procurement in the public sector;
- Determine the limitations of using manual/traditional procurement in the public sector;
- Examine the requirements/critical success factors for the transition from a manual to electronic procurement;
- Determine the areas where e-procurement is still lagging at the GPAA; and
- Offer recommendations for further implementation and improvement for e-procurement at the GPAA and other public organisations.

1.5 Research questions

The following research questions were pursued to assist in finding possible solutions to the above research objectives:

- The primary research question was: What are the barriers to the full implementation of e-procurement at the GPAA?

The secondary research questions were:

- How has public procurement developed over the years?
- What the use of e-procurement entails?
- What benefits can be derived from the adoption of the e-procurement system in the public sector?
- What are the challenges associated of using the manual procurement process?
- What are the requirements for the transition from manual to electronic procurement?
- Which areas of e-procurement is the GPAA still lagging in?
- What should be done to facilitate the full implementation of e-procurement at the GPAA and other public organisations?

Table 1.1 provides a synopsis of the research objectives, the corresponding research questions, and the data sources that were used to find answers to the research questions.

Table 1.1: Research objectives, research questions and data sources

RESEARCH OBJECTIVE	RESEARCH QUESTION	DATA SOURCES
Investigate the barriers to the full implementation of e-procurement at the GPAA.	What are the barriers to the full implementation of e-procurement at the GPAA?	Interviews
Explore the developments of public procurement over time.	How has public procurement developed over years?	Literature review
Explore what use of e-procurement entails.	What e-procurement entails?	Literature review and interviews
Determine the benefits of using e-procurement in the public sector.	What benefits can be derived from adoption of e-procurement in the public sector?	Literature review and interviews

Determine the limitations of using manual/traditional procurement in the public sector	What are the challenges associated with manual procurement process?	Literature review and interviews
Explore the requirements of for the transition from manual to electronic procurement.	What are the requirements for transition from manual to e-procurement?	Literature review and interviews
Determine the areas where e-procurement which GPAA still lagging.	Which areas of e-procurement is GPAA still lagging in?	Interviews
Offer recommendations for further implementation and improvement of e-procurement at the GPAA and other public organisations.	What should be done to facilitate the full implementation of e-procurement at the GPAA?	Literature, data analysis and interviews

Source: Researcher's own compilation

1.6 Framework of the study

Figure 1.1 provides a visual representation of the objectives of the study and the course of the study. The contents of Chapters 1 and 2 (the literature study) can be linked to SRO1 to SRO5. SRO3 to SRO6 can be linked to Chapter 4 –the empirical study. SRO7 is attained in Chapter 5.

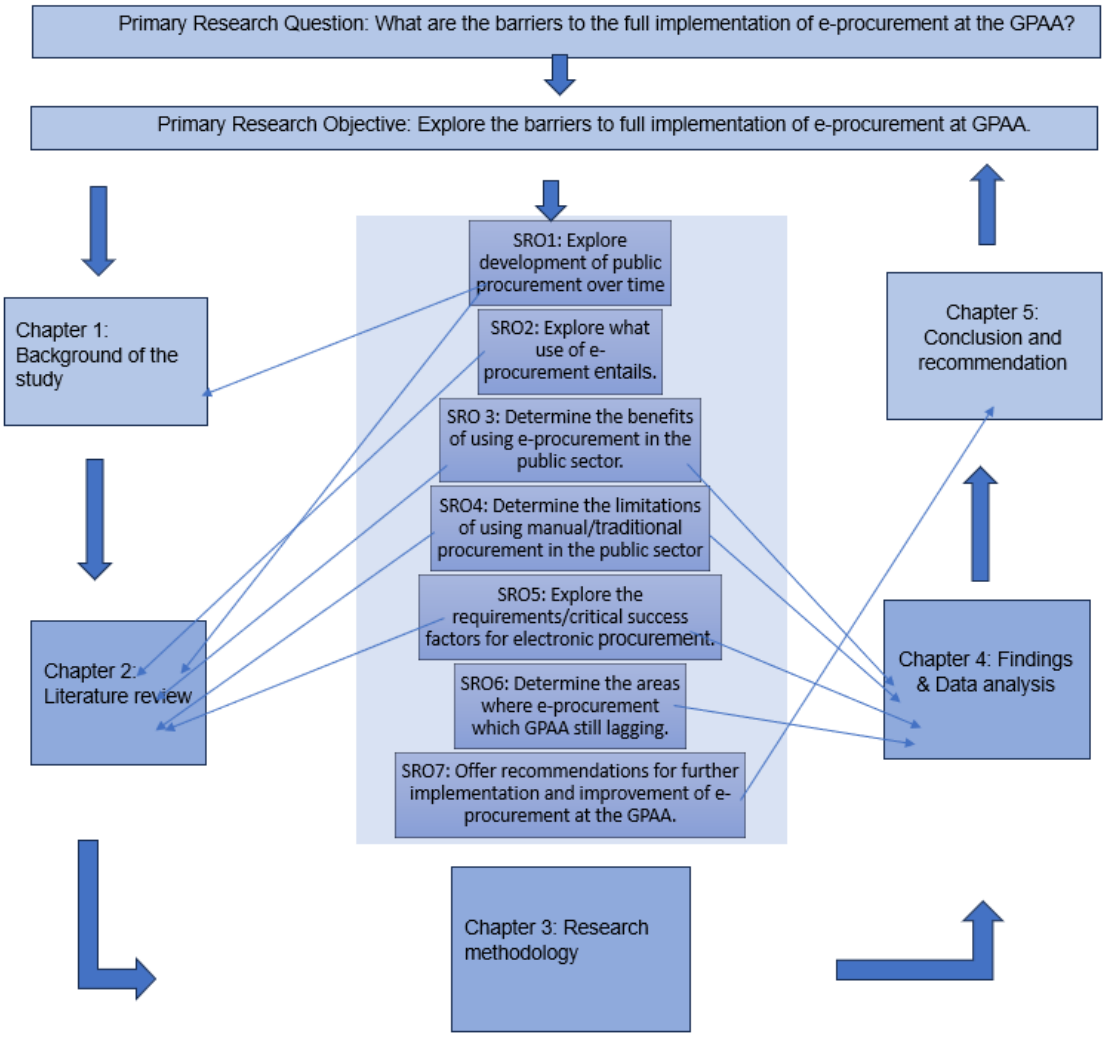


Figure 1.1: Framework of the study

Source: Researcher's own compilation

1.7 Significance of the study

This study reveals challenges that hinder the full implementation of e-procurement in the public sector, specifically at the GPAA. The challenges identified were used to formulate recommendations and solutions to aid not only the GPAA, but also in adding value to other government institutions in South Africa.

Research is about contributing to a growing pool of knowledge and information. This research contributed to the existing body of knowledge on the use of electronic procurement systems in the public sector. This study will be beneficial to GPAA, other

public entities, private entities, particular suppliers to GPAA and researchers. The findings of the study may also evoke other researchers to identify gaps and conduct research in this and related areas.

1.8 Limitations of the study

In qualitative research data usually are collected from a few cases or individuals, so findings cannot be generalized to a larger population. Findings can however be transferable to another setting (Anderson, 2011). Therefore, the findings of the study still have value for the broader public procurement population and other researchers.

1.9 Key theoretical concepts

The following core concepts relevant to the study are briefly defined in this section to ensure clarity in the context of this study:

- **Procurement**

According to Chartered Institute of Procurement and Supply (CIPS) 2024, procurement can be defined as the buying of goods and services that enable an organisation to operate its supply chains, in a profitable and ethical manner. On the other hand, Lysons and Farrington (2021) defined procurement as the business management function that ensures identification, sourcing, access and management of the external resources that an organisation needs or may need to fulfil its strategic objectives.

- **Public procurement**

Public procurement is defined as the function in which public sector organisations acquire goods, services, and developmental and construction projects from suppliers in the local and international market. This process is subject to general principles of fairness, equitability, transparency, competitiveness and cost-effectiveness. It includes all activities that support the service delivery of government entities, ranging from routine items to complex development and construction projects. It also directly

or indirectly supports governments' social and political aims (Ambe & Badenhorst-Weiss, 2012)

- **E-procurement**

E-procurement is defined as a web-enabled solution designed at automating and streamlining key activities involved in an organisation's procurement process such as ordering, sourcing, supplier evaluation and receiving (IIhan & Rahim, 2020:184).

These and other key terms are examined in more detail in the literature review.

1.10 Brief literature review

Several studies have been conducted on e-procurement in the South African public sector. Table 1.2 shows a list of studies, authors and year in which the studies were conducted, including the titles, research methodology used and the main findings. Although the findings of these studies were used as valuable inputs to this study, none of them have specifically focused on the reasons behind or the barriers causing the delay in the adoption of e-procurement in the public sector, specifically at the Government Pensions Administration Agency (GPAA).

Table 1.2: Studies conducted on e-procurement in the public sector in South Africa

Author	Title	Method used	Findings
Molepo & Jahed (2022)	E-procurement as a monitoring tool to combat corruption is South Africa.	Qualitative approach- (Analysed literature case studies in different emerging countries' and SA's public sector)	The research findings revealed that e-procurement can be a deterrent to corruption in the public sector. South African e-procurement system is currently at an infant stage and the traditional paper-based procurement is still dominant. A fully implemented e-procurement system,

			with the CSD and e-tender publication portal, have the potential to reduce corruption.
Maepa, Mpwenya & Phume (2023)	Readiness factors affecting e-procurement in South African government departments	Quantitative approach- Online self-administered questionnaires	Six factors were identified to influence e-procurement readiness in South Africa. These include technology and organisation's finance among others. These factors will aid in effective planning of government departments regarding e-procurement readiness.
Mothibi (2020)	A framework for the implementation of e-procurement practices in South Africa	Survey (conducted in the SA public sector)	The results of the hypotheses test showed that five factors namely, perceived use, self-efficacy, facilitating conditions, personal competence and external assistance significantly predicted attitudes towards the use of e-procurement systems. However, perceived ease of use was statistically insignificant. The results further show that attitudes towards the system use significantly predict behavioural intention, which in turn significantly influences

			actual procurement system.
Anthony (2018)	The use of e-procurement in South African Public law: challenges and prospects	Theoretical review	Regulating e-procurement using legislation will not only ensure legal certainty but will also ensure that transparency and competition are promoted in the South African public sector.
Kithaku-Kiweteke, & Vyas-Doorgapersad (2020)	Gender-based e-procurement within the City of Johannesburg	Qualitative, descriptive, and analytical approaches	Limited women are supplying goods and services in the City of Johannesburg. E-procurement offers the opportunity to enhance gendered reporting of the process but fails, which needs to be attended too.
Kweyama, Masiya & Lubinga (2024)	Factors influencing the usage of e-procurement in the South African Navy	Qualitative research, interviews	The findings show that e-procurement system inefficiencies, unreliable power supply due to load shedding, issues with the Central Supplier Database, partial automation of e-procurement processes, capacity and system integration challenges, and a lack of technical knowledge about the system were the main factors affecting the use of e-procurement in the South African Navy

Source: Researcher's own compilation

Table 1.2 shows the empirical based research studies focusing on e-procurement in general and in the South African public sector. Three of the studies indicated above were conducted at the same time as this study, independently, in the public sector, which is an indication of the importance of e-procurement in the public sector in South Africa for practitioners and researchers at this time. Some of the studies were quantitative, such as the studies of Molepo and Jahed (2022) and Maepa *et al*., (2023). These studies contributed to the determination of relationships between factors in e-procurement in the public sector. The study by Kweyama *et al*., (2024) was qualitative, and conducted in the SA Navy. A comparison of their findings with this study can be of value and might emphasise the transferability of the findings of qualitative research.

Like Mothibi (2020), Kweyama *et al*. (2024) used the Technology Acceptance Model (TAM) as underlying theory for their studies. The TAM model is a theoretical framework that researchers use to analyse factors that impact the usage of technology and explain the *underlying factors that motivate users to accept and adopt new information technology systems*. According to the theory, essential variables such as behavioural intention, which is decided by users' attitudes toward the overall perception of technology, impact technology adoption and usage. The model also asserts that various factors can influence how and when users adopt new technology. The first component is the user's assessment of the technology's significance in enhancing their ability to do their jobs. The second component is perceived ease of use, which is determined by people's propensity to think about how easy or difficult it is to utilize technology. Simpler technologies have a higher chance of being accepted than more complex ones (Scherer, Siddiq & Tondeur, 2019). The theory has been helpful in describing how businesses and individuals adjust to new technology, as well as the issues that may arise in doing so and how to overcome them (Verma, Bhattacharyya & Kumar, 2018). The use of the TAM theory was not considered for this study, because the researcher was not convinced that the barriers to implementation of e-procurement are mainly seated within the users' attitudes towards technology or e-procurement. Thus, this study is a wider explorative study. Although this study did not use the TAM theory there might be some comparable findings with both the studies of Mothibi (2020) and Kweyama *et al.* (2024).

Although there may be some overlap with some of the above studies, none of the studies mentioned above focused specific on e-procurement barriers of implementation at a specific government institution such as the GPAA. From the previous discussion it is clear that this study will also contribute to the body of knowledge in procurement in the public sector in South Africa.

1.11 Research methodology

The purpose of this section is to briefly outline the research methodology adopted for this study and the rationale behind the choice. The research design, demographic and sampling, data collecting methods, and data analysis are also discussed.

1.11.1 Choice of methodology

Research methodology refers to the philosophical and scientifically informed way to solve a research problem systematically. It is the framework that informs all designs, methods and techniques that will be used in conducting research from start to finish (Sefotho, 2021:11). The study has mainly two parts, namely a traditional literature study and an empirical study. With regard to the empirical study, there are two forms of research namely quantitative and qualitative research. Quantitative researchers tend to seek explanations and predictions that, in most cases, will generalize to other persons and places. The intent is often to identify relationships among two or more variables and then, based on the results, to confirm or modify existing theories or practices. Qualitative researchers tend to seek better understandings of complex situations. Their work is sometimes (although not always) exploratory in nature, and they may use their observations to build theory from the ground up (Leedy & Ormrod, 2021: 113).

This study is aimed to obtain insight into the barriers resulting in the delayed adoption of e-procurement in the public sector, through literature and empirically at the GPAA specifically. The literature served as a basis for the line of inquiry in the empirical study. Due to the exploratory nature of the study the method suitable for obtaining the insight in the GPAA situation was the qualitative research.

1.11.2 Research design

The researcher must not only decide whether to do a qualitative, quantitative or mixed methods study, but also the sort of study to conduct among these three alternatives. Study designs are types of inquiry that provide exact guidance for procedures in a study design, whether it be qualitative, quantitative or a combination of the two. Others have called them “inquiry methods” (Denzin & Lincon, 2018). This study made use of the phenomenological research design. Phenomenological research is an inquiry design derived from philosophy and psychology in which the researcher describes the persons' lived experiences with a phenomenon as recounted by the participants. This narrative concludes with the essence of the experiences of various people who have all witnessed the occurrence. This design has significant philosophical roots and is often implemented through the conduct of interviews (Creswell & Poth, 2024: 87-89).

This study aimed at discovering the experiences of GPAA employees and the challenges hindering the full adoption of the e-procurement system in their organisation, hence this choice of research design.

1.11.3 Population and sampling

Majid (2018:3) defined the population of interest as the study’s target population that it intends to study or treat. For this study, the population was all employees working in the SCM unit at the GPAA totalling to 16. Due to the limited number of employees in SCM in GPAA the population was used for this study, ensuring that all components in SCM (demand, acquisition, logistics, and contract management) and positions (junior, middle, and senior) were represented. However, only eleven (11) SCM employees were willing to participate in the study.

1.11.4 Data collection tools

Data collection is the process of choosing individuals and collecting data from them (Gray, Grove & Sutherland, 2017). There are a number of qualitative research tools that can be used to collect data such as interviews, focus groups and observations (Barret & Twycross, 2018:3). For this study, interviews were used to collect data because they gave the most direct and straight forward approach to the phenomenon.

1.11.5 Data analysis

According to Creswell and Creswell (2018), the primary goal of qualitative data analysis is to identify patterns, ideas, themes and meanings. Typically, qualitative data collection is reliant on interpretation. This indicates that the data necessitates several interpretations. This is because a large amount of qualitative evidence is frequently gathered (Alhojailan, 2012:39). For this study, the researcher used thematic analysis to analyse the data collected from the participants. Thematic analysis is the process of identifying patterns or themes within qualitative data (Maguire & Delahunt, 2017).

1.12 Research outline

The study has five chapters that are briefly outlined as follows:

Chapter One started with an introduction of the study. This was followed by the background which addressed the concept of public procurement, e-procurement in a global public SCM context, and e-procurement in public SCM in South Africa. The problem statement and objectives of the study were also provided, followed by a synopsis of the research methodology for the study.

Chapter Two is presented in a narrative way and provides a comprehensive review of literature. The issues that were covered include the concept of public procurement, the role of public procurement in public SCM, procurement development and trends in the South African public sector. Traditional procurement challenges in the public sector, the development of e-procurement, e-procurement adoption, advantages of

implementing and adopting e-procurement in the public sector, the critical success factors for e-procurement adoption were also covered and studies that have been conducted on e-procurement in South Africa .

Chapter Three discusses the research methodology for the study. The chapter addresses and justifies the selected research approach, research design, population and sampling, data collection and data analysis methods. The quality of the research and ethical considerations are also discussed.

Chapter Four presents, analyses and interprets the data that was collected from the participants by means of the thematic analysis method.

Chapter Five summarises the findings of the empirical research, concludes the study and proposes recommendations based on the study findings.

1.13 Summary

In summary, this chapter entailed a general introduction of the topic, background of the study and the problem statement. The objectives of the study and research questions were also outlined. The chapter further defined the key terms and provided a brief literature review, research methodology roadmap and structure of the research study.

CHAPTER TWO
E-PROCUREMENT IN THE PUBLIC SECTOR

2.1 Introduction

This chapter presents the literature study in the form of a narration of public procurement and e-procurement in the public sector, including the nature of public procurement, e-procurement and the procurement environment in the public sector in South Africa. The chapter begins with defining key terms such as procurement and public procurement, followed by a discussion of procurement developments, trends in the public sector. In addition, the public procurement, the procurement process, traditional procurement and its challenges are also discussed. Furthermore, an overview of e-procurement, the forms of e-procurement, its benefits and requirements for a successful implementation are also discussed. The chapter ends with an overview of some recent studies in e-procurement in the public sector in SA. Figure 2.1 shows a visual presentation/diagram of all the sections in this chapter.

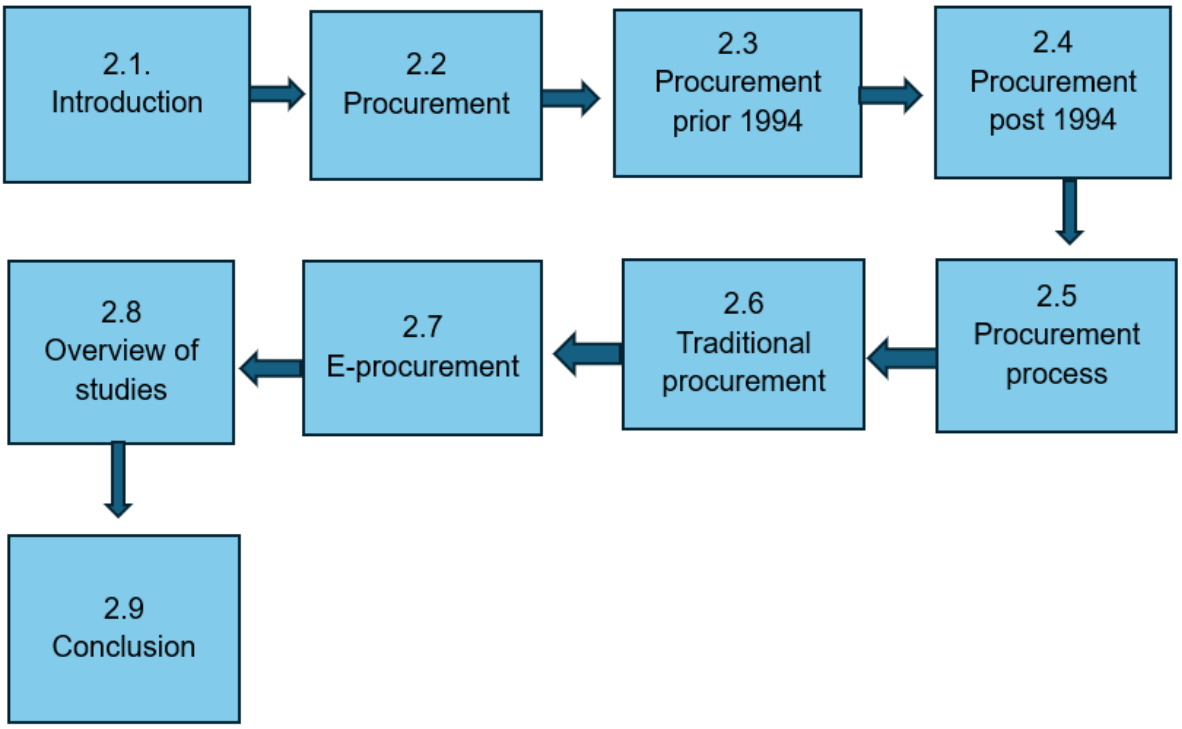


Figure 2.1: Literature chapter layout (Source: Researcher 2024)

2.2 Procurement and public procurement defined

Morledge, Smith and Appiah (2021) posit that procurement is central to the success of any project in most organisations. Mak (2014) stated that there does not seem to be a single obvious answer to the definition of procurement, with definitions perhaps differing across the variances on the topic, adding that without a full understanding of the term, knowing exactly what it refers to may be difficult. Given this study, it is appropriate for the researcher to begin by giving definitions of the concept 'procurement' and 'public procurement' as there is a plethora of definitions for these terms. Although related, the concept 'public' sparks variances across the definitions available.

According to Chartered Institute of Procurement and Supply (CIPS) 2024, procurement can be defined as the buying of goods and services that enable an organisation to operate its supply chains, in a profitable and ethical manner. When a public sector organisation purchases products, services or development and building projects from suppliers on the local or worldwide market, they are engaging in the public procurement process. Fairness, equity, transparency, competitiveness, and

cost-effectiveness are broad concepts that govern this process. These principles are applicable to all purchases from everyday items to big development and building projects. These principles, in particular, ‘equity’, make way for direct or indirect support for the social and political goals of the South African government (Ambe & Badenhorst-Weiss, 2012).

The World Bank (2020) defined public procurement as a critical strategic development tool for promoting good governance and embedding the effective and efficient use of public resources, resulting in greater levels of service delivery. The basic goal of public procurement is to obtain the best possible prices for products, services and infrastructure. The secondary role of public procurement is to achieve larger social, economic and environmental outcomes (Fourie & Malan, 2020:2).

These definitions depict a general pattern, indicating that procurement and/or public procurement (i) is a process or a series of processes or activities, a business management function or a strategic development tool, (ii) which entail(s) the involvement of an external or outside organisation, (iii) in the purchasing of or obtaining products, services or projects, (iv) governed by a set of principles, (v) and aimed at promoting certain goals or objectives. From the definitions mentioned above, in relative comparison with ‘procurement’, ‘public procurement’ involves a public sector organisation in the procurement process for effective and efficient use of public resources with the aim on better service delivery.

2.3 Public procurement in South Africa prior 1994

Procuring goods and services in government was traditionally viewed as a lowly task of supplying and storing. It was not until much later that the government realised the strategic relevance of procurement and began introducing regulatory procedures to modernise the function of acquiring goods and services to the extent that goods and services might even be outsourced to the private sector (Bolton, 2007:3).

Prior to 1994, the government procurement policy was implemented by a central organisation called the State Tender Board (Brunette, 2014:9). The different tender boards at the State Tender Board were tasked with implementing government

procurement policies based on the government of the day's (the National Party) agenda. A provincial tender board existed in each province, although it had only advisory powers when it came to state procurement policies (Brunette, 2014:9). The members of a tender board generally included government officials, the private sector representatives, and a wide variety of professional and commercial groups. Their involvement in the allocation of bids was intended to balance each other out, resulting in a fair distribution of tenders. Open competitive bidding was preferred by the boards, but they acted haphazardly and dispersed authority widely; and deviations from the lowest price norm were widespread. The procurement method favoured larger, more established organisations that were hired on longer-term contracts (Brunette, Klaaren & Nqaba, 2019).There is minimal indication that the five pillars of good governance which promote justice, competitiveness, openness, equity and cost effectiveness were part of the government procurement policy throughout this time (Brunette, 2014:11). Access to public procurement was restricted to white enterprises until the 1960s under segregated administrations, and then in several traditionally white administrations in the years leading up to 1994. The system was extensively and properly chastised for its racial bias; the central tender boards were widely and rightfully viewed as a bottleneck in service delivery and the unique demands of user departments were frequently mismatched (Brunette, Klaaren & Nqaba, 2019).

2.4 Public procurement reforms in the South African public sector post-apartheid

The post-apartheid administration made public procurement reform a top priority. South Africa's procurement reform began in 1995, with two main goals in mind: (i) the promotion of the principles of good governance, and (ii) the implementation of a preferred system to achieve socioeconomic goals. Inconsistencies in policy implementation, a lack of accountability, a lack of supportive institutions and fragmented procedures prompted the reform process (Ambe, 2016:277).

The South African government established a 10-point strategy in 1996 to confirm and embrace the Reconstruction and Development Programme (RDP) philosophy in public procurement while ensuring that small companies are the primary beneficiaries. The

10-Point Plan, it is said, was a tool used to meet the equity principle of good governance in public procurement by encouraging government work to be contracted out to Small Medium and Micro Enterprises (SMMEs) and the Historically Disadvantaged Individuals (HDI) -owned firms (Raga & Taylor, 2010:9).

The Green Paper on Public Sector Procurement Reform was published in 1997 by the Department of Public Works and the National Treasury (NT), with the help of a jointly created Procurement Forum. Under the Public Finance Management Act (PFMA) and the Municipal Finance Management Act (MFMA), public procurement managerial responsibilities were vested in accounting officers and authorities of particular departments and other state organs. The report also called for unbundling large contracts and streamlining procurement procedures and paperwork, as well as lowering or eliminating upfront expenses such as performance guarantees and bid pack prices. The goal of these extensively enacted modifications was to make it easier for smaller, new suppliers to participate (Brunette & Klaaren, 2020:6).

In 2000, the Preferential Procurement Policy Framework Act 5 of 2000 (PPPFA) became one of the earliest procurement legislations. This Act stipulates that bids shall not be granted merely based on fulfilling specifications or having the lowest price, but rather on the basis of a predetermined point system, with Historically Disadvantaged Individuals (HDIs) receiving precedence (Ambe, 2016:279)

The National Treasury's SCM section cooperated with the World Bank in 2001 to perform a joint Country Procurement Assessment Review (CPAR) to assess procurement throughout the public sector. The CPAR discovered several weaknesses in procurement procedures, including governance, interpretation and implementation of the PPPFA and its provisions (National Treasury, 2003:2).

The National Treasury South Africa established an "SCM policy guide to consistency in the procurement reform process in government" in 2003, in collaboration with provincial treasuries, to replace outmoded procurement and interim procedures. This policy guide was created to assist with the implementation of an integrated SCM function. In accordance with sections 62 and 95 of the MFMA and section 76(4) of the PFMA, this policy aims to clarify the phases of the SCM cycle and to clearly describe the duties and responsibilities of managers and accounting officers (Ambe, 2016: 279).

In 2003, the Cabinet adopted a supply chain management strategy in response to the need to further reform the procurement system and align it with global best practices, as well as to improve financial management. The Regulatory Framework for Supply Chain Management (2003) includes all national and provincial ministries, while the MFMA (2003) covers supply chain management tasks for local government agencies. Since 2004, the National Treasury has been assisting ministries and local governments with SCM implementation. Since policy is used as an instrument for managing public procurement, the National Treasury issues policy guidelines and rules on a regular basis (as needed) to help the country achieve its economic goals. Practice notes and circulars are used to communicate policy recommendations (National Treasury, 2015).

In 2005, the South African cabinet approved a cabinet memo (resolution) that the transversal systems, namely, Supply Chain Management, Human Resources, Finance, and Business Intelligence, should be replaced by a single system called the Integrated Financial Management Information Systems (IFMIS). With the 2011 Procurement Regulation, the Preferential Procurement Policy Framework Act 5 of 2000 (PPPFA) was modified. According to the rule, preference points are awarded to suppliers based on their Broad Based Black Economic Empowerment (BBBEE) status. The contract is usually granted to the provider that receives the greatest total number of points out of 100 (for price and preference in the form of BBBEE). The new 2017 Preferential Procurement Regulation which went into effect on January 20, 2017, replaced the 2011 Preferential Procurement Regulation. The updated rule aims to use public procurement as a lever to achieve socio-economic change, as well as to empower small businesses, rural and township businesses, and specified groups in order to encourage local industrial development. Prequalification criteria, functionality requirements, modification in threshold value for application of 80/20 or 90/10 rule, negotiation of market-related pricing, obligatory subcontracting and conditions for tender cancellation were all added by this revised law (Davey & Gatenby, 2017:213-214).

