INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFICIENCY IN MANUFACTURING COMPANIES IN NAKURU WEST SUB COUNTY, KENYA

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DECLARATION AND APPROVAL

Declaration by the student

I affirm this project is my original work and has not been give in to elsewhere aimed at academic credit or publication

Signature ..... Date 30/10/2024

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Approval by the university supervisor

This project has been submitted with my consent as a candidate's university supervisor

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DEDICATION

I would like to dedicate this project to my great family, whose provision and encouragement have been invaluable to me over the whole planning and writing process of my project

ACKNOWLEDGEMENTS

I express my gratefulness to the God almighty for granting me the capability to compile this piece. Furthermore, my supervisor, Dr. Jacqueline Omuya, deserves special mention, for your remarkable, support, inspiration and guidance, I was able to carry out this research successfully. Additionally, I also want to thank my spouse Dr. Philip Kimanzi, my son Kylian, my parent, my siblings and all of my friends who have contributed in one way or another to this endeavor. May you all be blessed.

ABSTRACT

E-procurement integrates communication and information technology to handle various tasks throughout the procurement process, different task in the various phases of the procurement process including, reception, tracking, ordering, post-procurement evaluation and negotiation. This use of technology helps to save both time and costs. The universal purpose of this project is to ascertain the influence of e-procurement systems on the supply chain efficiency in Kenyan industrial companies situated in the Nakuru West Sub County. Primary goals were, to scrutinize the effects of E-tendering on supply chain efficiency in manufacturing companies located in Nakuru West Sub County, Kenya, to evaluate the effect of E-auctioning on supply chain efficiency in manufacturing companies situated in Nakuru West Sub County, Kenya. To explore the effects of E-invoicing on supply chain efficiency in manufacturing companies based in Nakuru West Sub County, Kenya and to evaluate the effects of catalogue management on supply chain efficiency in manufacturing companies operating in Nakuru West Sub County, Kenya. The innovation diffusion theory, technology acceptance theory and dynamic capability model will serve as the study's compass. This study used descriptive survey technique and the data came from120 respondents who included procurement officers, information and communications departments as well as business owners and employees from various manufacturing organizations. The researcher sampled 12 manufacturing companies in Nakuru west sub county. The study used simple random sampling in getting a representative sample, this gave an opportunity for each company to be represented. This project utilized questionnaires as research instruments. This study employed qualitative and quantitative models in analyzing the data which was collected from the manufacturing companies, which was subsequently presented in tables. Correlation, regression analysis and descriptive methods were used for data analysis and data comparison. The collected data was presented using charts and tables as required by the study. The response proportion was 90%, with only 10% of the sample unable to provide feedback. Correlation tests discovered a strong encouraging positive impact of e-auctioning, e-tendering, e-invoicing and catalogue management on supply chain efficiency in manufacturing companies. The research identified that there is a greater benefit to supply chain efficiency stemmed from e-procurement adoption. It concluded that supplier exchange practices significantly influence supply chain efficiency, whereby e-invoicing, e-tendering, e-auctioning, and catalogue management are the key predictors. The study suggests that managers adopt e-procurement practices while ensuring they are well-matched with the current structures and resources this will help in to maximizing its usability. Additionally, it commends that the administration capitalizes in user-friendly systems and technologies that integrate seamlessly into their current infrastructure. Additionally, the study suggests that policymakers advocate for infrastructure development to enhance the widespread adoption of e-procurement.

Table of Contents

DEDICATION ..... **Error! Bookmark not defined.** ABSTRACT ..... **Error! Bookmark not defined.**

Table of Contents vi

LIST OF FIGURES ..... **Error! Bookmark not defined.**

LIST OF TABLES ..... **Error! Bookmark not defined.**

ABBREVIATIONS AND ACRONYMS ..... **Error! Bookmark not defined.** CHAPTER ONE: INTRODUCTION ..... **Error! Bookmark not defined.**

1.1 Background of the Study 1

1.2 Statement of the Problem 4

1.3 Purpose of study 6

1.4 Objectives of the Study 7

1.4.1 Broad objective 7

1.4.2 Specific Objectives 7

1.4 Research questions 7

1.5 Significance of the study 8

1.7 Limitations of study 9

1.8 Delimitations 10

1.9 Assumptions of study 11

1.10 definitions of key word 11

CHAPTER TWO: LITERATURE REVIEW 13

2.0 Introduction 13

2.1 Empirical Literature Review 13

2.1.1 The effect of E-invoicing on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya 14

2.1.2 Influence of e-tendering on supply chain efficiency in manufacturing companies in Nakuru West Sub- County, Kenya 15

2.1.4 The effect of catalogue management on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya 17
2.2 Theoretical framework 19
2.2.1 Technological Acceptance Model 2 (TAM2) 19
2.2.2 Transaction cost economic theory 20
2.2.3 Dynamic Capability Theory 21
2.3 Conceptual Framework 23
2.4 Recap of literature review 26
2.5 Research gap 28
CHAPTER THREE: RESEARCH METHODOLOGY ..... **Error! Bookmark not defined.**
3.1 Introduction 30
3.2 Research methodology 30
3.3 Research Design 30
3.4 Location of the study 31
3.5 Target Population 31
3.6 Sampling procedures and techniques 31
3.7 Sample size 32
3.8 Construction of Research Instrument 32
3.9 Validity Test 33
3.10 Reliability Test 33
3.11 Data Collection Methods and Procedures 34
3.13 Data analysis and presentation 35
3.14 Ethical considerations. 35
CHAPTER FOUR: RESULTS AND DISCUSSIONS ..... **Error! Bookmark not defined.**
4.1 Introduction 37
4.2 Demographic Characteristics 37
4.2.1 Age of respondents 37
4.2.2 Education level of Respondents 38

4.2.3 Management Level of Respondents 39

4.2.4 Experience in the use of e-procurement systems 40

4.3 Effect of E-tendering on supply chain efficiency in manufacturing companies 41

4.3.1 Use of e-tendering in manufacturing companies in Nakuru West 41

4.3.2 Effects of e-tendering on supply chain efficiency in Nakuru West 42

4.4 Effect of E-auctioning on supply chain efficiency in manufacturing companies 43

4.4.1 Uptake of e-auctioning in manufacturing companies in Nakuru West 44

4.4.2 Effects of e-auctioning on supply chain efficiency in Nakuru west 45

4.5 Use of e-invoicing in manufacturing companies in Nakuru West 46

4.5.1 Effect of e-invoicing on supply chain efficiency in Nakuru West 47

4.6 Effect of catalogue management on supply chain efficiency in manufacturing companies ... 48

4.6.1 Uptake of catalogue management in manufacturing companies in Nakuru West 48

4.6.2 Effects of catalogue management on supply chain efficiency 50

4.7 Comparison of the effects of E-Procurement on supply chain efficiency 51

4.8 Regression Model 52

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS. ..... **Error! Bookmark not defined.**

5.1 Introduction 55

5.2 Summary key of Findings 55

5.2.1 Influence of E-Tendering on Supply Chain Efficiency 55

5.2.2 Effects of e-auctioning on Supply Chain Efficiency 56

5.2.3 Effects of E-Invoicing on Supply Chain Efficiency 56

5.2.4 Effects of Catalogue Management on Supply Chain Efficiency 57

5.3 Conclusions of the Study 57

5.4 Recommendations of the Study 58

5.4.1 Recommendations for Manufacturing Companies 58

5.4.2 Recommendations for Managers 58

5.4.3 Recommendations for Operational Staff 59

5.4.4 Recommendations for Further Studies 59

References ..... **Error! Bookmark not defined.**

APPENDIX I: Informed Consent Form ..... **Error! Bookmark not defined.**

APPENDIX II: QUESTIONNAIRE..... **Error! Bookmark not defined.**

APPENDIX IV: ETHICAL CLEARANCE 74

APPENDIX V : NACOSTI PERMIT 77

APPENDIX VI: INTRODUCTION LETTER ..... **Error! Bookmark not defined.**

APPENDIX VII: CERTIFICATE OF CORRECTION ..... **Error! Bookmark not defined.** APPENDIX VIII: SIMILARITY INDEX REPORT ..... **Error! Bookmark not defined.**

LIST OF TABLES ix

Figure 4.1 age of the respondents.....38

Figure 4.2 education levels.....39

Figure 4.3 effects of e-tendering on supply chain efficiency 43

Figure 4.4 use of e-auctioning in manufacturing companies 45

Figure 4.5 effects of e-invoicing on supply chain efficiency 48

Figure 4.6 usage of catalogue management in supply chain efficiency 49

Figure 4.7 comparison of effects of e-procurement on supply chain efficiency 51

Figure 1.1 conceptual framework of the study…….30

LIST OF FIGURES

Table 3.1 Sample Size used……28

Table 4.1 management level of respondents……47

Table 4.2 number of years using e-procurement systems……48

Table 4.3 use of e-tendering in manufacturing companies…….49

Table 4.4 effects of e-auctioning on supply chain efficiency……...54

Table 4.5 use of e-invoicing in manufacturing companies…….....55

Table 4.6 effects of catalogue management on supply chain efficiency…….…….58

Table 4.7 regression summary…….……60

LIST OF ABBREVIATIONS AND ACRONYMS B2B-

Business to Business

CIPS-	Chartered Institute of Procurement
EPR-	Enterprise Resource Planning
E-PROCUREMENT-	Electronic Procurement
ICT-	Information and Communication Technology
IFMIS-	Integrated Financial Management Information System
MPR-	Management Performance Review
P2P-	Purchase to pay
TAM2-	Technological Acceptance Model 2
TCE-	Transaction Cost Economics

CHAPTER ONE INTRODUCTION

1.1 Background of the Study

Companies' efficiency hinges on its adept management when working in its supply chain. (Njenga, 2019) Effective supply chain management is crucial for an organization's survival. Purchasing materials and parts, assembling, storing, making orders, tracking, and delivering items (BrandonJones & Carey, 2011). A supply chain performance metrics system's primary constituents include delivery time, quality, cost, flexibility, inventory levels, resource utilization and delivery performance (Quesada et al., 2010). It is necessary to switch to e-procurement services from traditional modes of procurement (Mutangili, 2020). E-procurement streamlines operations and saves both time and money by harnessing communication and information technologies. It incorporates various phases of the procurement procedures which includes ordering, negotiating, receiving, sourcing, and post-procurement review, all seamlessly integrated for efficiency. (Nyagah & Mwanga, 2015).

One innovative method of conducting business to reduce purchasing costs and boost process effectiveness is electronic procurement (Desmond, 2022). Electronic bill, catalog management, electronic payment of goods, electronic contract running, e-information, order status, e-auction, supplier management, e-tendering, dispatch notification and order integration are the parts of eprocurement supply chain system. Businesses, need an effective supply chain to stay in business. Making sure that every activity taken across the supply network system, from the consumer to the supplier, is appropriately synced and harmonized could help accomplish this efficiency (Desmond, 2022).

Technology advancements in the manufacturing sector are thought to have made e-procurement more competitive and efficient by enhancing procedures and lowering costs (Waithaka, 2021). Various instruments are used in e-procurement processes, including the phone, fax, email, online portal, ERP, and matching orders to invoices. This process also includes stock or material management, supplier assessment, and electronic supplier payment (Waithaka, 2021).

Globally, e-procurement is becoming more and more common, especially as technology has evolved. As an example, the e-procurement system has experienced significant growth in united states, in the year 2000, just prior to the recession. By the close of that year, every state agency had established an operational website facilitating the e-procurement process. Some even adopted online bidding practices during this period.(Reddick, 2004) In Malaysia, the government mandates that all suppliers utilize and maintain the e-procurement technologies (Yossuf et al., 2011). As per Kaliannan et al. (2009), the utilization of technology in procurement has led to a remarkable transformation of the public sector in Malaysia. The Commonwealth of Australia conducted a study in 2005 which revealed that different governments including Italy, Western Australia, Scotland, New Zealand, and South Wales were implementing e-procurement systems for public supply chain management (Mukhuza et al., 2023).

In Africa, electronic procurement system is still relatively young, specifically for the governmental sector (Waithaka & Kimani, 2021). Addressing the struggles of culpability and transparency in government sectors procurement processes in many countries in Africa have made changes to procurement related legislations and the implementation of e-procurement procedures (Waithaka & Kimani, 2021). Tanzania, for instance, established electronic procurement systems that enable e-payment, e-advertisement, e-communication, e-submission, evaluation, e-sharing, scrutiny and

monitoring-contacting in order to guarantee that all procurement in the public sector is online based (Sijaona, 2010).

Kenyan government has aggressively participated in electronic procurement deployment after 2013. Since then, significant milestones and changes have been put into practice to guarantee that all government procurement processes are carried out electronically (Mose et al., 2013). The government of Kenya requires that all public sector do its activities, commodities and all its services done through online channels. For instance, county managements must carry out all financial and procurement operations digitally. An illustrative example is the government's unified financial management information system, which is used by all 47 counties for procurement. By offering real-time financial information and efficiently creating programs and budgets, IFMIS was adopted to enhance governance (Waithaka & Kimani, 2021). Moreover, it improves transparency, culpability and discourages deception and bribery (USIAD, 2008). Nonetheless, the nation is modernizing public procurement through the implementation of certain changes meant to increase the process's efficiency. One of the major changes is the implementation of electronic procurement measures. Mwangi (2013) It's evident that e-procurement adoption in Kenya has effectively incorporated online supplier shortlisting, online tender advertisement, and online proposal submission for tenders. Performance in the supply chain is critical to Kenya's economic growth. Kenya's aviation industry has been striving to effectively and efficiently fulfill consumer demands in terms of cost, service quality, and innovation in in-flight products (Geofrey, 2015). The focus of the airline industry has switched to B2B e-business, leading to the growth of e-marketplaces. Participants in airline markets are excited about the possibility of cooperative procurement prospects and prospective moves toward creating e-marketplaces as middlemen for combining demand, consortium-led and streamlining transactions (Mutangili, 2019).

Even with their widespread use, the connection amongst eBusiness technology and supply chain performance is still unclear. After all, companies invest in eBusiness technologies in the hopes of increasing productivity and streamlining supply chain integration. According to CEOs, "supply chain planning," "linkages with customers," and "linkages with suppliers" provide the most potential for operational improvement. Procurement requisitioning, tender/quotation analysis, sourcing, planning, sending and receiving, order processing, order transmission to suppliers, and supply chain initiatives are the capabilities that eBusiness technologies most commonly transform (D'Avanzo et al., 2003). Quinn and Poirier's performance Regretfully, managers' expectations have surpassed reality when it comes to this technology (2003). Furthermore, despite much academic research and heated debate, there has been no definitive conclusion reached regarding the reoccurrence on investment from data technology practice. The paybacks of data technology have been a topic of discussion in the literature and it remains to be (Waithaka & Kimani, 2021). This is mostly because the research designs used in this stream of studies have not conclusively established the relationship between the performance of particular technologies and organizational outcomes. It is still difficult to establish a strong connection among supply chain performance and eBusiness technologies. This study seeks to explore how e-procurement systems affect supply chain efficiency in manufacturing organizations, leading us to our primary research concern.

