ASSESSMENT OF AGILE PROCUREMENT STRATEGIES AND OPERATIONAL PERFORMANCE OF ANIMAL FEED MANUFACTURERS IN NAKURU COUNTY, KENYA

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DECLARATION AND APROVAL

Declaration by the Student

This research project is my original work and has not been presented for award of degree in any other university

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DEDICATION

This research project owes its success to the support of my wife, Khali Sugow, my daughter Amira Abdulrahman and my lovely parents.

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ABSTRACT

Agile procurement strategies enable organizations to adapt to dynamic market conditions, enhancing efficiency and innovation. In Kenya, animal feed manufacturers play a vital role in sustaining the agricultural sector, contributing to economic development. However, challenges, particularly significant production and operational inefficiencies impact the sector's performance. The current research examined how agile procurement strategies influence operational performance among animal feed manufacturers. The objectives included evaluating the effect of dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning on the animal feed manufacturers' operational performance. Theoretical foundations for the study included dynamic capabilities theory, transaction cost theory, stakeholder theory, and network theory. Employing a descriptive research design, the research focused on all 17 licensed animal feed manufacturers in Nakuru County. The study included all 85 operations managers, supply chain officers, production managers, accountants, and clerical officers by using the census method. Questionnaires were selected for data collection. Both descriptive and inferential techniques were applied in the analysis. Data analysis was aided by the Statistical Package for Social Sciences (SPSS), with the findings being presented in tables. Descriptive findings established that agile procurement strategies affect the animal feed manufacturers' operational performance. The correlation analysis revealed significant association between dynamic sourcing, adaptive contracting, collaborative supplier relationships, iterative procurement planning, and operational performance, with correlation coefficients of (r=0.539**), (r=0.468**), (r=0.761**), and (r=0.506**), respectively. Findings from regression analysis revealed a coefficient of determination (R^2 = 0.733, indicating that agile procurement strategies explain 73.3% of the variation in operational performance. Therefore, it was evident that animal feed manufacturers' operational performance was significantly determined by the agile procurement strategies. The study concludes that dynamic sourcing within agile procurement enhances operational performance by enabling manufacturers to adjust to market changes and maintain consistent supply chains, thereby increasing efficiency and minimizing disruptions. Adaptive contracting improves operational sustainability by optimizing resource utilization in response to market conditions. Additionally, collaborative supplier relationships foster trust and information sharing, which positively determines the animal feed manufacturer's operational performance. In recommendation, animal feed manufacturers should strengthen their efforts to build robust, trust-based relationships with suppliers. Additionally, they need to adopt rapid adjustments to market fluctuations and ensure that their supply chains are reliable and sustainable for long-term operational performance.

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LIST OF ABBREVIATIONS AND ACRONYMS

AKEFEMA : Association of Kenya Feed Manufacturers

ANOVA : Analysis of Variance

ASC : Agile Supply Chain

CDF : Cumulative Distribution Function

GDP : Gross Domestic Product

KNBS : Kenya National Bureau of Statistics

LSC : Lean Supply Chain

NACOSTI : National Commission for Science, Technology and Innovation

SPSS : Statistical Packages Social Sciences

VIF : Variance Inflation Factor

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Procurement management is crucial for business operations and emphasizes the efficient and cost-effective acquisition of goods, services, and resources (Richards, Hurst, Messner, & O'Connor, 2021). It promotes the optimal utilization of resources, ultimately boosting the overall competitiveness of the manufacturing enterprise. The process of procurement management entails a systematic approach covering the entire procurement lifecycle, from identifying the need for products or services to their final acquisition. According to Nyamah, Feng, Yeboah Nyamah, Opoku, and Ewusi (2023), the key responsibilities within procurement management encompass activities such as selecting vendors, negotiating terms, forming contracts, and maintaining ongoing relationships with suppliers. Efficient procurement thus directly determines the cost-effectiveness and timely resource availability in manufacturing.

Streamlined processes support efficiency in the management of supply chains, reducing delays and enhancing overall performance (Richards et al., 2021). This is crucial for a manufacturing organization's effectiveness and competitiveness. The overarching objective of effective procurement is to ensure that an organization secures necessary inputs at the appropriate quality, quantity, and price, thereby contributing to the overall success of the business. Successful procurement management necessitates strategic planning, precise execution, and continuous assessment (Nyamah et al., 2023). This assessment focuses on supplier performance to optimize the entire procurement lifecycle.

1.1.1 Agile Procurement Strategies

Agile procurement strategies deploy adaptable and flexible approaches for obtaining goods and services, with a focus on responding to dynamic circumstances and meeting

the needs of stakeholders (Richards et al., 2021). Emphasizing collaboration, swift decision-making, and iterative processes, these strategies enable organizations to efficiently navigate evolving requirements and dynamic markets. Comprehensive adaptive procurement strategies integrate dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning into the overall procurement process. Dynamic sourcing in manufacturing involves the continuous assessment and adjustment of sourcing strategies to align with changing market conditions and customer needs (Tsimiklis & Makatsoris, 2019). By regularly analyzing supplier performance and market trends, manufacturers can make informed decisions about supplier selection and material procurement. This proactive method not only enhances procurement efficiency but also strengthens supplier relationships through open communication.

Adaptive contracting highlights the need for flexible contractual arrangements that can evolve with changing project requirements. Erdaw and Beyene (2022) argues that such contracts are vital for managing the uncertainties in manufacturing and supply chain operations. By allowing modifications to terms and conditions, adaptive contracting enables organizations to respond effectively to unexpected challenges, such as shifts in project scope or supplier performance issues. This flexibility not only reduces risks but also fosters innovation, as both parties are encouraged to explore new solutions collaboratively (Richards et al., 2021). Additionally, adaptive contracts build transparency and trust between manufacturers and suppliers, facilitating ongoing dialogue about performance metrics and necessary adjustments. Ultimately, this approach enhances resilience and agility within supply chains, helping organizations navigate the complexities of a dynamic market effectively.

Collaborative supplier relationships in manufacturing are essential for creating a mutually beneficial framework that promotes innovation and boosts operational efficiency (Shalev, 2018). By fostering strong partnerships built on transparent communication and shared objectives, manufacturers and suppliers can effectively tackle challenges and devise solutions that enhance the entire supply chain. This collaboration cultivates trust, allowing both parties to exchange valuable insights and resources, resulting in higher-quality materials and services. When manufacturers and suppliers synchronize their strategies, they can streamline processes, improve workflows, and increase production yields, as both sides are committed to the success of the partnership (Erdaw & Beyene, 2022). This cooperative atmosphere not only encourages the adoption of new technologies and the exchange of best practices but also fosters a culture of continuous improvement, enabling both partners to stay agile and responsive to shifting market demands, thereby securing a competitive advantage in a rapidly changing industry.

Iterative procurement planning enhances procurement efficiency by allowing ongoing adjustments based on feedback and changing needs (Shalev, 2018). This strategy empowers organizations to regularly evaluate and refine their procurement approaches in light of real-time data and market shifts. By leveraging insights from prior cycles in their planning processes, manufacturers can recognize patterns and anticipate future requirements, ensuring they acquire the right materials when needed. This responsiveness effectively shortens cycle times, facilitating quicker reactions to both opportunities and challenges (Erdaw & Beyene, 2022). Furthermore, continuous enhancement of procurement processes enables manufacturers to better align resources with production demands, optimizing capacity utilization. The integration of collaborative relationships with iterative procurement equips organizations to adeptly navigate uncertainties,

fostering an environment where innovation can flourish while upholding high standards of quality and efficiency, thus reinforcing their competitive standing in the marketplace.

Globally, animal feed manufacturers are increasingly embracing adaptive procurement strategies, marking a widespread shift towards greater flexibility (Tsimiklis & Makatsoris, 2019). In the animal feed manufacturing sector of New Zealand, adaptive procurement strategies involve a holistic approach encompassing sourcing, contracting, supplier relationships, and planning (McMullin, Chen, Niu, Matthews, Murschell, Wing, & Hageman, 2022). Notably, industry leaders like Inghams Enterprises, a major poultry producer, showcase dynamic sourcing through continuous evaluation and adjustment of ingredient procurement to meet changing market conditions, ensuring a reliable supply of high-quality feed.

Tegel Foods exemplifies collaborative supplier relationships by emphasizing open communication to enhance ingredient quality and sustainability in their animal feeds (Ma, Bicknell, & Renwick, 2019). Additionally, companies like Seales Winslow employ an iterative procurement planning approach, adjusting processes based on real-time feedback and evolving agricultural needs to optimize the nutritional content of animal feeds (Ma et al., 2019). This widespread adoption of adaptive strategies across New Zealand's animal feed manufacturers enhances their ability to navigate uncertainties and maintain a robust supply chain.

Malaysian animal feed manufacturers, including Malayan Flour Mills Berhad (MFM) and Cargill, emphasize a dynamic approach to sourcing, contracting, supplier relations, and planning (Bashir, Bayat, Olutuase, & Abdul Latiff, 2019). They continually adjust strategies to meet market conditions, ensuring a consistent supply of high-quality feed ingredients. This industry-wide adoption of adaptive strategies enables effective

navigation of uncertainties, maintaining a resilient supply chain and enhancing the sector's overall sustainability and competitiveness.

In Canada, animal feed manufacturing firms including Nutreco Canada and Trouw Nutrition Canada, regularly modify strategies to align with changing market conditions, guaranteeing a steady supply of high-quality feed ingredients (Naranjo, 2021). This widespread adoption facilitates effective navigation of uncertainties, upholding a robust supply chain and elevating the sector's overall sustainability in Canada. It enhances resilience amid challenges and supports the sustainable future of animal feed production.

Animal feed manufacturers in Israel have implemented agile supply chain practices to significantly enhance their procurement performance (Shalev, 2018). For example, Green Feed utilizes real-time demand forecasting and inventory management systems to adjust production schedules promptly in response to market demand fluctuations, thereby lowering inventory costs and improving responsiveness. Another company, Blue Agro, collaborates closely with key suppliers to synchronize production schedules and ensure timely delivery of raw materials, thereby boosting operational efficiency and reducing lead times. Red Nutrition employs lean principles to cut waste and improve resource efficiency, enhancing cost-effectiveness and sustainability. At the same time, Yellow Farms leverages advanced analytics to inform decision-making and refine procurement strategies according to market dynamics (Shalev, 2018). Together, these agile practices boost resilience, reduce inefficiencies, and enhance procurement performance for animal feed manufacturers in a competitive market.

In the African region, many animal feed manufacturers encounter challenges in achieving sustainable production to meet the rising demand for livestock nutrition (Chisoro, Jaja, & Assan, 2023). The industry faces issues like fluctuating raw material costs, including

grains and protein sources, impacting overall production expenses. Balancing costeffective solutions with the demand for high-quality, nutritionally balanced animal feeds is a critical challenge for fostering growth.

The animal feed manufacturing sector in Ghana, faces infrastructure limitations, encompassing issues in transportation and storage facilities, posing disruptions to the supply chain, thereby escalating operational costs (Erdaw & Beyene, 2022). Furthermore, inadequate regulatory frameworks present obstacles to standardizing practices and ensuring product quality within the industry, adding complexity to the operations. However, South African animal feed manufacturing firms optimize the sourcing, purchasing, and management of feed ingredients (Gomera & Mafini, 2020). Efficient procurement also contributes to risk mitigation, enabling firms to navigate market uncertainties and fluctuations in raw material costs.

Animal feed manufacturers in Nigeria are increasingly leveraging technology to enhance their supply chain agility and operational performance. Companies such as Animal Feeds Limited, Grand Cereals Limited, and Olam Nigeria have adopted enterprise resource planning systems to optimize inventory management, improve production efficiency, and ensure supply chain traceability. These technologies enable real-time monitoring of inventory levels, predictive maintenance scheduling, and better visibility into supplier networks. However, despite these technological advancements, the performance of animal feed manufacturers in Nigeria often fails to meet its full potential due to several challenges. Infrastructure constraints like unstable power and poor internet hinder smooth operations of tech-driven supply chains. Additionally, there is a shortage of skilled workforce and technical expertise needed to effectively deploy and maintain advanced technologies, limiting their optimal utilization. Furthermore, intricate regulations and administrative inefficiencies could delay the rapid adoption and

integration of innovative technologies into current supply chain operations. Resolving these challenges is essential for optimizing technology's potential to boost agility and performance within Nigeria's animal feed manufacturing sector.

The adoption of agile procurement practices among animal feed manufacturers in Uganda is limited, which adversely affects their procurement performance in various aspects (Mwangakala, Mongi, Shao, Ishengoma, & Chali, 2023). For instance, Farm Fresh Feeds lacks real-time demand forecasting systems, leading to challenges in inventory management and inefficient production scheduling, resulting in higher costs and delays in meeting market demands. Additionally, Feed Master Uganda encounters difficulties in supplier collaboration, often experiencing delays in raw material deliveries due to inadequate planning and communication, which directly impacts production timelines and product availability. Moreover, AgroTech Feeds faces obstacles with outdated procurement technologies and manual processes, limiting their ability to swiftly adapt to market changes and optimize procurement strategies effectively. These examples underscore the consequences of inadequate adoption of agile procurement practices in Uganda, including operational inefficiencies, increased expenses, and difficulties in maintaining competitiveness within the animal feed manufacturing sector (Mwangakala et al., 2023).

