SUPPLY CHAIN MANAGEMENT PRACTICES AND PERFORMANCE OF PROCUREMENT IN COUNTY GOVERNMENTS IN WESTERN REGION, KENYA

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August, 2024

DECLARATION

I declare that this Thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

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APPROVAL

The undersigned certify that we have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology of a research Thesis entitled **"*Supply Chain Management Practices and Performance of Procurement of County Governments in Western Region, Kenya*"**

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DEDICATION

This research Thesis is dedicated to my dear wife Mourine Imali. I will be forever grateful to them for the support, patience, encouragement and understanding they offered me during the course of this study.

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I thank the Almighty God for His grace and generosity that have been sufficient throughout my academic pursuits. I appreciate my research supervisors Dr. Consolata Ngala and Dr. Machuki Mogere who have guided me from topical generation to end of thesis. My appreciation goes to Masinde Muliro University of Science and Technology for offering me a chance to study at the Institution. Although it is impossible to register my heartfelt gratitude in words to everyone who assisted me, I would like to appreciate all these good people whom in a way or another contributed to the success of this research Thesis.

ABSTRACT

The goal of the study was to ascertain how supply chain management techniques affected the way the county governments in Kenya's Western Region performed their procurement duties. The study's specific goals were to ascertain the impact of lean supply chain practices (LSCP) on procurement functions in the county governments of Western Region, Kenya; find out how supply chain collaboration practices (SCCP) and supply chain integration (SCI) affect procurement function performance; and investigate the impact of supply chain risk management (SCRM) practices on procurement functions. Collaborative networks theory serves as the study's auxiliary theory, while systems theory serves as its primary theoretical foundation. A descriptive research design was employed in the study. The four counties in Kenya's Western Region served as the study's locations. The county governments of Bungoma, Busia, Kakamega, and Vihiga were among them. In this study, 215 county officials from Kenya's Western Region made up the population. The study sampled 168 supply chain workers, procurement officers, and finance officers using a stratified simple random sample. The primary tool for gathering data was a questionnaire. In the county of Trans Nzoia, a pilot study was conducted. According to the study, procurement performance in the county governments of Kenya's Western Region was significantly impacted by supply chain collaboration methods ($R2=0.460$, $P=0.000$; $P<0.05$). Procurement performance was significantly impacted by supply chain integration ($R2=0.324$, $P=0.000$; $P<0.05$). Procurement performance was significantly impacted by supply chain risk management strategies ($R2=0.467$, $P=0.000$; $P<0.05$).The procurement performance of the county governments in Kenya's Western Region was significantly impacted by lean supply chain techniques ($R2=0.165$, $P=0.000$; $P<0.05$). To guarantee that there are supplier-company cooperation, the study suggests adopting common goals with suppliers that are free from bias. To create a transparent procurement base, customers should be integral to the procurement process. Risky procurement methods should be avoided by the county governments. The county governments should make sure that all actions are tracked and prevent waste in procurement. In this instance, lean supply management solutions would include zero inventory techniques. Policymakers would be able to understand the critical impact that procurement practices play in relation to procurement performance according to the study. The findings of the study may also enable the management of various government organisations, including county governments, to identify the essential factors that need to be considered in supply chain management to optimise the use of public funds and resources.

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ABBREVIATIONS AND ACRONYMS

PPADA	-	Public Procurement and Asset Disposal Act
CNT	-	Collaborative Network Theory
SCI	-	Supply Chain Integration
SCP	-	Supply Chain Practices
LSCP	-	Lean supply chain practices
NACOSTI	-	National Commission for Science, Technology and Innovation
SCCP	-	Supply Chain Collaboration Practices
SCM	-	Supply Chain Management
SCP	-	Procurement performance
SCMP	-	Supply Chain Management Practices
SPSS	-	Statistical Package for Social Scientists
SRMP	-	Supplier Risk Management Practices

OPERATIONAL DEFINITION OF TERMS

Lean Supply Chain Practices refers to the process of reducing costs in the supply chain by effectively managing inventories and focussing on improving supply chain quality in order to prevent waste.

Supply Chain Collaboration entails coordinating activities between the supplier and the customer in order to help both parties enhance the performance of the supply chain by, for instance, reducing costs, raising service standards, making better use of resources, and responding quickly to changes in the market.

Procurement performance Describes the efforts of the entire supply chain to provide what the consumer needs, when they need it. This includes having products available, delivering them on time, and having the supply chain resources to pull it off.

Supplier Management Practices is an organised approach to managing a business's interactions with its suppliers, including acquiring all required products and services.

Supplier Risk Management is the use of methods based on continuous risk assessment to manage both predictable and unexpected supply chain threats in order to reduce exposure and ensure continuity.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Procurement has taken on a more significant role in companies in recent years, especially in public agencies. The goals of public institutions are to increase their effectiveness, economy, accountability, and responsiveness to the requirements of its constituents (Barber, Kumar & Abdi, 2017). The purchasing function is therefore expected to effectively and efficiently satisfy the needs of the public. However, a number of variables that cause delays in procurement as well as the procurement of unwanted or subpar goods and services have a detrimental impact on the procurement of goods and services in the majority of government institutions (Masindano, Makokha & Namusonge, 2019). Consequently, it is important to remember that efficient supply chain management (SCM) is necessary for any firm to achieve its procurement objectives.

Without a doubt, the way in which procurement functions are performed has drawn interest from scholars as well as practitioners and decision-makers around the globe. Up to 25% of the GDPs of developing nations are derived from public procurement. Additionally, they devote almost half of their budget to purchasing goods and services. However, 60% of quality systems in public procurement worldwide have not sufficiently produced the anticipated benefits; as a result, they are seen as a significant issue for government agencies (Sahoo & Vijayvargy, 2021).

Njagi and Shalle (2016) found supplier management influence procurement performance in manufacturing companies a case of East African breweries. However the study was on

manufacturing companies indicating sector gaps. In Europe, Cousins, Petersen and Fugate, (2019) notes that public procurement reduces costs and yields value for money making it a major driver of economic activity across the European Union. To improve procurement performance and keep up with the growth of procurement activities, the public sector in the United States, for example, has seen a substantial transformation in the procurement function from a reactive to a strategic endeavor (Dimitriades & Maroudas, 2017). Reforms aiming at creating a robust and efficient supply chain and procurement system regulated by a clear legislative framework for efficacy and transparency have resulted from this (Hunja, 2023).

Kakwezi and Nyeko (2024) report that a symposium primarily centered on monitoring purchasing performance was held by the European Institute of Purchasing Management. The main topics of discussion at the conference were the financial and intangible components of procurement success. The performance of procurement was found to be significantly influenced by costs and savings. SCM has long been used by nations like the US, Canada, and the UK to manage their logistics and procurement. For example, Adam, Hazlett, and Casey (2015) noted that the US Department of Defense (DOD) has used supply chain management (SCM) techniques to reduce lead time and costs associated with logistics management.

In Africa, SCM has gained popularity since the 1930s in African procurement systems as a means of improving procurement performance. Hui (2024) points out that many public organizations have made significant investments in systems that can improve SCM since it is thought that SCM can operate as a direct link between suppliers, manufacturing, and sales, which accounts for a significant portion of organizational expenditures. Organizational

supply chain and control policies as well as long-term SCM strategies involving top management required to be developed by the firms.

In Nigeria, Adeniran *et al.* (2016) found that effective SCM can cut operational expenses by up to 20%, resulting in considerable profit margin gains for SMEs. Adopting sustainable practices has become crucial for businesses worldwide, especially for small and medium-sized enterprises (SMEs), as they significantly enhance resilience and competitiveness. Mnyakin (2023) argues that incorporating sustainable practices into corporate operations can increase firm resilience by 30% and competitiveness by 25%, highlighting their crucial significance in business strategy. However, the implementation of sustainable supply chain management strategies encounters barriers such as inadequate infrastructure and poor coordination among stakeholders, which are worsened by systemic issues including uncertain political climates and regulatory shortcomings.

In Uganda, Eyaa and Ntayi (2020) performed study among small and medium-sized firms (SMEs) and found that incorporating risk-taking into purchasing processes had an impact on Procurement performance.

In Kenya, the majority of major public organizations and institutions obtain their goods and services through procurement, which includes contracting, tendering, and purchase. The Public Procurement and Asset Disposal Act (PPADA) of 2015 and the Procurement Regulations of 2020 established the idea of competitive procurement in all government entities with the aim of guaranteeing fairness during the bidding process. However, because of wastes, poor value for money, and delays in procurement performance , the public and policy makers have sharply criticized the public sector's procurement performance (Chemoiywo, 2018, Mwangangi & Achuora, 2019; Nyaberi, 2020).

1.1.1 Supply Chain Practices

Ebekozien (2019) defines supply chain management as the strategic activities undertaken by a company to enhance the efficient management of its supply chain. Waithaka and Kimani (2021) assess supply chain management techniques through supplier appraisal, supplier certification, risk management policy, information sharing, supplier strategic partnership, and supply chain integration. According to Shafiee and Rejali (2022), SCM techniques involve a complex concept that includes strategic collaborations with suppliers, building strong relationships with customers, sharing vast and high-quality information, and implementing delay strategies. This study will define supply chain management as lean supply chain management, supply chain cooperation, supply chain integration, and supply chain risk management.

1.1.2 Procurement Performance

Procurement performance refers to the assessment of how effectively the procurement function achieves its objectives and aims while minimizing costs (Shaharudin, Suhaimi, & Husain, 2021). According to Yildiz Çankaya and Sezen (2019), procurement performance may be evaluated based on two primary factors: effectiveness and efficiency. Procurement performance, as described by Baliga, Raut, and Kamble (2020), refers to the degree to which the specified aims and objectives are being achieved. It pertains to the correlation between the real and intended performance of any human endeavor. Procurement performance assesses the efficiency and effectiveness of the procurement function. Procurement performance can be assessed by considering both financial and non-financial factors in relation to the organization's procurement objectives and functions (Yun, Hales & Kwon, 2019). According to Monczka, Giunipero, and Patterson (2020), procurements should

prioritize value for money over the initial purchase price. The procurement department is accountable for overseeing the procurement activities of the firm.

1.1.3 County Government

The Kenyan Constitution of 2020 states that the regions are the geographical divisions of decentralised government (constitution, 2020). The Kenyan Constitution's fourth schedule, the County Governments Act of 2022, and Articles 191 and 192 all delineate the jurisdiction. The 47 formally recognised districts establish the borders and sizes of the 47 counties as of the general elections in 2023. The county governments of Vihiga, Kakamega, Busia, and Bungoma are located in western Kenya.

1.2 Statement of the Problem

Supply Chain Management is an indispensable methodology that enables the implementation of government policies. Government procurement accounts for an estimated 45% to 65% of public sector expenditures and 13% to 17% of GDP (Singh & Chan, 2022). As a result, governments are the largest consumers in an economy. Inefficiencies in SCM, particularly during the procurement phase, have contributed to the exacerbation of inequality in the Kenyan economy. It was expected that the implementation of devolved administration in Kenya would effectively allocate resources to the local level and enhance the quality of life for the populace of Kenya, as stated in a report cited by Mwangale and Okello (2020) and published by the Africa Centre for Open Governance (AfriCOG) in 2019. Nevertheless, this objective remains unfulfilled as corruption continues to squander around one-third of the national budget, with 80% of corruption cases reported to the Kenya Anti-Corruption Commission involving procurement-related offenses (AfriCOG, 2015).

Less than 10% of procured projects, and particularly contracts, were not completed in accordance with procurement compliance regulations, according to the PPRA Capacity Building Strategy Report, 2021–2022. In addition, procurement audit checks revealed that compliance with public procurement regulations in Kenya remains inadequate, a factor that contributes to the subpar procurement performance of numerous public institutions. The Annual Procurement Audit Report (2022) by the Kakamega County government highlights that the procurement process frequently lacks transparency, enabling private persons to gain profits from projects and corporations to receive contracts without following appropriate procedures. PPRA (2012) has emphasized that political interference and corruption can also lead to inadequate projects and the possible mismanagement of taxpayer funds. Previous research sought to connect SCM techniques with performance. Mutua and Kirui (2021), for example, discovered a positive and significant correlation between supply chain management practices (SCMP) and the performance of flour milling enterprises in Nairobi County, Kenya. Similarly, Wainaina, Bett, and Njehia (2021) discovered that organizational performance and SCM produced comparable outcomes. This study seeks to explore supply chain management and its influence on the performance of the procurement function in County government of Kakamega, Kenya.

1.3 Objectives of the study

The broad objective of this study was to determine the influence of supply chain management practices on the performance of procurement in the county governments of the Western Region, Kenya.

1.3.1 Specific Objectives

The specific objectives were to:

i. To determine the effect of supply chain collaboration practices on the performance of the procurement in the county governments of Western Region, Kenya.

ii. To assess the effect of supply chain integration on the performance of the procurement in the county governments of Western Region, Kenya.

iii. To examine the effect of supply chain risk management practices of the procurement in the county governments of Western Region, Kenya.

iv. To ascertain the effect of lean supply chain practices of the procurement in the county governments of Western Region, Kenya.

1.4 Research Hypothesis

$H0_1$ Supply chain collaboration does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.

$H0_2$ Supply chain integration does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.

$H0_3$ Supply chain risk management does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.

$H0_4$ Lean supply chain does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.

1.5 Significance of the Study

The study would help the County Governments increase knowledge about SCM and procurement performance by identifying SCM loopholes and assisting relevant stakeholders in taking the necessary steps to close them. This would enable policy makers to recognize the critical role that procurement practices play with regard to procurement performance. The study's conclusions may make it possible for county governments and other management of public sector organizations to determine the most important SCM considerations for attaining the best possible use of public funds and resources.

The research may act as a valuable resource for SCM practitioners and the Kenya Institute of Supplies Management, an industry professional organization, in terms of benchmarking and procurement in SCM. Additionally, researchers and academics found the findings of this study extremely valuable, as they filled in knowledge gaps regarding SCM and contribute to the existing corpus of knowledge. Furthermore, by addressing the knowledge deficits pertaining to procurement performance, this study may expand the range of approaches available to scholars and researchers who wish to examine performance in the context of SCMP.

1.6 Scope of the Study

The study evaluated the impact of SCM practices on the performance of the procurement department. The study examined lean supply chain management, supply chain integration (SCI), supply chain collaboration, and SCRM. Systems theory and collaborative network theory were the two theories used in the investigation. The Western Region County

Governments of Kenya served as the study's site. Kakamega, Vihiga, Busia, and Bungoma are the four counties that make up Western Kenya. In July 2024, the investigation was carried out.

1.7 Limitation and Delimitation of the Study

i. Hesitation to disclose information from part of respondents due to the secrecy involved with the information. To handle this, the researcher assured the participants of confidentiality of the collected information. The researcher also reassured participants that the data gathered is exclusively for scholarly objectives.

ii. Additionally, the researcher secured research authorization from NACOSTI and letters of introduction from the university, which bolstered confidence. Respondents' busy schedules were also surmounted by the drop-and-pick approach, as well as further reminders via phone calls.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A review of the literature is conducted to improve understanding of the concepts to be researched. The section examined theoretical, conceptual, and empirical reviews of the literature on county governments in Western Region, Kenya in relation to influence of SCMP on the performance of procurement functions. The specific areas to be reviewed will include supply chain collaboration, integration, Risk management and lean SCP on procurement function. The chapter further examines the theoretical foundations supporting the investigation. Consequently, a number of study gaps were identified from context-specific, conceptual, and methodical angles. Table with a summary and display of the gaps is created.

2.2Theoretical Framework

A theoretical framework provides a conceptual structure for the study and explains the direction, underlying assumptions, and foundations of the research (Saunders, Lewis, & Thornhill, 2019). Collaborative networks theory and systems theory are the two theories that were employed in the study. The concepts investigate the impact of SCM strategies on procurement function performance in Kenya's Western Region county governments.

2.2.1. Systems Theory

Ludwig von Bertalanffy (1901–1972) was the originator of general systems theory. Systems theory views the supply chain as a complex adaptive system (Carter, Rodgers, & Choi,

2015). It refutes the idea that organizations are static and puts forth an open systems perspective, contending that time and external variables affect firms at the organizational, group, and/or individual levels (Lavassami & Movaheli, 2020); additionally, it argues that a dynamic system both modifies and is modified by its surroundings (Holweg, 2021). According to New and Westbrook (2024), feedback is required along the supply chain to prevent the system from decaying or becoming ineffective. SCI is one method of achieving this feedback.

A fundamental tenet of this theory is synergy, which asserts that a system is fundamentally distinct and behaves differently than the sum of its component pieces. In particular, the cumulative production of the entire system is frequently greater than the combined output of individual subsystems. An important element of systems theory is adaptability a system's ability to alter and respond to changing situations. In the context of supply chains, integration initiatives should focus on increasing resilience to shocks and market fluctuations. This could include creating adaptable processes, encouraging collaboration among partners, and leveraging technology for real-time visibility and decision-making.

Systems theory warns against the danger of optimizing individual components at the expense of the overall system's performance. SCI aims to strike a balance between optimizing efficiency within each function such as procurement, production, logistics and optimizing the entire chain for maximum value delivery to customers.

Tang and Tan (2017) explores the application of systems theory principles in achieving SCI. It discusses the interconnectedness of supply chain components, the importance of feedback mechanisms, and the emergence of integrated behaviors. The authors emphasize the need

for a holistic approach to integration, considering both internal and external factors impacting the supply chain.

