Electronic Procurement Practices and Business Efficiency among Petrol Stations in Nyanza Region, Kenya

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DECLARATIONS

I confirm this Thesis to be my original work and has not been previously published or presented elsewhere for award of a degree. I also confirm that it does not contains any material written or published by other people except where due reference is made, and author duly acknowledged.

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MBA/G/01-54972/2020

CERTIFICATTION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology of a thesis entitled "***Electronic Procurement Practices and Business Efficiency in Petrol Stations in Nyanza Region, Kenya*".**

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DEDICATION

This research thesis is dedicated to family beginning with my wife Emily Adhiambo for constantly enquiring the progress of the study and how she could assist in proofreading my thesis document any time am given corrections to do, My children Jesse, Favour, Faith and Abigael for understanding during demanding academic journey since I had to be away over the weekend to attend classes.

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ABSTRACT

The Oil Sector over the centuries has remained a predominant player in the world's economy. This sector is known for its great contribution to many nations. National Oil states that consumption of Oil and petroleum products is projected to grow from 4.5 million Metric Tonnes to 12 million Metric Tonnes by 2030 and yet currently petroleum products procured face challenges. This research looks into the influence of electronic procurement practices on business efficiency in Petrol Stations in Nyanza region, Kenya. Recent detections have shown a low efficiency in the procurement process in Petrol Stations in Nyanza region. The study conspicuously looked at the influence of electronic sourcing on business efficiency in Petrol Stations in Nyanza region, Kenya; influence of electronic supplier selection on business efficiency in Petrol Stations in Nyanza region, Kenya; influence of electronic ordering on procurement efficiency in Petrol Stations in Nyanza region, Kenya and to establish the influence of electronic payment on business efficiency in Petrol Stations in Nyanza region, Kenya. This study employed descriptive study design, target population of 134 and a sample of 100 employees of petrol stations in Nyanza region, Kenya. The study used closed ended Likert scale questionnaires in data collection. Data was analysed using both descriptive and inferential statistical where descriptive statistics involved frequencies and percentage. inferential statistics based on Pearson correlation and simple linear regression. SPSS software version 23 was useful in the analysis. The findings were that based on the first intent, the study found out that electronic sourcing had a significant influence on business efficiency among Petrol Stations (t-statistic=13.003, p-value=0.000< 0.05). In regard to the second intent, the study findings indicated that electronic supplier selection had a significant influence on business efficiency among Petrol Stations (t-statistic=10.638, p-value=0.000< 0.05). Based on the third intent, the study found out that electronic ordering had a significant influence on business efficiency among Petrol Stations (t-statistic=6.720, p-value=0.000< 0.05). Finally, the fourth objective study findings confirmed that electronic payment had a significant influence on business efficiency among Petrol Stations (t-statistic=10.209, p-value=0.000< 0.05). The study recommends that electronic sourcing should be prioritized since it enhances business efficiency. Online requisition sourcing should be practiced to make operations effective. Petrol stations should search for suppliers online based on capabilities so as to improve efficiency within the firm. This would lead to efficient supplier selection practices within Petrol

stations. Petrol Stations should plan and schedule orders, placing orders, order requisitions and tracking orders so as to ease time taken to place orders among Petrol stations. Finally, the study recommends that Petrol stations should adopt electronic payment practice to decongest queues on physical payment. Furthermore, electronic payment eases audit and minimises cases of corruption.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
EPRA	Energy and Petroleum Regulation Authority
EOQ	Economic Order Quantity
GDP	Gross Domestic Product
IDT	Innovation Diffusion Theory
IFMIS	Integrated Financial Management Information System
MMUST	Masinde Muliro University of Science and Technology
MSE	Micro Small Enterprise
NAAV	National Association of Automotive Vehicles
NACOSTI	National Commission for Science Technology Innovation
NPC	National Petroleum Council
RFQ	Online Request for Quotations
SPSS	Statistical Package for The Social Sciences
TCT	Transaction Cost Theory
USA	United States of America

OPERATIONAL DEFINITION OF TERMS

Electronic Ordering: This alludes to electronic requests for goods and services, which encompass all steps from the determination of a need to make a purchase through the payment for those purchases. This was measured through planned and scheduled orders, place orders, order requests and monitoring orders.

Electronic Sourcing: Use of internet-based applications and decision-making tools to facilitate business transactions between buyers and sellers, such as through electronic forms of negotiation, online auctions, and reverse auctions. Electronic sourcing was executed through online request, call for proposals, online adverts and online catalogues

Electronic supplier selection This refers to the acquisition of suppliers measured through search for suppliers, capabilities assessment, and reliability assessment and supplier selection

Electronic payment This refers to payment for services using electronic means, this was measured through safety of payment, costs of operation, visibility payments and electronic invoice

Electronic procurement: The term refers to the online exchange of supplies, labor, and services between businesses, between businesses and consumers, or between businesses and government entities.

Business Efficiency: This refers to act of ensuring operation is being carried out as expected or per the satisfaction of stakeholders. This was measured

through input to output, service delivery and competitive bids

CHAPTER ONE

INTRODUCTION

1.1 Background to Study

Electric procurement is buying and selling services and goods between businesses, between businesses and consumers, or between businesses and the government that takes place online. The features associated with suitable procurement functionality can be categorized as efficiency and effectiveness. Efficiency is the concept of attaining optimal output by utilizing little resources, whereas effectiveness pertains to the attainment of the highest level of performance or outcomes (Aboelmaged, 2020).

Electronic procurement refers to the utilization of information technology in order to establish a procurement process that effectively adapts to fluctuations within the surrounding context (Roma & McCue, 2022). The notion of electronic procurement is widely embraced across various industries and organizations of diverse nature. In the realm of public administration, the adoption of electronic procurement is influenced by a variety of political, social, and cultural dynamics. The successful execution of electronic procurements in the public procurement sector necessitates the allocation of adequate resources and the acquisition of specialized skills. Furthermore, the implementation necessitates the establishment of a meticulously organized change management framework and a comprehensive training regimen (Garran, 2015).

The deployment of electronic procurement necessitates the establishment of practices, processes, and systems (Vaidya, Sajeev & Callender, 2016). Additional aspects that

play a crucial role in the successful deployment of electronic procurement encompass effective governance and the enhancement of organizational capabilities (United Nations, 2021).

According to the research conducted by David and Geoffrey (2015), Electronic Procurement is defined as the utilization of internet-based systems to facilitate various phases of the procurement process. These stages encompass activities such as searching for suppliers, sourcing products, negotiating terms, placing orders, receiving goods, and doing post-purchase evaluations. In contrast, Koorn (2021) delineates three distinct categories of electronic procurement systems, namely buyer electronic procurement systems, seller electronic procurement systems, and online intermediaries. There exist multiple manifestations of electronic procurement that focus on individual or multiple phases of the procurement processes. These include electronic tendering, electronic marketplace, electronic auction/reverse auction, and electronic catalogue. The electronic Procurement application can be perceived in a more comprehensive manner as a holistic solution that effectively combines and optimizes various procurement operations across the entire enterprise.

The manual procurement approach has been utilized in both private sector organizations and government state businesses. The role of public procurement holds significant importance within the realm of government operations (Matunga, 2018). According to Vaidya, Sajeev, and Callender (2016), the Kenyan procurement procedure has shown to be lengthy, complicated, and time-consuming rather than

service, systems, works and goods meeting requirements quickly. The procurement system had multiple inadequacies that were instrumental in causing substantial financial losses in the public sector (Mose, 2022). Furthermore, this practice has demonstrated significant financial implications for both purchasers and suppliers within businesses, in addition to being well recognized as a catalyst for corrupt activities. According to Callender and Schapper (2018), it is essential for a procurement system to adhere to the fundamental principles of good governance, namely openness, accountability, and integrity. Taking these factors into consideration, the government made the decision to implement electronic procurement within state enterprises.

Procurement Electronically on a global scale is set off its popularity. The USA experienced a notable surge in the growth of electronic procurement in the early 2000s, namely before the onset of the economic decline. According to Reddick (2019), by the conclusion of that year, it was documented that all state functions had established an online presence to some extent within their procurement processes, with certain entities engaging in the practice of online bidding. In Malaysia, the government released a statement at a certain juncture, urging all vendors to adopt the electronic procurement system (Yossuf 2021). According to Kaliannan (2017), the public sector in Malaysia is currently experiencing a significant transformation, particularly in terms of technology use. The implementation of electronic procurement, including electronic procurement, is an unavoidable necessity for governmental entities.

According to a study conducted by Gupta and Palmer (2016), which involved a survey of 168 organizations in the public and private sectors in the United States, it is suggested that the integration of electronic Procurement technologies will play a significant role in the management of supply chains. Furthermore, the study indicates that the rate at which these technologies are adopted is expected to increase as organizations that have already implemented them share their successful experiences and perceive the associated risks to be minimal. In a study conducted by Barua, Konana, Whinston, and Yin (2016), it was found that electronic procurement plays a significant role in enhancing the operational excellence of major organizations in the realm of electronic business.

The objective of the study conducted by Wojciech and Zahir (2020) was to examine the advantages of electronic procurement as observed in four case companies operating in the information technology (IT) and hi-tech sectors in Central Europe. The research waged on a design of multi-case study. The benefits that were claimed by the companies were examined and categorized based on taxonomies derived from the discipline of information systems. A novel categorization of advantages was ultimately put forth. The framework was created from existing literature on information systems. The study substantiated challenges associated with the assessment of benefits, as it revealed the presence of non-financial, intangible benefits at the strategic level in addition to operational benefits.

According to Sijaona (2020), the adoption of electronic procurement in Africa, particularly within the public sector, is currently experiencing a surge in popularity. In response to the trials posed by scanty answerability and straightforwardness in procurement practices surrounding the public sector, a number of African nations have administered legal reforms and enclasp procurement as a means of addressing these issues.

In unpublished research titled "The Impact of Electronic Procurement," Daisy (2019) examines the sequel of electronic procurement on many aspects of procurement processes. The findings of the study conducted on Strategic Sourcing in Zimbabwe revealed that the primary drivers for electronic procurement were predominantly cost-related and tactical in nature. The lack of implementation of electronic procurement solutions within the bank may be attributed to their current level of maturity. In the early stages of implementing electronic procurement, companies often prioritize the identification of cost-related drivers due to their ease of measurement and rapid realization. Although strategic drivers are highly regarded, their quantification poses a greater challenge. The research divulged that use of electronically sourcing has a noteworthy aftermath on the effectiveness of procurement operations.

According to Zakari (2018) in a study on Electronic Procurement and the Performance of Ugandan Service Organizations revealed a significant level of employee dissatisfaction with the existing procurement management system. A significant proportion of the employees express consensus with the regular inspection of the

procurement system, which serves to sustain their productivity and enhance their performance. However, there is disagreement over the level of understanding among users regarding the current procurement system, as well as its effectiveness in supporting their work performance. The research divulged that use of electronically sourcing has a noteworthy aftermath on the effectiveness of procurement operations.

Tanzania, as an example, has implemented electronic procurement systems to facilitate various online activities related to public procurement. These include electronic sharing, advertisement, submission, evaluation, contracting, payment, communication, and checking and monitoring, thereby ensuring the digitization of all public procurement processes.

The use of procurement electronically in Kenya was extensively pursued by the government upon the assumption of power by the Jubilee government. Subsequently, a considerable amount of pressure and reforms have been implemented to guarantee the complete digitization of all public procurement operations. According to Quesada (2021), the Kenyan government has implemented a policy requiring the use of online platforms for the procurement of all public commodities, works, and services.

In the context of County governments, a mandate has been issued to ensure that all procurement and financing activities are carried out exclusively using online platforms. As an illustration, the government has effectuated the integrated financial management information system (IFMIS), which has been made obligatory for all 47 counties. The introduction of the Integrated Financial Management Information

System (IFMIS) aimed to strengthen governance through provision of real-time financial information and the proper formulation of program budgets. Additionally, it can be argued that it fosters increased openness and accountability, serving as a deterrent against instances of corruption and fraud (USAID, 2008).

Quesada (2020) highlights the significance of conducting research on electronic procurement, given its pivotal role within the supply chain. In codification to substantiate his research, the author observed that firms allocate a minimum of 33% of their total budget towards the possession of goods and services. Therefore, it is crucial for organizations to prioritize the establishment of efficiencies in their procurement process in codification to attain a cut-throat edge and amplify profitability.

The impediment to public participation in county resource management is primarily attributed to financial constraints. It is imperative for county governments, particularly in Western Kenya, to exercise heightened vigilance in the management of county resources, considering the people they serve (Rotich & Okello, 2015). Considering the significant challenge of resource management in western Kenya, including Busia County, it is imperative to scrutinize the aftermath of the processes in public procurement on this issue. Specifically, it is necessary to transverse the potential role of e-procurement, as there has been no previous investigation into its influence on the procurement process of the county government.

Electronic procurement has been found to be linked to many benefits in the literature. These benefits include a decrease in transaction costs, enhanced process efficiency,

higher contract compliance rates, shorter cycle times, and decreased inventory costs (Aberdeen, 2015). Additionally, electronic procurement has been connected with improved operational and cost efficiency (Roma and Mccue, 2022).