Animal feed manufacturers in Egypt employ diverse strategies to improve operational performance. These strategies include investing in modern technology to enhance production efficiency, enforcing rigorous quality control measures, and keeping abreast of regulatory standards (El-Sayed, Nasr-Allah, Dickson, & Gilmour, 2022). They also adopt sustainable sourcing practices for raw materials, optimize distribution networks, and participate in research and development for innovative feed formulations. A case in point is Wadi Group, which may emphasize vertical integration to manage its supply

chains comprehensively, from raw materials to distribution, thereby streamlining operations and ensuring product quality. Moreover, these manufacturers collaborate with local agricultural stakeholders, conduct continuous market analysis, and adapt to changing consumer preferences.

Locally, the animal feed sub-sector is vital in Kenya, directly influencing the livestock industry and supporting the growth and health of agricultural animals (Kiiru, Mukulu, & Ngatia, 2022). Producing top-tier livestock products, such as meat and dairy, plays a vital role in ensuring food security. A report from the Association of Kenya Feed Manufacturers highlights a considerable challenge faced by the Kenyan animal feed manufacturing sector. This challenge arises from substantial production and operational costs, impacting the overall performance of the sector (AKEFEMA, 2021). This issue has prompted some animal feed manufacturers to discontinue their operations due to a confluence of high production costs and a diminishing demand from farmers.

AKEFEMA's report sheds light on the alarming statistic that approximately 30 animal feed manufacturers collapsed between 2020 and 2022, attributing their closures to the escalating costs of vital raw materials, including soya cake and wheat by-products. Companies like Sigona Feeds and Alpha Grain Millers have recently succumbed to these challenges, leading to the cessation of their operations (Omondi, 2022). Moreover, the sector's operational performance presents a pressing concern, with the production of animal feed experiencing a mere 30% growth between 2017 and 2021, five years marked by inadequate expansion. The exacerbation of production costs is a multifaceted challenge faced by the animal feed manufacturing sector in Kenya. AKEFEMA's report underscores the profound impact of these costs on the industry's viability, forcing numerous manufacturers to make the difficult decision to cease their operations. The intricate dynamics of the challenge become evident when examining the role of raw

material expenses, particularly the soaring costs of key components such as soya cake and wheat by-products. These escalating costs have created a cascading effect, significantly contributing to the financial strain faced by animal feed manufacturers. The repercussions are not only economic but have also resulted in tangible business closures, as exemplified by the shutdowns of well-established entities.

As the sector remains integral to livestock development and food security in Kenya, finding sustainable solutions is imperative for its resilience and future growth (Omondi, 2022). Addressing these challenges is critical to sustain the growth and competitiveness of Kenya's animal feed sub-sector.

1.1.2 Overview of Operational Performance

Operational performance entails how efficiently a company conducts its activities to achieve strategic goals and provide value to stakeholders (Nabass & Abdallah, 2019). It involves key performance indicators such as production output, quality control, resource utilization, and adherence to schedules. Optimal operational performance ensures a manufacturing firm can meet customer demands, deliver quality products, minimize costs, and stay competitive. It requires continuous improvement, adoption of best practices, and strategic measures for enhanced efficiency. Effective operational performance is crucial for profitability, customer satisfaction, and long-term sustainability (Zaidi & Ahmad, 2020). It involves adopting technology, implementing lean manufacturing, and fostering a culture of continuous improvement. Firms can ensure sustained success in a competitive manufacturing landscape by regularly monitoring and analyzing performance metrics, identifying areas for improvement and adapting to changing market conditions. This proactive approach allows companies to stay agile and responsive in the dynamic business environment.

1.1.3 Animal Feed Manufacturers in Nakuru County

Nakuru County hosts several prominent animal feed manufacturers that significantly contribute to the region's agricultural sector (Kinge, 2022). Unga Farm Care, a subsidiary of Unga Group Limited, stands out as one such notable manufacturer, specializing in the production of a diverse range of animal feeds, supplements, and minerals. Additionally, Sigma Feeds Limited is recognized as a key player, demonstrating a strong commitment to delivering high-quality feeds tailored for various livestock species. Manufacturing entities are crucial for supporting the local livestock industry by providing well-balanced feeds that boost the health and productivity of agricultural animals. The presence of these entities emphasizes Nakuru County's importance as a central hub for animal feed production, addressing the diverse needs of farmers in the region. This contributes significantly to the overall wellness and efficiency of the local agricultural community.

1.2 Statement of the Problem

Kenyan animal feed manufacturing sector is grappling with substantial production and operational costs, posing a significant challenge to its performance according to a report by the Association of Kenya Feed Manufacturers (AKEFEMA, 2021). Some animal feed manufacturers have ceased operations amid high production costs and dwindling demand from farmers. According to AKEFEMA (2021), about 30 animal feed manufacturers collapsed between the years 2020 and 2022 due to the high cost of raw materials such as soya cake and wheat by-products. For example, Sigona Feeds and Alpha Grain Millers have recently ceased operations. Moreover, between years 2017 to 2021 (5 years), the production of animal feed grew by only 30%, presenting inadequate operational performance. Agile procurement strategies enable organizations to adjust to changing market conditions, delivering enhanced efficiency and innovative solutions in a dynamic business environment (Rashad & Nedelko, 2020). Nevertheless, a synthesis of the

existing empirical literature reveals the shortcomings of previous studies regarding agile procurement strategies and operational performance. The research works by Kiiru, Mukulu, and Ngatia (2022); Mwenda and Obuba (2023) focused on customer orientation and market development strategies for animal feed manufacturers respectively. They offered minimal focus on agile procurement strategies. The current research assessed the agile procurement strategies and their effect on the animal feed manufacturers' operational performance.

1.3 Objectives of the Study

1.3.1 General Objective of the Study

The general objective of the study was to establish the effect of agile procurement strategies on the operational performance of animal feed manufacturers in Nakuru County, Kenya.

1.3.2 Specific Objectives of the Study

Specific objectives included the following:

i. To determine the effect of dynamic sourcing on the operational performance of animal feed manufacturers. ii. To assess the effect of adaptive contracting on the operational performance of animal feed manufacturers.

iii. To establish the effect of collaborative supplier relationships on the operational performance of animal feed manufacturers. iv. To assess the effect of iterative procurement planning on the operational performance of animal feed manufacturers.

1.4 Research Questions

i. What are the effects of dynamic sourcing on the operational performance of animal feed manufacturers?

ii. How does the adaptive contracting affect the operational performance of animal feed manufacturers?

iii. What are the effects of collaborative supplier relationships on the operational performance of animal feed manufacturers?

iv. How does iterative procurement planning affect the operational performance of animal feed manufacturers?

1.4.1 Purpose of the Study

The current research analyzed the operational performance of animal feed manufacturers with a focus on potential efficiencies attainable through the implementation of agile procurement strategies. The purpose was to offer valuable insights that enhance the operational performance of animal feed manufacturers.

1.5 Significance of the Study

The significance of this study is rooted in its goal to deepen understanding and offer meaningful insights into agile procurement strategies. In light of the market's dynamic nature, marked by variable external factors and evolving consumer demands, a noticeable gap exists in the current literature concerning the pragmatic application and consequences of agile procurement strategies in the animal feed manufacturing sector. Exploring variables such as dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning will enhance understanding of the challenges and opportunities faced by these manufacturers. Ultimately, the study's outcomes have the potential to provide guidance for animal feed manufacturers, policymakers, and other researchers in refining procurement processes to enhance animal feeds manufacturers' operational performance.

1.5.1 Animal Feed Manufacturers

Animal feed manufacturers will benefit directly from this study by gaining practical insights into how agile procurement strategies can enhance operational efficiency. By focusing on dynamic sourcing and adaptive contracting, the research will show how manufacturers can better manage supply chain disruptions and market fluctuations. Additionally, exploring collaborative supplier relationships and iterative procurement planning will help manufacturers refine procurement processes, resulting in cost reductions, improved lead times, and higher product quality. These insights will ultimately assist manufacturers in making more agile and competitive decisions.

1.5.2 Policymakers

For policymakers, the study provides valuable insights into how agile procurement strategies can be supported through effective regulations. By understanding the practical challenges related to sourcing and contracting within the animal feed industry, policymakers can develop frameworks that encourage innovation and flexibility in procurement. Additionally, fostering stronger collaborations between manufacturers and suppliers can lead to more resilient and sustainable manufacturing operations, benefiting the industry as a whole.

1.5.3 Other Researchers

Researchers will find this study particularly useful as it addresses a gap in the literature by focusing on agile procurement strategies in the animal feed sector. The findings will offer new theoretical perspectives and empirical evidence, serving as a foundation for further research. By examining key variables such as iterative procurement planning and adaptive contracting, this study can inspire new models and frameworks for future exploration in both manufacturing and supply chain management across various industries.

1.6 Scope of the Study

The study engaged 85 operations managers, supply chain officers, production managers, accountants, and clerical officers of the 17 licensed animal feed manufacturers operating within Nakuru County. It focused on agile procurement strategies, including dynamic sourcing, adaptive contracting, collaborative supplier relationships and iterative procurement planning. The dependent variable was the operational performance. The research was conducted from December, 2023 to June, 2024 with an estimated budget is approximately Kshs.213,000.

1.7 Limitations of the Study

Limitations were encountered in this study, particularly regarding the potential for respondents to hesitate in completing the questionnaire. Obtaining data from managers of animal feed manufacturers required a thorough explanation of the study's significance. This process underscored the importance of effective communication and engagement. It aimed to mitigate any reservations that respondents could have towards participation.

1.8 Delimitations of the Study

The present research was confined to animal feed manufacturers, excluding other sectors within the broader procurement landscape. The awareness and openness to adopting agile procurement strategies among the selected manufacturers may vary from one manufacturer to another. Additionally, the differences in the size and resources of animal feed manufacturers may limit the general applicability.

1.9 Assumptions of the Study

i. The first assumption was that animal feed manufacturers are aware of agile procurement strategies and are willing to adopt them or have already done so to enhance

their operational performance. ii. Secondly, it was assumed that suppliers are open to engaging in collaborative relationships and information sharing.

iii. Thirdly, there was an assumption that the organizational culture of animal feed manufacturers supports flexibility, openness to change, and a commitment to continuous improvement.

iv. Finally, there was an assumption of a relatively stable external environment, with market dynamics that allow for the effective implementation of agile procurement strategies without significant disruptions.

1.10 Operation Definition of Key Terms

Agile Procurement Strategies	Agile procurement strategies refers to the flexible and adaptive approaches designed to improve the efficiency, responsiveness, and adaptability of the procurement process.
Adaptive Contracting	Adaptive contracting refers to the flexible contractual agreements that permit adjustments and modifications throughout the entirety of the procurement process.
Collaborative Supplier Relationships	Collaborative supplier relationships refers to the strategic partnerships and open communication channels between the procurement entity and its suppliers.
Dynamic Sourcing	Dynamic sourcing refers to the process of proactively evaluating, adjusting, and optimizing sourcing strategies according to real-time information, market conditions, and organizational requirements.

Iterative Procurement Planning	Iterative Procurement Planning is an ongoing and cyclical planning process that includes revisiting and adjusting strategies based on changing organizational needs, and evolving market conditions.
Operational Performance	Operational performance denotes an organization's efficiency, effectiveness, and overall functionality in its activities, encompassing productivity, quality, and cost-effectiveness. It reflects the organization's capability to meet operational objectives and deliver satisfactory products or services.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A literature review systematically examines scholarly articles, books, and relevant sources related to a specific research topic. This section includes the empirical review, theoretical framework, and conceptual framework.

2.2 Empirical Literature

Empirical literature outlines the empirical studies related to the agile procurement strategies comprising dynamic sourcing, adaptive contracting, collaborative supplier relationships and iterative procurement planning and operational performance.

2.2.1 Dynamic Sourcing and Operational Performance

Susan and Wagoki (2014) conducted a study on strategic material sourcing and manufacturing firms' operational performance. The study utilized a descriptive research design and employed a stratified sampling technique with closed-ended questions for data collection. The results indicated that strategic material sourcing includes developing a sourcing strategy focused on improving and reassessing purchasing activities at EABL.

The study also highlighted the significance of effective supplier relationship management in reducing monitoring costs, facilitating conflict resolution, and improving communication between the company and its suppliers, ultimately contributing to enhanced operational performance. Despite the study's focus on strategic material sourcing and operational performance at EABL, it did not explore dynamic sourcing practices. Addressing this research gap, the present study sought to establish a link between dynamic sourcing and the animal feed manufacturers' operational performance. Tarus and Ndeto (2021) examined the effect of strategic procurement on the performance of Kenyan parastatals using a descriptive research design involving 187 parastatals, of which 128 were chosen through purposive sampling. The study collected both primary and secondary data using questionnaires that included open and closed-ended questions. Their findings highlighted that strategic sourcing, outsourcing, information technology, and inventory management systems positively and significantly influenced performance outcomes. Notably, the research did not explicitly consider or measure supplier flexibility within the context of dynamic sourcing, representing a gap in understanding how organizations navigate and adjust their supplier relationships to address evolving market conditions or unforeseen circumstances.

In 2020, Yildiz-Çankaya investigated how strategic sourcing affects supply chain strategies, using email-based cross-sectional survey data from Turkish manufacturing firms and structural equation modeling for analysis. The findings indicated a positive impact of strategic sourcing on both lean and agile supply chain strategies. Moreover, the research highlighted that these strategies significantly enhance competitive performance. While the study addressed strategic sourcing and supply agility, it did not delve into the aspect of flexible costs. In the current study, the elucidation of flexible costs within the

context of dynamic sourcing was undertaken as an integral component of an agile procurement strategy.

