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DEPARTMENT OF ECONOMICS

THE EFFECT OF E-GOVERNMENT PROCUREMENT ON SUPPLY CHAIN PERFORMANCE IN THE ENERGY SECTOR IN ZIMBABWE. THE CASE OF NATIONAL OIL AND INFRASTRUCTURE COMPANY. (NOIC)

BY

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ABSTRACT

This research analyses how Zimbabwe's energy sector can benefit from e-government procurement systems, mainly focusing on e-tendering, e-invoicing, e-payment and e-informing within the supply chain. The initial aim is to study how digital procurement effects the efficiency, visibility, timeliness and proper workings of supply chains in developing nations. The research employed mixed methods by asking 66 NOIC professionals to answer structured questionnaires as well as interviewing them to obtain qualitative data. Multiple regression analysis and statistical techniques were used to analyse data and find out how different e-procurement aspects influence the performance of the supply chain. E-tendering, e-payment and e-informing make the procurement process easier, quicker, more transparent and ensure data sharing among the stakeholders. Even so, e-invoicing did not really change supply chain performance which might result from issues with infrastructure or a lack of integration. They show that having digital procurement can improve transparency, efficiency and trust among stakeholders in getting energy resources to Zimbabwe as planned and reasonably priced. The report encourages using and upgrading e-tendering, e-payment and e-informing systems in energy organisations, pointing out that strong policies, training and infrastructure investments are necessary for the best results. Also, it makes a point that policymakers develop different strategies to tackle sector-related issues that can stop e-procurement from working smoothly. The findings from Zimbabwe illustrated here add significantly to the little knowledge available on e-government procurement in developing countries by pointing out the pros and cons of digital transformation in procurement.

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DEDICATIONS

This dissertation is dedicated to my family and friends who gave me the zeal and energy to continue studying in order to attain this qualification and unwavering support throughout the period of study.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The Government of Zimbabwe adopted the electronic procurement system (e-procurement) as one of the substantial strategies to revamp public procurement processes and make the public procurement function more transparent and robust. E-procurement involves the electronic exchange of goods, services, and consultancy through the internet, engaging businesses, consumers, and government entities (Barngetuny & Kimutai, 2015; Waithaka & Kimani, 2021). According to Barngetuny and Kimutai (2015) E-Procurement system takes three primary forms such as buyer E-Procurement systems, seller E-Procurement systems, and online intermediaries. Different forms of E-Procurement focus on specific or multiple stages of the procurement cycle, such as e-tendering, e-marketplaces, e-auctions or reverse auctions, and e-catalogues. E-Procurement applications can be viewed as comprehensive solutions that integrate and streamline procurement processes across organizations. Consequently, the rise of web-based electronic procurement is seen as a transformative development due to its potential to lower overall acquisition costs (Rotchanakitumnuai, 2013). In Zimbabwe, the adoption of e-Government procurement systems presents a transformative opportunity to enhance operational efficiency in supply chain management, particularly for industries dealing with essential goods.). By facilitating the timely collection and dissemination of demand and supply data, organizations like the National Oil Infrastructure Company (NOIC) can quickly adapt their production plans and inventory management, ensuring optimal inventory levels and timely replenishment. They make the procurement process faster, so you use less time and resources. Ongoing communication helps all parties in a business trust one another and be open about their actions. When e-Government The connexion between business and procurement systems allows information to transfer without difficulty through the supply chain. It becomes simpler to know what people need and cheque your inventory. NOIC and similar groups can benefit a lot from using procurement platforms. by sending real-time updates and support efforts by everyone. It points out that this issue is very important. Routinely testing these systems to see how they can be improved and how effective they are.

1.1 Background of the Study

Many experts believe that e-procurement has greatly changed public procurement. Ndei and Mutuku (2021) describes e-procurement as the use of internet-based electronic systems to carry out different procurement tasks is described. Things such as knowing what is required, going through the bidding process, paying and handling contracts. The purpose of using e-procurement is to see that public procurement practises are improved to be more efficient, effective, open and responsible.

Improvements in technology have made e-procurement increasingly widespread worldwide. For In the early 2000s, e-procurement saw rapid growth right before the economy declined in the USA (Barasa & Namusonge, 2017). By December 2000, it was stated that every state agency had its own website, being involved in some parts of the procurement work such as participating in online requests Waithaka et al (2021) suggest doing this through a bidding process. In Malaysia, the government used to require all suppliers to use the e-procurement system (Oshoma, Raji, & Yusuf, 2024). Ngugi and Ndeto (2024) point out that the Malaysian public sector is changing quickly, especially when it comes to using new technologies. People think that e-government, especially e-procurement, is very important for the work of the government. According to a study by the Commonwealth of Australia, by 2005, national governments in places including Italy, New Zealand, Scotland, New South Wales, and Western Australia were already using e-procurement platforms for their public procurement activities.

The idea of e-procurement is starting to catch on throughout Africa, especially in the public sector. Many African countries have made changes to their laws and started using e-procurement platforms to deal with problems with accountability and openness in procurement. Tanzania, for instance, has put in place e-procurement solutions that make it easier to e-share, e-advertise, e-submit, e-evaluate, e-contract, e-pay, e-communicate, e-check, and e-monitor, making sure that all public procurement activities take place online (OCHIENG'OGOLA, 2024).

When the Jubilee administration came to power in Kenya, the government took an active role in promoting e-procurement (Wakukha & Osoro, 2025). Since then, there has been a lot of push for changes to make sure that all public procurement processes go online. The Kenyan government has ordered that all public commodities, works, and services be bought through internet platforms. A regulation exists for both procurement and financial Relationship management functions can currently only be done using the internet for county administrations. For example, the government decided The 47 counties are required to

take advantage of the Integrated Financial Management Information System (IFMIS).IFMS was set up to help with governance by giving everyone in the organization access to up to date financial information and records. it becomes simpler to set up budgets and see if programmes are successful. This also gives everyone better access to things. Barajei et al. (2023) explain that 4Rs make organizations transparent and helps get rid of corruption and fraud. To use e-procurement, one must a process that involves changing and restructuring how the government buys goods and services (Chomchaiya & Esichaikul, 2016). Using electronic tools, planners can approach tasks such as estimating demand and setting Recognizing what is needed, forming a budget, sourcing resources, signing contracts, ordering supplies and looking after them. Evans Biraori Oteki (2019) note that using e-procurement results in more efficiency, reduced transaction charges, less scamming and improved managing and monitoring all activities in public procurement.

It is emphasized by Ndei et al. (2021) that e-procurement benefits businesses making purchases as well as those selling goods. Issues tend to occur when such a system is implemented. He organizes these different problems into two categories. The main areas are ones related to the organization, in addition to the economy and the law. Organizational hurdles include problems with restructuring and not wanting to change, whereas economic-legal challenges include the rules that govern the business, the technology it needs, the money it needs, and the general level of education of its personnel. Enterprise Resource Planning (ERP), E-Maintenance, Repair and Operations (E-MRO), E-Sourcing, E-Tendering, E-Reverse auctioning, E-Informing, and E-Market sites are all parts of e-procurement (Share, 2018). The growth of e-procurement in Zimbabwe has been slow, especially in the oil sector, which is very important for the country's economic stability. Using e-procurement technologies helps achieve operations get better and relationships with suppliers are improved (Munyoka, 2019). Companies could lead to more efficient supply chains by introducing digital procurement methods. It allows you to make sure that… They lessen waste, enhance how inventory is managed and make all the operations work more efficiently. With E-procurement, it is expected that long-standing issues in procurement can be solved. doing things following the best practices worldwide. Doing this makes the process fair and well-run. Zimbabwe’s Procurement Regulatory Authority (PRAZ) recently set up the electronic Government.

It makes procurement more positive by ensuring there is open participation. responsible, organized and well-run. The use of bid manager makes submitting and evaluating bids simpler online. which makes it easier for organizations to review different suppliers and reduces the need for many manual operations

which may result in mistakes or cause things to take longer. E-procurement means companies can obtain supplies and services faster than previously. is significant since Zimbabwe is using more oil products than before. Such capability increases over time. it focuses on operating well and creating a reliable chain for supplying energy to homes. As well, businesses and industries are affected by Demberere, Waithaka, and Matunga (2023). This study is designed to analyze the concept of e-government procurement systems work together and how they might make the energy supply chain in Zimbabwe more efficient and responsive. This is an important gap in the literature, and the study will also give practical advice to stakeholders.

1.2 Problem Statement

Traditional ways of buying things in Zimbabwe's energy industry are typically slow and don't involve suppliers enough, which makes it hard for the sector to get things done. These inefficiencies make it harder for the sector to keep a steady supply of petroleum products, which is important for economic stability and energy security. Adopting electronic procurement is a way to solve these problems and make operations run more smoothly. The Procurement Regulatory Authority of Zimbabwe (PRAZ) just started the electronic Government Procurement (EGP) system. Its goal is to make the process of buying things easier and more open. However, e-procurement can only be successful if problems like choosing the right technology, making sure that new systems work with old ones, and educating personnel properly are solved (Gunasekaran et al., 2017). E-procurement can improve procurement processes and build better relationships with suppliers, but if it isn't implemented properly, it could cause problems and not provide the expected results (Papadopoulos et al., 2017). The goal of this study is to find out how well e-government procurement platforms work to improve the performance of the supply chain in Zimbabwe's energy sector

1.3 Research Objectives

1.3.1 Main Research Objective

The study aims to evaluate the effectiveness of e-government procurement systems in enhancing supply chain performance in the energy sector in Zimbabwe.

1.3.1 Specific Objectives

In order to satisfy the aim of this study, the researcher came up with the following specific objectives.

i. To examine the effect of e-government tendering on supply chain performance in the energy sector in Zimbabwe.
ii. To evaluate the effect of e-government invoicing on supply chain performance in the energy sector in Zimbabwe.
iii. To examine the nexus between e-government payment and supply chain performance in the energy sector in Zimbabwe.
iv. To determine the effect of e-government informing on supply chain performance in the energy sector in Zimbabwe.

1.3.2 Research questions

i. How does e-tendering impact supply chain performance in the energy sector in Zimbabwe?
ii. What is the effect of e-invoicing on supply chain performance in the energy sector in Zimbabwe?
iii. hat is the nexus between e-payment and supply chain performance in the energy sector in Zimbabwe?
iv. What is the effect of e-informing on supply chain performance in the energy sector in Zimbabwe?

1.4 Hypothesis of the study

H_0: E-government procurement systems do not affect supply chain performance in the energy sector in Zimbabwe.

H_1**:** E-government procurement systems significantly affect supply chain performance in the energy sector in Zimbabwe.