1.2 Statement of the Problem

Execution and utilization on the automated procurement technologies among manufacturing firms in Nakuru West Sub County, Kenya, are purported to have brought about improvement and efficiency in the supply chain operations. However, there remains a substantial gap between the benefits that e-procurement systems, theoretically offer and their real-world effects in manufacturing supply chains. This disparity poses a serious issue that has to be looked into. Prior

research in this field has identified a number of challenges that e-procurement systems face in achieving optimal supply chain efficiency. For example, a 2018 study by Kibicho & Waiganjo discovered that just 40% of Nakuru West Sub County manufacturing enterprises had completely included e-procurement technologies into their supply chain operations. This implies that a significant number of businesses are not taking advantage of the advantages that these technologies may offer.

Additionally, only 25% of manufacturing organizations that have used e-procurement systems indicated a substantial improvement in supply chain efficiency, according to research done by Mwai and Gitahi (2020). This suggests that although adoption rates are rising, there is a discrepancy in the expected improvement in supply chain efficiency. Furthermore, data from Kenya National Bureau of Statistics (KNBS) show that industrial enterprises in Nakuru West Sub County still suffer from a very high rate of supply chain inefficiencies, even in the presence of eprocurement solutions. On average, 30% of procurement processes experience delays or errors that can be attributed to manual interventions. At the moment, a majority of Kenyan firms perform their procurement functions manually, which results in a lot of paperwork and high costs. These organizations are required to embrace and make of use technology in the procurement function by using electronic procurement in order to reduce costs and increase profitability. Efkous (2003) states that e-procurement has been adopted by numerous organizations worldwide, such as the, Spain, United Kingdom, Germany, Norway, Portugal, Ireland, Italy, Australia, Finland, Brazil, Denmark and Singapore demonstrating practice's which are importance for cost savings and, ultimately, profitability. Nation Media Group and other Kenyan businesses have adopted eprocurement, enabling their clients to purchase homes, vehicles, and other goods online via their digital platform N-Soko (Gitahi, 2011).

The findings indicate a noteworthy disparity between the supposed benefits of electronic procurement systems and their important outcome on supply chain. This disparity highlights the necessity for a careful examination of the factors contributing to this imbalance as well as workable mitigating strategies. Thus, the core matter addressed in this research is: "Seeing the discrepancy, which are linked with the expected advantages of these systems and their actual influence on supply chain efficiency in industrial companies in Nakuru West Sub County, Kenya, a thorough investigation of the underlying factors impeding the effective implementation and utilization of eprocurement systems is imperative."

Furthermore, a lot of businesses use e-procurement techniques without knowing exactly what to anticipate. Many studies have been done to bring out the thoughtfulness and benefits of application and challenges of electronic procurement. Studies on operational and overall organizational performance, as well as other facets of electronic procurement. However, the connection between procurement performance and e-procurement has not been thoroughly examined, especially with regard to Kenyan manufacturing companies, which have not been the subject of these studies. The influence of e-procurement efficiency on manufacturing, for instance, has not been studied. Mutangili (2019) evaluated e-procurement at Kenya Airways, while similar research examined eprocurement in county governments. This research endeavors to close this gap by analyzing the influence of e-procurement technologies on supply chain efficiency within manufacturing firms located in Nakuru West Sub County, Kenya.

1.3 Purpose of study

The purpose of this study was to determine the influence of e-procurement systems on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya.

1.4 Objectives of the Study

1.4.1 Broad objective

The research key goal is to ascertain how e-procurement technologies affect supply chain efficiency in industrial firms located in Kenya's Nakuru West Sub County.

1.4.2 Specific Objectives

I. To analyze the effect of E-tendering on supply chain efficiency in manufacturing companies located in Nakuru West Sub County, Kenya.

II. To evaluate the effect of E-auctioning on supply chain efficiency in manufacturing companies situated in Nakuru West Sub County, Kenya.

III. To explore the effect of E-invoicing on supply chain efficiency in manufacturing companies based in Nakuru West Sub County, Kenya.

IV. To assess the effect of catalogue management on supply chain efficiency in manufacturing companies operating in Nakuru West Sub County, Kenya.

1.4 Research questions

I. How does the implementation of E-tendering affect the efficiency of supply chain processes within manufacturing companies in Nakuru West Sub County, Kenya?

II. To what extent does the adoption of E-auctioning contribute to cost reduction and process optimization within the supply chain of manufacturing companies in Nakuru West Sub County, Kenya?

III. How does the integration of E-invoicing systems impact the efficiency of invoicing and payment processes within manufacturing companies in Nakuru West Sub County, Kenya?

IV. How does the implementation of catalogue management systems affect procurement decision-making and lead time reduction within manufacturing companies in Nakuru West Sub County, Kenya?

1.5 Significance of the study

By acting as a reference for scholars working on this and similar problems, the study will benefit e-procurement researchers. This document can be cited to further scientific and academic input to comprehend this form of information, given the academic and professional high level of information and other interests in procurement. Comprehending the supply chain procedures and operations of the manufacturers in Nakuru West Sub County would help the government formulate policies affecting many departments. They will support policymakers in supporting, promoting, and encouraging appropriate regulations for administrations, as well as in the making of thorough strategies and other programs that fervently encourage the sustainability and expansion of government institutions. The results of the study will help Nakuru County's manufacturing enterprises in a variety of ways. It will teach them how to manage electronic procurement efficiently so as to enhance supply network performance, regardless of products and industries they work with.

The results will help tackle the raised concerns aiming to enhance both supply chain efficiency and the acceptance of electronic procurement to targeted audience, using the collected data, financial administration in businesses that use e-procurement systems will be analyzed, and recommendations for promoting e-procurement use to enhance supply chain performance will be made. Other businesses wishing to utilize e-procurement might also use the study's findings as a model. It will facilitate their access to information regarding the practice of e-procurement systems compared to its performance enhancement, and the statistics will support system implementation and usage.

1.6 Scope of Study

This study aims to investigate the influence of e-procurement systems on supply chain efficiency and effectiveness within manufacturing companies in Nakuru West County, Kenya. The scope will encompass an analysis of how e-procurement technologies impact various supply chain dimensions, including procurement processes, inventory management, and supplier relationships. The research will focus on several key objectives: evaluating the level of e-procurement acceptance among local manufacturing firms, assessing the benefits and challenges associated with its implementation, and analyzing its effect on cost reduction, order accuracy, and lead time. Additionally, the study will explore the perceptions of stakeholders, including procurement managers and suppliers, regarding the transformative role of e-procurement systems in enhancing operational performance. Data will be collected through surveys and interviews, aiming to provide a inclusive understanding of the current landscape of e-procurement in the region and its implications for supply chain management. The study will cover management, procurement, and ICT departments were involved in the research, which focused on the manufacturing businesses in the Nakuru West Sub County. I assessed personnel as well as business owners.

1.7 Limitations of study

A substantial constraint of this research was its reliance on cross-sectional surveys, which hindered the researcher's ability to confirm the cross-sectional findings. However, it did enable the researcher to compare performance at different times before and after e-procurement processes were implemented in order to give insights on how to improve its applicability Accordingly. Future research should consider conducting a longitudinal study to track performance development over an extended period, offering deeper insights.

Time allocated for this study's completion resulted to a limited scope of coverage; hence, additional research will need to be done in the future. Some participants may not have been willing to submit full information on the company, therefore the information that has been provided may not be comprehensive enough.

1.8 Delimitations

Study scope: Manufacturing businesses in Kenya's Nakuru West Sub County may be the study's primary emphasis. It might not, however, fully encompass the range of supply chain efficiency and e-procurement deployment across various industries or geographical areas.

Sample Size: number of the manufacturing companies taken in for the research sample may be limited in this study due to budget of the money available and time given for the study to be carried out. Reduced sample size may have an effect on how broadly applicable the results are.

Timeframe: The study's data collection and analysis may be limited to a particular period of time. This restriction may make it more difficult to identify long-term patterns or modifications in supply chain effectiveness brought about by usage of electronic procurement.

Resource Restrictions: depth and the scope of the investigation may be impacted by restrictions on funding, technological availability, or expertise. For example, the project may not have the funding to employ experts or purchase sophisticated data analysis equipment.

Language and Cultural Barriers: Disparities in language or culture may have an impact on how well research participants communicate and gather data. These elements could limit the inclusion of particular ideas or demographic groupings.

1.9 Assumptions of study

All inquiries got accurate and voluntary responses from the respondent.

Since I only covered Nakuru West Sub County, the sample I collected will accurately reflect the businesses in Nakuru County.

1.10 definitions of key word

Catalog Management- this can be described as the process of maintaining, organizing and updating a company's list of products or services. This includes managing product descriptions, prices, inventory levels, and categorization, often facilitated by software tools to ensure accuracy and accessibility.

E business- is used to describe carrying out many types of commercial operations over the internet or other electronic networks. This can involve working with business partners, marketing, purchasing and selling products and services, and providing customer support. The broad field of e-business includes online retail businesses, electronic payment systems, digital marketing, supply chain management, and other operations.

E-Auctioning-auctioning is an online auction process where goods or services are sold to the uppermost purchaser through a digital platform. It can involve various auction formats, such as reverse auctions, where buyers invite suppliers to bid lower prices.

Efficiency- discusses to as the capability to attain extreme efficiency with minimum wasted energy. In business contexts, it often means optimizing processes to reduce costs and time while maintaining quality and output levels.

E-Invoicing- it is the automated chat of invoices between a supplier and a buyer. It automates the invoicing process, enabling faster processing, reduced errors, and improved cash flow management by allowing for electronic approval and payment systems.

E-procurement-the process of acquiring products, services, or works through electronic means, including the internet or other digital platforms, is known as e-procurement or electronic procurement, which entails using technology to automate and expedite sourcing, ordering, payment, and supplier management processes, among other aspects of the procurement process.

E-Tendering- is the electronic way of inviting bids for contracts or projects. It typically involves submitting tender documents online, allowing organizations to streamline procurement processes, enhance transparency, and improve competition among suppliers.

Influence-In business, it can refer to the ability of individuals or organizations to shape decisions, policies, or practices within an industry or market.

Supply Chain- A supply chain encompasses the entire system of production, processing, and distribution of goods, from raw materials to final products delivered to consumers. It includes all parties involved, such as suppliers, manufacturers, distributors, and retailers, and focuses on the flow of goods, information, and finances.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This content in this chapter is derived from articles and published journal sources relevant to the study's topic. It examines the claims made by various authors and researchers on how supply chain efficiency is affected by electronic procurement techniques. This chapter encompasses research findings on supplier integration, e-procurement practices, the influence of e-procurement on supply chain performance, and the controlling part of supplier incorporation on supply chain performance. It concludes with a conceptual framework and an executive summary.

2.1 Empirical Literature Review

E-procurement, also referred to usage of internet-based system to handle processes such as supplier exchange or electronic procurement, all of the procurement stages, including sourcing, postpurchase, evaluation, ordering, negotiating and reception searching (Barngetuny and Kimutai, 2020). E-procurement refers to the process through which companies, governments, or other entities utilize the Internet and various networking systems to buy or sell labor, products, and services. This includes activities such as interchange and electronic data planning, facilitating efficient transactions and communication in the digital realm. Preda, (2020) referred public procurement has historically gotten little attention from researchers and academics despite being one of the main tasks of the government. As a result, there is now a knowledge gap that makes it challenging for public procurement, policymakers, and government decision-makers to adopt new technology and keep up with developing trends in procurement. Electronic procurement usage is one of the skills the Kenyan government has used to enhance public procurement procedures. Adoption of e-procurement should, in theory, increase productivity, reduce costs, and bring the procurement process back into order. The use of electronic procurement is meant to save costs, promote accountability and transparency, and boost productivity for various businesses, including government organizations (Desmond,2022). Nevertheless, many companies use e-procurement approaches without knowledge of what to it may bring forth to the company. To gain a comprehensive understanding of e-procurement and its benefits, numerous studies have been conducted (Wijaya,2022). These encompass research on the advantages of electronic procurement, the hurdles encountered in its implementation, and its correlation with overall organizational effectiveness and operational efficiency, as evidenced by scholarly investigations. The link between e-procurement and supply chain efficiency has been extensively done, but none of them have looked at Nakuru manufacturing businesses.

2.1.1 The effect of E-invoicing on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya

E-invoicing, the electronic exchange of invoice documents between trading partners, has been found to significantly impact supply chain efficiency in manufacturing companies in many ways such as it significantly speeds up the invoicing process compared to traditional paper-based methods. By automating the invoice submission, approval, and payment processes, companies can reduce the time spent on manual data entry and error correction. This efficiency gain is crucial in manufacturing, where timely payments can affect production schedules and supplier relationship

Morrow & Latham, (2016), it decreases in Errors and Disputes the automation and standardization involved in e-invoicing help in minimizing errors such as incorrect amounts or duplicate invoices. Fewer discrepancies mean reduced time spent on dispute resolution and less strain on resources dedicated to invoice management. Kumar & Rajan (2018).it leads to improved Cash Flow Management-invoicing facilitates quicker invoice approval and payment processes, which can lead to improved cash flow management. Manufacturers can better predict cash flow needs and manage their working capital more effectively, Smith & Jones, (2020), it Enhances transparency and tracking where by E-invoicing systems provide real-time tracking and auditing capabilities. This transparency allows manufacturing companies to monitor the status of invoices, ensuring that they are processed and paid on time. Enhanced tracking can also help in identifying bottlenecks in the invoicing process, (Chen &Wang, 2019), Cost Savings this due to reduction in paper usage, postal costs, and administrative overheads results in significant cost savings. Manufacturing companies can allocate these savings to other areas of their operations, potentially investing in more advanced technologies or improving their production processes (Williams & Green, 2017). It also brings Strong Supplier Relationships this ensured through timely and accurate payments facilitated by einvoicing which strengthens relationships with suppliers.

Manufacturing companies that adopt e-invoicing often experience fewer disputes and better supplier satisfaction, which can lead to more favorable terms and conditions (Patel & Thomas, 2021). E-invoicing also enhances compliance and reporting whereby e-invoicing systems often come with built-in compliance features that help manufacturers adhere to regulatory requirements.

Automated reporting tools simplify the creation of financial reports and help ensure compliance with tax regulations (Nguyen & Lee, 2022). This summarizes that e-invoicing provides a range of benefits to manufacturing companies, including reduced processing times, fewer errors, improved cash flow, better transparency, cost savings, stronger supplier relationships, and enhanced compliance. These improvements collectively contribute to greater supply chain efficiency and operational effectiveness (Pujawan & Goyal, 2005).

2.1.2 Influence of e-tendering on supply chain efficiency in manufacturing companies in Nakuru West Sub- County, Kenya

E-tendering automates the tendering process online, facilitating a more streamlined and controlled procurement process (Qusef et al, 2019). It benefits both procurers and suppliers by eliminating

geographical barriers, saving time by reducing the communication traffic between the manufacture and supplier and also the need to reduce buyer tender documentation. E-tendering also enhances the certainty of procurement deals by providing real-time feedback and addressing concerns about the timely arrival of application forms or receipts. It includes all the electronic procurement processes of e-tendering, such as including, e-selecting, e-awarding, e-noticing, e-response and emailing practices, Jayawardhena & Jayaratne (2019) examined the implementation and presentation of e procurement.

The issue of online content for e-commerce is said to fall within the category of information quality. Web content must be safe, user-friendly, comprehensive, pertinent, and customized for eprocurement to meet suppliers' and buyers' expectations and for it to be successful. This because the involved parties they will be required to visit the website frequently and do business online. Three constructs proposed by this are perceived ease of use and trust, service quality dimension and supposed risk (Cho & Adali,2015). Giving the right information and trust plays a very crucial part in e-commerce, this is due to the high level of risks involved in the transactions conducted online.