Tatikonda, and Bozer (2022) examines how systems thinking can help manage the complexities of SCI. It discusses the concept of feedback loops, the role of emergent properties, and the challenges of aligning goals across different levels of the supply chain hierarchy. The authors provide practical insights for applying systems theory principles to enhance integration efforts.

Sheff and Rice (2017) examines the relationship between SCI and performance, with a focus on the moderating role of systems thinking. It argues that organizations with a systemic perspective are better equipped to achieve the benefits of integration, such as improved responsiveness and efficiency. The study provides empirical evidence supporting the importance of systems thinking in enhancing Procurement performance. This remains the dominant theory for this study.

2.2.2 Collaborative Network Theory (CNT)

The collaborative network theory in supply chain management was initially formulated and expanded upon by a number of academicians, with Chris H. A. Brewer emerging as a prominent figure in this domain. Brewer has gained recognition for his research in the fields of collaborative networks and supply chain management, specifically for his contributions to the comprehension of how cooperative partnerships among supply chain participants can bolster overall efficiency and competitiveness. During the late 1990s and early 2000s, Brewer authored a number of seminal articles concerning collaborative networks in the context of SCM. ‘Supply Chain Collaboration: Where Has It Come From and Where Should

It Go?' was one of his notable works, published in the International Journal of Logistics Management in 2017. Brewer examines the progression of supply chain collaboration (SCC) and underscores the significance of collaborative networks in attaining flexibility and efficiency within the supply chain.

Andrevski (2019), stated that a collaborative network has the potential to improve a company's performance strategy. In order to foster innovation, the concept entails the construction of a network model comprising four entities: suppliers, buyers, competitors, research organizations, institutions, and the government (Tsai, 2019). Additionally, it may take the form of a horizontal network comprising research institutions, universities, and the government, or a vertical network comprising clients, suppliers, and other organizations (competitors) (Zeng, Xie, & Tam, 2020).

A critical determinant of the firm's performance is the efficacy of its collaborations both internally and externally with its partners. CNT is the foundation for the reciprocal impact in inter-firm connections. Consequently, the importance of the relationships that exist between organizations and other participants at different levels of the supply chain increases (Hakansson & David, 2022). Solid alliances among supply chain participants can effectively streamline the integration of resources under the control of individual firms. The results achieved are superior to those achieved when a single firm operates independently (Halldórsson et al., 2017).

Strengthening interfirm connections within the supply chain or network may be more crucial than mere resource possession, since CNT posits that the value of a resource can be increased through its combination with another resource. Consequently, it is imperative that organizations strive to establish mutually beneficial alliances with their supply chain

counterparts (Halldorsson *et al*., 2017). A notable contribution of CNT is the influence exerted by supply chain participants in shaping inter-firm relationships. Partners afford the organization a competitive edge by establishing trust and implementing various SCP strategies, including formal communication and the implementation of an integrated management and culture. Through the social exchange process, organizations cultivate partnerships with their supply chain participants with the ultimate goal of improving overall performance. These collaborations are founded upon mutual objectives with suppliers, collaborative efforts in supply chain forecasting and planning, and the exchange of resources. Halldórsson *et al*. (2017) posit that a network composed of CNTs exists in a state of dynamic momentum, as opposed to an equilibrium point of perfection. Consequently, collaboration between enterprises and their supply chain counterparts endeavors to regulate these intricacies, encompassing information and product (goods and services) flows, social interaction, and the adaptation process. Utilizing CNT in SCM, activities, actors, and resource movement within the supply chain have been mapped. CNT's principal objective of cultivating enduring relationships is predicated on the establishment of reciprocal trust among supply chain stakeholders (Fayezi, Andrew & Ambika, 2022).

2.3. Conceptual Review

2.3.1. Supply chain Collaboration

Effective cooperation is contingent upon the establishment of reciprocal trust among partners and a readiness to exchange information that can be advantageous to all individuals comprising the collaborative team. The objective is to regard every service provider, customer, supplier, and outsourcing partner as an extension of the organization.

Interdependence, according to the findings of Lejeune and Yakova (2017), was fundamental to SC performance since it granted businesses a competitive edge over rivals. According to research on collaboration in the software industry, collaborating businesses are not required to share risks.

According to a study by Soosay *et al.* (2018), the capacity of managers to collaborate with partners facilitates the integration and linking of business operations, thereby increasing efficiency and innovation opportunities. Anxiety regarding technological incompatibilities, exposure to competition, fear of failure, and an escalation in operational complexity have all been identified as obstacles to the effective implementation of collaboration in the SC (Van Weele, & Van Raaij, 2024).. In the absence of collaborative efforts, a supply chain will be unable to achieve cost reductions and increased return on investment. Moreover, the lack of regular collaborative meetings among chain partners impedes the ability of managers to exchange insights, weaknesses, and optimal strategies. Additional obstacles to SCM include administrative intricacy and incongruities in the processes, structures, and culture of the partnering organizations.

According to Scholten and Schilder (2015), the implementation of targeted collaboration activities, such as information-sharing, collaborative communication, jointly created knowledge, and joint relationship efforts, has been found to boost the resilience of supply chains by improving visibility, velocity, and flexibility. This was among the initial scholarly articles to offer a comprehensive analysis of collaboration as a developmental component of supply chain resilience. The paper explains the specific impact of collaborative activities on supply chain resilience from a perspective that extends beyond that of a single company

through a series of propositions. In addition, Botes *et al.* (2017) offered managerial perspectives on the significance of information-sharing and collaborative communication in achieving supply chain visibility, which facilitates the detection of imminent disruptions at an early stage. This subsequently facilitates adaptability by providing ample time to synchronize additional resources within the supply chain in order to attain the intended result.

2.3.2. Supply chain integration

Integration, as it pertains to this particular context, denotes the degree to which diverse activities and processes within the supply chain operate in concert with minimal friction. It has been widely acknowledged for quite some time that conventionally managed enterprises and supply chains, which are frequently marked by significant fragmentation, fall short of their actual capacity to meet customer expectations in a profitable manner. SCI (SCI) primarily focuses on the advancement of more integrated methodologies that promise to eradicate numerous inefficiencies that are directly caused by fragmentation within the supply chain.

As opposed to a single company, SCM integration enables the development of products more rapidly, with superior quality, and at a reduced cost (Ajmera & Cook, 2019). The advantages of integration are assertions that are shared by several authors. Costs, inventory shortages, and lead times are diminished as a result of external collaboration among supply chain partners (Gimenez & Ventura 2017). Across the supply chain, integrated supply chains reduce expenses. By establishing a consistent and predictable demand-supply pattern, expenses can be reduced. Enhanced effectiveness and efficiency result from external (supply chain) integration (Narasimhan & Kim, 2021). Significant enhancements in service

effectiveness and cost efficiency are the result of integration (Richey *et al*. 2020). In conclusion, it appears that greater integration is advantageous (Gimenez & Ventura, 2017).

2.3.3. Supply chain Risk Management

Supply chain risk was frequently regarded as the possibility that an event would occur that would impede regular operations and prevent the execution of predetermined strategies. Stulz, published in 1990. Indeed, the majority of the literature defines risk as an undesirable outcome or consequence that results in negative consequences. considers risk to be a phenomenon that is inherently indeterminate.

Peck (2017) defined three supply chain vulnerabilities as exposure to severe disruptions caused by internal and external risks. According to Ju (2017), supply chain vulnerability occurs when the potential for risks and drivers to surpass the effectiveness of risk-mitigation strategies threatens to compromise the chain's capacity to serve the end consumer market efficiently. As a result, SCRM was established with the purpose of identifying potential sources of risk and executing suitable measures to prevent or restrict supply chain susceptibility (Narasimhan & Talluri, 2019).

2.3.4. Lean Supply Chain Management

Lean SCP entail a collection of entities that are intricately interconnected through the movement of goods, services, capital, and data upstream and downstream. These entities work in concert to minimize expenses and wastage by extracting the minimum quantity of resources required to fulfill the requirements of each customer in an efficient and effective manner. Lean SCM is comprised of a number of interdependent components that are utilized to increase the organization's efficiency and effectiveness. In the modern context, both

elements ought to be present in any lean enterprise firm. In the supply chain, it is crucial for competitive businesses to comprehend and quantify the degree to which each component contributes value (Kallrath & Maindl, 2016).

2.3.5. Supply Chain Management

Ebekozien (2019), notes that SCM refers to the activities that a firm does in to increase the effectiveness of its supply chain. Waithaka and Kimani (2021) include supplier assessment, certification, information exchange, risk management policy, strategic partnerships with suppliers, and SCI when assessing SCM approaches. Shafiee and Rejali (2022) state that delay, broad information sharing, high-quality information interchange, customer interactions, and strategic supplier alliances are only a few of the principles that are included in supply chain management (SCM) methodologies. In this study, SCM will be defined as supply chain cooperation, SCI, SCRM, and supply chain lean management.

2.3.7. Performance of Procurement Function

Procurement performance is a metric that determines how well the procurement function achieves its objectives and aims at the lowest possible cost (Shaharudin, Suhaimi, & Husain, 2021). Effectiveness and efficiency are the two primary components of procurement performance, according to Yildiz Cankaya and Sezen (2019). According to Baliga, Raut, and Kamble (2020), the degree to which the above mentioned aims and objectives are being realized defines the efficacy of procurement. It describes the connection between how any human action is carried out in real time and how it is planned. Consequently, procurement performance examines the efficacy and efficiency of the procurement function. The evaluation of procurement performance can also take into account non-financial and

financial factors in relation to the organization's non-financial and financial objectives for procurement functions (Yun, Hales & Kwon, 2019). Furthermore, rather than the original purchase price, Monczka, Giunipero, and Patterson (2020) contend that procurement decisions should be made based on value for money. Purchasing activity for the organization is managed by the procurement function.

2.4 Empirical Review

2.4.1. Supply chain collaboration practices

Supply chain collaboration, or SCC, is the term used to describe the inter-organizational processes that occur both within and between supply chain players in order to create a seamless, synchronized supply chain that enhances responsiveness to client needs and performance. Skjoett-Larsen *et al.* (2023) argue that these activities are based on shared risk and reward, common goals, and trust.

Due to the complexity of the subject, SCP remains an intriguing area of study despite the fact that it has been the subject of research for the past decade. Kim (2018) lists three ways for people in the supply chain to work together: by working together within the company, with suppliers, and with customers. Yaakub and Mustafa (2015) add that supplier collaboration is when a business and a provider share resources like money, time, and knowledge so that both of them can benefit. In contrast, customer collaboration refers to the process through which organizations identify, characterize, and utilize their clientele in order to produce outcomes that are both optimal and in accordance with their anticipations.

Internal collaboration is a process and practice that aims to facilitate external collaboration and achieve objectives by amassing and developing internal resources for the exchange of information and knowledge, both within and beyond the functions of the organization.

Collaboration between supply chain partners can improve their performance and competitiveness in a number of ways (Hudnurkar, Jakhar & Rathod, 2017). Innovative products, cost control, increased productivity, risk management, and providing consumers with additional business value are a few of these advantages (Giannakis & Papadopoulos, 2016). A shared understanding and open communication between firms can foster an environment of trust that fosters business-to-business (B2B) relationships when SCP is done well (Lavastre, Gunasekaran & Spalanzani, 2019).

Dotun (2017) focused on SCC in 171 companies selected from three swiftly developing nations China, India, and Brazil. Positive relationships and collaborations across the supply chain were found to correlate positively with manufacturing performance and capabilities for both product and process innovation. The findings provide novel insights into the manufacturing sectors of the three countries and illustrate how collaborative supply chain relationships with customers have stimulated their innovative capabilities. As a result, they have experienced improved manufacturing performance as a direct consequence of the additional capabilities. According to Wong, Boon-Itt, and Wong (2017), in Thailand, where environmental unpredictability exists, there are strong correlations between internal collaboration and product quality and production costs, as well as supplier/customer collaboration and delivery and flexibility performance. The increasing significance of China

as a manufacturing center can be attributed to its supply chain, which encompasses multiple countries and continents. The provision of precise and timely market information is of the utmost importance to manufacturing companies in the country due to the advancements in supply chain processes (Zhu & Sarkis, 2018).

Westbrook and Frohlich (2018) note that companies use this approach to get customers more involved and to find out what they think about their products. According to Fisher, Hammond, and Obermeyer (2018), the purpose of customer support is to aid organizations in demand forecasting and visibility. Customer collaboration is the process of identifying and defining the requirements of consumers in order to develop products that satisfy those needs and increase customer satisfaction, according to Kim (2018).

Although several developing countries in Africa have yet to adopt the practice of information exchange between suppliers and consumers, those that have encounter challenges that hinder the effectiveness of business operations, such as those pertaining to supplier-firm relationships. The implementation of effective information sharing practices within the travel industry has been adopted by nations including South Africa and Ghana. The implementation of this strategy has enabled companies to manage their supply chains more efficiently, resulting in increased output and a more profitable travel industry (Chopra & Meindl, 2018). Otchere, Annan, and Anin (2018) posit that Ghanaian cocoa manufacturing firms gain a competitive edge through the implementation of supply chain collaboration. They argued that the combination of the multidisciplinary expertise of retailers and suppliers could generate novel insights that could be utilized to advance business expertise. Additionally, enhanced supplier-retailer relationships increase the likelihood that novel

products will be approved. It was their contention that the effective utilization of relevant and timely information by every operational element of the supply chain is critical for the prosperity of any organization and acts as a distinguishing factor for that particular one. Laursen and Salter (2016) posit that strategic cooperation has emerged as an essential requirement for South African enterprises in the current global economy. Supply chain integration has the potential to facilitate the expansion of South African enterprises into untapped markets, expedite time-to-market, enhance customer service, augment return on assets, diminish lead times, and foster greater reliability and awareness of trends.

Kemunto (2017) asserts that the Kenya Bureau of Statistics thinks there are about 226 global companies in Kenya. It appears that the majority collaborated on the supply chain. Notwithstanding these benefits, a considerable number of enterprises in developing countries are still striving to oversee isolated operations as opposed to integrating duties into critical supply chain operations. Moreover, Cook, Heiser, and Sengupta (2019) discovered that the concept of integral relationships that is, the collaborative planning, regulation, and creation of a supply chain has been adopted and effectively implemented by a negligible number of companies in Kenya. In Kenya, for instance, fuel and sugar prices experience frequent, unanticipated increases as a result of scarcities. Insufficient coordination within the supply chain system is the primary cause of this. It has been reported that industrial companies in Kenya have endeavored to adopt enhanced supply chain techniques with the intention of substantially improving supply chain coordination (Katua, 2016). Given the current conditions, certain organizations have contemplated the implementation of supply chain cooperation as a strategy to enhance the performance of their supply chain processes. SCP has been implemented by manufacturing enterprises in Kenya, leading to the successful

attainment of strategic goals, mitigation of risks, and enhancement of synchronization between internal and external management processes.

Gichuru, Iravo, and Arani (2015) examined Del Monte Kenya Ltd supply chain. The study posits that the efficiency of an organization is enhanced through the exchange of resources and knowledge. Barasa, Simiyu, and Iravo (2015) found that the implementation of SCP had a substantial influence on the achievement of steel manufacturers in Kenya. Mahulo (2015) identified a nearly perfect correlation between SCP methods and the organizational performance of cement enterprises in Kenya.

Gumboh (2017) examined teamwork in the supply chain affected the strength of business-to-business relationships in Kenya between small and medium-sized IT and communication companies. A positive correlation was observed between supply chain coordination and business-to-business relationships. Njagi and Shalle (2016) arrived at a comparable conclusion when they discovered that EABL provides supply chain training and maintains positive professional relationships with its partners. This has substantially enhanced the procurement process's performance.

Chirchir (2015) posits that the establishment of SCC relationships among commercial banks in Kenya has led to the implementation of various practices. These practices include data collaboration to optimize product availability, cost reduction, superior client service provision, increased earnings, and effective capacity planning. According to Kibera and Wairimu (2016), the capacity of Bidco Oil Refineries is improved through supply chain collaboration, which provides a systematic approach to procedure management, cost

reduction, and productivity enhancement. Additionally, it enhances flexibility and inventory management, which ultimately contribute to greater profit margins and competitiveness.

2.4.2. Supply chain integration on the performance of the procurement functions

Integration of the supply chain entails the harmonization of the positions, locations, activities, and affiliations of an organization with its suppliers, customers, and other participants in its channel. According to the literature on SCM, integration is intricately linked to the execution of tasks across multiple domains, with each domain contributing to the effort required. Donk and Van Der Vanet (2017) note that integrative actions can happen because of many things, including the flow of products, planning and control, organization, and information. According to Bowersox (2016), the integration of suppliers and consumers should be the initial step in the supply chain process. Continual standardization of all internal logistical processes, effective information exchange, and strategic alliances with suppliers and customers can facilitate both internal and external integration.

SCI is a collaborative approach to coordination that pertains to the unification of an organization's activities, locations, suppliers, consumers, and other channel partners' and relations, operations, and processes (Ballou, 2024). To reduce supply chain risks and interdependencies with external business partners, organizations may implement strategic measures such as backward and forward integration (Narasimhan & Kim, 2022). By means of backward or forward integration, organizations can essentially strengthen their ability to make decisions pertaining to critical resources and skills that are vital to the organization's competitiveness and obtain greater control over a greater portion of the supply chain.