1.5 Assumptions

The study was carried out under the following assumptions

i. The study assumed that personnel involved in procurement at the National Oil Infrastructure Company (NOIC) have received adequate training on using e-government procurement systems.
ii. It also assumed sufficient regulatory and policy support from the government to facilitate the implementation and operation of e-government procurement systems in the energy sector.
iii. The study assumed that the implementation of e-government procurement systems has a measurable positive impact on supply chain performance indicators, such as efficiency, transparency, and cost-effectiveness.

iv. It assumed that the necessary technological infrastructure (hardware, software, and internet connectivity) is in place and functioning effectively to support e-government procurement systems.

1.6 Significance of the study

1.6.1 To Academia

This study may add value to the existing body of literature about e-government procurement systems, especially in the energy sector in Zimbabwe. It gives researchers a starting point by showing how these systems might improve the performance of supply chains in Zimbabwean businesses. This study can be used as a reference for academics in Zimbabwe to start conversations on how to buy things, how to use technology, and how to manage the supply chain in a way that fits the country's unique problems and prospects.

1.6.2 To Supply Chain Practitioners

Supply chain experts in Zimbabwe might discover new information from the results of this study. Using e-government procurement and appreciating what it stands for. It recommends the top practices and methods that work where the business is based, allowing it to run more effectively, cut costs and form tighter ties with the companies you buy from. Supply chain specialists use the outcomes to improve their procurement procedures which will help the energy sector in Zimbabwe become more competitive and perform well overall

1.6.3 To Policy Makers

Information from this study might help policymakers make improvements in the public sector procurement works. Rules and approaches recommended by policymakers can help Zimbabwe achieve positive results. analysing what is good and bad about using e-government procurement platforms. Data obtained from these strategies thanks to study, we can develop structures that support easier, clearer and fairer procurement activities procedures. Digital procurement solutions will be used more widely across Zimbabwe because of this.

1.7 Delimitations of the study.

The study only looks at the energy sector, so its findings may not apply to other industries. This is done to make sure that the study focuses on the specific context of energy procurement. The study also looked

only at e-government procurement platforms used by public sector organizations. This choice is important since the rules, standards of accountability, and ways of doing business in the public sector are generally different from those in the private sector. The study left out private sector practices and traditional procurement procedures in order to focus on the unique aspects and effects of e-government initiatives in public procurement.

This time focus is important for keeping track of new trends, technology advances, and policy changes that have an impact on e-government procurement systems. Stakeholder engagement include people who are directly involved in the energy sector's procurement processes, such as government officials, procurement officers, suppliers, and regulatory agencies. This tailored approach gives us a better idea of what those who are directly affected by e-procurement reforms think and feel. The study did not consider views from stakeholders that aren't directly involved in the energy industry, like end consumers or businesses outside of the energy sector, because their insights may not help us reach our goals for this study.

1.8 Limitations of the study

In the context of this study on e-government procurement systems in Zimbabwe's energy sector, the unavailability of secondary data presents a critical limitation that significantly impacts the research. Accessing comprehensive and reliable secondary data specific to the implementation and effectiveness of these systems is challenging. There is a notable lack of published research and governmental reports that focus on e-government procurement practices within Zimbabwe's energy sector. This scarcity makes it difficult to contextualize findings, compare them with existing literature, and establish benchmarks relevant to the unique socio-economic conditions of Zimbabwe.

1.9 Definition of terms

E-Government Procurement

Kumar, Kumar, Sachan, and Gupta (2021) defines E-government procurement systems as the digital platforms used by government entities to manage the acquisition of goods and services. These systems streamline the procurement process by automating tasks such as bidding, contract management, and supplier evaluation.

Supply Chain Performance

According to Sakutemba, Muvungani, and Moyo (2024), Supply chain performance refers to the effectiveness and efficiency with which supply chain activities are conducted, encompassing factors such as speed, cost, quality, and flexibility. It measures how well a supply chain meets customer demands while minimizing costs and maximizing service levels, often evaluated through key performance indicators (KPIs).

1.10 Organization of the Rest of the Study

This study is structured as follows: Chapter two provides literature reviews both theoretical and existing literature on e-government procurement systems and their impact on supply chain performance, particularly in the energy sector. Methodology of the study will be grounded on chapter 3 outlining the methods used to ascertain the goals of the study. Data presentation and interpretation will be explained in chapter 4. The final chapter will provide summary of the study, conclusion and policy recommendations.

1.11 Chapter Summary

This chapter focused on the introduction, background of the study, statement of the problem, research objectives, hypotheses, significance of the study, assumptions, delimitations of the study, limitations of the study and definition of terms. The next chapter focuses on literature review, both the theoretical and empirical literature review.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Chapter two centers around literature review. In the main part of this section, the researcher will focus considerably more on theoretical review followed by past led examinations (empirical review). The chapter will deal with only literature related to e-government procurement systems and supply chain performance.

2.1 Theoretical Literature Review.

2.1.1 Unified Theory of Acceptance and Use of Technology

Venkatesh, Morris, Davis, and Davis (2003) first presented the Unified Theory of Acceptance and Use of Technology (UTAUT) and created a thorough framework meant to grasp the elements affecting the acceptance and use of technology. Combining components from eight pre-existing theories of technology acceptance; the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and the Motivational Model. The theory produces four main constructions; Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions. While Effort Expectancy shows the apparent simplicity of usage, Performance Expectancy is the degree to which employing a technology is judged to improve job performance. Social Influence gauges people's degree of feeling that others should apply the new technology depending on their importance. Lastly, Facilitating Conditions relate to the tools and resources at hand, thereby helping users to embrace and apply the technology successfully.

2.1.2 Technology Acceptance Model (Fred Davis 1989).

Davis, Bagozzi, and Warshaw (1989)'s Technology Acceptance Model (TAM) can help figuring out how well e-government procurement platforms work to improve supply chain performance in Zimbabwe's energy industry. According to TAM, people are more likely to embrace and employ technology if they think it is beneficial and easy to use. These two things are very important for projecting the use of e-procurement technologies, which are very important for making the procurement process better in the energy industry. Nyasetia (2019) asserts that using a certain technology will help them do their jobs better.

If management and suppliers think that e-government procurement technologies may help make procedures faster, cheaper, and more efficient, they are more inclined to use them. On the other hand, perceived ease of use has to do with how easy the technology seems to be to use. A user-friendly e-procurement system will get more people to use it and embrace it, which will improve the performance of the supply chain overall. The TAM paradigm says that consumers' attitudes regarding technology, as well as how beneficial and easy it is to use, affect their willingness to adopt and employ it. E-procurement isn't only a change in technology; it also means that firms need to redesign their current procurement processes. According to Groznik and Manfreda (2015) operations can alter a lot, especially in important areas like getting orders ready, approving them, and sending them to suppliers. This change shows how important it is for management and suppliers to see the e-procurement system as useful and easy to use. For e-procurement to perform at its best, people need to be okay with the system because it directly affects how tasks are done within the procurement framework. The Technology Acceptance Model is a useful way to look at how well e-government procurement platforms work in Zimbabwe's energy industry.

2.1.3 Transaction Cost Theory (Williamson, 1981).

Transaction Cost Theory (TCT) is an economic theory that looks at the costs of doing business in the market. Ronald Coase wrote the important paper "The Nature of the Firm" in 1937, which laid the groundwork for this theory. Oliver Williamson later built on it. The theory says that businesses exist to lower the costs of trading products and servicesThey also mean spending time, in addition to the money. it took energy to agree on contracts, implement them and face the uncertainties and risks that arose with transactions. It tells us why businesses decide to structure themselves in various ways. such as setting up partnerships, resorting to outsourcing or bringing things together through vertical integration.

The concept of hierarchies vs market transactions is a central thought in TCT. firm-based) transactions. When handling of assets is complex and costs much to arrange, according to the amount of uncertainty involved and the degree of their transactions, businesses can opt to carry them out in-house. prevent the problems caused by the inefficiencies in the market. Asset specificity shows the limit of where these resources can be used. Another reason for recycling is not to lose the value it still has. Some assets require closer attention to be handled properly. contracts are used to protect investments. On the other hand, more companies choose to do business within the market when buying and selling happen with very low costs.

Using the market comes with expenses that running doesn't have. The way things are handled internally affects the decisions on the company's organization and how it is overseen.

TCT points out that proper governance reduces the costs involved with each transaction. Companies can They run organizations by using structures such as contracts, alliances and organizational hierarchies. to oversee and handle transactions to prevent them from getting out of control. The kind of transaction and how risky it is Which departments are included will help choose the structure of governance. This is the case especially with long-term contracts Stable markets tend to work well with traditional contracts, but markets that regularly fluctuate may do better with flexible contracts. changing. Organizations can decide better how to organize their businesses. If they understand how transaction costs and governance mechanisms relate to each other, it will be easier for them. The community must make they are able to operate more efficiently and successfully in their market sectors.

2.2 Empirical Literature Review

This section presents an empirical literature review that systematically examines existing studies employing empirical methods to investigate key themes related to e-government procurement systems. Through this synthesis of empirical evidence, the review aims to identify gaps in the literature and inform both future research directions and practical applications, ultimately contributing to a deeper understanding of the subject matter.

2.2.1 Effects of E-Tendering on Supply Chain Performance

Gathima and Njoroge (2018) examined how electronic bidding (e-tendering) affected how well the Nairobi City County Government did its job. The study was based on two theories: innovation diffusion theory and transaction cost theory. The target audience for the descriptive and explanatory research design was 750 people from the finance, payment, and information technology divisions. A sample of 75 respondents was selected from these departments using stratified random sampling. Data were collected via questionnaires administered to the chosen sample, subsequently sorted, coded, and analyzed using descriptive statistics for data summarization and inferential statistics to determine variable associations, facilitated by the Statistical Package for Social Sciences (SPSS) version 21. Findings were presented in tabular format. Correlation analysis revealed a positive and statistically significant relationship between e-tendering practices and performance within the Nairobi City County Government ($r = 0.307$, $p = 0.041$

< 0.05) at a 95% confidence interval. Based on these findings, the study recommended that the Nairobi City County Government prioritize the adoption and effective implementation of diverse e-tendering functionalities to ensure continuous improvement in its operational performance.

Rotich, Benard, and Waruguru (2015) examined the correlation between e-tendering and the procurement performance of County Governments in Kenya, with data collected specifically within Kericho County. A correlational research design was employed. The target population comprised employees of Kericho County, and a purposively selected sample frame of 120 employees from the procurement, finance and accounts, and IT departments was established. Stratified sampling was utilized to determine the sample size, and simple random sampling was subsequently applied to select the individual participants. Data were gathered through structured questionnaires, which were administered and collected by the researcher for subsequent analysis. Frequencies and percentages were used to describe the independent and dependent variables, while correlation analysis was employed to assess the relationship between e-tendering and procurement performance. The findings indicated a positive association between e-tendering and the performance of the supply chain function within County Governments in Kenya. Consequently, the study recommends that the National Government formulate policies supporting the adoption of e-tendering and provide essential resources and leadership for its implementation. Furthermore, the study suggested that future research endeavors could explore the level of governmental support provided to county governments for e-tendering adoption, identify factors hindering its uptake in public institutions, and determine critical success factors for e-tendering implementation.