As per PFMA 1 of 1999, persons such as bidders, suppliers and subcontractors conducting business with the state must be tax compliant. This is a government project to eliminate supply chain management system fraud and abuse. As a result, it is vital

to guarantee that people doing business with the State are tax compliant at the time of bid submission and award, as well as during the life of the contract (NT Instruction 3 of 2014/2015). To that end, South African Revenue Services (SARS) implemented an updated tax compliance status system on *eFiling* on 18 April 2016, with the goal of enhancing tax compliance and making it easier for taxpayers to handle their tax affairs. In terms of statutory requirements, the new tax compliance status has an influence on supply chain management procedures and paperwork because SARS no longer issues tax clearance certificates. The central supplier database and the tax compliance PIN are both recognised means of checking the bidder's tax compliance status. In addition, SARS no longer issues Tax Clearance Certificates because bidders can print their own Tax Clearance Certificates which they may submit with their bids or price quotes through eFiling (NT Instruction 9 of 2018).

The National Treasury launched the Central Supplier Database (CSD) and *e-Tender* portal in April 2015. The registration and verification of supplier information for all state organs has not been standardised and harmonised, complicating the process of conducting business with the state. As a result, the National Treasury launched the CSD in September 2015 to manage supplier registration and ease supplier information verification (NT Instruction 4 of 2016/17). With effect from 1 May 2015, the National Treasury introduced a web application in the form of the e-Tender Publication Portal where PFMA compliant institutions must advertise all bids and publish all their awarded bids (NT Instruction 1 of 2015/16).

The Office of the Chief Procurement Officer (OCPO) was established in 2013. Its primary purpose was to modernise and monitor the South African public sector SCM system, ensuring that the procurement of products, services and construction is fair, equitable, transparent, competitive and cost-effective while adhering to the constitution and all relevant laws. The Office of the Chief Procurement Officer (OCPO) is not directly involved in procurement. Nonetheless, it leads and manages procurement reforms, maintains procurement systems and monitors how the government does business with the private sector (National Treasury, 2015).

The government intended to centralise contracts for financial services, computers, ICT services and infrastructure, consultancy services, security services, air travel and

lodging, schoolbooks and stationery, healthcare equipment, and building leasing. Services were consolidated from a single list of certified suppliers whose costs and quality have been confirmed (National Treasury, 2015). Significant progress has been made in terms of training and equipping the officers, renegotiating the terms of existing high-value and long-term contracts and intelligently optimising supplier registrations, tendering and transversal contracting via the *gCommerce* platform and the CSD and tender e-Portal by the year 2019. However, development has been insufficient thus far (Brunette & Klaaren, 2020: 5).

In 2016, it was reported that 36 distinct government SCM systems were in use in South Africa, most of which were poorly connected and non-automated, resulting in significant levels of non-compliance reported to the auditor general. The Treasury Department intended to replace all these systems with a single system, the Integrated Financial Management System (IFMS) which included financial management, human resource management, integrated supply chain management, including asset and procurement management, related business intelligence, audit and decision systems (Ambe, 2016:287). The objective of this project is to enhance the integrity and effectiveness of expenditure management and performance reporting in order to ensure effective service delivery (Ambe, 2016:287). However, as of December 2020, the administration of national and provincial government is still managed through a transversal system comprising multiple distinct information technology (IT) products. This means there are distinct and *separate IT systems* in use for human resource management, supply chain management, financial management and management information; respectively (Creswell, 2020:4).

National Treasury (2023) reported that they have introduced the public procurement bill, aiming to establish uniform Treasury norms and standards for procurement, while also fostering a preferential procurement framework. These objectives aligned with constitutional mandates and sought to ensure the efficient use of public resources, promote ethical conduct, combat corruption, advance transformation objectives, streamline procurement processes, facilitate dispute resolution, and promote innovation and sustainable development.

2.5 The public procurement processes

Public procurement involves a process that should be followed to achieve great results. According to the OECD (2022), as public procurement accounts for a large proportion of the taxpayers' money, governments are expected to carry it out efficiently and with high standards of conduct to ensure high quality of service delivery and safeguard the public interest. This means that public procurement should not be neglected but should be handled with a high degree of standards to achieve high quality service delivery and safeguard the public interest which are central to the procurement process.

Considering this, every organ of the state must follow the procurement process, including national departments, provincial departments, municipalities and municipal entities, and public entities such as state-owned entities (Vulekamali, 2022). Anthony (2018) expounds that the public procurement process generally entails the advertisement of a tender, receipt of expressions of interest or tender offers, evaluation of tenders, award of the tender, and management of the contract. On the other hand, CIPS (2024) provides a more detailed outline of the public procurement process with thirteen (13) key steps that 'form the base foundation of the procurement process'. Figure 2.2 highlights the 13-step public procurement process.

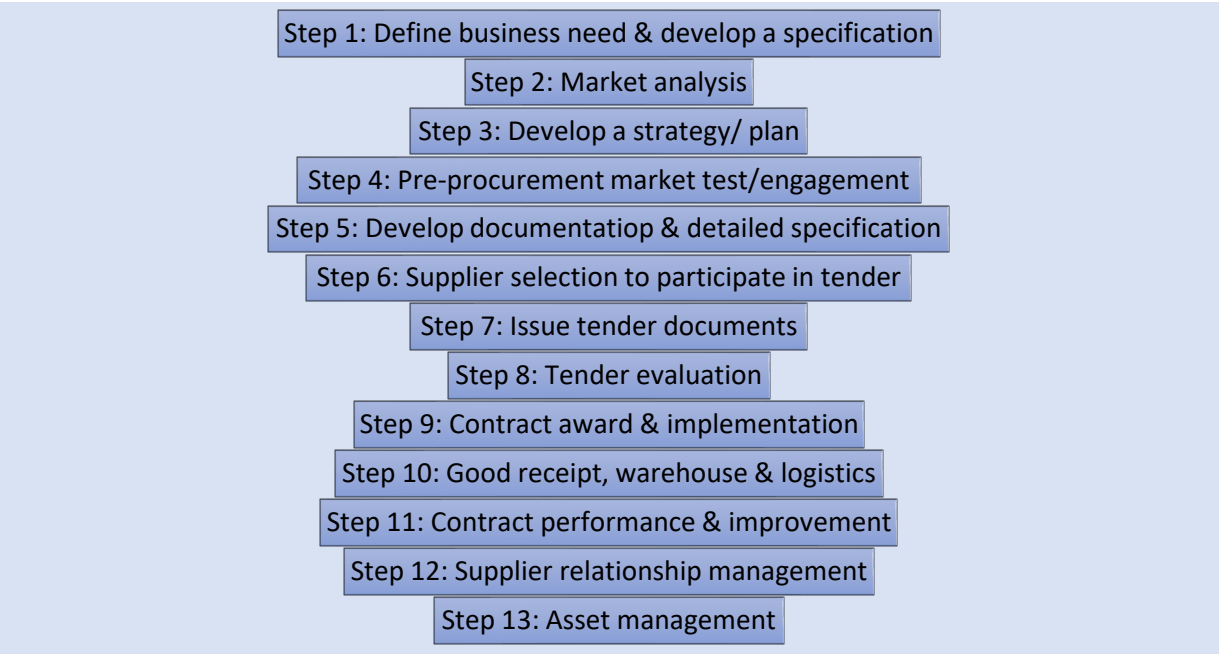


Figure 2.2: Public procurement process (Source: CIPS 2024)

The Treasury Regulation 16A 6.1 provides for the purchase of goods and services through price quotes or a bidding procedure within the National Treasury's threshold. In 2007, the National Treasury revised and imposed procurement threshold levels for different procurement methods. Significant time had elapsed since the setting of the threshold levels, and the value of money had also steadily declined. There was, therefore, a need for updated threshold levels. The threshold values were amended in 2021, and accounting officers and accounting authorities must now acquire within the threshold and procurement methods outlined in the subsequent sections, effective July 1, 2021 (NT Instruction 2 of 2021/22). The contents of the instruction note are summarised in Table 2.1:

Table 2.1: Procurement threshold and processes

PRICE OF GOODS OR SERVICES (including VAT)	PROCUREMENT METHOD TO BE USED	DESCRIPTION
R1 – R2 000	Petty cash	Government departments can use petty cash when buying anything that costs less than R2 000. This is

		usually for day-to-day expenses. The accounting officer of each department is responsible for setting up a system to manage petty cash.
R2000 – R1 000 000	Request for quotations	Government departments shall solicit written price quotations from suppliers listed on CSD. Institutions must establish in their SCM policy the minimum days for invitation of RFQ's, minimum number of suppliers to be approached, validity periods, method of inviting quotations and evaluation criteria to be followed. Institutions must also ensure that the quotations received are market related.
R1 000 000 and above	Competitive bidding	Institutions must follow competitive bidding process for all bids over R1 000 000. Bids must be published on e-tender portal, government tender bulletin, institution's website and any other acceptable medium to ensure greater exposure. Received bids and awards must be published on the same media that was used to advertise. Procuring institutions must report to relevant Treasury within 10 days of the contract approval for all goods and services procured following the competitive bidding process.

Source: National Treasury (2021)

2.6 Traditional procurement

According to Addison (2016:8), manual procurement is referred to as “traditional procurement” since it has existed for a very long time and was the only option accessible to procuring organisations. Traditionally, contact and documentation between various stakeholders in the procurement process were done in person or through mail, phone, fax and electronic data exchange (Shukla, Khan & Shan, 2016:2). According to Bakar, Peszynski, Azizan, Pandiyan and Sundram (2016:78), with the traditional procurement method, staff must coordinate a large quantity of documentation. Purchase orders, supplier acknowledgements, shipping and receiving papers, invoices and accounts payable vouchers, supplier payments, and account reconciliation reports are examples of this type of paperwork.

2.6.1 Limitations of using traditional/manual procurement

According to Addo (2019:52-53), procurement of products and services through a manual method has been heavily criticised throughout the years, with bad experiences outnumbering positive practices. Some of these criticisms include that the procurement process is too cumbersome, expensive, has the possibility of tempering with tender files, delays in finalisation of tenders, human interface at every stage and a lack of transparency.

Additionally, Githinji and Were (2018) stated that factors such as record management, long documentation processes and questionable filling system plus lack of proper procurement plan and inefficient post award contract execution are other shortcomings associated with traditional procurement. Furthermore, tendering processes conducted on basis of paper documents or manually led to lack of transparency, restricted competition and high risk of corruption (Chania & Demetrashvili, 2017). The State Government of Victoria (2023: 1) reported that procurement has some level of impact on the environment which occurs before a good or service is procured, for example, resource extraction, design development, manufacturing, packaging and distribution, transportation, and storage.

From the discussion above it is clear that numerous flaws exist in the traditional procurement process, including excessive paperwork. In addition, procurement staff needs to manage many suppliers, there is less cooperation between users and procurement, there are too many level approvals and, as previously indicated, there is an increased potential for collusion. Unplanned purchases made from a non-approved supplier at a high price is known as ‘maverick purchasing’. Maverick purchasing is a typical conventional procurement inefficiency. Traditional procurement is also inefficient when it comes to tendering and negotiating, which sometimes leads to distrust, low quality items and bad service (Bakar *et al*., 2016:80).

As a result of the shortcomings of traditional procurement, organisations have realised that procurement should not be simply regarded as a transactional process, but as a component of their overall organisation strategy. Consequently, organisations realised that they must find innovative methods of acquiring goods and services. *E-procurement* is one such new means of acquiring products and services (Bakar *et al.*, 2016:80).

2.7 E-procurement

As discussed earlier, there is a need to understand what e-procurement is and what it entails. Various definitions emerge but are based on the context and of the delineation. However, among the various definitions, e-procurement entails various components and elements which demarcates it from general buying and selling. E-procurement is defined below in the subsequent sections.

2.7.1 E-procurement defined

Ilhan and Rahim (2020:184) defined e-procurement as a web-enabled solution designed at automating and streamlining key activities such as ordering, sourcing, supplier evaluation and receiving, which are involved in an organisation’s procurement process.

According to Premathilaka and Fernando (2018:337), electronic procurement refers to businesses' use of information and communication technology, especially the internet to conduct procurement interactions with suppliers and buy items and services. Nani and Ali (2020: 33-34) describe e-procurement as the electronic purchase of products and services required for an organisation's operations. The process starts with users identifying and specifying their needs and continues with contact (supplier) search, sourcing and negotiation, trigger payment, and post-purchase evaluation. According to Laryea, Ibem, Pagiwa and Phoi (2014), e-procurement comprises the use of electronic communication to notify or inform stakeholders about tender possibilities, communicate construction project information and data, perform work tendering, assess tenders, award, and manage contracts. Further, Addo (2019:53) views e-procurement in the public sector as the use information and communication technology such as the internet, by the government in the procurement relationship with bidders for the acquisition of goods, works and services required by the public sector.

Based on the definitions provided above, one may infer that e-procurement is the use of information and communication technologies in each stage of the procurement process to improve the operations of organisations.

2.7.2 E-procurement process

In the context of supply chain management, e-procurement is described as the adoption of technology systems in the procurement stages which involves ordering, sourcing, tendering, auctioning as well as negotiations (Tiwari, Chan, Ahmad & Zaman (2019:4). There are two phases in the e-procurement process, namely, the pre-award phase comprising of e-sourcing, e-noticing and e-tendering; and the post-award phase consisting of activities such as e-awarding, e-ordering, e-invoicing and e-payment (Laryea & Ibem, 2015:365).

2.7.2.1 Pre-award phase

E-sourcing is a collection of collaborative web-based technologies which allow procurement officials to source items and services through the internet. E-sourcing has been an important instrument in the procurement processes of organisations since the advent of the internet and the rise of ICT. E-sourcing provides organisations with cost-cutting and efficiency-boosting opportunities (Bialas, Manthou & Stefanou, 2016:76-77).

With e-notification, tenders are published electronically in the appropriate government journal or website. Tender materials, specifications and award announcements are made available on the internet (Pralat, 2019:190).

E-tendering is a web-based tool that was created for online users to replace the traditional paper-based tender system. E-tendering is a method of doing physical tendering activities online via the use of the internet and related technology (Thida & Hlaing, 2019:30). The purpose of e-tender is to act as a bridge between tender purchasers and suppliers on the internet.

2.7.2.2 Post-award activities

E-contract award refers to the electronic awarding of contracts to specified providers. Successful bids would get confirmation by email and wireless technologies, and they would electronically affirm their intent to take the position (Pralat, 2019:190).

E-ordering involves the online transfer of documents throughout the e-procurement process which typically begins with the issuing of purchase orders from buyers and ends when the requested items are received from the suppliers. Compared to traditional written orders, e-ordering improves transparency, reduces mistakes, saves costs and time, and improves efficiency and effectiveness, order and customer management, and productivity (Mutuku & Ndei, 2021:72).

E-invoicing is used by suppliers to request payment for products and services supplied and delivered under the agreed-upon terms or standards. The government institution receives invoices, checks them and processes payments online (Pralat, 2019:190).

E-payment is a system that provides facilities for the online payment of products and services. The e-payment system facilitates transaction-processing in e-commerce between customers and merchants. Using an e-payment system provides advantages such as quicker pay-outs, better tracking, transparent transactions, less time spent, cost savings, and confidence between buyers and sellers (Fatonah, Yulandari & Wibowo, 2018:1).

2.7.3 Advantages of an e-procurement system

Many studies have been done in Africa on the advantages of e-procurement, mostly in the public sector but also in other sectors as well. According to Afolabi, Oyeyipo, Ojelabi and Tunji-Olayeni (2017:468), the advantages of integrating an e-procurement platform with current traditional procurement processes cannot be overstated. Organisations that currently use e-tendering technology claim savings of up to 42 percent in transaction expenses, the majority of which is attributed to reduced paperwork which translates to fewer mistakes and a more efficient procurement process.

Nawi, Deraman, Bamgbade, Zulhumadi and Riazi (2017: 211) supported the above statement, stating that implementing an e-procurement system has brought great benefits in business and government entities. For example, e-procurement is a way for the government to save on management costs while becoming more efficient in the procurement of goods online. Kabanda *et al.* (2019:238-239) stated that the benefits of e-procurement in Lesotho include automation, customer satisfaction, transparency and accountability. Addo (2019:57-58) stated that e-procurement offers benefits to the public sector, including improved efficiency, reduced administrative procedures, reduced transactions costs, increased supplier base and information sharing. Ferreira and Amaral (2016) outlined advantages such as transparency in the tendering process, confidence, combating corruption, fostering competition, improving administrative process, working method improvement, information management, cost reduction and development model platforms.

Important benefits of e-procurement compared to offline tendering include wide publicity, easy to participate, large number of bidders, transparency and check on corruption (Panduranga, 2016:4). According to Nawi *et al.* (2017: 211), the government has reaped significant benefits from the e-procurement system which has been hailed as a means for governments to reduce administrative costs and increase efficiency in online procurement. Cost savings, process rearrangement and enhanced contract fulfilment are just a few of the many benefits that e-procurement may provide. The government saves a lot of money by using e-procurement since it reduces the cost and labour of processing purchase orders that may be altered electronically, as well as inventory expenses and order fulfilment time. The e-procurement system offers a more effective and efficient procurement process.

Maddi, Davis and Geragthy (2013:5) stated that the adoption of e-procurement can offer the following benefits: cost reduction, efficiency, productivity, effectiveness and transparency, improved communication, transaction cost reduction, faster cycle times, curbing corruption and appropriate decision-making technologies. Organisations which use e-procurement has the following advantages: price reduction in tendering, lower administration costs, reduction in procurement staff and reduced operating and inventory costs (Chikwe, Dapper & Obi, 2016:40). In another study by Ofori and Fuseini (2020:21-22), the following advantages were outlined: reduced transaction costs, information sharing, reduced cycle times, increases supplier base and improved efficiency and transparency. Dhouibi, Cerruti and Desponts (2023: 1) add that e-procurement is eco-friendly, supports climate change mitigation, and can drive demand for sustainable products and services, and create a market for different ‘green’ solutions.

2.7.4 Challenges with e-procurement adoption

Previous studies have identified various factors which contribute to the challenges in the implementation of e-procurement such as the availability of technology, infrastructure, the environment and legislation, along other challenges such as resources constraints and organisational and management challenges (Nawi *et al*., 2017:221).

Taking cognisance of the previous studies and a comprehensive review on the challenges and barriers that contribute to the delayed adoption of e-procurement, Gasco, Cucciniello, Nasi and Yuan (2018:2343) distinguished between 'outside' context determinants and barriers, and 'interior' context obstacles. The term 'outside' context refers to broader environmental elements such as inter-institutional dynamics, economic, political, social, demographic, and technical aspects. Factors of the 'inner' context are defined as characteristics that are intrinsically related to the organisation which include organisational, individual, and technological factors. On the other hand, compatibility, budgetary constraints, cost concerns, cultural challenges, infrastructure, legal issues, security, and other general hurdles were identified by Laryea *et al.* (2014) as barriers to e-procurement implementation.

According to Chimtengo *et al.* (2016:1546-1549), adopting an e-procurement system may produce better outcomes if an organisation can identify strategies to mitigate these problems. They also claimed that while the benefits of an e-procurement system are well-documented, its implementation remains a difficulty in the majority of public institutions across the world. They highlighted five variables from several research studies that were shown to be impeding the successful adoption of an efficient e-procurement system, and these are training, integration with current systems, top management support, business process engineering, and process adoption support.

Despite the fact that a number of public institutions are aggressively integrating e-procurement in their operations, data suggests that most projects fall short of early expectations, presenting a barrier to its effective implementation (Addo, 2019:58). Chikwe *et al*. (2016:40-41) stated that following variables and obstacles which may affect e-procurement adoption:

i. Inadequate employee competency – Procurement personnel must be competent enough to use e-procurement software programmes in order to manage the procurement activities and process.
ii. Inadequacy of legal framework – A legal framework serves as the foundation for any commercial transaction, public or private. It specifies the

obligations and responsibilities of the partners who are conducting business with the purpose of meeting each other's intended goals.

iii. Inadequate technical infrastructure – Information system and adoption issues are key to e-procurement implementation. Proper system integration is considered a crucial success element for e-procurement deployment, both with regards to the customers' information systems architecture and its relationship to suppliers.

iv. Security of procurement transaction data – One of the recognised hurdles to e-procurement deployment concerns the security and confidentiality of the data which must be transferred in electronic settings.

v. Resistance to change, a lack of a generally acknowledged solution, a lack of leadership as well as corporate culture, are some of the most significant hurdles to e-procurement implementation in the public sector.

vi. Uncertainty over the legal status of e-procurement – Some organisations are unsure if electronically submitted papers may be recognised as legitimate or lawful by a third party.

vii. Inadequate IT infrastructure – Most organisations lack the necessary technologies to do e-procurement.

viii. Cost implications – Some organisations believe that implementing the system will be too costly; therefore, they will continue to use their existing procurement method.

In addition, Kusi, Antwi, Nani, Mensah and Akomeah (2016:648) explained the following risks in e-procurement adoption:

1. Internal organisational risks – Organisations are unsure if they have the resources needed to properly adopt an e-procurement system. Implementing an e-procurement solution necessitates not just the system's ability to complete the purchase process, but also its ability to interface with existing information infrastructure. Accounting, human resources, asset management, inventory management, accounts payable, production planning, and cash management systems are all part of the internal information infrastructure. Failure to integrate results in duplication of effort and jeopardises the accuracy of organisational data.

2. External organisational risks – E-procurement systems must be able to work with external parties, namely customers and suppliers. The network effect that underpins these technologies would be limited if there was no critical mass of suppliers accessible through the organisation's e-procurement system, further impeding technological acceptance and adoption. External collaboration necessitates that new suppliers and consumers fulfil the criteria which organisations have established in order to be accepted into their network.

3. Technology risks – E-procurement technology may not be suitable for all organisations since there are no universally agreed standards and no clear understanding of the risks. In the absence of a widely accepted solution, e-procurement software across the supply chain cannot be integrated. These risks imply that clear and transparent standards are needed to allow inter-organisational e-procurement. When it comes to e-procurement technology, it will be sluggish to embrace and will not offer many of the benefits promised if there are no generally agreed standards for coding, technical and procedural requirements.

2.7.5 Critical success factors in e-procurement adoption

Critical success factors are conceptualised as “resources that provide enabling and facilitating conditions for successful implementation and adoption of any system” (Ofori & Fuseini, 2020:23). Ofori and Fuseini (2020:23-25) advance that the key elements for effective e-procurement adoption include strong transaction security, early supplier involvement, integration of organisation processes, proper audit control and proper authority of purchase, e-procurement policy manual within the organisation to guide the procurement process, compliance with rules and regulations, buyers' trust in the system, availability of the needed IT technology, skilled e-procurement personnel, internet connectivity and senior management involvement. Mose, Njihia and Magutu (2013) concur, indicating that the important success criteria for e-procurement to be effective include user-acceptance of a new information system, information quality, trust, risk perception, early supplier involvement, training for the staff together with the

users and buyers, adherence to best practices, top management support, continuous measurement of key benefits, re-designing affected organisation processes, and the actual selection of an e-procurement solution.

According to a study conducted by Prasetyo (2019), the eight critical success factors for e-procurement implementation are an e-procurement system, security system, education and training, top management support, re-engineering organisation processes, change management, an electronic procurement implementation plan, and competent and capable suppliers. On the other hand, a study by Maddi *et al.* (2013:8) identified three critical success factors for e-procurement implementation, namely, efficient processes with no idle time, the presence of a monitoring and evaluation system that allows for continuous process improvement, and adequate training of employees to enable them to take advantage of the new system.

Vaidya, Sajeev and Callendar (2006:75) divides the critical success factors (CSFs) in e-procurement adoption into the following three groups: organisation and management; practices and processes; and systems and technology. These are also in accordance with Prasetyo's (2019) eight critical success factors to e-procurement. However, in Vaidya *et al.* (2006:75) groups individual CSFs can be identified such as: end-user uptake and training, supplier adoption, system integration, business case, reengineering the process, security and authentication, top management support, change management, performance measurement, e-procurement implementation strategy, and technical standards.

Mathenge and Wausi (2018:7-9) offered another perspective of critical success factors for successful e-procurement, namely a categorising of factors into: managerial factors, system factors and stakeholder factors. For clarity purposes, each critical success factor category is briefly explained in subsequent sections.

2.7.5.1 Managerial factors

i. Top management support – E-procurement adoption requires senior management to define goals and create policies (Premathilaka & Fernando, 2018:356).

ii. Resources – This refers to the financial resources that will allow the organisation to buy appropriate ICT infrastructure as well as good guidance from ICT experts and consultants (Mathenge & Wausi, 2018:7).
iii. Process engineering – Where existing procurement methods and processes conflict with the new initiative's aims and objectives, e-procurement will necessitate re-engineering of the existing purchasing process (Mathenge & Wausi, 2018:9).
iv. Measurement and control of the e-procurement process – To guarantee that the e-procurement system provides the results which it was designed for, it should be evaluated and improved on a regular basis (Ofori & Fuseini, 2019:25).

2.7.5.2 System factors

i. Information security – This is an important indicator since the e-procurement process contains confidential financial data (Prasetyo, 2019:137).
ii. IT Infrastructure – For an e-procurement process to be successful in an organisation, it must have both technology infrastructure and the capacity to manage it (Ofori & Fuseini, 2020:24).
iii. System integration – The e-procurement system should be compatible with the existing information technology infrastructure (Premathilaka & Fernando, 2018:356).

2.7.5.3 Stakeholder factors

i. Employee training and skills – Training and capacity building of staff in procurement practices is a critical success factor for e-procurement adoption (Obat, 2016:19).

   Supplier support – In order to properly adopt e-procurement, an organisation must have flawless communication with its business partners and suppliers (Mathenge & Wausi, 2018:9).

The adoption of e-procurement serves various purposes, but the central is aimed at better service delivery. Extant literature reveals that there is a myriad of factors which are considered critical for the successful adoption of e-procurement. General patterns

are observed, with authors such as Mathenge and Wausi (2018:7-9) grouping the factors into three main categories. However, these categories also expand into the multiplicity of factors explained by other authors. Generally, the critical success factors elaborated above show similarities. Their adoption and/or integration enable the successful implementation and use of e-procurement, hence the public sector should not overlook these factors.

2.8 Overview of studies and findings of e-procurement in the public sector in South Africa

This section discusses what other researchers have investigated with respect to e-procurement in the South African public procurement context (refer to section 1.10 and table 1.2).

Anthony (2018) did a desktop study (literature) to investigate the challenges and prospective applications of e-procurement in South Africa from a public law standpoint. This study discussed e-procurement as governed by international instruments, specifically the UNICITRAL Model Law, and concluded that regulating e-procurement through legislation will not only ensure legal clarity but will also promote transparency and competitiveness in South Africa's public sector.

A framework for e-procurement practices' application in South Africa was examined by Mothibi (2020). The study adopted a survey design, and a *quantitative research* approach was used to evaluate relationships between different variables. The final sample for this study consists of 263 supply chain management (SCM) practitioners drawn from the public sector in the Gauteng Province, South Africa. A self-completion survey questionnaire was used to gather data to measure the eight constructs of the Technology Acceptance Model (TAM) and Unified Theory of the Acceptance and use of Technology (UTAUT). The hypotheses test results demonstrated that attitudes on the usage of e-procurement systems were significantly predicted by five factors: perceived use, self-efficacy, facilitating conditions, personal competence, and external support. Perceived usability, however, was not statistically significant. The findings

also demonstrate that behavioural intention, which greatly effects the actual procurement system, is highly influenced by attitudes toward system use.

Research on e-procurement as a monitoring tool to fight corruption in South Africa was done by Malepo and Jahed in 2022. A *qualitative* approach (analysing case studies in literature) was employed to investigate the use of e-procurement as a tool to combat *corruption* in public institutions in countries such as Korea, Malaysia, Italy, Georgia and South Africa, representing emerging economies. The study's conclusions showed that traditional paper-based procurement is still widely used, particularly in South Africa, where the e-procurement system is still in its infancy. If enhanced and completely operationalised, the nation's e-tender publication portal, CSD, and e-procurement system might potentially lower corruption. The full introduction and use of e-procurement requires full stakeholder engagement and participation and large amounts of investment in technological infrastructure and human resource capital. Many countries that successfully implemented e-procurement have also faced challenges such as inadequate technological infrastructure, resistance to change and lack of skills and capacity on e-procurement.

Maepa *et al*. (2023) conducted research on the readiness factors affecting e-procurement in South African government departments. The study was *quantitative* in nature and made use of self-administered questionnaires to a sample of 113 public procurement officials in different government departments. Six factors were identified to influence e-procurement readiness in South Africa. These include technology and organisation’s finance among others. These factors will aid in effective planning of government departments regarding e-procurement readiness.