According to Mayers, Hardin, R. (2006), the most commonly used definition of trust is the confidence and reliability that exists between parties engaging in business transaction. The willingness taken by one part in order to endure the actions of the other involved partner, with the hope that their partner will fulfill their agreed-upon transaction or duty. Implementing e-tendering in a manufacturing company can significantly enhance supply chain efficiency by streamlining the procurement process, reducing costs, and improving transparency (Osir, E. O. 2016). E-tendering enables faster communication between buyers and suppliers. Instead of traditional paper-based processes, all tendering activities can be conducted online, thereby diminishing the time needed for document preparation, submission, and evaluation. Consequently, this leads to cost reduction by eliminating the necessity for physical documentation and manual processing.

E-tendering significantly decreases administrative costs linked with procurement. Additionally, etendering has led to increased competition which has brought about better pricing from suppliers in order to fit in the competitive market And get customers who are looking for affordable products, further reducing overall procurement costs thus Improved Supplier Management in Etendering which allows for a centralized repository of supplier information, hence it becomes very easy for the business to gauge and pick the most appropriate dealer looking into the following factors:

delivery, value of their money and capability. According to Amarapathy et al. (2013) This centralized approach also facilitates better supplier relationship management leading to Enhanced Transparency and Compliance in E-tendering platforms this provide transparency throughout the procurement process, ensuring fairness and integrity. All activities, from bid submission to contract award, are documented electronically, reducing the likelihood of disputes and improving compliance with regulatory requirements hence a company is flexible to all the changes which might occur during the e tendering process, Whether the company is expanding its operations, entering new markets, or diversifying its product range, e-tendering can accommodate these changes without significant disruptions to the procurement process (Samoei & Ndede,2018)

2.1.3 Influence of E-auctioning on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya

According to Teich et al. (2004), E-auction refers to the process of conducting auctions using digital platforms or online marketplaces instead of traditional in-person auctions. In e-auctions, buyers and sellers interact electronically to negotiate prices and terms for goods or services. This method leverages technology to streamline the auction process, enabling participants to submit bids, view auction status, and make decisions remotely through internet-enabled devices such as computers or smartphones (Sidnal & Manvi, 2013). E-auctioning is commonly used in various industries, including procurement, supply chain management, and e-commerce, to facilitate transparent, efficient, and competitive transactions. This process has various benefits in technology world such cost Reduction where by it allows companies to invite multiple suppliers to bid on contracts or orders, fostering competition and driving prices down. This can lead to cost savings in procurement, which directly impacts the overall supply chain costs. Also, this process of eauctioning will lead to time Efficiency, the traditional procurement processes involving manual negotiations and paperwork can be time-consuming. E-auctioning automates much of this process, reducing the time needed to select suppliers and negotiate contracts. In supply chain, this increased speed can lead to quicker turnaround times. Waithaka & Kimani (2021) stated that e procurement by e auctioning increases transparency by providing a transparent platform where all participating suppliers can see the bids submitted by competitors. This transparency helps in establishing fair market prices and ensures that the selected supplier offers the best value proposition hence giving a wider range of supplier base this enables companies to reach a broader pool of suppliers,

including those located geographically distant. This expanded supplier base can lead to increased competition, better quality, and more innovative solutions. Obiero, R., & Ngugi, L. (2024) gives a view on how e auctioning has helped in technology growth in data analytical field where by eauctioning comes with platforms with built-in analytics tools that provide insights into supplier performance, market trends, and cost benchmarks. Utilizing these analytics empowers manufacturing companies to make more informed decisions regarding supplier selection, contract negotiation, and inventory management. Moreover, this technology helps in risk mitigation where by the parties involved can easily compare bids from multiple suppliers and evaluate various factors such as quality, delivery time, and payment terms. This enables better risk assessment and mitigation strategies, reducing the chances of disruptions in the supply chain and this will lead to standardization and compliance by ensuring that all procurement activities adhere to company policies and regulations. This standardization streamlines operations and reduces the likelihood of errors or non-compliance issues (Oteri, 2019)

2.1.4 The effect of catalogue management on supply chain efficiency in manufacturing companies in Nakuru west sub county, Kenya

A key component of supply chain efficiency optimization for industrial firms in Kenya's Nakuru West Sub County is catalog management. Procurement processes can be expedited, inventory control can be improved, supplier relationships can be strengthened, and eventually cost savings and operational efficiency may be increased with effective catalogue management. Firstly, efficient catalogue management ensures that manufacturing companies have up-to-date and accurate product information. By making informed purchasing decisions and maintaining an accurate and comprehensive inventory of products and services, industries may cut risk which may occur due to errors delays or errors in the process of procurement. Due to enhanced demand forecasting and inventory optimization techniques, the danger of stock outs or overstocking is reduced, improving inventory management and resulting in cost savings.

Second, the standardization and consolidation of procurement procedures are made easier by catalogue management. Companies may exploit economies of scale, standardize buying practices, and negotiate better terms and price with suppliers by centralizing supplier catalogs and product information. The procurement procedure is streamlined, administrative burden is decreased, and effective supplier relationship management is made possible by this standardization. It also

improves compliance with procurement rules and regulations and transparency. Thirdly, improved cooperation and communication with suppliers are made possible by efficient catalogue management. Businesses may shorten lead times and increase supplier responsiveness by giving suppliers access to updated catalogs and inventory levels. Proactive inventory replenishment and order fulfillment are made possible by real-time visibility into product availability and demand, which reduces stock outs and supply chain interruptions. In addition, it strengthens relationships with suppliers, promoting cooperation and mutual trust—two things that are necessary to achieve supply chain agility and resilience. Finally, data-driven decision-making and performance monitoring are supported by catalogue management.

Businesses may find cost-saving possibilities, manage product assortments, and spot trends by studying procurement metrics and catalogue data. This analytical understanding promotes longterm supply chain efficiency and competitiveness by enabling continual improvement in supplier selection, product sourcing strategies, and procurement procedures. In a literature review paper, Gupta & Narain, (2012) The study scrutinized the benefits and advantages obtained from the utilization of e-procurement in the running's of today's business activities, highlighting its integration of various e-infrastructures, such as digital communication, computing capacity and many more which are used by application service providers, in supporting its basis in research. It underscored the importance using these systems together in order to achieve actual supply chain running's. Findings shows significant improvement on operational performance due to eprocurement usage such as reducing information search and reduction on transaction costs, smooth e-inventory and logistics, and transparency increase hence profit maximization, Chebet & Kihara (2022). Additionally, catalogue management plays a critical role in advancing supply chain efficiency by optimizing product, information, and financial flows, leading to benefits such as receiving payment on time, getting better terms on credit, and best quality of goods (Masudin et al, 2021). Nevertheless, the research did not point out the influence of e-procurement on catalogue management practices specifically within manufacturing companies in Nakuru West Sub-County. In conclusion, industrial enterprises in Kenya's Nakuru West Sub County must improve supply chain efficiency through proper catalogue management. Catalog management enables data-driven decision-making, standardized procurement procedures, collaborative supplier relationships, and precise product information, all of which reduce costs and improve inventory control and overall operational performance.

2.2 Theoretical framework

According, Aparicio & Oliveira (2016) a great deal of effort and money have been invested by researchers in figuring out how information technology use affects a variety of companies' and individuals' performance as a whole. This study offered a concise synopsis of some significant SCM models (Szadegan & Teich,2010). Most of these theories are generated from relevant fields including economics, sociology, engineering accounting and management. Since social psychology forms the basis of this investigation, several substitutes from that field have also been employed. some of the most renowned theories include contingency theory of management, technological acceptance theory model 2, transaction cost economic theory, dynamic capability theory and electronic market hypothesis.

2.2.1 Technological Acceptance Model 2 (TAM2)

Venkatesh et al (2003) introduced a theory known as TAM2, an extension of the Advanced Technology Model that had been used previously. This theory highlights how cognitive abilities and social influences impact the adoption of technology. According to TAM2, people evaluate new technology by perceived usefulness and its ease of use. Communal norms also play a very crucial role, as they shape the perceived utility of technology, while cognitive abilities determine how easy and user-friendly it is perceived to be.

For instance, manufacturing companies in Nakuru west sub county, Kenya have adopted eprocurement due to the established ICT culture. However, for e-procurement to be effective, it must be perceived as easy and user-friendly by the organization's employees. According to Venkatesh and Davis (2000) who applied a social perspective to their theory, integrating the reasoned action framework developed by Fishbein and Ajzen (1975). This framework posits that social rules gives a direct impact on a person's openness towards the adoption of new practices. In the context of manufacturing companies in Nakuru west sub county, Kenya, if social norms and staffs value e-procurement, adoption becomes more likely.

The theory points out that that individuals have internal mechanisms that influence their beliefs about new technologies like e-procurement. Cognitive abilities shape perceptions of usefulness, impacting technology quality, relevance, and societal contribution. In this study, the management of manufacturing companies in Nakuru west sub country recognized that e-procurement as crucial for enhancing operational performance, leading to its implementation in their facilities and network

systems. TAM2 strengthens the link between supposed practicality and effortlessness of usage, demonstrating how individuals assess new technologies based on these factors. based on mental assessments of their goals and outcomes. Applying the Technology Acceptance Model in e-procurement allows organizations to identify and discourse issues that impact user reception, eventually leading to a more helpful application. By focusing on perceived ease of use and perceived usefulness, organizations can enhance user adoption and maximize the benefits of eprocurement systems.

In this study, TAM2 was instrumental in understanding which e-procurement features enhance operational performance in manufacturing companies and why certain practices are particularly suitable for Nakuru west sub county, Kenya.

2.2.2 Transaction cost economic theory

Transaction Cost Economics (TCE) is a basis developed to investigate and understand the costs related with economic exchanges, particularly in the context of organizations and contracts. The theory was primarily developed by Ronald Coase in his seminal work "The Nature of the Firm" (1937) and further expanded by Oliver Williamson in the 1970s and 1980s, whereby its key concepts were Business Costs, these are the costs incurred during the course of buying or selling goods or services, which can include, Exploration of Information Costs, decision Costs, policing Costs Bargaining and enforcement. Bounded Rationality: This concept refers to the limitations of individuals' cognitive capabilities when making decisions coase, (1937). It suggests that decisionmakers cannot foresee every possible outcome and thus may not act entirely rationally. Opportunistic assumes that parties may act opportunistically, seeking to maximize their own benefits, potentially at the expense of others. This behavior can lead to contractual disputes or the need for more complex contracts. Where by high asset specificity can increase transaction costs because it creates dependency between the parties involved. Governance Structures: TCE posits that firms must choose among different governance structures (e.g., markets, hierarchies, or hybrids) based on the transaction characteristics. The choice is influenced by the level of transaction costs and the degree of asset specificity involved. This theory is practiced in different many ways which includes in the context of e-procurement, TCE can be used to understand how organizations can reduce transaction costs through technology. Here are a few ways this plays out, Reducing Search Costs, E-procurement systems can streamline the supplier search process by providing comprehensive databases and comparison tools. Lowering Bargaining Costs: Electronic

platforms facilitate communication and negotiations, making it easier to reach agreements and finalize contracts, Enhancing Enforcement-procurement tools often include tracking and monitoring capabilities that help ensure compliance with contractual terms, thereby lowering policing costs, Facilitating Collaboration: Technology can improve relationships between buyers and suppliers, reducing the likelihood of opportunistic behavior and fostering trust.in conclusion transaction Cost Economics provides a valuable lens for understanding the complexities of economic exchanges, particularly in organizational contexts. By analyzing how e-procurement systems can help mitigate transaction costs, organizations can make more informed decisions about their procurement strategies, Hart & Moore, (1990).

2.2.3 Dynamic Capability Theory

David Teece, Amy Shuen, and Gary Pisano (Chien & Tsai, 2012). were the first people to use the phrase "dynamic capability" they used it initially to clarify the idea how a company might allocate its resources wisely in an aim of improving its output. The capability of a company or organization to purposely adapt its source base, as noted by Chien and Tsai (2012), is termed dynamic capability. A company or business entity must ensure it is in a position to respond appropriately and reasonably to a change of outside events. Such situations demand the implementation of several policies that will lead to maximization of the organization's numerous assets. The company will be able to develop, incorporate, and profit from its environmental competitive advantage as a consequence It is true that today's business climate is quite dynamic. It is evident that client tastes and preferences, organizational structures, culture, and marketing tactics are all evolving. It should also be feasible for firms to respond to these developments as effectively as possible (Roberts, 2007) In today's fiercely competitive market, only companies that can do this will be able to break even, according to the dynamic capability hypothesis.

Today’s market is more chaotic and versatile than how it was some decade ago (Waters, ,2011). Additionally, industries should employ contemporary supply chain strategies if they want to remain competitive in the long term. As SCM is now shifting away from inefficient old alternatives and toward agile capabilities of competitive bases, it is good to take the best turn so as to achieve their goals (Yusuf et al., 2004). businesses cannot overlook dexterity since it is an industrial-wide capability that spans business’s structure, data format, attitudes and logistical processes (Sörensson& Wu,2019). Researchers states that supply chains have to be as flexible as feasible to

ensure that businesses are able to respond promptly to unforeseen shifts in demand or supply. It also guarantees that companies grow the capability to withstand external interruptions with ease (Weick & Sutcliffe,2015). Other intellectuals have also recognized more nimble supply chain traits. Among these components are network based, sensitivity, process integration and virtuosity. Later, the discussion covers mutual operational activities among all parties involved, information exchange, and collaborative product development.

Due to its extreme market susceptibility, supply chains need to be responsive for organizations. When they apply it, their companies are able to assess market demands and respond accordingly (Holweg ,2008). In order for the supply chain to have the greatest possible influence, its participants must be prepared to establish a suitable atmosphere that allows information to flow freely in all directions. According to Qrunfleh & Tarafdar (2013). companies must shorten lead times in order to take advantage of supplier relationships and eventually develop flexible supply chains. By utilizing the specialized skills of their network partners, companies can become more responsive to the different demands of the market. Stavrulaki, & Davis (2010) claim that little inventory investment, a small capacity cushion and make-to-stock capabilities are characteristics of efficient supply chains. Additionally, they possess the abilities to emphasize minimal process, rapid delivery, and short lead times. Conversely, a responsive supply chain assembles products on demand, placing a high value on product diversity, low lead times, high-capacity cushioning, and necessary inventory. It also emphasizes personalization, flexibility, and quick delivery times (Tomlin, 2000). Dynamic Theory is applied to e-procurement, organizations to enhance their flexibility, responsiveness, and innovation capabilities. This not only improves procurement efficiency but also contributes to overall competitive advantage in a rapidly changing business environment.

2.3 Conceptual Framework

In Figure 1.1 The conceptual framework of the study highlights the relationship between the dependent and independent variables. In this research, the dependent variable is the supply chain efficiency while independent variables are e-auctioning, e-invoicing, catalogue management and e-tendering. The intervening variables include government policy which could include, exchange rates, tariffs, and quotas.

Independent Variables

E-tendering: During this procedure, bids and tenders have to be posted, filed, and handled online. E-tendering speeds up the procurement process by automating the bidding process. This can lead to more supplier access, reduced paperwork, faster response times, and improved transparency. This can bring about positive impact to the dependent variable on the e-procurement practices, such as number of qualifying bids received or the duration of procurement cycles.