Wanjiku, Oteki, and Njogu (2023) focused on the role of e-tendering through online registration of suppliers, virtual screening, automatic evaluation and automated supplier selection criteria-through the use of an electronic Decision Support System (e-DSS). The study adopted the null hypothesis that e-tendering had no statistically significant influence on parastatals in Nakuru County. The study population included five (5) selected state-owned organizations in Nakuru municipality with a total population of 236 employees in selected departments where a sample size of 91 employees was drawn by application of Andreasen et al. (1996) sample size formula. Structured questionnaires were used as the main instrument to collect data, out of which 80 respondents gave their responses, an 87.9% response rate. The regression analysis showed a 4.6% change in organizational performance was described by e-tendering. The study

confirmed there was a statistical significance (p=.000) between e-tendering and organization performance, where e-tendering, as a supplier management tool, was able to account for a positive marginal significant increase (B=.133) in organizational performance. There was a moderate positive correlation between organizational performance and e-tendering at .519. The study recommended that parastatals enhance system integration for compatibility and easy access and flow of information, leverage technology, and facilitate training and educating their suppliers on how to use the organization's systems and other ICT-related functions.

The study by Sunmola and Shehu (2020) detailed an evaluation of the performance characteristics of e-tendering systems from the perspective of user groups. A comprehensive list of design features relevant to e-tendering systems was compiled through an examination of existing systems and relevant literature. A methodology grounded in the Kano model was employed, utilizing data gathered from a Kano questionnaire survey to assess the identified set of e-tendering system features. The Kano analysis of the survey responses indicated that a substantial proportion of the presented e-tendering system design features were perceived as performance attributes by the participants. The analysis also identified features not considered to significantly contribute to user satisfaction. The performance features of e-tendering systems deemed most impactful on user satisfaction are presented, and potential areas for future research are highlighted.

Evans B Oteki, Namusonge, Sakwa, and Ngeno (2017) assessed how implementing electronic procurement (e-procurement) affected the supply chain performance of sugar processing enterprises in Kenya. The main goal of this study was to find out how electronic tendering (e-tendering) affects the performance of their supply chain. The study used a mixed research approach and focused on 7,584 people who worked for one of the 12 sugar processing companies in Kenya. A stratified random sampling technique was utilized to determine a representative sample of 367 participants. Data were collected through the administration of questionnaires and the conduction of interviews. The relationship between e-tendering practices and supply chain performance was determined using Pearson's correlation coefficient, and regression analysis was employed to test the formulated hypothesis. The findings of the study revealed a statistically significant relationship between the adoption of e-tendering practices and the performance of the supply chain within the studied sugar processing firms. In light of these results, it is

recommended that sugar processing firms in Kenya fully leverage the capabilities of all available electronic tendering modules to facilitate improvements in their supply chain performance.

Affendy, Isa, Ismail, Yusop, and Ismail (2022) explored the acknowledgement of the E-tendering system among developers in the Malaysian construction industry. The paper specifically aimed to identify the challenges and benefits of E-tendering, focusing on developers' perspectives. The study employed a quantitative approach and distributed a questionnaire survey to developers in the Klang Valley. A total of 135 respondents participated in this study. The collected data was analysed using descriptive analysis via the Statistical Package for Social Science (SPSS) version 26 software. The results revealed that the E-tendering system provides significant resource savings to a substantial portion of the construction supply chain. The method improved communication and considerable cost and time savings. The study recommended the acceptance of E-tendering in the Malaysian construction industry since it enables the transformation into one of the most technologically advanced industries.

ILOFULUNWA Charles Ejikeme1 OKWANDU Gabriel (2025) investigated the impact of electronic tendering (e-tendering) on the competitiveness of publicly listed oil and gas companies in Nigeria. E-tendering was used as the independent variable to explain variations in organizational competitiveness, which was measured by lead time, process cycle efficiency, and supply chain integration. The research followed a positivist paradigm and employed a survey research design. The study population comprised all 10 quoted oil and gas companies in Nigeria, and a census approach was used to survey the entire population. A total of 32 management-level employees were selected from each company to participate as respondents. Primary data were collected using semi-structured questionnaires designed with a 5-point Likert scale. Regression analysis, performed using the Statistical Package for Social Sciences (SPSS) version 25.0, was used to determine the influence of e-tendering on the measures of competitiveness. The data analysis revealed that e-tendering has a moderate influence on lead time and process cycle time, and a weak influence on supply chain integration. Also, the analysis showed that e-tendering had a statistically significant effect on the competitiveness indexes. Because of this, the study comes to the conclusion that e-tendering makes listed oil and gas businesses in Nigeria more competitive in a statistically meaningful way. More specifically, e-tendering is projected to cut down on lead times, make the process cycle more efficient, and increase the integration of the supply chain. So, the report suggested that Nigerian oil and

gas companies that are mentioned on the stock market should make e-tendering a key part of their buying operations and build institutions to support and improve its use.

Ibem, Aduwo, Ayo-Vaughan, Uwakonye, and Owolabi (2017) looked into the state of e-tendering in the South African construction industry by using data from an online questionnaire survey with 593 participants and oral interviews with a small number of construction clients, professional consultants, contractors, and supply chain managers that took place in South Africa in 2014. We used both descriptive statistics and content analysis to look at the data we collected. The results showed that 26% of the people who answered the survey were involved in e-tendering. 72.4% of these individuals used email, and 21% used web-based technologies to help them with their e-tendering tasks. The report also talked about some of the main benefits, such as lower transaction costs and faster turnaround times for the tendering process. On the other hand, the South African construction sector's slow internet connections, resistance to change in organizations, high cost of internet services, and lack of affordable technology, training, and skills for small, medium, and micro-sized businesses (SMMEs) to take part in e-tendering were all barriers to its adoption. In conclusion, the study suggests ways to encourage the broad use of e-tendering in the South African construction industry and get the most out of its benefits.

2.2.2 Effects of E-Invoicing on Supply Chain Performance

The study by Haag, Born, Kreuzer, and Bernius (2013) addressed electronic supply chain collaboration by examining the case of electronic invoicing (the electronic exchange of invoice data between supply chain partners) as a type of collaborative message-based system. The study detailed the quantitative and qualitative findings derived from a set of case studies conducted within the grocery retail sector. The results revealed substantial cost reductions, particularly as the level of collaborative activity increases. Furthermore, qualitative insights obtained from interviews are presented, offering valuable directions for future research endeavors.

Rasugu (2021) examined the impact of electronic procurement (e-procurement) on supply chain management performance within Kisii County. The study utilized a descriptive research design, with a target population of 40 employees from the County Government. Primary data were collected through the use of questionnaires. Quantitative data were analyzed using frequency distribution, mean scores, and standard deviations. A Chi-Square test was employed to determine the significance of the association between the study variables. The Chi-Square test results led to the conclusion that a positive and

significant association exists between the dependent variable (supply chain management performance) and the independent variable (e-procurement). This indicates that e-tendering, e-invoicing, and e-payment positively and significantly influence supply chain management performance. The study recommended that the institution provide suppliers with access credentials for the supplier portal to enhance user access to information within the e-procurement service, supported by effective internet connectivity, thereby increasing the likelihood of selecting the most suitable supplier company for e-tendering. Furthermore, the study suggested that the system should strengthen government financial controls and improve accounting, recording, and reporting through robust invoicing systems for both suppliers and the institution. The automated procurement process should be specific across requisition, tendering, contract awarding, and payment stages. The overarching goal of e-procurement within the institution should be to enhance the quality of public service delivery in the county and to provide timely, transparent, and accurate financial and accounting information across both national and county government levels.

Klinčar and Zoroja (2021) explored differences between enterprises in European countries according to the usage of e-invoicing by the enterprises different by size (small, medium, and large). Data concerning the use of e-invoicing by enterprises for the year 2018 were sourced from the Eurostat database. The variables considered in the analysis were: (1) enterprises transmitting e-invoices suitable for automated processing, (2) enterprises transmitting e-invoices not suitable for automated processing, and (3) enterprises transmitting paper invoices. Initially, the gathered data were subjected to descriptive statistical analysis. Subsequently, cluster analysis was performed to compare the behaviors of small, medium, and large enterprises in relation to e-supply chain management practices involving e-invoices.

Awan (2023) looked into how electronic invoicing (e-invoicing) has changed the logistics industry, mainly to see how it has affected Nigeria's ability to save money and work more efficiently. The study looked closely at how e-invoicing affects logistical operations, concentrating on its benefits, the problems it can cause, and how to make those problems less severe. The goal of the study was to find out how much e-invoicing helps the logistics business save money and run more smoothly. The study's main findings showed that e-invoicing has many benefits for logistics, such as speeding up the invoicing process, making it more accurate, making it more transparent, and cutting costs by a large amount. Switching from paper-based, manual invoicing to electronic solutions leads to faster payment cycles, better interactions with stakeholders, and better cash flow management. Case studies from Nigeria and comments from industry

experts show how important digitization and e-invoicing are becoming in today's corporate environment, especially in the logistics sector.

Al-Ma'aitah, Al-Nahleh, and Alsmairat (2024) explored the impact of electronic procurement (e-procurement) on the buyer-supplier relationship within the pharmaceutical industry sector of Jordan. Employing a quantitative approach, the study gathered data through an online questionnaire administered to 171 managers across various managerial levels in diverse pharmaceutical companies and factories in Jordan. The implemented e-procurement system encompassed six applications: e-tendering, e-ordering, e-invoicing, e-auction, e-sourcing, and e-informing. Structural equation modelling was utilized to test the research hypotheses. The analysis indicated support for most hypotheses, with the exception of e-informing, which was not supported. The study recommends that pharmaceutical companies and factories in Jordan embrace e-procurement systems to optimize their procurement processes and strengthen their relationships with suppliers. The adoption of e-procurement can lead to increased efficiency, reduced costs, and improved communication with suppliers, ultimately fostering a more productive and collaborative buyer-supplier dynamic.

2.2.3 Effect of E-payment on supply chain performance

Kilay, Simamora, and Putra (2022) aimed to measure the influence of the use of e-payment and e-commerce services on MSME supply chain performance, as well as suggesting open innovations and solutions to accelerate the digitization of MSMEs. The study collected data from 164 MSMEs in Indonesia, then conducted multiple linear regression analysis, descriptive analysis of research indicators, and interviews and discussions with research experts. The results demonstrate that there exists a positive and significant influence of both e-payment and e-commerce service variables on the performance of MSME supply chains in Indonesia. We determine ten research indicators with low values, which thus pose an obstacle to the digitization of MSMEs, and their implications, in order of open innovation and solutions, are presented in order to assist MSME actors, the government, and related institutions in accelerating the digitalization of MSMEs in Indonesia.