Frohlich and Westbrook (2021) identified five discrete supplier and customer integration (SCI) methodologies, which they labeled arcs of integration where arc signifies the extent of supplier and customer integration). Based on their research findings, companies that maximized the integration between suppliers and consumers attained the utmost level of operational effectiveness. Subsequent research conducted by Frohlich (2022) validated the aforementioned findings, illustrating that manufacturers characterized by substantial integration exhibited superior operational performance in terms of inventory turnover, transaction costs, and delivery time compared to their counterparts with limited integration. Dimensional lines have been utilized to examine the relationship between SCI and SCP. Some researchers have observed a negative correlation, no correlation, or a U-shaped relationship between SCI and organizational performance. Conversely, others have observed positive effects within specific categories. Previous studies have established a positive correlation between the internal integration component of SCI and business performance, which serves as an indicator of organizational performance (Flynn, Huo, and Zhao 2020; Narayanan, Jayaraman, Swaminathan 2021). Sanders, Terjesen, and Patel (2022) discovered a U-shaped inverse relationship in this regard.

SCI may not be completely represented by a single construct on account of its multidimensional nature. Mackelpran et al. (2024), on the other hand, view it through the lens of enterprise behavior and relationships, as opposed to the activity-based perspectives of supplier, customer, and internal integration that Wong *et al*. (2021) and other scholars hold. Information systems may be utilized in the development of business networks to ensure the seamless transmission of financial, material, and information resources in order to deliver value to stakeholders in the supply chain. Inability to integrate supply chains could result in

the loss of benefits associated with SCI for organizations. Integration issues predominantly arise due to inadequate commitment or understanding of the goals and intentions of the supply chain.

Moreover, Leuschner, Rogers, and Charvet (2023) established a correlation between SCI and organizational efficacy that was both positive and robust. Supply chain information systems provide support for the hypothesis that a lean/agile strategy enhances the efficacy of the supply chain, as stated by Yawar and Seuring (2017). In other words, despite exerting a substantial influence on Procurement performance, the SCI strategy merely strengthens the connection between information integration and Procurement performance.

Additionally, Qrunfleh and Tarafdar (2024) and Flynn, Huo, and Zhao (2020) identified a correlation between the financial and operational success of supply networks and SCI. According to Qi, Huo, Wang, and Yeung (2017), businesses can benefit from integrated supply chains when they aim to establish agile or lean supply networks. A lean methodology for supply chain planning prioritizes integration with the objective of enhancing supply chain efficiency, as opposed to focusing on quality, cost, or delivery time. However, the authors further argued that agile supply networks facilitate the maintenance of flexible working relationships between businesses and their supply chain partners.

Cheruiyot (2023) asserts that disconnected manufacturing or distribution processes, insufficient relationships with suppliers and customers, and deficient supplier and customer relationships are no longer adequate for the subsequent performance of the supply chain. A deficiently planned supply chain may result in an array of complications, such as substantial inventory accumulations and backlogs, erroneous product forecasts, inconsistent capacity,

inadequate customer support, ambiguous production timetables, and on occasion, unsuccessful sales. In an attempt to improve the country's social and economic climate, the Kenyan government has been undergoing a structural restructuring process since the mid-1980s.

According to Elias *et al.,* (2022), this process is having a profound impact on Kenya's manufacturing sector. This integration ultimately results in greater profit margins by enhancing flexibility and strict inventory management, as well as increasing competitiveness in a variety of business contexts. Cheruiyot (2023) asserts that the small-holder tea industry in Kenya is employing a range of SCM strategies on an international scale. Since supply chains don't fight with businesses, they compete with each other. Cheruiyot, (2023) gives Kenyan organizations useful tips on how to better integrate their supply chains. One of the recommendations is to implement internal, supplier, and consumer integration as a strategic mechanism to gain a competitive edge. Additionally, it is emphasized by (Kimani, 2023) that for a supply chain to achieve its utmost effectiveness and efficiency, integrated and comprehensive administration of material, bank, and information flows is essential. Moreover, this improved financial performance. Okello and Were (2024) state that companies should spend money on cutting edge technologies to help with large-scale production, transportation, and storage. Moreover, he posits that prioritizing the enhancement of personnel capabilities is crucial for effectively addressing the swiftly progressing technologies. Cooperation among supply chain participants is once more emphasized as critical, especially in the domains of distribution and transportation (Kimani, 2023). The objective of this study is to assess the impact of SCI on the efficiency of procurement processes in county administrations of Kenya's Western Region.

2.4.3. Supply chain risk management practices of the procurement functions

Giunipero and Eltantawy (2024) say that many businesses have seen new risks come up on top of the "traditional" ones that come with doing business. The emergence of these novel hazards often stems from the strong collaboration that their supply chain communities maintain. As a consequence, their risk portfolio is altered. This transformation is influenced by elements both internal and external to their supply chains.

Javaid and Siddiqui (2018) looked into how the supply chains of Pakistani businesses worked and how they reacted to criteria for SCRM. The survey conducted online was utilized to collect the data. SCP, supply chain responsiveness, operational risk management, and supply risk management are all positively and statistically substantially correlated, according to the study's findings. Eyaa and Ntayi (2020) conducted research among small and medium-sized enterprises (SMEs) in Uganda and confirmed that the integration of risk-taking into purchasing practices affected Procurement performance. Mburu et al. (2015) state that in order to enhance the performance of a company's supply chain in the face of market fluctuations caused by increased variety, risk identification and management must be adequate.

Munyuko (2015) investigated the impact of SCRM on business operation outcomes. The demographic being studied comprised Andy forwarders and personnel of logistics services. Although a questionnaire served as the principal instrument for data collection, supplementary primary sources and interviews were also employed. The findings established a causal relationship between enhanced organizational efficacy and effective SCRM. It was determined that supply chain risks have an effect on the performance of organizations, and

it was recommended that companies identify the risks in their supply chains, assess those risks, and develop contingency plans for the most critical ones.

Okonjo *et al*. (2016) investigated the relationship between SCP and procurement risk management strategies that mobile phone service providers in Kenya employ. The present investigation employed a descriptive methodology. Data was collected through the utilization of a questionnaire that was conveniently accessible to participants during their leisure hours. The findings indicated that procurement risk management procedures had an effect on SCP. Mburu (2017) surveyed Kenyan manufacturers in an effort to assess the effectiveness and risk management strategies of their supply chains. Utilizing a cross-sectional survey with descriptive inquiries, the research was conducted. The intended recipients of the message were the 412 manufacturing companies located in Nairobi County that are KAM members. SCP was found to be influenced by the incorporation of risk identification management plan components, according to the study. Furthermore, an overwhelming majority of these organizations implemented a systematic methodology for identifying and assessing risks.

Kamoni et al.'s (2018) study looked at how buying risk management affects the accomplishment of big energy projects in Kenya. The research comprised an exhaustive inventory of all 47 energy sector megaprojects that were awarded contracts by diverse government procurement agencies. Units of analysis for the study were purchasing managers employed by organizations undertaking extensive initiatives. Objectively designed questionnaires were utilized in the collection of primary data. The report states that procurement risk management significantly affects the procurement performance of large

undertakings in the energy sector of Kenya. Inadequate information gathering for contractor evaluation was identified in megaproject procurement procedures, which the research suggests may lead to the selection of unsuitable contractors. Utilizing risk management tools, including risk assessments, risk guarantees, risk appraisals, multiple sourcing, stakeholder management, and feasibility studies, was recommended in the study. These instruments facilitate the management of procurement risks, including financial, technological, contractor failure, and way-loan acquisition risks.

Nyagechanga (2017) wanted to find out how procurement risk management solutions might affect the success of a company's supply chain. The present investigation utilized a descriptive research methodology. The subjects of the research were the 147 employees of Kisii Bottlers Limited Company. Questionnaires were utilized to facilitate the collection of data. The management of the organization should continue to undertake routine risk assessments in their supply chains in order to mitigate the negative effects of uncertainty, according to the research. The results of the study suggest that procurement risk management should be given significant attention by management, given the growing recognition that threats can arise from unforeseen sources. The outcomes demonstrate that approaches to procurement risk management have an effect on SCP.

Apopa (2018) initiated an investigation to determine how the operation of Kenyan government agencies was impacted by various SCM techniques. The approach utilized in this study was cross-sectional in nature. Twenty federal ministries participated in the analysis, and all 1,372 SCM personnel were incorporated into the study. The study collected primary data through the administration of questionnaires. Positive and significant effects of

supplier collaboration practices, supply chain regulations, supplier selection techniques, and risk management strategies on the performance of Kenyan government ministries were identified by the study, with risk management being the most significant predictor.

2.4.4. Lean supply chain practices of the procurement functions

Lean management is an approach that places emphasis on the ongoing enhancement of products and the identification and reduction of waste in order to guarantee consumer contentment. The objective of the lean methodology is to increase customer value while decreasing expenses (Myerson, 2022). Warehouse administrators, suppliers, distributors, and carriers comprise the supply chain. According to Martínez-Jurado and Moyano-Fuentes (2024), lean management in the supply chain entails the elimination of superfluous expenses linked to the production, distribution, and sale of goods with the objective of offering customers increased value at the most economical price.

Consequently, numerous participants in the supply chain who are engaged in the production and distribution of a given product are implementing lean supply management strategies. Diverse organizational departments or businesses may be engaged in the implementation of lean management (Myerson, 2022). According to Awino (2021), lean supply management methods look into different business strategies on a regular basis that keep customers happy. These practices may encompass waste reduction, resource utilization optimization, technology enhancement, and internal talent optimization.

According to Bienabe and Vermeulen's (2017) study, the procurement role is very important to the company's success. The critical examination of supermarket procurement processes in

South Africa constituted the primary focus of the research. An exhaustive inquiry was conducted by the researchers on two well-regarded supermarkets located in the province of Limpopo. Bienabe and Vermeulen (2017) established, via a case study methodology, that the effectiveness of supermarkets in meeting consumer needs was contingent upon the presence of a streamlined procurement system. The ability to efficiently coordinate the supply chain was a significant pillar that bolstered the procurement system's efficacy.

According to Martinez-Jurado and Moyano-Fuentes' (2024) research on how lean SCM affects an organization's purchasing role, lean procurement is necessary for efficient purchasing processes. The implementation of lean supply management systems is crucial for reducing the expenses associated with the procurement function of an organization, according to a literature review-based study. A substantial decrease in the expenditure associated with procuring products and services was accomplished by an organization through the adoption of lean supply management principles. Consequently, a substantial reduction in the overall cost of products supplied enables a company to increase its profit margins or provide competitive pricing.

Dues *et al*. (2023) argue that lean SCM principles must be used in a business's procurement area in order to improve its social impact. Environmental conservation can be easily achieved by a business through the implementation of lean techniques. Significant contributors to environmental contamination, waste can be reduced through the implementation of lean methodologies. By utilizing these conservation efforts to establish the organization as a leading environmental advocate, the procurement process is crucial. As environmental concerns increase, businesses that actively participate in environmental

mitigation efforts frequently attract customers. Hence, the implementation of lean SCM strategies is crucial in ensuring that the procurement process of an organization satisfies its corporate social responsibility towards the enterprise.

Omwoyo, Wanyoike, and Mbeche (2019) did study to find out how lean procurement strategies affect the ability of manufacturing companies to respond quickly to changes in the supply chain. The survey was conducted on a sample of 96 procurement, finance, and operations managers employed in 34 manufacturing businesses located in Nakuru County. The information was obtained through a survey. Regression modeling was employed to evaluate the impact of lean procurement strategies on the responsiveness of the supply chain. The use of lean procurement practices has not been observed in all industrial companies under consideration. The study demonstrates that using lean procurement practices greatly enhances the flexibility of the supply chain. The study determined that government assistance was important for the extensive implementation of lean procurement initiatives in the industrial sector due to their advantageous outcomes. This study specifically examined the responsiveness of the supply chain, in contrast to the current study which specifically examined the performance of the supply chain.

Thuranira (2016) validated the findings by studying the effects of lean SCM components on Kenyan tea plant efficiency. The study revealed that various manufacturers employ distinct tactics at varying points in time with regards to the implementation of lean SCM. The majority of industrial facilities implemented lean methods in all three stages of the supply chain, including procurement, production, and storage. Hospitals should include elements of

lean SCM into their long-term strategy to improve operational performance, as indicated by the study's findings.

Kimani (2023) discovered that the methods were crucial for reducing the cost of the finished product during her study on lean SCM at a Kenyan manufacturing company. The study investigated the significance of lean methods in the supply chain to assure profitability and customer satisfaction. It revealed that these approaches play a vital role in reducing costs, time resources, and inventory. Ngonjo (2024) asserts that the implementation of lean SCM strategies is critical to an organization's capacity to carry out its procurement process. Lean procedures ensure that the procurement of items and services is conducted in a manner that is characterized by openness, affordability, and transparency. As a result, this leads to a reduction in the expenses associated with procuring goods, so directly enhancing a company's profitability.

Kamau and Kagiri (2015) conducted a study to determine the effect of procurement management practices on procurement competitiveness and found that the processes did in fact influence procurement competitiveness. The probe focused on Safaricom, the leading telecommunications provider in the country. Safaricom has successfully maintained its leading market position by implementing lean SCM in its procurement operations, as seen by the researchers.

Therefore, the implementation of lean SCM approaches enhances an organization's competitive advantage, specifically focusing on leading supermarkets in Nairobi, Kenya. In a similar vein, a statistically significant positive correlation was identified by Mwangangi and Achuora (2019) between lean supply chain and organizational performance. This

suggests that the implementation of Lean Supply chain innovations in public colleges in Kenya is likely to result in improved overall performance.

2.5 Research Gaps

SCM is crucial to the organization's ability to produce high-quality work that is sufficient. Research also show that in order to achieve improved performance and resource optimization throughout the supply chain, a company's SCM should be effectively matched with its supply chain procedures (Green *et al*., 2018). However, the majority of theoretical frameworks and empirical research on achieving SCM efficiency remain absent from the supply chain literature (Wisner, 2023). SC management is a new field with a lot of promise, both theoretically and practically. In a similar vein, practitioners lack a comprehensive understanding of SCM and its various strategic classifications (Storey, et al., 2016). Not much has been achieved so far in literature on the SCM leading to a substantial gap (Chae & Hill, 2020). The relevant previous research, research methodology used, findings, and information gaps that still need to be filled are summarized in Table 2.1 below, along with suggestions for how the study solve them.

Table 2. 1: Summary of Information Gaps

Authors(s)(Year)	Title	Variable	Methodology	Findings	Knowledge Gaps
Njagi and Shalle (2016)	Role of supplier management on procurement performance in manufacturing companies a case of East African breweries	Supply Chain Collaboration Practice	descriptive survey design.	EABL maintains a strong working relationship with its suppliers and trains them.	The study was carried out in the public sector.
Gumboh (2017)	Effect of SCP on strength of business-to-business relationship among information and communication technology small and medium enterprises in Kenya	SCP Practice	Design of descriptive research surveys	The study found that business-to-business relationships and supply chain coordination were positively correlated.	The study concentrated on procurement efficiency
Gichuru, Iravo & Arani (2015)	Collaborative supply chain practices in the performance of Del Monte Kenya Ltd	SCP Practice	descriptive case study design.	The study came to the conclusion that a company's performance is positively impacted by sharing resources and information. To maximise capabilities, businesses should share resources with their most significant suppliers.	Both suppliers and staff utilized the same tool.
Mburu (2017)	Risk management strategy and SCP among manufacturing companies in Kenya	Supply Risk Management	Both qualitative and quantitative research	The combination of risk identification management approach and SCP	The research was limited on risk identification and

			methods were utilized in a descriptive study design.	was validated by a p-value of 0.000.	management strategy
Mwangangi & Achuora (2019)	Influence of lean supply chain on performance of Public Universities in Kenya	Lean Supply chain management	Descriptive research design	The combination of risk identification management approach and SCP was validated by a p-value of 0.000.	The study does not specify which secondary sources were acquired and where.
Thuranira (2016)	Effect of lean supply chain management components on operational performance in the tea factories in Kenya	Lean Supply chain management	descriptive cross-sectional survey	According to the report, an organization's long-term strategy for enhancing operational performance should include implementing lean supply chain management elements.	The study did not specify a method for measuring lean supply chain management.
Omwoyo, Wanyoike and Mbeche (2019)	Influence of lean procurement initiatives on supply chain agility of manufacturing firms	Lean Supply chain management	survey research design	The manufacturing organisations studied showed varying degrees of lean procurement activity. Lean procurement has been demonstrated to significantly improve supply chain agility.	The conclusions were based on descriptive data, making generalizatio n challenging.

2.6 Conceptual Framework

A conceptual framework is a set of ideas that illustrates the connection between independent and dependent variables and makes it easier for researchers to understand how the many variables in their study are related to one another (Mugenda & Mugenda, 2018). This study examined the relationship between procurement performance and several independent factors, namely supply chain cooperative practices, SCI, SCRM, and lean supply management. The research was guided by the conceptual framework depicted in Figure 1.1.