According to the study conducted by Mose, Njihia, and Magutu (2018), electronic procurement has been found to positively impact procurement performance. The utilization of electronic documents in the bidding process reinforces answerability and explicitness, ultimately leading to improved procurement performance. Abarden (2021) cites similar findings, noting that electronic procurement has been linked to improvements like increased customer satisfaction, better adherence to contracts, more supply chain capacity, lower inventory costs, and more efficient stock management. Increasing supplier and customer connections through electronic procurement may help businesses achieve their strategic procurement goals and improve their bottom line (Martinez, 2017).

In a paper by the Observatory of Economic Complexity, it is reported that Kenya's expenditure on imported refined petroleum for its fuel stations reached an estimated value of $3.07 billion in 2022, representing a significant magnitude. The aforementioned commodity held the highest position in terms of imports within the nation. At that time, Kenya had the position of the fiftieth greatest global importer of this particular goods. This paper aims at scrutinize aftermath of electronic procurement methods on procurement efficiency in Petrol stations located in the Nyanza area of Kenya.

1.1.1 The Petroleum Oil Sector

Throughout the decades, the oil sector has always maintained its locus as a prominent participant in the economy globally. The aforementioned field is widely recognized for its significant role in the advancement of the USA and numerous other several countries. The American Oil and Gas Historical Society Organization asserts that the identification and subsequent exploration of petroleum resources in Pennsylvania in 1859 had extreme and enduring aftermath on the economic, societal, and cultural aspects of the United States. Within this particular industry, powerful empires emerged, leading to the accumulation of substantial riches across multiple generations. One notable example is the renowned figure of John Rockefeller, who achieved the distinction of being recognized as the world's foremost Oil Baron in the year 1865. The procurement impact of the natural gas and oil business in United States is of considerable magnitude. According to research published by the National Petroleum Council of the United States, it was observed that in the year 2019, there was a decrease of 7.7% in performance due to inefficiencies in procurement processes. According to the Energy and Petroleum Regulatory Authority (EPRA, 2022), the oil and natural gas business in Kenya experienced an estimated loss of 29.2 million in 2021 through payment systems related to the procurement of oil and natural gas.

The oil industry has significantly contributed to global economic development by facilitating and maintaining robust productivity growth, creating employment possibilities for individuals with moderate skill levels, and enhancing a nation's

competitiveness through the exportation of oil resources. In addition to the economic advantages that the general public obtains from the oil and gas sector, such as employment opportunities, value creation, and resource accessibility, the industry also contributes to the public welfare by shouldering a substantial tax responsibility. This pertains to the overall amount of revenue collected by federal, state, and local governments in the form of various taxes imposed on the industry (National Petroleum Council, 2021).

Total Kenya currently utilizes a station integrated system (SIS) to electronically manage stock inventory at their stations. Additionally, they have implemented a new system called one ambition for station information system (OASIS), which enables Total to effectively manage their inventory systems (EPRA, 2022).

1.2 Statement Problem

Throughout the decades, the oil sector has always maintained its locus as a prominent participant in the economy globally. This field is renowned for its significant contributions to numerous countries. Based on the findings of National Oil Company limited (2022), it is anticipated that the demand for oil and petroleum products will experience a significant increase by the year 20230 to twelve (12) million metric tonnes from 4.5 million Metric Tonnes . Furthermore, recent data from the Energy and Petroleum Regulatory Authority (EPRA, 2022) reveals a notable rise in the importation of petroleum products into the country, with volumes increasing from 3,976.3 thousand tonnes in 2021 to 6,114.4 thousand tonnes in 2022. According to a

report released by the National Petroleum Council of the United States, it was found that in the year 2019, the presence of inefficiencies in procurement based on physical payment queues processes resulted in a notable decrease of 7.7% in overall profits. The National Petroleum Council of Kenya (2022) reported that the oil business incurred an estimated loss of Kes. 29.2 million due to the lack of clarity in payment processes for acquired oil and natural gas. Despite seeing a 16.3% increase in income from the oil industry, there was a negative variation of Kes. 10,424 million attributed to payment systems (KRA, 2019). Due to inefficiencies within the sector, there was a need to downsize the workforce and adjust work shifts. According to a survey conducted by the National Association of Automotive Vehicles (NAAV, 2019), the petroleum business continues to have challenges related to the procurement of oil and natural gas, despite the availability of petroleum services. The dicovery of a study lead by Omanyi, Njeri, and Mungai (2018) indicated a noteworthy correlation between electronic procurement and performance. This is in contrast to the observations made by Thai (2017), who identified a detrimental impact. Salawati (2022) failed to examine electronic for petrol stations hence sectoral gap. Ogot (2017) asserts that previous research has examined performance in many contexts, but there is a gap in the literature regarding the efficiency of procurement processes. Consequently, this work orients to probes the aftermath of electronic procurement methods on efficiency of the business specifically within Nyanza region Petrol Stations.

1.3 General Objectives

To establish influence of electronic procurement practices on efficiency of business in Nyanza region , Kenya, Petrol Stations.

1.3.1 Specific Objectives of the Study

The paper was steered by the following intent:

i) To examine electronic sourcing influence on business efficiency in Petrol Stations in Nyanza region, Kenya.

ii) To determine electronic supplier selection influence on efficiency of business in Nyanza region, Kenya Petrol Stations.

iii) To find out electronic ordering influence on efficiency of business in Nyanza region, Kenya Petrol Stations.

iv) To establish electronic payment influence on efficiency of business in Nyanza region, Kenya Petrol Stations.

1.4 Research Hypotheses

H_{O1}: Electronic sourcing does not significantly influence efficiency of business in Nyanza region, Kenya Petrol Stations.

H_{o2}: Electronic supplier selection does not significantly influence efficiency of business in Nyanza region, Kenya Petrol Stations.

H_{o3}: Electronic ordering does not significantly influence efficiency of business in Nyanza region, Kenya Petrol Stations.

H_{o4}: Electronic payment does not significantly influence efficiency of business in Nyanza region, Kenya Petrol Stations.

1.5 Significance of the Study

The outcomes of this paper has the potential to yield advantages for the petroleum and energy industry by facilitating the identification and implementation of successful procurement strategies. The identified difficulties will facilitate the development of strategies to enhance procurement efficiency, hence reducing losses associated with the aforementioned challenges.

This study may have relevance for managers of petrol stations, since it could provide insights into adopting a competitive approach in the management of petroleum products. The implementation of the electronic procurement statement was deemed necessary due to its facilitation of operational efficiency.

The study served as a valuable backing for researchers in the field, providing relevant insights to enhance electronic procurement studies. Therefore, scholars have the ability to access it through their academic institution and the internet.

Ultimately, the outcomes of this study may aid the researcher in developing recommendations that could enhance procurement efficiency. Consequently, this

would support fuel stations in realizing their objectives and contribute to the accumulation of information for both scholars and researchers.

1.6 Scope of the Study

This study was administered on petrol stations in Nyanza. The aforementioned locations include Kisumu, Siaya, Migori and Homabay. The study primarily examined the many aspects of electronic procurement, including electronic sourcing, electronic supplier management, electronic ordering, and electronic payment. The study had a duration of three years, commencing in 2020 during the COVID-19 prevalent and concluding in 2023 after the prevalent. The variations in prices served as the foundation for evaluating electronic procurement.

1.7 Limitations of the Study

Cooperation from respondents where some could not see the value for participating in the study. The researcher enlightened respondents of need to such a study on their business improvement. However, this problem was handled since the researcher assertive them of total seclusion and the detections of the study were meant to help makers of policy in improving business efficiency in petrol stations. Furthermore, letter of authority from Masinde Muliro University of Science and Technology directorate post graduate and NACOSTI confirmed the study to be solely for educational purposes.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presented appraisal of the works of unrelated scholars on various discussions regarding electronic procurement practices on procurement efficiency with specific regards to electronic sourcing, electronic supplier, electronic ordering and electronic payment.

2.2 Theoretical Review

The aftermath of electronic procurement practices on procurement efficiency is studied through the lens of various theoretical frameworks. These frameworks offer predictions, explanations, and guidelines for understanding the phenomenon and provide a foundation for exploring new ground in organizing procurement processes (Helen, 2022). The research was informed by the theoretical frameworks of transaction cost theory, innovation dissemination theory, and technological acceptance theory.

2.2.1 Transaction Cost Theory (TCT)

The formulation of this idea can be attributed to Ronald Coase in the year 1937. The idea examines the fees associated with a certain transaction. For example, electronic procurement incurs lower prices for electronic sourcing, electronic supplier, electronic

ordering, and electronic payment in comparison to physical transactions (Xinyu & Patricia, 2017). Classical economic theory posits the assumption of symmetric information within the market. Given the assumption of symmetric information between buyers and sellers, the transaction can be conducted without incurring any costs. In actuality, markets frequently exhibit inefficiencies. To engage in a transaction, customers are required to undertake many tasks, including information search, negotiation of terms, and ongoing process monitoring, with the aim of securing a favourable outcome. This idea holds significance within the realm of electronic procurement efficiency as it aids organizations in achieving optimal performance by maximizing value for money. This idea, however, places greater focus on electronic payment systems in which transactions occur.

However, the idea faces criticism over the premise that an efficient procurement process is solely defined by numerous elements, including production costs and operational expenses. Consequently, high costs do not necessarily indicate deficiencies within the procurement sector. Nevertheless, there is a prevailing belief that electronic transactions have to be reduced. This hypothesis holds a central position. Transaction cost theory is the main theory as business efficiency based on electronic sourcing; electronic supplier selection practice, electronic ordering and electronic payment are envisaged in transactions taking place.

2.2.2 Innovation Diffusion Theory (IDT)

Furthermore, the present study was grounded in Innovation Diffusion Theory (IDT) as proposed by Rodgers in 1962. This theory examines the utilization of electronic procurement as an innovative application of information technology within firms, in comparison to traditional purchasing methods. Customers' online purchasing habits can be studied by employing Instructional Design and Technology (IDT). There are five main factors that determine an innovation's uptake rate: The term "relative advantage" is used to describe how much of an improvement one innovation has over another. On the other hand, the compatibility of an innovation refers to how well it fits in with the expectations of its potential users. The apparent difficulty of implementing an innovation is alludes to as its intricacy, while the amount to linked on a small scale is referred to as its trialability. Finally, observability refers to how obvious the benefits of an innovation are to the public. According to Xinyu and Patricia (2017), the rate of adoption of an invention is favourably influenced by its relative advantage, compatibility, trialability, and observability. On the other hand, complexity is observed to have a negative association with the rate of adoption.

This theory faces criticism due to the obstacles connected with the use of improvised technology in the electronic procurement process, despite its potential to stimulate innovation. One notable concern is the mishandling of funds that can still occur despite the use of electronic payment systems. This hypothesis holds significant importance within the scope of this research, particularly in relation to the effectuation of the functions of procurement. The rationale for this is that the implementation of

procurement efficiency measures is necessary to ensure ongoing improvement in organizational performance. Electronic procurement operations in Kenyan petrol stations are designed to provide beneficial services to the general public.

2.2.3 Technology Acceptance Theory

The Technology Acceptance Theory (TAT) was originally propounded by Devis in 1986. According to Davis (1986), the acceptance of developing technologies by users is a crucial factor in determining their impact on organizational effectiveness and performance. The idea of technology acceptance is widely recognized as a prominent framework for comprehending the uptake of computer technologies. The successful implementation of any innovation, particularly those related to information technology, necessitates the allocation of resources towards computer-based tools that facilitate communication, decision-making and planning. Nevertheless, these channels may provide potential risks. Hence, it is of utmost importance that the channels be set out based on organizational desire and logical reasoning. It is vital to grasp that individuals may exhibit resistance towards technology advancements. It is imperative to do a comprehensive examination of the underlying reasons behind individuals' resistance to change, as well as explore potential strategies for effectively addressing and resolving these challenges. The cultivation of a suitable corporate culture necessitates the gradual adoption of change, complemented by effective communication strategies. It is imperative that all individuals engaged possess a

comprehensive understanding of their assigned responsibilities and are granted the necessary authority to effectively execute their designated tasks (Kamel, 2017).

There are two pillars upon which the theory of technology rests. First, let's assume that people think the system is helpful. This includes things like how well it works and how much it helps them. The second premise rests on people's expectations of how simple the new systems to pick up and use, navigate, and recall information from. This idea posits that the acceptability and adoption of novel technology is contingent upon the users' affective responses towards the system and their perceived advantages derived from its use. The utilization of electronic sourcing, electronic supplier management, electronic ordering, and electronic payment methods has significant importance in the establishment of petrol stations.

2.3 Conceptual Review

2.3.1 Electronic sourcing

Supplier identification is the systematic procedure of locating and selecting new suppliers to provide goods or services within a specific category, utilizing computerized methods. The program in question is a web-based platform that facilitates collaborative technologies across the whole electronic procurement process, fostering communication and interaction between buyers and suppliers. Organizations are implementing electronic sourcing as a strategic approach to cost reduction (Kock, 2015). Currently, electronic sourcing applications include two primary functionalities. The first is the online request for quotations (RFQ), which involves the buyer stating

their requirements and soliciting potential suppliers to submit quotations for the desired product or service. These prices are subsequently reviewed within the application. Online auctions are another method utilized in which potential purchasers are provided with the opportunity to competitively bid for the contracts that are being made available. Typically, the contract for the provision of necessary products or services is awarded to the bidder with the lowest bid. Electronic sourcing executable through online catalogues ,online requisition, call for proposals and online advertisement.