The study by Irmawan, Ghustina, and Sutejo (2023) examined the effect of perceived benefits, perceived ease of use and perceived risks on MSMEs to use e-payment services and e-commerce services. Data used in this study was collected from 100 SMEs in Karawang Regency, then distributed it in the form of a

questionnaire and the data analysis technique used was Smart PLS. The results show that there is a positive and significant influence between the variables of e-payment services and e-commerce services on the performance of the MSME supply chain in Karawang Regency.

In their study, Swedi and Lubua (2024) assessed how electronic payment (e-payment) methods affect people's buying processes. the focus is on the Tanzania Ports Authority (TPA) which is under the public sector of Tanzania. It considered how people could best handle electronic means for making payments, issuing invoices and receiving receipts. Working with quantitative methods. 98 out of the intended participants were the only ones who responded in the case study design. interviews, examining documents and going through questionnaires. To find the results, the investigation made use of descriptive statistics and regression. a high significant positive link ($p < 0.01$) was found between how much e-payments were used and procurement performance. This because of this, e-payments bring great results like increased efficiency, more openness and lower costs. Applying e-invoicing reduced late payments very much, whereas using e-receipts also Records were kept more correctly and cheating was less likely to happen. It was clear from the finding that e-payment is very important. These procedures encourage better procurement results and also play a role in making. The public sector should become more open and efficient. It was made clear from the results that these methods contribute to bettering Top organizations are committed to using technology to make the government's processes more efficient. In conclusion, the report stated that the government of Tanzania They should utilize e-procurement as quickly as possible so that all the benefits can be enjoyed.

Masudin, Aprilia, Nugraha, and Restuputri (2021) explored how e-payment, blockchain technology and trust all work together in Thailand and how they affect Logistics 4.0 and supply chain capabilities. To do this, data were gathered from 205 managers and executives in the logistics business. This gave a robust basis for empirical analysis. We utilized a causal modeling approach and structural equation modeling to check if the proposed theoretical framework was valid and suited the data we collected. The results showed that there were important links between e-payment, blockchain, and logistical capabilities, with trust playing a key role in these links. More specifically, e-payment had a beneficial effect on both supply chain capabilities and trust, but it had no direct effect on Logistics 4.0 capabilities. On the other hand, blockchain technology immediately built confidence and indirectly improved both Logistics 4.0 and supply chain

capabilities. Trust also turned out to be a key factor in running logistics operations well, since it was key to fostering openness and efficiency.

Suryono and Palupi (2024) investigated the effects of digitalization on performance of coffee businesses' supply chains in Surabaya. The goal of the study was to find out if using digital technologies improves the supply chain performance of these businesses. We used a quantitative study strategy that used data from people who answered questions in coffee shops that had gone digital. We used Structural Equation Modeling (SEM) to look at the data. The study's results show that coffee shops can buy raw materials online with e-procurement technology and that customers can pay for things online with e-payment systems. The results also show that e-commerce technology can make businesses run more smoothly, lower expenses, and improve the quality of service. The study's conclusion is that coffee shops in Surabaya may improve their overall supply chain efficiency and encourage digital innovation by using e-procurement, e-payment, and e-commerce technologies.

2.2.4 The Impact of E-informing on supply chain performance

The goal of Lagat (2016)'s study was to find out how E-ordering and E-informing affect the performance of the supply chain. The study used an explanatory research approach based on the theory of informed innovation diffusion. The target group was 244 procurement officers from 112 Kenyan retail stores. The data was analysed using multiple regression model and the findings showed that e-ordering and e-informing had a positive and significant effect on supply chain performance. The study concluded that e-ordering and e-informing which are elements of e-procurement dimensions increase supply chain performance. There is therefore need for firms to make use of e-ordering and e-informing in the procurement process.

Gichuhi (2021) evaluated the impact of e-information on procurement performance in Geothermal Development Company in Kenya**.** A descriptive research design was adopted in this study and the study population included 170 employees working in procurement and logistics departments in GDC Nakuru region. Multi-stage sampling method was used where 97 respondents were selected as the study respondents. Questionnaires were used to collect primary data. The research instrument underwent rigorous testing for both validity and reliability. Cronbach's alpha coefficient was employed to assess the internal consistency and reliability of the instrument. The obtained alpha values for all study variables

exceeded 0.8, surpassing the generally accepted threshold of 0.7. Consequently, the instruments were deemed sufficiently reliable for data collection in this study. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS). The findings were presented through descriptive and inferential statistics, organized in tables and accompanied by pertinent discussion. The study concluded that electronic information (e-information) exhibited a positive relationship with procurement performance. Based on this finding, the study recommended that the GDC (presumably the organization under study) should actively utilize online communication channels. The significant relationship identified between e-informing and procurement performance suggests that ensuring the effective use of online communication channels will significantly contribute to enhancing procurement performance within the company.

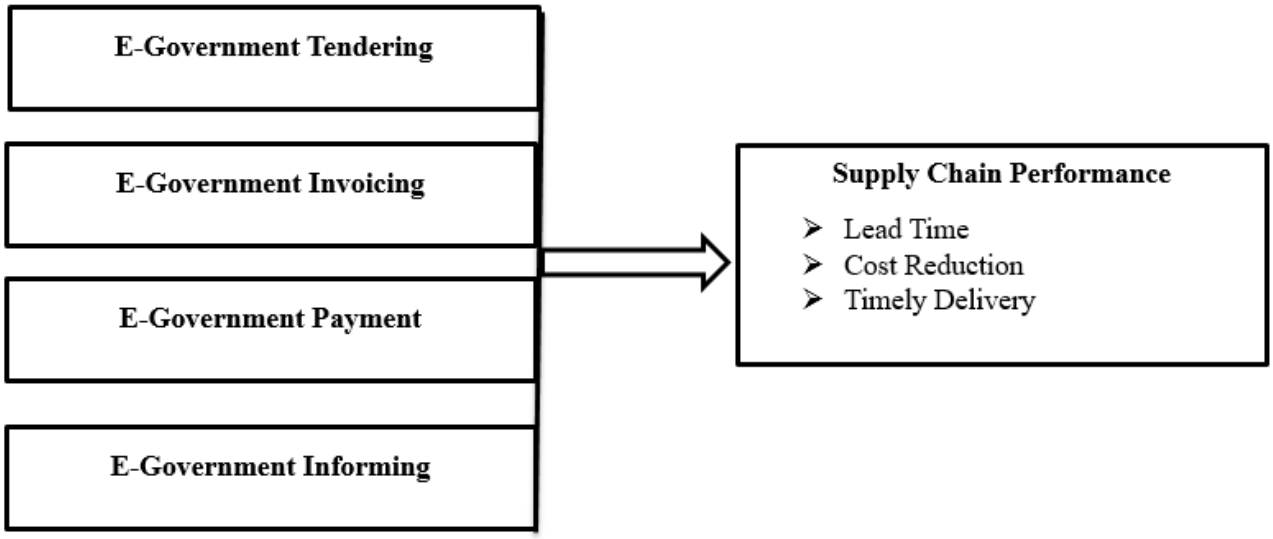
2.3 Research gap

There are lots of studies about sustainable procurement in different areas, like how green procurement affects the agricultural sector (Aragão & Jabbour, 2017) and how electronic procurement is being used in manufacturing around the world (Delmonico et al., 2018). However, there aren't many studies that look specifically at the problems and opportunities that Zimbabwean manufacturers face. Most of the research that is out there focuses on the bigger picture of sustainable procurement instead of going into detail about the unique operational dynamics, regulatory frameworks, and socio-economic factors that make up Zimbabwe's manufacturing sector. Also, a look at the literature shows that most of the time, quantitative methods are used, which don't always pick up on the important qualitative details that are needed to understand how stakeholders feel and what they think. This mistake makes it harder to fully understand how people in the area see and use sustainable procurement practices. To fill this gap, this study will use a strong mixed-methods approach that combines quantitative data on procurement planning outcomes with qualitative insights from stakeholders in the manufacturing industry. In other words, this study will give a full picture of how sustainable procurement strategies, like green procurement, electronic procurement, supplier involvement, and sustainable procurement performance, affect planning for procurement. By looking at both measurable outcomes like efficiency and cost-effectiveness and the real-life experiences and problems that practitioners face, we will be able to better understand how well these practices work in Zimbabwe's unique social, economic, and technological contexts. This in-depth study is meant to improve scholarly conversation and also to help with policy and practice, which will make the energy sector more sustainable and competitive in the long run.

2.4 Conceptual Framework

Hennink, Hutter, and Bailey (2020) assert that a conceptual framework is made up of a lot of big ideas and theories that help researchers come up with questions, find relevant materials, and correctly identify the issue they are studying. The researcher used a conceptual framework to visually depict the links between dependent and independent variables (Young & Freytag, 2021). This study's conceptual framework analyzes the impact of e-government procurement practices on supply chain performance. E-government procurement systems was the independent variable in this study with constructs e-tendering, e-invoicing, e-payment and e-informing, whilst supply chain performance was the dependent variable as depicted in Fig 2.1.

Figure 2.1: Conceptual framework



Source: Authors own computation using primary data

2.4.1 E-Tendering

Ibem and Laryea (2017) say that e-tendering is the process of sending, receiving, storing, and evaluating proposals and tenders for construction projects, commodities projects, and services utilizing electronic communication networks and technologies. Electronic tendering is when a buyer and a seller utilize

electronic technology to connect and coordinate supply chain activities such requests for purchase, receiving bids, evaluation, ordering, and payment (Mavidis & Folinas, 2022).

2.4.2 E-Invoicing

E-invoicing is the process of sending and receiving invoices electronically (Silva, Azevedo, Ribeiro, Ramos, & Ferreira, 2023). Ronchi, Brun, Golini, and Fan (2010) say that an e-invoice lets a business collect information about transactions and send it over a network. The e-invoices help the firm keep track of business information across the supply chain and improve the security and privacy of the sender and receiver, as well as the origin and reception.

2.4.3 E-Payment

E-Payment includes a number of electronic tools and systems that make it easier to pay for goods, services, and work, making transactions run more smoothly (Nyakako & Osoro, 2024). According to Lai (2021), Ke-payments usually cost between 33% to 50% less than cash payments. This shows how switching to electronic systems can save money. This change not only cuts down on the costs of processing payments, but it also makes transactions more reliable and clearer.

Alsaad and Al-Okaily (2021) postulate that electronic payments are very helpful for both the person who pays and the person who receives the money. They lower transaction costs, make people trust each other more by using safe payment systems, and let people keep better track of their money so they can manage it better. E-payments help make the financial system more efficient and trustworthy by making payment procedures easier and keeping clear records. This leads to better relationships between businesses and their consumers and better operational effectiveness.