E-auctioning: This is the process of holding online auctions to raise money for purchases. It increases supplier competition, which may result in lower pricing and better value for the buying organization. E-auctioning may favorably impact the dependent variable of cost reductions inside the e-procurement system.

E-invoicing is the process of creating, submitting, and processing invoices between customers and suppliers electronically. By doing away with manual invoicing procedures, it lowers mistakes, quickens payment cycles, and enhances cash flow management. As a result, there may be favorable impacts on the dependent variable of invoice processing time or payment accuracy inside the eprocurement system.

Catalogue Management: Product and service catalogs are digitally organized and maintained as part of catalog management. It makes sure that consumers can easily make procurement decisions by providing them with accurate and current data about the goods and services available. Effective catalogue management may lead to improvements in the dependent variable of procurement cycle time or user satisfaction inside the e-procurement system.

Dependent variables

Cost Reduction: Reducing expenses across the supply chain maximizes resource allocation, which enhances efficiency. Reducing expenses frees up funds for further investments in areas like talent, infrastructure, and technology. This results in increased productivity, more efficient processes, and eventually faster throughput.

Time Savings: An essential component of supply chain operations is time. Time savings can result in efficiency advantages from a variety of sources, including shorter transportation routes, quicker decision-making processes, shorter lead times, and faster order processing. Businesses may react to market needs and changes more quickly when there is a reduction in the amount of time spent on each level of the supply chain, leading to an improvement in total efficiency.

Inventory Management: Good inventory control guarantees that there are neither shortages nor excessive hoarding of commodities when they are needed. It entails reducing carrying costs, maximizing inventory levels, and preventing stockouts. By guaranteeing prompt order fulfillment, effective inventory management lowers storage expenses, improves customer satisfaction, and facilitates more seamless production processes.

Procurement Accuracy: The accuracy with which materials, components, and services are sourced and obtained is referred to as procurement accuracy. Accurate procurement procedures lessen the possibility of mistakes like obtaining defective or wrong items, experiencing delivery delays, or overpaying for purchases. By guaranteeing that the appropriate inputs are available at the appropriate time and cost, accurate procurement improves supply chain efficiency by reducing interruptions and maximizing resource use.

Independent Variables

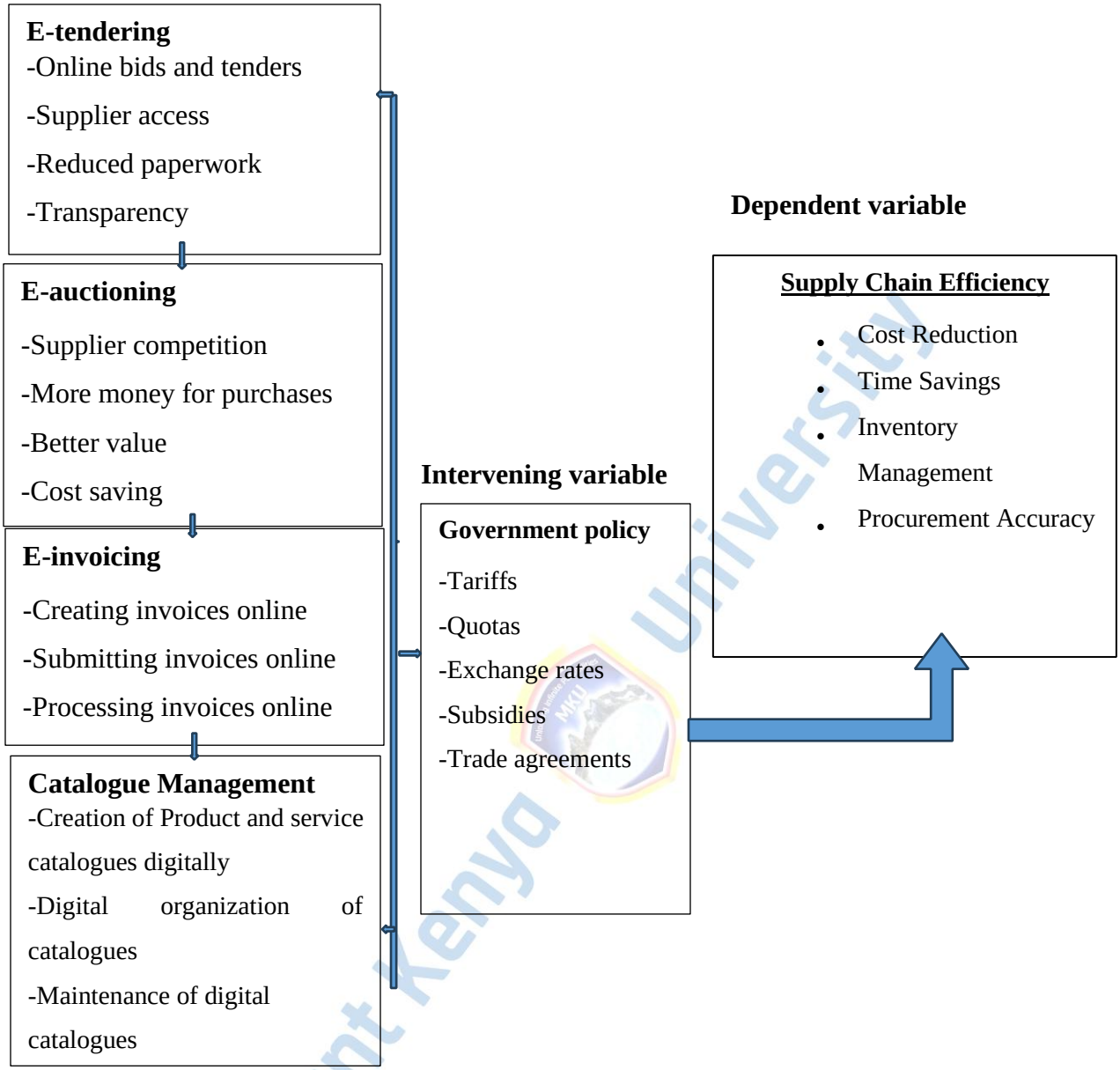

Figure 1.1: Conceptual framework for the study

Source: *Author, 2024*

Intervening variable

These are factor that influences the connection between two other variables. In subject of eprocurement and supply efficiency, the below can be discussed as follows

Tariffs: Tariffs are taxes imposed on imported goods, which can affect procurement decisions. High tariffs can incentivize companies to source goods locally or from countries with lower tariffs, potentially impacting the efficiency of supply chains in terms of cost and availability.

Quotas: can directly affect procurement choices by restricting access to certain markets or suppliers, this is due to its limitations on imports and exports hence influencing supply chain efficiency by limiting options and increasing costs.

Exchange Rates. Fluctuations in exchange rates can affect procurement decisions, as they directly influence the cost-effectiveness of sourcing from different countries or suppliers.

Subsidies: Subsidies are financial aids provided by governments to domestic producers, reducing their costs and making their products more competitive in the market. Subsidies can distort procurement decisions by artificially lowering costs, potentially affecting supply chain efficiency by altering supplier dynamics.

Trade Agreements: Trade agreements establish frameworks for trade between countries, affecting tariffs, quotas, and other trade-related policies. They can influence procurement strategies by opening up new markets, reducing trade barriers, and harmonizing regulations, thereby potentially enhancing supply chain efficiency through increased market access and streamlined procurement processes.

2.4 Recap of literature review

Undoubtedly, the prosperity of any firm lies in its procurement achievement. Achieving procurement success promotes competitive acquisition of valuable goods and services in addition to their purchase. As a result, the company becomes more competitive in the present market. This suggests that incompetent procurement practices result in significant losses for both public and private organizations. Poor-quality working materials and inflated pricing are blamed for the losses. Realizing that procurement operations have a big impact on a business's earnings, many organizations are putting pressure on their procurement department to try and reduce costs while maintaining material quality and meeting deadlines. It has been noted that inconsistent procurement regulations cause delays in orders and projects, sometimes even resulting in their cancellation.

By utilizing e-procurement to expedite their whole purchasing process, organizations may concentrate on their main business processes and increase their profitability in the present environment, which is marked by concentrating on crucial strategic goals, higher global

competition and a shorter time-to-market-market sites and e-learning, which is growing rapidly so as to become web-based and lead to opening up value chains, are just a few of the applications of internet-based technologies that are becoming more and more common. Buyers may process bills, add shopping carts, request and approve orders, accept orders, and receive goods and services from selected providers thanks to connectivity between their financial systems and suppliers' supply chains (Jessop, 2006). E-procurement websites facilitate the search for consumers and vendors of goods and services, to ensure closure of a transactions, by qualified and registered users. Both venders and purchasers can enter expenditures or give offers, depending on the plan. Starts and finishes of transactions are possible. Regular customers may be eligible for special offers or bulk savings. Sales and procurement processes may be automated with the use of electronic procurement package. Involved organizations or parties anticipate, accelerated manufacturing cycles, customer comfort and enhanced inventory control. he expansive purchase-to-pay (P2P) value chain management is anticipated to integrate e-procurement into the trends toward electronic supply chain practices.

The evaluations of the connection between e-procurement success and procurement operations across various Kenyan enterprises indicated that electronic procurement significantly influenced supply chain success across a diverse array of sectors in Kenya. It was then recommended that strategies be implemented in order to facilitate effective execution of electronic procurement initiatives and provide essential resources and guidance for carrying out the method. Purchasing and successfully implementing an electronic purchase order requisition system can help to boost suppliers, payables, internal overspending, and disbursements. The amount of manual labor involved in order requisitioning will decrease when procedures are completed electronically, leading to a more effective payable strategy. PO Requisition technology can be used to create Pos, which are then routed online and validated by Smart Routing technology. When a business integrates supplier online selling, it can obtain up-to-date information about products and services, pricing adjustments, and delivery statistics.

Additionally, companies may enhance buyer-seller communication by integrating Web and Internet-based EDI solutions into their processes., desktop purchasing systems (DPS), Requests for quotations (RFQ) that program purchasing processes, RFPs which promote online auctions that determine commodity selling values and acquisition activities and some of the extra tools that boost the process of any organization. With widespread internet access, launching online markets

where a multitude of individuals can network and conduct business has become effortless. Some of the programs that facilitates online dealings include application integration, auction engines, compensation, catalog builders and fulfillment. Using an e-procurement system, one may negotiate with suppliers for modifiable rates and special specifications for goods and services. Additionally, an online form can be filled out in order to place an order. When a company implements and effectively uses a top-notch e-procurement system, it performs better. First, the system makes it possible for the business to interact with suppliers in a professional manner, ensuring optimal supplier performance. Furthermore, the system's integrated monitoring tool helps with cost management. Finally, management can moderate past contracts and determine product prizes.

2.5 Research gap

The literature on e-invoicing, e-tendering, e-auctioning, and catalogue management presents a wealth of benefits for enhancing supply chain efficiency in manufacturing companies. However, there remains a significant research gap regarding the specific contextual factors influencing the implementation and effectiveness of these digital procurement tools within Nakuru West SubCounty, Kenya. While studies have established the general advantages of these systems such as improved cash flow, reduced errors, and enhanced supplier relationships few have focused on how local industry characteristics, regulatory environments, and cultural practices may shape these outcomes in the Kenyan context.

Moreover, existing research often emphasizes the individual benefits of each digital tool without adequately exploring the interrelationships among them. For instance, the combined effect of einvoicing and e-tendering on overall supply chain performance has not been thoroughly investigated. Understanding how these systems interact and potentially amplify each other's benefits could provide valuable insights for manufacturers seeking to optimize their procurement processes holistically. This lack of integrative studies highlights a critical gap that future research should address, focusing on the synergies between various digital procurement solutions.

Lastly, while the studies cited emphasize efficiency improvements, there is limited empirical evidence examining the actual implementation challenges faced by manufacturing firms in Nakuru West Sub-County. Issues such as technology adoption barriers, training needs, and resistance to

change are underexplored, yet they are crucial for understanding the full impact of e-procurement practices. Future research should seek to bridge these gaps by conducting empirical studies that capture the complexities of digital transformation in this specific region, thereby providing a more nuanced understanding of the factors that drive or hinder supply chain efficiency in local manufacturing contexts.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

Chapter three involves a step-by-step breakdown of the events the student used to finish the research. This chapter is divided into parts that covers the study design, sample design, research design, study population, sample design, ethical issues and statistics analysis.

3.2 Research methodology

In exploring the influence of e-procurement on supply chain efficiency in manufacturing companies, a mixed-methods research methodology can provide comprehensive insights. This approach combines quantitative methods, such as surveys and structured questionnaires distributed to a sample of manufacturing firms in Nakuru West Sub-County, with qualitative methods like interviews and focus groups to capture in-depth perspectives from stakeholders involved in eprocurement processes. The quantitative component allows for statistical analysis of relationships between e-procurement adoption and metrics such as cost savings, processing time, and supplier satisfaction, while the qualitative component enriches the findings by uncovering contextual factors, challenges, and best practices associated with implementation. This triangulation of data sources not only enhances the reliability and validity of the research findings but also provides a nuanced understanding of how e-procurement influences supply chain efficiency in a specific local context.

3.3 Research Design

Data obtained from the targeted demographic sample was gathered for this study using the descriptive survey design. The descriptive survey design was chosen by the researcher because it can specify the issues that influence e-procurement in industrial businesses and because of the study population's wide spread, which facilitated data collection. The researcher was able to evaluate how e-procurement has been implemented and used in different sectors to increase productivity by using a descriptive survey. To assess the impact of independent and dependent factors within the selected population without altering the variables, the study employed logistic regression. This strategy is suitable because it makes a clear distinction between the effects of eprocurement and its usefulness for manufacturing companies.

3.4 Location of the study

Nakuru West Sub-County is located in Nakuru County, which is situated in the Rift Valley region of Kenya. This sub-county lies to the west of Nakuru Town, one of the largest urban centers in the region. It is bordered by various geographical features, including Lake Nakuru to the northeast, known for its rich biodiversity and scenic landscapes. The area is characterized by a mix of

agricultural land, urban developments, and natural reserves, making it an important hub for both economic activities and tourism. The strategic location of Nakuru West Sub-County, with access to major highways, enhances its connectivity to other regions, facilitating trade and movement of goods and services.

3.5 Target Population

population was defined as a group of individuals which is used by a researcher as a statistical sample for study research purposes, Majid (2018). The targeted people consisted of 120 respondents including thirty (30) company managers, fourty (40) IT specialists and fifty (50) procurement officers (Table 3.1) in Nakuru West Sub-County. The professionals included in the study are the ones who are directly involved in the procurement processes in the manufacturing companies.

3.6 Sampling procedures and techniques

The study employed simple random sampling technique in selecting the manufacturing plants for the sample. Using this approach, it gave every company an equal chance of representation and helped minimize potential bias. A sample of twelve (12) companies was chosen, with ten respondents (10) selected from each company using simple random sampling. Within each company, the respondents included three (3) from management, three (3) from the IT department, and four (4) from the procurement section. Primary data was obtained through distribution of structured questionnaires. The choice of questionnaires was grounded on their ease of administration, comprehensive nature, and straightforward analysis. The questionnaire items were specifically designed to gather information aligned with the study's objectives.