A study was conducted by Kweyama *et al*. (2024) in 2023 to identify the factors influencing the usage of e-procurement in the South African Navy. The study employed a *qualitative research* approach, conducting interviews with 17 procurement members from the SA Navy. The findings showed that e-procurement system inefficiencies (eg. slow connection and outdated computer equipment), unreliable power supply due to load shedding, issues with the Central Supplier Database, partial automation of e-procurement processes, capacity and system integration challenges,

and a lack of technical knowledge about the system were the main factors affecting the use of e-procurement in the South African Navy.

2.9 Conclusion

The National Treasury regularly issues guidelines to improve public procurement. However, procurement in South Africa still faces challenges. The disadvantages of manual procurement include inefficiency, poor accountability, low value for money and limited transparency. E-procurement can enhance the performance of procurement. To ensure that there is a smooth transition from traditional to electronic procurement, organisations need to manage change effectively. Without proper strategies and approaches to change management, IT projects like e-procurement are bound to fail. The challenges associated with traditional procurement can be addressed by using an e-procurement system. There are number of e-procurement sub-processes that can be utilised such as e-notifications, e-sourcing, e-tendering, e-submission, e-evaluation, e-contract award, e-ordering and/or e-payments. E-procurement offers various advantages such as a reduction in price, time to source material and maverick buying, lower administration costs, competition amongst suppliers and increased productivity. Despite the benefits offered by e-procurement, organisations still face challenges with e-procurement adoption, for instance, compatibility of systems, financial limitations, organisational cultural issues, infrastructure, legal issues, security concerns and other general issues present a barrier to the adoption of the system. Therefore, for any e-procurement initiative to be successful, there are number of factors that any organisation should consider. These include managerial factors, system factors and stakeholder factors.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The research design and techniques were highlighted in Chapter One. This chapter discusses the research design and methodology adopted for this study which, according to Sahu and Singh (2016:30), is a mapping strategy or blueprint of the study. It is essentially a statement of the object of the enquiry and the strategies for collecting the evidence, analysing and reporting the findings. Figure 3.1 shows visual presentation/ diagram of this chapter.

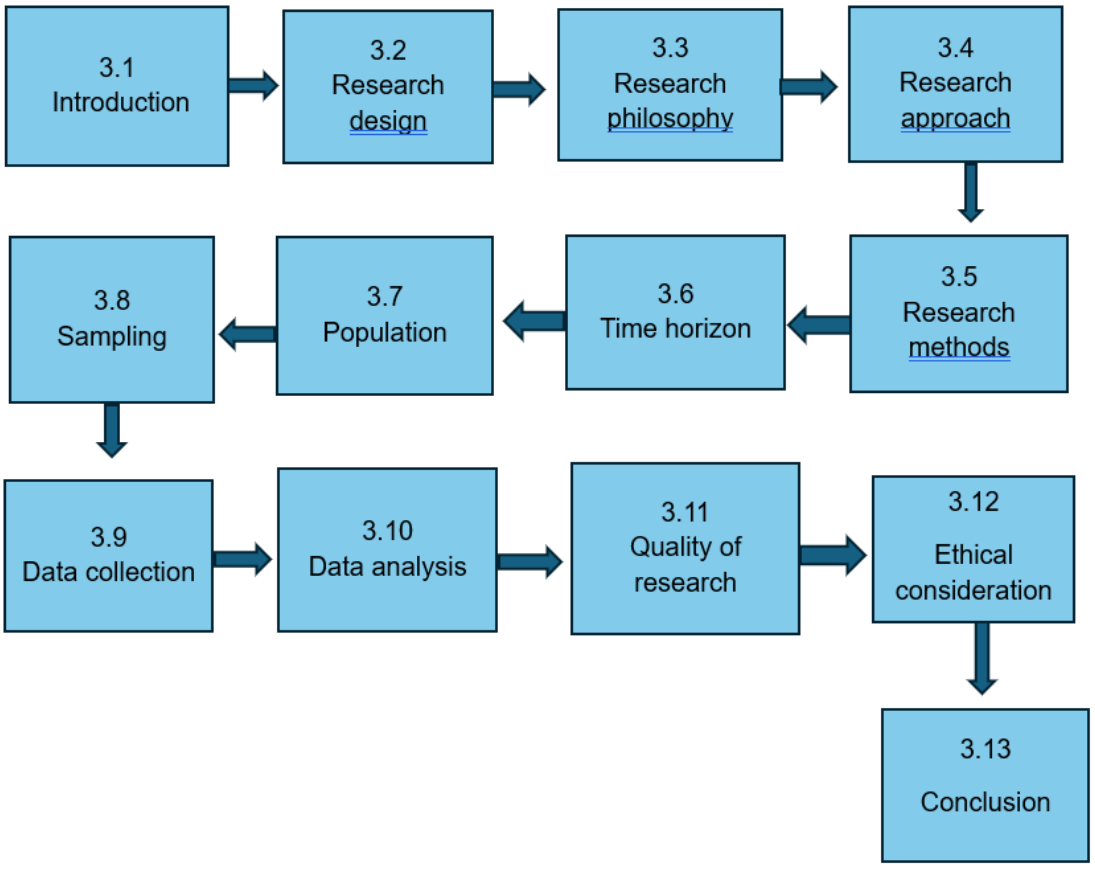


Figure 3.1: Research design and methodology layout (Source: Researcher 2024)

3.2 Research design

The goal of the research design is to develop an appropriate framework for a study. The selection of a research strategy is an important decision in the research design process since it determines how relevant the information for a study will be obtained (Abu-Taieh, Mouatasim & Al Hadid 2020). The research design provides the overall structure for the procedures the researcher follows, the data the researcher collects, and the data analyses the researcher conducts. Simply put, research design is planning (Leedy & Ormrod, 2021:106). It is the overarching method for combining conceptual research problems with relevant and doable research. In other words, the study design specifies the method for getting the required data, the methodology for collecting and analysing the data, and how the data will be utilised to answer the research question (Grey, 2014). As explained by Robson and McCartan (2016), there are three possible forms of research designs, namely, exploratory, descriptive and explanatory.

Gray *et al.* (2017) describe exploratory research as a study performed to obtain new insights, find new ideas and increase an understanding of a topic. In cases when there is insufficient knowledge on a phenomenon or an issue that has not been precisely identified, exploratory research is undertaken (Saunders, Lewis and Thornhill, 2019). The aim of exploratory studies includes establishing of facts, gathering new data and determining meaningful patterns or themes in a relatively unknown research area, hoping to gain new insight into the phenomenon being researched (Thomas & Lawal, 2020).

Descriptive research comprises a direct inspection, analysis and description of a specific event that is free of unwarranted assumptions, with the purpose of producing the most intuitive presentation possible (Speziale, Streubert & Carpenter, 2011). For example, the goal of a descriptive study is to paint a picture of a scenario, person or event, or to demonstrate how things are connected to one another and how they occur naturally (Blumberg, Cooper & Schindler, 2014). Descriptive studies, on the other hand, cannot explain why an event happened and are best suited for a very new or uncharted study field (Punch, 2013).

Explanatory research, according to Engel and Schutt (2014: 11), Jackson (2016), aims to identify causes, to establish causality between factors and to determine effects on behaviour of a social phenomenon, as well as predict how one phenomenon will change or vary in relation to another variable; for example, to understand and explain the causes of a social condition like homelessness. When a researcher has a good understanding of a problem and a description of it, the 'why' question may arise, and the researcher may wish to explain why things are the way they are and illustrate the elements that cause or prevent a behaviour pattern (Jackson, 2015).

The research design that was deemed suitable for this study is exploratory research because this study aimed at establishing of facts, gathering new data and determining meaningful patterns or themes and to gain new insight into the phenomenon being researched. In line with this choice the main objective of the study stated 'to explore the barriers to the full implementation of e-procurement in the public sector, specifically at the GPAA', and to offer recommendations to the problem.

3.3 Research philosophy

According to Mauthner (2020), research philosophies provide theories about the nature of the reality that is being investigated in research (ontology) and about how knowledge of this reality is produced and justified (epistemology). A research philosophy is a set of ideas and assumptions about how knowledge develops. A researcher's research philosophy contains key assumptions about their perspective on the world. These assumptions serve as the foundation for the research plan as well as the technique chosen as part of the strategy (Saunders *et al*., 2019:130). Furthermore, business management researchers should be aware of the philosophical commitments which they make through their research strategy selections since it has a significant impact not just on what is done, but also on how well others understand what is being investigated (Saunders *et al*., 2019:130). Muhaise, Eriji, Muwanga-Zake, and Kareyo (2020) identified five key research philosophies positivism, realism, interpretivism, postmodernism, and pragmatism. These are briefly described in the following sections.

Positivistic thinkers use scientific approaches to organise the knowledge generating process through quantification to improve precision in the description of parameters and their relationships. Positivism is focused on discovering and conveying the truth through empirical means (Comte, 2020).

Interpretivism is focused on comprehending complicated human behaviour and societal situations. Most of our knowledge, according to interpretivists, is learned through social constructs such as language, awareness, shared meanings, records and other artefacts that have significance in people's lives (Crewell & Plano Clark, 2017).

In business research, realism is frequently presented as a third option. The critical realist philosophy is realist in that, it thinks that social and natural reality exist independently of our cognitive processes; implying that mental reality exists regardless of whether humans can obtain cognitive access to it or not (Saxena, 2019:18).

Postmodernism holds the view that people have both the intellect and the right to determine what the truth is for themselves. Postmodern individuals seek the truth, and they base their conclusions on their own study, personal experiences and personal connections rather than the truth acknowledged by their parents, government or religion. This is not to say that postmodernists do not believe in truth; rather, they define it for themselves (Farhan, 2019:1).

Pragmatism is a philosophical stance that contends that knowledge and understanding should be gained from direct experience. Since it focuses on processes that are particularly important to study of knowledge and learning, pragmatism is a significant view in management research. Its influence on approaches may be observed in the grounded theory tradition and methodologies (Easterby-Smith, Jaspersen, Thorpe & Validaze, 2021:91).

This study was guided by epistemology interpretivism. The interpretivism philosophy was chosen because a holistic picture was required for understanding and interpreting the barriers that hinder the full implementation of e-procurement in the public sector. The researcher focused on narratives, stories, perceptions and interpretation of data from the participants. Responses from the participants gave the researcher a new

understanding on the barriers that hinder the full implementation of e-procurement at the GPAA. An approach suited for this study as guided by the research philosophy was inductive research and qualitative research and analysis.

3.4 Research approach

Saunders *et al*. (2019) stated that there are three research approaches to research, namely, deduction, induction and abduction. These are explained in subsequent sections.

Deductive reasoning which is also known as the “top-down approach” begins by suggesting a theory and it designs a research method to test this theory. Deduction follows a highly structured methodology and often investigates a causal relationship between variables to explain a certain phenomenon and generate generalisable findings (Bryne, Evans & Newlead, 2019).

The second approach, inductive theory which is referred to as “bottom-up” approach, begins by specific observations in which patterns and relationships are identified to form a theory about a certain phenomenon. Induction is less concerned with generalisation but rather, with gaining an understanding of the research phenomenon within its context; hence it adopts a more flexible structure to investigation (Elsayed & Almahri, 2023).

The abductive approach is applied when data is collected to explore a phenomenon, and themes are identified and patterns explained to generate a new or modify an existing theory which is subsequently tested through additional data collection (Saunders *et al*., 2019:153).

For this study, the inductive research approach was used. The approach was deemed to be suitable for this study because primary data was gathered through interviews. Data collected enabled the researcher to get insight into the barriers that hinder the full implementation of e-procurement in the public sector, particularly at GPAA.

3.5 Research methods

There are basically three research methodologies, namely, qualitative, quantitative, and mixed methods research (Leavy, 2022:9).

3.5.1 Qualitative research

Qualitative research is a methodology that allows you to investigate people's experiences in detail by using specialised set of methodologies including in-depth interviews, focus group interviews, observations, content analysis, visual methods, and biographies. One of the most distinguishing qualities of qualitative research is that it allows one to identify difficulties from the participant's perspective and grasp the meanings and interpretations they assign to behavior, events, or objects (Hennink, Hutter & Bailey, 2020). Words are gathered as data for qualitative research and are then analyzed in a variety of ways (Merriem & Tisdell, 2015).

3.5.2 Quantitative research

Quantitative research is a formal, objective and systematic process in which numerical data are used to obtain information about the world by using scales, questionnaires and psychological measures. One of the distinguishing qualities of quantitative research is that it is conducted to test theory by describing variables, examine relationships among variables and determine cause and effect interaction between variables (Grove & Gray, 2018: 15-16). Numbers are used as data in qualitative research, and statistical methods are used to analyse them (Merriem & Tisdell, 2015).

3.5.3 Mixed methods

Mixed methods research incorporates both qualitative and quantitative methodologies into a single study to create a larger and more complete picture of a topic. In cases when both comparative analysis and the creation of components of the research must be completed fully and in-depth, mixed techniques are used. The use of mixed

techniques allows researchers to transcend the constraints of qualitative and quantitative procedures, allowing them to collect rich information that would not have been feasible using either method alone (Clark & Creswell, 2017).

Taking into consideration the above descriptions, this study adopted the qualitative research method to explore the barriers that hinder the full implementation of e-procurement at GPAA. As discussed above, qualitative research methods such as in-depth interviews and focus groups interviews give rich data which will enable the researcher to get a deeper understanding of the topic. The qualitative approaches are open ended and provides flexibility in data collection and data analysis. Lastly, qualitative approaches are effective in revealing logic behind behaviour which can be valuable in understanding complex phenomena.

3.6 Time horizon

Time horizon is another important element which should be considered when designing a research study. This refers to determining whether the study will be longitudinal or cross-sectional (Saunders et al., 2019). A longitudinal research process takes place over a long period of time and focuses on studying changes or developments in a controlled environment; while cross-sectional research takes place at a single point in time, which means that participants are studied at a particular point in time, thus saving time (Quinlan, Zikmund, Babin, Carr & Griffin, 2018). This study was a cross-sectional research study due to time and funding constraints.

3.7 Population

Target population can be defined as the complete collection of observations we want to study. Defining the target population is an important and often difficult part of the study. The choice of target population will profoundly affect the statistics that result (Lohr, 2021: 4). The population of this study was the employees working in procurement or supply chain management (SCM) at GPAA, which is a total of sixteen (16) employees.

3.8 Sampling

Sampling is a selection of research participants from an entire population, and it involves decisions regarding the people, settings, events, behaviours and/or social processes to observe (Lohr, 2021). The main concern of sampling is representativeness. The aim is to select a sample that will be representative of the population on which the researcher aims to draw conclusions (Blanche, Durreheim & Painter, 2006:49). In probability sampling, each element in the population has a known non-zero chance of being selected using the random selection procedure. Randomisation is not employed in non-probability sampling when choosing a sample from the population of interest; instead, subjective approaches are utilised to determine which components should be included in the sample (IIker, Sulaiman & Rukayya, 2016:1).

3.8.1 Nonprobability sampling

Non-probability sampling can be defined as a sampling method that uses judgement to select participants instead of selecting them randomly. An example is to select participants which are easy to access (Showkat & Parveen: 2017:9). Non-probability sampling includes quota sampling, convenience, purposive expert and snowball sampling. These are discussed in subsequent sections.

3.8.1.1 Quota sampling

Through employing a quota sample, the researcher has easier access to the sample population. Tallying will be guided by certain obvious features such as gender and/or race, depending on the population of interest. The sample is chosen via the researcher's convenient door, hence any person or individual spotted with the same qualities will be queried about the subject of the research for inclusion. This will continue to flow in the same direction until the required number is reached (Etikan & Bala, 2017:1).

3.8.1.2 Convenience/accidental sampling

It comprises participants who are the most available to the researcher and who may have a chance to provide the required information which the researcher is seeking. This is a quick and low-cost technique to collect preliminary data, but there is no way to know if the sample is representative of the population; therefore, the results are not generalisable (Mweshi & Sakyi, 2020:190).

3.8.1.3 Judgemental or purposive sampling

It refers to a collection of sampling strategies that rely on the researcher's discretion in picking the units to be investigated, for example, individuals, cases or organisations, events, or bits of data (Sharma, 2017:751). Simply said, the researcher determines what needs to be understood and then sets out to discover the people who can and are willing to contribute information based on their expertise and experience. Purposive sampling is intended to focus on persons with certain traits who will be able to help with the relevant study (Ilker *et al*., 2016:2-4).

3.8.1.4 Expert sampling

In this case, the researcher gets the permission of people who are experts or are known to be experts in the field of study before beginning the process of collecting information directly from the individuals or groups of respondents. It also entails creating a sample group of persons who can illustrate through their experience or those who have specialised in one of the fields. The purpose of adopting expert sampling is to have a better means of building the perspectives of those who are experts in a specific topic. This sampling method is also used to provide validation for the correctness of another strategy to the sample selection (Etikan & Bala, 2017:2).

3.8.1.5 Snowball sampling

This is a sampling procedure in which the initial respondents are chosen by probability or non-probability sampling, and the additional respondents are obtained based on information provided by the initial respondents (Archaya, Prakash & Nigam, 2013:33).

3.8.2 Probability sampling

Each sample has an equal chance of being picked in probability sampling. A probability sample is one in which each element of the population has a known non-zero probability of selection (Showkat & Parveen, 2017:3). Probability sampling includes simple random sampling, stratified random sampling, systematic random sampling and multi-stage sampling. These are explained in subsequent sections.

3.8.2.1 Simple random sampling

In simple random sampling, every member of the population has an equal chance of being chosen. This is regarded as the greatest method for obtaining a representative sample and producing conclusions that are generalisable to the entire community. The first step is to establish the target audience. The following step is to guarantee that every member of this population has an equal probability of getting chosen (Jones, 2015:127).

3.8.2.2 Stratified sampling

This is a technique in which the population is split into strata or subgroups, and a random sample is drawn from each. A subgroup is a naturally occurring collection of elements, and they might be formed depending on the size of the organisation, gender, or vocation, to name but a few. In cases when there are many variances within a population, stratified sampling is commonly utilised. Its goal is to guarantee that all strata are appropriately represented (Taherdoost, 2016:21).

3.8.2.3 Cluster sampling

This is one of the most effective methods of random sampling which divides the population into clusters and the researcher randomly selects samples from the clusters. Within the clusters, there should be variability and uniformity (Showkat & Parveen, 2017:7-8).

3.8.2.4 Multi-stage sampling

The first step in multi-stage sampling is to take a random sample of the entire cluster. The second stage is to choose a specific location, followed by selecting suitable objects for the sample size (Rahi, 2017:2).

After considering the population and the different sampling methods it was decided to involve the whole population, meaning all the people working in the SCM section of GPAA, because it was a manageable group of participants (16). The researcher planned to interview SCM staff at GPAA who carry out procurement duties on daily basis, and on different levels in the SCM section. Using the population to investigate the barriers that cause the slow adoption of e-procurement at GPAA, provides a clear understanding of the research problem in the different components of SCM, ie. demand, acquisition, contract management and logistics, and on different levels from junior staff, middle level, and senior executives. The researcher ended up interviewing eleven (11) personnel because two (2) had left the organisation and three (3) did not accept the request to participate.

3.9 Data collection

3.9.1 Primary data

Primary data is information gathered from first-hand experience and is more credible, authentic and impartial. Due to the fact that primary data is not updated or manipulated by humans, its validity exceeds that of secondary data (Kabir, 2016:204). The following are some of the sources of primary data:

i. Experiments – Experiments require an artificial or natural context to conduct logical research and gather data. Experiments are more suited to medicine, psychology, nutrition and other scientific topics (Kabir, 2016:204).
ii. Surveys – One of the major data collection methods is the survey technique which is used to obtain quantitative information on things in a community. Surveys are used to collect data in a variety of settings, including the public and private sectors (Ajayi, 2017:4).
iii. Questionnaires – Questionnaires are a list of questions which are either open-ended or closed-ended to which participants give answers. Questionnaires can be conducted via telephone, mail, emails, fax and other methods (Kabir, 2016:204).
iv. Interviews – Interviewing is a technique for gaining a better understanding of the underlying reasons and motives for people's views, preferences and behaviours (Ajayi, 2017:4).

This researcher chose interviews as a tool for primary data collection because they allowed the researcher to get rich and detailed qualitative data directly from participants, providing insight into their experiences, opinions, and attitudes on a research topic. The interviews were conducted through Microsoft Teams and in person. Microsoft Teams was efficient and effective because it has a built-in feature for recording and transcribing for reference purposes. In cases where face to face interviews were conducted, a digital voice recorder was used and field notes were taken for future reference.

GPAA was chosen as a case study because procurement processes as per GPAA's SCM policy 2021/2022 and researcher's observation are carried out manually with few technologies in use to allow procurement process to be conducted electronically which prompted the researcher to do a study to identify the barriers that hinder full implementation of e-procurement at the Agency. In addition, GPAA was selected due to its accessibility, given that the researcher was employed by the organisation. There were no travel costs incurred during primary data collection and it was also easy to access secondary research data like organisational records as an internal employee.

The literature study provided the basis to formulate interview questions. The questions were divided into three (3) sections. Section A consisted of demographic questions which enabled the researcher to have a better understanding of the participants. Questions on demographics included age, gender, job level and number of years in the Agency. Section B contained procurement-related questions, such as participants' holistic understanding of procurement, the development of procurement processes at the GPAA and disadvantages of conducting procurement processes manually. Section C focused participants perceptions of e-procurement, perceived benefits of using e-procurement, factors that hinder adoption of e-procurement and what can be do done to facilitate full adoption of e-procurement at GPAA. The interview sheet with questions is attached as Appendix F.

3.9.2 Secondary data

Secondary data is information gathered from a source that has previously been published in some manner. In any research, the review is based on secondary data. Secondary data is information gathered by someone else for a different reason (Sylvia & Terhaar, 2018:61-62). The following are some of the sources of secondary data: organisational records, books, newspapers, internet articles, and research articles.

The study made use of textbooks, journal articles, relevant government regulations, policies and circulars, and organisational records from GPAA. International sources used by the researcher include reports on research conducted on public procurement in other countries by the World Bank, United Nations, and World Trade Organisation. A traditional literature review was conducted and it was presented in Chapter Two in a narrative format.

3.10 Data analysis

De Vos, Strydom, Fouche and Delport (2011) who advocate data preparation believe that the collected data should be properly checked, edited and organised. According to Creswell and Creswell (2018), the primary goal of qualitative data analysis is to

identify patterns, ideas, themes and meanings. Typically, qualitative data collection is reliant on interpretation. This indicates that the data necessitates several interpretations. This is due to the fact that a large amount of qualitative evidence is frequently gathered (Alhojailan, 2012:39).

For this study, the researcher adopted the thematic analysis for data analysis. Thematic analysis is defined by Smith and Firth (2011:57) as “an interpretative process in which data is methodically explored to uncover patterns within it to offer an enlightening account of the phenomena.” Without overtly developing theory, the process results in the emergence of important themes. Thematic analysis may give a comprehensive and in-depth knowledge of complicated events. Braun and Clarke (2006) provide the following six-phase guide which is a useful framework for conducting thematic analysis, which was followed in the analysis of the data gathered in this study:

i. Step 1: Become familiar with data

The initial phase in the thematic analysis process is for the researcher to familiarise him/herself with the complete data collection, and this requires regular and active reading (Kiger & Varpio, 2020:3-4).

ii. Step 2: Generating initial codes

At this point, the data is structured in a meaningful and orderly manner. Coding divides a big quantity of data into digestible chunks (Maguire & Delahunt, 2017:3355).

iii. Step3: Search for themes

The researcher analyses the codes and considers how different codes might be used to build a larger subject. They may use virtual representations to assist with arranging the diverse codes into themes such as tables, graphs and mind maps (Braun & Clarke, 2006:89).

iv. Step 4: Review themes

At this stage, the themes are modified and developed. It may be necessary to collapse the themes altogether, split them or discard the ones which are not central. The

researcher checks that the themes work and tries to tell a convincing story that answer research questions (Finlay, 2021:107).

v. Step 5: Define themes

Once a data thematic map is created, more refining may occur. The most important objective here is to find the fundamental concept in each topic and come up with a name that clearly communicates that notion. Sub-themes that capture dimensions and themes may be articulated (Jason & Glenwick, 2016:35).

vi. Step 6: Write up

The sixth step follows once the researcher has a decent selection of topics and has completed the final analysis by writing and reporting on them (Javadi & Zarea, 2016: 38).

For this study, data analysis was achieved through identifying themes and patterns in data by presenting, checking for similarities and contrasts, grouping data or establishing categories, identifying interrelations among the factors and variables, and building conceptual coherence and consistency.

3.11 Quality of the research

According to Eriksson and Kovalainen (2008), a suitable criterion for evaluating the quality of qualitative research is through the concept of trustworthiness. The components of trustworthiness include credibility, validity, reliability, dependability, transferability and conformability.

According to Shenton (2004:64), one of the most important criteria addressed by positivist researchers is internal validity which aims to verify that their study measures or tests what is intended. “Was the study conducted using conventional techniques generally employed in the stated qualitative approach, or was an appropriate rationale offered for variations?” the researcher may inquire. In order to ensure the reliability of the study, the researcher linked the data obtained from the participants to the literature

evaluated. Furthermore, the researcher used continuous observation, peer debriefing, and member observation.

The extent to which the study may yield identical or consistent findings if carried out as specified, including taking into consideration any circumstances that may have impacted the research outcomes, is referred to as dependability (Polit & Beck, 2017). In this study, the researcher ensured dependability by developing a research strategy while being flexible and recording any modifications that occurred in the plan. The researcher guarantees data preservation and that they maintained an audit trail, as well as document completeness and correctness.

The concept of conformability is related to the concept of neutrality. The researcher must ensure the data's inter-subjectivity. The interpretation should not be based on the researcher's personal preferences and points of view, but rather on the evidence (Korstjens & Moser, 2018:122). To confirm the study's conformability, the audit was conducted by a third party who was not involved in the research process. The auditor validated the adherence to good research practices by analysing the interviews and analytical techniques.

Transferability refers to the extent to which findings may be translated to different situations. The setting must be comparable for the findings to be transferable. As a result, it is the researcher's responsibility to identify significant characteristics of the environment from which the findings originate and the amount to which they may be relevant to other situations (Rohleder & Lyons, 2015:58). The researcher used the whole population to participate in the study , made use of a reflective researcher's journal, and provided a detailed account of the environment, context, people, activities and events investigated in order to guarantee transferability.

3.12 Ethical considerations

The following ethical factors were taken into consideration by the researcher when conducting the study:

A letter was written to the GPAA by a researcher requesting to conduct the study (see Appendix C). Permission to conduct the study was obtained from GPAA (see Appendix A) and ethical clearance to conduct the study was granted by the Ethics Committee at University of South Africa (see Appendix B). Anonymity of the data was safeguarded throughout the entire process as the participants were not asked to provide their names or personal details. The participants were informed about the purpose and requirements of the study and were also asked to sign the consent form before participating in the study (see Appendix E). This was necessary to inform the participants of their rights and the assurance that they will not be disadvantaged or violated in any manner related to the study (see Appendix D). The participants were also informed that their participation in the study is voluntary, and that they can withdraw from the study at any time. The participants were informed that their responses which would form the study findings were used as part of a bigger group of findings and not at an individual level. Lastly, care was also taken to ensure that the participants were safe and free of physical, mental and emotional stress throughout their participation in the study.

3.13 Conclusion

The research design used for this study was the exploratory research. The philosophy of interpretivism guided the research and the inductive approach was adopted. The researcher targeted the whole population of employees working in the Supply Chain Management at GPAA as participants. Qualitative data was collected through interviews and analysed using the thematic analysis method. The researcher used the concept of trustworthiness to evaluate the quality of the research by ensuring the credibility, reliability, dependability, transferability and conformability of the instruments and of the study. Ethical considerations were observed to ensure that the permission to conduct the study is granted and that the rights of the participants were not violated due to the study.

CHAPTER FOUR
FINDINGS AND DATA ANALYSIS

4.1 Introduction

The main objective of this study was to explore the barriers to the full implementation of e-procurement in the public sector, specifically at the GPAA. Chapters One and Two of this study articulated the research questions, the study objectives, and reviewed the literature with the purpose of exploring procurement and e-procurement in the public sector. Chapter Three described the methodology adopted by the researcher in conducting the research, the sample population and the data analysis method used. In this chapter, the study findings are presented, analysed, and discussed.

The study used interviews as the data collection method which solicited information on the demographic profiles of the participants, procurement, and e-procurement. Out of the sixteen (16) participants who were anticipated to participate in the study, only eleven (11) participated. This was because two (2) participants left the organisation, while the other two (3) did not honour the invitation to participate due to other commitments. The interviews were conducted with the procurement staff working at GPAA. All the participants contributed and shared their knowledge with enthusiasm. Field notes were taken during the interviews to ensure the accuracy of the information, particularly for transcribing purposes. The transcriptions were reviewed for inaccuracies and were consequently corrected. The demographic information was analysed to get a clear understanding of the population’s characteristics.

4.2 Demographic profiles of the participants

This section presents the demographic information of the participants.

4.2.1 Gender

A total of six (55%) male, and five (45%) female participants working in the Procurement Unit at the GPAA participated in this study. Table 4.1 displays the gender distribution of the participants.