2.2.2 Adaptive Contracting and Operational Performance

In 2019, Omwoyo, Wanyoike, and Mbeche studied the impact of lean procurement initiatives on supply chain agility in 34 manufacturing firms. Notably, the study revealed a significant enhancement of supply chain agility through the implementation of lean procurement. However, a notable gap in the study lies in the absence of an explanation or discussion on renegotiation provisions, a vital aspect of adaptive contracting. This omission hinders insights into how firms effectively manage and adjust contractual terms in response to changing circumstances. Including information on renegotiation provisions contributed to a more comprehensive understanding of the adaptive contracting strategies.

Kiiru, Mukulu, and Ngatia (2022) studied the effect of customer orientation on the performance of small and medium enterprises (SMEs) in Kenya's animal feed manufacturing sector, finding a significant impact. However, their research did not address the procurement strategies used by these SMEs, particularly regarding their ability to adapt contracts flexibly.

Mutuku and Osoro investigated procurement practices and performance within Nairobi County's manufacturing industry. Their 2022 study revealed that effective management of procurement processes significantly enhances the industry's performance. The study also highlighted that effective supplier sourcing significantly enhances the performance of the manufacturing sector in Nairobi County, Kenya. However, a noticeable gap in the study is the absence of any discussion or exploration of Flexibility in Specifications, a pivotal element in adaptive contracting. The lack of attention to this aspect hinders a

comprehensive understanding of how the manufacturing industry adjusts its specifications to meet changing circumstances, potentially limiting the study's insights into effective procurement strategies in response to dynamic environments.

2.2.3 Collaborative Supplier Relationships and Operational Performance

Kiarie (2017) examined how supplier relationship management practices affect the operational performance of large manufacturing organizations in Kenya. The regression analysis indicated that 64.6% of the variations in operational performance were due to changes in these practices, while 85.5% were linked to both supplier relationship management and supply chain attributes. Although the study provides insights into factors affecting operational performance, it does not thoroughly explore the connection between these practices and agile procurement principles. The current study addresses this gap by investigating collaborative supplier relationships as a strategy within the agile procurement framework.

Nyaberi's (2020) research investigated the effects of supplier development management practices on the organizational performance of manufacturing firms in Kenya. The study revealed that supplier development is affected by factors like supplier selection, technical capability, and information exchange, including supplier evaluation. While it highlights the importance of these factors, the research does not adequately explore collaborative aspects of supplier evaluation or the adoption of a partnership-oriented approach. The study could be enhanced by examining how collaborative evaluation practices and a partnership mindset can improve the effectiveness of supplier development strategies among animal feed manufacturers.

2.2.4 Iterative Procurement Planning and Operational Performance

Kithure and Nyang'au (2022) examined how material requirement planning affects manufacturing firms' performance in Kenya, revealing that inventory control systems, capacity planning, and demand forecasting positively influence operational performance. However, the study did not adequately address the role of market analysis in these outcomes, which is crucial for understanding market trends and customer demands. Additionally, it overlooked the importance of contingency plans, which are essential for handling unexpected disruptions and ensuring operational resilience. Exploring the interaction between contingency plans and the key planning strategies could enhance the study's findings and provide a more comprehensive view of factors impacting operational performance.

Miriti (2018) studied the effects of procurement planning on supply chain performance, finding that evaluating procurement needs, budgeting, defining quality specifications, and supplier selection significantly enhance supply chain performance. However, the study did not delve into the discussion of iterative planning, despite the identified positive effects of key procurement elements. The incorporation of iterative procurement planning, characterized by continuous cycles of review, adjustment, and refinement to adapt to changing circumstances, would enhance the comprehensiveness of understanding effective procurement strategies and their influence on supply chain performance.

Mwenda and Obuba (2023) investigated the impact of market development strategies on the animal feed manufacturing firms' performance in Meru County. The findings revealed that integrating market penetration, market development, product development, and diversification strategies significantly improved the firms' overall performance. Despite the research exploring the impact of market development strategies, there was a gap in the investigation of procurement planning strategies employed by these firms,

particularly in terms of iteratively adapting plans to accommodate changing circumstances. The current study explored the effect of iterative procurement planning as an agile procurement strategy and its effect on operational performance.

2.3 Theoretical Framework

This section examines theories relevant to agile procurement strategies, such as dynamic capabilities, transaction cost, stakeholder, and network theories.

2.3.1 Dynamic Capabilities Theory

Developed by Teece, Pisano, and Shuen in 1997, dynamic capabilities theory emphasizes an organization's ability to integrate, develop, and adapt internal and external competencies in response to changing environments. This theory underscores the importance of recognizing changes in the business landscape and effectively responding to them, which includes identifying new opportunities and threats (Mohaghegh, Blasi, & Groessler, 2021). Additionally, they encompass the adaptation of internal resources and the integration of diverse skills to create innovative capabilities. Dynamic capabilities encompass the capacity of an organization to reconfigure its resource base, enabling it to adjust the mix of resources and capabilities in reaction to market shifts, technological advancements, or competitive demands (Chirumalla, 2021).

Recognizing the critical role of timing, dynamic capabilities theory underscores the need for quick responsiveness to changes. When applied to supply chain management, this theory underscores the essential requirement for organizations to consistently adjust and reconfigure their sourcing strategies in response to changes in supplier landscapes, technological advancements, and customer preferences. Companies possessing dynamic capabilities in sourcing can establish a flexible and responsive supply chain by incorporating diverse suppliers, technologies, and logistical solutions. This approach

enables them to seize opportunities, mitigate risks, and maintain a competitive edge amidst evolving market dynamics (Chirumalla, 2021). The dynamic capabilities perspective equips supply chain managers with a strategic outlook to optimize existing sourcing arrangements and actively shape and reshape their strategies in accordance with the continually changing business environment.

Additionally, dynamic capabilities theory suggests that organizations must consistently evaluate and adapt their sourcing strategies and partnerships to align with market dynamics, technological progress, and competitive forces. Effective dynamic sourcing involves the ongoing development of flexible and adaptive capabilities. Organizations need to continually employ these capabilities to optimize the sourcing mix, ensuring sustained competitiveness in the evolving business landscape. This proactive approach is essential for organizations to thrive in dynamic and competitive markets.

Moreover, dynamic capabilities are essential for adaptive contracting and iterative procurement planning in the animal feed manufacturing sector.

Adaptive contracting entail continuously modifying supplier agreements based on market conditions, ensuring a reliable supply of ingredients despite changes in availability, prices, and quality. This adaptability helps firms respond quickly to market shifts, such as changes in grain prices or supply chain disruptions, thus minimizing risks and taking advantage of new opportunities. Iterative procurement planning enhances this adaptability by regularly refining procurement processes using feedback and real-time data analysis. Animal feed manufacturers consistently evaluate supplier performance, market trends, and internal resources to update procurement plans. This approach may include sourcing from new suppliers or using alternative ingredients for better cost efficiency or quality. By continually assessing and adjusting their strategies, these firms

maintain a resilient supply chain, ensuring sustained competitiveness and efficiency in a fluctuating market.

2.3.2 Transaction Cost Theory

Williamson's transaction cost theory (1981) provides a framework for understanding the governance structures of economic transactions, especially in the supply chain. It examines the costs associated with coordinating and executing transactions between different entities in a supply chain and posits that organizations must decide whether to handle transactions internally or outsource them to external suppliers, aiming to minimize transaction costs. Search and information costs are significant in this context, including expenses related to gathering information about potential suppliers, their capabilities, and market conditions (Gyarmathy, Peszynski, & Young, 2020). Supply chain management activities, such as supplier research, aim to reduce these costs by streamlining the process of identifying suitable suppliers. Once a potential supplier is identified, negotiation and decision costs become relevant, involving time and resources spent on bargaining, formulating agreements, and making contract-related decisions.

This process ensures that the terms are favorable and align with the organization's strategic objectives.

Furthermore, monitoring and enforcement costs are essential for ensuring that contract terms are adhered to and managing any disputes or adjustments (Gunasekaran, Yusuf, Adeleye, Papadopoulos, Kovvuri, & Geyi, 2019). Additionally, asset specificity, which involves investments tailored to particular transactions or relationships, plays a significant role. High asset specificity increases the potential costs of switching suppliers, making long-term relationships more attractive despite potentially higher initial transaction costs. By carefully evaluating these various costs, organizations can make

informed decisions about whether to outsource or manage transactions internally, optimizing their supply chain governance structure for efficiency and cost-effectiveness.

Effective supply chain management seeks to minimize these costs through transparent communication and well-structured contracts (Gunasekaran et al., 2019) opines Post-initiation, ongoing costs arise from monitoring supplier performance and enforcing contract terms to ensure alignment with expectations. Adaptive contracting, a concept aligning with transaction cost theory, recognizes the impact of uncertainties and unforeseen events on contract effectiveness. As a strategic response, adaptive contracting minimizes negotiation and decision costs associated with frequent adjustments to contractual terms. By acknowledging potential information asymmetry, opportunistic behavior, and unforeseen contingencies, organizations employing transaction cost theory can design contracts that allow flexibility and adaptation. Adaptive contracting includes mechanisms like performance-based incentives, periodic reviews, and built-in adjustments to address changing circumstances, aligning with the core principles of transaction cost theory (Gyarmathy et al., 2020). This integrated approach enables organizations to effectively manage uncertainties, foster collaborative supplier relationships, and optimize transaction costs within the supply chain.

2.3.3 Network Theory

Network theory, as referenced by Matinheikki, Kauppi, Brandon–Jones, & Van-Raaij (2022), explores the connections and interactions among various entities in a supply chain. This approach offers a framework to analyze how information sharing, collaboration, and partnerships improve supply chain efficiency and resilience. When applied to procurement and supply chain management, this theoretical approach offers valuable insights into the intricate interdependencies among stakeholders such as suppliers, manufacturers, distributors, and other entities (Matinheikki et al., 2022).

Network theory uses nodes to represent these entities and edges to depict their relationships, thereby facilitating a deeper understanding of the structure and dynamics of interconnected networks. Relationships within these networks can range from formal, such as contractual agreements, to informal, such as social interactions.

It becomes crucial to identify pivotal nodes within these networks, such as key suppliers or influential logistics partners, to optimize supply chain performance and enhance resilience (Matinheikki et al., 2022). These key nodes are essential for information flow, resource allocation, and decision-making, impacting the overall effectiveness of supply chain operations. By leveraging network theory insights, organizations can strategically manage their supplier relationships, enhance collaboration across the supply chain, and build robust partnerships that foster agility and responsiveness in dynamic market environments. This holistic approach not only strengthens supply chain resilience but also positions organizations to capitalize on emerging opportunities and navigate challenges effectively.

Moreover, network theory recognizes patterns and clusters within the supply chain network, allowing strategic decision-making to optimize supplier relationships, streamline communication channels, and enhance overall efficiency (Khan, Ajmal, Jabeen, Talwar, & Dhir, 2023). It aids in identifying potential risks, enabling organizations to develop contingency plans and build resilience. Network theory emphasizes that the strength and effectiveness of collaborative supplier relationships rely on the quality and depth of the network connections. By analyzing and optimizing these connections, organizations can enhance communication, share resources, and foster mutual benefits, leading to more resilient and productive collaborative supplier relationships.

Network theory provides a useful framework for assessing how agile procurement practices affect the performance of animal feed manufacturing firms (Khan et al., 2023). It elucidates how agile procurement fosters collaboration and connectivity among diverse supply chain stakeholders, including suppliers, distributors, and manufacturers. By conceptualizing these stakeholders as nodes and their interactions as edges in a network, network theory enables firms to identify crucial nodes like key suppliers or efficient logistics partners that play pivotal roles in supporting agile procurement strategies. These strategic relationships enable firms to swiftly adjust to market changes, optimize resource allocation, and streamline production processes, thereby boosting operational efficiency and overall performance. Moreover, network theory underscores the importance of cultivating resilient supply chain networks capable of adapting to disruptions and seizing new opportunities, ensuring long-term competitiveness in the animal feed manufacturing sector.

2.3.4 Stakeholder Theory

Introduced by Edward Freeman in 1984, stakeholder theory suggests that organizations should prioritize the interests of all stakeholders. It recognizes the company as a complex network of relationships involving employees, customers, suppliers, communities, and the environment. The theory encourages the identification and analysis of various internal and external stakeholders, emphasizing a thorough understanding of their interests, expectations, and needs. This comprehensive insight serves to inform decisions that impact all relevant parties. The holistic approach advocated by stakeholder theory promotes a more inclusive and socially responsible perspective in organizational decision-making (Mahajan, Lim, Sareen, Kumar, & Panwar, 2023). Proposing a balance of conflicting stakeholder interests and advocating for long-term value creation rather

than short-term profits, stakeholder theory underscores the importance of maintaining positive relationships over time.

Recognizing the interconnection of organizations with various stakeholders, such as suppliers, the theory underscores the necessity to go beyond a transactional approach (Mahajan et al., 2023). Moreover, embracing stakeholder theory in supplier relationships involves understanding, valuing, and aligning the needs and contributions of suppliers with organizational objectives. This approach fosters open communication, information sharing, and collaborative problem-solving, cultivating mutually beneficial relationships that extend beyond economic transactions. By treating suppliers as valued stakeholders, organizations can build trust, foster innovation, and establish resilient and sustainable supply chains that benefit all involved parties. This approach advocates for organizations to maintain ongoing communication and feedback loops with stakeholders, ensuring that their viewpoints are consistently considered during each stage of iterative planning. Through the iterative inclusion of stakeholder input, organizations foster transparency, cultivate trust, and enhance the overall efficacy of their procurement strategies.