The researcher gave the questionnaires to each and every respondent. After giving the respondents enough time to complete the questionnaires, they were gathered and subjected to analysis. In assessing reliability and validity, the Cronbach alpha coefficient was utilized and compared against a threshold of 0.7. Additionally, a content validity test was conducted to ensure that each measured indicator was accurately represented. According to Kothari (2004), the idea's content validity is determined by how well its dimensions or constituent parts are captured. The components of procurement performance, e-sourcing, and e-maintenance was described using descriptive analysis, Correlation analysis was used to examine the relationship between e-procurement

performance and supply chain efficiency and. The study's results were displayed with explanations through frequency and correlation tables.

3.7 Sample size

The manufacturing enterprises located in Nakuru West Sub County that have adopted an electronic procurement system was part of study's population. The study focused on ten manufacturing firms located in the Nakuru West Sub County. These organizations represented various sectors, each equipped with its own e-procurement system. The study looked at a sample size of 120 respondents. This was achieved by randomly selecting 12 companies and then selecting 10 employees in each company distributed as follows; 3 members of the management team, 3 members of the IT department, and 4 members of the procurement department (table 3.1). The responders from each department who was included in the sample was chosen by simple random selection.

Table 3.1 Sample Size used

NO	Sample population	Sample size
1	Management team	36
2	IT department	36
3	Procurement department	48
	TOTAL	120

3.8 Construction of Research Instrument

While secondary data for this study came from other journals that are relevant to the subject, primary data for this study came from information gathered during data collection. The secondary included the types of manufacturing companies in Nakuru West Sub County, the location of the companies and the e-procurement processes. This data was obtained from questionnaires. Since questionnaires allow for the collection of immaterial data, they have shown to be useful for a variety of analyses. According to Mallenbergh (2008), reviewers can learn about participants' sentiments, opinions, motivations, experience and accomplishments using surveys. The questionnaire was organized into several sections. Electronic procurement being the main topic of the first portion; electronic order processing was the second; electronic materials management was

the third; electronic supplier correlation administration was the fourth; and supply chain performance was the final component.

3.9 Validity Test

Mugenda & Mugenda (2023) Characterized validity as the relevance, soundness, precision and the accuracy of the findings on conclusions drawn from research results. Soundness is a measure of how thoroughly a given tool analyzes the data being studied, leading to accurate and significant conclusions. It is the degree to which different approaches to analyzing tool data accurately reflect the variations in the components that were tested. It also refers to information that is accurate, true, and dependable. The instruments were evaluated and modified using plain language, peer review, and the advice of professionals, their recommendations were implemented to enhance both the appearance and content validity.

3.10 Reliability Test

questionnaire's consistency with the pilot population was evaluated using the previously mentioned instruments. In this assessment, all configurations were considered effective if the Cronbach alpha or composite reliability coefficient exceeds 0.7 (Schmukle,2024). The Alpha determines if a certain tool or object computes the same structures by examining all internal measures for internal uniformity. To find out if all 57 of the review's objectives would yield the same results if the study were to be conducted on a different day, Cronbach's Alpha for each aim was computed and the data collected was assessed using coefficient to know its reliability, as it offers an unbiased evaluation of the data's generalizability. Ritter (2020) suggests that a commonly accepted guideline for indicating internal reliability is 0.7. Following the correlation of the evaluated data findings, a reliability coefficient of 0.971 was discovered for all variables, indicating high internal dependability. With all variables possessing an alpha coefficient of 0.7, it indicated that the study tool was satisfactorily consistent to conduct the research without the need for more analysis.

3.11 Data Collection Methods and Procedures

Primary data was obtained from direct communication with supply chain managers or their counterparts. A questionnaire with limited response options was used to gather the data. There were four European sections on the questionnaires. Questions about the biographical information of the manufacturing companies were asked in the first portion. In contrast, the second segment

addressed questions about objective one, and the third section addressed questions about objective two. Questions about goal three was also addressed in the final segment. The method that was used is drop-and-pick method to run the questionnaires process.

3.12 Pilot study

This is simply a small-scale examination carried out to gauge factors such as timing, potential issues, feasibility, and costs. and try to forecast whether research instruments that was used were appropriate, whether questions were clear, and how the study was designed (Hulley & Stephen, 2019). According to Newing (2021), there is no way to overstate the significance of field piloting because you will almost certainly encounter questions that individuals are unable to comprehend or interpret in different ways, as well as those that end up failing to yield any meaningful information at all. Mburu & Mwangangi (2018) proposed that a pilot study should have between 10 and 30 participants. Pilot study was conducted in Nakuru east sub county, whereby a number of 40 respondents were sampled from the manufacturing companies located in the mentioned area. The said number was taken from business owners, It department and procurement department. Whereby each department the study sampled two individuals from 8 different companies which were not included in the data collecting stage—were used in the pilot project. The study applied random simple sampling technique to get the data. According to Mertens (2020), a pilot study's sample size was sufficient to allow the researcher to collect data on validity and reliability. The core reason for carrying out the pilot study is to validate the consistency of the statistics collection instruments well as its content validity, language clarity, question clarity, and its capability to gather relevant information.

3.13 Data analysis and presentation

Both qualitative and quantitative methods was used by use of excel and SPSS Software version 29 to analyze the collected data. The quantitative data underwent multiple regression analysis and frequency measurement. The obtained results were presented using graphs, tables and charts to aid in interpretation and analysis. The relationship between the variables was ascertained at 5% confidence level by use of regression analysis. Multiple regression was preferred because the study involved several independent variables and only one dependent variable. Therefore, this model was effective in bringing out the relationships between these independent variables and the dependent variable. Here is the regression model equation:

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + Ɛ,$

In this equation:

Y represents the value of the dependent variable, which is supply chain efficiency. β0,

β1, β2, β3, β4 are the regression coefficients to be determined.

X1 represents the E-Tendering

X2 represents the E-invoicing

X3 represents the E-auctioning

X4 represents the catalogue management.

X4 E- influence of e-procurement

3.14 Ethical considerations.

The study of ethics in philosophy examines how individuals should behave, views on appropriate behavior (such as moral against wicked or wrong vs right), Guiniss & Henle (2002) suggested the enactment of laws and regulations to encourage appropriate conduct. ideas that, according to conventions or values, are correct or incorrect. Ethics are moral standards, norms, or principles that help us determine what is ethically correct or incorrect in our actions and exchanges with other people. The students' first and key duty was to safeguard each respondent and ensure they have an equal opportunity to participate. For example, participants were tasked with completing a questionnaire, and the researcher allocated an equal probability to all participants selected from the sample. All that was required of participants is to complete the questionnaire; no other information or actions was required. Secondly, neither the researcher nor the subjects suffered any direct or indirect injury during study process. Informed consent was obtained and participation was completely optional. All information was made unanimous to safeguard participants' privacy. The participants had total freedom to behave however they like, despite coming from various cultural backgrounds.

CHAPTER FOUR RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

Chapter four we will examine the results aligned with the study's objectives. Utilizing SPSS statistical software, we analyzed statistics on e-procurement activities and their impact on supply chain efficiency across various manufacturing companies in Nakuru West Sub-County. The research findings are presented in tables, graphs, and charts to effectively summarize and illustrate the data

4.2 Demographic Characteristics

This section summarizes the respondents' features, such as age, years of experience, educational background, management level.

4.2.1 Age of respondents

The research revealed that most respondents (45%) were between 32 and 37 years old. Indicating that this demographic is the most engaged with e-procurement (Figure 4.1). The age groups 26-31 years, 38-43 years, and 44 and above each have 11% representation each, suggesting that these groups are less involved in e-procurement compared to the 32-37 age group. Respondents aged between 20 and 25 years constituted 22%. The dominant engagement of the 32-37 age group might reflect their position in their careers, possibly in mid-management or senior roles where eprocurement is more relevant. This age group might be more comfortable with technology and have more decision-making authority that involves e-procurement systems. The lower percentages in other age groups could indicate either less exposure to or less need for e-procurement solutions. For instance, younger individuals (20-25 years) might still be early in their careers and might not yet encounter e-procurement tools frequently. Conversely, older individuals (44 and above) might exhibit resistance to adopting new technologies, especially if they have well-established procedures or face challenges in transitioning to new systems. This is supported by Hussein (2021) where the study implied that the people aged between 32-37 were the most familiar with the technology matters and were the persons who were in the position to make most of the companies' decisions.

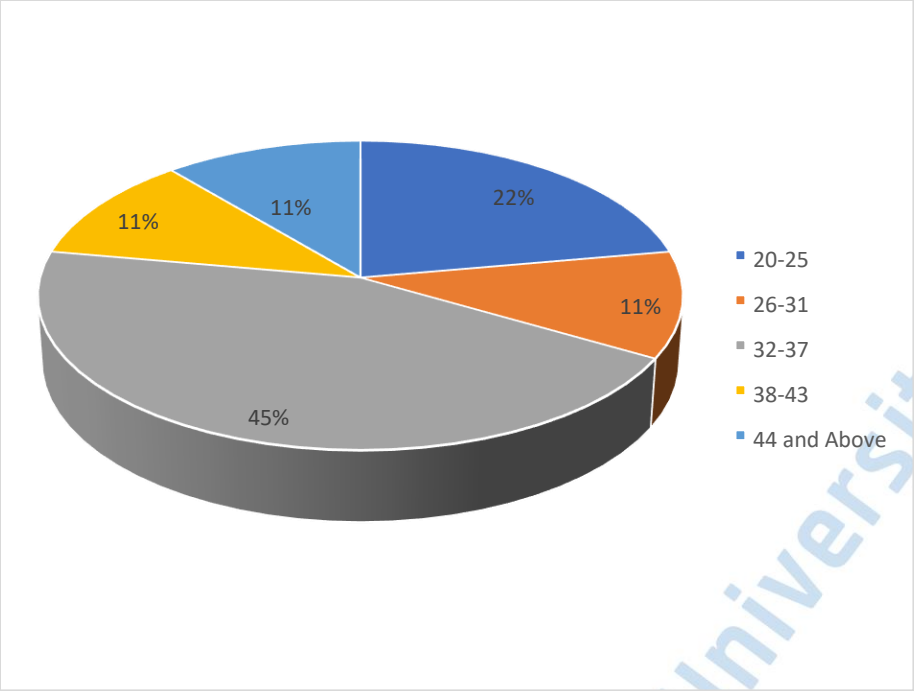

Figure 4.1 Age of respondents

Source: Author, 2024

4.2.2 Education level of Respondents

Data obtained from this study shows predominant usage of e-procurement among individuals with university education at 75% while college-educated individuals follow with 17% usage (Figure 4.2). Those with only Secondary education show the lowest engagement at 8%. The high percentage of e-procurement users with a university education suggests that higher educational attainment is associated with increased use of e-procurement systems. This might be attributed to several factors, including familiarity with technology, more complex job roles, or greater exposure to digital tools and systems in higher education. Conversely, the relatively low percentages of eprocurement usage among individuals with secondary and college education may suggest that these groups are less likely to engage with e-procurement systems. This could be due to lower exposure to or fewer requirements for such systems in their roles or educational experiences. Higher education often includes training on contemporary technologies and digital systems, which might make university-educated individuals more likely to adopt e-procurement. In contrast, secondary education might not provide similar exposure. The findings above support those of Hardy and Williams (2011) who found out that people who occupied most positions in companies

had degrees and masters compared to diplomas and certificates hence higher usage of e procurement.

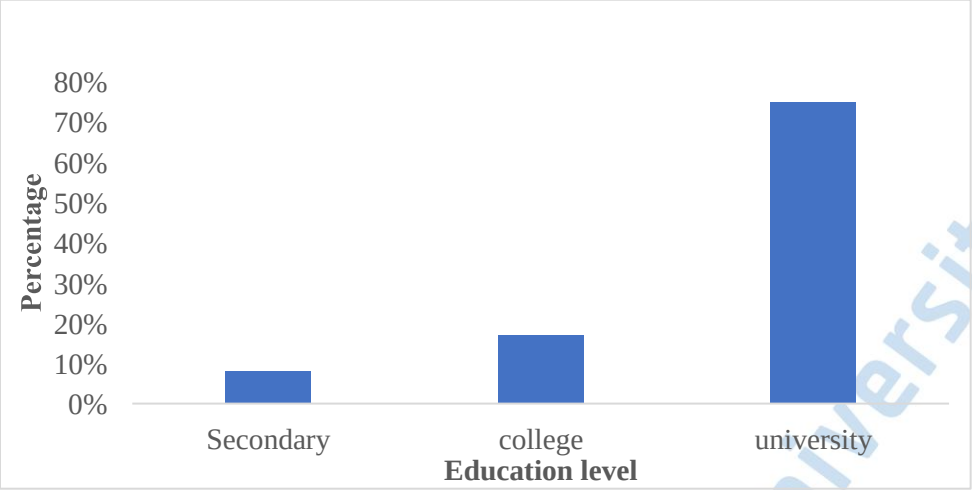

Figure 4.2: Education level

Source: Author, 2024

4.2.3 Management Level of Respondents

The study results show that operational staff constitute the largest number of respondents, totaling to 50% of the overall group (Table 4.1). This indicates that operational staff are crucial in the daily execution of e-procurement processes. Their significant presence could stem from their role in handling transactions, managing supplier relationships, and ensuring the smooth processing of procurement activities.

Table 4.1: Management Level of Respondents

Management level	Percentage
Senior management	40%
Middle management	10%
Operational Staff	50%

Source: *Author, 2024*

Senior management respondents accounted for 40% of the respondents while middle management constituted only 10% of the respondents. The relatively high percentage of senior management professionals highlights the strategic significance of the utilization usage of technology at the

senior level. Senior managers are likely involved in policy setting, budget approval, and overseeing the implementation of e-procurement technologies. The participation of seniors in the study may offer insights into how e-procurement aligns with organizational goals and how it is viewed from a high-level perspective. Conversely, the low percentage of middle management respondents may reflect their intermediary role between senior management and operational staff. Middle managers are often responsible for translating strategic objectives into operational plans and might be less directly involved with the practical view of e-procurement technologies utilization compared to operational staff.

4.2.4 Experience in the use of e-procurement systems

The results revealed that 34% of the respondents had between 6 and 8 years of experience with the use e-procurement systems. (Table 4.2). This shows that a substantial number of the respondents are relatively experienced and have had ample time to integrate e-procurement systems into their organizational processes. Organizations in this category are likely to have refined their use of eprocurement, having addressed initial implementation challenges and optimized their processes over time. Respondents with 3 to 5 years of experience using e-procurement systems made up 22% of the sample. Additionally, 19% had 9 or more years of experience, 17% had 1 to 2 years, and 8% had less than one year of experience.

Table 4.2 Number of years using e-procurement systems

Duration in years	Percentage
Less than a year	8%
1-2 years	17%
3-5 years	22%
6-8 years	34%
9 and above	19%

Source: *Author, 2024*

With 22% of respondents having 3-5 years of experience, this group is in a phase of solid experience but may still be refining their e-procurement practices. These respondents have likely moved beyond initial adoption challenges but might still be working on optimizing their systems and adapting to new features or changes. Respondents with 9 years or more of experience

accounting for 19% of the respondents indicates that organizations are more comfortable in engaging workers who have extensive exposure to e-procurement systems since they will not have to invest in training the staff. Newer users (less than a year and 1-2 years) may require more intensive onboarding and troubleshooting support. This might explain why less than one year experience respondents were only 8%. This study concurs with Kamotho (2014) whereby the study found that most of the companies and corporates who had implemented and were making use of e procurement were those who had individuals who had worked in a that company for the longest time.