Table 4.1: Gender of the participants at GPAA

Gender	Number	Percentage
Male	6	55%
Female	5	45%

Source: Researcher (2024)

4.2.2 Age group

Four age groups participated in this study as follows: 18-30 years old consisting of 3 participants (27.3%); 31-43 years old consisting of 4 participants (36.4%); 44-56 years old consisting of 3 participants (27.3%); and above 56 years old consisting of 1 participant (9%). This shows that most of the participants in the study were between the ages of 31-56 years, while the minority is approaching their pension age. Table 4.2 displays the age distribution of the participants.

Table 4.2: Age distribution of the participants at GPAA

Age group	Number	Percentage
18-30 years	3	27.3%
31-43 years	4	36.4%
44-56 years	3	27.3%
57 years and above	1	9%

Source: Researcher (2024)

4.2.3 Position at work

In terms of job position, a total of 6 (55%) participants were employed as junior level staff, while 4 (36%) were employed as middle level staff, and 1 (9%) participant was a senior manager. Table 4.3 shows the work positions of the participants.

Table 4.3: Work position of the participants at GPAA

Position	Number	Percentage
Junior level employees	6	55%
Middle level employees	4	36%
Senior level employees	1	9%
Top management	0	0%

Source: Researcher (2024)

4.2.4 Years of experience at GPAA

Regarding the years of experience at the GPAA, 7 (64%) participants had 1-3 years' experience; 2 (18%) participants had 4-6 years' experience, while 1 (9%) participant

had 7-9 years' experience, and 1 other (9%) participant had 13 years and more experience. One participant indicated that she was initially employed in the Finance Department in the Payroll Section for 11 years, and that they had only been in the Procurement Section for four (4) years. The data presentation also indicates that most employees have been recently employed at the GPAA, while a few employees have been with the organisation for over five years. Table 4.4 displays the years of experience of the participants at the organisation.

Table 4.4: Years of experience of the participants at GPAA

Years of experience	Number	Percentage
1-3 years	7	64%
4-6 years	2	18%
7-9 years	1	9%
10-12 years	0	0%
13 years and above	1	9%

Source: Researcher (2024)

4.3 Presentation and discussion of findings

This section presents and discusses the findings from the interviews conducted with the participants. The participants reflected a broad-based knowledge on procurement and e-procurement, developments in procurement processes, and recommendations for the full implementation of e-procurement. Table 4.5 presents the thematic map comprising the themes, categories and codes which emerged from the data from the interviews.

Table 4.5: Thematic map (themes, categories and codes*)*

Theme	Category	Code
Theme 1: **Barriers to the full implementation of e-procurement** **(Section 4.3.1)**	4.3.1.1 Budget	system purchase and implementation; staff training
	4.3.1.2 Resistance to change	participation
	4.3.1.3 Legacy systems	procurement; approval; installing; integration; improvement
	4.3.1.4 Data security	hacking; data theft
	4.3.1.5 Legislation	standardisation; Procurement Act; SITA; NT
	4.3.1.6 Infrastructure	ICT
Theme 2: **Developments in public procurement** **(Section 4.3.2)**	4.3.2.1 System integration and automation	RFI; RFP
	4.3.2.2 Communication	meetings; document sharing.

	4.3.2.3 Standardisation	generation of purchase requisition; processing invoices
	4.3.2.4 Procurement	audit findings; system integrity; SITA contracts
	4.3.2.5 Policy framework	PPPFA; RFQ; CSD
	4.3.2.6 No developments	no changes
Theme 3: **The concept of e-procurement** **(Section 4.3.3)**	4.3.3.1 Process	online procurement; system-driven procurement
	4.3.3.2 Transition	manual to electronic move of processes; paper to paperless or IT submission of bids
	4.3.3.3 System	end-to-end procurement
	4.3.3.4 Tool	procuring
	4.3.3.5 Electronic method	conducting procurement; data interchange
Theme 4:	4.3.4.1 Convenient and efficient	time; turnaround times; movement; integrated platform; workload; workflow; invoice delays;

Benefits of e-procurement **(Section 4.3.4)**		duplication of requests and POs; user-friendly
	4.3.4.2 Human intervention	movements; workload; productivity; errors; system manipulation; fraud; corruption; irregularities; procurement risks; document tampering
	4.3.4.3 Transparency	communication; monitoring; tracking
	4.3.4.4 Environmental friendliness	going green
	4.3.4.5 Cost effective	costs
Theme 5: **Limitations of using manual system (Section 4.3.5)**	4.3.5.1 Time consuming	processes, committees, turnaround times, tedious, validity periods
	4.3.5.2 Costly process	value for money
	4.3.5.2 Quality of work	human-error, inconsistencies, regulations
	4.3.5.3 Fraud and Corruption	document tampering
	4.3.5.4 Storage	space, loss, misplacement

Theme 6: **Requirements for transition from manual to electronic procurement** **(Section 4.3.6)**	4.3.6.1 Procurement authorisation/ approval	tailoring systems
	4.3.6.2 System centralisation	organisational compliance; instructions
	4.3.6.3 Investment	budget; staff training; sourcing ERP
	4.3.6.4 System integration	ERP
	4.3.6.5 Support	staff
	4.3.6.6 Engagements	NT
Theme 7: **Areas where e-procurement is still lagging** **(Section 4.3.7)**	4.3.7.1 Sending, receiving and evaluating	bids; quotes; requests; certificates; documents; affidavits
	4.3.7.2 Purchase requisitions	purchase orders; RFQ
	4.3.7.3 Compiling specifications	specifications
	4.3.7.4 Management of suppliers	sourcing; appointment of service provider and contract management

	4.3.7.5 All areas	all stages; processes, work

Source: Researcher (2024)

4.3.1 Theme 1: Barriers to the full implementation of e-procurement

Theme 1 reflects the barriers to the full implementation of e-procurement and the concerns displayed by the participants regarding the barriers. This theme emerged with predominant categories. Table 4.6 displays the theme of barriers, and the categories and codes featured. Barriers to the full implementation of e-procurement make it difficult for many companies and managers to adopt and implement e-procurement successfully (Sitar, 2011).

Table 4.6: Theme 1 – Barriers to the full implementation of e-procurement

Theme	Category	Code
Theme 1: **Barriers to the full implementation of e-procurement** **(Section 4.3.1)**	4.3.1.1 Budget	system purchase and implementation; staff training
	4.3.1.2 Resistance to change	participation
	4.3.1.3 Legacy systems	procurement; approval; installing; integration; improvement
	4.3.1.4 Data security	hacking; data theft

	4.3.1.5 Legislation	standardisation; Procurement Act; SITA; NT
	4.3.1.6 Infrastructure	ICT

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are various *barriers* to the full implementation of e-procurement. There are noticeable similarities and limited differences in the data obtained from the participants. The theme's categories and codes are discussed in subsequent sections.

4.3.1.1 Budget

The full implementation of e-procurement is expensive and requires a substantial budget to fund the process and activities involved. Budgets are required to ensure the successful and full implementation of e-procurement without which, the full implementation of the system is at risk. A lack of budget was mentioned by five out of eleven participants as causing a barrier to the full implementation of e-procurement. Six other participants did not mention 'budget' as a barrier.

"We are focusing on the modernisation of our services which focus on our core business – pension administration, which is a very pricey exercise." [Participant 8]

The budget category reflected the concern that system purchase and implementation may be:

- **too high:**

"The total cost of implementation may be too high." [Participant 5]

- **a constraint:**

"We are a few years away from implementing e-procurement and the budget is always a constraint." [Participant 8]

"Maybe it's budget constraints" [Participant 3]

Further, the budget category reflected the concern that staff training may be:

- **expensive:**

"Staff training might be expensive because an external specialist might be required to provide training which requires a lot of money." [Participant 5]

Conclusion – In summary, the conclusion that can be made in the budget category is that implementing e-procurement is expensive, owing to the multiplicity of resources and services required, hence the lack of a budget presents a barrier to the full implementation of e-procurement. Sufficient funds in the budget can fund the purchase and implementation of the system, and the training of the staff.

4.3.1.2 Resistance to change

The full implementation of e-procurement requires the acceptance to change by all stakeholders involved. The lack of acceptance to change poses a threat to the implementation and operation of any system. Resistance to change was mentioned by six out of eleven participants as a barrier to the full implementation of e-procurement. Five other participants did not mention resistance to change as a barrier to implementation.

"The challenge is how we get everyone on board so that we fully participate in the system." [Participant 1]

The resistance to change category reflected that the view of e-procurement may be:

- **opposed:**

"You might have a good view of bringing e-procurement system to institutions and some people might have opposing views. It is not an easy journey to reach the same consensus; people might resist to use the new system." [Participant 4]

- **resisted:**

"It could be resistance to change, yet the staff is willing to be trained." [Participant 9]

“Resistance to change. Some people may be resistant to new ways of doing things.” [Participant 3]

“There is also resistance to change.” [Participant 10]

“This is a big one. People prefer to work in silos. People are used to the old ways of doing things. There is a resistance to change.” [Participant 11]

Conclusion – In conclusion, resistance to change is a barrier to the implementation of e-procurement because it is human nature to be comfortable with the old ways of doing things. Another factor is that not everyone in the organisation might support the idea of migrating to the new system. Furthermore, the willingness of the staff to be trained may or may not translate into acceptance to change. This finding is aligned to the studies of Malepo and Jahed (2022) and Maepa et al. (2023) that finance is a major issue and that large amounts of investment is needed for technological infrastructure and human resource capital development to successfully implement e-procurement.

4.3.1.3 Legacy systems

The South African public procurement system which is highly decentralised with a variety of procurement processes are accompanied by multiple IT systems and significant manual processing of procurement transactions (IMF, 2023: 18-21). Legacy systems are outdated computing software systems or hardware systems that are still in use. The systems still meet the needs that they were originally designed for but do not allow for growth (Langbauer, 2019). The full implementation of e-procurement requires effective systems within the organisation. A lack of effective systems was mentioned by one out of eleven participants as a barrier to the full implementation of e-procurement. Ten participants did not discuss legacy systems as the barrier to the implementation of e-procurement.

“Legacy systems should be changed or improved.” [Participant 1]

The systems category reflected that the systems may be:

- **slow:**

"These systems are slow, and their improvement is also slow." [Participant 1]

- **unintegrated:**

"The systems are not integrated, and they are not talking to one another. Some areas are online, others are manual." [Participant 1]

"The application of e-procurement comes with challenges, particularly around installing and integrating the software." [Participant 1]

"If you want to know the status of the invoice, you cannot go through the system to check the status, you need to call Finance and ask because the systems are not integrated." [Participant 1]

- **systems cannot be procured:**

"The platforms are there but there is a red tape because organisations cannot procure [e-procurement] systems." [Participant 1]

- **dependent on the government:**

"We are limited to using government systems. We cannot, as GPAA, have our own system unless we get exemption. And unfortunately, the GPAA application for exemption was declined." [Participant 2]

- mitigation – Mitigation can be defined as an effort to avoid damage before it occurs (Mohamed, 2019). Two participants proposed mitigation remedies, namely, conducting investigations on other public organisations who have been successful in setting up, and implementing systems.

"Maybe if an investigation can be done, we can see how other organisations have succeeded in implementing their systems." [Participant 1]

"*Benchmarking with other government departments to check where and how we can improve."* [Participant 3]

Conclusion – In summary, the conclusion that can be made in the systems category is that the existing systems that are currently being used at GPAA are not effective. They are a barrier to e-procurement if they are not improved, changed or integrated. Effective systems are required to ensure the full implementation of e-procurement within an organisation. The lack or absence of effective systems makes the implementation of e-procurement impossible. This finding is in agreement with Kweyama et al. (2024) who indicated that partial automation of e-procurement processes, capacity and system integration challenges is hindering the SA Navy's implementation of integrated procurement system.

4.3.1.4 Data security

The full implementation of e-procurement requires the security of the organisation's data. Data security means protecting a pool of data such as databases from vulnerability, mishandling and unauthorised access and use (Dhawan, 2014). Data security is a necessary requirement for the organisation in implementing e-procurement. The absence of or the ineffective security measures to protect the organisation's data affects the implementation of e-procurement. A lack of data security was mentioned by two out of eleven participants as being the barrier to the implementation of e-procurement. Nine out of eleven participants did not mention data security in their discussion on the barriers of implementation of e-procurement.

"There is fear of the organisation being exposed, specifically regarding its data." [Participant 10]

The data security category reflected that data may be:

- **hacked:**

"The organisation's data is subjected to hacking." [Participant 5]

"There is the fear of being hacked." [Participant 10]

- **stolen:**

"The organisation and/or the staff has fears concerning the safety and protection of its data. One of the fears is data theft." [Participant 10]

Conclusion – The conclusion that can be made from this category is that e-procurement may pose a threat to the safety of the organisation's data. The system might be hacked, and the data might be stolen, hence the fear of implementing e-procurement.

4.3.1.5 Legislation

The full implementation of e-procurement involves legislation that governs and guides the operations and activities of the organisation. Strict and inflexible legislation was mentioned by three out of eleven participants who stated that the current legislation is a barrier to the full implementation of e-procurement. Eight participants did not mention anything regarding the legislation that governs e-procurement in the public sector. The strict, inflexibility and unavailability of applicable legislation hinders the full implementation of e-procurement.

The legislation category reflected that the system may:

- **not be purchased or procured:**

"We are not allowed by the Act to procure because every government institution that wants to procure ICT (information and communication technology) product must buy through the State Information Technology Agency (SITA)." [Participant 6]

"The platforms are there but there is a red tape because organisations cannot procure systems and they need to obtain approval from National Treasury (NT) who might turn the organisations down." [Participant 1]

- **require standardisation:**

"The GPAA was in the process of procuring the system but the hindrance, at one point, was the National Treasury. They said they will standardise and provide one system

for all government organisations. We were all ready but stopped at some point." [Participant 7]

"It is the National Treasury legislations that are the barrier. The GPAA cannot purchase any system because they want to standardise the system in government as a form of cost saving." [Participant 6]

Conclusion – To conclude this category, the legislation for e-procurement is reflected as stringent. The inflexibility of the legislation is presenting a barrier to the implementation of e-procurement as organisations cannot procure or implement the system without the approval of the NT which is commonly negative, and the promises of a standardised e-procurement system for government institutions did not materialise. On the other hand, Anthony (2018) is of the opinion regulating e-procurement through legislation will not only ensure legal clarity but will also promote transparency and competitiveness in South Africa's public sector.

4.3.1.6 ICT infrastructure

The full implementation of e-procurement requires the necessary ICT infrastructure within the organisation. This includes all the information and communications technology infrastructure and systems such as software, hardware, firmware, and networks (Pradhan, Mallik & Bagchi, 2018; Maepa et al. 2023). The lack of ICT infrastructure was mentioned by two out of eleven participants as a barrier to the full implementation of e-procurement. Without ICT infrastructure, the implementation of the system is at risk.

"I do not think that in terms of our infrastructure we are ready for it." [Participant 8]

"There is no ICT infrastructure to support the implementation of the system." [Participant 9]

Conclusion – In summary, the data shows that the organisation does not have the necessary ICT infrastructure for e-procurement. Without the necessary infrastructure,

it can be difficult, if not impossible, to achieve the desired outcomes. This poses a challenge to organisations as it presents a barrier to the implementation of e-procurement. This indicates that through investing in the necessary infrastructure, the organisation can be in a better position to take advantage of the benefits that the e-procurement systems can offer.

4.3.2 Theme 2: Developments in public procurement

Theme 2 reflects the developments in public procurement and the opinions and concerns the participants displayed regarding the developments. Developments in public procurement have evolved in the quest to promote the procurement system and align it with international best practices (Ambe, 2016). This theme emerged with predominant categories. Table 4.7 reveals the theme of the developments and the categories and codes featured.

Table 4.7: Theme 2 – Developments in public procurement

Theme	Category	Code
Theme 2: **Developments in public procurement** **(Section 4.3.2)**	4.3.2.1 System integration and automation	RFI; RFP
	4.3.2.2 Communication	meetings; document sharing
	4.3.2.3 Standardisation	generation of purchase requisition; processing invoices
	4.3.2.4 Procurement	audit findings; system integrity; SITA contracts

	4.3.2.5 Policy framework	PPPFA; RFQ; CSD
	4.3.2.6 No developments	no changes

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are a few to no developments in public procurement at the GPAA. There are noticeable differences and similarities in the data obtained from the participants. The developments in public procurement categories and codes are discussed in subsequent sections.

4.3.2.1 System integration and automation

According to the International Monatary Fund (IMF 2023: 18-21) there is a lack of integration and multiple IT systems in the SA public sector. According to Razzetti (2019), system integration in information technology is a process of linking together different computing systems and software applications physically and functionally to act as a coordinated whole. System integration and automation was mentioned by only one out of eleven participants as a development in the public procurement. The data obtained from the participant reveals that system integration and automation is viewed as a development in public procurement in terms of fully implementing e-procurement.

"I know that there is already a process that is underway to obtain an integrated system in the form of an RFI (Request for Information) which will be followed by an RFP (Request for Proposal)." [Participant 1]

The system integration and automation category reflected that the procurement processes may be:

- **efficient:**

"The RFI and RFP will enable the sourcing of a [e-procurement] system that will fully automate and integrate all the systems to improve our efficiency." [Participant 1]

Conclusion – To conclude this category, it seems that there is not much development in public procurement with the integration of systems and full automation. However, there is a process underway to integrate the first part of the procurement process (RFI and RFP), which may be a start to implement a fully integrated e-procurement system. Kweyama et al. (2024) also indicated partial automation of e-procurement processes in the SA Navy.

4.3.2.2 Communication

Ahmad (2020: 2) defined communication as a process of sending and receiving information or transmission of information from one participant to another. E-procurement offers opportunities for businesses to communicate more effectively, particularly within the supply chain; and it also improves efficiency in the tender process (Boafo, Ahudey & Darteh, 2020). Two out of eleven participants highlighted communication as a development in public procurement. Data obtained from the participants displayed that communication is viewed as a development in public procurement in terms of fully implementing e-procurement.

"The process has been enhanced to close gaps in communication." [Participant 8]

"Changes in communication were forced by the outbreak of Covid-19." [Participant 6]

The communication category reflected that communication may be:

- **online:**

"Meetings are now conducted on Microsoft Teams." [Participant 6]

"The biggest change has been meetings conducted online through Microsoft Teams, for example, BSC, BEC and BAC meetings are held online." [Participant 8]

"The sharing of documents is online because we are no longer required to print documents but share them using Shared Drive." [Participant 6]

Conclusion – In summary, communication has improved at the GPAA since meetings are now held online through the Microsoft Teams platform, while documents are now shared among the stakeholders using Shared Drive instead of hard copies.

4.3.2.3 Standardisation

The public sector in SA is characterised by a variety of procurement processes (IMF, 2023: 18-21). Procurement standardisation involves creating and executing consistent procedures, regulations and standards for purchasing products and services. It is an important part of procurement that enables firms to achieve uniformity, efficiency, and cost savings in their procurement procedures (Procurement Affiliation, 2023). Standardisation as a development in public procurement was mentioned by one out of eleven participants. The participant indicated that GPAA was in the process of standardising its processes but was interrupted by the National Treasury. Data obtained from the participant displayed that standardisation is viewed as an anticipated development in public procurement in terms of fully implementing e-procurement.

"We were in the process of trying to change but it was halted by the National Treasury (NT), stating that they were in a process of introducing a financial system that will be used by all government departments. The GPAA has a system that is used partly for processing invoices and the generation of purchase requisitions which is not used optimally; but we were in the process of getting the service provider to provide other modules that we were not using and to do procurement electronically or online. However, we are still waiting for NT to standardise the process." [Participant 7]

Conclusion –The GPAA has not succeeded in adopting their own procurement system because National Treasury was in the process of standardising procurement processes across all organs of the state. The standardisation and system integration were underway but did not come to fruition. This is identified in the data as an unsuccessful yet anticipated development in public procurement.

4.3.2.4 Procurement

Procurement can be defined as the buying of goods and services that enable an organisation to operate its supply chains, in a profitable and ethical manner. When a public sector organisation purchases products, services or development and building projects from suppliers on the local or worldwide market, they are engaging in the public procurement process (CIPS, 2024). The ongoing development on a new procurement bill and regulations are an important opportunity to spearhead procurement reform and step-up implementation (IMF, 2023).

Procurement as a development in public procurement was mentioned by two out of eleven participants. Data obtained from the participants displayed that procurement is viewed as a development in public procurement in terms of fully implementing e-procurement.

"Procurement has changed. The change was initiated by the National Treasury." [Participant 11]

The procurement category reflected that the system may have:

- **integrity:**

"Procurement is now informed by the previous audit findings to make our system have integrity." [Participant 9]

"A critical change that was implemented was the use of SITA contracts for the purchase of ICT products." [Participant 11]

Conclusion – In summary, developments in procurement at the GPAA occurred by incorporating audit findings in procurement processes to ensure that these processes are conducted with a high level of professionalism and integrity. This category also reflected that the developments that have occurred in the procurement processes were initiated by the National Treasury in the form of circulars and instruction notes, for instance, the use of SITA contracts for the procurement of ICT goods and services.

4.3.2.5 Policy framework

A policy framework sets out a set of procedures or goals which might be used in negotiations or decision-making to guide a more detailed set of policies, or to guide the ongoing maintenance of an organisation's policies (Saura & Debasa, 2022). The policy framework was mentioned by one out of eleven participants who highlighted it as a development in public procurement. Data obtained from the participants displayed that the policy framework is viewed as a development in public procurement at the GPAA in terms of fully implementing e-procurement.

"There was the introduction of the CSD replacing the manual supplier database." [Participant 9]

Conclusion – A development was introduced through the instruction note that was issued authorising government entities to use a central supplier database (CSD) as a system for sourcing suppliers, replacing a manual database that was used by government organisations. Malepo and Jahed in 2022 that the goverenemnts e-tender publication portal and CSD are developments, but that it is not completely operationalised.

4.3.2.6 No developments

Data obtained from the participants displayed differences in opinions in the responses regarding developments in public procurement. Seven out of eleven participants indicated that there are no developments in public procurement. This finding may be due to the relative limited years of experience of the participants as indicated in Table 4.4. Four participants indicated that there has been changes in the way procurement is conducted at the GPAA.

"Public procurement has not yet had any changes." [Participant 4]

The no developments category reflected that public procurement may have:

- **not developed:**

"So far, nothing has changed." [Participant 10]

"It's still the same." [Participant 1]

"There are no significant changes." [Participant 6]

Conclusion – In summary, the data overwhelming indicated that there are no developments or changes in the procurement of the organisation. This reflected a contrast with the data displayed by three other participants who noted the various developments mentioned above. However, this observation needed to be qualified, and through looking at the demographic profiles of the participants, it was observed that the seven participants who indicated there have been no changes have been working at the GPAA for less than three years. In contrast, participants who have been working at the GPAA for more than four years indicated there have been changes. The conclusion that can be made is that, besides the use of online communication necessitated by the Covid-19 pandemic, there have been no recent notable changes in procurement at GPAA.

4.3.3 Theme 3: The concept of e-procurement

Theme 3 reflects the concept of e-procurement and the participants' understanding of the concept. This theme emerged with predominant categories. Table 4.8 reveals the theme of the concept of e-procurement and the categories and codes featured. The concept of e-procurement is defined as a web-enabled solution designed at automating and streamlining key activities such as ordering, sourcing, supplier evaluation, and receiving, which are all involved in an organisation's procurement process (IIhan & Rahim, 2020:184).

Table 4.8: Theme 3 – The use of e-procurement

Theme	Category	Code
Theme 3: **The concept of e-procurement** **(Section 4.3.3)**	4.3.3.1 Process	online procurement; system-driven procurement
	4.3.3.2 Transition	manual to electronic move of processes; paper to paperless or IT submission of bids
	4.3.3.3 System	end-to-end procurement
	4.3.3.4 Tool	procuring
	4.3.3.5 Electronic method	conducting procurement; data interchange

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are varying understandings of the concept of e-procurement. There are noticeable differences and similarities in the data obtained from the participants. The concept of e-procurement categories and codes are discussed in subsequent sections.

4.3.3.1 Process

From the data gathered, it was found that three out of eleven participants regard e-procurement as a process of online procurement.

"E-procurement is an umbrella term that would encompass all procurement processes conducted online, for instance, e-notification, e-ordering, e-bidding, e-evaluations, e-award, and contract administration. All these processes are integrated in the e-

procurement system. Everything is done electronically; a great deal of manual processes is reduced, and things become faster." [Participant 1]

"*E-procurement is a process of requisition, ordering or purchasing of goods and services online. Basically, it is the action of procuring goods and services online."* [Participant 11]

"E-procurement is a system-driven procurement process." [Participant 6]

Conclusion – In summary, some participants view e-procurement as a process of conducting all procurement activities online for instance notification, ordering, bidding, evaluations, award, and contract administration.

4.3.3.2 Transition

From the research, two out of eleven participants explained use of e-procurement as a transition from one way of doing things to another. The transition category depicts the change in the way procurement is traditionally done to e-procurement.

"E-procurement is going paperless, making it possible for bidders to submit their bids on the ICT system. Being able to do the stages of procurement online, for instance, the evaluation of documents until they can be approved. It can be as simple as having the system doing the evaluation for you and throwing out the recommendation, rather than having people deal with it. E-procurement can save time, making the process more efficient, supporting an audit trail and legislative requirements." [Participant 8]

"E-procurement is moving from the manual way of doing things, to doing things electronically. This means that you are moving with technology in ensuring that your processes are efficient, short, and address the element of quality. It also reduces the number of dependencies in terms of resources, for an example, if you are using an online system, you can use one human resource instead of four." [Participant 2]

Conclusion – To conclude the category, the data indicated that e-procurement is a transition or a move from the manual or traditional methods of procurement to

electronic or online methods and processes. Furthermore, this transition can make the procurement processes more efficient, support audit trail, and reduce dependencies in terms of human resources.

4.3.3.3 System

From the data obtained from the interviews, two out of eleven participants understood the concept of e-procurement as an end-to-end procurement system.

"E-procurement is an end-to-end system where procurement is done electronically. The end user will generate their request on the system, and the GPAA engages suppliers on the system. However, the supplier will be required to be registered on the e-procurement system. Everything is done on the system; human intervention is only done on capturing the information on the system. There is no paper, everything from requisition to the purchase order and the signatures are electronic. Everything can have an audit trail and information, or the data will be difficult to miss or get lost on the way because everything is stored on the system. From the beginning to the end, everything is online. On the tender side, we advertise bids online, there is no need for the service provider to send a hard copy document; evaluation is done electronically; awarding is done electronically; and contract management is done online." [Participant 7]

"E-procurement is a system implemented to ensure that the entire process from the requisition by the end user to issuing of the purchase order is done electronically." [Participant 3]

Conclusion – In conclusion, the data indicated that e-procurement is an electronic system and has vast benefits to the organisation, suppliers, and the customers. Further, from the data displayed, the system encompasses all procurement processes in a single system.

4.3.3.4 Tool

Tool – From the data gathered, one participant defined e-procurement as a procuring tool.

"E-procurement is one of the best tools that should be used for procuring goods and services by public institutions to ensure that they have a quick way of delivering goods and services." [Participant 4]

Conclusion – In summary, e-procurement was viewed as a tool used to procure goods and services in a swift or speedily manner.

4.3.3.5 Electronic method

Data from the study reflected that three out of eleven participants understand e-procurement as conducting procurement electronically through data interchange.

"E-procurement is conducting the purchasing of goods and services through the internet; it is the electronic data interchange." [Participant 10]

"E-procurement is an electronic procurement where requisitions, RFQ, and evaluation are done online on the system. Everything is 100% online, nothing is done manually." [Participant 9]

"E-procurement is an electronic way of conducting procurement using a system; there is no paper. Data is interchanged." [Participant 5]

Conclusion – To conclude this category, e-procurement is seen as an electronic method of procurement as opposed to the manual method of procurement. This category reflected the centrality of electronic resources rather than manual resources which involve paper.

4.3.4 Theme 4: Benefits of e-procurement

The benefits of e-procurement are essential for every business and include transparency, efficiency and fairness (Masudin, Aprilia, Nugraha & Restuptri, 2021). Theme 4 reflects the benefits of e-procurement and the opinions which the participants displayed regarding the benefits. This theme emerged with predominant categories. Table 4.9 reveals the theme of benefits and the categories and codes featured.

Table 4.9: Theme 4 – Benefits of e-procurement

Theme	Category	Code
Theme 4: **Benefits of e-procurement** **(Section 4.3.4)**	4.3.4.1 Convenient and efficient	time; turnaround times; movement; integrated platform; workload; workflow; invoice delays; duplication of requests and POs; user-friendly
	4.3.4.2 Human intervention	movements; workload; productivity; errors; system manipulation; fraud; corruption; irregularities; procurement risks; document tampering
	4.3.4.3 Transparency	communication; monitoring; tracking
	4.3.4.4 Environmental friendliness	going green
	4.3.4.5 Cost effective	costs

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are various benefits of e-procurement. There seems to be consensus to a large extent in the data obtained from the participants. Benefits of e-procurement as a theme in the implementation of e-procurement in the public sector is discussed in detail below. Categories and codes are discussed in subsequent sections.