2.3.2 Electronic Supplier Selection Practice

The pre-electronic certification of venders is a prime component in the procedure of selecting electronic suppliers, as it significantly impacts the decision-making process that affects the organizational operation performance. The consequences of inadequate supplier selection become increasingly evident as an organization expands, as it becomes more reliant on outsourced services for its fundamental operations. According to Chan (2017), According to Scott (2017), the implementation of various improvements in supplier selection methods might result in a subsequent impact on the supply chain. This phenomenon can be attributed to the growing pool of suppliers that qualify for consideration, both domestically and internationally, as a result of the globalized market and the adoption of web-based procurement practices. These practices have facilitated the evolution of customer preferences and demands, necessitating a greater processes in procurement to be transparent in all levels.

The efficiency of electronic procurement hinges upon the extent and timeliness of consumer engagement in the procedure, wherein propound solutions are presented to them and various concerns are promptly addressed. Additionally, there are other alternatives that the organization may utilize to gain access to an extensive range of providers, allowing them the freedom to choose according to their preferences (Birks, 2016). The effectiveness of the electronic procurement strategy is contingent upon elements such as the willingness of electronic providers and the appropriateness of information flow (Kaliannan *et al*., 2019). The apprehension regarding the adoption of electronic commerce techniques by suppliers stems from their limited participation in the process. Electronic supplier selection measured through supplier selection, assessment of reliability, search for suppliers and capabilities assessment.

2.3.3 Electronic ordering

The procurement of gas and oil for commercial purposes often involves the utilization of electronic ordering systems, which are widely recommended in various scenarios. In the contemporary corporate landscape, characterized by a strong emphasis on operational efficiency and meeting consumer expectations, electronic ordering has emerged as a pivotal factor in enabling organizations to attain their goals. The utilization of computerized ordering confers several advantages: The practice of sourcing contributes to cost savings by improving the visibility of expenditures and taking advantage of economies of scale through bulk purchasing (Evans & Wurster, 2016). The deployment of computerized ordering in the procurement department has

the potential to result in cost savings for the firm. The implementation of electronic sourcing has significantly decreased the duration of the ordering cycle, encompassing activities such as supplier identification, negotiation, and contract signing. Electronic ordering measured through tracking of orders, planning, scheduling orders, placing orders and order requisitions.

2.3.4 Electronic Payment

The concept of an e-payment system encompasses the full gamut of monetary transactions. Everything from the end-user issuing a payment instruction through the final settlement of the transaction is subject to a wide range of methods, technological systems, institutions, procedures, rules, and laws. Trading partners, markets, and governments (EPS development players) in different nations and time periods have established different sorts of rules, regulations, methods, technology, and arrangements to construct a stable infrastructure for monetary exchange. We typically refer to this set up as "payment systems" (Bossone & Massimo, 2016). The electronic payment system refers to an internet-based commercial procedure utilized for the transfer of funds through electronic gadget such as personal computers and mobile phones. In the banking sector, these instruments are extensively employed anytime financial transactions occur, particularly in relation to payments and other related methods. According to Manav (2017), the several means of electronic payment include the Debit Card Payment System, Credit Card Payment System, Online Electronic Cash System, Electronic Cheque System, and Smart Cards based Electronic Payment

System. Electronic payment measured through safety of payment, costs of operation, visibility payments and electronic invoice.

2.3.5 Business Efficiency

Business efficiency encompasses a wide range of factors within the procurement process, including but not limited to: the satisfaction and effectiveness of internal users, the performance and qualifications of suppliers, the competency and expertise of procurement staff, the functionality of the purchasing function, the influence of market forces, the impact of government policies, and the outcomes of management decisions. The absence of clearly defined objectives, targets, and measurements is a significant challenge in assessing procurement efficiency (Kakwezi & Nyeko, 2020). Research findings indicate that the manual procurement system poses challenges in achieving cost-effectiveness due to various factors.

These include sluggish transaction processing, heightened occurrence of handling errors, substantial paper generation, complications in expediting deliveries, intricate procedures, excessive state intervention, bureaucratic processes, absence of centralized control, an excessive number of suppliers, absence of product standardization, and limited buyer influence (McConnell, 2019).

The advent of electronic procurement solutions has emerged as a transformative measure to tackle the aforementioned difficulties and improve the efficiency of procurement processes. The adoption of electronic procurement by state enterprises on

a global scale has garnered praise for its capacity to deliver value for money. This achievement can be attributed to the fulfilment of the promises associated with electronic procurement, as outlined by Hsiao and Teo (2015).

The aforementioned commitments encompass several aspects, such as the reduction of procurement costs, the enhancement of customer service levels, the improvement of policy compliance, and the decrease of procurement lead-time. Consequently, the effectiveness of procurement inside state enterprises experienced significant improvement (Amayi & Ngugi, 2018). One significant advancement in the realm of electronic procurement within public institutions is the advent of standardized electronic procurement procedures, which have supplanted the processes of procurement manually used in open tendering in government. This transition has resulted in enhanced efficiency within the procurement system. Business efficiency measured through input to output, service delivery and competitive bids

2.4 Empirical Review

This appertains to the exposition of variegated studies empathize the specific objectives under the study namely electronic sourcing, electronic supplier selection, electronic ordering, and electronic payment.

2.4.1 Influence of Electronic Sourcing on the Business Efficiency of Firms

According to Zakari (2018) the Efficiency of Ugandan Service Providers Through Electronic Procurement revealed a significant level of employee dissatisfaction with

the existing procurement management system. A significant proportion of the employee's express consensus with the periodic inspection of the procurement system, which serves to sustain their productivity and enhance their performance. However, there is disagreement over the level of understanding among users regarding the current procurement system, as well as its effectiveness in supporting their work performance. The research revealed that the use of sourcing electronically has a noteworthy aftermath on the effectiveness of procurement operations. The study was based on Ugandan service providers and not petrol stations in Kenya.

In a study conducted by Walter (2015), the impact of procurement practices on the performance of trading state-owned enterprises in Nairobi County was examined. The detection of the study let out that the competence and expertise of the procurement personnel played a crucial role in enhancing procurement efficiency and overall organizational performance. The study was based on commercial state-owned enterprises in Nairobi County and not petrol stations in Kenya.

The detection of the scrutiny stipulated that a remarkable proportion of the contributors acknowledged that the procurement personnel employed in Government-owned firms lack the necessary skill set, experience, and ethical standards to efficiently carry out their responsibilities. The results of this study challenge the fundamental criterion outlined in the Public Procurement and Disposal Acts, which mandates all public procurement personnel possess professional degrees and be affiliated with professional organizations in the field of management of supply chain.

The discovery provides an explanation for the prevalent inefficiencies and ineffective procurement processes observed in the masses of the scrutinized ventures. The study also demonstrated masses of the scrutinized ventures did not adhere to the approach commonly observed in the private sector of maintaining a limited supply base. This lack of adherence resulted in widespread inefficiencies and subpar performance. The research findings indicate a lack of adoption or limited adoption of information technology tools aimed at optimizing and overseeing key organizational processes, such as procurement.

The majority of participants expressed consensus regarding the potential benefits of adopting electronic procurement, enterprise resource planning (ERP), and integrated financial management information systems (IFMIS) inside the surveyed businesses. These technological advancements were seen as potential catalysts for enhancing efficiency, ensuring accountability in the utilization of public funds, and fostering integrity in procurement procedures. The participants agreed that implementing such strategies would undoubtedly result in improved performance over an extended period of time. The research let out that the utilization of electronic sourcing has a substantial impact on the effectiveness of procurement operations.

According to an unpublished analysis by Daisy (2019) on the impact of electronic procurement on strategic sourcing in Zimbabwe, the findings revealed that the primary drivers for electronic procurement were predominantly cost-related and tactical in nature. The lack of implementation of electronic procurement solutions within the

bank may be attributed to their current level of maturity. In the early stages of implementing electronic procurement, companies often prioritize the identification of cost-related drivers due to their ease of measurement and rapid realization. Although strategic drivers are highly regarded, they present challenges when it comes to quantification. The research let out that the use of electronically sourcing has noteworthy aftermath on the effectiveness of procurement operations. The study was based on strategic sourcing in Zimbabwe and not Kenyan petrol stations.

2.4.2 Influence of Electronic Supplier Selection Practice on Business Efficiency of Firms

Ogbo (2021) examined the impact of electronic Economic Order Quantity on inventory command. The economic order quantity (EOQ) is a concept described by Ogbo (2021) as the optimal order quantity that minimizes the trade-off between holding costs and ordering costs in inventory management. According to Ogbo (2021), it is imperative to make certain positive assumptions in order to compute a fundamental Economic Order Quantity (EOQ). These assumptions include the presence of known and consistent inventory holding costs, steady ordering costs, a known demand rate, a known unit cost, immediate replenishment where the entire batch is delivered at once, and the absence of any inventory shortages. The EOQ

explanation does not take into account the buffer stocks that are maintained to accommodate variations in lead time (Ogbo, 2021). The research revealed that the use of computerized supplier selection practices had a notable aftermath on the efficiency of procurement processes. The study was based on economic order quantity and not electronic procurement.

Salawati (2022) also discovered that electronic economic order quantity minimizes overall inventory holding prices and ordering fees. This particular manufacturing scheduling model is considered to be one of the oldest in the field of classical manufacturing. The inventory control formulation is typically observed as a successful stratagem in which the organization is able to institute the necessary inventory levels for the entire year. The concept of economic order quantity enables firms to strategically scheme their inventory renewal routinely, for as monthly, quarterly, semi-annually, or annually. By employing this strategy, organizations are able to maintain low or zero inventory costs within their warehouses as a result of the efficient flow of incoming and outgoing material. The research let out that the practice of selecting electronic suppliers has a notable impact on the efficiency of procurement processes. The study was based on economic order quantity and not electronic procurement.

Mukopi and Iravo (2015) conducted a local analysis on the impact of automated inventory control on performance, specifically focusing on the sugar business. The research employed a sample of 30 procurement professionals selected from 100 personnel working in sugar business located in Western Kenya as the population The

study utilized ANOVA to determine the significance of information communication technology as a variable in the administration of automated inventory systems, alongside other variables. The research revealed that the use of computerized supplier selection practices had a notable aftermath on the efficiency of procurement processes. The study was based on automated inventory control and not electronic procurement.

Sople (2018) conducted a study on the use of bar coding as a proficient technique for managing electronic stores. A barcode is a form of visual representation that can be read by machines, containing data pertaining to the object it is affixed to. Barcodes serve as a means of identification, facilitating the efficient handling, retrieval, and storage of goods within warehouse and retail environments. This technology is widely recognized as the most popular choice across various applications. In the context of inventory management, each individual inventory item, carton, or unitized container is equipped with a barcode label that may be scanned by a barcode scanner connected to an online computer system. A barcode is allocated to a specific inventory item in order to indicate its identity during the processes of storage, retrieval, and shipment. Barcodes are utilized for the purpose of facilitating communication regarding sent commodities, enabling the accounts departments to generate invoices, and facilitating the creation of monthly reports on inventory status and sales (Ngei & Kihara, 2017). Barcodes play a crucial role in enabling , monitoring and identification of individual goods inside a warehouse setting, particularly during activities such as inventory audits or material retrieval. Additionally, they provide the monitoring of a consignment

throughout the shipping and inspection process at the customer's location. The requisite information often pertains to the country code, name of the producer, product specifications, date of production, material composition, and similar factors. The users are responsible for providing the necessary details for inventory control, which are encoded in machine-readable formats such as barcodes and spaces (Sople, 2018). Implementing barcodes effectively within organizations can facilitate inventory managers in easily identifying their products, improving customer service speed and efficiency, and reducing the time and costs associated with annual inventory audits. The study was based on bar coding technique and not electronic procurement.

Brason, 2015) observed that creating an efficient and effective inventory control system is the key challenge encountered by many supply chain managers. In the pursuit of achieving efficient automation of inventory management, various frameworks have been developed to ensure that organizations maintain optimal inventory levels, striking a balance between costs and customer pleasure. These structures include materials requirement planning, vendor-controlled inventory, radio frequency identification, electronic resource planning, electronic point of sale, and e-procurement (Brason, 2015). The research let out that the practice of electronic supplier selection has a notable impact on the efficiency of procurement processes. The study was based on inventory control system and not electronic procurement.

According to Ngei and Kihara (2017), organizations must participate in constant innovation to be both operationally effective in exploitation and strategically adaptable

in exploration. The current advancements in societal, trade places, technological and fields indicate prominent firms must seek arrangements of techniques, Approaches, people, systemization and administrative structures that enable them to achieve a state of perpetual innovation. A culture that prioritizes ongoing innovation enables firms to concentrate on updating their managerial competences in alignment with the evolving business landscape, as well as developing the talents necessary to restructure and change their assets. This implies that it is advisable for participants in the supply chain to identify distinct collections of organizational capabilities in order to effectively convert and reconfigure their competencies, resulting in operations that are more cost-efficient, flexible, of higher quality, and time-sensitive. The study indicated that the use of electronic supplier selection practices significantly impacted the effectiveness of the procurement process (Ngei & Kihara, 2017). The study was based on innovation efficiency and not electronic procurement.