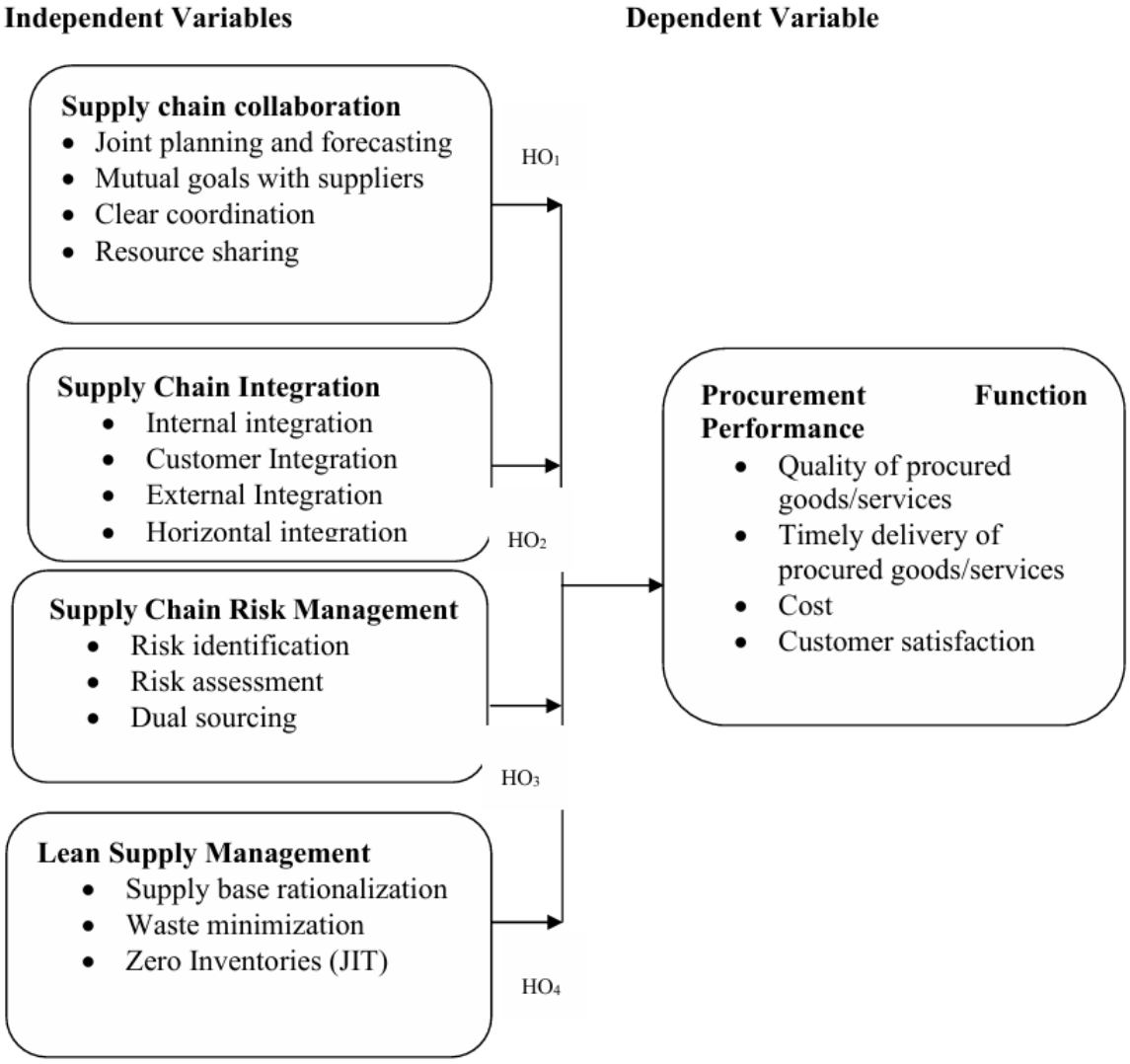

Figure 2. 1: Conceptual framework

Source: Adapted from Omollo (2019); Opiyo (2015)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section will address the following: the study area, the research design, the population of study, the sample design, the sampling methodology, the data gathering tools, the tool's reliability and validity, the processing and analysis of data, and ethical considerations.

3.2 Research Design

Kothari (2021) contends that a study design is a well-thought-out plan for how to do an investigation. The primary objective of this study gathered data with the purpose of offering a comprehensive depiction of a particular phenomenon or circumstance. To do this, a descriptive correlational research approach was employed. Kothari (2024) states that the objective of a descriptive study is to collect accurate data about the current condition of a problem or phenomenon and, if possible, to derive meaningful conclusions from that data. It explores the concept and provides a summary of the population being studied. The study's research design is deemed appropriate as it investigated the influence of the independent variable on the dependent variable subsequent to the collection of primary data through the utilization of a structured questionnaire.

3.3 Study Area

The four counties that formerly comprised Kenya's Western Province hosted the study. Bungoma, Busia, Kakamega, and Vihiga county governments are among the counties (GoK, 2019). The reason for the study's necessity in the region is the recent intense criticism of County Governments' public procurement practices and performance (Kagume & Wamalwa, 2018). Several counties in the Western Region (including Kakamega, Bungoma, Vihiga, and Busia) have reported challenges such as inefficiencies, delays, non-transparency, and poor supplier relationships. This presents a ripe context for evaluating whether modern SCM practices are being implemented effectively and how they impact procurement performance.

3.4 Target Population

Orodho (2019) defines the target population as the shared grouping of individuals, objects, or groups that are under consideration. Kenya's western region is comprised of four county governments (GoK, 2015). The population for this study consist of 215 county officials located in the Western Region of Kenya. These officials were categorized into three groups: supply chain officers, procurement officers, and finance officers. The role that each population unit performs in terms of management determined which units are chosen. As shown in Table 3.1, there was 120 supply chain officials, 44 procurement officers, and 51 finance officers.

Table 3. 1: Target Population

Strata	Bungoma	Kakamega	Busia	Vihiga
Supply Chain Officers	30	35	25	30
Procurement Officers	11	11	11	11
Finance Officers	12	15	11	13
Total	**53**	**61**	**47**	**54**

Source: Compilation from County Human Resource Registry Departments, (2024)

3.5 Sampling Technique and Sample size

The study employed a stratified simple random sampling to select the sample. In order to ensure that a more accurate sample is taken from a fairly diverse demography and to produce more accurate estimations of broad population parameters, Orodho (2019) outlines a stratified simple random selection approach. Stratification attempts to lower the standard error by offering some variance control. Three groups of people made up the study's population: finance officers, procurement officers, and supply chain workers. Subsequently, each stratum employed the basic random sampling procedure to select 140 individuals from a target population of 215. Using the Yamane formula (1967), a sample of 168 respondents was achieved. The following process will be used to determine the sample size:

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

Where; n- is the desired sample size

N- is the Target population

e -is the standard error

With an error margin of 5%, the estimated size of the sample became

$n = 215/[(1 + 228(0.05)^2]$ = 140 = (0.2 × 140) =28+140=168

This corresponds to 168 responders, and according to Lavrakas (2018), there is a 20% non-response rate. The following selection was made after the sample distribution took the following formulas into account:

$$\frac{ni}{N} \times n$$

Where ni=Stratum size

N =Population total size

n=Strata sample size

Table 3. 2: Sample Size

County	Categories of Respondents	Total
Bungoma	Supply Chain officers	23
	Procurement officers	9
	Finance officers	9
Kakamega	Supply Chain officers	27
	Procurement officers	9
	Finance officers	12
Busia	Supply Chain officers	20
	Procurement officers	9
	Finance officers	9
Vihiga	Supply Chain officers	23
	Procurement officers	9
	Finance officers	10
Total		**168**

Source: Compilation from County Human Resource Registry Departments, (2024)

3.6 Data collection instruments

Given that primary and secondary data are usually complementary, the study utilized both forms of information. Primarily quantitative data regarding the relationship between procurement function performance and SCM techniques was collected through questionnaires (Appendix 1). A questionnaire is the best way to collect data because it gives the researcher enough time to get answers from all the people who fill it out. In addition, Ololube and Kpolovie (2022) notes that it's ideal for getting replies from people who might be too embarrassed to give them in person. The researcher handed out the questionnaire and interview plan to the different respondents with the help of trained research assistants.

All constructs were rated on a five-point Likert-type scale from 1 (Strongly Agree) to 5 (Strongly Disagree), with 5 representing Strongly Agree, 4 representing Agree, 3 unclear, 2 representing Disagree, and 1 representing Strongly Disagree.

3.8 Data collection Procedure

This project involved six experienced research assistants. The research assistants were trained in the following areas: itinerary planning, data input inspection, data sorting and collation, and record administration. After respondents complete the surveys, the research assistants collected them later. The data gathering was monitored by the research assistant to ensure that all questions were addressed.

3.7 Pilot Study

A pilot study is a fundamental element that constitutes a robust research design. Indeed, conducting a preliminary study constituted a crucial initial phase in the realm of research. In contrast, a pilot study was characterized as a scaled-down assessment of the procedures and

methodologies that were implemented on a substantial sample size (Porter, 2018). For pilot assessing the questionnaire's validity and reliability, the researcher utilized a small, comparable group to the one used in the study. A pilot study was conducted at Trans Nzoia County on 17 stakeholders thus 10% of the sample (Kothari, 2014).

Pretesting the questionnaire is crucial for the following reasons: questions that are unclear or ambiguous was made clear to respondents as they interpreted them differently; respondent comments and suggestions were utilized to enhance the questionnaire; questions that are lacking clarity are made clear; and during the pilot study, researcher carefully reviewed the questionnaires to ensure that the analysis methods are appropriate. Fink and Kosekoff (2018) advise that during the pilot test, keep an eye out for responses that are not provided, multiple responses to the same question from respondents, and written remarks. These could be signs that the instrument is unreliable and requires adjustment. To verify its validity and reliability, the researcher retested the questionnaire, which took into account all of the suggestions made, on a comparable group (Allred & Ross-Devis, 2021). The researcher accepted the instrument as suitable for the research once it met the set conditions.

3.8 Validity and Reliability of the Research Instruments

This sub-section addressed both validity and reliability of the research instruments.

3.8.1 Validity

Face validity ensures that the respondents were only exposed to pertinent questions in the survey. This gave the researcher the ability to decide whether the objects warranted

additional investigation. The content validity of a survey tool which measures how well it addresses the issues under consideration was the basis for the researcher's decision.

A pilot study was conducted in Transnzoia County to enhance content validity, determine how respondents understood the questions, and determine any necessary follow-up adjustments. In order to properly evaluate the variables in this study, the measures were taken from the body of existing literature.By having experts with knowledge of the relevant constructs, as recommended by Diskiene, Galiniene, and Marinskas (2018), grade and rationally analyze the data, and then incorporating their suggestions into the final questionnaire, the study also improve the construct validity.

3.8.2 Reliability

The degree to which the same results are produced when using a research instrument on the same participants repeatedly is known as its reliability (Mugenda & Mugenda, 2023). Testing for reliability guarantees the consistency of the variables being tested (Kumar, 2017). The formula for Cronbach alpha values was utilized to determine the reliability of internal consistency. The current study adopted Gupta's (2024) suggestion and used Cronbach alpha coefficient with a minimum alpha value of 0.7. This study aimed to guarantee that the values generated by the data collection devices are reliable (constant) and correct (valid) throughout several uses. The SPSS Version 26 statistical tool was used to examine the pilot research data in order to determine the dependability of the instrument.

3.9 Data analysis

The descriptive and inferential analysis of the data was conducted using SPSS version 26. Descriptive statistics was employed by the researcher, encompassing measurements of

dispersion, and central tendency. The three forms of inferential analysis to be used in this study are multiple linear regression, simple linear regression, and Pearson correlation.

The Regression model used was as follows.

Multiple regression model

$$\mathbf{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \ldots\ldots\ldots\ldots ii)$$

Where:

Y = Procurement Function Performance (Dependent Variable)

α= constant

$\boldsymbol{\beta_1}$**-**$\boldsymbol{\beta_3}$= Coefficients

$\mathbf{X_1}$ = Supply chain Collaboration (Independent Variable)

$\mathbf{X_2}$ = Supply chain integration (Independent Variable)

$\mathbf{X_3}$ = Supply chain Risk management (Independent Variable)

$\mathbf{X_4}$ = Lean supply chain (Independent Variable)

$\boldsymbol{\varepsilon}$ = Error rate

3.10. Diagnostic Tests

Diagnostic investigations were carried out to check the basic assumptions of linear regression analysis and Pearson correlation. This included the Q-Q plot for normality,

the VIF for multicollinearity, the P-P plot for linearity, and the Breusch-Godfrey serial correlation LM test for homoscedasticity.

3.10.1 Multi-Collinearity

The connection between independent variables is denoted. Multicollinearity occurs when there is a substantial relationship between two independent variables. Multicollinearity is considered to be present when the correlation coefficient exceeds 0.8. Bryman and Cramer (2024) assert that due consideration must be given to the fusion of two variables that have a bivariate relationship of no less than 0.9. Multicollinearity poses a challenge in differentiating the individual effects of independent variables on the dependent variable, as it causes standard errors for each independent variable to be inflated (Yoo *et al*. 2024). By eliminating one or more associated predictor variables from the regression model, multicollinearity may be diminished (Cai, Wu, Xu, & Zeng, 2017). An evaluation of multicollinearity was conducted by examining the VIF and tolerance values acquired using SPSS.

3.10.2 Normality

For the most part, parametric tests should satisfy the assumption of normality. Garson (2022) defines "normality" as a normal distribution (or bell-shaped) with a mean of zero, a standard deviation of one, and a symmetrical bell-like curve. The Q-Q plots were used to assess the validity of the assumption of normality. The residuals should exhibit a normal distribution based on the predicted dependent variable values in order to pass the proposed normality test.

3.10.3 Linearity

A linear correlation is expected between the independent and dependent variables in a linear regression. Finding outliers was essential because of the potential impact of the outlier effect

on linear regression. The linear assumption was assessed using P-P plots (Chatterjee & Hadi, 2015).

3.10.4 Homoscedasticity

This assumption is necessary for the linear regression models. Homoscedasticity offers an explanation for an error term that is constant across all independent variable values. However, heteroscedasticity is more likely to occur when the error term size changes across all independent variable values. The ramifications of violating this assumption increase with the severity of the violation and worsen with increasing heteroscedasticity (Gelfand, 2015). The assumption was confirmed by means of the Breusch-Godfrey LM test.

3.11 Ethical Considerations

The study was carried out in accordance with established ethics, which are very important, especially when working with humans. Professional standards were maintained throughout the duration of the study. Throughout the investigation, each participant in the study was treated with respect and privacy. The study would ensure that all sources used to get private information was safeguarded and kept secret. The subjects gave the researcher their consent before any data was collected. The researcher received research approval from the MMUST Directorate of Post Graduates and a study authorization from NACOSTI. The researcher sought permission from other pertinent individuals, authorities, and committees. The researcher guaranteed that the research adheres to the ethical guidelines of the participants and promotes the safeguarding of intellectual property rights by referencing multiple sources of information provided by the writers. Academic dishonesty in the form of falsification, deceit, misleading authorship, and improper data collection methods was avoided at all costs.

CHAPTER FOUR

RESEARCH RESULTS AND DISCUSSIONS

4.1 Introduction

Data was compiled from supply chain, procurement, and finance officers in the four counties Kakamega, Busia, Bungoma, and Vihiga. The impact of supply chain management techniques on county governments' procurement performance was ascertained by the study. Particular goals: to determine how supplier risk management, supply chain integration, collaboration practices, and lean supply management affect county governments' procurement performance. The 114 (67.9%) study response rate was considered appropriate. A 60% response rate is considered adequate for a social science study, according to Mugenda & Mugenda (2018).

4.2 Pilot Results

A total of 17 members from Trans Nzoia County comprising of supply chain officers, procurement officers and finance officers were involved in the pilot study. The response rate during the pilot was 100%.

Table 4.1: Reliability Test

Variable	Cronbach alpha
Supply Chain Collaboration Practices	0.834
Supply chain integration	0.831
Supplier Risk Management Practices	0.727
Lean Supply Management	0.752
Procurement performance	0.721

Source: Author (2024)

Reliability of the test questionnaire was undertaken as shown in the table 4.1. Values ranged between 0.721 to 0.834 hence values were 0.7 and above satisfying cronbach alpha statistical requirement of at least 0.7 values as shown under table 4.1.

4.3 Validity Test

Table 4.2: Validity Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.695
Bartlett's Test of Sphericity	Approx. Chi-Square	289.204
	df	10
	Sig.	.000

Communalities		
	Initial	**Extraction**
There is punctual shipment of goods and services	1.000	.668
In general, user departments are pleased with the items and services acquired	1.000	.763
The County Governments acquires goods and services at the current market price	1.000	.701
The appropriate quantity of items is acquired	1.000	.422
The County Governments acquires high-quality goods and services.	1.000	.612
Extraction Method: Principal Component Analysis.		

Component Matrix[a]	
	Component 1
There is punctual shipment of goods and services	.818
In general, user departments are pleased with the items and services acquired	.873
The County Governments acquires goods and services at the current market price	.837
The appropriate quantity of items is acquired	.650
The County Governments acquires high-quality goods and services.	.782
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Source: Author (2024)

The Kaiser-Meyer-Olkin (KMO) results, which assess sample adequacy and factor analysis appropriateness, are shown in Table 4.2. Factor analysis should be used when the KMO range is between 0.5 and 1.0 (Tanasa, Horomnea, & Ungureanu, 2022). For this study, the KMO value of 0.695 indicated that factor analysis was suitable. Taking into account the Bartlett's test of sphericity, the chi-square value was 289.204 with a p value of.000, indicating a substantial correlation between the study's items, independent factors, and dependent variables.