4.3.4.1 Convenient and efficient

The full implementation of e-procurement implies convenience and efficiency in terms of service delivery. Convenience and efficiency were the benefits outlined by nine out of eleven participants. E-procurement results in convenient and efficient service delivery for both the employees and the customers.

"The use of the e-procurement system reduces the inefficiencies which are linked to a multitude of factors." [Participant 1]

The convenient and efficient category reflected that e-procurement may:

- **be quick:**

"There is a lot of time and movement that will not happen if tenders were online, for instance, making copies and certifying." [Participant 1]

"E-procurement is quick, and it shortens the turnaround times. Everything will be fast." [Participant 2]

"It can bring underperforming suppliers up to speed and avoid invoice delays and the duplication of requests." [Participant 11]

- **reduce movement:**

"It will reduce movement and the travel costs of service providers. There is a lot of movement that will not happen if tenders were online, for instance, making copies, certifying of documents, and manual submissions." [Participant 1]

- **integrate platforms:**

"It provides a single platform for all our procurement processes. It is also a great tool for auditors because during an audit, we have to go around looking for documents and making copies for the auditors. If there was an online system, auditors will have access and be able to view the information that they need." [Participant 1]

"There is one source of information, and e-procurement will make sure that whatever you will need in the future will be only one click away." [Participant 5]

- reduce workload:

"I think it will also help us to reduce procurement workload. There is a lot of staff and documents that we need to go through during evaluation." [Participant 1]

"The benefits will be that work will flow much faster." [Participant 5]

"As much as there is a need for segregation of duties in SCM, one person can be able to perform more than one function with manual procurement. This can be prevented on the e-procurement system." [Participant 7]

- be user-friendly:

"It will be user-friendly, especially when proper training is conducted." [Participant 4]

Conclusion – In summary, convenience and efficiency were identified as the benefits of using e-procurement because the use of an online system is quick, thus it saves time, and also reduces the workload and movement for both the suppliers and officials, and expect to be user friendly after training.

4.3.4.2 Human intervention

The full implementation of e-procurement reduces human intervention. Human intervention was mentioned by nine out of eleven participants who highlighted its reduction through e-procurement. The intervention of humans in e-procurement can

lead to effective and better service delivery, and reduced manipulation, fraud, corruption and errors.

The human intervention category reflected that reduced human intervention may:

- **reduce manipulation:**

"The use of an e-procurement system reduces the inefficiencies that are linked to human behaviour." [Participant 1]

"It won't be easy for people to manipulate the procurement system." [Participant 7]

"E-procurement is more trustworthy than manual procurement. It restricts the delegation so that you cannot overrun your delegation. Once you have captured, e-procurement can prevent you from approving a transaction. It enhances the delegation part so that the system is not halted." [Participant 9]

- **eliminate fraud and/or corruption:**

"If we were electronic in all our activities, cases of fraud and corruption will not happen." [Participant 1]

"E-procurement can reduce fraud and corruption." [Participant 3]

"It will assist with reducing fraud and corruption." [Participant 6]

"As mentioned earlier, the most obvious one will be cutting out the tempering of documents." [Participant 0-8]

- **reduce errors:**

"When there is human handling, there is human error; so when we use e-procurement, those errors can be reduced." [Participant 1]

"When there is human interaction, mistakes are more likely to happen. The use of e-procurement system reduces the mistakes that are linked to this human behaviour." [Participant 1]

"The benefits will be less people involved, meaning less errors." [Participant 6]

- **reduce procurement risks:**

"It mitigates procurement risks." [Participant 11]

Conclusion – In conclusion, the reduction of human intervention was identified as a benefit of e-procurement. The use of the e-procurement system means that the procurement processes are done on the system, resulting in less mistakes and errors. Furthermore, the use of the e-procurement system prevents users from manipulating the system which can reduce the cases of fraud and corruption.

4.3.4.3 Transparency

The full implementation of e-procurement offers transparency in terms of the systems and procedures. Transparency was highlighted by two out of eleven participants as a benefit of using e-procurement.

"The benefits of e-tendering can increase transparency." [Participant 1]

The transparency category reflected that the procurement process can be:

- **enhanced:**

"It will improve communication between the organisation and bidders." [Participant 1]

"The benefits are many; e-tendering can enable one to monitor and track the status of the tenders accurately and increases transparency." [Participant 1]

"If tenderers are making a follow up, they must make a telephone enquiry and send emails but if everything was online, they will see it at any given stage." [Participant 1]

Conclusion – To conclude, transparency was identified in the data as a benefit of e-procurement because the use of the system will ensure that communication between the procuring organisations and bidders is improved since both parties will have access to the system. Malepo and Jahed (2022) indicated that e-procurement system is more transparent which might potentially lower corruption.

4.3.4.4 Environmental friendliness

The full implementation of e-procurement implies caring for the environment. Environmental friendliness was mentioned as an advantage by one out of eleven participants. The effective use of e-procurement will ensure that the environment is protected.

"Remember, we are talking about going green. Imagine the number of trees that we will be saving." [Participant 1]

Conclusion – In summary, the data indicated environmental protection as a benefit of e-procurement. The use of e-procurement means less paper is used, hence saving trees. This means that the process is friendly to the environment.

4.3.4.5 Cost efficiency and effectiveness

The full implementation of e-procurement offers cost efficiency and effectiveness in terms of the resources, systems, and procedures. Cost effectiveness means achieving the desired outcome at the lowest possible cost. On the other hand, cost efficiency is a measure of how well the resources used are aligned with the results achieved (Thompson, 2023). Cost effectiveness and efficiency was mentioned by two out of eleven participants as a benefit of using e-procurement.

"E-procurement is cost effective." [Participant 4]

"It will be cost efficient. Suppliers will be able to save money." [Participant 10]

Conclusion – In conclusion, the data indicated cost effectiveness and cost efficiency as a benefit of e-procurement. This means that e-procurement can help organisations to save money by reducing the costs associated with traditional procurement methods such as paper-based processes which include printing, mailing and storage, and the costs associated with manual data entry and processing. The use of e-procurement systems can reduce the suppliers' costs by automating their processes such as by

reducing the need for manual labour. This can help them to offer more competitive prices and increase their profitability.

4.3.5 Theme 5: Limitations of manual procurement

Theme 5 reflects the limitations of using manual procurement and the opinions which the participants displayed regarding the challenges.

Table 4.10: Theme 5 – Limitations of manual procurement

Theme	Category	Code
Limitations of using manual system (Section 4.3.5)	4.3.5.1 Time consuming	processes, committees, turnaround times, tedious, validity periods
	4.3.5.2 Costly process	value for money
	4.3.5.3 Quality of work	human-error, inconsistencies, regulations
	4.3.5.4 Fraud and corruption	document tampering
	4.3.5.5 Document storage	space, loss, misplacement

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are various challenges with manual procurement. There seems to be consensus in the data mostly obtained from the participants. Disadvantages of using manual procurement at the GPAA as a theme is discussed in detail below. Categories and codes are discussed in subsequent sections.

4.3.5.1 Time-consuming

Data obtained from the participants displayed that conducting procurement processes manually is time-consuming. Seven out of eleven participants commented that this is a disadvantage of conducting procurement processes manually.

"Earlier when I was outlining a procurement process, I mentioned that it is tedious, it is time consuming, it is a costly process for the organisation" [Participant 1]

"Disadvantage of conducting procurement manually, is that it prolongs the processes in terms of getting the approval in all the stages of the procurement processes" [Participant 2]

"Firstly, it's time consuming and it is not cost effective in terms of value for money" [Participant 4]

"With manual processes there is a risk of losing information or papers. It is also time consuming" [Participant 5]

"It takes time to evaluate documents, because you must make sure that people/committee members are physically available to evaluate documents. It takes time and this may affect the validity periods because sometimes you must extend" [Participant 8]

Conclusion- Data indicated that conducting procurement processes manually takes time because one must get approval manually in all stages. Evaluation of tender documents take long because evaluation committee members need to be physically present to go through several documents submitted by bidders which is time consuming. Prolonged processes also affect finalisation of tender processes and tender validity periods.

4.3.5.2 Costly process

Data obtained from the participants displayed that conducting procurement processes manually is a costly process. Two out of eleven participants commented that this is a disadvantage of conducting procurement processes manually.

"It is a costly process for the organisation" [Participant 1]

"It is not cost effective in terms of value for money" [Participant 4]

Conclusion- Data indicated that conducting procurement processes manually is a costly process for both service providers and the organisation because there is a lot of paper that is used in the process, cost of travelling to submit documents and cost of keeping documents.

4.3.5.4 Quality of work

The lack of integration and multiple IT systems in the SA public sector lead to fragmented procurement data and of insufficient quality and transparency which facilitates corruption (IMF, 2023: 18-21). Data obtained from the participants displayed that conducting procurement processes manually compromises the quality of work. Five out of eleven participants commented that this is a disadvantage of conducting procurement processes manually.

"The quality of work is compromised because the review of processes is done manually, if we had a system, it would not result to number of errors because if you do things manually, people can always fiddle with the system" [Participant 2]

"It is prone to mistakes unlike a system that will correct you before you move to the next step" [Participant 4]

"Human error is always a factor, duplication can happen, not certain of the expenditures because it's not possible to trace how much we have paid" [Participant 6]

"There is a risk of having processes not followed, you might find that people have inconsistencies in applying regulations due to differing understandings" [Participant 7]

Conclusion- Data obtained indicated that where there is human intervention, errors are more likely to occur which can compromise the quality of work. The availability of an e-procurement system can help to reduce errors and increase the quality of work.

4.3.5.4 Fraud and corruption

A lack of integration and multiple IT systems and significant manual processing of procurement transactions in the SA public sector lead to fragmented procurement data and of insufficient quality and transparency which facilitates corruption (IMF, 2023: 18-21). Data obtained from the participants displayed that conducting procurement processes manually can result to cases of fraud and corruption due to human intervention in procurement processes. Two out of eleven participants commented that this is a disadvantage of conducting procurement processes manually.

"It can result to fraud and corruption, exclusion of bidders in the evaluation process" [Participant 3]

"It also creates a bigger risk of tampering with documents" [Participant 8]

Conclusion- Data obtained indicated that conducting procurement processes manually creates a bigger risk of tampering with documents which can result to cases of fraud and corruption.

4.3.5.5 Document storage

Data obtained from the participants displayed that conducting procurement processes manually can result to challenges with storage space. Hard copy documents received from tenderers require filing and storage facilities which requires a lot of space. One

out of eleven participants commented that this is a disadvantage of conducting procurement processes manually.

"Storage facilities is a challenge at GPAA. The documents can be lost or misplaced" [Participant 8]

Conclusion- Data obtained indicated that keeping manual documents on the premises requires a lot of space. Proper filling and keeping of documents manually is also a challenge because there is a risk of losing and misplacing valuable documents.

4.3.6 Theme 6: Requirements for the transition from manual to electronic procurement

The requirements for the transition from manual to electronic procurement should enable a smooth transition (OECD iLibrary, 2023). Theme 6 reflects the requirements for the transition from manual to electronic procurement, and the opinions and concerns which some of the participants expressed regarding the requirements at GAAP. This theme emerged with predominant categories. Table 4.11 reveals the theme of the requirements and the categories and codes featured.

Table 4.11: Theme 6 – Requirements for transition from manual to electronic procurement

Theme	Category	Code
Theme 6: **Requirements for transition from manual**	4.3.6.1 Procurement authorisation/ approval	tailoring systems
	4.3.6.2 System centralisation	organisational compliance; instructions

to electronic procurement **(Section 4.3.5)**	4.3.6.3 Investment	budget; staff training; sourcing ERP
	4.3.6.4 System integration	ERP
	4.3.6.5 Top Management Support	staff
	4.3.6.6 Stakeholder Engagements	NT

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed the requirements for the transition from manual to electronic procurement. The theme's categories and codes are discussed in subsequent sections.

4.3.6.1 Authorisation/approval

Data obtained from the participants displayed that the authorisation and approval of the procurement of an e-system is a requirement for the transition from manual to electronic procurement. Three out of eleven participants view this requirement as a barrier for the transition at GPAA.

"The government should give each entity permission to tailor a system according to their own needs." [Participant 2]

"The NT must authorise GPAA to procure the e-procurement system that will meet the needs of the organisation." [Participant 2]

"The GPAA must get all the necessary approvals and ensure that the system is rolled out." [Participant 7]

Conclusion – In summary, authorisation and approval from the National Treasury and the government were identified in the data to be one of the requirements for the transition from manual to electronic procurement. E-procurement has not yet been fully implemented at GPAA because the National Treasury has not yet given the entity the authorisation to procure the system. For an entity to purchase the system suitable for their needs, necessary approvals must be granted by the National Treasury.

4.3.6.2 System centralisation

OECD (2011) defined the centralisation of public procurement as "the establishment by the government of a centralised agency with the task of procuring goods and services for the benefit of other government agencies and bodies with a view to reducing the cost of public procurement". Data obtained from the participants displayed that system centralisation is a requirement and a barrier for the transition from manual to electronic procurement. System centralisation was a transition requirement identified by two out of eleven participants.

"The National Treasury is the custodian and must centralise it to ensure that all organisations comply and use the system." [Participant 4]

The system centralisation category reflected that the organisations should be:

- **mandated:**

"The National Treasury needs to issue an instruction that there should be no manual procurement processes, leaving the organisations with no choice but to migrate to e-procurement." [Participant 9]

"The National Treasury needs to mandate e-procurement." [Participant 9]

- **guided:**

"The National Treasury can give guidance so that whatever the obstacles that are there can be resolved." [Participant 9]

Conclusion – To conclude, the data shows that transition from manual to e-procurement system should be centralised by National Treasury since they are the custodian of procurement processes in the public sector. Furthermore, e-procurement should be mandated and guided by National Treasury.

4.3.6.3 Investment

Data obtained from the participants displayed that investments are a requirement for the transition from manual to electronic procurement. An investment is the sacrifice of resources such as time, money, and effort with the expectation of earning more resources in the future (Laopodis, 2020). Investment was a concern for four out of eleven participants who highlighted it as a requirement for the transition.

"The GPAA needs to invest in the system." [Participant 5]

"My view will be to make an investment." [Participant 10]

The investment category reflected that the transition from manual to electronic procurement requires:

- **infrastructure:**

"If we can go out there and source an Enterprise Resource Planning (ERP) system which can cater for human resources (HR), Customer Relations Management (CRM), one of the biggest units within the GPAA, Business Intelligence, and Inventory Management, we can achieve desired results." [Participant 1]

"Invest in an ERP system that encompasses everything into one." [Participant 11]

"The training of staff can help improve and create awareness on e-procurement." [Participant 3]

"GPAA needs to have a budget and ensure that there is proper training and educating people about the advantages of implementing the e-procurement system. The advantages obviously need to be outweighed by the disadvantages." [Participant 5]

- **security:**

“Facilitate training to the accounting officers and ensure that security is tight. As much as we want feasibility and transparency, we must not be exposed that much.” [Participant 10]

Conclusion – In conclusion, the data obtained identified investment as a requirement and a barrier for the transition from manual to electronic procurement. Training accounting officers ensures that they have the necessary skills and knowledge to manage financial transactions effectively because they are responsible for managing an organisation’s financial resources and ensuring that the financial records are accurate, complete and compliant with relevant regulations. The findings suggest that training accounting officers will help prevent errors, fraud, unauthorised access, hacking, financial irregularities or other cyber threats that can affect the reputation of the organisation and its financial stability. This reveals that financial transactions involve sensitive information such as bank account details, credit card numbers and personal information which can be targeted by cybercriminals. Training accounting officers can reduce the risk of data breaches and protect the financial transactions of the organisation.

4.3.6.4 System integration

Data obtained from the participants displayed that system integration is a requirement for the transition from manual to electronic procurement. System integration was a suggestion from three out of eleven participants who highlighted it as a requirement or a barrier for the transition.

“GPAA is operating a lot of systems that are not integrated. As a result, we are working is silos.” [Participant 1]

The system integration category in procurement may be:

- **advantageous:**

"My view will be to have an ERP system that encompasses everything into one. From the business unit, when they want to procure, they can load their request online. The system should link all processes together, for example, HR, ICT and Procurement, which can eliminate the disadvantages of the manual system." [Participant 11]

Conclusion – In summary, the data indicated that GPAA is currently operating numerous systems that are not integrated. To ensure a smooth transition from manual to e-procurement, these systems must be integrated to ensure that processes such as HR, ICT, Procurement and Finance are done on one system to meet organisational goals.

4.3.6.5 Top management support

As a strong force in business, top management may either support or oppose e-procurement. Top management is important in establishing and maintaining an e-procurement system by not only ensuring that the necessary infrastructure is provided, but by also providing the necessary support to the staff undergoing the transition (Anthony, 2018). Data obtained from the participants displayed that support is a requirement for the transition from manual to electronic procurement. Two out of eleven participants indicated this as a requirement and barrier to the full implementation of e-procurement.

"This requires support from everyone, especially the senior level management and ICT specialists." [Participant 8]

"On a high level, there should be engagements with the National Treasury" [Participant 6]

Conclusion – In conclusion, data identified that top management support is a requirement for the transition from manual to electronic procurement. Top management should also have engagements with the National Treasury on the implementation of e-procurement. If this initiative is supported by the top managers, it

will be easier to transfer it to the acceptance and support to middle and junior level staff.

4.3.6.6 Stakeholder engagement

Stakeholder engagement is the process used by an organisation to engage relevant stakeholders such as customers, communities the suppliers, employees, governments, investors and trade unions for the purposes of achieving accepted outcomes. It is a fundamental principle of social responsibility (Gutterman, 2023). Malepo and Jahed (2022) indicated that e-procurement requires full stakeholder engagement and participation. Data obtained from the participants displayed that stakeholder engagement is a requirement for the transition from manual to electronic procurement. Engagements with stakeholders was indicated as a requirement for transition to e-procurement by three out of eleven participants.

"This requires engagements with everyone, especially the suppliers, employees, senior level management and ICT specialists." [Participant 8]

"On a high level, there should be engagements with the National Treasury. [Participant 6]

The engagement category reflected that the organisation may:

- **improve:**

"Engage with other government departments to check where and how we can improve and create awareness on e-procurement." [Participant 3]

Conclusion – In summary, data obtained identified stakeholder engagement as a requirement for the transition from manual to electronic procurement. Participants indicated that engagements with the relevant stakeholders, especially the suppliers, employees, senior level managers, ICT specialists and other government departments can fast-track the implementation of e-procurement at GPAA.

4.3.7 Theme 7: Areas where e-procurement is still lagging

Theme 7 reflects the areas where e-procurement is still lagging at GPAA and the concerns which the participants displayed regarding the areas. This theme emerged with predominant categories. Table 4.11 reveals the theme of areas where e-procurement is still lagging, and the categories and codes featured.

Table 4.12: Theme 7 – Areas where e-procurement is still lagging

Theme	Category	Code
Theme 7: **Areas where e procurement is still lagging** **(Section 4.3.7)**	4.3.7.1 Sending, receiving and evaluating of quotations	bids; quotes; requests; certificates; documents; affidavits
	4.3.7.2 Purchase requisitions	purchase orders; RFQ
	4.3.7.3 Compiling specifications	specifications
	4.3.7.4 Management of suppliers	sourcing; appointment of service provider and contract management
	4.3.7.5 All areas of procurement	all stages; processes; work

Source: Researcher (2024)

The analysis of the data obtained from the interviews revealed that there are various areas in which GPAA still lagging with regard to e-procurement. There are noticeable differences and similarities in the data obtained from the participants. The areas where

e-procurement is still lagging categories and codes are discussed in subsequent sections.

4.3.7.1 Sending, receiving and evaluating tenders and quotations

Data obtained from the participants displayed that the sending, receiving and evaluation of tenders and quotations in the procurement process are areas which are still lagging. This was a concern for seven out of eleven participants.

"The bulk of the manual work happens during the evaluation process. As we speak, we are busy evaluating an RFI." [Participant 1]

"The request is received manually through an e-mail and not a system because some people confuse receipt though an e-mail as an online process. Evaluations are conducted manually." [Participant 4]

"Quotes and BEE certificates are received manually." [Participant 3]

"It would have to be record keeping, receiving quotations as well as submitting BEE certificate and sworn affidavits." [Participant 5]

The sending, receiving and evaluations of tenders and quotations category reflected that procurement may be:

- **tedious:**

"We notify service providers on an online system called the E-tender, but when we are receiving bids, we receive them manually in the form of a hard copy. The process of evaluating those bids is manual. Each evaluator gets a chance to scrutinise the bid document. All that process is tedious." [Participant 1]

"The documents still require manual printing and manual filling. We still require manual documents for the auditors." [Participant 8]

“Receiving BEEs and sworn affidavits is done manually for quotes above R30 000; but if it is below, it can be sent on an email.” [Participant 10]

- **time-consuming:**

“Going through one document might take one to two hours, depending on its size. The bulk of the manual work happens during the evaluation process. As we speak, we are busy evaluating an RFI. We are in the second week of evaluating documents. It takes time.” [Participant 1]

Conclusion – In summary, the participants indicated that the sending, receiving and evaluating stages in the procurement process of tender documents are areas of e-procurement where GPAA is still lagging. Furthermore, receiving quotations and BEE certificates, and record keeping is still done manually which is time-consuming.

4.3.7.2 Purchase requisitions

Data obtained from the participants displayed that purchase requisitions are still done manually. There are noticeable differences in the data displayed by the participants. Purchase requisition was a concern for four out of eleven participants who highlighted it as an area which is still lagging. The different views are outlined below.

“Requisition is still done manually.” [Participant 9]

The purchase requisitions category reflected that the stage may also be:

- online:

“Some purchase requisitions, for instance, stationery and refreshments are system-generated. Purchase orders are generated online on the system called SAGE AccPac.” [Participant 9]

“Purchase requisitions are manual. RFQ is manual but due to COVID, some stages are now done electronically.” [Participant 09]

"Purchase requisition generation is online." [Participant 5]

"Requisition is generated on the financial system but there is a manual side to it, for instance, submitting to SCM." [Participant 6]

Conclusion – In conclusion, data identified the issuing of purchase requisitions as an area which is still lagging in e-procurement. Some participants indicated that purchase requisitions are done manually, while other participants indicated that they are generated online. Data indicated that not all requisitions are generated online except for categories such as purchase requisitions for stationery and refreshments.

4.3.7.3 Compiling specifications

Data obtained from the participants displayed that the compiling of specifications is still done manually. Two participants indicated that GPAA is still lagging in terms of compiling specifications electronically.

"We are not working digitally. The submission of specifications to the Bid Specification Committee (BSC) is signed manually and electronically, so we are still in the manual environment." [Participant 2]

"Compiling specifications is still done manually." [Participant 6]

Conclusion – In summary, data identified compiling and submission of specifications as an area which is still lagging as it is still done manually. Specifications are terms of references drafted to describe the nature of goods and services required by the procuring entities. These specifications are still compiled manually at the GPAA.

4.3.7.4 Sourcing from suppliers

Malepo and Jahed (2022) also indicated that the SA government's e-tender publication portal and CSD is not completely operationalised. Data obtained from the participants displayed that the selection and sourcing from suppliers is still done manually. Four out of eleven participants indicated this as an area which is still lagging, although there are some indications by two other participants on online management.

"The sourcing of suppliers is conducted manually because they [purchase orders] are sent to suppliers via an e-mail." [Participant 4]

"Basically, the appointment of a service provider and contract management is done manually." [Participant 6]

The sourcing from suppliers-category reflected that this stage may also be:

- online:

"Sourcing of suppliers is done online through the CSD." [Participant 11]

"Sourcing of suppliers on CSD is conducted online and processing a payment is online." [Participant 5]

Conclusion – To conclude, the data obtained in this category is contradictory. Two participants indicated that the selection and sourcing from suppliers is still done manually while the other two participants feel that the suppliers are selected and sourcing takes place online through the central supplier data base (CSD). Further investigation indicated that even though the suppliers are searched for on the CSD, they are still approached using an email. The CSD allows officials to look for suppliers on the database but does not allow for the communication between suppliers and procuring entities hence the need to still write e-mails.

4.3.7.5 All areas of procurement

Data obtained from the participants displayed similarity in the participants' opinions. Five out of eleven participants view all areas of procurement as a concern because they are done manually.

"Bulk of the work is conducted manually." [Participant 7]

"All stages are manual. We are not working digitally." [Participant 2]

"Basically, all processes are conducted manually. For instance, drafting a business case, compiling a specification, evaluation of tenders, appointment of a service provider and contract management is done manually." [Participant 6]

"Most of them are manual. A little bit of electronic will be the use of e-mails." [Participant 8]

Conclusion – In conclusion, there are noticeable similarity in the data which identified all areas of procurement as still lagging. From the previous categories in this theme (4.3.7.1 to 4.3.7.4), it is clear that GPAA lagging in all areas of procurement, including sending, receiving and evaluation of documents, the generation of purchase requisitions, compiling of specifications, sourcing from supplier and all procurement processes which are done manually.

4.4 Conclusion

This chapter presented, analysed and discussed the data from the study. The chapter provided a brief overview of the demographic profiles of participants. This chapter also provided an outline of the generated themes, categories and codes from the data obtained through the interviews and discussed the findings. Chapter Five will conclude the study, giving a reflection of the objectives of the study and the findings, and it will provide recommendations based on the findings from the study.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter 4 presented and discussed the findings of data analysis. This final chapter aims to draw conclusions of the barriers that hinder full implementation of e-procurement at the GPAA and to propose recommendations. These conclusions and recommendations are guided by the literature review chapter (Chapter 2) and the empirical findings (Chapter 4). This chapter structure starts by linking research objectives to findings in the study, with the conclusions and recommendations related to each objective. The chapter then provides the study's limitations and suggests future research.

5.2 The research question, research purpose and objective

5.2.1 The primary research question

The primary research question of this study as posed in Chapter One is: *'What are the barriers to the full implementation of e-procurement in the public sector, specifically at the GPAA?'*

5.2.2 Research objectives

The primary objective of this study was to explore the barriers to the full implementation of e-procurement at GPAA. The secondary objectives were:

- To explore the developments in the public procurement over time (by means of literature review and interviews);
- To explore the use of e-procurement (by means of literature review and interviews);

- To determine the benefits of the application of e-procurement in the public sector (by means of literature review and interviews);
- To determine the limitations of using manual procurement (by means of literature review and interviews);
- To examine the requirements for the transition from manual to electronic procurement (by means of literature review and interviews);
- To determine the areas of e-procurement where the GPAA still lagging (by means of interviews); and
- To offer recommendations for further implementation and improvement e-procurement at GPAA (by means of data analysis).

5.2.3 Linking the objectives to the data findings in the study

A literature review was done to explore the topic, which thus formed the basis for the empirical study. Data from the interviews conducted with the participants formed the primary data. Linking the primary and secondary data with the objectives of the study serves as confirmation that the objectives were achieved in order to answer the research question. Table 5.1 reflects the linking.

Table 5.1: Linking the objectives to the findings and relevant sections

Objective	Finding	Section of secondary data	Section of empirical findings
To explore the barriers to full implementation of e-procurement at GPAA	**Identified barriers**		
	Budget	2.7.4	4.3.1.1
	Resistance to change	2.7.4, 2.8	4.3.1.2
	Legacy Systems	2.7.4, 2.8	4.3.1.3
	Data security	2.7.4	4.3.1.4

	Legislation	2.7.4	4.3.1.5
	Infrastructure	2.7.4, 2.8	4.3.1.6
To explore the developments in the public procurement	**Identified developments**		
	System integration and automation	2.4	4.3.2.1
	Communication	2.4	4.3.2.2
	Standardisation	2.5	4.3.2.3
	Procurement	2.5	4.3.2.4
	Policy framework	2.5	4.3.2.5
	No developments	N/A	4.3.2.6
To explore the concept of e-procurement	**Identified concepts**		
	Process	2.7.1	4.3.3.1
	Transition		4.3.3.2
	System		4.3.3.3
	Tool	2.7.1	4.3.3.4
	Electronic method	2.7.1	4.3.3.5
To explore the benefits of the application of e-procurement in the public sector	**Identified benefits**		
	Convenient and efficient	2.7.3	4.3.4.1
	Human intervention	2.7.3	4.3.4.2

	Transparency	2.7.3	4.3.4.3
	Environmental friendliness	2.7.3	4.3.4.4
	Cost effective	2.7.3	4.3.4.5
To identify limitations of using manual system	**Identified limitations**		
	Time consuming	2.6.1	4.3.5.1
	Costly process	2.6.1	4.3.5.2
	Quality of work	2.6.1	4.3.5.3
	Fraud and Corruption	2.6.1	4.3.5.4
	Storage of documents	2.6.1	4.3.5.5
To explore the requirements for the transition from a manual to electronic procurement	**Identified requirements**		
	Procurement authorisation/ approval	2.7.5	4.3.6.1
	System centralisation	2.7.5	4.3.6.2
	Investment	2.7.5, 2.8	4.3.6.3
	System integration	2.7.5	4.3.6.4
	Top management support	2.7.5	4.3.6.5
	Stakeholder engagement	2.7.5, 2.8	4.3.6.6
To determine the areas of e-procurement is the GPAA still lagging	**Identified areas**		
	Sending, receiving and evaluating of quotations and tender documents		4.3.7.1

	Purchase requisitions	4.3.7.2
	Compiling specifications	4.3.7.3
	Management of suppliers	4.3.7.4
	All areas	4.3.7.5
To offer recommendations for further research on the implementation of e-procurement in the public sector	Data analysis	Chapter 4

Source: Researcher (2024)

Table 5.1 indicates that the objectives were addressed in the study. The next section discusses the objectives, the applicable literature and the empirical findings in detail. Further, conclusions are made based on the objectives of the study.