2.4.3 Influence of Electronic Ordering on Business Efficiency of Firms

Yen and Ng (2018) conducted a study that examined the effects of electronic procurement on the procurement process within the supply chain. The researchers analysed the Hong Kong Textile project as part of their investigation. The researchers employed SWOT analysis as a means of delineating the effects associated with each phase of the processes in procurement. ardour and weaknesses were employed as intramural performance indicators inside the activities of procurement, encompassing

determinants such as efficiency and effectiveness. The study was in accordance with on supply chain and not business efficiency.

Matunga, Nyanamba, and Okibo (2018) evaluated the impact of electronic procurement on the efficiency of hospital procurement. The study aimed to evaluate the aftermath of electronic procurement on the quality of goods in public hospitals, examine the effect of electronic procurement on the prices of merchandise acquired in general hospitals, and assess the greater to which electronic procurement has contributed to achieving optimal treasure for money in general hospitals procurement. The research detections stipulated that level 5 Hospital in Kisii tendered electronically, quotations electronically and electronic sourcing as its primary applications procurement electronically. The primary obstacles encountered when utilizing an electronic market provider were identified as insufficient funding, organizational difficulties in managing change, and a lack of employee training on system utilization. The research let out that the implementation of electronic ordering systems has notable impact on enhancing the efficiency of procurement processes. The study's findings indicate that public hospitals have implemented certain electronic procurement applications, despite the inherent constraints associated with their implementation. The study was based on hospital sector and petrol stations.

Rotich and Okello (2015) studied how county governments in Kenya could benefit from computerized procurement in order to increase their efficiency. The main impetus of this research was to scrutinize how electronic procurement affects County

Governments in Kenya's procurement performance. The research shows that electronic procurement and the performance of supply chain services within Kenya's County Governments are highly correlated. Consequently, the study proposes that the Government should formulate rules pertaining to the implementation of electronic procurement procedures, while also allocating essential resources and assuming a leadership role in the adoption of such practices. The research let out that the implementation of electronic ordering systems had a weighty aftermath on the efficiency of procurement processes. The study was based on county governments and not petrol stations.

Basheka, Oluka, and Mugurusi (2022) found that critical success factors (CSFs) should be taken into account when implementing electronic procurement in Uganda's public sector. According to the results of the research, the critical CSFs for electronic procurement in Uganda include the following elements: suppliers' active participation, systematic risk management means, the redesign of organizational processes, the use of knowledgeable consultants, and cautious choice of software vendors. The study was based on Uganda's public sector and not petrol stations.

According to a study conducted by Gupta and Palmer (2016), which involved a survey of 168 organizations in the United States from both the public and private sectors, it is suggested that the integration of electronic Procurement technologies will play a significant role in the field of supply chain management. The study additionally proposes that the rate at which these technologies are adopted will increase as

organizations that have already implemented them share their successful experiences and perceive the associated risks to be minimal. In a study conducted by Barua, Konana, Whinston, and Yin (2016), it was determined that electronic procurement plays a significant role in enhancing the operational excellence of major organizations in the realm of electronic business. The study was based on United States and not Kenya.

The goal of Wojciech and Zahir's (2020) case study of four Central European IT, hi-tech firms was to show the benefits of electronic procurement. The research engaged design study of a multi-case. The benefits indicated by the companies were examined and categorized based on taxonomies derived from the discipline of information systems. A novel categorization of advantages was ultimately put forth. The framework was created from existing literature on information systems. The study substantiated challenges associated with the assessment of benefits, as it revealed the presence of not only operational advantages but also non-financial and intangible benefits at the strategic level. The study was based on Central European and not Kenya.

Petter and Anne (2017) conducted a study to evaluate the degree to which firms have intentions to employ electronic marketplaces for procurement purposes. The poll was carried out in the country of Norway. According to the uncovering of the survey, the majority of firms had formulated plans to employ electronic marketplaces for their purchasing activities. Merely a small fraction, specifically 3 percent, reported having no such plans, while a significant proportion, up to 34 percent, had developed actual

strategies for leveraging electronic marketplaces in their procurement processes. The firms included in the response have indicated their intention to procure a considerably larger quantity of indirect commodities as compared to indirect services through electronic marketplaces. The primary advantage anticipated from the utilization of electronic markets for purchasing was the reduction of transaction costs. The strategic significance of business-to-business electronic markets can serve as a strong indicator of the likelihood that businesses will adopt and employ electronic marketplaces for their purchasing activities. The research divulged that the implementation of electronic ordering systems had a weighty aftermath on the efficiency of procurement processes. The study was based on innovation efficiency and not electronic procurement.

2.4.4 Influence of Electronic Payment Practice on Business Efficiency of Firms

Veronica (2021) defines electronic payments as services that employ information and communication technologies such as cryptography and telecommunications networks, to facilitate monetary transactions. These services can be further subdivided into electronic cash system, check-like systems, credit cards systems and debit cards system and hybrid systems like stored-value cards systems. In edict to effectively deploy electronic payment systems, it is imperative to enhance users' awareness, promote their utilization of such systems, and instil confidence in the security and comprehensiveness of the infrastructure. Additionally, it is vital to ensure the accessibility of high-quality telecommunication facilities to support these systems. The author additionally proposes that in order to enhance consumer engagement, it

would be beneficial to provide them with the option to select the payment method that incurs the least amount of expenses. It is vital for customers to possess the capability to monitor their account balance. Based on the researcher's results, it is endosed that the design of electronic payment systems prioritize key considerations such as efficiency, security, convenience, cost, flexibility or universality, privacy, reliability, consumer interest, and infrastructures. The research revealed that the utilization of electronic payment methods has a notable aftermath on enhancing the efficiency of procurement processes. The study was based on information and communication technologies and not electronic procurement.

According to Austin and Laurence (2021), the utilization of electronic payment facilitates the transmission of electronic orders for goods to trade partners. Additionally, it allows for the storage of electronic receipts, which can be associated with the corresponding orders for goods and services. In addition, it is possible to reconcile invoices, receipts, and orders digitally. From a fundamental cash-based exchange system, electronic payment systems have developed into a more complex structure that includes many institutions and accompanying legislation. The study was based on innovation efficiency and not electronic procurement.

These networks make it easier for a wide variety of partners or business units to connect and carry out their individual commercial and social duties by providing payment instruments and infrastructures. It might be claimed that any payments made by consumers, businesses, or governments to merchants, financial institutions, or

government agencies over digital networks are considered electronic transactions. The typical payment system acts as a bridge between the person sending money and the person receiving it. The payer often kicks off this chain of events by presenting an authorized instrument to the issuer, acquirer, and central bank via electronic means. Because of this, the transfer of payments between the parties is streamlined. Based on the findings, it's clear that electronic payment methods greatly improve the effectiveness of purchasing procedures.

Manav (2017) notes that the term "electronic payment" refers to the procedure of making a payment to a business while buying goods or services over the Internet. The phenomenon of electronic commerce is experiencing a significant surge in the consumer sector. The payment process in electronic commerce is typically facilitated using an electronic payment system. The study was based on electronic payment and not electronic procurement.

The prevalence of electronic payment has witnessed a notable surge, facilitated by the proliferation of electronic transfer, debit card, credit card, and other similar payment methods. The advent of novel advancements in electronic commerce has the potential to present a plethora of fresh business prospects in the realm of payment for products and services. The interconnection between electronic payment systems and electronic commerce is evident as online users are required to make payments for the purchase of goods and services.

Payment systems encompass various requirements, such as security, acceptability, ease, cost, anonymity, control, and traceability. This has ushered researchers to hub

less on the technical details of various electronic payment systems and more on the characteristics of the data being transferred across the network. After listing the features, benefits, and drawbacks of each type of electronic payment system, they proceed to compare and contrast them. According to the study's findings, using digital payment methods significantly improves the effectiveness of purchasing procedures.

2.5 Research Gaps

Table 2.1 Knowledge Gaps

Author(s)	Study	Methodology	Results	Gap
Zakari (2018)	Relationship between electronic procurement and the performance of service organizations	Used experimental method Both descriptive and inferential statistics	Electronic procurement has a significant effect on performance of service organizations	The study focuses on performance measurements rather than efficiency measures. Based on service firms and not petrol stations in particular
Rotich & Okello (2015)	County government's computerized procurement and efficiency	The study was based on analytic review	Computerized procurement significantly affected efficiency	Analyzed County governments and not petrol stations

Basheka, Oluka, & Mugurusi (2022)	Critical success factors and implementing electronic procurement in Uganda's public sector	Descriptive research design	They found that critical success factors has a positive, moderate, and significant impact on electronic procurement	The study was based on Critical success factors hence construct gaps and public sector electronic procurement not petrol stations
Yen & Ng (2018)	Effects of electronic procurement on the procurement process within the supply chain	Employed descriptive research design descriptive and inferential statistics	There existed a significant positive relationship between electronic procurement and supply chain	The study was based on supply chain and not business efficiency.
Matunga, Nyanamba, & Okibo (2018)	Impact of electronic procurement on the efficiency of hospital procurement	Multilevel approach, targeted 500 SMEs	Electronic procurement significantly affected efficiency of hospital procurement	The study was based on hospital sector and petrol stations.
Salawati (2022)	Electronic economic order quantity and ordering fees	Used descriptive design, descriptive statistics,	Electronic economic order quantity minimizes overall inventory holding prices and ordering	The study was based on economic order quantity and not electronic procurement.

	fees

Source; Literature Review, (2024)

2.6 Conceptual Framework

Conceptual framework is a theoretical construct that elucidates interrelationship between variables within a study, visually represented through a diagrammatic format. As guided by Mugenda and Mugenda (2018). In addition to elucidating the trajectory of the investigation, the conceptual framework enables the researcher to delineate the interconnections among the many structures under investigation. The influence betwixt these variables is shown in 2.1 Figure below.

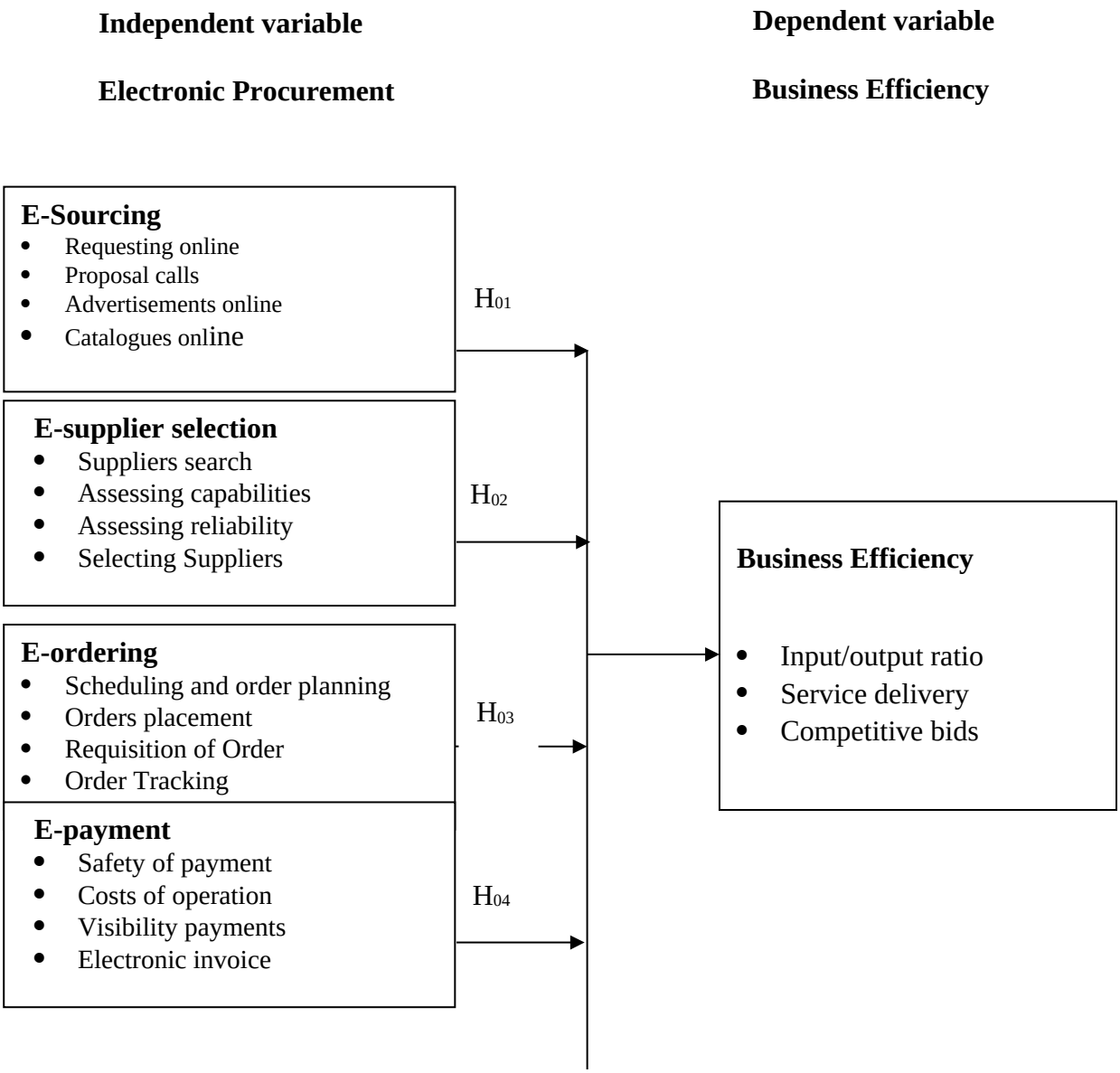

Figure 1 Conceptual Framework

Source: Adopted from Veronica (2021)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter dispense the research design for the present study, target population, sampling frame, sample and sampling technique, research instruments, data collection procedures, pilot test, validity, and reliability and finally data processing and analysis.