Stakeholder theory provides a framework for understanding how collaborative supplier relationships are integral to agile procurement strategies in animal feeds manufacturing firms. This theory emphasizes the importance of addressing and aligning the interests of all stakeholders in the supply chain, including suppliers, manufacturers, distributors, and consumers. In agile procurement, stakeholder theory highlights the need for fostering trust, transparency, and mutual benefits among these groups. By nurturing collaborative supplier relationships grounded in shared objectives and open communication, companies can effectively respond to market dynamics, ensure robust supply chains, and innovate to meet evolving consumer needs. Stakeholder theory also underscores the value of cultivating enduring partnerships that extend beyond transactional interactions,

promoting sustainability and resilience amidst industry challenges. Ultimately, by aligning procurement practices with stakeholder interests and fostering meaningful collaborations, animal feeds manufacturing firms can achieve competitive advantage and sustainable growth in a dynamic marketplace.

2.4 Conceptual Framework

The conceptual framework depicts the study's independent variables: agile procurement strategies such as dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning. These variables are shown in Figure 1 alongside the dependent variable of operational performance.

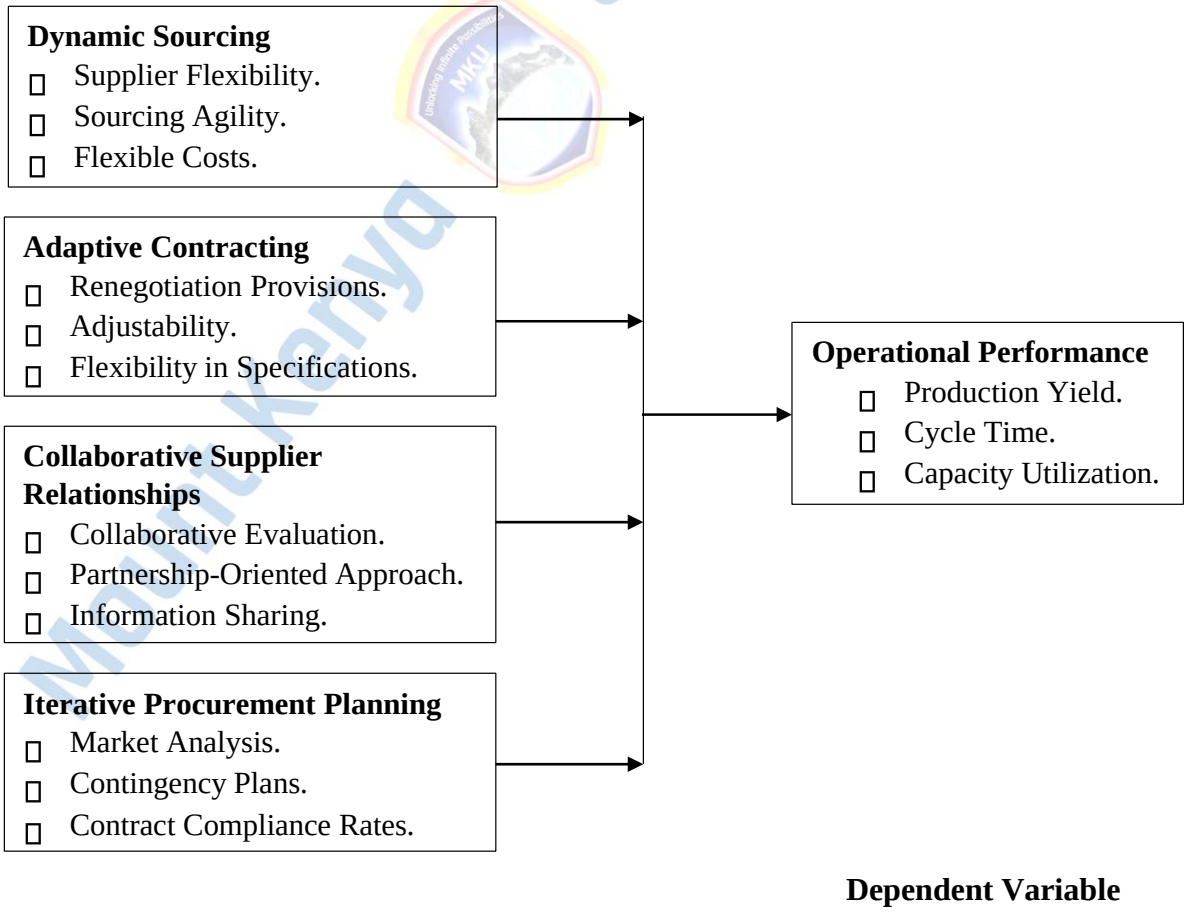

Figure 1: Conceptual Framework

Source: Researcher (2024)

2.4.1 Dynamic Sourcing

Dynamic sourcing constitutes a procurement strategy characterized by continuous adaptation and optimization of the sourcing process in response to evolving market conditions, technological advancements, and organizational objectives (Yildiz-Çankaya, 2020). Unlike conventional sourcing models reliant on fixed, long-term contracts, dynamic sourcing underscores the importance of flexibility, agility, and responsiveness to foster efficiency and innovation within procurement. The approach places a premium on flexibility, allowing organizations to promptly react to shifts in market dynamics, alterations in demand, and the emergence of new technologies without being constrained by inflexible contracts (Rashad & Nedelko, 2020).

Dynamic sourcing emphasizes the strategic use of real-time data, where organizations systematically gather and analyze information critical to enhancing procurement effectiveness (Yildiz-Çankaya, 2020). This includes monitoring market trends to anticipate shifts in demand and supply, evaluating supplier performance metrics such as delivery reliability and quality standards, and assessing internal operational needs to align procurement strategies with broader business objectives. By leveraging advanced analytics and data-driven insights, firms can swiftly and decisively optimize procurement processes, thereby improving overall supply chain efficiency.

Moreover, dynamic sourcing places a strong emphasis on proactive risk management strategies. Organizations employing this approach actively identify, assess, and mitigate risks associated with suppliers, market volatility, and external factors that could potentially disrupt supply chain operations. This proactive stance not only enhances operational resilience but also fosters stronger partnerships with key suppliers through

collaborative efforts focused on risk mitigation and continuous improvement. Integrating robust risk management practices into sourcing strategies enables organizations to preemptively address disruptions, minimize impacts on production schedules, and maintain consistent product availability to meet customer demands.

Furthermore, the integration of real-time data analytics and proactive risk management within dynamic sourcing frameworks ensures strategic alignment across supply chain activities (Yildiz-Çankaya, 2020). This comprehensive approach ensures that procurement decisions support long-term business goals and sustainability objectives, while also being responsive to immediate market dynamics. By continuously monitoring and adapting to evolving conditions, organizations can enhance agility, optimize resource allocation, and seize opportunities for growth in today's dynamic business environment.

Supplier flexibility, sourcing agility, and adaptable costs are pivotal indicators of an organization's dynamic and responsive procurement strategy (Yildiz-Çankaya, 2020). Supplier flexibility involves nurturing collaborative relationships with suppliers to quickly adjust to changing market demands, whether through adapting production schedules, modifying product specifications, or integrating new technologies seamlessly. Sourcing agility complements supplier flexibility by enabling organizations to promptly adjust procurement approaches based on real-time data insights and evolving business landscapes. This agility facilitates quick decision-making in supplier selection, contract negotiations, and sourcing strategies, enhancing operational efficiency and driving continuous innovation.

Adaptable costs are critical for enhancing financial resilience within dynamic sourcing frameworks (Herold, Heller, Rozemeijer, & Mahr, 2023). It entails strategically optimizing expenditures through flexible financial structures that avoid rigid, long-term commitments. This approach empowers organizations to respond swiftly to market

fluctuations, economic uncertainties, and unforeseen disruptions without being constrained by fixed costs. Dynamic sourcing takes a strategic approach that adapts sourcing decisions in real time, responding to market changes and supply chain conditions, and it plays a crucial role in enhancing operational performance (YildizÇankaya, 2020). Through effectively managing a network of suppliers and tapping into alternative sources as needed, manufacturers can ensure the timely acquisition of highquality raw materials, which leads to improved production yield; when materials are sourced efficiently, the risk of defects diminishes, resulting in more consistent and reliable output.

Moreover, dynamic sourcing allows manufacturers to react swiftly to fluctuations in demand and inventory levels, thereby reducing cycle times; this agility helps streamline operations, remove bottlenecks, and enhance overall throughput by enabling quick shifts to suppliers who can deliver materials more rapidly. Additionally, this approach maximizes capacity utilization by ensuring that production resources are aligned with actual market needs; when sourcing is handled dynamically, manufacturers can better allocate resources, reducing idle time and ensuring that equipment and labor are fully engaged in productive tasks (Herold et al., 2023).

2.4.2 Adaptive Contracting

Adaptive contracting represents a dynamic and responsive approach to contractual agreements, acknowledging the inevitability of change in the business landscape (Kazantsev, Petrovskyi, & Müller, 2023). In contrast to conventional static contracts, adaptive contracting strives to establish agreements that are flexible and capable of evolving alongside shifting circumstances, market dynamics, and project requirements. This new approach to contracting acknowledges the need for flexibility in a time characterized by rapid technological advancements, evolving consumer behaviors, and

unpredictable global events. Fundamental to adaptive contracting is effective communication and collaboration between parties (Makudza, Jaravaza, Govha, Mukucha, & Saruchera, 2023). Regular check-ins, feedback loops, and open lines of communication create a collaborative environment where changes can be discussed, negotiated, and smoothly implemented.

Adaptive contracting relies heavily on renegotiation provisions, which serve as structured mechanisms allowing parties to reassess and adjust contractual terms in response to changing circumstances (Kazantsev et al., 2023). These clauses acknowledge the potential impact of unforeseen events, market shifts, or external factors that may necessitate modifications to the original agreement. By integrating renegotiation mechanisms, adaptive contracts facilitate collaborative discussions aimed at ensuring that both parties' needs and realities are effectively addressed over time. This flexibility enhances the contract's adaptability, enabling proactive management of changes and supporting the sustainability of a mutually beneficial partnership.

The inclusion of renegotiation provisions in adaptive contracting enables swift adaptation to emerging challenges and opportunities as they unfold (Kazantsev et al., 2023). It fosters continuous dialogue and cooperation, creating an environment where adjustments can be made promptly and transparently based on updated information and evolving business conditions. This approach not only enhances the contract's ability to navigate uncertainties and mitigate risks but also optimizes outcomes for all stakeholders involved. By formalizing the renegotiation process, adaptive contracts strengthen trust and promote long-term business relationships, demonstrating their responsiveness and resilience in dynamic market environments.

Furthermore, adaptive contracting include adjustability and flexibility in specifications, recognizing that project requirements and deliverables may evolve throughout the contract duration (Rashad & Nedelko, 2020). Unlike traditional rigid specifications, adaptive contracts permit iterative development and modifications to project scopes, timelines, or performance metrics based on real-time feedback and changing business conditions (Nicoletti & Nicoletti, 2018). This adaptability ensures that the contracted work remains relevant and aligned with the overarching goals of both parties, promoting a collaborative environment where adjustments can be seamlessly made to optimize project outcomes. Overall, the incorporation of renegotiation provisions and flexibility in specifications underscores the forward-thinking nature of adaptive contracting, emphasizing the significance of agility and collaboration in contemporary contractual relationships.

Adaptive contracting in manufacturing is a crucial strategy that modifies agreement terms in response to changing conditions and this flexibility allows manufacturers to quickly adjust to fluctuations in demand (Rashad & Nedelko, 2020). It streamlines decisionmaking processes, resulting in reduced cycle times; the ability to evolve contractual terms enables manufacturers to swiftly alter production strategies, minimizing delays that typically arise from rigid agreements. Moreover, this approach enhances capacity utilization by allowing for dynamic adjustments in production levels, enabling manufacturers to scale operations according to actual demand without incurring unnecessary costs or wasting resources (Kazantsev et al., 2023). Ultimately, adaptive contracting transforms conventional agreements into flexible frameworks that not only boost production yields and shorten cycle times but also optimize the efficient use of capacity, driving operational excellence and resilience in a rapidly changing environment.

2.4.3 Collaborative Supplier Relationships

A collaborative supplier relationship denotes a business partnership between two organizations, where both entities work together to enhance product and service quality while concurrently lowering costs (Maestrini, Martinez, Neely, Luzzini, Caniato, & Maccarrone, 2018). This form of relationship proves advantageous for both parties by fostering a more efficient supply chain. Sustaining a collaborative supplier relationship requires a shared commitment to communication and collaboration from both organizations involved. This partnership underscores mutual cooperation, transparent communication, and the pursuit of shared objectives, cultivating a mutually beneficial connection that transcends mere transactional engagements. In such affiliations, suppliers are regarded as essential strategic partners vital to the success of both entities, prompting concerted efforts to align goals, exchange information, and engage in collaborative innovation (Rashad & Nedelko, 2020).

In collaborative supplier relationships, the practice of collaborative evaluation is pivotal, involving both parties in joint assessments to enhance performance and streamline processes (Khan, Ahmed, & Irshad, 2022). This approach fosters transparency, mutual accountability, and a shared commitment to achieving excellence, ensuring collective success. Insights gathered from these evaluations are utilized to refine operations, address inefficiencies, and optimize resource utilization across organizational boundaries.