5.3 Discussion of the research objectives

This section discusses the research objectives.

5.3.1 Primary research objective

To explore the barriers to the full implementation of e-procurement.

According to Chimtengo *et al*. (2016: 1546-1549), while adopting an e-procurement system may produce better outcomes, its implementation remains a difficulty in the majority of public institutions across the world. There are various barriers to the full implementation of e-procurement (Nawi *et al*., 2017: 221). Molepo and Jahed (2022) stated that many countries that successfully implemented e-procurement in the public sector have faced challenges such as inadequate technological infrastructure,

resistance to change and lack of skills and capacity on e-procurement. To gain insights into the barriers of e-procurement, the interviewer asked an open ended-question which presented the participants with an opportunity to freely respond based on their experiences, insights and views regarding the barriers in the organisation and in the public procurement sector in general. The participants identified the barriers as: budget (Section 4.3.1.1); resistance to change (Section 4.3.1.2); legacy systems (Section 4.3.1.3); data security (Section 4.3.1.4); legislation (Section 4.3.1.5); and infrastructure (Section 4.2.1.6).

5.3.1.1 Budget

Laryea *et al*. (2014) identified budgetary constraints as one of the main barriers to the full implementation of e-procurement. Chikwe *et al.* (2016:40-41) further noted that some organisations believe that implementing the system will be too costly, thus they will continue to use their existing procurement method. Maepa et al. (2023) indicated that organisational finance is an issue in the implmentation of e-procurement. The participants identified the budget as a barrier to the full implementation of e-procurement (Section 4.3.1.1). As described by the participants, the cost of implementation of the system and staff training is too high and is a pricey exercise. The participants described that the budget for this is always constrained.

5.3.1.2 Resistance to change

To ensure that there is a smooth transition from traditional to electronic procurement, organisations need to manage change effectively. According to Chimtengo *et al*. (2016:1546-1549), resistance to change is one of the most significant hurdles to e-procurement implementation in the public sector. However, Chen, Bretschneider, Stritch, Darnall and Hsueh (2021:6) note that the resistance to change can significantly delay or even suspend the adoption of an e-procurement system. Molepo and Jahed (2022) indicated that many countries that successfully implemented e-procurement have faced resistance to change. Resistance to change was identified by the participants as a barrier to the full implementation of e-procurement (Section 4.3.1.2).

The participants described that some staff prefer to work in silos, are used to the old ways of doing things, and that they have opposing views. As discussed by the participants, the barrier becomes getting everyone to fully participate in the system.

5.3.1.3 Legacy systems

The South African public procurement system which is highly decentralised is characterised by a variety of procurement processes are accompanied by multiple IT systems and significant manual processing of procurement transactions. The lack of integration and multiple IT systems lead to fragmented procurement data and of insufficient quality and transparency which facilitates corruption (IMF, 2023: 18-21). According to Chimtengo *et al*. (2016: 1546-1549), integration with current systems impede the successful adoption of an efficient e-procurement system. Kusi *et al*. (2016: 648) added that, in the absence of a widely accepted solution, e-procurement software across the supply chain cannot be integrated. Kweyama *et al*. (2024) stated that e-procurement inefficiencies include among others the partial automation of processes and system integration challenges. The participants identified legacy systems as a barrier to the implementation of e-procurement (Section 4.3.1.3). The participants discussed that the legacy systems are slow, not integrated, and that the organisation depends on the government to improve the legacy systems. As discussed by the participants, the slow and unintegrated legacy systems and the failure by the organisation to procure the improved system is the barrier to the full implementation of e-procurement.

5.3.1.4 Data security

Chikwe *et al.* (2016: 40-41) noted that one of the recognised hurdles to e-procurement deployment is concerns about the security and confidentiality of the data that must be transferred in electronic settings. Laryea *et al*. (2014) add that the security of the data is a barrier to e-procurement implementation. Data security was identified by the participants as a barrier to the full implementation of e-procurement (Section 4.3.1.4). As discussed by the participants, data is subjected to loss and hacking in e-

procurement as the e-procurement system is vulnerable to hacking. The participants discussed that the fear of data security is presenting a barrier to the full implementation of e-procurement.

5.3.1.5 Legislation

The South African procurement system is plagued by a fragmentation of legislation and regulations which results in significant inefficiencies, the weak enforcement of existing procurement legislation and regulations result in repeated serious procurement violations (IMF 2023: 18-21). Nawi *et al*. (2017: 221) noted that the legislation is a significant factor contributing to the challenges to the full implementation of e-procurement. Laryea *et al*. (2014) add that legal issues are a general barrier to the implementation of e-procurement, as organisations are bound by the legislative framework governing e-procurement. According to Chikwe *et al.* (2016: 40-41), a legal framework serves as the foundation for any commercial transaction, public or private, and it specifies the obligations and responsibilities of the partners who are conducting business with the purpose of meeting each other's intended goals. The participants identified legislation as a barrier to the full implementation of e-procurement (Section 4.3.1.5). Participants mentioned that the State Information Technology Agency (SITA) Amendment Act 38 of 2002 only allows the organisations to procure technology and system through SITA. However, as mentioned by the participants, the biggest barrier as acquiring an e-procurement system hinges upon the approval and authorisation of the National Treasury, which barred the GPAA in the past from acquiring its own system by denying an exemption from the regulation.

5.3.1.6 Infrastructure

According to Chikwe *et al.* (2016:40-41), most organisations lack the necessary technologies to do e-procurement. Kusi *et al*. (2016:648) further note that when it comes to e-procurement technology, the implementation will be sluggish, and it will not offer many of the expected benefits if there are no generally agreed technical and

procedural requirements and infrastructure. Molepo and Jahed (2022) indicated that many countries that successfully implemented e-procurement have faced the challenge of inadequate technological infrastructure. Infrastructure was identified by the participants as a barrier to the full implementation of e-procurement (Section 4.3.1.6). The participants discussed that the organisation is not ready for the system because it does not have the ICT infrastructure in place.

Conclusion: The findings from primary data (interviews) revealed that budget constraints, resistance to change, data security concerns, system barriers, legislative requirements and ICT infrastructure are the main barriers that hinder full implementation of e-procurement at the GPAA. Literature indicated that barriers to e-procurement include lack of necessary technologies, resistance to change and lack of skills and capacity.

Recommendation: Based on the above conclusion, the following recommendations for GPAA and other South African government departments are made:

- *Government departments should have a budget, or funds allocated for acquiring an e-procurement system.*
- *Government departments should make provision for a change management project that guides, prepares, equip and support employees to adopt change related to e-procurement to drive organisational efficiency.*
- *Government departments should invest in firewalls and other data cyber security to prevent fraud and cybercrimes.*
- *Government departments should consider improving, modernizing or replacing legacy systems.*
- *Government departments must have ICT infrastructure available at all times for the successful adoption of e-procurement.*

5.3.2 Secondary research objective 1

To explore the developments of public procurement over time.

An important development in the South African public sector procurement is the establishment of an e-tender portal and the central supplier database (CSD), through

which the dissemination and reporting of tender information and more general procurement information was improved (IMF, 2023:21)., Although weak compliance with procurement rules still creates data quality issues; the optimisation of procurement was implemented with an increased use of framework agreements and G-commerce (IMF, 2023:21).

To gain insights into the views of the participants regarding the developments of public procurement in SA and in GPPA, the interviewer asked an open-ended question which presented the participants with an opportunity to freely respond on their insights and views. The participants' views are categorised in: system integration and automation (Section 4.3.2.1); communication (Section 4.3.2.2); standardisation (Section 4.3.2.3); procurement (Section 4.3.2.4); policy framework (Section 4.3.2.5); and no developments (Section 4.3.2.6).

5.3.2.1 System integration and automation

Brunette and Klaaren (2020:6) notes that the Green Paper on Public Sector Procurement Reform which was published in 1997 called for the streamlining of procurement procedures. This streamlining may include system integration and automation which are part of the procurement procedures. System integration and automation is required in public procurement to efficiently deliver services to the customers. Without efficient service delivery, the public procurement becomes incompetent. One participant identified system integration and automation as a development in GPAA that is under way to be implemented but not completed yet (Section 4.3.2.1).

5.3.2.2 Communication

Brunette and Klaaren (2020: 6) note that the Green Paper on Public Sector Procurement Reform intended to unbundle large paperwork. This entails that communication was also positively affected, as paperwork such as documentation was unbundled. This means that paperwork or documentation was separated or broken

down into smaller and more manageable components, which could refer to the process of digitising documents or organising them in a more efficient way. Digitising documents can also make it possible for the employees to access them remotely, thereby allowing more efficient communication within the organisation. Communication was identified by the participants as a development in the public procurement (Section 4.3.2.2). Communication is required for efficient business operations. Without proper communication, procurement processes become inefficient. Communication was identified by the participants to be only involving online meetings and the sharing of documents electronically. This kind of communication is a development which shows the adoption of electronic modes of communication which are efficient and are a means of unbundling large paperwork. However, communication may be found to be the root cause of various other barriers to the full implementation of e-procurement (Section 4.3.1). Elements of communication or a lack of communication are evident in the barriers of the implementation of e-procurement (Objective 1) such as resistance to change (Section 4.3.1.2), legacy systems (Section 4.3.1.3), data security (Section 4.3.1.4), and legislation (Section 4.3.1.5).

5.3.2.3 Standardisation

Procurement is a process which consists of subprocesses that can be standardised. The IMF (2023: 17) notes that several important reform aspects worth prioritising are the simplification and standardisation of procurement procedures, and the standardisation of transparency requirements through the adoption of the Open Contracting Data Standards. The standards for the methods and procedures associated with the soliciting of tender offers and the award of contracts can be developed at a national and international level. It is possible to develop a generic set of procedures and methods covering the universe of options that are commonly encountered in the soliciting and evaluating tender offers, and the formatting and compilation of procurement documents (Watermeyer, 2011). The IMF (2023: 21) further notes the progress in addressing the procurement system challenges, stating that the SCRM proposed several reforms in light of the above-mentioned challenge

which include the standardisation and simplification of procurement forms, rules, and processes across the public sector by making changes to the relevant legislation and regulations, and the standardisation of procurement information dissemination through the creation of an e-tenders portal. However, the standardisation of the procurement processes still require improvement in South Africa (IMF, 2023: 25.)

The participants identified standardisation as a development in public procurement (Section 4.3.2.3). The standardisation of systems in the government sector is, among others, a prerequisite for e-procurement. The standardisation of procedures resides within the responsibility of the National Treasury in South Africa, which is the governing body of the public sector finance, responsible for standardisation programmes, plans and/or schedules. The lack of standardisation introduces risks in areas such as management and daily organisational operations. The participants indicated that the standardisation is a development which is *anticipated* to be adopted in the public sector organisations or departments soon, and it may bring the long-awaited changes in public organisations such as GPAA. The standardisation development is associated with other developments such as system integration and automation (Section 4.3.2.2), procurement (Section 4.3.2.4), and policy framework (Section 4.3.2.5). These developments entail elements of homogeneity, regulations and centralism in the procurement processes and systems. For GPAA, standardisation is a double-edged sword as it is a development that was already underway but was halted by the National Treasury because they were in the process of introducing a financial system that would be used by all government departments, and it was not successfully implemented.

5.3.2.4 Procurement

In the construction sector in South Africa, the Construction Industry Development Board (Act 38 of 2000) can promote and implement policies, programmes and projects, including those aimed at procurement reform, standardisation and uniformity in procurement documentation, practices and procedures within the framework of the procurement policy of government, through the establishment of best practices, and a code of conduct for the parties engaged in procurement. Promoting policies and programmes in procurement practices include best practices such as implementing

procurement developments based on the findings from audits, and on the procurement of ICT products and services. This will ensure that procurement is developed accordingly and based on policies and best practices, and that it is aimed at procurement reform, including standardising, and the uniformity of the practices and procedures (IMF, 2023: 21). Procurement was identified by the participants as a development in public procurement (Section 4.3.2.4). As identified by the participants, developments in procurement continuously takes place as a result of audit reports. In addition, regulation allows for the procurement of ICT products or services which is also regarded as a development. The procurement development is associated with other developments such as policy and regulatory framework (Section 4.3.1.5).

5.3.2.5 Policy framework

The most decisive developments in public procurement policies in SA occurred after the first democratic election in 1994. The Constitution of the Republic of South Africa (1996) established the framework for public procurement, with the primary objective being to ensure that the procurement system is fair, equitable, transparent, competitive, and cost effective. Other decisive developments in public procurement includes the Preferential Procurement Policy Framework Act (PPPFA), Public Finance Management Act (PFMA), Municipal Finance Management Act (MFMA), and the Broad-based Black Economic Empowerment (BBBEE) Act. The participants in this study identified policy framework as a development in the public procurement (Section 4.3.1.5). The participants identified further circulars and instruction notes that have been issued to change the procurement processes, for example, the PPPFA, the establishment of the central supplier database (CSD) for sourcing of suppliers, and changing the threshold values for quotations and tenders in the policy framework.

5.3.2.6 No developments

Some of the participants identified no developments in the public procurement (Section 4.3.1.6). The reason for their view can be that, besides the changing of threshold values, little has changed with regard to public procurement the past decade.

The lack of developments in public procurement poses a risk on the future of public procurement for this impacts the implementation of e-procurement, with all the associated benefits attached to e-procurement. ability.

Conclusion: Data obtained from interviews and literature indicated there has been some, however, not enough new developments in integrating and automating procurement processes, communication methods, standardisation, procurement policies, CSD, e-tender portal, transversal contract system, introduction of the OCPO and the public procurement bill.

Recommendation: Based on the above conclusion, the following recommendation for South African government departments is made: -

- *Although new developments in Public Procurement is little and slow government departments should make the best of what is available to them and engage in ongoing trainings to ensure they efficiently and professionally perform their procurement under restricted circumstances, and remain abreast on the trends and developments within the public procurement space, to be ready when restrictions on the implementation of e-procurement is lifted.*

5.3.3 Secondary research objective 2

To explore what the use of e-procurement entails

E-procurement, in relative comparison with procurement, entails the electronic integration of systems to enable and promote successful procurement, as opposed to traditional or manual procurement which is referred to generally as ‘procurement’. To gain insights into what the participants view of e-procurement is, the interviewer asked an open ended-question which presented the participants with an opportunity to freely respond on their insights and views regarding the concept of e-procurement. The participants identified e-procurement as– a process (Section 4.3.3.1); transition (Section 4.3.3.2); system (Section 4.3.3.3); tool (Section 4.3.3.4); and as an electronic method (Section 4.3.3.5).

5.3.3.1 Process

Ilhan and Rahim (2020:184) defined e-procurement as a web-enabled solution designed at automating and streamlining key processes such as ordering, sourcing, supplier evaluation and receiving, which are involved in an organisation's procurement process.The participants identified e-procurement as a process of procuring goods and services (Section 4.3.3.1). The procurement process consists of many sub-processes and activities. It involves sub-processes or activities such as notifications, bidding, evaluations, ordering, invoicing, requisition, and purchasing. The participants described e-procurement as an umbrella term which encompasses the above-mentioned procurement sub-processes and activities.

5.3.3.2 Transition

The participants used the term 'transition' to describe e-procurement. As identified by the participants, e-procurement is a transition from paper-based to electronic procurement methods, and a move away from the manual or traditional ways of procurement to electronic procurement (Section 4.3.3.2). The transition also entails less human involvement which reduces errors, data manipulation, theft, fraud or any other corruption which is prone to happen when humans are involved in the procurement process. This is associated with the benefits of e-procurement such as human intervention (Section 4.3.4.2).

5.3.3.3 System

Some participants described e-procurement as a system for procuring goods and services (Section 4.3.3.3). This is associated with the transition (Section 4.3.3.2) description which explains the elimination of manual and paper-based methods to electronic and paperless methods of procurement.

5.3.3.4 Tool

Addo (2019: 53) views e-procurement in the public sector as a tool that uses information and communication technology such as the internet by the government in the procurement relationship with bidders for the acquisition of goods, works and services required by the public sector. Premathilaka and Fernando (2018: 337) add that electronic procurement is a tool where businesses use information and communication technology, especially the internet to conduct procurement interactions with suppliers, and buy items and services. One participant identified e-procurement as a tool used for procuring goods and services (Section 4.3.3.4). The participant described e-procurement as a best tool which ensures an authentic way of delivering goods and services. As described by the participant, e-procurement goes beyond the procurement processes highlighted in Sections 5.3.2.1, 5.3.2.2 and 5.3.2.3, as it also involves the delivery of goods and services procured by the customers.

5.3.3.5 Electronic method

According to Laryea *et al.* (2014), e-procurement comprises the use of electronic communication to notify or inform stakeholders about tender possibilities, communicate construction project information and data, perform work tendering, assess tenders, award, and manage contracts. Nani and Ali (2020: 33-34) further describe e-procurement as the electronic purchase of products and services required for an organisation's operations. The process starts with users identifying and specifying their needs, and continues with contract search, sourcing, and negotiation, trigger payment, and post-purchase evaluation. Participants identified e-procurement as an electronic method of procurement (Section 4.3.3.5). As identified by the participants, e-procurement involves the procurement of goods electronically or online. The participants described e-procurement as eliminating the manual methods of procurement which are paper-based, and as involving data interchange. This is

associated with the benefits of e-procurement such as environmental friendliness (Section 4.3.4.4).

Conclusion: Primary data and literature indicated that e-procurement is the use of information and communication technologies, tools or systems in each stage of the procurement process to improve the operations of organisations.

5.3.4 Secondary research objective 3

To determine the benefits of the application of e-procurement in the public sector.

According to Afolabi *et al*. (2017: 468), the advantages of integrating an e-procurement platform with current traditional procurement processes cannot be overstated. Nawi *et al*. (2017: 211) added that implementing an e-procurement system has brought great benefits in business and government entities. To gain insights into the participants' view of the benefits of the application of e-procurement, the interviewer asked an open ended-question which presented the participants with an opportunity to freely respond based on their insights and views regarding the benefits for their organisations and in the public procurement sector. The participants identified the benefits as: convenient and efficient (Section 4.3.4.1); less human intervention (Section 4.3.4.2); transparency (Section 4.3.4.3); environmental friendliness (Section 4.3.4.4); and cost effectiveness (Section 4.3.4.5).

5.3.4.1 Convenient and efficient

Addo (2019: 57-58) stated that e-procurement offers improved efficiency through reduced administrative procedures. Ferreira and Amaral (2016) and Nawi *et al*. (2017:211) concur, stating that the government has reaped significant benefits from the e-procurement system which has been hailed as a means for governments to increase efficiency and convenience in online procurement through improved administrative process, and working method improvement. Convenience and efficiency were identified by the participants as a benefit of the use of e-procurement (Section 4.3.4.1). The participants described the use of e-procurement as a single

platform which saves time by reducing human movement in the workplace, easy and systematic access of information, and is user-friendly. As described by the participants, this offers convenience and efficiency in the workflow.

5.3.4.2 Human intervention

Addo (2019: 57-58) stated that e-procurement reduces administrative procedures, which ultimately reduces human intervention. In this regard, Maddi *et al.* (2013: 5) added that e-procurement thus curbs corruption which is associated with human intervention. The participants identified reduced human intervention as a benefit of the use of e-procurement (Section 4.3.4.2). As described by the participants, human intervention causes errors, inefficiencies, manipulation, theft, fraud and corruption. The participants described the application of e-procurement as reducing human intervention as it prevents overrunning the delegations, mitigates procurement risks, and reduces inefficiencies, criminal behaviour and mistakes related to human intervention.

5.3.4.3 Transparency

According to Kabanda *et al*. (2019: 238-239), e-procurement has benefits such as transparency and accountability. Maddi *et al.* (2013: 5) stated that the adoption of e-procurement has benefits such as transparency through enhanced communication. Transparency was identified by the participants as a benefit of the application of e-procurement (Section 4.3.4.3). The participants described that the application of e-procurement will improve communication between and within organisations, and enable the follow-up on, monitoring and tracking of the status of tenders. As described by the participants, this increases transparency and communication of the procurement processes. Transparency as a benefit of e-procurement is linked to communication (Section 5.3.2.2) as a development in public procurement over time.

5.3.4.4 Environmental friendliness

The State Government of Victoria (2023: 1) notes that procurement has some level of impact on the environment which occurs before a good or service is procured, for example, resource extraction, design development, manufacturing, packaging and distribution, transportation, and storage. Dhouibi, Cerruti and Desponts (2023: 1) add that e-procurement is eco-friendly, supports climate change mitigation, and can drive demand for sustainable products and services, and create a market for different 'green' solutions. There is a need to consider the environmental impacts at the front end of the procurement process across the latter stages (State Government of Victoria, 2023: 1). Traditional procurement is paper-based, and it consequently affects the environment negatively through the cutting down of trees for producing paper. On the other hand, e-procurement promotes environmental friendliness by means of IT-related methods of procurement which have a less dependence on paper (Parida *et al,* 2006: 2). The participants identified environmental friendliness as a benefit of the application of e-procurement (Section 4.3.4.4). As described by the participants, the world is going green and the application of e-procurement save trees by eliminating the manual and traditional methods of procurement which are paper-based, to using electronic methods which use less or eliminates the use of paper altogether.

5.3.4.5 Cost effective

Organisations which use e-procurement, according to Chikwe *et al*. (2016: 40), have cost advantages, including price reduction in tendering, lower administration costs, reduction in procurement staff, and reduced operating and inventory costs. Ofori and Fuseini (2020: 21-22) also concur that e-procurement has reduced transaction costs. Cost effective was identified by the participants as a benefit of e-procurement (Section 4.3.4.5) as the transition to e-procurement will eliminate costs related to paper, printing and filing, and will also reduce labour, as most processes will be done electronically. This means that organisations will achieve optimum productivity at a reduced cost.

The participants described that the application of e-procurement will save the suppliers money.

Conclusion: Primary data and literature indicated that using e-procurement is cost effective, convenient and efficient, reduces human intervention, increases transparency, ensures environmental sustainability, combats corruption, foster competition, improves information management, improves communication, increases supplier base and ensures faster cycle times

Recommendation: Based on the above conclusion, the following recommendation for South African government departments is made:

- *Government departments should endeavour to move parts of their procurement processes to electronic platforms if they cannot implement an integrated e-procurement system to profit from some of the advantages attached to e-procurement by reducing costs, improve productivity, decrease the chances for corruption, improving communication, ensuring environmental sustainability, expanding supplier databases, and achieving speedier lead times.*

5.3.5 Secondary research objective 4

To determine the limitations of using manual procurement

According to Addo (2019), procurement of products and services through a manual method has been heavily criticised throughout the years, with bad experiences outnumbering positive practices. Some of these criticisms include that the procurement process is too cumbersome, expensive, has the possibility of tampering with tender files, delays in finalisation of tenders, human interface at every stage and a lack of transparency. To gain insights into the participants' view of the disadvantages of using manual procurement, the interviewer asked an open-ended question which presented the participants with an opportunity to freely respond on their experiences at the GPAA as far as limitations of manual procurement are concerned. The participants outlined that using manual procurement is time consuming (Section 4.3.5.1); costly (Section 4.3.5.2); can compromise the quality of work (Section 4.3.5.3);

can increase cases of fraud and corruption (Section 4.3.5.4); and problems with storage of documents (Section 4.3.5.5).

5.3.5.1 Time consuming

Addo (2019) stated that some of the criticism of manual procurement process is that the process is too cumbersomeand cause delays in finalisation of tenders. The participants stated that conducting procurement processes manually is time consuming and it can cause delays in finalisation of tender processes (Section 4.3.5.1).

5.3.5.2 Costly process

Manual procurement process is expensive (Addo, 2019). The participants identified cost as the disadvantage of conducting processes manually and they regard it as not cost effective in terms of value for money (Section 4.3.5.2).

5.3.5.3 Quality of work

Manual procurement process involves human interface at every stage (Addo, 2019). Manual processing of procurement transactions lead to fragmented procurement data and of insufficient quality (IMF, 2023: 18-21). The participants stated that when conducting procurement processes manually the quality of work is compromised, the process is prone to mistakes, human error can occur as a result of human intervention (Section 4.3.5.3).

5.3.5.4 Fraud and corruption

According to Chania and Demetrashvili (2017) tendering processes conducted on basis of paper documents or manually led to lack of transparency, restricted competition and high risk of corruption. The IMF concurs, indicating that the manual

processing of procurement transactions lead to fragmented procurement data and insufficient transparency which facilitates corruption (IMF, 2023: 18-21).The participants also stated that conducting procurement processes manually can lead to corruption, exclusion of suppliers during evaluation processes and huge risk of tampering with documents (Section 4.3.5.4).

5.3.5.5 Storage of documents

Githinji and Were (2018) stated that factors such as record management, long documentation processes and questionable filling system plus lack of proper procurement plan and inefficient post award contract execution are other shortcomings associated with traditional procurement. The participants identified storage space of documents as the disadvantage of conducting processes manually. In addition, they stated that files with critical information can be lost and misplaced (Section 4.3.5.5).

Conclusion: Primary data and literature indicated that the manual/traditional procurement is time consuming, it's a costly process, it compromises quality of work, exposed to fraud and corruption and storage space for documents.

Recommendation: Based on the above conclusion, the following recommendation for South African government departments is made: -

- *Government departments should endeavour to move parts of their procurment processes to electronic platforms if they cannot implement an integrated e-procurement system to avoid the disadvantages attached to manual procurement such as time waste, high costs, compromised quality of work, fraud and corruption and storage of documents.*

5.3.6 Secondary research objective 5

To examine the requirements/critical success factors for the transition from a manual to electronic procurement

The requirements for the transition from manual to electronic procurement may be referred to as the critical success factors which are also conceptualised as the

resources that provide enabling and facilitating conditions for successful implementation and adoption of any system (Ofori & Fuseini, 2020: 23). The full introduction and use of e-procurement requires full stakeholder engagement and participation and large amounts of investment in technological infrastructure and human resource capital (Molepo & Jahed, 2022). Maepa *et al*. (2023) further stated that technology and organisation's finance among others are the factors that will aid in effective planning of government departments regarding e-procurement readiness. To gain insights into the views of the participants with regard to the requirements for the transition from manual to electronic procurement, the interviewer asked an open-ended question which presented the participants with an opportunity to freely respond on their experiences, insights and views regarding the requirements at GPAA and in the public procurement sector in general. The participants identified the requirements as: procurement authorisation/approval (Section 4.3.6.1); system centralisation (Section 4.3.6.2); investment (Section 4.3.5.3); system integration (Section 4.3.6.4); support (Section 4.3.6.5); and engagements (Section 4.3.6.6).

5.3.6.1 Procurement authorisation/approval

Ofori and Fuseini (2020: 23-25) advance that the key elements for effective e-procurement adoption include proper authority from the government and/or the National Treasury to purchase an e-procurement system. Mose *et al*. 2013 concur, indicating that the most important success criteria for e-procurement is obtaining authorisation or approval for the procurement of the system. The participants identified authorisation or approval for the procurement of the system as a requirement for the transition from manual to electronic procurement (Section 4.3.6.1). Some of the participants contend that the government should authorise the GPAA to procure a system based on their unique needs. The approval will enable the GPAA to roll out the system, and to transition from manual to electronic procurement.

5.3.6.2 System centralisation

According to a study conducted by Prasetyo (2019), one of the critical success factors for e-procurement implementation is change management, which entails that the organisation takes a centralised approach to procurement, where one department is responsible for overseeing and driving the adoption of electronic procurement across the organisations. The IMF (2023: 28) notes that opportunities to centralise procurement in the South African public sector should be further explored to leverage developing the system, such as by reducing the number of contracting authorities through the creation of central purchasing bodies (CPBs) which are tasked with the control of the system. This can be done by requiring the entities to meet the minimum standards to be allowed to execute e-procurement. System centralisation was identified by the participants as a requirement for the transition from manual to electronic procurement (Section 4.3.6.2). The participants contend that the e-procurement system should be 'owned' by the National Treasury, and it should be centralised to ensure that all government departments use the system. As described by the participants, organisations should be instructed to migrate from manual to e-procurement which leaves them with no choice but to comply; this will enable the successful transition from manual to electronic procurement throughout the public sector.