3.2 Research Area

The study was conducted at all active gas stations in the Nyanza region of Kenya, including Kisumu, Siaya, Homabay, and Migori, as of April 1, 2023. The selection of this location was based on the fact that the Nyanza region has implemented electronic procurement systems to a greater extent than other regions.

3.3 Research Design

The term "research design" pertains to the organization of procedures utilized, nick and plans in a research study, encompassing the strategy engaged for data analyzing and collection. The purpose of research design is to establish a meaningful connection between the research objective and the whole study (Creswell, 2017). The descriptive research design was used. This described the relationship between study variables. This design is pertinent for discerning the attributes of an observed phenomenon (Leedy & Ormrod, 2020). The utilization of this particular research design is deemed

suitable for the present study due to the assertion made by Zikmund (2016) that descriptive research design aims to generate statistical data pertaining to many facets of the research subject matter, which may be of significance to policy makers, such as the case of petrol stations in the Nyanza region.

3.4 Target population

The study included the employees in 6 brands of petrol stations in Nyanza region. The target populations were 134 respondents comprising of station manager and accountants as stipulated in Table 3.1.

Table 3.1: Target Population

Management of staff Category	**No. of Management Staff**
Kisumu	45
Siaya	32
Homabay	18
Migori	39
Total	**134**

Source: PIEA , Petroleum Insight manual 1st Quarter 2023

3.5 Sample Size and Sampling Procedure

A sample is defined as a subset of individuals, elements, or traits that are selected from a broader population (Peil, 1995). Sampling is a method employed to secure the selection of certain elements from a population, with the focus of accurately representing the entire population. The research utilized a simple random sampling methodology due to the inclusion of all personnel across all departments in petrol stations throughout the Nyanza region as the target population. The researcher employed Yamane's (1967) sampling formula to establish the appropriate sample size for the study.

$$n = \frac{N}{1 + Ne^2}$$

N – is the population size

e – is the level of precision (95%; e = 0.05

$$n = \frac{134}{1 + 134(0.05)^2}$$

$$n = \frac{134}{1 + 134(0.0025)}$$

$$n = \frac{134}{1.335} \qquad n = 100.3 = 100$$

Therefore, the sample size for the study was100 respondents.

3.6 Instrument for Data collections

A data collection instrument is a gadget that aids in the process of gathering data. The selection of the instrument is hinged upon the specific research design and research approach employed. According to Mugenda and Mugenda (2018), questionnaires are considered the most suitable tools for gathering data. In addition, the utilization of structured questionnaires is essential in the collecting of quantitative data within a quantitative research method (Kothari, 2019). The data collection process included a standardized questionnaire. The survey included of three sections: Part A focused on gathering personal information, Part B examined electronic procurement processes, and Part C assessed procurement efficiency. The study employed a Likert scale ranging from 1 to 5, where 1 be counted as "Strongly Disagree," 2 be counted as "Disagree," 3 be counted as "Fairly Agree," 4 be counted as "Agree," and 5 be counted as "Strongly Agree."

3.8 Validity and Reliability

3.8.1 Validity

Validity refers to the degree to which a research instrument accurately measures the construct it claims to measure, as determined by the subjective evaluation of the researcher (Mugenda & Mugenda, 2018). Hence, it is vital for a research instrument to possess the capability to efficiently gather data that can adequately tackle the intent of the study. In the present study, the context rationality of the research questionnaire was

established by taking counsel from the designated University supervisor and managers of petrol stations. The researcher sought guidance from the supervisor, whose input about the questionnaire's content was considered adequate for assessing the legitimacy of the instrument. The construct legality of the study was assessed by a factor analysis, in which variable rotation was performed. Variables with factor loadings below 0.4 were excluded from the analysis.

3.8.2 Pilot Test

A pilot study was coordinated on a specimen of 10 station managers employed at petrol stations in Kakamega County in order to guage the efficacy of the tools being utilized. This measure was implemented in order to prevent the inclusion of participants who had already taken part in the final study. This study was conducted with a focus on the homogeneity of the Kakamega to Nyanza region. The composition of the staff exhibits a comparable level of professional standing. According to Cooper and Schindler (2008), it is recommended that researchers conduct a pilot test of their data gathering methods prior to commencing their research. The primary objective was to uncover any ambiguities present in the questions, as well as to detect any issues pertaining to study methodology and data gathering methodologies.

3.8.3 Reliability

Reliability refers to the degree of consistency, accuracy, or precision exhibited by an instrument when regularly employed in comparable circumstances (Orodho, 2016).

The researchers determined the reliability of the instrument by calculating Cronbach's alpha coefficient (Fraenkel & Wallen, 2000). The measure was employed to assess the homogeneity or internal consistency of several variables. A Cronbach alpha coefficient of 0.70 or above stipulated that the data collection instrument possesses sufficient reliability. Consequently, values exceeding 0.7 were deemed acceptable.

3.9 Data Processing and Analysis

The questionnaires that were collected were checked to assess their completeness and to exclude those that may have been improperly filled out or incomplete. The utilization of the Statistical Package for Social Sciences (SPSS) version 23 helped the processing and analysis of the data. The data analysis encompassed the utilization of both descriptive and inferential statistics. Descriptive statistics encompass several metrics, including frequencies, percentages, means, and standard deviations. In contrast, the application of inferential statistics involved the utilization of Pearson correlation and basic linear regression analysis.

The following regression models is applied:

Model A……. $Y= \beta_0+\beta aXa + \varepsilon$……(i)

Model B……..$Y= \beta_0+\beta bXb + \varepsilon$ ……(ii)

Model C……..$Y= \beta_0+\beta cXc + \varepsilon$ ……(iii)

Model D……..$Y= \beta_0+\beta dXd + \varepsilon$ ……(iv)

Model E…….$Y= \beta_0+\beta aXa+\beta_0+\beta bXb + \beta_0+\beta cXc + \beta_0+\beta dXd + \varepsilon$……(v)

Where;

Y = Dependent Variable (Business Efficiency)

X= Aggregate effect of electronic procurement

Independent variables, which include:

X_a - Electronic sourcing.

X_b - Electronic Supplier Selection Practice

X_c - Electronic ordering

X_d - Electronic Payment Practice

β_0 = the constant

β_{a-d} = the regression coefficient

ε = Error term

3.9.1 Diagnostic Tests

The most optimal models are achieved by the utilization of diagnostic tests. In this work, various statistical tests were done to assess the presence of multicollinearity, normality, homoscedasticity, and linearity.

3.9.1.1 Normality test

In regression models, it is crucial to look for non-normal errors for both operational and conceptual reasons. At a rigorous level of research methodology, the absence of Gaussian distribution can often hinder the consistency of the basic estimation and testing procedure. This necessitates the adoption of either an improved approach based on alternative distributional assumptions or robust alternatives that do not rely on specific distributional advantages. The question of whether skewed and/or leptokurtic distributions should be employed to more effectively capture mistakes is a statistically significant inquiry. The assumption of normalcy is especially significant for the validity of inference procedures, specification tests, and prediction (Javia, 2015). The present study employed Shapiro-Wilk and Kolmogorov-Smirnov tests to assess the assumption of normality.

3.9.1.2 Multicollinearity test

Multicollinearity is the increased degree of intercorrelation between a set of variables, as used in multiple regressions. In this particular scenario, the coefficient evaluates of multiple regression may exhibit unpredictable variations in response to minor

alterations made to the model or the data. Multi-collinearity arises when there is duplication of variables of the same nature, typically occurring when the factors exhibit strong interconnections. The study engaged Variance Inflation Factors (VIF) to assess the presence of multicollinearity. According to Myers (1990), variables exhibiting a Variance Inflation Factor (VIF) greater than ten (10) or a tolerance value less than 0.2 are indicative of the existence of multicollinearity. Consequently, these variables are eliminated from the study including multiple linear regression. In addition, The coefficient of Pearson Correlation was employed to assess the presence of multicollinearity.

3.9.1.3 Homoscedasticity Test

Heteroscedasticity occurs when the variance of the error component, which is typically assumed to be constant, exhibits fluctuations. This suggests that the ordinary least squares model was ineffective as it underestimated the variance of standard errors, leading to potentially misleading outcomes. In this study, the presence of heteroscedasticity was weigh up using both the Walid test and the Breusch-Pagan/Cook-Weisberg test.

3.10 – Considering Ethics

The study validated all conceivable ethics considerations. The study duly recognizes all founts that have been utilized. The investigator proceeded to avail to participants a detailed and comprehensive information, while maintaining confidentiality of the

acquired data, which involved omitting participants' identity from the data collection equipments. The participants were presented with a letter that provided validation for this study, originating from MMUST (Masinde Muliro University of Science and Technology) and NACOSTI (National Commission for Science, Technology, and Innovation). The act of participation was of a voluntary nature and not compelled by external coercion.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1 Overview

This chapter presented findings from the study conducted on the influence of electronic procurement practices on business efficiency in Kenya , Nyanza region petrol stations This includes demographic aspects of the respondents, analysis, interpretation, and discussion of uncovering of the study.

4.2 Response Rate

Out of one hundred (100) questionnaires issued, 81 were filled and returned representing 81% response rate.

Table 4. *1***: Response Rate**

		Frequency	**Percentage**
Valid	Returned	81	81
	Not Returned	19	19
	Total	100	100

Source: (Researcher, 2023)

4.3 Reliability and Validity Tests

A group of 10 participants from Kakamega Petrol stations were provided with questionnaires in order to assess the validity and reliability of the surveys. This study was conducted with a focus on the homogeneity of the Kakamega to Nyanza region. The composition of the staff exhibits a comparable level of professional standing. The study examined the relationship between three independent factors (electronic sourcing, selecting suppliers electronically, ordering electronically, and paying electronically) and dependent variable (business efficiency). The reliability of these variables was assessed using the statistical software SPSS 23 and the resulting data are dispensed in Table below.

Table 4. *2*: **Reliability test**

Variable	Cronbach alpha
Electronic sourcing	.834
Electronic supplier selection	.815
Electronic ordering	.818
Electronic payment	.714
Business efficiency	.808

Source: Researcher's Pilot survey (2023)

The above Table 4.2 stipulated that the variables under study attained the suggested Cronbach's Alpha of greater than 0.7. This was important for internal consistency of data (Mugenda&Mugenda, 2008).

4.4. Demographic Characteristics of the Respondents

The study entrenched the gender information generally, level of education, and working experience in petrol stations. This was trying to entrench the dispensation of different genders, education impact on business efficiency and working experience impact on business efficiency.

4.4.1. Gender of Respondents

The study focused at understanding the gender incongruity of employees in Petrol stations as stipulated in below Table: -

Table 4.*3*: Gender of the Respondents

Gender	Frequency	Percentage
Male	54	66.7
Female	27	33.3
Total	81	100.0

Source: Researcher, (2023)

Table 4.3 above, graphics that 54 (66.7%) were male and 27 (33.3%) were female. The study noted Petrol stations in Nyanza region Kenya were commanded by the male gender generating a gender gap in employment that could affect business efficiency.

4.4.2 Education level of Respondents

The study looked around for establishing the academic qualifications of the respondents. The summary of the uncovering was indicated in table 4.4.

Table 4.4: Education Level of the Respondents

	Frequency	Percentage
Masters	1	1.2
Degree	19	23.5
Diplomas	55	67.9
Certificate	6	7.4
Total	81	100

Source: Researcher, (2023)

The study uncovering in table 4.4 divulged that Petrol Stations had a high number of respondents, 1(1.2%) with post graduate degree and 19 (23.5%) of the respondents had degree qualifications. The study noted that majority 55(67.9%) had diploma qualifications with 6 (7.4%) certificate qualifications. Business efficiency was

examinable through employee's academic merits. This made electronic procurement a reality.

4.4.3 Respondents Working experience.

The study established the period of performance of duty by the respondents as shown below: -

Table 4.5: Working experience at Petrol Stations

	Frequency	Percent
1 Year and less	5	6.2
Between 2-5 Years	7	8.6
5 Years and Above	69	85.2
Total.	**81**	**100.0**

Source: Researcher , (2023)

In table 4.5, a significant number of respondents 69 (85.2%) had served for more than 5 years with majority 7 (8.6%) plummets in the category of having performed their duties for 2-5 Years, as 5 (6.2%) worked for less than a year. This indicated that staff members had served for a good period able to steer business efficiency.

4.5. Descriptive Analysis

The views of respondents were sought on electronic sourcing, eelectronic supplier selection, electronic ordering and electronic payment and business efficiency as presented below: -

4.5.1 Electronic Sourcing and Business Efficiency

The intent of the study was to scrutinize the aftermath of sourcing electronically on efficiency of business efficiency inside Petrol Stations located in the Nyanza region. A five (5) points Likert scale was used to analyze the data. A score of one (1) be regarded as the lowest level of agreement, while a score of five (5) indicated the maximum level of positive reaction. Specifically, the scale was defined as follows: 1=Strongly Disagree (SD), 2=Disagree (D), 3=Undecided (U), 4=Agree (A), and 5=Strongly Agree (SA). Table 4.6 showed the results derived from the execution of the Likert Scale.