4.3 Effect of E-tendering on supply chain efficiency in manufacturing companies

There is a significant effect of e-tendering on supply chain efficiency, affecting multiple aspects of manufacturing operations. By digitizing tendering processes, companies can achieve greater accuracy, reduce administrative burdens, and foster more competitive bidding environments. Etendering platforms offer real-time access to tender information, automated workflows, and robust data analytics, which collectively contribute to enhanced decision-making and optimized supply chain management. This introduction sets the stage for an exploration into how e-tendering systems are reshaping procurement strategies within manufacturing companies. It will delve into the mechanisms through which e-tendering improves supply chain efficiency, including cost reductions, faster processing times, and increased transparency. Understanding these effects is crucial for manufacturers aiming to leverage technology to maintain competitive advantage and achieve operational excellence in today's dynamic market environment.

4.3.1 Use of e-tendering in manufacturing companies in Nakuru West

The largest proportion of respondents (46%) reported a neutral stance on e-tendering (Table 4.3). This significant percentage suggests that while e-tendering is acknowledged, it may not have been fully integrated or its benefits fully realized in many manufacturing companies. The neutral response might also reflect uncertainty or lack of sufficient exposure to the system, indicating that these companies are still in the early stages of adoption or are using it intermittently.

Table 4.3 Use of e-tendering in manufacturing companies

Scale	Percentage
Strongly disagree	0%

Disagree	0%
Neutral	46%
Agree	18%
Strongly agree	36%

Source: *Author, 2024*

A combined 54% of respondents indicated a positive perception of e-tendering by either agreeing (18%) or strongly agreeing (36%) (Table 4.3). This indicates a strong inclination towards the benefits associated with e-tendering, such as increased efficiency, reduced costs, and better transparency in the procurement process. The high percentage of those who "strongly agree" highlights a notable enthusiasm and confidence in e-tendering's role in modernizing procurement practices within the manufacturing sector. Notably, there were no responses in the "Strongly disagree" or "Disagree" categories. This absence of negative feedback suggests that e-tendering is not widely perceived as problematic or ineffective among the surveyed manufacturing companies. It implies that any challenges faced are likely to be minor or manageable, and overall sentiment towards e-tendering is positive or at least neutral. The findings align with Kimtai (2015), who discovered that most respondents believe there is an increasing trend toward using e-tendering.

This indicates that the company's products and services are significantly benefiting from etendering. Implying that the market is promising and potentially profitable for the organization when they make use of e tendering as an e procurement tool.

4.3.2 Effects of e-tendering on supply chain efficiency in Nakuru West

Study survey results reveal that most respondents (42%) view e-tendering as having a significant impact on supply chain efficiency (Figure 4.3). This suggests that e-tendering is generally viewed positively, with significant improvements in efficiency reported by a substantial portion of the population. This e-tendering often reduces opportunities for corruption and enhances transparency, which could streamline procurement processes and improve efficiency. The digital nature of etendering also accelerates the procurement cycle, leading to faster decision-making and less managerial problems. Furthermore, 33% of respondents rated the impact as moderate. This indicates that while there is a clear benefit observed by a significant portion of the respondents, there are still some who see the advantages as less pronounced or variable.

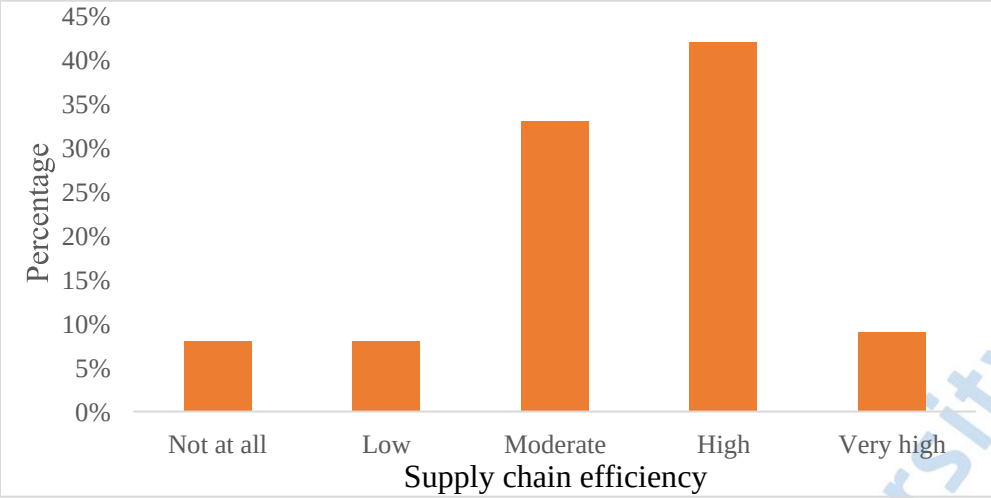

Figure 4.3 Effects of e-tendering on supply chain efficiency

Source: *Author, 2024*

On the lower end of the spectrum, 16% of respondents rated the impact of e-tendering as either low (8%) or not at all (8%). This minority viewpoint highlights that e-tendering might not be universally effective or that its benefits may not be fully experienced by all shareholders in the supply chain. This can be accredited to limited technological infrastructure or user expertise which might hinder the effective implementation of e-tendering systems. Additionally, E-tendering systems may not seamlessly integrate with existing supply chain processes, leading to inefficiencies or disruptions. Resistance to adopting new technologies can affect the overall effectiveness of e-tendering. This is in line with McConnell (2009), who emphasizes the importance of adopting e-procurement technologies within companies. Wanyonyi and Moturi (2015), did a study which supported that e-procurement can speed up ordering and follow-up processes. Furthermore, Panduranga (2016) found that evaluation, selection and electronic tender advertising made e-tendering process very smooth and improved information sharing between firms and traders. Similarly, Mafini et al. (2020). found out that electronic procurement practices, such as electronic sourcing was very crucial in determining the bond between a company and its supply chain, hence improved inventory control.

4.4 Effect of E-auctioning on supply chain efficiency in manufacturing companies

One of the most groundbreaking innovations in procurement and supply chain management is eauctioning. By utilizing digital platforms to enable competitive bidding among suppliers,

eauctioning has become a powerful tool for boosting supply chain efficiency. By automating and streamlining the procurement process, e-auctioning enables manufacturers to make more informed and strategic sourcing decisions, cut costs, and enhance general supply chain efficiency. This introduction examines the effects of e-auctioning on supply chain efficiency within manufacturing companies, highlighting how it transforms traditional procurement methods, optimizes supplier selection, and drives operational excellence. By thoroughly analyzing its benefits and challenges, we purpose to recognize how e-auctioning can fully be utilized in order to achieve superior supply chain results in the contemporary manufacturing sector.

4.4.1 Uptake of e-auctioning in manufacturing companies in Nakuru West

The study found that 46% of respondents were neutral regarding the adoption of e-auctioning among manufacturing companies in Nakuru West Sub-County (see Figure 4.4). A total of 36% of respondents either agreed (9%) or strongly agreed (27%) with the use of e-auctioning. This substantial proportion suggests that a significant number of manufacturing companies are either unfamiliar with e-auctioning or do not have a definitive stance on its effectiveness. This neutrality could also be attributed to most companies not be fully aware of the benefits or functionalities of e-auctioning. A portion of the industry recognizes and supports the potential benefits of eauctioning, which might include; reduced procurement costs by fostering competitive bidding and transparency by providing a level playing field for suppliers. The 27% who strongly agree indicates a strong endorsement from a notable segment of the industry, suggesting that these companies have seen significant positive outcomes from using e-auctioning or believe in its potential benefits.

These results align with Wakanda's (2018) results, which revealed that the productivity of a company's procurement practices is impacted by the e-auctioning progression. E-auctioning ensures that there is an honest ground for the involved parties that is consumers and suppliers. Additionally, Muthoka (2016) highlighted that e-auctions permits sellers to quickly express attention and submit proposals, promote competition for agreements, and provide a clear and effective procurement process for both the organization and its suppliers.

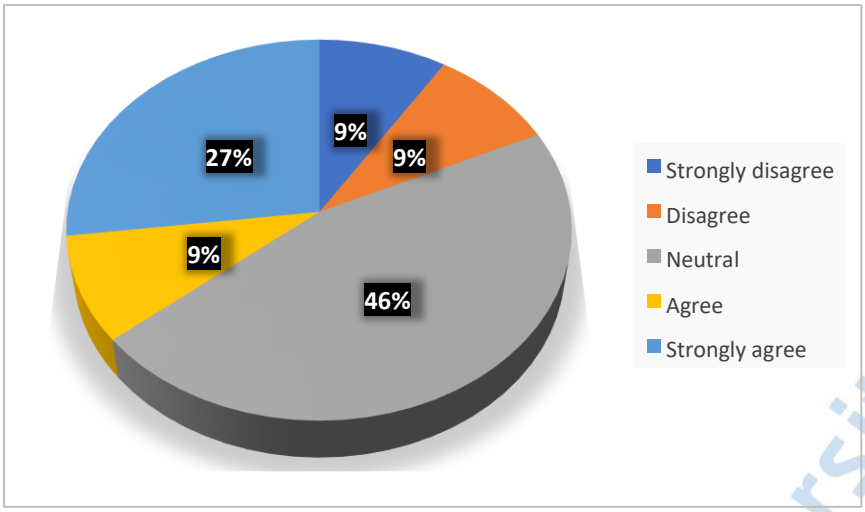

Figure 4.4: Use of e-auctioning in manufacturing companies

Source: Author, 2024

4.4.2 Effects of e-auctioning on supply chain efficiency in Nakuru west

As shown in the table below of the manufacturing companies in Nakuru west sub county (4.4) a substantial portion of sample population which is (42%) believe that e-auctioning has no impact on their supply chain management. This indicates that for these individuals or organizations, Eauctioning does not significantly influence their supply chain processes, with a small segment of respondents (8%) viewing it as having minimal impact on their supply chain management. This indicates that, while e-auctioning has some effect, it is not substantial or transformative for these entities. Moreover, quarter of the respondents which is (25%) see a moderate impact of eauctioning. This implies that e-auctioning brings noticeable benefits or changes, but these are not groundbreaking or pervasive throughout the supply chain.

Some of respondents a percentage of (17%) experience a high level of impact from e-auctioning, indicating that it significantly affects their supply chain management practices and strategies. Lastly small percentage of (8%) respondents report a very high impact of e-auctioning suggesting that it gives a profound and transformative outcome on their supply chain management. This perspective indicates that the influence of e-auctioning on supply chain administration varies widely among respondents. While a majority find its impact minimal or nonexistent, a considerable minority report moderate to very high levels of influence, highlighting its potential significance for certain organizations. This study contradicts with Waithaka & Kimani (2021) who found out

that e-auctioning having positive impacts on businesses and being used by many companies to improve its profit making and increasing its sales through e-auctioning.

Table 4.4 Effects of e-auctioning on supply chain management

Effect	Percentage
Not at all	42%
Low	8%
Moderate	25%
High	17%
Very High	8%

Source: Author, 2024

4.5 Use of e-invoicing in manufacturing companies in Nakuru West

As shown in Table 4.5 below, the largest proportion of respondents (55%) were neutral, this indicates that a majority of manufacturing companies have neither a strong positive nor negative stance on e-invoicing, suggesting uncertainty or lack of engagement with the technology. Despite the high neutral percentage, there is a considerable portion of respondents who have a positive view on e-invoicing, with 36% strongly agreeing that it is beneficial or effective. This indicates that while some companies see clear advantages and are likely to be adopters, others may still be evaluating its benefits. Only 9% of the respondents disagree with e-invoicing, and none strongly disagree. This implies that there is minimal resistance or negative perception towards e-invoicing within the manufacturing sector. There is no response in the "Agree" category, which could suggest that the manufacturing companies are either neutral or have strong views but not to a moderate extent.

The low percentage of disagreement indicates that resistance to e-invoicing is minimal. Overall, the uptake of e-invoicing seems to be growing positively, with many companies potentially on the verge of adopting it or still assessing its full impact. The survey findings align with Mutunga & Mahamari's (2020) research, which demonstrated that e-invoicing positively impacts company performance. Similarly, the results align with Tiwari et al. (2023), who reported that e-invoicing

improves organizational performance and recommended implementing strategies to address challenges impacting e-procurement.

Table 4.5 Use of e-invoicing in manufacturing companies

Scale	Percentage
Strongly disagree	0%
Disagree	9%
Neutral	55%
Agree	0%
Strongly agree	36%

Source: Author, 2024

4.5.1 Effect of e-invoicing on supply chain efficiency in Nakuru West

It was established that a high number of respondents (75%) believe that e-invoicing significantly improves supply chain efficiency. This indicates that a substantial majority of manufacturing companies in Nakuru West view e-invoicing as a powerful tool for enhancing their supply chain operations. This positive perception likely stems from several key benefits associated with einvoicing such as reduced processing time. This acceleration reduces delays in the supply chain, ensuring quicker responses to order changes and improved overall efficiency. Also, it minimizes manual entry errors, which can lead to discrepancies and delays. Fewer errors contribute to smoother transactions and better accuracy in financial records. This can also bring Improved visibility and tracking e-invoicing systems often provide real-time tracking and better visibility into invoice statuses. This transparency allows companies to monitor their supply chain more effectively, ensuring that payments are processed promptly and suppliers are paid on time.

A smaller segment of (9%) respondents in companies views the impact of e-invoicing as moderate. For these companies, e-invoicing may offer some improvements but not to the extent seen by the majority. This could be due to varying levels of implementation effectiveness or integration challenges with existing systems. Approximately, 16% of respondents believe that e-invoicing has minimal or no impact on their supply chain efficiency. This could be attributed to factors such as poor integration, where e-invoicing systems are not fully connected with supply chain management

systems, thereby limiting their overall effectiveness. Additionally, insufficient training and adaptation can result in the underutilization of e-invoicing benefits. This study gives a view that majority opinion supports the notion that e-invoicing is a beneficial technology for enhancing supply chain efficiency in the manufacturing sector. Companies investing in e-invoicing systems are likely to see significant improvements in processing speed, accuracy, and overall efficiency. The findings align with the work of Doherty et al. (2013), Kamotho (2014), Moon (2005) and McConnell (2009) all of whom observed that e-invoicing improves procurement performance and offers numerous benefits to manufacturing companies.