5.3.6.3 Investment in resources

Ofori and Fuseini (2020:23-25) stated that the transition from manual to electronic procurement requires the availability of a needed IT technology, skilled e-procurement personnel, and internet connectivity. Mose *et al*., 2013 and Prasetyo (2019) contend that education and training for the staff, including the users and buyers, is an equally essential investment. Training and capacity building of the staff in procurement practices is a critical success factor for e-procurement adoption (Obat, 2016: 19). Molepo and Jahed (2022) also stated that the full introduction and use of e-procurement requires full stakeholder engagement and participation and large amounts of investment in technological infrastructure and human resource capital. Maepa *et al*. (2023) further indicated that technology and the organisation's finance

among others are the factors that will aid in effective planning of government departments regarding e-procurement readiness. The participants identified the investment in resources as a requirement for the transition from manual to electronic procurement (Section 4.3.6.3). The participants described that investing in staff training, a budget, data security, systems, equipment, and software programmes is a requirement that will ensure the successful transition from manual to electronic procurement. This requirement is associated with other requirements such as support (4.3.2.5).

5.3.6.4 System integration

According to Premathilaka and Fernando (2018: 356), an e-procurement system should be compatible with existing information technology infrastructure. Ofori and Fuseini (2020: 23-25) add that the integration of the organisation's systems and processes will enable the successful transition from manual to electronic procurement. System integration was identified by the participants as a requirement for the transition from manual to electronic procurement (Section 4.3.6.4). Some participants contend that system integration links all the procurement sub-processes together, which is necessary for the transition from manual to electronic procurement.

5.3.6.5 Top management support

Senior management involvement is a requirement for the successful transition from manual to electronic procurement (Ofori & Fuseini, 2020: 23-25). According to Premathilaka and Fernando (2018: 356), e-procurement adoption requires the senior management to define goals and create policies. The participants identified top management support as a requirement for the transition from manual to electronic procurement (Section 4.3.6.5). The support from all staff, especially from the senior level management and ICT specialists is required for the transition from manual to electronic procurement. This requirement is associated with other requirements such as investment in resources (Section 4.3.6.3).

5.3.6.6 Stakeholder engagement

Mathenge and Wausi (2018: 9) noted that supplier support is essential in the adoption of e-procurement, as an organisation should have flawless communication with its business partners and suppliers. Further, competent and capable suppliers, early supplier involvement, buyers' trust in the system, and skilled e-procurement personnel are relevant stakeholder engagements which enable the successful transition of organisations to e-procurement (Mose *et al*., 2013; Prasetyo, 2019; Ofori & Fuseini, 2020: 23-25). Molepo and Jahed (2022) also stated that the full introduction and use of e-procurement requires full stakeholder engagement and participation and large amounts of investment in technological infrastructure and human resource capital. Stakeholder engagement was identified by the participants as a requirement for the transition from manual to electronic procurement (Section 4.3.5.6). Engagements with suppliers, trade unions, the National Treasury, and other government institutions are required for the transition from manual to electronic procurement. This is associated with other requirements such as top management support (Section 4.3.6.5).

Conclusion: Findings from primary data and literature indicated that authorisation/approval to purchase the system, system centralisation, investment in resources, top management support, system integration, stakeholder engagement and ICT infrastructure are requirements for a successful transition from manual to e-procurement implementation.

Recommendation: Based on the above conclusion, the following recommendations for South African government departments are made: -

- *National Treasury should be open to either authorise departments to purchase their own e-procurement systems to meet their needs, or provide a generic integrated system that all governement departments can implement.*
- *Government departments should budget to invest in ICT infrastructure, trainings and resources for the transition to e-procurements adoption.*
- *Government departments should prepare to have stakeholder engagements (engagements with staff, suppliers) in advance of the adoption of e-procurement*

- *Top management should support the e-procurement adoption initiatives and ensure there are resources available such as for ICT infrastructure, systems and human resources development.*
- *Government institutions should work towards modernising and integrating existing systems*.

5.3.7 Secondary research objective 6

To determine the areas of e-procurement where GPAA is still lagging

To gain insights into the areas of procurement which are still lagging, the interviewer asked an open-ended question which presented the participants with an opportunity to freely respond on their experiences, insights and views regarding the areas of e-procurement which are still lagging at GPAA. The participants identified the areas or sub-processes where GPAA is still lagging. These are: the sending, receiving and evaluating of tender documents and quotations (Section 4.3.7.1); purchase requisitions (Section 4.3.7.2); compiling specifications (Section 4.2.7.3); management of suppliers (Section 4.3.7.4); and all areas (Section 4.3.7.5).

5.3.7.1 Sending, receiving and evaluating tenders and quotations

The participants identified the sending, receiving and evaluating of tender documents and quotations as an area of procurement which is still lagging at GPAA (Section 4.3.7.1). They contend that the sending of requests for information, tenders or quotations, and the receiving of the information or tender documents and certificates, and the evaluation of the RFIs or tenders and quotations is done manually.

5.376.2 Purchase requisitions

Purchase requisitions was identified by the participants as an area which is still lagging at GPAA (Section 4.3.7.2). Some participants contend that purchase requisitions for some ad hoc purchases such as stationery and refreshments is still done manually.

5.3.7.3 Compiling and submission of specifications

Some participants identified compiling specifications as an area which is still lagging at GPAA (Section 4.3.3). The participants contend that the compilation and submission of specifications in the bid specification committee is done manually.

5.3.7.4 Management of suppliers

The management of suppliers was identified by the participants as an area which is still lagging at GPAA (Section 4.3.7.4). As described by the participants, sourcing suppliers, appointing a service provider, and contract management is done manually.

5.3.7.5 All areas

Some participants identified all areas of procurement as still lagging (Section 4.3.7.5). The participants described that the bulk of the work or all processes of procurement are still done manually, except for the use of e-mails for communication.

Conclusion: Findings from primary data indicated that compilation and submission of specification, sending, receiving and evaluation of tenders, compiling purchase requisitions, management of suppliers are done manually. Data also indicated that all areas are done manually since there is no single system used to ensure procurement processes are done online.

Recommendation: Based on the above conclusion, the following recommendation for GPAA and other South African government departments is made:

- *GPAA and other government departments should endeavour to move parts of their procurment processes to electronic platforms if they cannot implement an integrated e-procurement system, by including some of the procurement processes such as compilation and submission of specification, sending, receiving and evaluation of tenders, compiling purchase requisitions, management of suppliers.*

5.4 Answering the main research question

The aim of the study was to explore the barriers to the full implementation of e-procurement at GPAA. To achieve this, the research question which needed to be answered was: '*What are the barriers to the full implementation of e-procurement in the public sector, specifically at GPAA?'* Figure 5.1 illustrates the answer to the main question and the primary objective, and it provides a summary of the findings in this study.

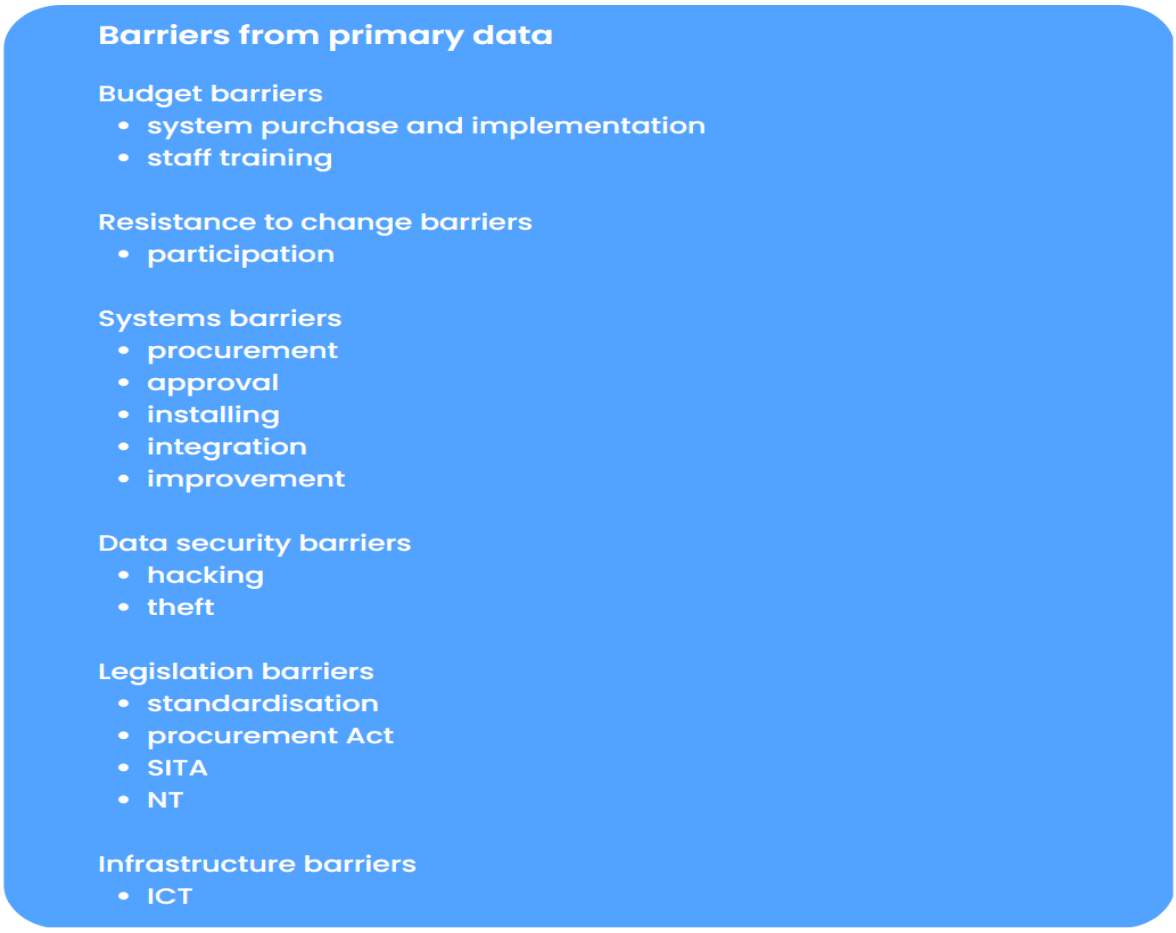


Figure 5.1: Answer and summary of the findings to the main question (Source: Researcher 2024)

5.5 Overall finding

An overall finding that can be made is that GPAA and other government departments are stifled by the National Treasury to acquire their own e-procurment systems. It is believed that National Treasury plans to invest in an integrated system that can be used by all governemnt institutions. However, there is no visible progress in this regard. It must be acknowledged that public procurement is highly decentralised and that many public institutions follow a variety of their own processes. If there is seriousness about efficient, value for money, fraud and corruption free public procurement, the sourcing for a integrated system for e-procurement must be persued with urgency by National Treasure and SITA, and the necessary resources needed to be made available to this national project. However, GPAA and other government departments should start to move parts of their procurment processes to electronic platforms if they cannot implement a fully integrated e-procurement system. In this way they can benefit from some of the advantages attached to e-procurement. They need to make the decision, plan and budget for it.

5.6 Limitations of the study

The empirical part of the study focused on one public institution; hence the results of the study cannot be generalised to the entire public sector, however the findings of qualitative studies may be transferable and this findings might be a reflection of the situation in other public agencies and institutions. The study was also limited to the participants view of the advantages and requirements of e-procurement in general and the barriers that hinders the implementation of e-procurment in GPAA and in which areas the agency is lagging behind. One of the most notable limitations of the study is that the researcher did not obtain adequate in-depth data on some of the research questions, and this might have been a result of the lack of insights and knowledge from some participants, nervousness, the lack of understanding on some questions, or the lack of adequate and/or correct probing questions by the researcher.

5.7 Further research ideas

During the field work, various issues were raised regarding the implementation of e-procurement in the public sector, which mig ht justify further reasearch efforts. These are:

- Employee readiness for e-procurement systems;
- Governance and management structure influencing the decision-making for the implementation of e-procurement;
- Data security threats in the implementation of e-procurement;
- Legislation for the implementation of e-procurement.

Therefore, possible further research opportunities exist on the implementation of e-procurement in the public sector. For a wider perspective on the implementation of e-procurement in the public sector in South Africa, this study can be conducted in other public institutions.

References

Abu-Taieh, E., El Mouatasim, A. & Al Hadid, I. 2020. Research design and methodology (Cyberspace).

Addison, D. 2016. Implementation and adoption of e-procurement in Ghana public sector: The way forward. Unpublished MA dissertation. Nkwame Nkrumah University of Technology, Ghana.

Addo, S.K. 2019. Challenges of e-procurement adoption in the Ghana public sector: a survey of the ministry of finance. *Scholarly Journal of Arts and Humanities,* 1(7): 44-80.

Adeniran, A & Raifu, I., A. 2024. Public Procurement in Nigeria: How to reform the unreformable. Africa in Focus. Accessible on https://www.brookings.edu/articles/public-procurement-in-nigeria-how-to-reform-the-unreformable/

Aduwo, E.B., Ibem, E.O., Uwokanye, O., Tunji-Olayeni, P. & Ayu-Vuaghan, E.K. 2016. Barriers to the uptake of e-procurement in the Nigerian building industry. *Journal of Theoretical and Applied Information Technology*, 89(1): 133-147.

Afolabi, A.O., Oyeyipo, O., Ojelabi, R.A. & Tunji-Olayeni, P.F. 2017. E-maturity of construction stakeholders for a web-based e-procurement platform in the construction industry. *International Journal of Civil Engineering and Technology,* 8(12): 465-482.

Ahmad, H. 2020. Definitions of Communication. Available at: http://dx.doi.org/10.13140/RG.2.2.24378.00967 [Accessed: 09 September 2023].

Ajayi, V. O. 2017. Primary sources of data and secondary sources of data. Available at: https://doi.org/10.13140/RG.2.2.24292.68481 [Accessed: 10 June 2022].

Alhojailan, M.I. 2012. Thematic analysis: a critical review of its processes and evaluation. *West East Journal of Social Sciences*, 1(1):39-47

Ambe, I.M. & Badernhorst-Weiss, J.A. 2012. Procurement challenges in the public sector. *Journal of Transport and Supply Chain Management*, 6(1):242-261.

Ambe, I.M. 2016. Public procurements trends and developments in South Africa. *Journal of Business and Management*, 3(4): 277-290.

Anderson, C. 2011. Presenting and Evaluating Qualitative Research*. American Journal for Pharmacy Education. 74(8): 141. doi: 10.5688/aj7408141*

Anthony, A. 2018. The use of e-procurement in South African public procurement law: Challenges and prospects. *Journal of UWC Faculty of Law,* 20(Special issue): 39-47.

Archaya, A., Prakash, A. & Nigam, A. (2013). Sampling: Why and How of it. *Indian Journal of Medical Specialties*, 4(2): 330-333.

Bakar, N.A., Peszynski, K., Azizan, N., Pandiyan, V. & Sundram, K. 2016. Abridgement of traditional procurement and e-procurement: Definitions, tools and benefits. *Journal of Emerging Economies and Islamic Research,* 4(1):74-91.

Barrett, D. & Twycross, A. 2018. Data collection in qualitative research. *Evidence-Based Nursing,* 21(3): 63-64. doi: 10.1136/eb-2018-102939.

Bialas, C., Manthou, V. & Stefanou, C. 2016. Benefits and barriers of e-sourcing and e-purchasing in healthcare sector: A case study. In P. Papajorgji, F. Pinet, A.M. Guimaraes, J. Papathanasiou. *Automated Enterprise System for Maximizing Business Performance*. IGI Global, 71-87.

Blanche, M., Durrheim, K. & Painter, D. 2006. Collecting qualitative data: Sampling and measuring. Unpublished thesis. Western Cape: Stellenbosch University.

Blumberg, B., Cooper, D. and Schindler, P., 2014. *EBOOK: Business research methods*. McGraw Hill.

Boafo, N.D., Ahudey, E. and Darteh, A.O., 2020. Evaluating E-procurement impact in the public sector. *Archives of Business Research, 8(5). 235-247.*

Bolton, P. 2007. *The law of government procurement in South Africa.* Durban: LexisNexis.

Braun, V. & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3 (2): 77-101. Available at: http://eprints.uwe.ac.uk/11735. [Accessed: 24 July 2022.

Brunette, M. 2014. *How the state buys: Public procurement in South Africa.* Public Affairs Research Institute. Available at: www.pari.org.za/ [Accessed: 02 June 2022].

Brunette, R. & Klaaren, J. 2020. *Position paper on reform in public procurement in South Africa*. Johannesburg: Public Affairs Research Institute.

Brunette, R., Klaaren, J. & Nqaba, P. 2019. Reform in the contract state: Embedded directions in public procurement regulation in South Africa. *Development Southern Africa,* 36(4): 537–554.

Byrne, R.M., Evans, J.S.B. and Newstead, S.E. (2019) *Human reasoning: the psychology of deduction*. London: Psychology Press.

Chania, A. and Demetrashvili, K., 2017. Public procurement reform in Georgia: The way from paper-based procurement to an e-procurement system. In *Digital Governance and E-Government Principles Applied to Public Procurement* (pp. 151-169). IGI Global.

Chen, Y., Bretschneider, S., Stritch, J.M., Darnall, N. and Hsueh, L., 2022. E-procurement system adoption in local governments: the role of procurement complexity and organizational structure. *Public Management Review*, *24*(6), pp.903-925.

Chikwe, G. C., Dapper, E.M., & Obi, C. 2016. Rethinking public procurement system in Nigeria: The e-procurement option. *International Journal of Business Marketing and Management,* 1(1): 37-48.

Chimtengo, S.A., Hanif, R. & Mvonye, C. 2016. Factors hindering the adoption of electronic procurement system in the public sector organisation in Malawi.

The Strategic Journal of Business and Change Management, 3(4): 1544-1554.

Chartered Institute of Purchasing and Supply (CIPS). (2024a) *What is Procurement?* Available at https://www.cips.org/cips-forindividuals/what-is-procurement/0.[Accessed 10 May 2024]

Comte, A. (2020). *A General View of Positivism.* (n.p.): Lulu.com.

Constitution of the Republic of South Africa. 1996*. Constitution of the Republic of South Africa.* South Africa: South African Government.

Creswell, J.W. & Creswell, J.D. 2018. *Research design: Qualitative, quantitative, and mixed methods approaches.* Los Angeles: SAGE.

Creswell, J. W., Plano Clark, V. L. (2017). *Designing and Conducting Mixed Methods Research*. SAGE Publications: United States.

Creswell, J.W and Poth, C.N. 2024. *Qualitative Enquiry and Research Design: Choosing Among Five Approaches*. 5th Edition. SAGE Publications.

Creswell, S. 2020. *Information System in Public Financial Management. South Africa's Financial Management Information Architecture: Workable transversal system or outdated legacy system*. Available at https://www.cabri-sbo.org/uploads/files/Documents/FMIS-SA-INFORMATION-ARCHITECTURE_ENGLISH_Final.pdf. [Accessed: 27 July 2023].

Denzin, N., K. and Lincoln, Y., S. 2018. *The SAGE Handbook of Qualitative Research.* 5th Edition. SAGE Publications Ltd. London, United Kingdom.

Davey, J. & Gatenby, A. 2017. *The government procurement review.* 5th Edition. UK: The Law Reviews.

De Vos, A.S., Strydom, H., Fouché, C.B. & Delport, C.S.L. (Eds.). 2011. *Research at grass roots. To the social sciences and human service professions*, 4th Edition. Pretoria: Van Schaik, 397-423.

Dhawan, S. (2014). Information and Data Security, concepts, integration, limitations and future. *International Journal of Advanced Information Science and Technology.* Vol 1(2).

Dhouibi, W., Cerruti, C. and Desponts, C. (2023). Greening the Moroccan economy through e-procurement. Available at https://blogs.worldbank.org/arabvoices/greening-moroccan-economy-through-e-procurement . [Accessed: 27 July 2023].

Easterby-Smith, M., Jaspersen, L., Thorpe, R. & Validaze, D. 2021. *Management and Business Research*. 7th Edition. London: SAGE.

Elhassan Gadour, M.M. 2024. Corruption in public procurement: Can e-procurement and artificial intelligence make a difference in Africa?. *QScience Connect*, *2024*(1), p.2.

Elsayed, A. M., & Almahri, A. M. (2023). Developing Mathematics Achievement and Inductive Reasoning: A Proposed Technique According to Brain Compatible Learning Theory. *Journal of Higher Education Theory and Practice*, *23*(17). https://doi.org/10.33423/jhetp.v23i17.6537

Engel, R.J. and Schutt, R.K., 2014. *Fundamentals of social work research*. Sage Publications.

Eriksson, P. & Kovalainen, A. 2008. *Qualitative methods in business research*. London: SAGE Publications Ltd.

Ernest, E. 2022. Determinants of e-procurement adoption by institutions in Kenya and Tanzania during Covid-19 era. *Journal of Engineering and Technology for Industrial Applications.* Vol. 8; Paper no.37.

Etikan, I. & Bala, K. 2017. Sampling and sampling methods. *Biometrics and Biostatistics International Journal,* 5(6): 215-217.

Farhan, R. 2019. Understanding postmodernism: Philosophy and culture of post modernism. *International Journal of Social Sciences and Education,* 2(4): 22-31.

Fatonah, S., Yulandari, A. & Wibowo, F. 2018. A review of e-payment system in e-commerce. *Journal of Physics: Conference Series*, 1140(012033).

Ferreira, I. & Amaral, L.A. 2016. *Public e-procurement: Advantages, limitations and technological "pitfalls": Proceedings of the 9th International Conference on Theory and Practice of Electronic Governance.* Montevideo, 15-16 March 2016.

Finlay, L. 2021. Thematic analysis: The 'good', the 'bad' and the 'ugly'. *European Journal for Qualitative Research in Physiotherapy*, 11:103-116. Available at: https://ejqrp.org/index.php/ejqrp/article/view/136. [Accessed: 27 July 2022].

Fourie, D. & Malan, C. 2020. Public procurement in the South African economy: Addressing the systemic issues. *Sustainability,* 12(20): 8692.

Gasco, M., Cucciniello, M., Nasi, G. & Yuan, Q. 2018. *Determinants and barriers of e-procurement: A European comparison of public sector experiences. 51st Hawaii International Conference on System Sciences,* 2342-2351.

Government Pensions Administration Agency. 2018/2019. *2018/2019 Annual Report.* Pretoria. GPAA.

Government Pensions Administration Agency. 2021/2022. *2021/2022 Supply Chain Management Policy.* Pretoria. GPAA.

Government Pensions Administration Agency. 2021/2022. *2021/2022 SCM Standard Operating Procedure.* Pretoria. GPAA.

Gray, J.R., Grove, S.K. and Sutherland, S., 2017. *The practice of nursing research*. Eighth Edition. St Louis, Missouri: Elsevier.

Grey, D. 2014. *Doing research in real world*. 3rd Edition. London: Sage Publications.

Grove, S.K. and Gray, J.R., 2018. *Understanding nursing research e-book: Building an evidence-based practice*. Elsevier health sciences.

Gulwa, P. 2017. *E-procurement on international perspective*. Smart Procurement Review.

Gutterman, A.S. 2018. Stakeholder Engagement. *The Sustainable Entrepreneurship Project* (seproject.org)

Githinji, R.M. and Were, S., 2018. Challenges of implementing e-procurement in the ministry of transport, infrastructure, housing and urban development in Nairobi, Kenya. *Journal of Procurement & Supply Chain*, *2*(1), pp.1-13.

Hendricks, C.J. 2012. Integrated Financial Management Information Systems: Guidelines for effective implementation by the public sector of South Africa*. South African Journal of Information Management*, 14(1). Available at: http://dx.doi.org/10.4102/sajim.v14i1.529 [Accessed: 10 June 2023]

Hennink, M., Hutter, I. and Bailey, A., 2020. *Qualitative research methods*. Sage.

IDFI (Institute for Development of Freedom of Information) 2018. Public procurement recommendations for the Republic of Malawi. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://hivos.org/assets/2021/02/Malawi-Brief-on-Public-Procurement.pdf

IIhan, N. & Rahim, M. 2020. Understanding digital transformation of procurement systems and implementation: Business partner relationship perspective. In K. Sandhu. *Leadership, Management, and Adoption Techniques for Digital Service Innovation.* USA: IGI Global.

Ilker, E., Sulaiman, A.M. & Rukayya, S. A. 2016. Comparison and convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics,* 5(1): 1-4.

International Monetary Fund (IMF). 2023. Public procurement in South Africa: Issues and reform options. Available at: https://www.elibrary.imf.org/view/journals/002/2023/195/article-A002-en.xml. [Accessed: 20 July 2023].

Jackson, S.L. 2016*. Research Methods and Statistics: A Critical Thinking Approach.* (2016). Australia: Cengage Learning.

Jason, L.A. & Glenwick, D.S (eds). 2016. *Handbook of methodological approaches to community-based research: Qualitative, quantitative, and mixed methods.* New York: Oxford University Press.

Javadi, M. & Zarea, K. 2016. Understanding thematic analysis and its pitfall. *Journal of Client Care,* 1(1):34-40.

Jones, I. 2015. *Research methods for sports studies*. 3rd Edition. New York: Routeledge.

Jules, J.S. 2022. Effect of E-Procurement Adoption on the Procurement in the Public Institutions in Rwanda. *Social Science Learning Education Journal*, *7*(12).

Kabanda, S., Pitso, N. & Kapepo, M. 2019. The role of institutional pressures in the adoption of e-procurement in public institutions in developing countries: The case of Lesotho. *The African Journal of Information Systems*, 11(3):5.

Kabir, S.M.S. 2016. *Basic guidelines for research: An introductory approach for all disciplines.* Chittagong: Book Zone Publication.

Kanyambo, M. 2017. Challenges affecting the implementation of e-procurement in Malawi public sector: The case of Malawi Housing Corporation, Lilongwe City Council, Kamuzu Central Hospital, Immigration Department and Malawi Defence Force. Unpublished MA dissertation. England: University of Bolton.

Kiger, M. & Varpio, L. 2020. Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical Teacher*, 42:1-9. Available at: https://doi.org/10.1080/0142159X.2020.1755030 [Accessed: 29 July 2023]

Kithatu-Kiwekete, A. and Vyas-Doorgapersad, S. 2020. E-Procurement within the City of Johannesburg Metropolitan Municipality, South Africa: A gendered perspective1. *Trends in eBusiness and eGovernment p.43*.

Korstjens, I. & Moser, A. 2018. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1):120-124.

Kramer, G. 2016. Electronic public procurement as a tool of reform in South Africa. *African Public Procurement Law Journal*, 3(1): 1-40.

Kusi, B., Antwi, H.A., Nani, G., Mensah, S.O. & Akomeah, M.O. 2016. Exogenous and endogenous factors in e-procurement adoption among Ghanaian hospitals: A co-integration analysis. *International Journal of Scientific Research in Science, Engineering and Technology,* 2(6): 630-640.

Kweyama, Y., Masiya, T., & Lubinga, S. (2023). Factors influencing the usage of e-procurement in the South African Navy. *Multidisciplinary Science Journal*, *6*(3), 2024025. https://doi.org/10.31893/multiscience.2024025Land and Agricultural Bank. 2020. *Land and Agricultural Bank of South Africa 2018/19 Annual Report & 2019/20 corporate plan*. KwaZulu Natal: Parliamentary Monitoring Group.

Langbauer, E. (2019). Factors influencing the Legacy Systems. Institute for Business Infomatics - Information Engineering. Johannes Kepler University LINZ.

Laopodis, N. (2020). *Understanding Investments: Theories and Strategies.* 2nd Edition. Routledge (Taylor and Francis Group). London. New York.

Laryea, S. & Ibem, E.O. 2014. Patterns of technological innovation in the use of e-procurement in construction. *Journal of Information Technology in Construction,* 19(6): 104-125.

Laryea, S. & Ibem, E. 2015. E-procurement use in South African construction industry. *Journal of Information Technology in Construction,* 20(1): 364-384.

Laryea, S., Ibem, E., Pagiwa, R. & Phoi, R. 2014. *Electronic procurement in the South African construction sector: The case of two government departments in Gauteng: Proceedings of the conference on Infrastructure and Investments in Africa,* Livingstone, 25-26 September 2014. Livingstone: DII.

Leavy, P., 2022. *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guilford Publications.

Leedy, P. D., and Ormrod, J. E. 2021. *Practical Research: Planning and Design*. 12th Edition. Pearson Education Limited. United Kingdom.

Lohr, S.L., 2021. *Sampling: design and analysis*. Chapman and Hall/CRC..

Lysons, K. and Farrington, B. 2020. *Procurement and supply chain management*. Pearson UK.

Maddi, M., Davis, P. & Geragthy, J. 2013. *Implementing e-procurement strategy in the public sector: A case study from Libya: Conference on IAM.* Waterford Ireland.

Maepa, D.N., Mpwanya, M.F. and Phume, T.B. 2023. Readiness factors affecting e-procurement in South African government departments. *Journal of Transport and Supply Chain Management*, *17*, p.874.

Maguire, M. & Delahunt, B. 2017. Doing a thematic analysis: A step-by-step guide for learning and teaching scholars. *All Ireland Journal of Teaching and Learning in Higher Educatio*n, 9(3).