Table 4. 6: Likert Scale on Electronic Sourcing and Business Efficiency

Description	N	SD (%)	D (%)	U (%)	A (%)	SA (%)
On a regular basis we provide online requests for petrol station products to ease procurement process	81	0 (0)	1 (1.2)	14 (17.3)	40 (49.4)	26 (32.1)
We are trained on online requisition process to ease procurement process	81	0 (0)	9 (11.1)	14 (17.3)	27 (33.3)	31 (38.3)
Our organization calls for proposal	81	2	4	23	23	29

for recruitment of qualified persons to ease procurement process		(2.5)	(4.9)	(28.4)	(28.4)	(35.8)
We invite proposal for provision of petrol station products to ease procurement process	81	1 (1.2)	3 (3.7)	28 (34.6)	25 (30.9)	24 (29.6)
Our organization provides an online advertisement avenue for its products to ease procurement process	81	4 (4.9)	27 (33.3)	0 (0)	31 (38.3)	19 (23.5)
The organization reaches its loyal customers through an online customer platform to help ease procurement process	81	0 (0)	2 (2.5)	31 (38.3)	23 (28.4)	16 (19.8)
Our Petrol station provides online catalogues that guides access of products to ease procurement process	81	0 (0)	6 (23.5)	19 (33.3)	27 (33.3)	29 (23.5)
Online catalogues provided leads to easy audit of products hence ease procurement process	81	2 (2.5)	4 (4.9)	23 (28.4)	23 (28.4)	29 (35.8)

Source: Researcher, (2023)

The outcome in Table 4.6 stipulated that a majority of the participants expressed agreement or strong agreement regarding the aftermath of electronic sourcing on business efficiency. Specifically, 40 respondents (49.4%) agreed and 26 respondents (32.1%) strongly agreed that they regularly utilize online requests for petrol station products to streamline the procurement process. This aligns with the findings of Zakari (2018), who identified electronic sourcing as a crucial factor impacting the performance of service organizations. In addition, the present study aligns with the

findings of Walter (2015) about the impact of procurement practices on the performance of commercial state-owned enterprises in Nairobi County. Daisy (2019) conducted a study on strategic sourcing in Zimbabwe, specifically focusing on electronic sourcing. Contrary to Daisy's findings, the present argument takes a different stance on the significance of electronic sourcing.

4.5.2. Electronic Supplier Selection and Business Efficiency

The intent of the study was to scrutinize the aftermath of electronic supplier selection on business efficiency within the Petrol Stations located in the Nyanza region. The data analysis was done using a Likert scale consisting of five levels, where 1 indicated Strongly Disagree (SD), 2 indicated Disagree (D), 3 indicated Undecided (U), 4 indicated Agree (A), and 5 indicated Strongly Agree (SA). -

Table 4.7: Likert Scale onElectronic Supplier Selection and Business Efficiency

Description	N	SD (%)	D (%)	U (%)	A (%)	SA (%)
Our organization identifies suppliers through Google search for its products to ease procurement process	81	1 (1.2)	4 (4.9)	27 (33.3)	32 (39.5)	17 (21)
Our Petrol station uses internet to engage with perspective suppliers for its products to ease procurement process	81	0 (0)	25 (30.9)	4 (4.9)	18 (22.2)	17 (21.0)
Our firm checks at the ability of suppliers through their previous deliveries	81	0 (0)	13 (16)	19 (23.5)	41 (50.6)	8 (9.9)

Our Petrol station identifies suppliers' capabilities through their effectiveness on online applications made	81	0 (0)	12 (14.8)	30 (37)	26 (32.1)	13 (16)
Our entity identifies reliability of suppliers through their effectiveness on online applications made	81	0 (0)	4 (4.9)	37 (45.7)	31 (38.3)	9 (11.1)
Our company benchmarks supplier reliability through timely delivery of products sought	81	1 (1.2)	12 (14.8)	30 (37)	22 (27.2)	16 (19.8)
Our organization selects suppliers on basis of work experience in the petrol sector	81	0 (0)	24 (29.6)	22 (27.2)	27 (33.3)	8 (9.9)
Our firm selects suppliers on basis of supplier qualifications	81	0 (0)	2 (2.5)	8 (9.9)	48 (59.3)	23 (28.4)

Source: Researcher, (2023)

The outcome indicated in Table 4.7 showed that a more of the participants expressed agreement regarding the aftermath of electronic supplier selection on business efficiency within Petrol stations located in the Nyanza region. Regarding the selection of suppliers based on supplier qualifications, a majority of respondents (59.3%) agreed, with a significant proportion (28.4%) strongly agreeing. This finding provides empirical evidence supporting the notion that the efficient indentification of suppliers plays a key role in enhancing the operational efficiency of petrol stations. This finding aligns with the research conducted by Ogbo (2021) on the topic of electronic supplier selection in relation to inventory control. Ogbo's study concluded that electronic supplier selection did not have a significant impact. This finding is consistent with the research conducted by Mukopi and Iravo (2015), which revealed that the practice of

electronic supplier selection has a substantial impact on the efficiency of procurement processes. This finding contradicted the research conducted by Salawati (2022), which concluded that the impact of electronic supplier selection on business efficiency was not statistically significant.

4.5.3 Electronic ordering and Business Efficiency

The aim of the study was to question the aftermath of electronic ordering on business efficiency at Petrol Stations located in the Nyanza region. The data analysis was done using a Likert scale consisting of five points, with 1 stipulated Strongly Disagree (SD), 2 stipulated Disagree (D), 3 stipulated Undecided (U), 4 stipulated Agree (A), and 5 representing Strongly Agree (SA).

The results of the Likert scale sequel were shown in Table 4.8.

Table 4. 8: Likert Scale on Electronic ordering and Business Efficiency

Description	N	SD (%)	D (%)	U (%)	A (%)	SA (%)
The organization sets plans before giving an order for provision of products	81	0 (0)	17 (21)	11 (13.6)	27 (33.3)	26 (32.1)
Our Petrol station sets work schedule before giving an order for provision of products	81	1 (1.2)	21 (25.9)	27 (33.3)	16 (19.8)	16 (19.8)
The firm places online orders	81	1	1	15	37	27

depending on demand for its products		(1.2)	(1.2)	(18.5)	(45.7)	(33.3)
Our Petrol station places online orders through guidance of economic order quantity	81	1	3	21	37	19
		(1.2)	(3.7)	(25.9)	(45.7)	(23.5)
The organization gives order requisition basing on demand for its products	81	1	0	12	51	17
		(1.2)	(0)	(14.8)	(63)	(21)
Our firm gives order requisition under guidance of economies of scale	81	0	2	27	42	10
		(0)	(2.5)	(33.3)	(51.9)	(12.3)
Our entity tracks orders to ascertain the safety of ordering process	81	0	2	27	41	11
		(0)	(2.5)	(33.3)	(50.6)	(13.6)
Our entity tracks orders to ascertain the safety of ordering process	81	0	0	31	41	9
		(0)	(05)	(38.3)	(50.6)	(11)

Source: Researcher, (2023)

According to the results presented in table 4.8, it was observed that the implementation of electronic ordering had a significant impact on the operational effectiveness in Kenya Nyanza region petrol stations. For instance, 27 respondents (33.3%) agreed, while 26 respondents (32.1%) strongly agreed, that their organizations establish plans prior to placing orders for product provision. This finding provides evidence that the implementation of computerized ordering systems contributes to increased speed and effectiveness in the processes of Petrol stations, resulting in improved company efficiency. This study aligns with the findings of Matunga, Nyanamba, and Okibo

(2018), which scrutinised the aftermath of electronic procurement ordering practices on procurement efficiency. In addition, the study conducted by Rotich and Okello (2015) examined the utilization of electronic procurement ordering and determined its significance. It is worth noting that their findings contradict the conclusions drawn by Basheka, Oluka, and Mugurusi (2022), who found electronic ordering to be unimportant.

4.5.4 Electronic payment and Business Efficiency

The aim of the study was to find out the aftermath of electronic ordering on business efficiency within the Petrol Stations located in the Nyanza region. The data analysed used a Likert scale consisting of five points, where 1 standing for Strongly Disagree (SD), 2 standing for Disagree (D), 3 standing for Undecided (U), 4 statnding for Agree (A), and 5 standing for Strongly Agree (SA).

The results of the Likert were shown in table 4.9.

Table - 4.9: Descriptive Statistics for Electronic payment and Business Efficiency

Description	N	SD (%)	D (%)	U (%)	A (%)	SA (%)
Our Petrol station considers electronic payment system due to safety of not holding cash	81	0 (0)	3 (3.7)	7 (8.6)	31 (38.3)	40 (49.4)
The firm considers electronic payment system for easy tracking and audit of payment system.	81	0 (0)	2 (2.5)	36 (44.4)	36 (44.4)	7 (8.6)

Our Petrol station considers electronic payment system due to less costs attached on transactions compared to bank charges.	81	0 (0)	0 (0)	16 (9.8)	39 (48.1)	26 (32.1)
The Company considers electronic payment system due to time saving cost	81	0 (0)	0 (0)	16 (9.8)	39 (48.1)	26 (32.1)
The entity considers electronic payment system due its viability witnessed through instant payment	81	0 (0)	2 (2.5)	12 (14.8)	39 (48.1)	28 (34.6)
Our organization considers electronic payment system due its viability witnessed through timely payment	81	7 (8.6)	9 (11.1)	21 (25.9)	28 (34.6)	16 (19.8)
Our company considers electronic payment system due its invoice system through payment generated receipt	81	14 (17.3)	6 (7.4)	19 (23.5)	23 (28.4)	19 (23.5)
Our organization considers electronic payment system due to its safety features captured on online invoice	81	14 (17.3)	4 (4.9)	21 (25.9)	24 (29.6)	18 (22.2)

Source: Researcher, (2023)

Table 4.9 showed that payments electronically influenced efficiency in business among petrol stations in Nyanza region of Kenya for instance 31(38.3%) agreed as 40 (49.4%) strongly agreed that their Petrol stations considered electronic payment system due to safety of not holding cash. This shows that electronic payment system was highly recommended as it eliminated cases of corruption and led to more accountability processes leading to efficiency.

4.5.5 Business Efficiency

The intent of this study was to gauge efficiency degree of operational exhibited by Petrol Stations located in the Nyanza region. The data analysis employed a Likert scale consisting of five points, ranging from 1 (Strongly Disagree, SD) to 5 (Strongly Agree, SA), with 2 representing Disagree (D), 3 representing Undecided (U), and 4 representing Agree (A). The results derived from the implementation of the Likert scale were revealed in Table 4.12.

Table 4. *4*0: Descriptive Statistics for Business Efficiency

Description	**N**	**SD (%)**	**D (%)**	**U (%)**	**A (%)**	**SA (%)**
Electronic procurement practices have made our organizations total output to increase	81	0 (0)	2 (2.5)	27 (33.3)	42 (51.9)	10 (12.3)

Electronic procurement practices have made our organizations total input to increase	81	0 (0)	2 (2.5)	27 (33.3)	41 (50.6)	11 (13.6)
Electronic procurement practices have led to improved delivery of services	81	0 (0)	0 (0)	9 (11.1)	41 (50.6)	31 (38.3)
Electronic procurement practices have led to effective delivery of services	81	0 (0)	3 (3.7)	40 (49.4)	31 (38.3)	7 (8.6)
Electronic procurement practices have led to competitiveness bids within the industry	81	0 (0)	2 (2.5)	136 (44.4)	36 (44.4)	7 (8.6)
Electronic procurement practices have led effectiveness in the oil sector	81	0 (0)	0 (0)	16 (19.8)	26 (32.1)	39 (48.1)
Electronic procurement practices have made operations within the sector timely	81	0 (0)	0 (0)	20 (24.7)	28 (34.6)	33 (40.7)
Electronic procurement practices have made operations within the sector cost effective	81	0 (0)	2 (2.5)	12 (14.8)	39 (48.1)	28 (34.6)

Source: Researcher, (2023)

The study established that Petrol stations efficiency was guaranteed through electronic procurement systems. It emerged that electronic procurement practices have made our organization's total output to increase as agreed by 42 (51.9%), furthermore 41 (50.6%) agreed that electronic procurement practices have led to improved delivery of services.

4.6 Diagnostic Tests

Prior to conducting inferential statistics, the researcher performed diagnostic tests to assess the widen to which the acquired data satisfied the assumptions of the regression analysis. The significance of this test is in its ability to determine the appropriate approach for analyzing the data, parametric or non-parametric tests for inferential analysis was to be utilised.

4.6.1. - Normality test

The test was gauged using both the Shapiro-Wilk and Kolmogorov-Sminorv tests with assurance level of 95%. If the p-values in the Sig. column are more than 0.05, the null hypothesis is accepted, indicating that the data tested originated from a inhabitant that follows a normal distribution. The researcher intended to perform a normalcy test on the data in respect to electronic sourcing, electronic supplier selection, electronic ordering, electronic payment, and business efficiency. The results were indicated in Table 4.11.