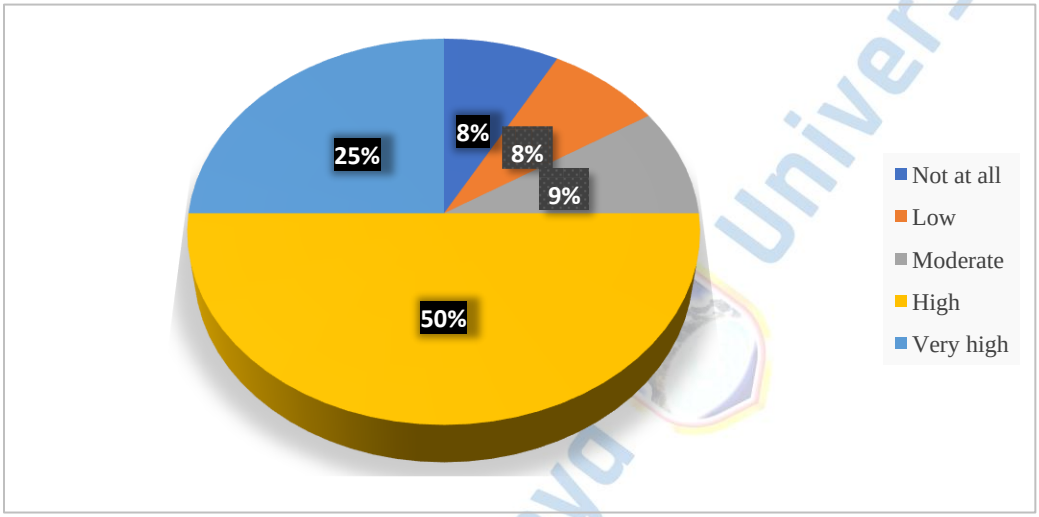

Figure 4.5: Effects of e-invoicing on supply chain efficiency

Source: *Author, 2024*

4.6 Effect of catalogue management on supply chain efficiency in manufacturing companies

Catalogue management ensures that all products, parts, and materials are accurately recorded and described. This detailed catalogue helps in maintaining optimal inventory levels by providing insights into stock availability and needs. Also, it helps in reduction of overstock and stockouts hence by having accurate and up-to-date information on inventory, manufacturers can better forecast demand and reduce instances of overstock or stockouts. This balance is key to maintaining smooth production schedules and minimizing holding costs. Additionally, an organized catalogue helps in maintaining comprehensive records of suppliers, including their contact details, product offerings, pricing, and performance metrics. This facilitates easier supplier evaluation and selection.

4.6.1 Uptake of catalogue management in manufacturing companies in Nakuru West

The data on the uptake of catalogue management in manufacturing companies in Nakuru west sub county, shows a varied but generally positive trend toward embracing this practice. Neutral (46%) which gives the biggest percentage of respondents, shows that many companies either haven't yet formed a strong opinion on catalogue management or are currently in the process of evaluating its benefits and implementation (Figure 4.6). This suggests a substantial opportunity for education and demonstration of the advantages of catalogue management while agree (18%) and Strongly Agree (27%), which adds to (45%) highlight that a notable portion of companies acknowledges the benefits of catalogue management. This positive response indicates that many recognize the value of systematic organization and access to resources, which can lead to improved efficiency, reduced errors, and better inventory control.

The absence of outright disagreement (0%) coupled with a small percentage of strong disagreement (9%) suggests that, while some companies may not see immediate value or may face implementation challenges, there is no widespread rejection of catalogue management. This data gives a perspective that the substantial neutral and positive responses reflect a growing interest and openness to catalogue management in the manufacturing industry. This study agrees with Mendes & da Silva (2010); Anand & Saraswat (2022) who found out that catalogue management benefits companies by ensuring improved efficiency, reduced errors, and better inventory control in a company hence profit maximization.

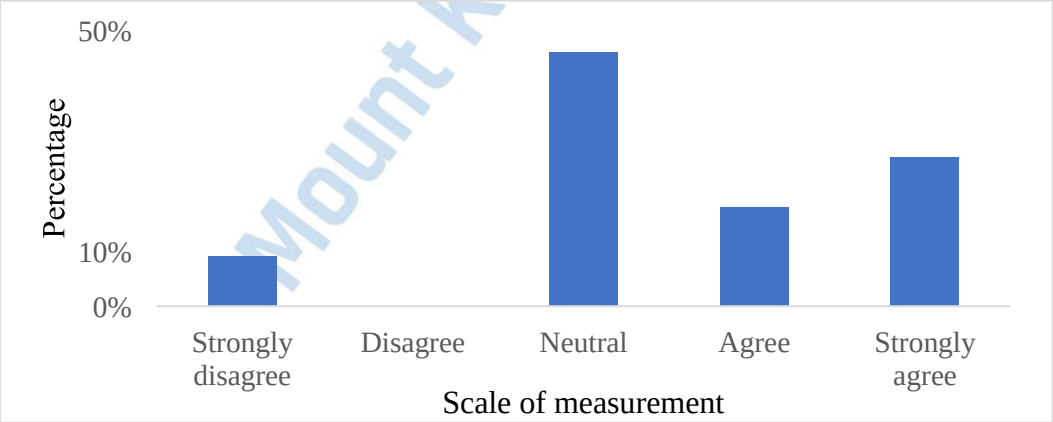

Figure 4.6 Usage of catalogue management in supply chain management

Source: *Author, 2024*

4.6.2 Effects of catalogue management on supply chain efficiency

With data obtained from the manufacturing companies in Nakuru west sub county as displayed below in the table 4.6, high group of the sampled respondents which is (67%), perceives that catalogue management has a high impact on supply chain efficiency. This suggests that effective catalogue management is crucial for these companies, likely leading to considerable improvements in supply chain operations, including inventory management, procurement processes, and overall operational efficiency as well as very High (9%) which is a small but notable percentage believes that catalogue management has a very high impact on supply chain efficiency. For these cases, catalogue management is considered a key driver of exceptional performance in the supply chain, contributing to outstanding efficiency and effectiveness but also a small number of respondents which is (8%) perceives that Catalog management is observed to have a moderate effect on supply chain efficiency. For these individuals or cases, catalogue management practices do not affect their operations or supply chain processes. Catalogue management may bring marginal improvements or benefits to supply chain efficiency, but these are not substantial. Lastly number of respondents which amounts to (8%) on catalogue management is seen to have a moderate impact on supply chain efficiency. This suggests that while there is some benefit, it is not transformative. Catalogue management practices are somewhat beneficial but may not fully optimize the supply chain. Thus, the data indicates that most manufacturing companies view catalogue management as having a high or very high impact on supply chain efficiency, highlighting its importance in optimizing and streamlining supply chain operations. Lenny et al., (2007) and Ahmad et al. (2012) concur with this research, whereby their study gives benefits of catalogue management such improved inventory and good supplier relations. Similarly, Munubi et al. (2017) highlighted that e-payment systems allow firms to maintain precise supplier payment records that are easily accessible, thereby improving purchase decisions.

Table 4.6: Effects of Catalogue management on supply chain efficiency

Effect	Percentage

Not at all	8%
Low	8%
Moderate	8%
High	67%
Very High	9%

Source: *Author, 2024*

4.7 Comparison of the effects of E-Procurement on supply chain efficiency

The research aimed at comparing the influence of various e-procurement methods including, eauctioning, e-invoicing, catalog management and e-tendering on supply chain performance. The results indicate that 42% of respondents view e-tendering as having a high impact on supply chain efficiency, and an additional 9% see it as having a very high impact (Figure 4.7). A significant portion, 33%, considers it moderately impactful, while only 16% perceive it as having low or no impact. Additionally, a notable 50% of respondents believe e-auctioning has a low or no impact on supply chain efficiency. Only 17% consider it to have a high impact, with 8% rating it very high. Moderate impact was recognized by 25% of respondents. Further, e-invoicing is perceived as having a high impact by 50% of respondents, and an additional 25% see it as very high. Only 16% view it as having low or no impact, with 9% considering it moderately impactful. Moreover, Catalogue management had the highest rating in terms of high impact, with 67% of respondents seeing it as highly effective. An additional 9% viewed it as very high impact. Only 16% perceived it as having low or no impact, and 8% see it as moderately impactful.

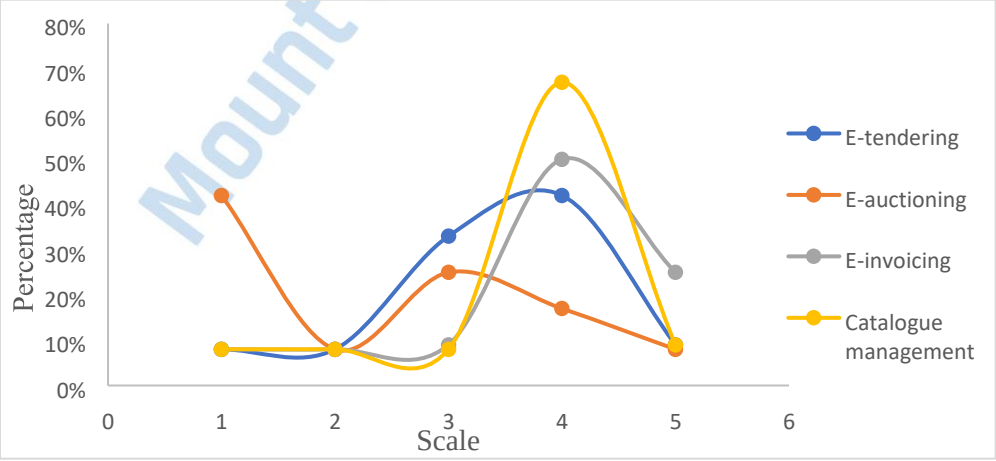

Figure 4.7: Comparison of the effects of e-procurement on supply chain efficiency

Source: *Author, 2024*

Catalogue management and e-invoicing are seen as having the most significant positive impact on supply chain efficiency, with high ratings for their effectiveness. E-tendering also has a strong positive impact, though it is perceived as slightly less influential than catalogue management and e-invoicing. This is similar to Chegugu &Yusuf (2017) they discovered that e-invoicing and online payment showed to be very key indicators honesty, fair and transparency in procurement processes. On the other hand, e-auctioning is viewed with more skepticism, with a substantial number of respondents rating it as having low or no impact. This comparative analysis suggests that while all e-procurement aspects can contribute to supply chain efficiency, catalogue management and einvoicing are currently seen as the most effective tools in this regard. These results agree with Makali (2015) who noted out that E-Systems led to low transaction cost, enhanced effective dependability and improved supply chain management in the procurement procedures. Additionally, Oteki (2019) demonstrated that e-payment was linked to increased transparency, lower costs, improved supplier relationship management, and better audit performance.

4.8 Regression Model

The research used a several linear regression model to gauge the impact of e-procurement systems on supply chain efficiency in manufacturing companies within Nakuru West Sub-County, Kenya. The results from the regression analysis are comprehensive in Table 4.7.

Table 4.7 Regression Summary

Model	R	R Square	Adjusted R Square	Standard Error of Estimate	Durbin-Watson
1	.815[a]	.751	.711	3.1012	2.125

a. Predictor: (Constant) e-tendering, e-auctioning, e-invoicing, and catalogue management

b. Dependent variable: Supply Chain Efficiency

The regression results showed an R-squared value of 0.751, meaning that 75.1% of the disparity in supply chain efficiency among manufacturing companies can be attributed to e-procurement processes. This points out that, when other aspects are held constant, e-tendering, e-auctioning, einvoicing, and catalog management explain 75.1% of the variations in supply chain efficiency in Nakuru West Sub-County, Kenya.

Table 4.8 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.421	1.591		1.647	.021
	E-tendering	.315	.098	.153	2.152	.003
	E-auctioning	.214	.167	.241	3.301	.004
	E-invoicing	.412	.171	.315	4.365	.001
	Catalogue Management	.281	.184	.456	5.110	.002

a. Dependent variable: Supply chain efficiency

$$Y= 3.421+.315X_1 + .214X_2 + .412X_3 + .281X_4 + 1.647$$

All predictors (e-auctioning, e-invoicing, catalog management and e-tendering) have statistically important impact on the Efficiency Score, suggesting that each plays a meaningful role in explaining variations in supply chain efficiency. The significance levels for these predictors are as follows: e-tendering ($p = 0.03$), e-auctioning ($p = 0.04$), e-invoicing ($p = 0.01$), and catalog management ($p = 0.002$). Previous research done by Maffin et al. (2020), Oppong (2020) and Akoth et al. (2019) similarly reported improvements in supply chain efficiency across various dimensions following the implementation of electronic procurement practices within their businesses.

The regression results indicate that a one-unit increase in e-tendering leads to a 0.315-unit increase in supply chain efficiency, with the coefficient being statistically significant ($p < 0.05$). This demonstrates that e-tendering has a positive and notable impact on efficiency. For e-auctioning, each one-unit increase results in a 0.214-unit increase in efficiency, assuming other variables are constant, with this coefficient also being statistically significant ($p < 0.05$), indicating a positive effect on efficiency.

In such circumstance of e-invoicing, a one-unit increase corresponds to a 0.412-unit increase in supply chain efficiency, with this coefficient being highly significant ($p < 0.01$), highlighting a

substantial impact. Finally, for catalog management, each one-unit increase results in a 0.281-unit increase in efficiency, controlling for other factors, with this coefficient being significant ($p < 0.02$), reflecting its meaningful contribution to supply chain efficiency.

CHAPTER FIVE SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In chapter five the study will give a summary of the research results, draw conclusions based on these results, and offer recommendations for practices to be adopted by the authorities, service users and other stakeholders, lastly in this chapter the study will give the recommendations for further studies in the same field.

5.2 Summary key of Findings

The primary objective of this study was to assess the impact of e-procurement systems on supply chain efficiency among manufacturing companies in Nakuru West Sub-County. The investigation established that e-procurement usage such as e-tendering, e-invoicing, e-auctioning, and catalog management had a helpful and important effect on supply chain efficiency. The enactment of these practices resulted in enhanced transparency, high customer satisfaction, higher profit maximization, and enhanced satisfaction among employees and shareholders, along with other benefits such as achieving organizational goals. The study also found that these practices were linked to more secure order tracking, faster supplier sourcing, reduced procurement costs, shorter procurement timelines, better relationship management, improved compliance, and higher financial returns.

5.2.1 Influence of E-Tendering on Supply Chain Efficiency

The research data revealed a significant proportion of respondents (42%) believe e-tendering significantly enhances supply chain efficiency. This improvement is seen to better communication between suppliers and customers, which boosts supplier efficiency and ensures the smooth movement of products and services from manufacturers to customers. Sunmola &Shehu (2021) demonstrated that e-tendering in procurement is linked to greater integrity, regulatory compliance, and managerial control. This indicates that e-tendering is generally viewed positively, with most reporting notable improvements in supply efficiency. Additionally, e-tendering has been found to decrease opportunities for corruption and favoritism in tender awards among manufacturing companies. Similarly, Munyao and Moronge (2018) highlighted the importance of e-tendering for achieving company goals.

5.2.2 Effects of e-auctioning on Supply Chain Efficiency

The study showed a very strong positive connection between e-auctioning procurement and supply chain efficiency. A substantial portion of the population believes that manufacturing companies

utilize e-auctioning by offering a platform where various suppliers and buyers can place their bids electronically. This electronic bidding fosters fairness and transparency through features like realtime bid updates, anonymous bidding to protect bidders' identities, and clear auction rules These elements improve inventory management and the procurement cost cutting in its operations. Panduranga (2016) confirmed how electronic bidding, selection, advertising and appraisal have made the tendering and auctioning processes to become smooth and easy, thereby improving firm communication with suppliers and customers. Mafini et al. (2020) found that electronic procurement practices, including e-auctioning, positively influenced firm-supply chain relationships and enabled better inventory control. Their study also highlighted the high utilization of electronic quotation and contracting technologies due to their reliability, as supported by Madiawati et al. (2020), who noted e-procurement practices improved vendors appraisal and enhanced good communication between involved trading parties. Regression analysis disclosed that e-auctioning services had a reasonable but important influence on supply chain efficiency in manufacturing companies in Nakuru West Sub-County, Kenya.