Another essential aspect of collaborative supplier relationships is adopting a partnership-oriented approach (Maestrini et al., 2018). This approach recognizes suppliers as strategic partners integral to achieving shared business objectives. It involves aligning goals, fostering open communication, and making joint investments in innovation and capability development. By leveraging each other's strengths and expertise, organizations and their suppliers can co-create value and innovate effectively. Such collaboration not

only strengthens trust and mutual respect but also establishes a foundation for sustainable growth and competitive advantage in dynamic business environments.

A partnership-oriented mindset cultivates a commitment to long-term collaboration, trust, and a shared interest in each other's prosperity. This promotes a collaborative atmosphere where challenges are addressed collectively, and both entities actively contribute to the evolution and enhancement of products and services (Nicoletti & Nicoletti, 2018). Moreover, an essential element in a collaborative supplier relationship is information sharing, emphasizing transparent and open communication between the involved organizations (Khan et al., 2022). It involves the exchange of critical information such as market trends, production capabilities, and demand forecasts, empowering both parties to make informed decisions and synchronize their strategies. Information sharing augments visibility into the supply chain, diminishes uncertainties, and facilitates collaborative planning, resulting in heightened responsiveness to market changes. The resultant transparency nurtures trust and reinforces the collaborative bond, ultimately contributing to the overall success and resilience of the collaborative supplier relationship.

Through building strong partnerships founded on trust and transparent communication, manufacturers and suppliers can engage in effective problem-solving and innovation together (Maestrini et al., 2018). This close collaboration enables manufacturers to align their production processes with the insights and capabilities of their suppliers, leading to enhanced production yields; when suppliers are integrated into the design and manufacturing phases, they can provide critical feedback that helps streamline processes and improve material quality, thereby reducing defects and increasing the reliability of the final products. Moreover, such partnerships can significantly shorten cycle times; when suppliers are involved from the outset, they can quickly adapt to changes in demand

or specifications, ensuring timely delivery of materials and minimizing potential delays (Khan et al., 2022). Additionally, the synergy fostered through these collaborative efforts allows for better optimization of capacity utilization; by understanding each other's operational strengths, both manufacturers and suppliers can coordinate their schedules and resource allocations more effectively, reducing downtime and ensuring that production resources are fully engaged (Rashad & Nedelko, 2020).

2.4.4 Iterative Procurement Planning

Iterative procurement planning is a flexible strategy within the strategic acquisition of goods and services, characterized by continuous cycles of assessment, modification, and improvement (Ameri, Sormaz, Psarommatis, & Kiritsis, 2022). In contrast to conventional, linear procurement planning models, this iterative approach recognizes the ever-changing dynamics of markets, technologies, and organizational requirements. It underscores the importance of continuous feedback loops, enabling regular evaluations of the procurement strategy based on real-time data and evolving circumstances.

Through this iterative process, organizations can swiftly adjust their procurement plans, aiming to enhance efficiency, cut costs, and seize emerging opportunities (Yildiz-Çankaya, 2020). The iterative nature of procurement planning cultivates agility, responsiveness, and the capacity to align procurement strategies with evolving business objectives, resulting in a more robust and adaptable approach to the intricacies of the contemporary marketplace.

Effective procurement strategy hinges on a robust market analysis that continually evaluates market dynamics, supplier capabilities, and industry trends (Ameri et al., 2022). This ongoing assessment ensures organizations remain agile in adapting their procurement approaches to align with current market conditions and emerging

opportunities. By adopting an iterative approach, organizations regularly refine their market analyses to stay responsive to evolving trends and competitive landscapes, enhancing strategic alignment and enabling proactive adjustments to procurement strategies to optimize resource allocation and efficiency. Contingency planning is another critical aspect of iterative procurement planning, demonstrating an organization's readiness to navigate unforeseen challenges and disruptions effectively (Yildiz-Çankaya, 2020). Organizations develop and update contingency plans based on ongoing assessments, ensuring swift responses to changing circumstances and mitigation of potential risks. This integration of flexibility into procurement frameworks strengthens resilience and maintains operational continuity amidst uncertainties. Through iterative planning processes, organizations continuously monitor and adjust their procurement practices to enhance contract compliance rates (El Mokadem, & Khalaf, 2023). This iterative approach not only underscores the importance of accountability, transparency, and trust in supplier relationships but also promotes ongoing collaboration and mutual success. By refining procurement strategies based on real-time feedback and market insights, organizations can swiftly adapt to changes and maintain strong contractual relationships.

The dynamic nature of iterative procurement planning is essential for navigating today's complex business environment (Nicoletti & Nicoletti, 2018). It ensures that organizations remain agile in responding to fluctuating market demands, regulatory shifts, and technological advancements. Proactively managing risks and seizing opportunities allows businesses to optimize procurement operations, drive innovation, and enhance overall supply chain performance. Additionally, iterative procurement planning builds resilience against disruptions, enabling organizations to mitigate the impact of unexpected events and sustain operational continuity (Wang, Dai, Fang, & Liu, 2022).

Furthermore, iterative processes align procurement activities more closely with strategic business objectives. By continually evaluating and refining procurement strategies, companies ensure that sourcing decisions support long-term growth and profitability. This strategic alignment not only boosts operational efficiency but also positions firms to capitalize on emerging market trends and opportunities. Moreover, iterative procurement planning fosters collaborative relationships with suppliers by promoting active engagement and open communication. Strengthening trust and enhancing supplier performance ultimately drives greater value across the entire supply chain.

Moreover, iterative procurement planning continuously refines the procurement process based on ongoing feedback and evolving conditions (Yildiz-Çankaya, 2020). This enables manufacturers to adapt their sourcing strategies in real time, utilizing data and insights from previous procurement cycles to make better-informed decisions about the materials and services they acquire. By engaging in this iterative planning, manufacturers can spot trends and anticipate shifts in demand, leading to improved production yields; sourcing high-quality materials at optimal times and fostering long-term relationships with dependable suppliers helps minimize defects and enhances product quality.

Additionally, this method shortens cycle times by allowing for rapid responses to market fluctuations; with procurement plans regularly evaluated and adjusted, manufacturers can quickly pivot to meet urgent needs or tackle unforeseen challenges, thus streamlining production processes and avoiding delays (Ameri et al., 2022). Furthermore, iterative procurement planning optimizes capacity utilization by ensuring that resources are aligned with actual production demands; informed by ongoing assessments, manufacturers can allocate resources more effectively, reducing downtime and ensuring that machinery and labor are fully utilized. In essence, this iterative approach creates a more agile and responsive manufacturing environment, driving improvements in

production yield, accelerating cycle times, and maximizing capacity utilization, all of which enhance overall operational efficiency and competitive edge.

2.4.5 Operational performance

Operational performance in animal feed manufacturing pertains to the efficiency and effectiveness of processes throughout feed production, encompassing activities such as ingredient sourcing, processing, formulation, and distribution (El Mokadem, & Khalaf, 2023). Achieving optimal performance involves integrating technological advancements, quality control protocols, and efficient logistics to ensure the creation of safe, nutritionally balanced feed products. Continuous monitoring of key performance indicators such as production output, quality consistency, and resource utilization is essential for meeting the nutritional needs of target animals. Pursuing operational excellence is vital for both cost-effectiveness and the well-being of the animals consuming the feed. The pivotal measures of operational performance include production yield, cycle time, and capacity utilization. Production yield quantifies the efficiency by assessing the ratio of usable output to total input, indicating effective resource utilization and minimized waste (Wang, Dai, Fang, & Liu, 2022).

Cycle time measures the duration of a specific production cycle, reflecting the speed and efficiency of the manufacturing process, with shorter cycle times signaling increased efficiency and responsiveness. Capacity utilization evaluates how extensively a manufacturing facility uses its available production capacity, ensuring efficient resource allocation, cost-effectiveness, and the ability to meet market demands (El Mokadem, & Khalaf, 2023). These measures collectively offer valuable insights into the overall effectiveness and efficiency of manufacturing operations.

2.5 Recap of Literature Review

Dynamic capabilities theory underscores an organization's ability to adapt swiftly to evolving environments, emphasizing agility and responsiveness, which are crucial in dynamic supply chain management contexts. Transaction cost theory examines the governance structures of economic transactions, with adaptive contracting practices allowing for flexible adjustments in contractual relationships to better align with changing circumstances and market dynamics. Stakeholder theory promotes the inclusion of all stakeholders' interests, beyond just shareholders, in the processes of decision-making. Network theory sees organizations as interconnected relationships, where collaborative supplier relationships in supply chain management align with stakeholder theory by promoting mutual benefits and shared value creation. Dynamic sourcing strategies prioritize flexibility, agility, and responsiveness to effectively respond to market fluctuations and technological advancements. Adaptive contracting strategies aim to ensure flexibility in adapting to evolving project requirements and market conditions, highlighting the importance of renegotiation provisions and flexible specifications in promoting agility and collaboration within contractual relationships. Furthermore, collaborative supplier relationships are pivotal in enhancing supply chain efficiency through sustained, long-term partnerships that foster innovation and operational excellence. Iterative procurement planning involves continuous cycles of assessment, modification, and improvement to address the dynamic nature of markets, technologies, and organizational needs. This iterative method allows organizations to utilize ongoing feedback loops and current data for making well-informed decisions and optimizing procurement strategies efficiently.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the organized approach a researcher use to plan, conduct, and analyze study (Zina, 2021). It involves the comprehensive strategy, design, and techniques utilized in exploring a specific research question or addressing a particular problem.

3.2 Research Design

The research design provides the framework outlining a study's structure and approach. This study utilized a descriptive research design to provide a detailed and accurate depiction of the characteristics, behaviors, or phenomena under investigation (Zina, 2021). This approach was suitable for assessing agile procurement strategies and operational performance among animal feed manufacturers, as it offered a foundational understanding of the industry's current status. This approach enabled the researcher to systematically collect and analyze data, presenting a detailed overview of agile procurement strategies and operational performance metrics among animal feed manufacturers. It was also essential in identifying patterns and trends serving as a crucial step in informing subsequent in-depth analyses.

3.3 Location of the Study

The research was conducted in Nakuru County, recognized as one of Kenya's most industrially advanced regions. It ranks third in population size and second in economic performance, boasting a significant GDP of Kshs. 517,462,000,000. Figure 2 shows the location of the study.

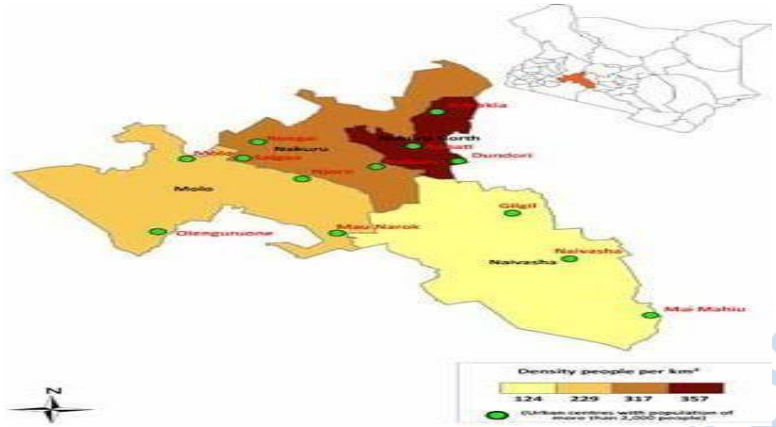

Figure 2: Location of the Study

3.4 Target Population

The target population consists of all individuals or elements that the researcher intends to study or generalize findings to (Zina, 2021). It constitutes the larger collective possessing the specific characteristics or attributes of interest to the researcher. This broader entity serves as the source from which a sample is selected to conduct research. This study focused on the 17 licensed animal feed manufacturers operating within Nakuru County as its target population. The study involved key personnel from each manufacturer, including operations managers, supply chain officers, production managers, accountants, and clerical officers, totaling 85 respondents.

3.5 Sampling Procedures and Techniques

Sampling procedures are the methods for selecting a subset from a larger population to make inferences or generalize findings (Flick, 2022). The sampling technique refers to the process used to choose a representative subset from the population, which can be categorized into probability and non-probability methods. Probability sampling gives each population element an equal chance of selection, using techniques such as simple random, stratified, or cluster sampling (Mikalef, Boura, Lekakos, & Krogstie, 2019). On the other hand, non-probability sampling involves unknown selection chances for

individuals in the population, using methods like convenience, purposive, or quota sampling. However, in the current study, sampling was not feasible due to the small population size. Therefore, a census method was employed, involving all 85 individuals comprising operations managers, supply chain officers, production managers, accountants, and clerical officers.

3.6 Sample Population

The sample population, as defined by Cash, Isaksson, Maier, and Summers (2022), consists of the specific individuals or elements selected for a study or survey, representing a subset of a larger population. This study included 85 professionals from animal feed manufacturers in Nakuru County, encompassing operations managers, supply chain officers, production managers, accountants, and clerical staff.

3.7 Data Collection Methods

Research instruments are tools used to collect data in studies (Cash et al., 2022). They are essential for systematically gathering information and measuring variables. The selection of instruments depends on the research question, data type, and study characteristics. In this study, a questionnaire was used to collect standardized, quantifiable responses from a large sample. This method was deemed appropriate for systematic analysis and effectively achieving the research objectives.

3.8 Pilot Study

A pilot study is a preliminary version of a research project designed to evaluate the effectiveness of data collection tools (Muzari, Shava, & Shonhiwa, 2022). It helps researchers identify and address potential challenges before the main study, ensuring the accuracy and reliability of results. In this case, a pilot study was conducted with nine

animal feed manufacturers in Nyandarua County to assess the validity and reliability of the data collection instrument.