2.4.4 E-Informing

E-informing is the use of digital tools to exchange and spread information quickly and broadly. It is an important part of modern communication strategy because it lets businesses, governments, and people access their audiences through electronic channels including websites, emails, social media and mobile apps (Alsaad & Al-Okaily, 2021). E-informing makes things clearer, lets people get updates in real time, and lets people connect with each other. This method is especially useful in fields like education, healthcare, and public administration, where getting the right information at the right moment can have a big effect on decisions and results.

2.4.5 Supply Chain Performance

Supply Chain Performance is how well and quickly a supply chain can meet customer demand while keeping costs low and value high. It means keeping track of different key performance indicators (KPIs), like how reliable deliveries are, how accurate orders are, how quickly inventory turns over, how long it takes to get an order and how cost-effective it is (Alsaad & Al-Okaily, 2021). Supply chains that work well are flexible, strong, and able to handle problems without lowering service levels. Better supply chain performance can make customers happier, make better use of resources, and give you an edge over your competitors. Businesses commonly utilize data analytics, automation, and collaborative platforms to keep an eye on and improve the operation of their supply chains all the time.

2.5 Chapter Summary

The chapter presented literature review on e-government procurement systems and their impact on supply chain in Zimbabwe's energy sector. It does this by using theoretical frameworks like the E-Technology Perspective, the Technology Acceptance Model (TAM), and the Transaction Cost Theory (TCT). The chapter talks about how digital procurement technologies may change the way businesses work by making communication better, lowering costs, and building stronger relationships with suppliers. It also talks about the problems that come up when trying to use these technologies in a developing country. Studies from different fields, including energy and dairy, show that e-procurement methods have a good effect on supply chain performance. However, there are still big gaps in our understanding of sustainable procurement techniques that are specific to Zimbabwe. The analysis ends by stressing the necessity for targeted research to fill up these gaps. It suggests using a mixed-methods approach to acquire information that will help both academic discussions and real-world uses in Zimbabwe's manufacturing industry.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

Research methodology is the integration of theoretical framework, data gathering methods, and analytical approaches that collectively establish the foundation for the technological examination of subjectivity (Hennink et al., 2020). This chapter examines the research design, data sources, sample procedures, and data collection methods employed to gather information, along with their reliability and validity. This chapter also addressed the techniques and constraints of the methodology.

3.1 Research Design

This chapter deals with how the research was conducted dwelling on the research design approach, population and sampling procedures, participants, research instruments, data collection and presentation procedure. The study adopted explanatory research design to answer the objectives of the study.

3.2 Research philosophy

This study adopts a positivist research philosophy to evaluate the effectiveness of e-government procurement systems in enhancing supply chain performance in Zimbabwe's energy sector. Positivism asserts that objective reality can be measured, highlighting the importance of empirical data obtained through systematic observation (Saunders, Lewis, & Thornhill, 2016). This strategy makes it possible to gather quantitative data through organized questionnaires, which makes it possible to evaluate e-procurement methods and how they affect supply chain performance. The study gets trustworthy information from oil sector workers to look at how well e-procurement technologies are working right now and how they affect efficiency. A descriptive research methodology will measure the attitudes and actions of personnel in procurement, operations, finance, and stores management. This is important for understanding how e-procurement can improve performance (Boruchowitch & Fritz, 2022). Positivism also lets us apply the results from a sample of 200 employees to the bigger picture of the oil business in Zimbabwe. This lets us do statistical analysis on the data we obtained to learn more about how e-procurement platforms affect supply chain performance. This kind of thinking gives us a strong base for looking into how well e-government procurement systems work.

3.3 Research approach

To research a problem, a researcher must design a certain plan, called a research approach (Cresswell, 2013). According to Nur, Naping, Pakki, and Reni (2023), the main types of research methods cover mixed methods, qualitative and quantitative. This research analyses if e-government procurement platforms are successful in helping How well the energy sector's supply chain is running in Zimbabwe. An approach using mixed methods is Quantitative and qualitative methods were applied under pragmatism to collect data directly. Researchers used interviews and questionnaires as their tools (Patten, 2016). Sevilla (1992) believe that a mixed method allows the researcher benefits from both the quality and quantity of data which improves the results. It's easier to incorporate qualitative and quantitative data using this approach which helps generate clear and complete view of the topic being studied (Patten, 2016). The best strategy is to use mixed methods. because it records all the impacts that e-government procurement has on the performance of. how the supply chain carries out its functions. Applying this method, we can study how e-government procurement takes place. The performance of the supply chain in Zimbabwe is greatly affected by platforms. You can gain qualitative information from interviews. asking questions in a survey shows trends and you can look at stakeholders' opinions as well. This A two-pronged approach will help stakeholders get details they can use to better the procurement process adopt methods to improve the efficiency of the energy sector's supply chain.

3.4 Target Population

Target population represents all cases of people or organizations which possess certain characteristics, it is the larger group from which a sample is taken (Saunders et al., 2016). This study mainly focused on the NOIC staff including procurement department staff, operations, finance department, which has a total 120 as shown in table 3.1.

Table 3.1 Targeted Population

Population strata	Number of participants
Procurement management staff	10
Operations staff	12
Finance department staff	30
Stores management staff	15
Total	**67**

Source: Primary data survey

3.5 Sampling Techniques and Sample Size

Sampling is the procedure of selecting units from the study's target population in a manner that ensures the chosen elements are representative of that community (Flick, 2015). Cresswell (2013) assert that sampling allows a researcher to gain insights into the target population from a smaller, yet representative subset of the entire population. The study employed simple random sampling technique for sample selection, which, according to Hennink et al. (2020), provides equal possibility for individuals within the group to be included in the sample. The sample size was arrived at using the Krejcie and Morgan (1970) for determining sample size given a population size as indicated in table 3.2.

Table 3.2 Krejcie and Morgan Table

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

Source: Krejcie and Morgan (1970)

According to Krejcie and Morgan (1970), for a total population of 67, the sample size is 59. Therefore, the minimum sample size in this study was 59 given that the target population is 67.

3.6 Research instrument

Data collection instruments are tools designed to gather information from the target population (Ahuja, 2011**)**. In this study, which evaluate the effectiveness of e-government procurement systems in enhancing supply chain performance in Zimbabwe's energy sector. The researcher employed both questionnaires and interviews to gather comprehensive and relevant data. The questionnaires will include closed ended questions mainly consisted of the lickert scale kind of questions and as well as open ended questions to allow the respondent to provide a comprehensive information. These methods were chosen to ensure robust collection of information that addressee the research objectives effectively. Using a questionnaire surveys made it easy to get a lot of quantitative data from a lot of people, while interviews gave us more in-depth qualitative information from important responders. This mix of ways to collect data makes the results more reliable and detailed, making it easier to fully grasp how e-government procurement technologies are improving the performance of the supply chain in Zimbabwe's energy industry.

3.6.1 Questionnaires

A questionnaire is a structured instrument that uses several ways to collect data and asks people to answer a set of preset questions (Saunders et al., 2016). It has structured questions that people fill out in writing and send back to the researcher (Ahuja, 2011). Researchers can use this strategy to quickly and cheaply gather a lot of data (Walliman, 2021). This study looks at how well e-government procurement systems work to improve supply chain performance in Zimbabwe's energy sector. The questionnaire is split into three parts: general energy sector characteristics, e-government procurement systems, and supply chain performance indicators. Responses are given on a five-point Likert scale, from "strongly disagree" (1) to "strongly agree" (5). This is important for figuring out what the respondents think (Walliman, 2021). Using a questionnaire is smart since it makes it easy to gather data, compare answers, and let participants respond at their own pace. It also doesn't require a lot of administrative expertise. This method is in line with the study's goals and gives useful evidence to back up the results on how e-government procurement platforms can make Zimbabwe's energy sector's supply chain work better (Roh et al., 2021).

3.6.2 Questionnaire design

Participants in this study were told to show their answers by marking a specific box. Appendix A at the end of the report has a copy of the standardized questionnaire that was used for the study. The first part of the questionnaire was meant to gather information about the company, and it had a clearly defined response format to make it easy to fill out quickly. The second part of the study was about its goals. It used a five-point Likert scale with adjectives that ranged from "strongly disagree" to "strongly agree." This made it easy for people to grasp the questions and give accurate answers quickly.

3.7 Data Collection Procedures

To uphold research ethics, the researcher began by obtaining approval from the management of Energy companies in Zimbabwe, along with a consent letter from the university. Afterward, questionnaires were distributed to participants to assess the effectiveness of e-government procurement systems in enhancing supply chain performance within Zimbabwe's energy sector. The researcher facilitated brief discussions to guide respondents on how to complete the questionnaires. Respondents were meticulously chosen to ensure a representative sample, and the necessary permissions for data collection were obtained. To maintain confidentiality, the researcher reassured participants that their surveys would be completed anonymously, which aimed to promote candid responses. One week after the questionnaires were

submitted, follow-up interviews were conducted with managers and individual respondents, allowing for the collection of further information from their departments. This multifaceted approach enriched the study's results and provided deeper insights into the influence of e-government procurement systems on supply chain performance in the energy sector.

3.8 Data Presentation and Analysis

Cresswell (2013) posits that data analysis entails the organization and preparation of data, the reduction of data into themes, and the subsequent presentation in tables or figures. Since this study was quantitative, the researcher employed both descriptive and inferential statistics for data analysis. The results were displayed through tables, graphs, multiple regression analyses, and pie charts. The researcher utilized inferential statistics for data analysis, while descriptive statistics were performed to examine the demographic characteristics of the respondents. The researcher employed IBM SPSS Statistics 21 for data analysis, incorporating multiple regression analysis models.

$$\mathrm{SCP} = \alpha + ET + EI + EP + EI$$

Where;

SCT = Supply Chain Performance,

ET= E-Tendering

EI= E-Invoicing

EP= E-Payment

EI= E-Informing

3.9 Data Validity and Reliability

Dependable data is reliable if it stays consistent, is correct and is used for its designated purpose. (Walliman, 2021). To increase reliability, the questionnaire was constructed with a combination of five-point and seven-point Likert scales and Cronbach's alpha was used to assess it. We examined the topic in this research. authenticity and reliability of the data were secured through data triangulation. It requires an examination of the individual's data gathered from different source material. Using this approach, businesses can lower their differences while becoming more believable. Seeing if the designed tool gives

the outcomes it promises (Clark et al., 2019). We used the research was checked for content validity so it could fully address the questions that the study aimed for (Rusticus, 2024). The field experts inspected all the questionnaire items to ensure suitability. in the research I conducted. I used the SPSS (Statistical Package for the Social Sciences) program from SPSS Inc. to inspect the collected information. We employed descriptive statistics to look at the main points in the data and used inferential statistics, particularly It includes reviewing correlations and carrying out regression analysis to discover the connections between independent and Some areas that need attention are variables discussed by Adeniran et al. This research will result in figures that show the level of success of e-government Procurement platforms optimize and strengthen the energy supply chain in this country.