Table 4.15: Normality Test

	Shapiro-Wilk			
	Statistic	Sig.	Statistic	Sig.
Electronic sourcing	.162	.178	.952	.406
Electronic supplier selection	.207	.324	.912	.068
Electronic ordering	.171	.128	.951	.382
Electronic payment	.118	.210	.959	.523
Business efficiency	.117	.152	.939	.412

Source: Researcher, (2023)

From table 4.11, sequel from Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) advocates that the residuals were normally distributed (sig. >.05) meaning that tests of normality were significant and therefore parametric test was used.Thus, we accept the null hypothesis as the data came from normal distribution and was normally distributed.This means that the tests of normality were significant and therefore parametric test should be used for analysis.

4.6.2 Heteroscedasticity/ Homoscedasticity

The study used Levene statistic to test the null hypothesis that the variance of the explained variable was equal across all levels of explanatory variables.

The results were presented in Table 4.12.

Table 4.12: Test for Homogeneity

	Test of Homogeneity of Variances			
	Levene Statistic	df1	df2	Sig.
Electronic sourcing	2.207	1	80	.367
Electronic supplier selection	2.124	1	80	.251
Electronic ordering	1.883	1	80	.648
Electronic payment	0.351	1	80	.454
Business efficiency	0.843	1	80	.132

Source: Researcher, (2023)

If the p-value for the Levene test is greater than 0.05, then the variances are not significantly different from each other thus the homogeneity assumption of the variance is met. If the p-value for the Levene's test is less than 0.05, then there is a significant difference between the variances. For this study the $p > 0.05$ thus the homogeneity assumption of the variance is met.

4.6.3 Multicollinearity Test

The intent of the study was to scrutinize the degree of correlation among the variables and determine if there was a presence of perfect multi-collinearity among the predictors. This phenomenon was deemed required because to the observed increase in the degree of multi-collinearity, which subsequently led to instability in the estimated

coefficients of the regression model. As a result, the standard errors of the coefficients may become significantly inflated. The tolerance and Variance Inflation Factor (VIF) values were utilized to assess each predictor. The assumptions of the data were assessed, and the detections are exhibited in table 4.13.

Table 4.13: Tests for Multicollinearity

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	(Constant)	0.112	2.206
	Electronic sourcing	0.109	2.143
	Electronic supplier selection	0.342	3.113
	Electronic ordering	0.372	2.456
	Electronic payment	0.168	2.325

a. Dependent variable: Business efficiency

Source: Researcher, (2023)

In the regression model examining the relationship between electronic procurement procedures and business efficiency among Petrol Stations in the Nyanza region of Kenya, all variables demonstrated acceptable tolerance and VIF values. Specifically, the tolerance values were found to be less than 1.0, indicating a lack of multicollinearity, while the VIF values were less than 10, further supporting the absence of significant multicollinearity. Thus, it can be inferred that the condition of multi-collinearity was satisfied.

4.6.4 Correlation analysis

The bivariate correlation, which measures the relationship between two variables, was calculated for the observed data using the Pearson product-moment correlation coefficient (r). The values of the correlation coefficient, denoted as "r," fall within the interval [0, 1]. This range signifies the two extremes of no correlation and perfect correlation, respectively. The coefficient "r" quantifies the degree to which a linear relationship exists between two variables.

The results of correlation analysis is presented in Table 4.15.

Table 4.15 Pearson Correlation Matrix of the study variables

		Electronic sourcing	Electronic supplier selection	Electronic ordering	Electronic payment	Business efficiency
Electronic sourcing	Pearson Correlation	1	.364**	.395**	.572**	.611**
	Sig. (2-tailed)		.001	.000	.000	.000
	N	81	81	81	81	81
Electronic supplier selection	Pearson Correlation	.364**	1	.657**	.666**	.549**
	Sig. (2-tailed)	.001		.000	.000	.000

	N	81	81	81	81	81
Electronic ordering	Pearson Correlation	.395**	.657**	1	.747**	.714**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	81	81	81	81	81
Electronic payment	Pearson Correlation	.572**	.666**	.747**	1	.755**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	81	81	81	81	81
Business efficiency	Pearson Correlation	.611**	.549**	.714**	.755**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	81	81	81	81	81

**. Correlation is significant at the 0.01 level (2-tailed).

Source: (Researcher, 2023)

The aforenamed findings demonstrate that, at a notable level of 0.05, electronic sourcing manifested a substantial influence on company efficiency ($r = 0.611$, p-value $= 0.000 < 0.05$). This hinted that a rise in the utilization of electronic sourcing methods is associated with an enhancement in operational effectiveness within company contexts. This aligns with the findings of Zakari (2018) regarding the importance of electronic sourcing on the performance of service organizations. In addition, the present study aligns with the findings of Walter (2015) about the impact of procurement practices on the performance of commercial state-owned enterprises in Nairobi County. Daisy (2019) conducted a study on strategic sourcing in Zimbabwe, specifically focusing on electronic sourcing. Contrary to Daisy's findings, the present analysis challenges the significance of electronic sourcing in the context of Zimbabwe.

Conversely, a statistical significant and positive correlation was seen between the selection of electronic suppliers and business efficiency, as mentioned by a Pearson correlation coefficient of $r = 0.549$ ($p < 0.05$). This finding put forward that the association between electronic supplier selection and business efficiency is significant at the 0.05 level of significance. This suggests that an enhanced electronic supplier selection process, characterized by the presence of authoritative entities, leads to a corresponding improvement in overall company efficiency. This finding aligns with the research conducted by Ogbo (2021) on the topic of electronic supplier selection and its impact on inventory control. Ogbo's study concluded that electronic supplier selection did not have a significant effect. This finding is consistent with the research

conducted by Mukopi and Iravo (2015), which identified electronic supplier selection practice as a significant factor influencing procurement efficiency. This finding contradicted the research conducted by Salawati (2022), which concluded that the impact of electronic supplier selection on business efficiency was not substantial.

The detections of the study further substantiated that, at a significance level of 0.05, electronic ordering manifested a substantial predictive relationship with company efficiency ($r = 0.714$, p-value $= 0.000 < 0.05$). The implementation of computerized ordering systems results in a corresponding improvement in corporate efficiency. This study aligns with the uncovering of Matunga, Nyanamba, and Okibo (2018) who lead an assessment on the aftermath of electronic procurement ordering practices on procurement efficiency. In a study conducted by Rotich and Okello (2015), an analysis was performed on the utilization of electronic procurement ordering. The uncovering of the study stipulated a considerable aftermath. The findings of this study contradict the findings of Basheka, Oluka, and Mugurusi (2022), who concluded that electronic ordering had no significant impact.

In conclusion, the detections of this study mentioned that electronic payment is a statistically remarkable predictor of business efficiency at a notable level of 0.05 ($r = 0.755$, p-value $= 0.000 < 0.05$). The present study aligns with the findings of Veronica (2021), which highlight the significance of electronic payment methods. The present statement aligns with the findings of Austin and Laurence (2021), who conducted a study indicating that electronic payment methods have a substantial impact on

enhancing business efficiency. The author expresses disagreement with Manav's (2017) assertion that electronic payment has no substantial impact on procurement performance.

4.7 Inferential Analysis

The study looked around for instituting the effect of electronic procurement practices on efficiency of business in Kenya, Nyanza region Petrol stations. The researcher formulated the following hypothesis: -

H_{O1}: Electronic sourcing does not significantly influence efficiency of business in Kenya, Nyanza region Petrol stations.

H_{o2}: Electronic supplier selection does not significantly influence efficiency of business in Kenya, Nyanza region Petrol stations.

H_{o3}: Electronic ordering does not significantly influence efficiency of business in Kenya, Nyanza region Petrol stations.

H_{o4}: Electronic payment does not significantly influence efficiency of business in Kenya, Nyanza region Petrol stations.

Simple linear regression and multiple regression analysis were used to approximate the predictive effects of electronic procurement practices on business efficiency among Petrol Stations in Nyanza region, Kenya.

4.7.1 H_{O1}: Electronic sourcing does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.

The study sought to establish the effect of electronic sourcing on efficiency in Petrol Stations in Nyanza region, Kenya. To institute this, simple linear regression test was used. The study had a recourse to the following null hypothesis which was tested at 0.05 level of significance.

Table 4.16: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.611[a]	.374	.366	.28558	.374	47.170	1	79	.000	1.465

a. Predictors: (Constant), Electronic sourcing
b. Dependent Variable: Business efficiency

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.847	1	3.847	47.170	.000[a]
	Residual	6.443	79	.082		

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.611[a]	.374	.366	.28558	.374	47.170	1	79	.000	1.465
	Total		10.290	80						

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.528	.194		13.003	.000
	Electronic sourcing	.340	.050	.611	6.868	.000

Source: Researcher, (2023)

The discovery dispensed in Table 4.16 designate that the R-square value was 0.374, advocating that approximately 37.4% of the variation in business efficiency across employees at Petrol Stations can be ascribe to electronic sourcing. At a significance level of 0.05, the ANOVA test revealed that electronic sourcing remarkably predicted business efficiency among employees of Petrol Stations, as evidenced by the substance value of 0.000, which was lower than the predetermined substance level (p=0.000<

0.05). Therefore, it can be concluded that the utilization of electronic sourcing has an impact on the operational effectiveness of workers working in Petrol Stations (t-statistic=13.003, p-value=0.000< 0.05). The null hypothesis was rejected, indicating that there is evidence to support the alternative hypothesis that electronic sourcing has a significant influence on corporate efficiency. The implementation of electronic sourcing has resulted in a significant improvement in corporate productivity, with employees experiencing a notable gain of 0.340. The equation for the regression model was as follows:

Y=2.528+0.340X1

This aligns with the findings of Zakari (2018) regarding the perceived significance of electronic sourcing on the performance of service organizations. In addition, the present study aligns with the findings of Walter (2015) regarding the impact of Procurement Practices on the Performance of Commercial State-Owned Enterprises in Nairobi County. Daisy (2019) conducted a study on strategic sourcing in Zimbabwe, specifically focusing on electronic sourcing. Contrary to Daisy's findings, the present analysis does not align with her conclusions, as it suggests that electronic sourcing holds little significance.

4.7.2 H_{o2}: Electronic supplier selection does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.

The intent of the study was to examine the impact of electronic supplier selection on the operational effectiveness of businesses. The study employed a simple linear regression test. The study employed the null hypothesis, which was assessed at a remarkable level of 0.05.HO2: Electronic supplier selection does not significantly affect business efficiency among Petrol Stations. The results of the hypothesis test were provided in this section.: -

Table 4.17: Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.549[a]	.302	.293	.30160	.302	34.121	1	79	.000	1.014

a. Predictors: (Constant), Electronic supplier selection

b. Dependent Variable: Business efficiency

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.104	1	3.104	34.1	.00[a]

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.549[a]	.302	.293	.30160	.302	34.121	1	79	.000	1.014
	Residual	7.186	79	.091						
	Total	10.290	80							

a. Predictors: (Constant), Electronic supplier selection

b. Dependent Variable: Business efficiency

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.492	.234		10.638	.000
	Electronic supplier selection	.378	.065	.549	5.841	.000

Source: Researcher, (2023)

The discovery dispensed in Table 4.17 indicate that the R-square value was 0.302, advocating that about 30.2% of the observed variance in business efficiency among employees at Petrol Stations can be attributed to the process of electronic supplier selection. The selection of electronic suppliers was found to be a significant predictor of business efficiency among employees of Petrol Stations, with a notable value of 0.000, which is below the 0.05 level of significance ($p=0.000< 0.05$). The results of the study indicate that the process of selecting electronic suppliers has a noteworthy impact on the overall efficiency of staff working at Petrol Stations (t-statistic=10.638, p-value=0.000< 0.05). The null hypothesis was found to be statistically insignificant, leading to the rejection of the null hypothesis. Conversely, the alternative hypothesis, which posits that the selection of an electronic supplier has a substantial impact on business efficiency, was deemed statistically significant and hence accepted. Therefore, it can be observed that there exists a positive relationship between the increase in electronic supplier selection and the associated increase in business efficiency among employees of Petrol Stations, with a coefficient of 0.378. The equation representing the regression model is as follows:

$Y=2.492+0.378X2$

This finding aligns with the research conducted by Ogbo (2021) on the topic of electronic supplier selection in the context of inventory control. Ogbo's study concluded that electronic supplier selection did not have a major impact. This finding aligns with the research conducted by Mukopi and Iravo (2015), which highlights the

substantial impact of electronic supplier selection practices on procurement efficiency. This finding contradicted the research conducted by Salawati (2022), which concluded that the impact of electronic supplier selection on business efficiency was not substantial.

4.7.3 H_{o3}: Electronic ordering does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.

The aim of the study was to scrutinize the impact of electronic ordering on operational effectiveness enclosed by a corporate situation. The study employed a simple linear regression test. The study employed the null hypothesis, which was assessed at a significance level of 0.05.