5.2.3 Effects of E-Invoicing on Supply Chain Efficiency

The study research showed that e-invoicing significantly impacts supply chain efficiency by enhancing organizational performance and streamlining operations. It shortens payment cycles, improves archiving, saves time, facilitates easier document retrieval, enhances account reconciliation, and increases compliance. E-invoicing systems foster, reliability cost-effectiveness and transparency by reducing transaction cost and cutting on paper invoicing charges. Similarly, Mustapha (2018) found that e-invoicing skills minimize the risk of fraudulent payments, lower cost, improve supplier payment record-keeping, and provide a more accurate method for evaluating suppliers. Regression analysis indicated that e-invoicing usage had the most important effect on supply chain efficiency in manufacturing companies.

5.2.4 Effects of Catalogue Management on Supply Chain Efficiency

The study showed that catalogue management significantly gives a very huge impacts an organization's supply chain efficiency. It clearly outlines the offerings of a service provider, keeps the company's product data current, and serves as a formal communication channel with customers. Baron et al (2000), stated that catalogue management helps an organization in ensuring data storage accuracy and controlling the stock ins and stock outs hence a company cannot run out of raw

materials and products. This has aided companies in achieving better alignment in their product and service provisions. According to the findings Catalogue management has led to enhanced customer relations, better inventory, improved data accuracy, optimization in pricing and promotions, cost saving and improved customer relations hence manufacturing companies get business success by boosting operational efficiency, enhancing customer satisfaction, and facilitating strategic decision-making.

5.3 Conclusions of the Study

Below are the primary conclusions;

i. Operational staff are essential for the daily execution of e-procurement processes due to their significant role in handling transactions, managing supplier relationships, and ensuring the smooth processing of procurement activities.

ii. A substantial number of the sampled respondents had between 6- and 8-years' experience with e-procurement systems, indicating that have had ample time to integrate eprocurement systems into their organizational processes.

iii. E-auctioning, E-invoicing, E-tendering and Catalogue Management each have helpful effects on supply chain efficiency.

iv. E-invoicing exhibits the strongest impact in enhancing supply chain efficiency due to its ability to streamline and automate invoicing processes, thereby reducing errors and processing time.

v. E-tendering positive effect highlights the benefits of digital tendering processes in optimizing procurement and reducing delays.

vi. E-auctioning contributes positively to efficiency, indicating that competitive bidding environments fostered by e-auctioning can enhance efficiency through better price discovery and supplier engagement.

vii. Catalogue Management have the smallest effect among the predictors but still shows a significant positive relationship with supply chain efficiency. This suggests that effective catalogue management is important for maintaining streamlined operations and ensuring accurate and timely procurement.

viii. E-invoicing, E-tendering, E-auctioning, and Catalogue Management each contribute significantly, and their combined implementation can lead to substantial gains in operational efficiency.

5.4 Recommendations of the Study

Below are the key recommendations from this research;

5.4.1 Recommendations for Manufacturing Companies

i. Catalogue Management should be a key focus area for improving supply chain efficiency, given its highest standardized coefficient.
ii. E-invoicing is also crucial and should be leveraged to enhance efficiency
iii. While e-tendering is moderately used, manufacturing companies should seek to increase its adoption by highlighting its benefits in terms of transparency and efficiency. Encourage departments to use e-tendering for more procurement activities.
iv. Companies should conduct pilot projects to explore the potential benefits of e-auctioning. This can provide insights into how it might be effectively integrated into existing procurement practices.
v. Companies should continuously monitor the performance of the e-procurement system using crucial performance pointers such as cost reduction, procurement cycle times, and consumers satisfaction.
vi. The companies should foster a culture of continuous improvement by regularly reviewing and updating e-procurement processes and systems based on user feedback and emerging technologies.
vii. Companies should investigate how e-procurement can be integrated with emerging technologies like artificial intelligence (AI), machine learning, and blockchain to improve procurement efficiency and transparency.

5.4.2 Recommendations for Managers

i. Managers should advocate for and facilitate broader use of e-tendering within their teams. Provide support and resources to help staff transition to more extensive use of this tool.
ii. Managers should ensure that the e-invoicing system is being used to its full potential by regularly reviewing processes and addressing any issues that arise to improve efficiency and accuracy.

iii. Managers should regularly monitor and analyze the performance of e-procurement systems, focusing on metrics such as cost savings, process efficiency, and user satisfaction.

5.4.3 Recommendations for Operational Staff

i. Operational staff should seek additional training and resources on e-tendering to fully utilize its features and benefits. Understanding the complete lifecycle of e-tendering can improve participation and outcomes.

ii. Since e-auctioning is underused, staff should familiarize themselves with its potential advantages and applications through attending regular training sessions and workshops. iii. Staff should take an active role in maintaining up-to-date and accurate catalogue information through regular updates and checks. This can prevent discrepancies and ensure that procurement processes run smoothly.

5.4.4 Recommendations for Further Studies

i. Future research could examine the synergistic effects of e-procurement technologies and their influence on various aspects of supply chain performance

ii. Investigate how user training and support affect the effectiveness and adoption of eprocurement tools. Identify existing gaps and recommend comprehensive training programs.

iii. Assess the long-term effects of adopting e-procurement tools on organizational performance, including cost savings, process improvements, and strategic benefits. iv. Conduct comparative studies across different manufacturing sectors to understand how industry-specific factors influence the effectiveness and adoption of e-procurement tools

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APPENDICES APPENDIX I: Informed Consent Form

Dear sir/madam,

RE: REQUEST FOR YOUR CONSENT TO PARTICIPATE IN A RESEARCH

I kindly write to request for participation in a research project. The study title is:

INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFECIENCY IN MANUFACTURING COMPANIES IN NAKURU WEST SUB COUNTY, KENYA.

The research carries very little risk or inconvenience. This is due to the fact that your involvement in the questionnaire will be the only requirement. Prior to completing the questionnaire, each responder will get a reminder and request to keep any discussions private. You stand to gain nothing personally by taking part in this study. I would like you to volunteer to

provide your thoughts. We won't charge you for the information you provide or the time you spend working with us. Any information you submit will be kept private and confidential. The information gathered will only be utilized for this study, and when the results are released, it will be deleted.

PARTICIPATION IN THIS STUDY IS ENTIRELY VOLUNTARY.YOU MAY REFUSE TO FILL THE QUESTIONNAIRE AND YOU MAY WITHDRAW AT ANY STAGE IF YOU SO WISH.

If you accept to participate in this study, please append your signature below:

Signature of participant..... Date: .....

Inase of any question, please contact the following:

Mobile phone: +254 0717340115 or by email syombuajulietah94@gmail.com

Sincerely,

JULIET SYOMBUA MUTUA

RESEARCHER

CONSENT

I have had an opportunity to ask questions, thoroughly read the facts that were supplied, and understood the material. I understand that participation in this study is completely optional and that I can opt out at any time without having to pay for anything or give an explanation. I understand that this permission form will be provided to me in copy. I provide my free and informed permission to take part in this investigation.

Participant's signature _____ Date _____Investigator's signature _____ Date _____

APPENDIX II: QUESTIONNAIRE

Kindly provide the most accurate response you can to the following questions. Your specific answer is anonymous and kept completely private. Only scholarly goals will be served by using your responses.

Please check the box [] next to the option you have chosen, or provide a brief explanation if needed.

Section A: Personal Information

Gender

(a) Male [ ] (b) Female [ ]

Age Bracket

(a) 20–25 [ ] (b) 26–31 [ ] (c) 32–37 [ ] (d) 38–43 [ ] (e) 44 years and above [ ] Years

of service in the company.

(a) 10 and below [ ] (b) 11–21 [ ] (c) 22 years and above [ ] Highest

level of education:

(a) Secondary Education [ ] (b) University Degree [ ] Management

Level:

(a) Senior Management [ ] (b) Middle Management [ ] (c) Operational Staff [ ]

Section B: E-procurement Usage

6. Does your company utilize e-procurement systems?

(please tick one)

• No

• Yes

7. If yes, please specify which E-procurement systems your company uses (e.g. Catalogue Management, E-auctioning, E-invoicing, and E-tendering):

E-tendering: [ ] Yes [ ] No

E-auctioning: [ ] Yes [ ] No

E-invoicing: [ ] Yes [ ] No

Catalogue Management: [ ] Yes [ ] No

Section C: Effect of E-procurement on Supply Chain Efficiency

8. To what extent do you believe E-tendering influences supply chain efficiency in your company? (Scale: 1 - Not at all, 5 - Very High)

1 - Not at all

2 - Low

3 - Moderate

4 - High

5 - Very High

9. How would you rate the effect of E-auctioning on supply chain efficiency in your company? (Scale: 1 - Not at all, 5 - Very High)

1 - Not at all

2 - Low

3 - Moderate

4 - High

5 - Very High

10. In your opinion, how does E-invoicing impact supply chain efficiency in your company? (Scale: 1 - Not at all, 5 - Very High)

1 - Not at all

2 - Low

3 - Moderate

4 - High

5 - Very High

11. Rate the effectiveness of catalogue management in enhancing supply chain efficiency in your company. (Scale: 1 - Not at all, 5 - Very High)

1 - Not at all

2 - Low

3 - Moderate

4 - High

5 - Very High

SECTION C: E-PROCUREMENT PRACTICES

Please indicate to what extent do you agree with the following statements regarding these eProcurement practices: e-auctioning,e-tendering,e-invoicing and catalogue management at your organization. Use the scale of 1 to 5, where:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

e-Auctioning

12.Our organization effectively utilizes e-auctioning in its procurement processes. (1) (2) (3) (4) (5)

13.E-Auctioning has improved our procurement outcomes.

(1) (2) (3) (4) (5)

14.The implementation of e-auctioning has increased competition among suppliers. (1) (2) (3) (4) (5)

E-Invoicing

15.Our organization uses e-invoicing for processing invoices.

(1) (2) (3) (4) (5)

16.E-Invoicing has streamlined our invoicing process.

(1) (2) (3) (4) (5)

17.The adoption of e-invoicing has reduced invoice processing errors.

(1) (2) (3) (4) (5)

E-Tendering

18.E-Tendering is an integral part of our procurement practices.

(1) (2) (3) (4) (5)

19.The use of e-tendering has enhanced transparency in our procurement process. (1) (2) (3) (4) (5)

20.E-Tendering has improved the speed of our tendering processes. (1)

(2) (3) (4) (5)

Catalogue Management

21.Our organization employs catalogue management in its procurement practices. (1)

(2) (3) (4) (5)

22.Catalogue management has facilitated better product/service selection. (1)

(2) (3) (4) (5)

23.The use of catalogue management has increased efficiency in our purchasing activities. (1)

(2) (3) (4) (5)

SECTION D: SUPPLY CHAIN EFFECIENCY

In your opinion, to what extent do you agree with the statements relating to supply chain efficiency. Using the scale of 1-5 Where: 1= Strongly Disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= Strongly Agree

24.E-Tendering

E-tendering improves overall procurement efficiency.

E-tendering enhances transparency in the procurement process.

E-tendering reduces the time required to complete procurement activities.

25.E-Invoicing

E-invoicing streamlines the invoicing process.

E-invoicing decreases errors in invoice processing.

E-invoicing contributes to faster payment cycles.

26.E-Auctioning

E-auctioning leads to cost savings for our organization.

E-auctioning increases competition among suppliers.

E-auctioning improves supplier engagement and relationships.

27.Catalog Management

Effective catalog management optimizes our purchasing decisions.

Catalog management reduces the time spent on procurement tasks.

Catalog management enhances com

APPENDIX IV: ETHICAL CLEARANCE

Mount Kenya University

REF: **MKU/ISERC/4147**
TO: **JULIET SYOMBUA MUTUA**

Date: 07 August 2024

REG: **MPSM/2023/40550**

Dear Sir/Madam,

RE: INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFECIENCY IN MANUFACTURING COMPANIES IN NAKURU WEST SUB COUNTY, KENYA.

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2987.** The approval period is **07/08/2024 - 06/08/2025.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Mount Kenya University

REF: **MKU/ISERC/4147**
TO: **JULIET SYOMBUA MUTUA**

Date: 07 August 2024

REG: **MPSM/2023/40550**

Dear Sir/Madam,

RE: INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFECIENCY IN MANUFACTURING COMPANIES IN NAKURU WEST SUB COUNTY, KENYA.

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Yours sincerely,

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

APPENDIX V: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **724407**

Date of Issue: **12/August/2024**

RESEARCH LICENSE

This is to Certify that Ms.. Juliet Syombua Mutua of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nakuru on the topic: INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFECIENCY IN MANUFACTURING COMPANIES IN NAKURU WEST SUB COUNTY, KENYA. for the period ending : 12/August/2025.

License No: **NACOSTI/P/24/39108**

724407

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and
Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke

VI: RESEARCH AUTHORIZATION

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPSM/2023/40550

8th August, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: JULIET SYOMBUA MUTUA- REGISTRATION NO. MPSM/2023/40550

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Procurement and Supplies Management** in the **Department of Management** in the school of **Business and Economics**

The title of the research is "**Influence of E-Procurement Systems on Supply Chain Efficiency in Manufacturing Companies in Nakuru West Sub County, Kenya.** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **August, 2024 and October, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director,
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Names of Supervisors	Signature	Date
1. Dr. Jacqueline Donyo		24/4/24
2.	.....	.....
3.	.....	.....

PART III: CONFIRMATION BY THE CAMPUS/ SCHOOL POSTGRADUATE COORDINATOR

I hereby do confirm that the supervisor(s) appointed to oversee the candidate effect the corrections on the research proposal have done so as per the instructions of the candidate's evaluation panel.

Any other remarks To progress

Mount Kenya University
P. O. Box 17273 - 20100 NAKURU
NAKURU CAMPUS
COORDINATOR POST GRADUATE STUDIES

Name of Coordinator: Dr. Ruth Nyambura

Signature ..... Date 19/6/24

Stamp .....

PART IV: CONFIRMATION BY THE DEAN OF THE RELEVANT SCHOOL

I hereby do confirm that the supervisor(s) appointed to oversee the candidate effect the corrections on the research proposal have done so as per the instructions of the candidate's evaluation panel.

Any other remarks Proceed

Mount Kenya University
P. O. Box 17273 - 20100 NAKURU
NAKURU CAMPUS
COORDINATOR POST GRADUATE STUDIES

Name of Dean Dr Ruth Nyambura

Signature ..... Date 19/6/24

School Stamp .....

PART V: CLEARANCE BY THE UNIVERSITY ETHICAL REVIEW COMMITTEE

The candidate will be issued with a Certificate of Ethical Clearance by the Directorateof Research and Development.

PART VI: COMMENTS BY THE DEAN SCHOOL OF POSTGRADUATE STUDIES

The candidate is granted/not granted permission to proceed to the field to collect data (delete where applicable)

NB: One (1) copy of the corrected/revised research proposal should accompany thiscertificate of corrections

Name of Dean .....

(School of Postgraduate Studies)

Signature ..... Date .....

School Stamp .....

APPENDIX VIII: SIMILARITY INDEX REPORT

turnitin Page 1 of 98 - Cover Submission ID

30/9/24

Juliet Syombua

INFLUENCE OF E-PROCUREMENT SYSTEMS ON SUPPLY CHAIN EFFECIENCY IN MANUFACTURING COMPANIES IN N...

Assignment title

postgraduate

Mount Kenya University

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