3.10 Ethical Considerations

Moral and the principle of voluntarily were observed by giving participants of the study the option to participate or not in the study in a fair manner. To guarantee confidentiality, no information about the participants' identities was collected in any way. Participants were well-informed to help them make intelligent decisions.

3.10 Chapter Summary

The chapter discussed research methodology, research design and research instruments. The research target population, sample size, sampling procedures, data source, data collection instruments and data collection procedures were all discussed in this chapter.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

The chapter focuses on presentation, analysis and discussion of the findings. It consists of both descriptive and inferential statistics with independent variables being e-government tendering, e-government invoicing, e-government payment and e-government informing while the dependent variable being supply chain performance.

4.1 Response Rate

Response rate indicates the proportion of completed responses relative to the total number of questionnaires distributed (Saunders et al., 2016). This is calculated by dividing the number of questionnaires returned by the total distributed, then multiplying by 100.

Table 4.2 Response Rate 1

Questionnaires	Frequency	Percentage
Administered	67	100
Returned	66	99
Not Returned	1	1

Source: Primary Data. Table 4.2

In this research, 92 questionnaires were handed out to participants and 84 were returned, yielding a response rate of 91%. According to Bailey (2000), a response rate of 50% is deemed sufficient, with

anything over 70% considered very good. Thus, the response rate in this study is well within the acceptable range.

4.2 Demographic Analysis

4.2.1 Age Distribution

The data indicated the gender distribution of participants in the study, showing that the sample consisted of slightly more males than females as indicated in table 4.2.

Table 4.2 Demographic analysis

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	30.	45	45	45
	Male	37	55	55	100.0
	Total	66	100.0	100.0	

Source: Primary Data

Specifically, 55% of the respondents were male, while 45% were female. This slight majority suggests a nearly balanced gender representation among participants, which could contribute to reducing potential gender bias in the findings. The cumulative percentage confirms that all 66 participants were accounted for, ensuring data completeness.

4.3 Education Level

The results of education levels of participants were presented in table 4.3.

Table 4.3 Education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	6	9	9	9
	Technical	10	15.2	15.2	24.2
	Undergraduate	31	47	47	71.2
	Postgraduate	19	28.8	28.8	100.0
	Total	66	100.0	100.0	

Source: Primary Data

The results in table 4.3 shows the educational background of the participants, highlighting a diverse range of qualifications. A majority of the respondents (47%) hold undergraduate degrees, followed by 28.8% with postgraduate qualifications. Together, these two categories account for 75.8% of the sample, indicating that most participants have achieved higher education levels. Additionally, 15.2% of the participants possess technical qualifications, while a smaller portion, 9%, have completed secondary education.

4.4 Work Experience

The results regarding working experience of respondents within their institutions are presented in table 4.4.

Table 4.4 Work Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 5 years	28	31.8	31.8	31.8
	Between 5 and 10 years	28	42.4	42.4	74.2
	More than 10 years	17	25.8	25.8	100.0
	Total	66	100.0	100.0	

Source: Primary Data

The data in table 4.4 illustrates the participants' work experience, showcasing a varied range of professional tenures. The majority, accounting for 42.4.% of respondents, have between 5 and 10 years of work experience, suggesting that nearly half are highly experienced professionals. Additionally, 31.8% have less than 5 years of work experience and 25.8% have worked for more than 10 years at NOIC.

4.5 Descriptive Statistics

4.5.1 E-Government Tendering

Participants were requested to specify their level of agreement with different statements on the influence of e-government tendering in their institutions. Results were indicated in Table 4.5

Table 4.5 E- Government tendering

E-Government Tendering	N	Mean	Std. Deviation
The institution has an online supplier contract management system that facilitates tendering processes. (EGT1)	66	4.1018	0.72142
E-government tendering increases the accessibility and enhances the procurement process. (EGT2)	66	4.6682	0.62428
E-government tendering increases the competitiveness of the procurement process. (EGT3)	66	4.1065	0.57712
E-government tendering improves transparency and openness in the tendering process. (EGT4)	66	4.3857	0.79424
E-government tendering enables the business to conduct online screening and selections of suppliers. (EGT5)	66	4.2114	0.72974
Valid N (listwise)	66		

Source: Primary Data

From the above results, there is generally a positive perception of E-Government Tendering (EGT) within the NOIC procurement system, with all scales scoring around the high range on the Likert scale. The mean scores for all the scales are above 4, reflecting strong agreement that e-government tendering contributes to increased accessibility and enhances procurement processes, improves transparency and enables online screening and selection of suppliers. The low standard deviations (ranging from 0.57 to 0.75) suggest a relatively consistent response among participants regarding the effectiveness of e-government tendering. This finding aligns with studies like those by Gunasekaran et al. (2009), who found that e-tendering significantly improves procurement efficiency, improves transparency and enhances supplier performance, further supporting the positive impact of e-tendering in organizational procurement processes.

4.5.2 E-Government Invoicing

Participants were requested to specify their level of agreement with different statements on the influence of e-government invoicing in their institution. Results were indicated in Table 4.6

Table 4.6 E-Government invoicing

Descriptive Statistics

E-Government Invoicing	N	Mean	Std. Deviation
E-government invoicing has highly enhanced data security at the institution. (EGI1)	66	3.9458	0.9560
The e-government invoicing has reduced delays and highly promoted timeliness in invoicing settlements by the suppliers. (EGI2)	66	4.1785	0.7143
The e-government invoicing has helped to prevent invoice errors and to enhance accuracy. (EGI3)	66	4.4162	0.5137
It is easy to track and manage invoices since e-government invoicing streamlines accounts receivables process. (EGI4)	66	4.4472	0.9307
E-government invoicing reduces paper waste and environmental impact. (EGI5)	66	4.4365	0.5174
Valid N (listwise)	66		

Source: Primary Data

The results indicated that the institution has a highly favourable view of E-Government Invoicing (EGI), with all items having a mean above average, suggesting strong agreement among participants regarding the use of e-government invoicing since it enhances data security, reduces delays and prevent invoice errors. The responses indicated that e-platforms are consistently used for invoicing. The findings align with research by Pirelli et al. (2021), who found that e-platforms play a critical role in invoicing as it minimizes cost and reduce delays in the procurement process.

4.5.3 E-Government Payment

Participants were requested to specify their level of agreement with different statements on the influence of e-government payment at NOIC. Results were indicated in Table 4.7.

Table 4.7 E-Government Payments

Descriptive Statistics

E-Government Payment	N	Mean	Std. Deviation
Payments to suppliers are done electronically (EGP1)	66	4.8835	0.72147
The institution reduces transaction costs when paying electronically. (EGP2)	66	4.6856	0.43134
It is easier to trace payments when effected electronically (EGP3)	66	4.4635	0.42471
There is online requisitions/purchasing in the e-procurement system. (EGP4)	66	4.4158	0.74124
E-government payment reduces losses incurred resulting from cheque fraud, theft of preprinted cheques and data entry errors. (EGP5)	66	4.4574	0.94522
Valid N (listwise)	66		

Source: Primary Data

The results indicated high rating of various scales of e-government payment by respondents, with means ranging from 4.4158 to 4.8835 and standard deviations ranging from .42471 to .94522. This suggests that participants perceive e-government payment systems as effective in making payments to suppliers, trace payments and reduces losses incurred from fraud. Additionally, e-government payment is viewed positively for improving the performance of the procurement unit. These findings align with studies that emphasize the positive impact of e-payment systems on supply chain performance, such as those by Sotos et al. (2018) and Gunasekaran et al. (2009), which found that e-procurement solutions contribute significantly to improved operational performance and inter-organizational relationships.

4.5.4 E-Government Informing

Participants were requested to specify their level of agreement with different statements on the influence of e-government informing at NOIC. Results were indicated in Table 4.8.

Table 4.8: E-Government Informing

Descriptive Statistics

E-Government Informing	N	Mean	Std. Deviation
The e-government informing platform provides easy access to relevant information. (EGIn1)	66	4.1018	0.72142
The e-government informing system delivers information in a timely basis. (EGIn2)	66	4.6682	0.62428
The e-government informing platform is user-friendly and easy to navigate. (EGIn3)	66	4.1065	0.57712
The e-government information system provides transparent information about procurement processes and procedures. (EGIn4)	66	4.3857	0.79424
E-government Informing allows the institution to send and receive customized procurement information. (EGIn5)	66	4.2114	0.72974
Valid N (listwise)	66		

Source: *Primary Data*

The e-government informing results showed that most people thought it was a good idea, and they gave it high marks for being effective. The average scores range from 4.1018 to 4.6682, which means that the people who answered the survey think that electronic informing systems are useful since they make it easy to find the information you need, provide it on time, and be clear about it. These results are in line with what Monga et al. (2016) and Ranganathan & Jayaraman (2005) found, which showed how e-informing systems can help people get information more easily.

4.6 Kaiser-Meyer-Olkin (KMO)

The researcher used Bartlett's Test of Sphericity (Bartlett, 1954) and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy to see if factor analysis was adequate. Bartlett's test showed a significant result, and the KMO value was greater, which means that there are meaningful connections between the items (Burns, 2008). A KMO rating that is close to one is thought to be very reliable. Table 4.9 showed the findings of the KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity for all items on the six measurement scales.

Table 4.9: KMO Table

KMO Table

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.840
Bartlett's Test of Sphericity	Approx. Chi-Square	521.457
	Df	15
	Sig.	0.000

Source: Primary Data

The KMO and Bartlett's Test shows that the dataset was good for factor analysis. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.840, which is in the "middling" range. This means that the sample size was big enough for this kind of analysis. Also, Bartlett's Test of Sphericity gave a significant result, with a Chi-Square value of about 521.457, 15 degrees of freedom, and a p-value of 0.000. This showed that the correlation matrix was not an identity matrix, which means that there were strong correlations between the variables. All of these results showed that it was okay to do factor analysis on the dataset.

4.7 Factor Analysis

The researcher conducted exploratory factor analysis on the four variables (EGT, EGI, EGP, EGIn, and SCP) to see if the scale items were accurately assessing the constructs they were meant to. The purpose of this analysis was to find the hidden connections between the variables and make sure that the measurement scales appropriately reflect the theoretical ideas they are designed to measure. Looking at the factor loadings and correlations between the items helped us check that the scales were legitimate and that the items were measuring the ideas they were meant to measure.