Test items with factor loadings higher than 0.4 were deemed superior for this thesis. These elements were kept for additional examination. According to Tabachnick and Fidell (2017), variables with factor loadings greater than 0.40 should be kept for additional study, whereas those with factor loadings less than 0.4 should be eliminated. All five constructs of procurement performance were approved for analysis.

4.4 Background Information

Table 4.3: Level of Education

Education	Frequency	Percent
Certificate level	4	3.5
Diploma level	29	25.5
Bachelor's degree level	73	64.0
Masters level	8	7.0
Total	114	100.0

Source: Author (2024)

The Table 4.3 above established that graduates constituted of 64%, diploma holders were 25.5%, those with masters 7% and certificate at 3.5%. The level of education of respondents was adequate to enable internalize Supply Chain Collaboration Practices, Supply chain integration, Supplier Risk Management Practices and Lean Supply Management attributes towards procurement performance. Education equips staff with the analytical, technical, and managerial skills required to understand and effectively apply supply chain practices responses.

Table 4.4: Working Experience

Experience in Years	Frequency	Percent
Less than 1 year	6	5.3
1-5 years	14	12.3
5-10 years	94	82.4
Total	**114**	**100.0**

Source: Author (2024)

Table 4.4 established the working experience of respondents where those with an experience of less than 1 year were 5.3%, 1-5 years 12.3 years as 5-10 years experience had the majority at 82.4%. The level of experience of most employees was adequate to enable tell supply chain management practices against procurement performance.

4.5 Descriptive Analysis

Descriptive analysis was aided by frequency, percentage, mean and standard deviations. This was presented in the following sub sections.

4.5.1 Supply Chain Collaboration Practices

The purpose of the study was to evaluate how supply chain collaboration methods affected the procurement performance of the Western Region of Kenya's county administrations. SA stands for firmly disagree, D for disagree, FA for fairly agree, A for agree, and SA for strongly agree.

Table 4.5 Supply Chain Collaboration Practices and Procurement performance

Supply Chain Collaboration	SA	A	FA	D	SD	Mean	Std
The company involves all stakeholders in joint planning and forecasting	86(75.4%)	20(17.5%)	0 (0%)	6(5.3%)	2(1.8%)	4.18	1.94
The company sets mutual goals with suppliers	86 (75.4%)	26(22.8)	0(0%)	2(1.8%)	0(0%)	3.91	1.89
There is clear coordination of company activities	76(68.4%)	36(31.6%)	0(0%)	0(0%)	0(0%)	4.17	1.90
The company shares resources	86(75.4%)	26(22.8%)	2(1.8%)	0(0%)	0(0%)	4.13	1.83

with other companies	

Source: Author (2024)

Table 4.4 above on whether supply chain collaboration affects procurement performance. Most respondents strongly agreed that the company involves all stakeholders in joint planning and forecasting 75.4% strongly agreed, 17.5% agreed, 5.3% disagreed and 1.8% strongly disagreed as none was for fairly agree.

On whether the company sets mutual goals with suppliers 75.4% strongly agreed, 22.8% agreed as 1.8% disagreed and none was fairly agree or strongly disagreed. On whether there is clear coordination of company activities 68.4% strongly agreed, 31.6% agreed and none was fairly agree, disagreed and strongly disagreed. On whether the company shares resources with other companies 75.4% strongly agreed, 22.8% agreed, 1.8% were fairly agree, none took a disagreement decision. Generally all the standard deviation values were above 1.0 an implication that all supply chain collaboration approaches contributed to procurement performance in the county government

4.5.2 Supply Chain Integration and Procurement performance

The purpose of the study was to determine whether supply chain integration has an impact on the procurement performance of the Western Region of Kenya's county administrations. Table 4.6 displays this information.

Table 4.6 Supply Chain Integration

Supply Chain Integration	SA	A	FA	D	SD	Mean	Std
There is integration of activities within the company	88(77.2%)	26(22.8%)	0(0%)	0(0%)	0(0%)	4.27	1.85
Strategic alliances with suppliers have been built by the firm	44(38.6%)	34(29.8%)	18(15.8%)	4(3.5%)	14(12.3%)	3.68	1.94
The company provides information to suppliers	80(70.2%)	32(28.0%)	2(1.8%)	0(0%)	0(0%)	3.95	0.97
Information exchange through information system integration with suppliers have been established	92(80.7%)	20(17.5%)	0(0%)	0(0%)	2(1.8%)	3.93	1.02

Source: Author (2024)

Table 4.5 above on whether supply chain integration affects procurement performance. Regarding whether there is integration of activities within the company 77.2% strongly agreed, 22.8% agreed, none disagreed, strongly disagreed or was fairly agree. On whether strategic alliances with suppliers have been built by the county leadership 38.6% strongly agreed, 29.8% agreed 15.8% were fairly agree, 3.5% disagreed and 12.3% strongly

disagreed. On whether counties provides information to suppliers 70.2% strongly agreed, 28.0% agreed, 1.8% were for fairly agree while none disagreed and none strongly disagreed. On whether counties information exchange through information system integration with suppliers have been established 80.7% strongly agreed, 17.5% agreed, 1.8% strongly disagreed while none was fairly agree and none disagreed. Basically most responses implies agreement though a standard deviation of 0.97 for supplier information shows a disagreement to imply counties information on suppliers was scanty.

4.5.3 Supplier Risk Management Practices and Procurement performance

The impact of supply chain risk management procedures on procurement in Kenya's Western Region's county governments was examined in this study. Results are shown in Table 4.7.

Table 4.7 Supplier Risk Management Practices

Supplier Risk Management Practices	SA	A	FA	D	SD	Mean	Std
The firm identifies potential risks within the supply chain	54(47.4%)	38(33.3%)	12(10.5%)	8(7.0%)	2(1.8%)	3.73	1.79
The company assesses the level of supply chain risk	50(43.9%)	52(45.6%)	8(7.0%)	4(3.5%)	0(0%)	4.00	1.93
The firm conducts training sessions with our vendors	44(38.6%)	54(47.4%)	16(14.0%)	0(0%)	0(0%)	3.93	1.72
The hospital conducts risk management workshops with our vendors	56(49.1%)	48(42.1%)	10(8.8%)	0(0%)	0(0%)	4.07	1.78
Dual sourcing is preferred in company in order to balance risks	44(38.8%)	42(36.8%)	22(19.3%)	4(3.5%)	2(1.8%)	4.18	1.83

Source: Author (2024)

Table 4.7 above on whether supplier risk management practices affect procurement performance. Most respondents strongly agreed that supplier risk management practices

affect procurement performance. For instance, on whether counties identifies potential risks within the supply chain, 47.4% strongly agreed, 33.3% agreed, 10.5% fairly agree, 7.0%) disagreed 1.8%) strongly disagreed. On whether counties assesses the level of supply chain risk 43.9% agreed, 45.6% agreed 7.0% were fairly agree, 3.5% disagreed and none strongly disagreed.

On whether counties conducts training sessions with our vendors 38.6% strongly agreed, 47.4% agreed, 14.0% fairly agree none disagreed or strongly disagreed. On whether counties conducted risk management workshops with their vendors 49.1% strongly agreed, 42.1% agreed, 8.8% were fairly agree none disagreed or strongly disagreed. On whether counties had a dual sourcing preferred in order to balance risks 38.8% strongly agreed, 36.8% agreed, 19.3% fairly agree 3.5% disagreed while 1.8% strongly disagreed. Cumulatively standard deviation values for all statements being above 1.0 indicate that the county leadership embraced supplier risk management practices.

4.5.4 Lean Supply Management and Procurement performance

The study determined if procurement performance in Kenya's Western Region's county governments was impacted by lean supply chain methods. Table 4.8 provides this information.

Table 4.8 Lean Supply Management

Lean Supply Management	SA	A	FA	D	SD	Mean	Std
The firm has standardizes and reduced quantity of goods, works services to avoid wastage	36(31.6%)	46(40.4%)	14(12.3%)	4(3.4%)	14(12.3%)	4.00	1.72
The firm always ensures quality is maintained when procuring goods, works and services	54(47.4%)	54(47.4%)	4(3.4%)	0(0%)	2(1.8%)	4.09	1.83
The firm orders minimum quantity of required services or works where the quantities are not determined at the beginning	26(22.8%)	30(26.2%)	24(21.1%)	10(8.8%)	24(21.1%)	3.80	1.71
Pull system procurement is used by the company (only when there is anticipation of use)	38(33.3%)	52(45.6%)	10(8.8%)	14(12.3%)	0(0%)	3.96	1.79
The company provides vendors with feedback on quantity and delivery	82(71.9%)	32(28.1%)	0(0%)	0(0%)	0(0%)	3.84	1.923

Source: Author (2024)

The impact of lean supply management on procurement performance is discussed in Table 4.8 above. Thirty-six percent very agreed, forty-four percent agreed, twelve percent reasonably agreed, and three percent disagreed, with twelve percent strongly disagreeing, regarding whether the company has standardised and decreased the quantity of goods and works services to prevent waste.

Regarding whether counties always guarantee that quality is upheld when acquiring goods, labour, and services 47.4% agreed and 47.4% strongly agreed. 1.8% strongly disagreed, 3.4% agreed, and none disagreed. 22.8 percent very agreed, 26.2 percent agreed, 21.1% reasonably agreed, 8.8 percent disagreed, and 21.1% strongly disagreed with the statement that counties should order a minimum number of necessary services or work when the quantities are not known in advance.

Regarding whether county pull system procurement was utilised by businesses only when use was anticipated 45.6% agreed, 33.3% strongly agreed, 8.8% agreed, 12.3% disagreed, and none strongly disagreed. Lastly, 28.1% of respondents agreed that the organisation gives vendors input on quantity and delivery, with 71.9% strongly agreeing. Additionally, the fact that all of the assertions' standard deviation values were greater than 1.0 suggests that the county government applied lean supply management.

4.5.5 Procurement performance

The study provided five statements that examined procurement performance in the county governments of Western Region, Kenya. This is provided in table 4.9

Table 4.9 Procurement performance

Procurement performance	SA	A	FA	D	SD	Mean	Std
There is punctual shipment of goods and services	80(70.2%)	34(29.8%)	0(0%)	0(0%)	0(0%)	3.77	1.85
In general, user departments are pleased with the items and services acquired	70(61.4%)	44(38.6%)	0(0%)	0(0%)	0(0%)	3.78	1.86
The County Government acquires goods and services at the current market price	86(75.4%)	28(24.6%)	0(0%)	0(0%)	0(0%)	4.21	1.02
The appropriate quantity of items is acquired	76(66.7%)	36(31.6%)	2(1.8%)	0(0%)	0(0%)	3.80	1.69
The County Government acquires high-quality goods and services	76(68.4%)	32(28.1%)	0(0%)	0(0%)	0(0%)	3.79	0.99

Source: Author (2024)

Table 4.9 above on whether procurement performance was realized in the county governments of Western Region, Kenya. Whether there is punctual shipment of goods and services 70.2% strongly agreed, 29.8% agreed, 12.3% none was fairly agree, disagreed or strongly disagreed.

On whether in general, user departments are pleased with the items and services acquired 61.4% strongly agreed and 38.6% agreed none strongly disagreed, disagreed and fairly agree. On whether county government acquires goods and services at the current market price 75.4% strongly agreed, 24.6% agreed and none was fairly agree, disagreed or strongly disagreed. Lastly regarding whether the county government acquires high-quality goods and services 66.7% strongly agreed, 31.6% agreed, 1.8% fairly agree and none disagreed or strongly disagreed. The study hence established that procurement performance was

noticeable through the majority agreed note based on mean values and standard deviation values.

4.6 Pearson Correlation Analysis

The findings of the Pearson correlation analysis, which determines if a relationship between two continuous or ratio/scale variables is positive or negative and whose strength varies from -1 to +1, are displayed in Table 4.10.

Table 4.10: Pearson Correlation Matrix

		Supply Chain Collaboration Practices	Supply chain integration	Supplier Risk Management Practices	Lean Supply Management	Procurement performance
Supply Chain Collaboration Practices	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	114				
Supply chain integration	Pearson Correlation	.763**	1			
	Sig. (2-tailed)	.000				
	N	114	114			
Supplier Risk Management Practices	Pearson Correlation	.354**	.236*	1		
	Sig. (2-tailed)	.000	.014			
	N	114	114	114		
Lean Supply Management	Pearson Correlation	.337**	.324**	.573**	1	
	Sig. (2-tailed)	.000	.001	.000		
	N	114	114	114	114	
Procurement performance	Pearson Correlation	.678**	.570**	.687**	.416**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	114	114	114	114	114

Source: Author (2024)

Supply chain collaboration practices are positively connected with performance, as shown by the correlation table 4.10; the coefficient is 0.678* (p value 0.00<0.05), which is significant at the 95% confidence level. Therefore, procurement performance would rise as supply chain collaboration techniques increased. These results are consistent with those of Barasa, Simiyu, and Iravo (2015), who discovered that supply chain collaboration methods significantly impacted the success of Kenyan steel producers. It also concurs with Mahulo (2015), who found a nearly perfect association between the organisational success of Kenyan cement companies and supply chain collaboration techniques.

Similarly, a correlation coefficient of 0.416* (p value 0.00<0.05) suggested that the procurement performance of Kenya's Western Region's county governments and supply chain integration are significantly positively correlated. The study supports the findings of Okello and Were (2024), who discovered that supply chain integration has a major influence on business performance and technologies.

The Western Region of Kenya's county governments' procurement performance and supplier risk management procedures were shown to be significantly positively correlated, with a correlation coefficient of 0.687* (p value 0.00<0.05). This suggests that improving supplier risk management procedures would lead to a notable improvement in procurement efficiency. It concurs with a survey conducted by Mburu (2017) on Kenyan manufacturers to evaluate the efficiency and risk-reduction tactics of their supply networks.

Finally, a correlation coefficient of 0.416* (p value 0.00<0.05) suggested that the procurement performance of Kenya's Western Region county governments and lean supply management are significantly positively correlated. Similarly, Mwangangi and Achuora

(2019) found a statistically significant positive association between organisational performance and lean supply chain.

4.7 Assumptions of Linear Regression

The assumptions of linear regression discussed are multi-collinearity test, normality, linearity tests

4.7.1 Multi-collinearity Test

When two or more independent variables have a strong correlation, this is known as multi-collinearity. In order to articulate multi-collinearity, the study used the variance inflation factor and tolerance value.

Table 4.11 Multi-collinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
Supply Chain Collaboration Practices	.231	4.326
Supply chain integration	.243	4.116
Supplier Risk Management Practices	.613	1.630
Lean Supply Management	.632	1.582

a. Dependent Variable: Procurement performance

Source: Author (2024)

Table 4.11 above shows test undertaken and since VIF values were <10 as tolerance <1 implying non multi-collinearity problem (Lind, Marchal & Wathen, 2018). For instance on Supply Chain Collaboration Practices 4.326<10; 0.231<1, Supply chain integration

4.116<10; 0.243<1, supplier risk management practices 1.630<10; 0.613<1 and lean supply management 1.582<10; 0.632<1

4.7.2 Normality test

The assumption of normalcy's validity was evaluated using Q-Q plots (Garson, 2022). Since Appendix IV displays the normal Q-Q plot of the variables, the residuals showed a normal distribution based on the expected values of the dependent variables. The deviation from normality was minimal compared to the approximation to the line of fit. The data could therefore be used in a regression analysis because it was close to a normal distribution.

4.7.3 Linearity

In a linear regression, the independent and dependent variables should have a linear association. P-P plots were used to evaluate the linear assumption (Chatterjee & Hadi, 2015). The normal P-P plots for the variables are displayed in Appendix V of the study; there was little deviation from the line of fit approximation. Regression analysis was therefore possible because the data had a linear distribution.

4.8 Linear Regression Analyses

To ascertain the impact of independent variables on the dependent variable, regression analysis was performed. R, the coefficient of correlation, and R square, the coefficient of determination, were the results of this analysis. B coefficients, F statistics, and the significance level (P-value) were further noteworthy findings. The hypothesis was tested using the correlation r (Beta, β).

4.8.1 Effect of Supply Chain Collaboration Practices on Procurement Performance

To determine the impact of supply chain collaboration methods on the procurement performance of Kenya's Western region's county governments, regression analysis was conducted. The findings were displayed in Table 4.12.

Table 4.12 Effect of Supply Chain Collaboration Practices on Procurement Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.678[a]	.460	.455	.59444	.460	90.288	1	112	.000

a. Predictors: (Constant), Supply Chain Collaboration Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.904	1	31.904	90.288	.000[b]
	Residual	37.456	112	.353		
	Total	69.360	113			

a. Dependent Variable: Procurement performance

b. Predictors: (Constant), Supply Chain Collaboration Practices

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.898	.470		-1.911	.059
	Supply Chain Collaboration Practices	1.246	.131	.678	9.502	.000

a. Dependent Variable: Procurement performance

Source: Author (2024)

According to Table 4.12's R square, or coefficient of determination, supply chain collaboration practices significantly account for up to 46% of the variation in procurement

performance (R2=0.460, P=0.000; P<0.05). This suggests that procurement performance is significantly impacted by supply chain collaboration strategies.

As shown in Table 4.12, the model's goodness of fit in describing the variation in the dependent variable is supported by the F test result of 90.288. Additionally, it implies that procurement success can be accurately predicted by supply chain collaboration strategies.