3.8.2 Validity Testing

Validity refers to how effectively a measurement tool aligns with its intended purpose, ensuring that it comprehensively covers the domain of interest (Muzari et al., 2022). Content validity specifically assesses how well a measurement instrument, like a questionnaire, reflects all relevant dimensions of the concept under investigation. It ensures that the tool captures the essential elements of the subject matter. Establishing content validity typically involves expert evaluation to determine if the instrument encompasses all necessary aspects of the concept. In this study, content validity was achieved by ensuring that the research instruments addressed all critical aspects of the variables being analyzed. The project supervisor provided valuable feedback, which helped refine the questionnaire to accurately represent the study's objectives and effectively measure the intended content.

3.8.2 Reliability Testing

Reliability concerns the constancy, stability, or repeatability of measurements, with a reliable instrument generating consistent results under uniform conditions (Muzari et al., 2022). Reliability measures the consistency of results across different items within a test or measurement instrument. In this study, the reliability of the questionnaire was evaluated using Cronbach's alpha coefficient, with detailed results presented in Table 1.

Table 1: Reliability Test Results

Variables	Items Tested	Cronbach Alpha Values
i. Dynamic Sourcing	5	0.844
ii. Adaptive Contracting	5	0.792

iii.	Collaborative Supplier Relationships	5	0.716
iv.	Iterative Procurement Planning	5	0.809
v.	Operational Performance	6	0.757

Source: Researcher (2024)

The findings presented in Table 1 provide an overview of the questionnaire's reliability assessment. Dynamic sourcing showed a Cronbach's alpha (α) of 0.844, reflecting strong internal consistency among its related statements as a key agile procurement strategy. Adaptive contracting showed consistent reliability, achieving a Cronbach's alpha of α=0.792. Likewise, collaborative supplier relationships exhibited reliability with a Cronbach's alpha value of α=0.716. Iterative procurement planning demonstrated strong reliability with a Cronbach's alpha of α=0.809, confirming its effectiveness in capturing the iterative aspects of procurement processes.

Moreover, the assessment of operational performance yielded a Cronbach's alpha of α=0.757, indicating reliable measurement of performance metrics. Overall, all variables exceeded the minimum threshold of 0.7 for Cronbach's alpha, affirming the questionnaire's reliability in accurately capturing data for the main study. This reliability ensured that the questionnaire consistently measures the constructs of dynamic sourcing, adaptive contracting, collaborative supplier relationships, iterative procurement planning, and operational performance.

3.9 Data Collection Methods and Procedures

Data collection is a vital stage in the research process, as it involves gathering information to address research questions or test hypotheses (Muzari et al., 2022). The validity and

reliability of the findings depend significantly on the data collection methods and procedures used. To comply with ethical standards, authorization letters were secured from Mount Kenya University and the National Commission for Science, Technology, and Innovation (NACOSTI). The data collection was carried out using the drop-and-pick method.

3.10 Data Analysis Techniques and Procedures

The data analysis phase plays a pivotal role in the research process by processing gathered data to derive meaningful and comprehensible insights (Mikalef et al., 2019). Selecting appropriate data analysis techniques hinges on the data characteristics and specific research inquiries. The analysis incorporated both descriptive and inferential methods. Descriptive statistics involved means, percentages, and standard deviations, while inferential techniques included correlation and regression analysis. Data analysis was performed using the Statistical Package for Social Sciences (SPSS), and the results were displayed in tabular format. The regression model utilized for the analysis is as follows:

$Y=\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$; Where;

Y = Operational Performance β_0

= Constant

β_1 = Dynamic Sourcing

β_2 = Adaptive Contracting

β_3 = Collaborative Supplier

Relationships β_4 = Iterative Procurement Planning ε = Error of

Margin

Prior to regression analysis, diagnostic tests were conducted to assess normality, linearity, multicollinearity, and homoscedasticity. The normality test, as explained by Whang (2019), evaluates whether the data follows a normal distribution, which is vital for statistical methods such as correlation, regression, t-tests, and ANOVA. This study

prioritized the normality test to ensure accurate data interpretation, employing both the Kolmogorov-Smirnov and Shapiro-Wilk tests. The Kolmogorov-Smirnov test compares the sample's cumulative distribution function with a normal distribution, while the Shapiro-Wilk test measures deviations from normality, particularly in smaller samples. Both tests operate under the null hypothesis of normality, with a low p-value indicating significant deviation.

The linearity diagnostic test, as recommended by Chan and Tobias (2021), evaluates the relationship between the outcome variable and predictors, confirming the assumption of linearity when the significance value exceeds 0.05. This ensures reliable conclusions from the analysis. Multicollinearity, highlighted by Whang (2019), examines correlations between independent variables. High correlations can affect the reliability of regression results. To address this, the Variance Inflation Factor (VIF) is used to identify and mitigate multicollinearity, enhancing model robustness. Homoscedasticity testing, according to Chan and Tobias (2021), evaluates the consistency of residual variance across variables. Uniform variance is essential for reliable findings, as non-uniform variance can compromise accuracy. A significance value above 0.05 indicates homoscedastic data.

3.11 Ethical Considerations

Ethical considerations provide the foundational principles that guide researchers in their conduct (Bell, Bryman, & Harley, 2022). This study adhered strictly to these principles, including maintaining confidentiality of respondents, ensuring voluntary participation, safeguarding anonymity, and obtaining informed consent from all participants.

Furthermore, ERC clearance was sought before the commencement of data collection.

3.11.1 Confidentiality

The researcher was committed to preserving the confidentiality of research data collected from participants. There was a dedicated effort to uphold trust and ensure that shared information remains confidential unless explicit permission was granted otherwise.

3.11.2 Voluntary Participation

Emphasizing individual autonomy, voluntary research participation allowed freedom of choice without coercion. The researcher furnished clear information about the study, its risks, and benefits, which enabled them decide on participating in the study. This practice upheld ethical integrity and participants' rights.

3.11.3 Anonymity

The researcher prioritized respecting and safeguarding the respondents by refraining from disclosing their identity and personal details. This ensured participant privacy through the practice of anonymity.

3.11.4 Informed Consent

In this study, the researcher actively obtained informed consent from participants, ensuring transparency and clarity about the study's goals and procedures. A strong commitment to ethical standards was upheld, respecting the autonomy of all individuals involved in the research.

CHAPTER FOUR:

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the research findings, analysis, and presentation concerning the impact of agile procurement strategies on operational performance within the animal feed manufacturing sector. The main strategies examined included dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning. Additionally, the chapter incorporate the response rate.

4.2 Response Rate

The study focused on 85 operations managers, supply chain officers, production managers, accountants, and clerical staff from animal feed manufacturers. All 85 questionnaires were distributed, and 61 were completed and returned, yielding a response rate of 71.8%. This rate was deemed adequate for providing reliable and meaningful data for the research.

4.3 Descriptive Findings

The study aimed to examine how operational performance is influenced by agile procurement strategies such as dynamic sourcing, adaptive contracting, and collaborative relationships with suppliers, and iterative planning of procurement. Findings are presented in Tables 2-6.

4.3.1 Effect of Dynamic Sourcing on Operational Performance

The research's first objective was to assess the dynamic sourcing's effect on operational performance. The results are detailed in Table 2:

Table 2: Effect of Dynamic Sourcing on Operational Performance

Statement	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev
Dynamic sourcing enables animal feed manufacturers to swiftly respond to shifts in market conditions.	61	31.1%	52.5%	9.8%	3.3%	3.3%	4.05	0.921
The flexibility of dynamic sourcing enable procurement officers to respond promptly to alterations in demand.	61	39.3%	37.7%	21.3%	1.6%	0%	4.15	0.813
Dynamic sourcing fosters innovation within procurement processes.	61	26.2%	21.3%	37.7%	11.5%	3.3%	3.56	1.103
Sourcing agility enhances efficiency in the procurement function.	61	21.3%	24.6%	27.9%	14.8%	11.5%	3.30	1.283
Flexible costs contribute to cost-effectiveness and financial adaptability.	61	34.4	49.2%	11.5%	3.3%	1.6%	4.11	0.858

Source: Researcher (2024)

The descriptive findings showed that dynamic sourcing as a practice of agile procurement affect the animal feed manufacturers' operational performance. The results showed that

31.1% of participants strongly agreed, and 52.5% agreed, resulting in a total of 83.6% of respondents who indicated some level of agreement (Mean=4.05) that dynamic sourcing enables animal feed manufacturers to swiftly adjust to changes in market conditions. Dynamic sourcing allows animal feed manufacturers to rapidly respond to changing market conditions, ensuring a continuous supply of essential ingredients. This adaptability enhances their operational effectiveness by minimizing interruptions and maintaining production efficiency. The findings indicated that 39.3% of participants strongly agreed and 37.7% agreed, resulting in a total of 77% expressing agreement (Mean=4.15) that the flexibility of dynamic sourcing allows procurement officers to quickly respond to changes in demand. The flexibility of dynamic sourcing enables procurement officers to quickly adapt to demand changes, thereby improving the operational performance of animal feed manufacturers. Additionally, 47.5% of the respondents agreed, while 37.7% held differing opinions (Mean=3.56) that dynamic sourcing fosters innovation within procurement processes.

Dynamic sourcing spurs innovation by enabling exploration of new suppliers, materials, and cutting-edge technologies, ultimately enhancing operational performance through optimized resource utilization and competitive edge. Moreover, 27.9% of the respondents were neutral (Mean=3.30) that sourcing agility enhances efficiency in the procurement function. Furthermore, 83.6% of the respondents agreed (Mean=4.11) that flexible costs contribute to cost-effectiveness and financial adaptability. Flexible costs aid animal feed manufacturers in achieving cost-effectiveness and financial adaptability by enabling adjustments in expenses based on market fluctuations and demand changes, thus optimizing resource allocation. This adaptability improves operational performance by ensuring the efficient utilization of financial resources and sustaining competitiveness in the market.

This study reflects the findings of Tarus and Ndeto (2021) regarding strategic procurement and its impact on performance. Their research revealed that elements such as strategic sourcing systems significantly and positively affect performance results. Furthermore, the findings are consistent with Susan and Wagoki's (2014) research on the link between strategic material sourcing and the operational performance of manufacturing firms. Their study highlights the crucial role of effective supplier relationship management in minimizing monitoring costs, resolving conflicts, and enhancing communication between businesses and suppliers, ultimately leading to improved operational outcomes. Additionally, the results are in line with Yildiz-Çankaya's (2020) on the strategic sourcing and supply chain strategies. The findings demonstrated that strategic sourcing positively influences both lean and agile supply chain approaches.

As per the current study, dynamic sourcing has proven to be a crucial agile procurement strategy that positively impacts operational performance. The research findings reveal that this approach allows organizations to quickly adjust to changing market conditions, thereby enhancing their responsiveness and overall efficiency. Through adopting dynamic sourcing practices, animal feed manufacturers can refine their supply chain processes, strengthen partnerships with suppliers, and ultimately achieve superior operational results. This strategy not only facilitates immediate adaptability but also fosters long-term resilience in an ever-evolving market.

4.3.2 Effect of Adaptive Contracting on Operational Performance

The study's second objective was to examine the adaptive contracting's effect on operational performance, with the results presented in Table 3.

Table 3: Effect of Adaptive Contracting on Operational Performance

Statement	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev
The flexibility embedded in adaptive contracting allows animal feed manufacturers to adapt to shifting market dynamics.	61	47.5%	34.4%	8.2%	6.6%	3.2%	4.16	1.052
Renegotiation provisions in contracts are valuable for sourcing sustainability.	61	29.5%	34.4%	14.8%	16.4%	4.9%	3.67	1.207
Our organization actively adjusts contract specifications based on changing business conditions.	61	42.6%	41%	14.8%	1.6%	0%	4.25	0.767
Adaptive contracting is essential for competitiveness in the market.	61	16.4%	32.8%	23%	21.3%	6.6%	3.31	1.177
Adaptive contracting ensures that contractual relationships remain aligned with evolving product requirements.	61	32.8%	47.5%	13.1%	4.9%	1.6%	4.05	0.902

Source: Researcher (2024)

The findings revealed that 47.5% of respondents strongly agreed (Mean=4.16) that the flexibility inherent in adaptive contracting enables animal feed manufacturers to adjust to changing market dynamics. The adaptability provided by adaptive contracting empowers animal feed manufacturers to respond to evolving market dynamics, thereby improving efficiency. 34.4% of the respondents agreed that renegotiation provisions in contracts are valuable for sourcing sustainability. Renegotiation clauses in contracts are

instrumental in securing sourcing sustainability for animal feed manufacturers, thus positively impacting their operational performance. Furthermore, 42.6% of respondents strongly agreed, and 41% agreed, indicating that 83.6% acknowledged (Mean=4.25) that their animal feed manufacturers actively modify contract specifications in response to evolving business conditions. Additionally, 32.8% of respondents indicated that adaptive contracting is crucial for maintaining competitiveness in the market. Moreover, 80.3% of the respondents agreed (Mean=4.05) that adaptive contracting ensures that contractual relationships remain aligned with evolving product requirements. Adaptive contracting aligns contractual relationships with evolving product requirements, enhancing efficiency in animal feed manufacturing. Through accommodating changes in needs and specifications, it optimizes resource utilization and streamlines operations.