Table 4. 18: Model Summary of Electronic ordering

Model Summary[b]

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.714[a]	.510	.504	.25252	.510	82.362	1	79	.000	1.488

a. Predictors: (Constant), Electronic ordering
b. Dependent Variable: Business efficiency

ANOVA[b]

Model	Sum of Squares	Df	Mean Square	F	Sig.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.714[a]	.510	.504	.25252	.510	82.362	1	79	.000	1.488

Model						
1	Regression	5.252	1	5.252	82.362	.000[a]
	Residual	5.038	79	.064		
	Total	10.290	80			

a. Predictors: (Constant), Electronic ordering

b. Dependent Variable: Business efficiency

Coefficients[a]

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	1.642	.244		6.720	.000

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.714[a]	.510	.504	.25252	.510	82.362	1	79	.000	1.488
	Electronic ordering		.610	.067	.714	9.075			.000	

a. Dependent Variable: Business efficiency

Source:Researcher, (2023)

The discovery dispensed in Table 4.18 indicate that the R-square value was 0.510, advocating that about 51.0% of the observed difference in business efficiency among employees at Petrol Stations can be attributed to the influence of electronic ordering. The utilization of electronic ordering systems has a significant role in forecasting the level of company efficiency inside Petrol Stations ($p=0.000 < 0.05$). The implementation of electronic ordering systems has had a substantial impact on the operational efficiency of Petrol Stations, as evidenced by a statistically significant t-statistic of 6.720 (p-value=0.000< 0.05). The null hypothesis was found to be invalid, leading to the acceptance of the alternative hypothesis, which suggests that computerized ordering has a substantial influence on corporate efficiency. Hence, it can be deduced that the implementation of electronic ordering has a discernible impact on the efficiency of corporate operations. There was a positive association between the growth in electronic ordering and the related increase in business efficiency among

Petrol Stations, with a coefficient of 0.610. The equation representing the regression model is as follows:

Y=1.642+0.610X3

This study aligns with the findings of Matunga, Nyanamba, and Okibo (2018), wherein they conducted an assessment of the impact of electronic procurement ordering practices on the efficiency of procurement. In addition, the study conducted by Rotich and Okello (2015) examined the utilization of electronic procurement ordering and determined its significance. The findings of this study contradict the findings of Basheka, Oluka, and Mugurusi (2022), who concluded that electronic ordering had no significant impact.

4.7.4 H_{o4}: Electronic payment does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.

Table 4.19: Model Summary of Electronic ordering

Model Summary[b]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.755[a]	.570	.565	.23666	.570	104.718	1	79	.000	1.340

a. Predictors: (Constant), Electronic payment

b. Dependent Variable: Business efficiency

ANOVA[b]

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.755[a]	.570	.565	.23666	.570	104.718	1	79	.000	1.340

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.865	1	5.865	104.718	.000[a]
	Residual	4.425	79	.056		
	Total	10.290	80			

a. Predictors: (Constant), Electronic payment

b. Dependent Variable: Business efficiency

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.755[a]	.570	.565	.23666	.570	104.718	1	79	.000	1.340
1	(Constant)		1.930	.189				10.209	.000	
	Electronic payment		.516	.050		.755		10.233	.000	

a. Dependent Variable: Business efficiency

Source: Researcher, (2023)

The discovery indicated in Table 4.19 stipulates that the R-square value was 0.570, advocating that about 57.0% of the observed variance in business efficiency among employees of Petrol Stations may be a scribed to the use of electronic payment. The utilization of electronic payment systems has a significant role in forecasting the level of company efficiency inside Petrol Stations ($p=0.000 < 0.05$). The implementation of electronic ordering systems has had a substantial impact on the operational efficiency of Petrol Stations, as evidenced by a statistically significant t-statistic of 10.233 (p-value=0.000< 0.05). The null hypothesis was rejected, indicating that there is evidence to support the alternative hypothesis, which suggests that electronic payment has a major aftermath on corporate efficiency. Hence, it can be inferred that electronic payment has a discernible impact on the efficiency of business processes. There was a positive correlation between the increase in electronic payment and the associated

increase in business efficiency among Petrol Stations, with a coefficient of 0.516. The equation representing the regression model is as follows:

Y=1.930+0.516X4

The present study aligns with the findings of Veronica (2021), which highlight the significance of electronic payment methods. The present study aligns with the findings of Austin and Laurence (2021), who conducted research on the impact of electronic payment systems on corporate efficiency. The author of this statement expresses a disagreement with Manav's (2017) assertion that electronic payment has no substantial impact on procurement performance.

Table 4.20: Hypothesis Results

Hypothesis	**Findings**	**Decision and basis**
HO_1: Electronic sourcing does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.	Electronic sourcing has a significant positive influence on business efficiency in Petrol Stations in Nyanza region, Kenya.	Reject 0.000<0.05
HO_2: Electronic supplier selection does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.	Electronic supplier selection has a significant positive influence on business efficiency in Petrol Stations in Nyanza region, Kenya.	Reject 0.000<0.05
HO_3: Electronic ordering does not significantly influence business	Electronic ordering has a significant positive influence on business	Reject 0.000<0.05

efficiency in Petrol Stations in Nyanza region, Kenya.	efficiency in Petrol Stations in Nyanza region, Kenya.	
HO_4: Electronic payment does not significantly influence business efficiency in Petrol Stations in Nyanza region, Kenya.	Electronic payment has a significant positive influence on business efficiency in Petrol Stations in Nyanza region, Kenya.	Reject 0.000<0.05

Source: Researcher, (2023)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This Chapter presents a summary of the study findings, conclusions, recommendations, and suggestions for further research study.

5.2 Summary of the Findings

This study sought to establish the effect of electronic procurement practices and business efficiency among petrol stations. To actualize this, the study set out four objectives, that is: to establish the effect of electronic sourcing; electronic supplier selection; electronic ordering and electronic payment on business efficiency among Petrol Stations.

The study findings revealed that for business efficiency to be achieved, there should be an increase of electronic procurement practices, electronic sourcing, electronic supplier selection electronic ordering and electronic payment. This was evidenced from the results whereby at 5% level of significance, electronic sourcing ($p=0.000< 0.05$); electronic supplier selection ($p=0.000< 0.05$) and electronic ordering ($p=0.000< 0.05$) and electronic payment ($p=0.000< 0.05$) was a significant predictor of business efficiency among Petrol Stations.

5.2.1 Electronic sourcing

Based on the first objective, the study found out that electronic sourcing had a significant influence on business efficiency among Petrol Stations (t-statistic=13.003, p-value=0.000< 0.05).

5.2.2 Electronic supplier selection

In regard to the second intent, the study uncovered that electronic supplier selection had a remarkable influence on business efficiency among Petrol Stations (t-statistic=10.638, p-value=0.000< 0.05).

5.2.3 Electronic ordering

Based on the third intent, the study found out that electronic ordering had a remarkable influence on business efficiency among Petrol Stations (t-statistic=6.720, p-value=0.000< 0.05).

5.2.4 Electronic payment

Finally, the fourth intent study findings confirmed that electronic payment had a significant influence on business efficiency among Petrol Stations (t-statistic=10.209, p-value=0.000< 0.05).

5.3 Conclusion

Based on the first objective, electronic sourcing was a significant predictor of business efficiency. Electronic sourcing offered online requisition, Call for proposals, online advertisement, and online catalogues.

With regard to the second intent, electronic supplier selection had a remarkable positive influence on business efficiency among Petrol Stations. Electronic supplier selection offered search for suppliers, capabilities assessment, reliability assessment and supplier selection.

Based on the third intent, electronic ordering had a remarkable effect on business efficiency Petrol Stations.Electronic ordering offered planning and scheduling orders, placing orders, order requisitions and tracking orders.

Finally, from the findings of the fourth intent, electronic payment had a remarkable effect on business efficiency Petrol Stations. Electronic payment offered Safety of payment, costs of operation, visibility payments and electronic invoice.

5.4 Recommendations

Arising from the outcome and conclusions above, the study recommends that: -

Electronic sourcing should be prioritized since it enhances business efficiency. Online requisition sourcing should be practiced to make operations effective.

Petrol stations should search for suppliers online based on capabilities so as to improve efficiency within the firm. This would lead to efficient supplier selection practices within Petrol stations.

Petrol Stations should plan and schedule orders, placing orders, order requisitions and tracking orders so as to ease time taken to place orders among Petrol stations.

Finally, the study recommends that Petrol stations should adopt electronic payment practice to decongest queues on physical payment. Furthermore, electronic payment eases audit and minimises cases of corruption.

5.5 Suggestion for Further Research

This study happened in the four (4) Counties in Nyanza region Kenya Petrol Stations. Similar research can also be done in other regions in Kenyan Petrol Stations. In addition, public procurement practices are diverse, this study was limited to only four (4). A similar study should take a look at other electronic procurement practices such as electronic cards that can enhance business efficiency.

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APPENDICES

Appendix I: List of Petroleum Stations in Nyanza Region

1 Shell Petrol Stations

2 Total Petrol Station

3 Rubis Petrol Station

4 Kenol Kobil

5 National Oil

6 Wells Energy Petrol Station

Appendix II: Questionnaire

SECTION A: BACKGROUND INFORMATION.

Please tick (√) where appropriate.

1. Gender: Male ( ) Female ( )

2. Highest education level:

Secondary () Certificate ( ) Diploma ( ) Under Graduate ( ) Master degree

3. What is your work experience in Petrol station sector?

Less than a year ( ) 2-5 years ( ) Above 5 years

SECTION B:ELECTRONIC SOURCING

Kindlymark (√) thesuitableoption for everyquestion.

SA(5)=Strongly agreed, A(4)=Agree,U(3)= Undecided, D(2)=Disagree, SD (1)=Strongly disagree**.**

	Electronic Sourcing	5	4	3	2	1
1	On a regular basis we provide online requests for petrol station products to ease procurement process					
2	we are trained on online requisition process to ease procurement process					
3	Our organization calls for proposal for recruitment of qualified persons to ease procurement process					
4	We invite proposal for provision of petrol station products to ease procurement process					

5	Our organization provides an online advertisement avenue for its products to ease procurement process					
6	The organization reaches its loyal customers through an online customer platform to help ease procurement process					
7	Our Petrol station provides online catalogues that guides access of products to ease procurement process					
8	Online catalogues provided leads to easy audit of products hence ease procurement process					

SECTION B:ELECTRONIC SUPPLIER SELECTION

Kindlymark (√) thesuitableoption for everyquestion.

SA(5)=Strongly agreed, A(4)=Agree,U(3)= Undecided, D(2)=Disagree, SD (1)=Strongly disagree**.**

	Electronic supplier selection	5	4	3	2	1
1	Our organization identifies suppliers through Google search for its products to ease procurement process					
2	Our Petrol station uses internet to engage with perspective suppliersfor its products to ease procurement process					
3	Our firm checks at the ability of suppliers through their previous deliveries					
4	Our Petrol station identifies suppliers capabilities through					

	their effectiveness on online applications made					
5	Our entity identifies reliability of suppliers through their effectiveness on online applications made					
6	Our company benchmarks supplier reliability through timely delivery of products sought					
7	Our organization selects suppliers on basis of work experience in the petrol sector					
8	Our firm selects suppliers on basis of supplier qualifications					

SECTION C: ELECTRONIC ORDERING

Kindlymark (√) thesuitableoption for everyquestion.

SA(5)=Strongly agreed, A(4)=Agree,U(3)= Undecided, D(2)=Disagree, SD (1)=Strongly disagree**.**

	Electronic ordering	5	4	3	2	1
1	The organization sets plans before giving an order for provision of products					
2	Our Petrol station sets work schedule before giving an order for provision of products					
3	The firm places online orders depending on demand for its products					
4	Our Petrol station places online orders through guidance of					

	economic order quantity					
5	The organization gives order requisition basing on demand for its products					
6	Our firm gives order requisition under guidance of economies of scale					
7	Thecompany tracksorderstoidentifythestage of delivery for suchorders					
8	Our entity tracks orders to ascertain the safety of ordering process					

SECTION D: ELECTRONIC PAYMENT

Kindlymark (√) thesuitableoption for everyquestion.

SA(5)=Strongly agreed, A(4)=Agree,U(3)= Undecided, D(2)=Disagree, SD (1)=Strongly disagree.

	Electronic payment	5	4	3	2	1
1	Our Petrol station considers electronic payment system due to safety of not holding cash					
2	The firm considers electronic payment system for easy tracking and audit of payment system.					
3	Our Petrol station considers electronic payment system due to less costs attached on transactions compared to bank charges.					

4	The company considers electronic payment system due to time saving cost					
5	The entity considers electronic payment system due its viability witnessed through instant payment					
6	Our organization considers electronic payment system due its viability witnessed through timely payment					
7	Our company considers electronic payment system due its invoice system through payment generated receipt					
8	Our organization considers electronic payment system due to its safety features captured on online invoice					

SECTION E: BUSINESS EFFICIENCY

Kindlymark (√) thesuitableoption for everyquestion.

SA(5)=Strongly agreed, A(4)=Agree,U(3)= Undecided, D(2)=Disagree, SD (1)=Strongly disagree**.**

	Business Efficiency	**5**	**4**	**3**	**2**	**1**
1	Electronic procurement practices have made our organizations total output to increase					
2	Electronic procurement practices have made our organizations total input to increase					
3	Electronic procurement practices have led to improved delivery of services					
4	Electronic procurement practices have led to effective delivery of services					
5	Electronic procurement practices have led to					

	competitiveness bids within the industry					
6	Electronic procurement practices have led effectiveness in the oil sector					
7	Electronic procurement practices have made operations within the sector timely					
8	Electronic procurement practices have made operations within the sector cost effective					

Appendix III: NACOSTI