According to Table 4.12, supply chain collaboration practices had an unstandardised regression coefficient (β) of 1.246 and a significant level of p<.05. This showed that procurement performance will change by 1.246 in the same direction for every unit change in supply chain collaboration practices. Therefore, the following is the regression equation used to assess the procurement performance as a result of supply chain collaboration practices:

Performance in procurement = -0.898+1.246 Collaboration strategies in the supply chain

The findings clearly show that supply chain collaboration techniques significantly improve the procurement performance of Kenya's Western region's county administrations. The study concurs with Dotun (2017), who examined supply chain collaboration patterns in 171 businesses chosen from China, India, and Brazil—three rapidly developing countries. The study discovered a strong positive correlation between procurement performance and supply chain collaboration strategies. It goes hand in hand with Obermeyer (2018), who asserts that supply chain collaboration techniques have a substantial impact on consumer performance. The study differed with Westbrook and Frohlich (2018), who pointed out that procurement success is not always a direct result of supply chain collaboration between businesses.

4.8.2 Effect of Supply Chain Integration on Procurement Performance

To determine the impact of supply chain collaboration methods on the procurement performance of Kenya's Western region's county governments, regression analysis was conducted. Table 4.13 displayed the results.

Table 4.13 Effect of Supply Chain Integration on Procurement Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.570[a]	.324	.318	.66489	.324	50.897	1	112	.000

a. Predictors: (Constant), Supply chain integration

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.500	1	22.500	50.897	.000[b]
	Residual	46.860	112	.442		
	Total	69.360	113			

a. Dependent Variable: Procurement performance

b. Predictors: (Constant), Supply chain integration

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.345	.451		.765	.446
	Supply chain integration	.908	.127	.570	7.134	.000

a. Dependent Variable: Procurement performance

Source: Author (2024)

According to Table 4.13's R square, or coefficient of determination, supply chain integration accounts for up to 32.4% of the variation in procurement performance (R2=0.324, P=0.000; P<0.05). This suggests that procurement performance is significantly impacted by supply chain integration.

The model's goodness of fit in describing the variation in the dependent variable, as shown in Table 4.13, is supported by the F test result of 50.897. Additionally, it indicates that procurement performance can be accurately predicted by supply chain integration.

According to Table 4.13, supply chain integration's unstandardised regression coefficient (β) value was 0.908 with a significance level of $p<.05$. This showed that procurement performance would change by 0.908 in the same direction for every unit change in supply chain integration. Therefore, the following is the regression equation used to assess the procurement performance as a result of supply chain integration:

Supply chain integration = 0.345 + 0.908 equals procurement performance

The findings clearly show that supply chain integration significantly improves the procurement performance of Kenya's Western region's county administrations. The results support those of Qi, Huo, Wang, and Yeung (2017), who discovered that supply chain integration had a major impact on companies. It conflicts with Cheruiyot (2023), who disentangled the connection between manufacturing businesses' procurement effectiveness and supply chain integration.

4.8.3 Effect of Supplier Risk Management Practices on Procurement Performance

To determine the impact of supplier risk management procedures on the procurement performance of Kenya's Western region's county governments, regression analysis was conducted. Table 4.14 displayed the results.

Table 4.14 Effect of Supplier Risk Management Practices on Procurement Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.687[a]	.472	.467	.58785	.472	94.714	1	112	.000

a. Predictors: (Constant), Supplier Risk Management Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.730	1	32.730	94.714	.000[b]
	Residual	36.630	112	.346		
	Total	69.360	113			

a. Dependent Variable: Procurement performance

b. Predictors: (Constant), Supplier Risk Management Practices

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.752	.291		2.580	.011
	Supplier Risk Management Practices	.802	.082	.687	9.732	.000

a. Dependent Variable: Procurement performance

Source: Author (2024)

According to Table 4.14's R square, or coefficient of determination, supplier risk management procedures significantly explain for up to 46.7% of the variation in procurement performance (R2=0.467, P=0.000; P<0.05). This suggests that the procurement performance is significantly impacted by supplier risk management techniques.

The model's goodness of fit in describing the variation in the dependent variable, as shown in Table 4.14, is supported by the F test result of 94.714. Additionally, it indicates that procurement performance can be accurately predicted by supplier risk management strategies.

According to Table 4.14, supply chain integration's unstandardised regression coefficient (β) value was 0.802 with a significance level of p<.05. This showed that procurement performance will change by 0.802 in the same direction for every unit change in supplier risk management procedures. Therefore, the following is the regression equation used to assess the procurement performance as a result of supplier risk management practices:

Procurement effectiveness = 0.752 + 0.802 supplier risk control procedures

The findings clearly show that supplier risk management techniques significantly improve the procurement performance of Kenya's Western region's county governments. The study supports the findings of Javaid and Siddiqui (2018), who discovered that supply chain risk management techniques had a major impact on Pakistani companies' supply chain performance. It also concurs with Yawar and Seuring (2017), who report that supply chain performance is significantly impacted by supply chain risk management techniques. It is at odds with Okonjo et al. (2016), who looked into the connection between Kenyan mobile phone service providers' performance and supply chain risk management techniques.

4.8.5 Effect of Lean Supply Management on Procurement Performance

To determine the impact of lean supply management on the procurement performance of Kenya's Western region's county governments, regression analysis was conducted. Table 4.15 displayed the results.

Table 4.15 Effect of Lean Supply Management on Procurement Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.416[a]	.173	.165	.73556	.173	22.194	1	112	.000

a. Predictors: (Constant), Lean Supply Management

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.008	1	12.008	22.194	.000[b]
	Residual	57.352	112	.541		
	Total	69.360	113			

a. Dependent Variable: Procurement performance

b. Predictors: (Constant), Lean Supply Management

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.142	.513		2.228	.028
	Lean Supply Management	.658	.140	.416	4.711	.000

a. Dependent Variable: Procurement performance

Source: Author (2024)

Lean supply management accounts for up to 16.5% of the variation in procurement performance, according to Table 4.15's R square, or coefficient of determination (R2=0.165, P=0.000; P<0.05). This suggests that procurement performance is significantly impacted by lean supply management.

The model's goodness of fit in describing the variation in the dependent variable, as shown in Table 4.15, is supported by the F test result of 22.194. Additionally, it indicates that procurement performance may be accurately predicted by lean supply management.

According to Table 4.15, lean supply management's unstandardised regression coefficient (β) value was 0.658 with a significance level of p<.05. This showed that procurement performance would shift by 0.658 in the same direction for every unit change in lean supply management. Therefore, procurement performance = 1.142+0.658 lean supply management was the regression equation used to determine the procurement performance as a result of lean supply management.

The findings clearly show that lean supply management significantly improves the procurement performance of Kenya's Western region's county administrations.The study is in agreement with Omwoyo, Wanyoike, and Mbeche (2019) who found that lean procurement strategies affect the ability of manufacturing companies significantly. This is further agreed on by Thuranira (2016) who validated the findings by studying the effects of lean SCM components on Kenyan tea plant efficiency where Lean supply chain practices had significant effect on tea plant efficiency. The study deviates from Nyagechanga (2017) found that procurement risk management solutions might not affect the success of a company's supply chain.

4.8.6 Multiple Regression Analysis

To determine the cumulative impact of supply chain management methods on the procurement performance of Kenya's Western region's county governments, multiple regression analysis was conducted. Table 4.16 displayed the results.

Table 4.16 Multiple Regression Analysis

Model Summary

Model	R	R Square	Adjusted P. Square	F	Change 56.345	Change Cmange	Sig F
1 a	.733	.594	.542	40408	.56.345	.000	.000

a.. Predictors, (Constant), Lean Supply Management, Suppply chain integration, Supplier Risk Management Practices, Supply Chain Collaboration Practices

ANOVA[3]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.122	4	12.050	56.345	.000
	Residual	21.238	109			
	Total	69.380	113			

a. Dependent Variable: Procurement performance

b. Predictors; (Constant), Lean Supply Management spplvain integration, Suppller Risk Management Practices, Supply Chain Collaboration Pactces

Coefficients[3]

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Sig.
1 (Constant)	1.587	0.414			3.334	4.43	.000
Supply Chain	.773	0.208	4.32	0.21	1.321	1.521	.000
Collaboratio Practicee	.683	0.081	8.03	0.00	8.088	0.000	
Supplier Risk Managem	.224	0.081	2.79	3.10	2.748	1.940	.020
Lean Supply Management	224	0.081	2.79	1.40	1.348	0.020	.020

Source: Author (2024)

According to Table 4.16's R square, or coefficient of determination, supply chain management practices—including supply chain collaboration, supply chain integration, supplier risk management, and lean supply management—significantly account for up to 59.4% of the variation in procurement performance (R2=0.594, P=0.000; P<0.05). This suggests that the procurement performance is significantly impacted by supply chain management strategies, including lean supply management, supplier risk management, supply chain integration, and supply chain collaboration.

The model's goodness of fit in describing the variation in the dependent variable, as shown in Table 4.16, is supported by the F test result of 58.345. It also implies that procurement performance can be accurately predicted by supply chain management techniques.

The unstandardised regression coefficient (β) value of supply chain management practices varied (supply chain integration.259, supplier risk management practices, lean supply management.653, and supply chain collaboration practices.773), with a significance level of p<.05 for each variable, according to Table 4.16. This suggested that procurement performance might alter in response to a unit change in supply chain management procedures. Therefore, the following was the regression equation used to assess the procurement performance as a function of supply chain management practices: Performance in procurement = 1.587+0.773X1+0.259 X2+0.653 X3+0.224 X4.

The findings clearly show that supply chain management techniques significantly improve the procurement performance of Kenya's Western region's county administrations. The study supports Nyagechanga's (2017) findings that procurement performance was significantly

impacted by supply chain management strategies. The study's conclusions are comparable to those of Kamau and Kagiri (2015), who discovered that Safaricom's procurement competitiveness was significantly impacted by procurement management techniques. The findings contradict those of Omwoyo et al. (2019), who discovered that supply chain management tactics had no discernible effect on manufacturing organisations' ability to respond swiftly to supply chain changes in their procurement performance.

4.8.7 Hypothesis Interpretation

Based on the null hypothesis formulated the study arrived at the following conclusions. Results were presented in Table 4.17.

Table 4.17 Hypothesis Interpretation

Hypothesis	Findings	P Value (P<0.05)	Verdict
$H_{01:}$ Supply chain collaboration does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya	In the Western Region of Kenya, supply chain coordination significantly impacts county governments' procurement performance.	.000	Reject
$H_{02:}$ Supply chain integration does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.	The Western Region of Kenya's county governments' procurement performance is significantly impacted by supply chain integration.	.000	Reject
$H_{03:}$ Supply chain risk management does not significantly affect the performance of the procurement of county governments in the Western Region, Kenya.	The Western Region of Kenya's county governments' procurement performance is significantly impacted by supply chain risk management.	.000	Reject
$H_{03:}$ Lean supply chain does not significantly affect the performance of the procurement	The Western Region of Kenya's county governments' procurement performance is	.000	Reject

of county governments in the Western Region, Kenya.	significantly impacted by lean supply chains.

. **Source: Field Data (2024)**

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

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

5.2 Summary of the Findings

The purpose of this study was to ascertain how supply chain management techniques affected the procurement performance of the county governments in Kenya's Western Region. In order to do this, the study established four goals: to determine how procurement performance in the county governments of Kenya's Western Region is affected by supply chain collaboration, integration, risk management, and lean supply chain methods.

5.2.1 Supply chain collaboration practices

Regarding supply chain collaborations 75.4% of respondents strongly agreed, 22.8% agreed, 1.8% were fairly agreed that it supply chain collaborations contributed to procurement performance. The study found out that supply chain collaboration practices had a significant

effect on procurement performance in the county governments of Western Region, Kenya (R^2=0.460, P=0.000; P<0.05).

5.2.2 Supply Chain Integration practices

Regarding whether there is integration of activities within the company 77.2% strongly agreed, 22.8% agreed, none disagreed, strongly disagreed or was for fairly agree. The study findings supply chain integration had a significant effect on procurement performance in the county governments of Western Region, Kenya(R^2=0.324, P=0.000; P<0.05).

5.2.2 Supplier Risk Management Practices

Potential risks within the supply chain was a factor as 47.4% strongly agreed, 33.3% agreed, 10.5% fairly agree, 7.0%) disagreed 1.8%) strongly disagreed. The study found out that supply chain risk management practices had a significant effect on procurement performance in the county governments of Western Region, Kenya (R^2=0.467, P=0.000; P<0.05).

5.2.3 Lean Supply Management

Regarding lean supply management influence on procurement performance 31.6% strongly agreed, 40.4% agreed, 12.3% fairly agree, 3.4% disagreed as 12.3% strongly disagreed. The study found out that lean supply chain practices had a significant effect on procurement performance in the county governments of Western Region, Kenya (R^2=0.165, P=0.000; P<0.05).

5.3 Conclusion

According to the first goal, procurement success was significantly predicted by supply chain collaboration techniques. Practices for supply chain collaboration served as the foundation for cordial performance. Supply chain collaboration offers explicit coordination, resource sharing, shared goals with suppliers, and cooperative planning and forecasting.

Regarding the second goal, supply chain integration techniques significantly improved the western region's county governments' procurement performance. Internal, customer, external, and horizontal integration are all provided via supply chain integration.

According to the third goal, the procurement performance of western county governments was significantly impacted by supplier risk management procedures. Dual sourcing, risk assessment, and risk detection are all provided by supply chain risk management.

Lastly, the western region's county governments' procurement performance was significantly impacted by lean supply management. Zero inventories, waste reduction, and supply base rationalisation are made possible by lean supply management.

5.4 Recommendations

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

The study recommends that mutual goals with suppliers free from biasness should be adopted to ensure that collaborations between suppliers and companies exists. This would build trust and mutual existence.

The study recommends a customer centered initiatives in building integration approach. Customers should be part and parcel of procurement process to build a transparent procurement base.

The study recommends that county governments should avoid risky procurement practices. In this the county should abide by legal frameworks regarding procurement and even desist from engaging rogue procurement practices that would taint its image.

The county governments should avoid wastage in procurement and ensure all activities are accounted for. In this case zero inventory practices would be part of solutions to lean supply management

5.5 Suggestion for Further Research

Four county administrations in the Western area participated in this study. Similar studies can be conducted in other Kenyan counties or, more accurately, by the country's national government. Considering that only four supply chain management techniques were examined, they are varied. Future research can use other supply chain management techniques like inventory control and green purchasing. Moderating, intervening, or mediating variables, such organisational characteristics, might be started by other studies.

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Appendix I: Letter of Introduction

Dear Sir/Madam,

REF: Request for Research Data

I am a Postgraduate student pursuing a master of arts in Business Administration (Procurement and supply chain management Option, Reg. No. MBA/G/01-70630/2021 at Masinde Muliro University of Science and Technology. I am doing research on "Supply Chain Management practices and performance of procurement in county governments in Western region, Kenya". You have been, chosen to be a member of the group that will supply the essential information for this study. In light of this, I sincerely ask for your assistance in filling out the questionnaire and interview schedules those that are, attached. I want to reassure you that all the data we gather will be, handled in the strictest of confidence and used solely for this research. We really appreciate your cooperation and assistance.

Yours faithfully,

Collins Muhando Unguku

Tel : 0715467079

Appendix II: Questionnaire

Section A: Background Information

1. What is your highest Academic Level?

Certificate Level	( )
Diploma level	( )
Bachelor's degree level	( )
Masters level	( )
Doctorate level	( )

1. How many years worked in the current position

Less than one year	( )
1-5 years	( )
6-10 years	( )
More than 10 years	( )

SECTION B

SUPPLY CHAIN COLLABORATION PRACTICES ON PERFORMANCE OF PROCUREMENT FUNCTION

In the scale of 1-5, kindly indicate to what extent you agree with the statements on Supply Chain Collaboration influence Procurement performance.

Where; 1= Strongly disagree 2= Disagree 3-Fairly Agree 4= Agreed 5= Strongly agreed

No	Supply Chain Collaboration Practices	1	2	3	4	5
i.	The company involves all stakeholders in joint planning and forecasting					
ii.	The company sets mutual goals with suppliers					
iii.	There is clear coordination of company activities					
iv.	The company shares resources with other companies					

PART 2: SUPPLY CHAIN INTEGRATION ON PERFORMANCE OF PROCUREMENT FUNCTION

In the scale of 1-5, kindly indicate to what extent you agree with the statements on supplier selection influence Procurement performance

Where; 1= Strongly disagree 2= Disagree 3-Fairly Agree 4= Agreed 5= Strongly agreed

No	Supplier Selection	1	2	3	4	5
1.	There is integration of activities within the company					
2.	Strategic alliances with suppliers have been built by the firm					
3.	The company provides information to suppliers					
4.	Information exchange through information system integration with suppliers have been established					

PART 3: SUPPLY CHAIN RISK MANAGEMENT PRACTICES ON PERFORMANCE OF PROCUREMENT FUNCTION

In the scale of 1-5, kindly indicate to what extent you agree with the statements on Supply risk management influence Procurement performance. Use the ratings criteria below.

Where; 1= Strongly disagreed 2= Disagreed 3-Partially Agree 4= Agreed 5= Strongly agreed

No	Supplier Risk Management Practices	1	2	3	4	5

i.	The firm identifies potential risks within the supply chain.					
ii.	The company assesses the level of supply chain risk.					
iii.	The firm conducts training sessions with our vendors.					
iv.	The hospital conducts risk management workshops with our vendors.					
v.	Dual sourcing is preferred in company in order to balance risks.					