The findings are in agreement with research by Omwoyo et al. (2029), which investigated lean procurement initiatives and their effect on supply chain agility. Their study found that implementing lean procurement significantly enhances supply chain agility. As per the current study, adaptive contracting was identified as a crucial agile procurement strategy impacting operational performance. The results revealed that the inherent flexibility of adaptive contracting allows organizations to adjust contract terms rapidly in response to changing circumstances, thereby improving efficiency and effectiveness animal feed manufacturers' operations.

4.3.3 Effect of Collaborative Supplier Relationships on Operational Performance

The third objective of the study was to assess the effect of collaborative supplier relationships on the operational performance of animal feed manufacturers. The results are presented in Table 4:

Table 4: Effect of Collaborative Supplier Relationships on Operational Performance

Statement	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev
Collaborative supplier relationships are essential for enhancing the quality of products or services.	61	37.7%	45.9%	11.5%	4.9%	0%	4.16	0.820
Long-term collaboration with suppliers is prioritized to foster an efficient supply chain in our organization.	61	37.7%	32.8%	27.9%	1.6%	0%	4.07	0.854
Our organization actively engages in collaborative evaluation with suppliers.	61	23%	27.9%	24.6%	19.7%	4.9%	3.44	1.191
A partnership-oriented approach is recognized as crucial in our relationships with suppliers.	61	23%	16.4%	29.5%	18%	13.1%	3.18	1.336
Information sharing with suppliers is a regular practice in our organization.	61	49.2%	26.2%	13.1%	8.2%	3.3%	4.10	1.121

Source: Researcher (2024)

According to the descriptive findings, 83.6% of respondents (Mean = 4.16) agreed that collaborative supplier relationships significantly enhance product and service quality. These relationships contribute to improved quality in animal feed manufacturing by facilitating knowledge sharing, expertise exchange, and continuous improvement initiatives. Additionally, they lead to operational advancements, including streamlined processes, reduced lead times, and increased adaptability to market changes. Furthermore, 70.5% of respondents (Mean = 4.07) indicated that their organizations prioritize long-term collaboration with suppliers to maintain an efficient supply chain.

Establishing enduring partnerships with suppliers nurtures a profound comprehension of their capabilities and needs, thereby promoting seamless coordination and communication throughout the animal feed manufacturers' supply chain. This heightened collaboration results in improved capacity utilization and a more effective supply chain, ultimately enhancing operational performance. Although 27.9% agreed, 19.7% were neutral and 19.7% disagreed that their respective animal feed manufacturers actively engages in collaborative evaluation with suppliers. Similarly, 29.5% of the respondents were indifferent (Mean=3.18) that a partnership-oriented approach is recognized as crucial in our relationships with suppliers. Moreover, 49.2% of the respondents strongly agreed (Mean=4.10) that information sharing with suppliers is a regular practice in their respective animal feed manufacturers. Information sharing within collaborative supplier relationships fosters transparency and alignment of goals, leading to improved coordination and decision-making, ultimately enhancing operational performance through streamlined processes and optimized resource utilization. This research connects with the work of Kiiru et al. (2022), who examined the impact of customer orientation on performance of small and medium enterprises (SMEs) in Kenya's animal feed

manufacturing sector, demonstrating a notable influence. Similarly, the results also resonate with Kiarie's (2017) study on the effects of supplier relationship management practices on the operational performance of large manufacturing organizations in Kenya. The regression analysis revealed that changes in these practices accounted for variations in operational performance, with 85.5% linked to both supplier relationship management and supply chain attributes. Moreover, the findings relate to Nyaberi's (2020) exploration of supplier development management practices and their impact on organizational performance. This research indicated that factors such as supplier selection, technical capabilities, and information exchange, including evaluations, influence supplier development. The findings from the current research revealed that collaborative supplier relationships play a crucial role in enhancing operational performance within agile procurement. This strategy promotes stronger partnerships between animal feed manufacturers and their suppliers, enabling improved communication, trust, and alignment of objectives. Through close collaboration, organizations can optimize processes, shorten lead times, and elevate product quality, resulting in more efficient operations by animal feed manufacturers.

4.3.4 Effect of Iterative Procurement Planning on Operational Performance

The fourth objective of the study was to evaluate the effect of iterative procurement planning on the operational performance. The results are presented in Table 5:

Table 5: Effect of Iterative Procurement Planning on Operational Performance

Statement	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev
Continuous cycles of assessment and modification are integral to the procurement planning.	61	44.3%	41%	11.5%	3.3%	0%	4.26	0.794

Robust market analysis is regularly conducted to align procurement function with current conditions.	61	8.2%	16.4%	55.7%	13.1%	6.6%	3.07	0.946
Contingency plans are continually reviewed and adjusted based on ongoing assessments.	61	42.6%	34.4%	16.4%	6.6%	0%	4.13	0.922
High contract compliance rates reflect our dedication to optimizing procurement processes.	61	8.2%	27.9%	45.9%	14.8%	3.3%	3.23	0.920
Our organization considers iterative planning as a key element for enhancing efficiency.	61	14.8%	50.8%	27.9%	6.6%	0%	3.74	0.794

Source: Researcher (2024)

Descriptive findings established that iterative procurement planning affect operational performance of animal feed manufacturers. 85.3% of the respondents agreed (Mean=4.26) that continuous cycles of assessment and modification are integral to the procurement planning. Continuous assessment and modification cycles are crucial in procurement planning, influencing the operational performance of animal feed manufacturers by ensuring procurement strategies stay adaptable and optimized to address evolving demands and market conditions. However, 55.7% of the respondents were neutral (Mean=3.07) that a Robust market analysis is regularly conducted in their organizations to align procurement function with current conditions. 77% of the respondents agreed (Mean=4.13) that contingency plans are continually reviewed and adjusted based on ongoing assessments in their organizations.

Furthermore, 45.9% of respondents expressed varying views (Mean=3.23) regarding whether high contract compliance rates indicate the commitment of animal feed manufacturers to enhancing procurement processes. The high rates of contract compliance showcase the dedication of animal feed manufacturers to enhancing procurement processes, thereby positively influencing their operational efficiency through effective resource management and timely material delivery. 50.8% of the respondents agreed that their respective animal feed manufacturers considers iterative planning as a key element for enhancing efficiency. In animal feed manufacturing, iterative planning improves efficiency through ongoing adjustments to processes and resource allocation. It is informed by real-time feedback and market dynamics, ensuring operations stay adaptable and responsive, ultimately maximizing productivity.

The findings align with Miriti's (2018) assessment into the effects of procurement planning on supply chain performance. This study determined that activities such as assessing procurement needs, defining quality specifications, and selecting suppliers significantly enhance supply chain performance. Based on the present research, iterative planning is recognized as an essential strategy in agile procurement that plays a crucial role in enhancing operational performance. The findings reveal that this method enables organizations to consistently improve their procurement processes through frequent evaluations and adjustments informed by real-time data and insights. For animal feed manufacturers, adopting iterative planning enhances their responsiveness to changing demands and optimizes the allocation of resources. This continuous cycle of assessment and adaptation not only boosts efficiency and effectiveness but also cultivates a proactive culture that underpins sustained operational excellence in a competitive environment.

4.3.5 Operational Performance of Animal Feed Manufacturers

The researcher gathered respondents' perspectives on the operational performance of animal feed manufacturers, with the results shown in Table 6:

Table 6: Operational Performance of Animal Feed Manufacturers

Statement	N	SA 5	A 4	N 3	D 2	SD 1	Mean	Std. Dev
Our production yield is adequate.	61	49.2%	29.5%	14.8%	6.6%	0%	4.21	0.933
Our cycle times for key processes are consistently optimized for efficiency.	61	32.8%	50.8%	11.5%	3.3%	1.6%	4.10	0.851
Our organization's capacity utilization is sustainable.	61	13.1%	18%	55.7%	8.2%	4.9%	3.26	0.964
We adopt a proactive approach to fluctuating capacity requirements.	61	50.8%	34.4%	13.1%	1.6%	0%	4.34	0.772
Regular assessments are conducted to ensure optimal production.	61	47.5%	31.1%	9.8%	9.8%	1.6%	4.13	1.056
Agile procurement strategies affect operational performance.	61	31.1%	50.8%	11.5%	4.8%	1.6%	4.05	0.884

Source: Researcher (2024)

The findings revealed that 78.7% of respondents agreed (Mean=4.21) that their production yield is satisfactory. Additionally, 83.6% agreed (Mean=4.10) that their key process cycle times are consistently optimized for efficiency. Furthermore, 50.8% strongly agreed (Mean=4.34) that their animal feed manufacturers take a proactive approach to fluctuating capacity requirements, with regular assessments conducted to

maintain optimal production levels. Moreover, 81.9% of respondents agreed (Mean=4.05) that agile procurement strategies encompassing dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning significantly influence operational performance among animal feed manufacturers in Nakuru County. This study reflects the findings of Tarus and Ndeto (2021) regarding strategic procurement and its impact on performance. Their research revealed that elements such as strategic sourcing, outsourcing, information technology, and inventory management systems significantly and positively affect performance results. The overall descriptive findings reveal that agile procurement strategies significantly influence the animal feed manufacturers' operational performance. They particularly enhance efficiency, responsiveness, and effectiveness in manufacturing operations. By adopting these strategies, the animal feed manufacturers can navigate market fluctuations more effectively, optimize resource allocation, and improve supply chain dynamics, leading to superior operational performance.

4.4 Diagnostic Tests

Diagnostics were performed to evaluate the assumptions underlying the linear regression model, including normality, linearity, multicollinearity, and homoscedasticity.

4.4.1 Normality Test Results

A normality test was conducted to determine whether the data followed a normal distribution, with the results shown in Table 7:

Table 7: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Operational Performance	.122	61	.024	.972	61	.179

a. Lilliefors Significance Correction

Source: Researcher (2024)

The findings indicated that the significance value was p=0.179, which exceeded the 5% significance level. This suggests that the data adhered to a normal distribution, ensuring accurate estimation of regression coefficients and reliable statistical inferences. Additionally, this enhanced the precision of confidence interval estimation, which relies on normality for accuracy.

4.4.2 Linearity Test Results

Tests for linearity were conducted to ascertain the linear relationship between each independent variable and the dependent variable. The results are depicted in Tables 8, 9, 10, and 11.

Table 8: Linearity between Dynamic Sourcing and Operational Performance

			Sum of Squares	df	Mean Square	F	Sig.
Operational Performance * Dynamic Sourcing	Between Groups	(Combined)	4.538	12	.378	4.189	.000
		Linearity	2.582	1	2.582	28.596	.000
		Deviation from Linearity	1.956	11	.178	1.970	.053
	Within Groups		4.334	48	.090		
	Total		8.872	60			

Source: Researcher (2024)

The findings revealed a significance value of 0.053, surpassing the 5% significance threshold, indicating the existence of a linear association between dynamic sourcing and operational performance. This indicates that changes in the independent variable were proportionate to changes in the dependent variable, allowing for precise prediction and interpretation of their relationship within the model.

Table 9: Linearity between Adaptive Contracting and Operational Performance

			Sum of Squares	df	Mean Square	F	Sig.
Operational Performance * Adaptive Contracting	Between Groups	(Combined)	3.393	9	.377	3.509	.002
		Linearity	1.941	1	1.941	18.067	.000
		Deviation from Linearity	1.452	8	.182	1.689	.124
	Within Groups		5.479	51	.107		
	Total		8.872	60			

Source: Researcher (2024)

The findings showed a significance value of 0.124, surpassing the 5% significance level, indicating a potential linear relationship between adaptive contracting and operational performance. This suggests that variations in the independent variable were proportionally associated with changes in the dependent variable. It facilitated the prediction and interpretation of their interrelation within the model.

Table 10: Linearity between Collaborative Supplier Relationships and Operational Performance

			Sum of Squares	df	Mean Square	F	Sig.
Operational Performance * Collaborative Supplier Relationships	Between Groups	(Combined)	5.787	13	.445	6.782	.000
		Linearity	5.141	1	5.141	78.326	.000
		Deviation from Linearity	.646	12	.054	.820	.629
	Within Groups		3.085	47	.066		
	Total		8.872	60			

Source: Researcher (2024)

The findings revealed a p-value of 0.629, which exceeds the 0.05 threshold, indicating that there is no statistically significant relationship between collaborative supplier

relationships and operational performance. The linearity assumption was satisfied, ensuring a straightforward interpretation of how the independent and dependent variables relate. This supported predictive modeling and inference during the analysis.

Table 11: Linearity between Iterative Procurement Planning and Operational Performance

			Sum of Squares	df	Mean Square	F	Sig.
Operational Performance * Iterative Procurement Planning	Between Groups	(Combined)	3.331	13	.256	2.173	.026
		Linearity	2.273	1	2.273	19.275	.000
		Deviation from Linearity	1.058	12	.088	.748	.698
	Within Groups		5.542	47	.118		
	Total		8.872	60			

Source: Researcher (2024)

The findings revealed a significance value of 0.698, which exceeded the 5% significance level. This suggests a linear relationship between iterative procurement planning and operational performance. It implies that changes in the independent variable were proportionally associated with changes in the dependent variable, facilitating prediction and interpretation within the model's framework.

4.4.3 Multicollinearity Test Results

A multicollinearity test was conducted to assess the degree of correlation among independent variables. The results of this test can be found in Table 12.