Table 4.10: Factor Loading Table

Factor Loadings Table

E-Government Tendering	Component 1	Component 2
EGT1	0.742	
EGT2	0.851	
EGT3	0.677	
EGT4	0.762	
EGT5	0.866	

E-Government Invoicing	Component 1	Component 2
EGI1		0.824
EGI2		0.735
EGI3		0.854
EGI4		0.855
EGI5		0.724

E-Government Payment	Component 1	Component 2
EGP1	0.714	
EGP2	0.695	
EGP3	0.745	
EGP4	0.677	
EGP5	0.724	

E-Government Informing	Component 1	Component 2
EGIn1	0.647	
EGIn2	0.665	
EGIn3	0.688	
EGIn4	0.624	
EGIn5	0.641	

Supply Chain Performance	Component 1	Component 2
SCP1	0.688	
SCP2	0.704	
SCP3	0.705	
SCP4	0.874	
SCP5	0.895	

Source: Primary Data

The exploratory factor analysis showed that there were two primary components, with separate groups of items showing different structures. EGT, EGP, EGIn, and SCP were all linked to Component 1. EGI has something to do with Component 2. The study showed that most of the items were well-aligned with the constructs they were meant to measure, which means that the measuring scales were valid.

4.8 Reliability Test

Table 4.11 shows that the study used Cronbach Alpha to check the trustworthiness of the data.

Table 4.11: Reliability Test

Cronbach's Alpha Table

Item	**Number of Scale Items**	**Cronbach's Alpha Coefficient**
E-Government Tendering (EGT)	5	0.904
E-Government Invoicing (EGI)	5	0.956
E-Government Payment (EGP)	5	0.934
E-Government Informing (EGIn)	5	0.917
Supply Chain Performance (SCP)	5	0.857

Source: Primary Data

Cronbach's Alpha coefficients were used to check how reliable the scales were for measuring the different constructs. E-Government Tendering (EGT), E-Government Invoicing (EGI), E-Government Payment (EGP), E-Government Informing (EGIn), and Supply Chain Performance (SCP) all have strong internal consistency, with Cronbach's Alpha values between 0.857 and 0.956. EGI has the highest dependability (0.956), which means that this scale has very good internal consistency. The Cronbach's Alpha values show that the measurement scales for most constructs are very reliable, while some need little changes to be as consistent as possible.

4.9 Model Summary

The summary of the estimated model was presented in table 4.13.

Table 4.12: Model Summary

Model Summary Table				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	0.955[a]	0.913	0.911	0.13045
a. Predictors: (Constant), EGT, EGI, EGP, EGIn				
b. Dependent Variable: SCP				

Source: Primary Data

The model summary provided insights into the relationship between the predictor variables and the dependent variable. In this model, the predictors (EGT, EGI, EGP, EGIn) explain 91.3% of the variability in SCP, as indicated by the R Square value of 0.913. The Adjusted R Square of 0.911 suggests that the model fits the data well, accounting for the variability after adjusting for the number of predictors. The Std. Error of the Estimate is 0.13045, indicating a small error margin in predicting SCP.

4.10 Regression Coefficients

The study employed a multiple linear regression model to evaluate the weight of correlation between dependent and independent variables in this study. Table 4.14 presented the regression results.

Table 4.14: Regression Coefficients

Coefficients Table

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.516	0.303		5.006	0.000		
EGT[1]	0.209	0.073	0.542	2.860	0.005	0.645	1.549
EGI	0.010	0.040	0.020	.255	0.799	0.780	1.282
EGP	0.346	0.081	0.273	4.265	0.000	0.604	1.655
EGIn	0.090	0.037	0.675	2.456	0.015	0.908	1.102

a. Dependent Variable: PE

Source: Primary Data

The regression equation used was as follows,

$Y = 1.516 + 0.542X_1 + 0.020X_2 + 0.273X_3 + 0.675X_4 + \varepsilon$

The results showed a moderate positive effect of e-government tendering (EGT) on supply chain performance (SCP), with a coefficient of 0.542 and a statistically significant contribution ($p = 0.005$). The results denoted a positive impact of e-government invoicing on supply chain management. However, the effect was not statistically significant since the absolute t value was less than 1.96 and the p value (0.799) was bigger than 0.05. E-government payment demonstrated a significant positive impact on supply chain performance, with a beta coefficient of 0.273 and a highly significant p-value ($p = 0.000$), indicating a robust relationship. In The results found a high significant positive effect of electronic informing on supply chain performance. This was evidenced by a beta coefficient of 0.675 and a P value of 0.015.

4.11 Discussion of Findings

4.11.1 To assess the impact of e-government tendering on supply chain performance in the energy sector in Zimbabwe.

This objective aimed to find out how e-government tendering affects the performance of the supply chain in Zimbabwe's energy sector. The results showed a big positive effect, with a regression coefficient of 0.542 and a p-value of 0.005. This shows that e-tendering helps make the supply chain more efficient and effective. These results imply that making procurement processes more digital will make them more open, shorten lead times, and make it easier for all parties to communicate, which will improve the performance of the entire supply chain.

Their findings are in agreement with what Chen, Papazafeiropoulou, and Wu (2012) found in their study. indicated that e-tendering helped the supply chain in a positive and meaningful way performance. Muriuki (2021) demonstrate that computerized tendering improves the procurement process. assists in making the supply chain management easier. These investigations strengthen the belief that e-tendering can be one way to achieve better results in public procurement, mainly in developing or emerging countries It is very important to be efficient and accountable.

Even so, not every study agrees with this approach. According to Demberere et al. (2023), e-tendering is acceptable. There was very little impact of the changes on the smoothness of procurement. The study could have been done this way because of how it was carried out. the same strategies could be used at a different time, with a different technology or in a different institution. Ng'ang'a (2022) came to the same conclusion. There is a strong connection between electronic tendering and the performance of the supply chain in Kenya’s energy sector. They demonstrate why research should pay attention to individual country circumstances. prepared they are to use digital technology. Therefore, for e-tendering to be effective, a lot is required. Take a realistic look at how the situation stands. However, the study’s positive findings provide us with new facts about e-government. Improvements in the supply chain could be achieved in the energy industry of Zimbabwe through the use of programs.

4.11.2 To examine the nexus between e-government payment and supply chain performance in the energy sector in Zimbabwe.

This investigation analyzed how using e-government methods to handle transactions affects the government's performance. The supplies of the energy sector in Zimbabwe. Data from the study established that e-government payment carries positively affecting supply chain performance and the statistical effect of was 0.273 and a p-value that is zero. It shows that offering electronic ways to make payments to the government is beneficial. Using procurement processes helps speed up, clarify and improve the reliability of financial transactions. It helps to meet the demand. The activities take place more promptly and efficiently in a chain. Payments with e-systems are fast, helping to build records. It allows suppliers to trust each other, helps companies pay for what they receive and makes sure everyone's payments are managed well. chain that moves smoothly and is tough even under stress.

The results of this study are in line with what other research has found about how e-payments can help with procurement and supply chain management. Klinčar and Zoroja (2021) observed that e-payment systems had a big positive effect on supply chain performance, making transactions faster and cheaper. Dzuke and Naude (2015) also found that digital payment methods make supply chain activities work better together, especially in the public sector. In a different but similar study, Suryono and Palupi (2024) assert that automating financial transactions makes suppliers happier and companies more flexible, especially in industries with complicated logistics like the energy sector.

However, there are some researches that does not agree with the notion that e-government payment methods are linked to better supply chain performance. Manenji and Marufu (2016) posit that poor infrastructure and a lack of training makes it difficult to use e-payment systems effectively in Zimbabwe. Their study concluded that e-payment systems don't have much of an effect on procurement performance. Another study by Nyagosia and Nyile (2025) in Kenyan public sector found that e-payment systems were meant to make things run more smoothly, but they didn't work as well as they could have because of constant system outages, bureaucratic resistance and poor change management. As a result, there was no noticeable improvement in supply chain performance. These different results show that the effectiveness of e-government payment programs depends a lot on things like how ready the infrastructure is, how many people can use it, and how the government is set up.

4.11.3 To determine the effect of e-government informing on supply chain performance in the energy sector in Zimbabwe.

The purpose of this investigation was to figure out how notifications from e-government influence the operations of the energy sector. the sector's process of providing goods in Zimbabwe. According to the study's findings, e-government informing improves service. a big influence on supply chain results, illustrated by a beta coefficient of 0.675 and a p-value The result of 0.015 was found to be statistically significant. If the government shares information using e-informing systems, it would save 1% Besides, the workings of the supply chain will also improve by 0.675%. The part of e-government process that informs through the sharing of information Accessing procurement approaches, contract selection, regular advice and results on the web is helpful. if information is accessible to people, they will be more honest and open with one another. supply chain. This enables people to decide swiftly, follow the rules and finally, the approach ensures that supply chain systems are dependable and flexible.

These results are in line with what other research have shown in both emerging and wealthy economies. Chen et al. (2012) discovered that using e-informing platforms more in China's public procurement systems made the supply chain work together better and cut down on delays. Kumar et al. (2021) also found that sharing digital information in the public sector makes procurement more efficient by making sure that suppliers have access to timely and accurate information. Kimutai et al. (2020)'s study concluded that e-government tools such as online tender announcements and contract execution reports made suppliers more involved and open in Kenya's public energy sector. This led to better outcomes in the supply chain. Lee et al. (2024) also discovered e-informing systems helpful in tracing and accountability in Sub-Saharan Africa.

Astuti, Yusuf, Nohong, Umar, and Sabbar (2024), however, found conflicting results with those of this study. They found that e-informing are not beneficial because of unreliable internet connectivity, inadequate system integration and a lack of digital literacy among key procurement players in Tangerang City Government. They discovered that these restrictions often lead to underuse of digital platforms, which reduces the possible benefits of e-informing on procurement and supply chain results.

4.12 Chapter Summary

This chapter focused on summarizing quantitative data into figures suitable for statistical analysis. It involved reviewing the response rate and analyzing demographic data. The results, generated using IBM SPSS Statistics 21, were presented in tables for clarity. Furthermore, the findings were compared with those of previous studies on related topics, emphasizing both trends and differences. This approach not only improves data presentation but also situates the results within the broader research context, offering a deeper understanding of the subject.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presented the summary of findings, conclusions and recommendation for further studies. The purpose of the research was to analyse the impact of e-government procurement systems on supply chain performance in the energy sector in Zimbabwe. Precisely, specific objectives of this study were to examine effects of e-government tendering, e-government invoicing, e-government payment and e-government informing on supply chain performance.

5.1 Summary of Findings

This section presented the summary of findings in relation to study specific objectives.

5.1.1 To assess the impact of e-government tendering on supply chain performance in the energy sector in Zimbabwe.

The study found a significant positive impact of e-government tendering on supply chain performance, with a coefficient of 0.542 and a statistically significant p value (0.005). This means a 1% change in the use of e-tendering systems in government departments translates to a 0.542 change in supply chain performance.

5.1.2 To examine the nexus between e-government payment and supply chain performance in the energy sector in Zimbabwe.

The results of this study demonstrated a significant positive effect of e-government payment on supply chain performance. This was supported by the beta coefficient (0.273) and a p value (0.000). In other words, if government departments increase the use of e-payment systems, this results in a 0.273 increase in procurement performance.