PART 4: LEAN SUPPLY MANAGEMENT PRACTICES ON THE PERFORMANCE OF PROCUREMENT FUNCTION

In the scale of 1-5, kindly indicate to what extent you agree with the statements on Lean Supply Management influence Procurement performance

Where; 1= Strongly disagree 2= Disagreed3-Fairly Agree 4= Agreed 5= Strongly agreed

No	Lean Supply Management	1	2	3	4	5
i.	The firm has standardizes and reduced quantiy of goods,works services to avoid wastage					
ii.	The firm always ensures quality is maintained when procuring goods,works and services					
iii.	The firm orders minimum quantity of required services or works where the quantities are not determined at the beginning					
iv.	Pull system procurement is used by the company (only when there is anticipation of use)					
v.	The company provides vendors with feedback on quantity and delivery					

Section C: Procurement Performance.

2. In the scale of 1-5, kindly indicate to what extent you agree with the following statement on Procurement performance

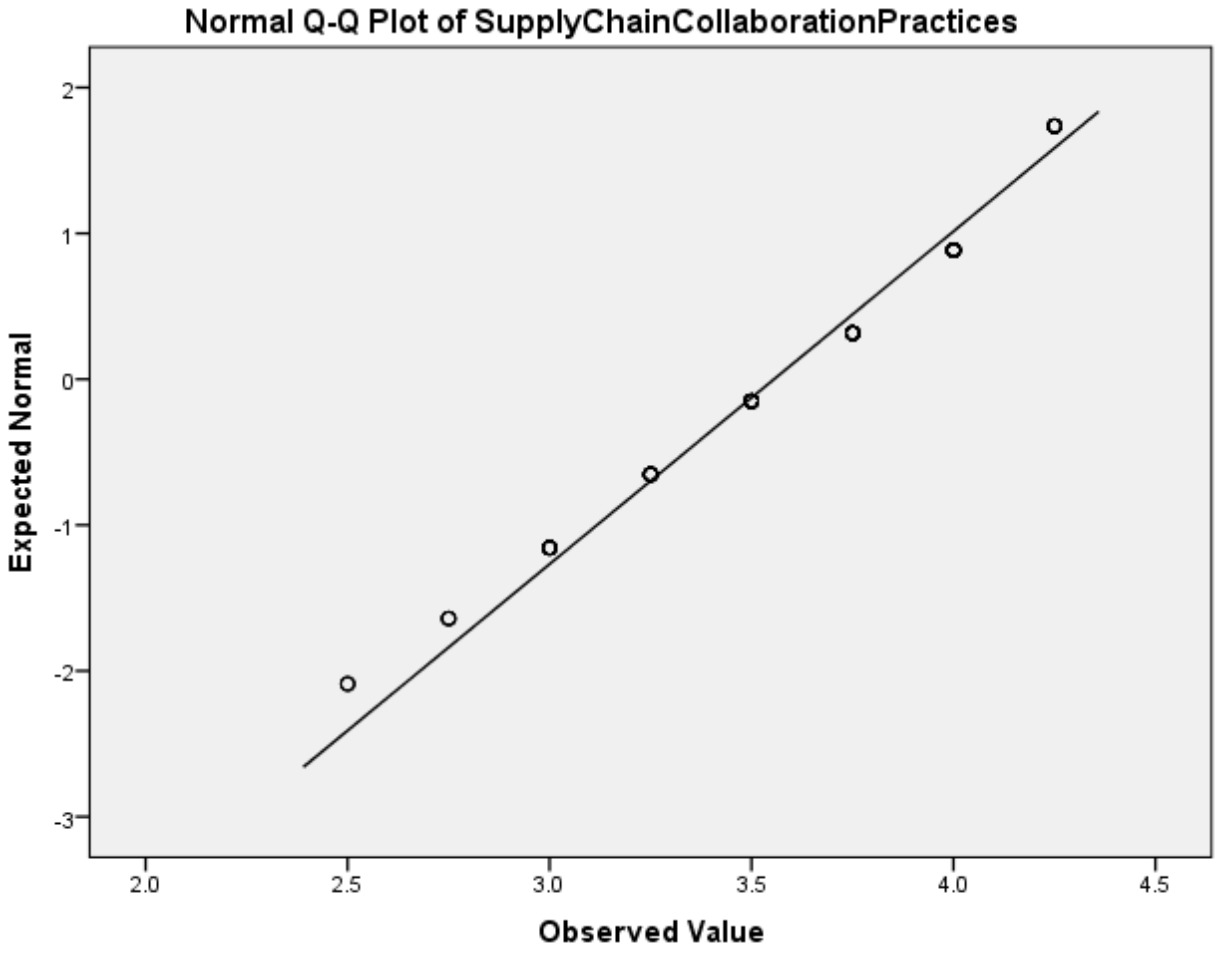
Where; 1= Strongly disagreed 2= Disagreed 3-Partially Agree 4= Agreed 5= Strongly agreed

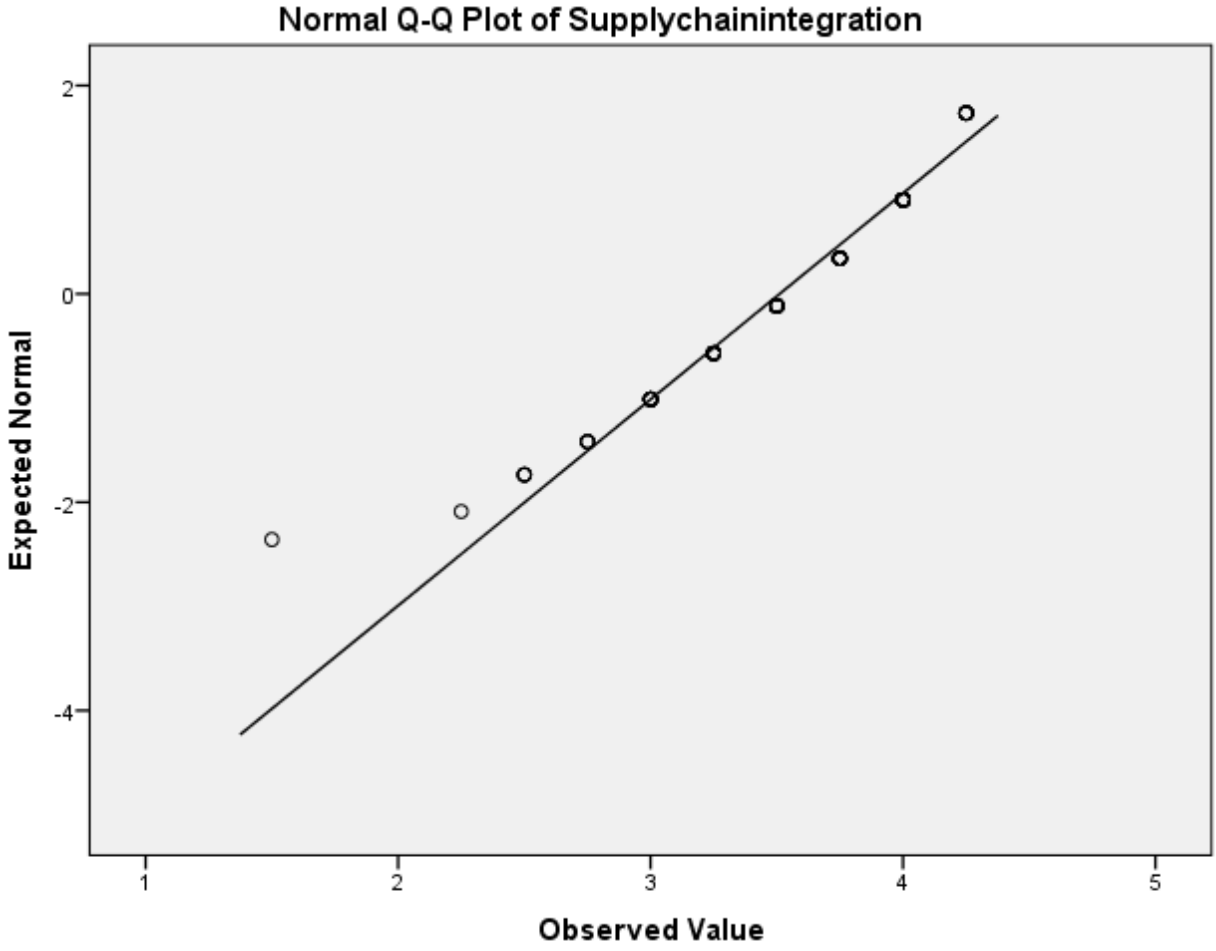
No	Procurement performance	1	2	3	4	5
i.	There is punctual shipment of goods and services.					

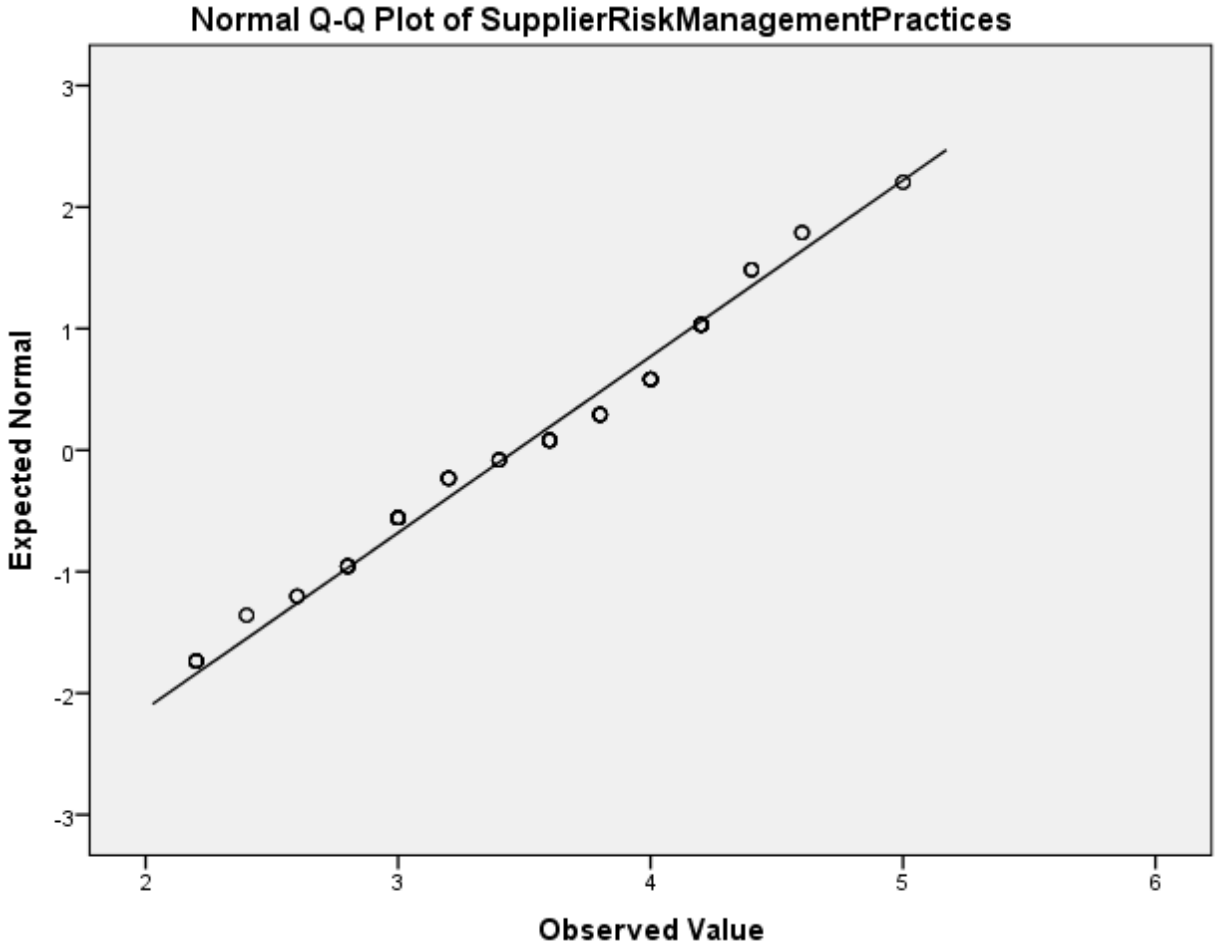
ii.	In general, user departments are pleased with the items and services acquired.					
iii.	The County Government acquires goods and services at the current market price					
iv.	The appropriate quantity of items is acquired.					
v.	The County Government acquires high-quality goods and services.					

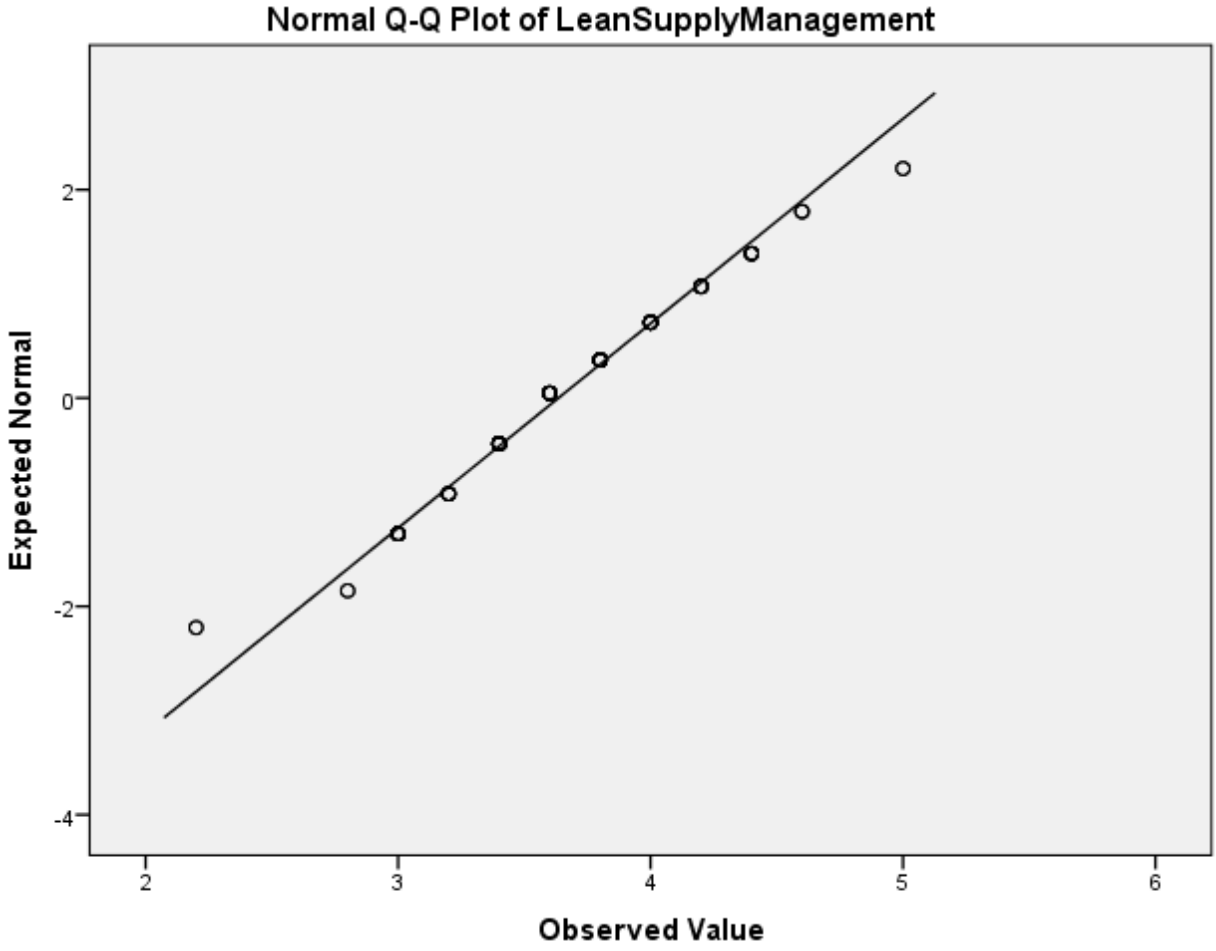
THANKS FOR YOUR PARTICIPATION IN THIS STUDY