Majid, U. 2018. Research fundamentals: Study design, population, and sample size. *Undergraduate Research in Natural and Clinical Sciences and Technology Journal*, 2(1). Available at: https://doi.org/10.26685/urncst.16. [Accessed: 22 July 2022].

Mak, J. 2014. *What is procurement?* Ontario: RFP Solutions, Inc.

Manyathi, S. 2019. The influence of procurement practices on service delivery: An analysis of government legislation – service delivery relationships in South Africa. Doctoral thesis. Stellenbosch: University of Stellenbosch.

Maryan, A. 2022. *Achieving Greater Efficiency in Public Expenditure: Using Procurement. Public Procurement Authority. 06 April 2022*. Accessible on https://ppa.gov.gh/implementation-of-the-ghanas-electronic-procurement-system-ghaneps/

Masudin, I., Aprilia, G.D., Nugraha, A. and Restuputri, D.P. 2021. Impact of e-procurement adoption on company performance: Evidence from Indonesian

manufacturing industry. *Logistics*, 5(16). https://doi.org/10.3390/logistics5010016

Mathenge, M.M. & Wausi, A. 2018. Critical factors for successful the implementation of e-procurement in Kenyan public sector. *Current Journal of Applied Sciences and Technology,* 29(4): 1-23.

Mauthner, N.S., 2020. Research philosophies and why they matter. In *How to Keep your Doctorate on Track* (pp. 76-86). Edward Elgar Publishing.

Merriam, S.B. and Tisdell, E.J., 2015. *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Minister of Finance, South Africa. 2015. *Budget Speech Report No. 10 of 2015.* Pretoria: National Treasury.

Ministry of Finance and Economic Development. 2013. Standardised procurement procedures. Public procurement procedures handbook. Available at: http://www.oas.org/juridico/PDFs/mesicic5_blz_resp_annex33.pdf [Accessed: 22 March 2023]

Mohamed, A. A (2019). Disaster, types of disasters and mitigation. Stamford University. Bangladesh.

Mohamed, A.F.R. & Amr, A. 2018. Research methodology in business: A starter's guide. *Management and Organizational Studies*, 5(1). Available at: https://doi.org/10.5430/mos.v5n1p1 [Accessed: 5 May 2023]

Mohungoo, I., Brown, I. and Kabanda, S. 2020. A systematic review of implementation challenges in public E-Procurement. In *Responsible Design, Implementation and Use of Information and Communication Technology: 19th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2020, Skukuza, South Africa, April 6–8, 2020, Proceedings, Part II 19* (pp. 46-58). Springer International Publishing.

Molepo, M. and Jahed, M.I. 2022. E-procurement as a monitoring tool to combat corruption in South Africa. *Administratio Publica*, *30*(4), pp.232-254.

Morledge, R., Smith, A. J. & Appiah, S.Y. 2021. *Building procurement.* 3rd Edition. UK: Willey Blackwell.

Mose, J.M., Njihia, J.M. & Magutu, P.O. 2013. The critical success factors and challenges in e-procurement among large scale manufacturing firms in Nairobi, Kenya. *European Scientific Journal*, 9(3): 357-401.

Mothibi, G.M. 2020. A framework for the implementation of e-procurement practices in the South African public sector (Doctoral dissertation, Vaal University of Technology).

Muhaise, H., Ejiri, A.H., Muwanga-Zake, J.W.F. and Kareyo, M., 2020. The research philosophy dilemma for postgraduate student researchers. *International Journal of Research and Scientific Innovation*, *7*(4), pp.2321-2705.

Mutuku, M. & Ndei, F. 2021. Electronic procurement and performance of non-government organizations in Kenya: Empirical evidence from Pathfinder International, Kenya. *Journal of Business Management and Sciences*, 9(2): 71-80.

Mweshi, G.K. & Sakyi, K. 2020. Application of sampling methods for research design. *Archives of Business Research*, 8(11): 180-193.

Nani, D.A. & Ali, S. 2020. Determinants of effective e-procurement system: Empirical evidence from Indonesian local governments. *Jurnal Dinamika Akuntansi dan Bisnis,* 7(1): 33-50.

National Treasury. 2003. *Policy strategy to guide uniformity in procurement reforms processes in government*. Pretoria: National Treasury.

National Treasury. 2015a. *Public Procurement Guidelines.* Pretoria: National Treasury. Available at: https://www.itcon.org/2015. [Accessed: 24 July 2022].

National Treasury. 2015b. *Public sector supply chain management review*. Pretoria. National Treasury.

National Treasury. 2016. *Public sector supply chain management review.* Pretoria: National Treasury.

National Treasury. 2023. *Public procurement bill*. Pretoria: National Treasury.

National Treasury. *SCM Instruction Note 01 of 2015/2016. Advertisement of bids and the publication of awards on e-tender publication portal.* Pretoria: National Treasury.

National Treasury. *SCM Instruction Note 02 of 2021/2022. Amendment of the procurement threshold values for goods and services procured by means of petty cash, written price quotations and competitive bids.* Pretoria: National Treasury.

National Treasury. *SCM Instruction Note 03 of 2014/2015. Tax compliance measures for persons conducting business with the State.* Pretoria: National Treasury.

National Treasury. *SCM Instruction Note 04 of 2016/2017. Minimum bid specifications requirements for travel and management services.* Pretoria: National Treasury.

National Treasury. *Instruction Note 05 of 2017/2018. Acquisition of Enterprise Resource Planning (ERP) type system that will potentially duplicate functionality provided by Integrated Financial Management System (IFMS).* Pretoria: National Treasury.

National Treasury. *SCM Instruction Note 09 of 2017/2018. Tax compliance status verification.* Pretoria: National Treasury.

Nawi, M.N.M., Deraman, R., Bamgbade, J.A., Zulhumadi, F. & Riazi, S.R.M. 2016. E-procurement in Malaysian construction industry: Benefits and challenges in implementation. *International Journal of Supply Chain Management,* 6(1): 209-213.

Obat, K.G. 2016. Critical success factors in the implementation of e-procurement in public entities in Kisimu Country, Kenya. Unpublished MBA dissertation. Nairobi: University of Nairobi.

OECD.2011. “Centralised purchasing systems in the European Union”, SIGMA Papers No. 47, OECD Publishing, Organization for Economic Co-operation and Development, April, available at http://dx.doi.org/10.1787/5kgkgqv703xw-en

OECD. 2015. Organisation for economic operation and development, fighting corruption in the public sector: Public procurement. Available at: http://www.oecd.org/gov/ethics/integrityinpublicprocurement.htm [Accessed: 10 June 2018).

OECD. 2022. Public procurement. Available at: https://www.oecd.org/gov/public-procurement/ [Accessed: 2 May 2023]

OECD iLibrary. 2023. Green public procurement strategies. Available at: https://www.oecd-ilibrary.org/governance/government-at-a-glance-2023_72447f84-en [Accessed: 10 February 2023]

Ofori, D. & Fuseini, O.I. 2020. Electronic government procurement adoption in Ghana: Critical success factors. *Advances in Research*, 21(3): 18-34.

Orwenjo, M.A. and Aila, F.O., 2018. Electronic procurement practices at Kenya power limited.

Panduranga, V. 2016. Transparency in public procurement through e-procurement in India*. Journal of Internet Banking and Commerce*, 21(3): 1-7..

Polit, D.F. & Beck, C.T. 2017. *Nursing research: Generating and assessing evidence for nursing practice.* 10th Edition. Philadelphia: Wolters Kluwer Health.

Pradhan, R.P., Mallik, G. & Bagchi, T.P. 2018. Information communication technology (ICT) infrastructure and economic growth: A causality evinced by cross-country panel data. *IIMB Management Review*, *30*(1): 91-103.

Pralat, E. 2019. Public e-procurement tools in European Union. Unpublished thesis. Poland: Wroclaw University of Science and Technology.

Prasetyo, A. 2019. Critical success factors of electronic procurement implementation in the Ministry of National Development Planning, Bappenas Republic of Indonesia. *The Indonesian Journal of Development Planning*, 3(1):122-142.

Premathilaka, K.M. & Fernando, R.L.S. 2018. *Critical success factors affecting e-procurement adoption in public sector organisation in Sri Lanka: 15th International Conference of Business Management,* 2018: 334-360.

Procurement Affilliation. (2023). Procurement Standardisation: Pros & Cons. Available at: https://www.procurement-affiliation.com/post/procurement-standardization. [Accessed: 2 September 2023]

Punch, K.F., 2013. *Introduction to social research: Quantitative and qualitative approaches.* 3rd Edition. SAGE Publications. London.

Quinlan, C., Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2018). *Business Research Methods* (2 ed.). London: Cengage Learning.

Raga, K. & Taylor, J.D. 2010. Legislative and administrative directives governing procurement procedures: A case study for South Africa. Available at: http://www.ippa.org/images/PROCEEDINGS/IPPC4/10LegalIssueInPublicProcurement/Paper10-7.pdf [Accessed: 10 July 2022].

Rahi, S. 2017. Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics and Management Sciences,* 6(2). doi: 10.4172/2162-6359.1000403..

Razzetti, E. A. (2019). System Integration: Enabling Capability Through Connectivity. Defence AT & L Magazine. November- December 2019. Available at: https://www.dau.edu/sites/default/files/Migrate/DATLFiles/Nov-Dec_2019/Razzetti.pdf [Accessed: 10 September 2023].

Robson, C., & McCartan, K. (2016). *Real World Research*, 4th Edition. London: Wiley.

Rohleder, P. & Lyons, A. 2015. *Qualitative research in clinical and health psychology.* New York: Bloomsbury Publishing.

Sahu, S. & Singh, T. 2016. *Research methodology*. Agra: SBPD Publications.

Saunders, M., Lewis, P. & Thornhill, A. 2019. *Research methods for business students*. 8th Edition. UK: Pearson Education Limited.

Saura, J.R. and Debasa, F. eds., 2022. *Handbook of Research on Artificial Intelligence in Government Practices and Processes*. IGI Global.

Saxena, D. 2019. The search for mechanisms in business research: Reflections on retroductive analysis in a multilevel critical realist case study. *The Electronic Journal of Business Research Methods,* 17(1): 17-27. Available at: www.ejbrm.com. [Accessed: 22 July 2022].

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, *128*, 13-35.

SCM Review. 2015. *Public sector supply chain management review*. Pretoria: National Treasury.

Sefotho, M. M. (2021). Research and Professional Practice. In C. B. Fouchè, H. Strydom, & W. J. H. Roestenburg (Eds.), Research at Grass Roots (5th ed., pp. 3-22). Van Schaik Publishers.

Sharma, G. 2017. Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7):749-752.

Shenton, A.K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22: 63-75. Available at: https://doi.org/10.3233/EFI-2004-22201. [Accessed: 20 July 2022].

Showkat, N. & Parveen, H. 2017. *Non-probability and probability sampling*. India: Aligarh Muslim University.

Shukla, A., Khan, M.A. & Shan, M. 2016. Literature review of adoption of e-procurement practices by construction industries. *AIMA Journal of Management and Research,* 10(2/4): 1-25.

Sitar, C.P. 2011. The barriers of implementing e-procurement. Studia Universitatis Vasile Goldis Arad, Seria Stiinte Economice. 2.

Smith, J. & Firth, J. 2011. Qualitative data analysis: The framework approach. *The International Journal of Research and Methodology in Nursing and Healthcare,* 18(2): 52-62.

State Government of Victoria. (2023). Environmental impact in procurement – goods and services procurement guide. https://www.buyingfor.vic.gov.au/environmental-impact-procurement-goods-and-services-procurement-guide

Speziale, H.S., Streubert, H.J. and Carpenter, D.R., 2011. *Qualitative research in nursing: Advancing the humanistic imperative*. Lippincott Williams & Wilkins.

Sylvia M. & Terhaar, M. 2018. *Clinical analytics and data management for the DNP*. 2nd Edition. New York: Springer Publishing Company.

Taherdoost, H. 2016. Sampling methods in research methodology: How to choose a sampling technique for research. *SSRN Electronic Journal,* 5:18-27. Available at: https://doi.org/10.2139/ssrn.3205035 [Accessed: 11 June 2022].

Thida, A. & Hlaing, A.T. 2019. Design and implementation of e-tendering system. *International Journal of Science and Engineering Applications*, 8(8): 320-324.

Thomas, O.O. and Lawal, O.R., 2020. Exploratory Research Design in Management Sciences: An X-Ray of Literature. *Annals of the University Dunarea de Jos of Galati: Fascicle: I, Economics & Applied Informatics*, *26*(2).

Tiwari, S.T.S., Chan, S.W., Ahmad, M.F. and Zaman, I., 2019. Application and implementation of E-procurement technologies in malaysian manufacturing firm. *Int J Supply Chain Manage*, 8, p.923.

.

Vaidya, K., Sajeev, A.S.M. & Callendar, G. 2006. Critical factors that influence e-procurement implementation success in the public sector. *Journal of public procurement*, 6(1/2): 70-99.

Verma, S., Bhattacharyya, S. S., & Kumar, S. (2018). An extension of the technology acceptance model in the big data analytics system implementation environment. *Information Processing & Management*, *54*(5), 791-806.

Vulekamali. 2022. A guide to procurement. Available at: https://procurement.vulekamali.gov.za/ [Accessed: 2 July 2023]

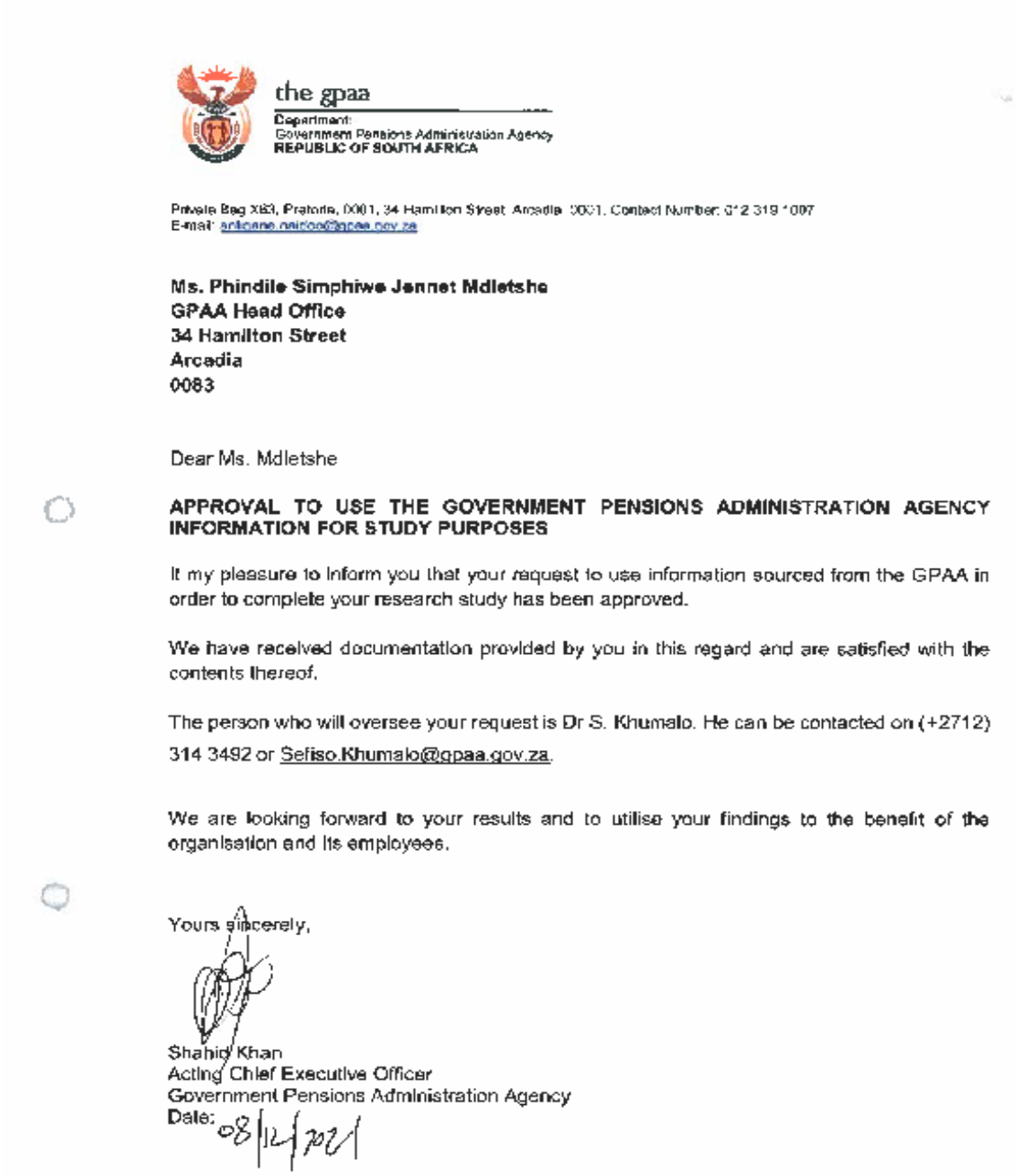
Watermeyer, R.B. 2011. *Regulating public procurement in Southern Africa through international and national standards. Public Procurement Regulation in Africa Conference*, Stellenbosch, 25 October. Available at: www.ippa.org/ippc4/proceedings/.../paper10-7_pdf [Accessed: 12 June 2022].

World Bank. 2020. Procurement for development. Available at: https://www.worldbank.org/en/topic/procurement-for-development [Accessed: 27 May 2023]

World Economic Forum. 2019. Transparency and tech together can safeguard taxpayers' money. Available at: https://www.weforum.org/agenda/2019/08/transparency-and-tech-together-can-safeguard-taxpayers-money/ [Accessed: 24 July 2023]

Yessuf, A., 2019. Challenges and critical success factors for e-procurement adoption in Ethiopia. *Russian Journal of Agricultural and Socio-Economic Sciences*, *86*(2), pp.94-108.

Appendix A: Permission letter



the gpaa
Department:
Government Pensions Administration Agency
REPUBLIC OF SOUTH AFRICA

Private Bag X63, Pretoria, 0001, 34 Hamilton Street Arcadia 0001. Contact Number: 012 319 1097
E-mail: [illegible]

Ms. Phindile Simphiwe Jannet Mdletshe
GPAA Head Office
34 Hamilton Street
Arcadia
0083

Dear Ms. Mdletshe

APPROVAL TO USE THE GOVERNMENT PENSIONS ADMINISTRATION AGENCY INFORMATION FOR STUDY PURPOSES

It my pleasure to inform you that your request to use information sourced from the GPAA in order to complete your research study has been approved.

We have received documentation provided by you in this regard and are satisfied with the contents thereof.

The person who will oversee your request is Dr S. Khumalo. He can be contacted on (+2712) 314 3492 or Sefiso.Khumalo@gpaa.gov.za.

We are looking forward to your results and to utilise your findings to the benefit of the organisation and its employees.

Yours sincerely,

Shahid Khan
Acting Chief Executive Officer
Government Pensions Administration Agency
Date: 08/12/2021

Appendix B: Ethical certificate

UNISA

UNISA DEPARTMENT APPLIED MANAGEMENT RESEARCH ETHICS REVIEW COMMITTEE (DAM-RERC)

Date: 25 August 2021

ERC Reference # : 2021_CEMS_DAM_008
Name: Mrs PSJ Mdletshe
Student #: 55876382
Staff #:

Dear Ms Phindile Simphiwe Jennet Mdletshe

Decision: Ethics Approval from August 2021 to August 2024

Researcher(s): Mrs PSJ Mdletshe
079 992 8790 / 55876382@mylife.unisa.ac.za

Supervisor (s): Prof JA Badenhorst
082 449 7507/ hanniebw@gmail.com

Working title of research:
The barriers to the implementation of e-procurement in the public sector: Focusing on Government Pensions Administration Agency

Qualification: MCOM Business Management: Supply Chain Management

---

Thank you for the application for research ethics clearance by the Unisa DAM Ethics Review Committee for the above-mentioned research. Ethics approval is granted for three years.

*The **low risk application** was **reviewed** by the DAM Ethics Review Committee in August 2021 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was approved on the 25th of August 2021.*

The proposed research may now commence with the provisions that:

1. **The researcher understands that this clearance is provisional and will only be final once the Government Pensions Administration Agency has given**

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Appendix C: Letter to the organisation

UNISA university of south africa

PERMISSION LETTER

Request for permission to conduct research at the Government Pensions Administration Agency (GPAA) in partial fulfilment of Masters of Commerce Degree-Mcom (Business Management) at University of South Africa.

08 July 2021

Chief Executive Officer
Government Pensions Administration Agency

Dear Mr Shahid Khan

My name is Phindile Simphiwe Jennet Mdletshe, student number: - 55876382. I am doing research towards Master of Commerce Degree in Business Management majoring in Supply Chain Management under supervision of Professor Hannie Badenhorst in Department of Applied Management at the University of South Africa. I am kindly requesting to conduct a study on the topic, "**Barriers to the implementation of e-procurement in the public sector: Focusing on the Government Pensions Administration Agency (GPAA).**

GPAA has been selected because of its contribution towards my career growth and development. This study is qualitative in nature and will be conducted through interviews with GPAA employees working in Supply Chain Management. The estimated duration of the interview is 60 minutes. The purpose of this study is to explore barriers to full implementation of e-procurement in the public sector specifically at the GPAA. As part of data collection, GPAA will be requested to give the researcher access to GPAA SCM policy, Standard operating procedures for SCM, relevant circulars and instruction notes. Findings will be used for formulating recommendations and solutions to aid not only the GPAA but also other government institutions. Results of the study will be communicated to the GPAA as per request.

Yours sincerely

Ms Phindile Mdletshe
Date:08/07/2021

Appendix D: Participant information sheet

PARTICIPANT INFORMATION SHEET

05 May 2021

Title: **BARRIERS TO FULL IMPLEMENTATION OF E-PROCUREMENT IN THE PUBLIC SECTOR: FOCUSSING AT THE GOVERNMENT PENSIONS ADMINISTRATION AGENCY (GPAA)"**

Dear Prospective Participant

My name is ***Phindile Simphiwe Mdletshe*** and I am doing research under the supervision of ***Prof Hannie Badenhost-Weiss*** (Department of Applied Management), for fulfilment of a Master of Commerce degree in Business Management majoring in Supply Chain Management at the University of South Africa (UNISA). We are inviting you to participate in a study entitled **BARRIERS TO FULL IMPLEMENTATION OF E-PROCUREMENT IN THE PUBLIC SECTOR: FOCUSSING AT THE GPAA.** More information on the research is provided below in the form of frequently asked questions.

WHAT IS THE PURPOSE OF THE STUDY?

Many industries, business organizations, government organisations and agencies indicate their intention to adopt e-procurement since researchers and analysts believe that adoption and utilization of online-based procurement will result in cost saving and greater efficiency in purchasing processes. However, e-procurement is under-utilized in the public sector. Qualitative research (interviews) will be used in this study to explore challenges underlying the slow adoption of e-procurement in the South African public sector, specifically at the GPAA. The findings will be used to offer recommendations for further implementation and improvement of e-procurement in the public sector.

WHY AM I BEING INVITED TO PARTICIPATE?

You have been selected to participate in this study as an employee working in the Supply Chain Management or employees responsible for the procurement process at the GPAA.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The research will involve individual interviews via Zoom, Ms. Teams and Face-to-face while observing COVID 19 protocols for a duration of maximum 30 minutes.

CAN I WITHDRAW FROM THIS STUDY?

Participation in this research is voluntary and you have no obligation to consent to participation. If you decide to participate, you will be asked to keep this information sheet and to sign a written consent form (attached). You are free to withdraw at any time, without giving any reason and no consequences will be suffered for pulling out of the study.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

This study will reveal challenges that hinder full implementation of e-procurement in the public sector specifically at GPAA. The challenges identified will be used as basis for formulating recommendations and solutions to aid not only the GPAA but also other government institutions.

Research is about contributing to a growing pool of knowledge and information. This research will contribute to the existing body of knowledge on the use of electronic procurement systems in the public sector. The findings of the study might also evoke other researchers to identify gaps and conduct research in this and related areas. Participants will benefits from the study because they will have a sense of purpose as they will be contributing towards scholarly knowledge.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

The researcher anticipates that this will require 60 minutes out of the employee's busy schedule. Procurement is also a sensitive topic in Public Sector Supply Chain Management due to frequent cases of corruption, some employees may be reluctant to participate in the study.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

Your name will not be recorded anywhere, and no one will be able to connect you to the answers you give, apart from the researcher. Your answers and you will be given a code number or a pseudonym, and you will be referred to in this way in the data in any publications, or other research reporting methods, such as a conference proceeding.

Your responses to the interview will only be accessed by the researcher and the research supervisor.

A report of the research, such as a research report (dissertation), journal articles and/or conference proceedings may be submitted for publication, but individual participants will not be identifiable in such a report.

HOW WILL INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet at the researcher's place of residence for future research or academic purposes; and electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further research ethics review and approval, if applicable. After five years, hard copies will be shredded and/or electronic copies will be permanently deleted from the hard drive of the computer.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

Your participation in this research is voluntary and you will not be paid or given any form of incentive to participate. The researcher anticipates that no financial cost will be incurred by you.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received written approval from the Research Ethics Review Committee of the College of Economic and Management Sciences (CEMS) (Department of Applied Sciences), at UNISA. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS?

If you would like to be informed of the final research findings, please contact Ms. Phindile Simphiwe Jennet Mdletshe at 55876382@mylife.unisa.ac.za. However, the GPAA (SCM Department) will be provided with a summarized report. Ms. Renee Stander (Senior Supply Chain Manager) can be contacted for the report at renee.stander@gpaa.gov.za. . Should you require any further information or want to contact the researcher about any aspect of this study, please contact 55876382@mylife.unisa.ac.za. Should you have concerns about the way in which the research has been conducted, you may contact the supervisor, Prof Badenhorst-Weiss at hanniebw@gmail.com.

Thank you for taking time to read this information sheet and for participating in this study.

Phindile Mdletshe

Principal Researcher's name: Ms Phindile Simphiwe Jennet Mdletshe
E-mail: 55876382@mylife.unisa.ac.za.
Researcher's relationship to UNISA: Research Master of Commerce student
Research supervisor: Prof J. A. Badenhorst-Weiss , Department of Applied Management, UNISA

Appendix E: Consent form

CONSENT TO PARTICIPATE IN THIS STUDY

I....., volunteer to participate in a research project conducted by Ms. Phindile Mdletshe from UNISA. I understand that the research is designed to gather information about the *barriers that hinder full implementation of e-procurement in the public sector*, focusing at the GPAA.

I have read the Information Sheet for this research and have had details of the research explained to me.

1. My participation in this research is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any given time without penalty. If I decline to participate or withdraw from the research, no one will be told.
2. I understand that most of the participants will find the questions interesting and thought-provoking. However, if in any way I feel uncomfortable answering any question in the questionnaire, I have the right to refuse to answer any question.
3. The research will involve an interview process on Zoom application/Ms Teams/ Face-to-Face which will take 30 minutes to complete. The analysis of research interviews will be conducted by the researcher.
4. I understand that the researcher will not identify me by name or project/team name in any of the reports using the information obtained from this questionnaire, and that my confidentiality as a research participant will remain secure. Subsequent use of records and data will be subject to standard data used policies that protect the anonymity of individuals and institutions.
5. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this research.
6. I also give consent to the researcher to record the interview for the purpose of using the information for the research report, journal article, book or book chapter.
7. I have been given a copy of this consent form.

Participant Name & Surname..... (Please print)

Participant Signature.....Date.....

Researcher's Name & Surname..... (Please print)

Researcher's Signature.....Date.....

Appendix F: Interview guide

APPENDIX A: Interview guide

INTERVIEW SCHEDULE FOR SUPPLY CHAIN MANAGEMENT EMPLOYEES OF GOVERNMENT PENSIONS ADMINISTRATION AGENCY

SECTION A: DEMOGRAPHICS

1. What is your gender?
   a) Male
   b) Female
   c) Other
2. What is your age group?
   a) 18-30 years
   b) 31-43 years
   c) 44-56 years
   d) 57-69 years
3. What is your occupational level?
   a) Junior level staff
   b) Middle level staff
   c) Senior level staff
   d) Top level staff
4. How long have you been working at the GPAA?
   a) 1-3 years
   b) 4-6 years
   c) 7-9 years
   d) 10-12 years
   e) Above 13 years

SECTION B: PROCUREMENT

In this section, questions on procurement will be asked

5. What is your understanding of procurement?
6. What are the stages of procurement at the GPAA?
7. In the stages mentioned above
   I. Which stages are conducted manually?
   II. Which stages are conducted electronically/online?

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

8. During your tenure at GPAA, has the way in which procurement is conducted changed? If so, in what way?
9. In your opinion, what are the disadvantages of conducting procurement manually?

SECTION C: E-PROCUREMENT

In this section, questions on e-procurement will be asked.

10. What is your understanding of the word e-procurement?
11. What benefits you do think can be derived from using e-procurement?
12. What do you think hinders full implementation of e-procurement at the GPAA?
13. What do you think should be done to facilitate full implementation of e-procurement at the GPAA?

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Appendix G: Editor's letter