5.1.3 To determine the effect of e-government informing on supply chain performance in the energy sector in Zimbabwe.

As shown in the regression results, there is a strong positive influence of e-government informing on supply chain performance, with a beta coefficient of 0.675 and a highly significant relationship ($p = 0.015$).

This means a 1% increase in the use of e-government informing systems results in a 0.675% increase in the overall supply chain performance.

5.2 Conclusions

The first objective of this study was to assess the impact of e-government tendering on supply chain performance in the energy sector in Zimbabwe. The objective focused on e-tendering increasing accessibility and enhances procurement processes, improving transparency and enables online screening and selection of suppliers getting qualified suppliers, getting suppliers on time and matching requirements with supplies.

The second objective of the study was to determine the impact of e-government invoicing on supply chain performance. The objective focused on e-invoicing enhancing data security, reducing delays and preventing invoice errors. However, the results indicated that e-invoicing does not influence supply chain performance.

The study also concluded that e-government payment positively and significant influences supply chain performance. Study revealed that e-government payment is effective in making payments to suppliers, trace payments and reduces losses incurred from fraud

Also the study ought to determine the impact of e-government informing on supply chain performance. The objective was studied in terms of easy access to relevant information, delivery of information in a timely manner and transparent information.

5.3 Recommendations

The study found that e-government tendering moderately influenced supply chain performance in the energy sector in Zimbabwe. This study therefore recommended all government institutions in the energy sector to adopt e-tendering as it improves transparency and enables online screening and selection of suppliers getting qualified suppliers, facilitates sourcing suppliers on time and matching requirements with supplies.

The study also found a positive and significant impact of e-government payment on supply chain performance. It then recommended that organisations in the energy sector should make use of e-payments

to improve performance by improving efficiency in payments and reducing errors related to cash transactions.

The study found that e-government informing positively influence supply chain performance in the energy sector in Zimbabwe. The study therefore recommends the adoption of e-informing systems as they facilitate the transfer of relevant information.

5.4 Areas for Future Research

Due to time and cost constraints the study just covered just one public sector (energy sector), a further research that will cover all sectors is recommended.

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APPENDIX 1 : QUESTIONAIRE

Kindly provide your responses in the spaces given by ticking at the box that matches your answer.

Part A: Background Information

1. Gender:

Male	Female

2. Education Level:

Primary	Secondary	Technical	Undergraduate	Post graduate

3. Please indicate your years of experience at the institution.

Below 5 Years	Between 5 and 10 Years	More than 10 Years

4. Please indicate the number of suppliers/contractors that you routinely engage with.

Below 5	5 – 10	11 – 20	21 – 50	More than 50

PART B: E-Government Tendering

Kindly respond by ticking on the appropriate scale showing your rating on the following statements as related to the impact of e-government tendering on supply chain performance in the energy sector in Zimbabwe.

1 = Strongly Disagree (SD), 2 = Disagree (D) 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

S/No	Statement	1	2	3	4	5
EGT1	The institution has an online supplier contract management system that facilitates tendering processes.					
EGT2	E-government tendering increases the accessibility and enhances the procurement process.					
EGT3	E-government tendering increases the competitiveness of the procurement process					
EGT4	E-government tendering improves transparency and openness in the tendering process.					
EGT5	E-government tendering enables the business to conduct online screening and selections of suppliers.					

PART C: E-Government Invoicing

Kindly respond by ticking on the appropriate scale showing your rating on the following statements as related to the effect of e-government invoicing on supply chain performance in the energy sector in Zimbabwe.

1 = Strongly Disagree (SD), 2 = Disagree (D) 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

S/No	Statement	1	2	3	4	5
EGI1	E-government invoicing has highly enhanced data security at the institution.					
EG12	The e-government invoicing has reduced delays and highly promoted timeliness in invoicing settlements by the suppliers.					
EGI3	The e-government invoicing has helped to prevent invoice errors and to enhance accuracy.					
EGI4	It is easy to track and manage invoices since e-government invoicing streamlines accounts receivables process					
EGI5	E-government invoicing reduces paper waste and environmental impact					

PART D: E-Government Payment

Kindly respond by ticking on the appropriate scale showing your rating on the following statements as related to the impact of e-government payment on supply chain performance in the energy sector in Zimbabwe.

1 = Strongly Disagree (SD), 2 = Disagree (D) 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

S/No	Statement	1	2	3	4	5
EGP 1	Payments to suppliers are done electronically					

EGP 2	The institution reduces transaction costs when paying electronically					
EGP 3	It is easier to trace payments when effected electronically					
EGP 4	There is online requisitions/purchasing in the e-procurement system					
EGP 5	E-government payment reduces losses incurred resulting from cheque fraud, theft of preprinted cheques and data entry errors.					

PART E: E-Government Informing

Kindly respond by ticking on the appropriate scale showing your rating on the following statements as related to the effect of e-government informing on supply chain performance in the energy sector in Zimbabwe.

1 = Strongly Disagree (SD), 2 = Disagree (D) 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

S/No	Statement	1	2	3	4	5
EGIn1	The e-government informing platform provides easy access to relevant information.					
EGIn2	The e-government informing system delivers information in a timely basis					
EGIn3	The e-government informing platform is user-friendly and easy to navigate					
EGIn4	The e-government information system provides transparent information about procurement processes and procedures					
EGIn5	E-government Informing allows the institution to send and receive customized procurement information					

PART F: Supply Chain Performance

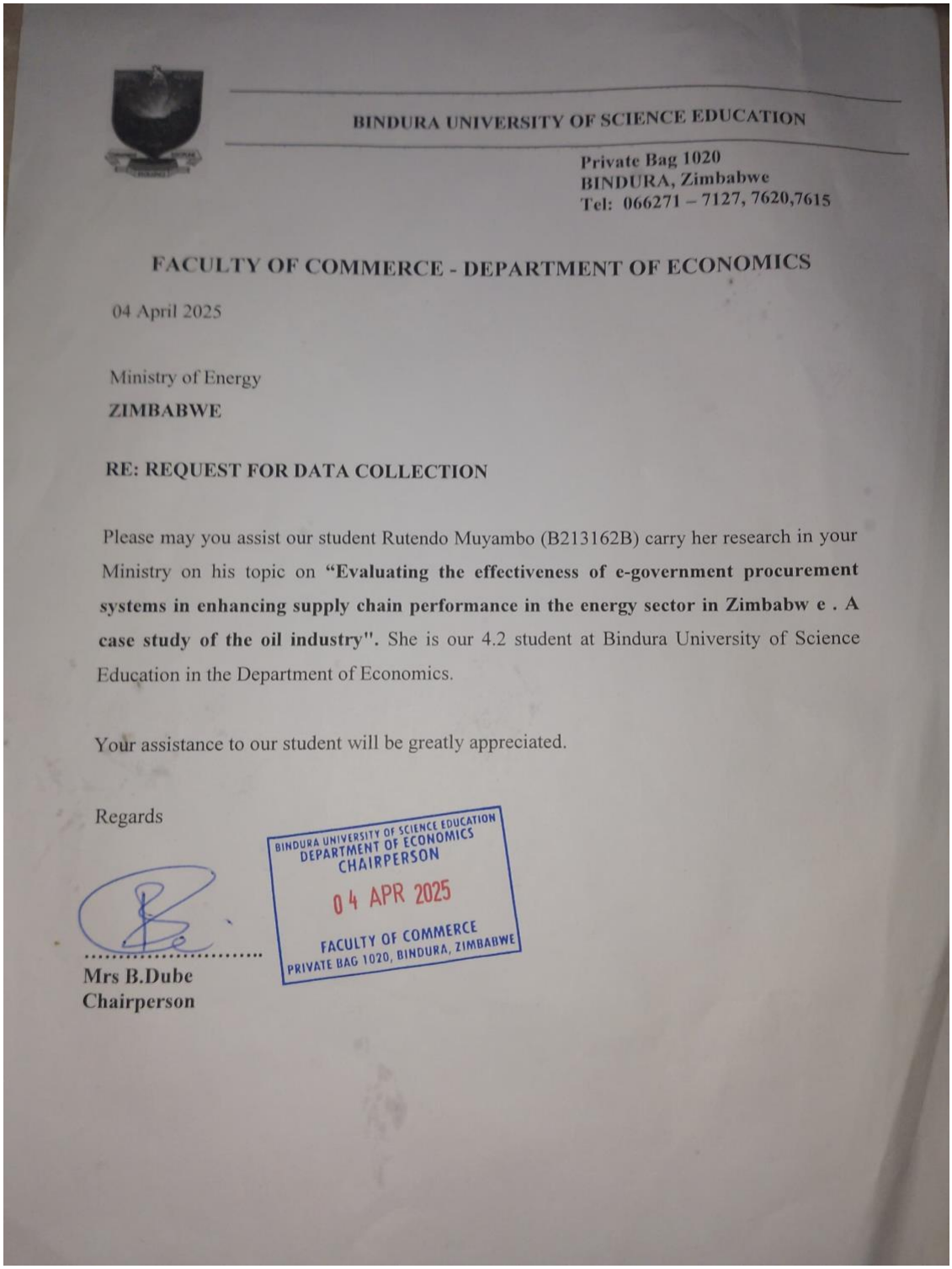
Kindly respond by ticking on the appropriate scale showing your rating on the following statements as related to supply chain performance in the energy sector after adopting e-government procurement.

1 = Strongly Disagree (SD), 2 = Disagree (D) 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

S/No	Statement	1	2	3	4	5
PE 1	More suppliers are engaged in procurement than previously					
PE 2	Goods and services provided by suppliers meet the specifications required by the institution					
PE 3	Time spend in preparation of procurement documents has been significantly reduced					
PE 4	Electronic procurement documentation costs less than hardcopies					
PE 5	It now requires less procurement than previously					

Thank you for your time.

APPENDIX 2: DATA COLLECTION APPROVAL FORM



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FACULTY OF COMMERCE - DEPARTMENT OF ECONOMICS

04 April 2025

Ministry of Energy
ZIMBABWE

RE: REQUEST FOR DATA COLLECTION

Please may you assist our student Rutendo Muyambo (B213162B) carry her research in your Ministry on his topic on **"Evaluating the effectiveness of e-government procurement systems in enhancing supply chain performance in the energy sector in Zimbabw e . A case study of the oil industry".** She is our 4.2 student at Bindura University of Science Education in the Department of Economics.

Your assistance to our student will be greatly appreciated.

Regards

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF ECONOMICS
CHAIRPERSON
04 APR 2025
FACULTY OF COMMERCE
PRIVATE BAG 1020, BINDURA, ZIMBABWE

.....
Mrs B.Dube
Chairperson

Appendix 3: Similarity Report

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