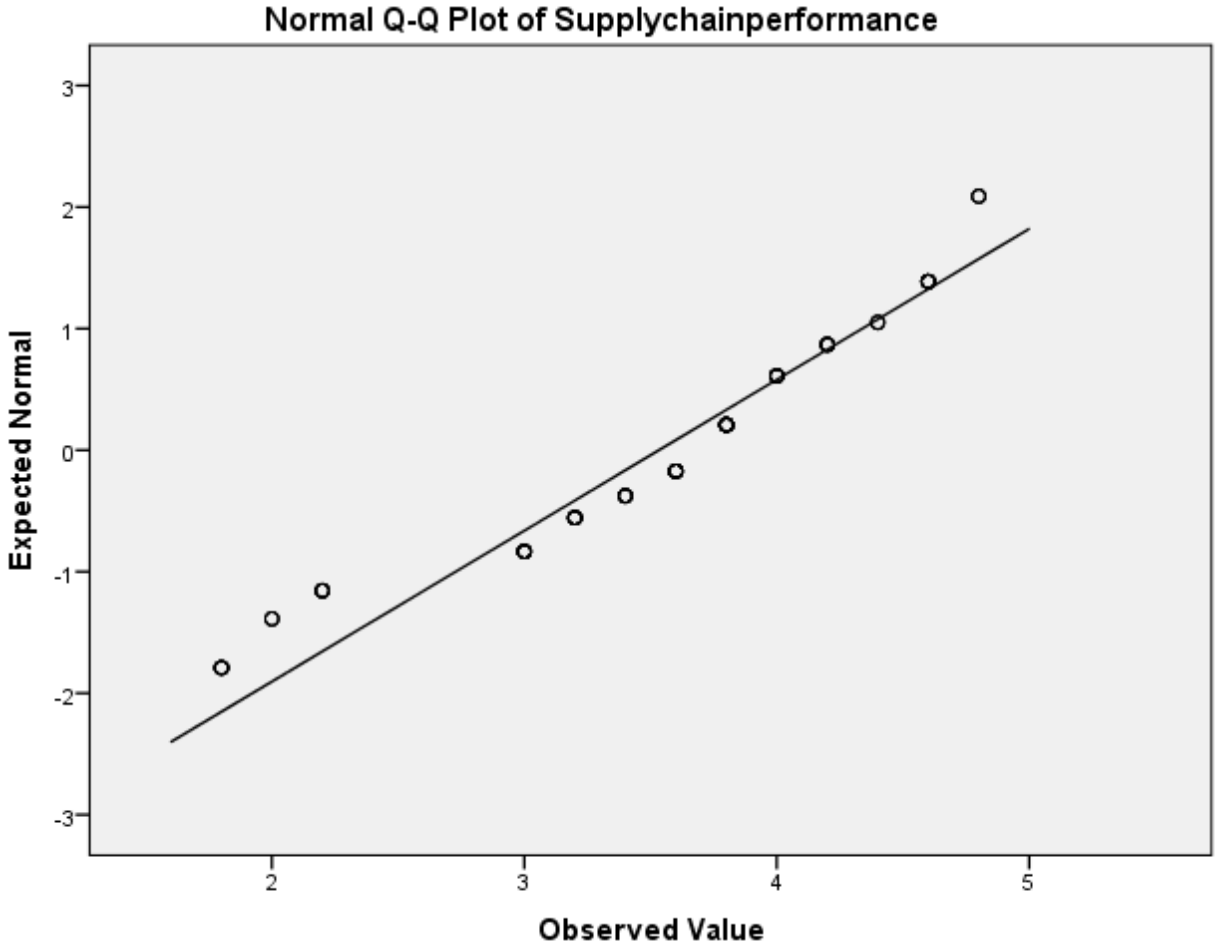
Appendix III: Q-Q Plot for Normality



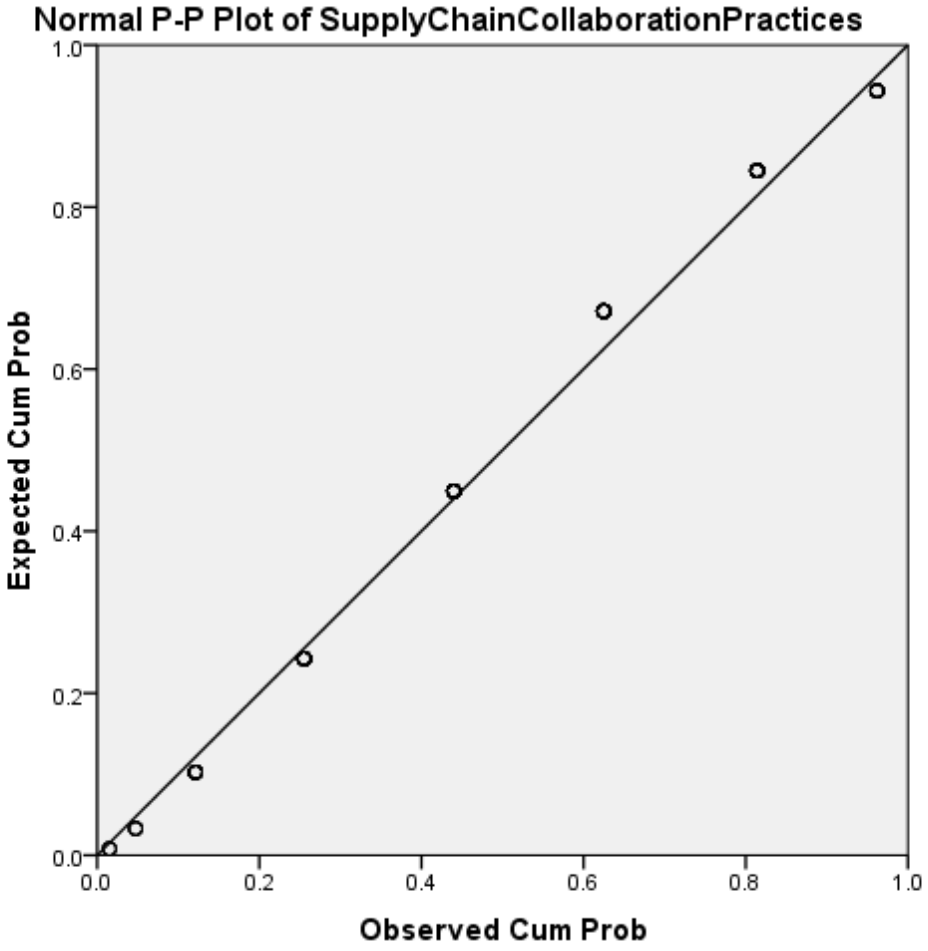

Normal Q-Q Plot of Supplychainintegration
Expected Normal
Observed Value
2
0
-2
-4
1
2
3
4
5

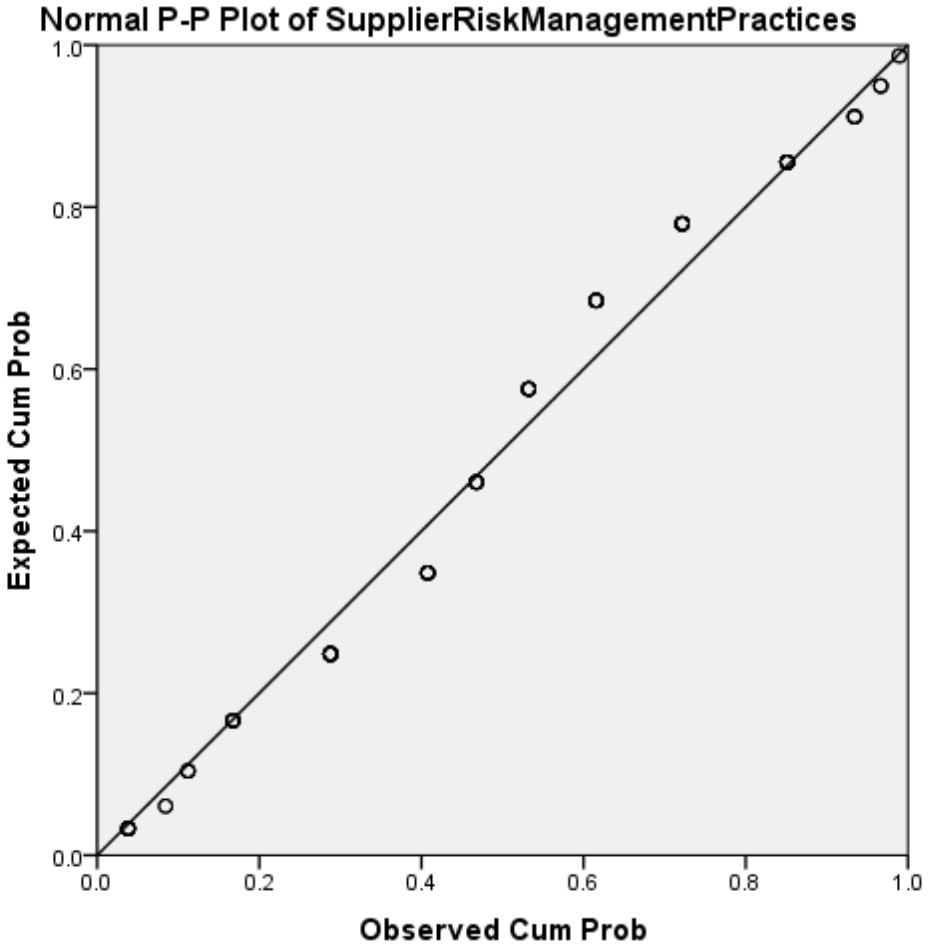

Normal Q-Q Plot of SupplierRiskManagementPractices
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
2
3
4
5
6

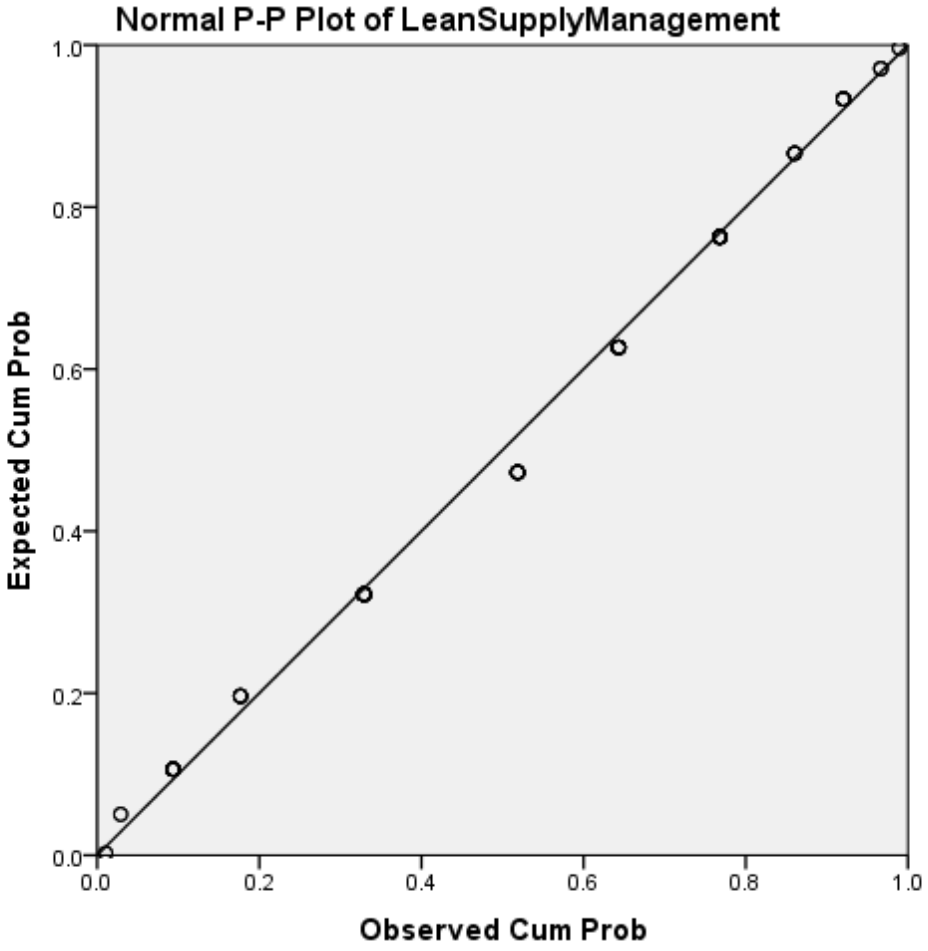

Normal Q-Q Plot of LeanSupplyManagement
Expected Normal
2
0
-2
-4
2
3
4
5
6
Observed Value

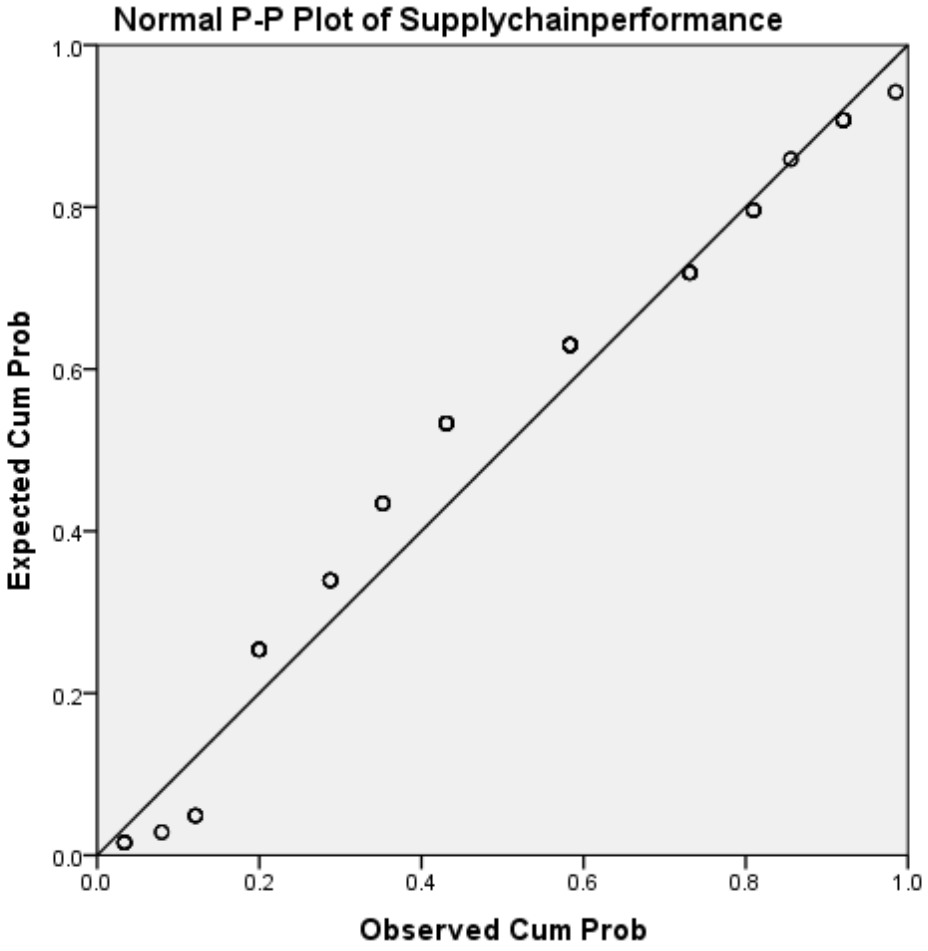

Normal Q-Q Plot of Supplychainperformance
Expected Normal
Observed Value
3
2
1
0
-1
-2
-3
2
3
4
5

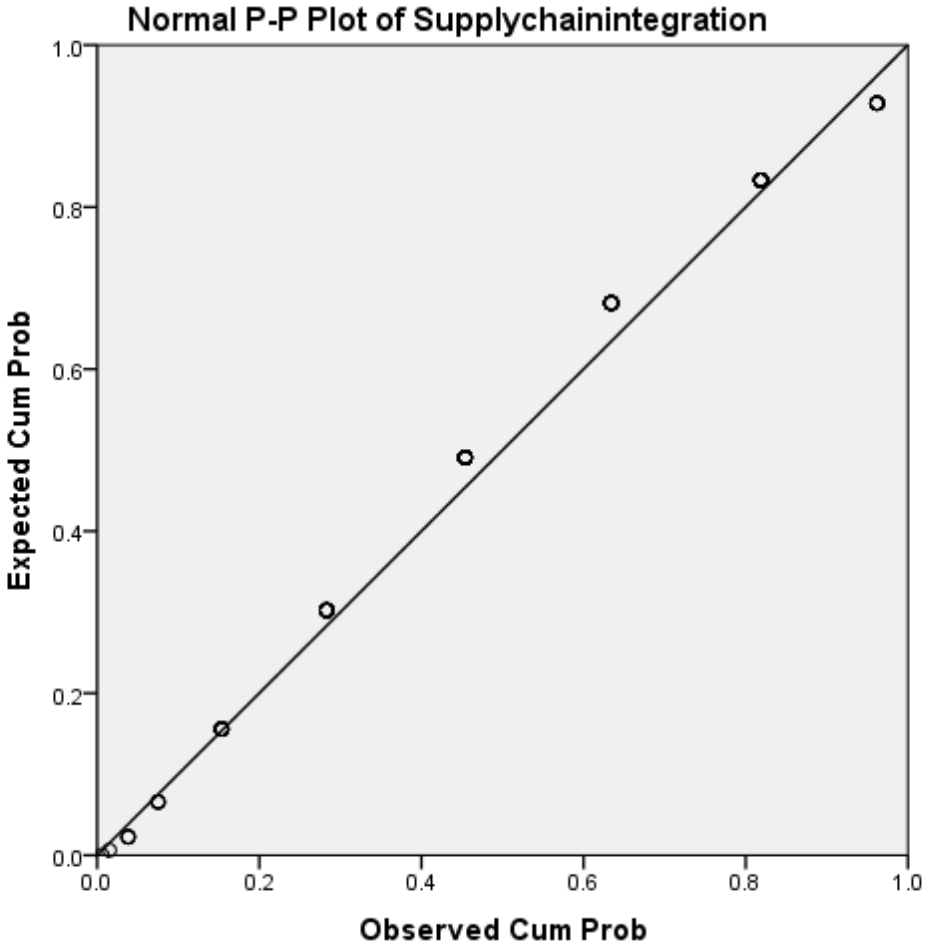
Appendix V: P-P Plot for Linearity




Normal P-P Plot of SupplierRiskManagementPractices
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Normal P-P Plot of LeanSupplyManagement
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Normal P-P Plot of Supplychainperformance
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Normal P-P Plot of Supplychainintegration
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0

Appendix IV: DPS Approval

Appendix V: NACOSTI