Table 12: Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Dynamic Sourcing	.792	1.262

Adaptive Contracting	.891	1.122
Collaborative Supplier Relationships	.750	1.333
Iterative Procurement Planning	.778	1.285

a. Dependent Variable: Operational Performance

Source: Researcher (2024)

The findings showed that Variance Inflation Factor (VIF) values of 1.262, 1.122, 1.333, and 1.285 for dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning, respectively. The variance inflation factor (VIF) values for all variables were within the acceptable range of 1 to 10, suggesting that there were no multicollinearity issues.

4.4.4 Homoscedasticity Test Results

A homoscedasticity test was performed to assess the uniformity of residuals. Results are detailed in Table 13.

Table 13: Homoscedasticity Test Results

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.346	.192		1.799	.077
Dynamic Sourcing	.017	.035	.071	.489	.627
Adaptive Contracting	-.074	.046	-.221	-1.602	.115
Collaborative Supplier Relationships	.015	.026	.086	.572	.569
Iterative Procurement Planning	-.008	.031	-.036	-.245	.807

a. Dependent Variable: Operational Performance

Source: Researcher (2024)

The findings show that the p-values were 0.627, 0.115, 0.569, and 0.807 for dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative

procurement planning, respectively. All the values were greater than the 5% significance level, indicating no heteroscedasticity problem with the data.

4.5 Inferential Findings

Inferential analysis was undertaken to determine the relationship between agile procurement strategies and operational performance. It employed both correlation and regression analyses.

4.5.1 Correlation Analysis Results

Correlation analysis was conducted to assess the strength and direction of the relationship between each agile procurement strategy and operational performance. Results are detailed in Table 14.

Table 14: Correlations Matrix

		Operational Performance	Dynamic Sourcing	Adaptive Contracting	Collaborative Supplier Relationships	Iterative Procurement Planning
Operational Performance	Pearson Correlation	1	.539**	.468**	.761**	.506**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	61	61	61	61	61
Dynamic Sourcing	Pearson Correlation	.539**	1	.206	.414**	.323*
	Sig. (2-tailed)	.000		.112	.001	.011
	N	61	61	61	61	61
Adaptive Contracting	Pearson Correlation	.468**	.206	1	.222	.298*
	Sig. (2-tailed)	.000	.112		.086	.020
	N	61	61	61	61	61
Collaborative Supplier Relationships	Pearson Correlation	.761**	.414**	.222	1	.390**
	Sig. (2-tailed)	.000	.001	.086		.002

	N	61	61	61	61	61
Iterative Procurement Planning	Pearson Correlation	.506**	.323*	.298*	.390**	1
	Sig. (2-tailed)	.000	.011	.020	.002	
	N	61	61	61	61	61

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher (2024)

The results reveal a moderate and positive correlation between dynamic sourcing and operational performance (r=0.539**; p=0.000) at the 1% significance level. This suggests that enhancing supplier flexibility, sourcing agility, and cost adaptability directly impacts the operational performance of animal feed manufacturers. Improving dynamic sourcing practices within agile procurement frameworks could therefore lead to enhanced operational performance in this sector.

A significant positive correlation (r=0.468**; p=0.000) was found between adaptive contracting and operational performance. This suggests that elements such as renegotiation options, flexibility, and adjustability in specifications positively influence operational results. Thus, improving adaptive contracting practices can enhance the operational performance of animal feed manufacturers. Additionally, a strong positive correlation (r=0.761**; p=0.000) was identified between collaborative supplier relationships and operational performance at the 1% significance level. This underscores the importance of collaborative evaluation, a partnership-oriented approach, and information sharing in achieving positive operational outcomes within the animal feed manufacturing sector. Strengthening collaborative supplier relationships as part of agile procurement strategies is vital for improving operational performance among these manufacturers.

Furthermore, a significant and positive relationship (r=0.506**; p=0.000) was observed between iterative procurement planning and operational performance. This indicates that market analysis, contingency plans, and contract compliance rates, as indicators of iterative procurement planning, play a role in determining operational performance. The positive correlation implies that improvement of the effectiveness of iterative procurement planning affect the operational performance of animal feed manufacturers.

4.5.2 Regression Analysis Results

The regression analysis sought to predict the operational performance of animal feed manufacturers based on changes in agile procurement strategies. The results are presented in Tables 15, 16, and 17:

Table 15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856[a]	.733	.714	.20566

a. Predictors: (Constant), Iterative Procurement Planning, Adaptive Contracting, Dynamic Sourcing, Collaborative Supplier Relationships

Source: Researcher (2024)

The model summary reveals a correlation coefficient of R=0.856, along with a coefficient of determination of R^2 = 0.733. This means that agile procurement strategies including dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning collectively accounted for 73.3% of variation in operational performance. It implies that agile procurement strategies affect the animal feeds manufacturers' operational performance.

Table 16: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.504	4	1.626	38.445	.000[b]
	Residual	2.368	56	.042		
	Total	8.872	60			

a. Dependent Variable: Operational Performance

b. Predictors: (Constant), Iterative Procurement Planning, Adaptive Contracting, Dynamic Sourcing, Collaborative Supplier Relationships

Source: Researcher (2024)

The Analysis of Variance (ANOVA) results indicated a significant F-value of 38.445 at a 95% confidence level (p=0.000), suggesting that the overall model was well-fitted and confirming that agile procurement strategies have a substantial impact on operational performance.

Table 17: Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.825	.325		2.537	.014
	Dynamic Sourcing	.158	.059	.208	2.677	.010
	Adaptive Contracting	.273	.078	.258	3.524	.001
	Collaborative Supplier Relationships	.309	.044	.562	7.054	.000
	Iterative Procurement Planning	.095	.052	.143	1.827	.073

a. Dependent Variable: Operational Performance

Source: Researcher (2024)

The $Y=\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$ was interpreted as $Y=0.825 + 0.158X_1 + 0.273X_2 + 0.309X_3 + 0.095X_4 + \varepsilon$. The results indicated that a one-unit increase in dynamic scheduling (X_1) corresponds to a 0.158 unit increase in operational

performance. Similarly, one-unit increases in adaptive contracting (X_2) and collaborative supplier relationships (X_3) resulted in changes of 0.273 and 0.309 units in operational performance, respectively. Additionally, a one-unit increase in iterative procurement planning (X_4) contributed to a 0.095 unit change in operational performance.

The t-value for dynamic sourcing was significant at 2.677 (p=0.010), confirming its impact on operational performance. A strong relationship was also found between adaptive contracting and operational performance, with a t-value of 3.524 (p=0.001). Furthermore, the t-value for collaborative supplier relationships was 7.054 (p=0.000), indicating a significant effect on operational performance. However, the relationship between iterative procurement planning and operational performance was not significant (t=1.827; p=0.073), suggesting insufficient evidence to support its influence. Overall, these findings illustrate that changes in agile procurement strategies significantly predict operational performance among animal feed manufacturers.

CHAPTER FIVE:

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary, conclusions, recommendations, and suggestions for future research.

5.2 Summary of Findings

This section outlines the summary of findings regarding the effect of dynamic sourcing, adaptive contracting, collaborative supplier relationships, and iterative procurement planning.

5.2.1 Dynamic Sourcing

The descriptive findings indicate that dynamic sourcing, as a practice within agile procurement, impacts the operational performance of animal feed manufacturers. They illustrate that dynamic sourcing enables animal feed manufacturers to swiftly adjust to shifts in market conditions, ensuring a steady supply of essential ingredients and minimizing disruptions, thereby enhancing operational efficiency. Moreover, the results highlight that the flexibility afforded by dynamic sourcing empowers procurement officers to promptly respond to fluctuations in demand, thereby improving operational performance. Additionally, dynamic sourcing stimulates innovation within procurement processes, facilitating the exploration of new suppliers, materials, and technologies, ultimately enhancing operational performance through optimized resource utilization and competitive advantage. The findings from both correlation and regression analyses pointed to a significant relationship between dynamic sourcing, a component of agile procurement, and operational performance. In summary, it was evident that dynamic sourcing impacted the operational performance of animal feed manufacturers.

5.2.2 Adaptive Contracting

The findings demonstrated that the flexibility inherent in adaptive contracting enables animal feed manufacturers to adjust to changes in market dynamics. This adaptability empowers manufacturers to effectively respond to evolving market conditions, thereby enhancing operational efficiency. The inclusion of renegotiation provisions within contracts plays a critical role in ensuring sourcing sustainability for animal feed manufacturers, consequently positively influencing their operational performance. Moreover, adaptive contracting is indispensable for maintaining competitiveness in the market, as it ensures that contractual relationships remain aligned with evolving product requirements. Additionally, by accommodating changes in needs and specifications, adaptive contracting optimizes resource utilization and streamlines operations in animal feed manufacturing. In the inferential analysis, correlation analysis revealed a significant and positive association between adaptive contracting and operational performance. Moreover, regression analysis indicated that operational performance in animal feed manufacturing could be predicted based on adaptive contracting. In summary, the findings confirmed that adaptive contracting had an impact on the operational performance of animal feed manufacturers.

5.2.3 Collaborative Supplier Relationships

According to the descriptive findings, collaborative relationships with suppliers play a crucial role in elevating product or service quality. In the context of animal feed manufacturing, these relationships bolster product quality by facilitating the exchange of knowledge, expertise, and continuous improvement initiatives. Additionally, they drive operational improvements such as process optimization, reduced lead times, and increased responsiveness to market changes. Emphasizing long-term collaboration with suppliers is essential for cultivating an efficient supply chain within organizations. This

sustained partnership fosters a deep understanding of supplier capabilities and requirements, facilitating seamless coordination and communication across the animal feed manufacturers' supply chain. Such heightened collaboration results in enhanced capacity utilization and a more efficient supply chain, ultimately contributing to improved operational performance. Sharing information within collaborative supplier relationships promotes transparency and goal alignment, leading to enhanced coordination and decision-making, which in turn improves operational performance through streamlined processes and optimized resource allocation. Both correlation and regression analysis results indicated a significant relationship between collaborative supplier relationships within agile procurement and the operational performance.

Overall, the animal feeds manufacturers' operational performance was affected by the collaborative supplier relationships.

5.2.4 Iterative Procurement Planning

The descriptive findings have confirmed that iterative procurement planning has an impact on the operational performance of animal feed manufacturers. Continuous cycles of assessment and modification play a pivotal role in procurement planning, shaping operational performance by ensuring that procurement strategies remain flexible and optimized to meet evolving demands and market conditions. These organizations regularly conduct robust market analyses to align their procurement functions with prevailing conditions. The high levels of contract compliance observed underscore the commitment of animal feed manufacturers to enhancing procurement processes, thereby positively affecting operational efficiency through effective resource management and timely material delivery. Iterative planning in animal feed manufacturing enhances efficiency by continuously adjusting processes and resource allocation, guided by real-time feedback and market dynamics, ensuring adaptability and responsiveness in

operations to maximize productivity. In the inferential analysis, the correlation analysis indicated a significant and positive relationship between iterative procurement planning and operational performance. Furthermore, the regression analysis demonstrated that the operational performance of animal feed manufacturers could be predicted based on iterative procurement planning. Overall, it was established that animal feeds manufacturers' operational performance was affected by iterative procurement planning.

5.3 Conclusions

5.3.1 Dynamic sourcing and Operational Performance

In conclusion, the study highlighted that dynamic sourcing practices within agile procurement significantly impact the operational performance of animal feed manufacturers. This underscores the importance of these practices in enabling manufacturers to quickly adjust to market fluctuations and maintain uninterrupted supply of essential ingredients, thereby improving operational efficiency and minimizing disruptions. By promoting flexibility and responsiveness in procurement processes, organizations can optimize resource utilization and align their operations with the changing dynamics of the market. In summary, the study emphasizes the substantial influence of dynamic sourcing on enhancing the overall operational performance of animal feed manufacturers.

5.3.2 Adaptive Contracting and Operational Performance

The research study concludes that adaptive contracting, operating within the framework of agile procurement, significantly influences the operational performance of animal feed manufacturersThe importance of adaptive contracting practices is underscored by their ability to help manufacturers effectively respond to shifts in market dynamics and evolving customer demands. This enhances operational efficiency and ensures

sustainability within the industry. Through facilitating flexibility and adaptability in contractual relationships, adaptive contracting optimizes resource allocation and operational processes. Ultimately, it aligns operations with market requirements. These findings highlight the significance of adaptive contracting in enhancing the operational performance of animal feed manufacturers within agile procurement practices.

5.3.3 Collaborative Supplier Relationships and Operational Performance

The research study concluded that collaborative supplier relationships within agile procurement affect the operational performance of animal feed manufacturers. Through collaborative evaluation, where suppliers are assessed in tandem with company goals, a symbiotic relationship emerges, fostering mutual growth and efficiency. Furthermore, a partnership-oriented approach cultivates trust and commitment between manufacturers and suppliers, facilitating smoother operations and quicker response times to market demands. Central to this approach is the focus on information sharing, which empowers both parties to make informed decisions based on data, thereby optimizing processes and resource allocation. Such collaboration not only boosts operational performance but also fosters innovation and resilience within the supply chain, positioning animal feed manufacturers for sustained success in the long term.

5.3.4 Iterative Procurement Planning and Operational Performance

The study concludes iterative procurement planning, as part of agile procurement, plays in influencing the operational performance of animal feed manufacturers. Comprehensive market analyses enable firms can acquire invaluable insights into demand patterns and competitor behaviors, facilitating agile adjustments to procurement strategies. Furthermore, the formulation of contingency plans acts as a protective measure against unexpected disruptions, ensuring uninterrupted supply chain operations

and minimizing downtime. Moreover, elevated contract compliance rates signify the effective execution of procurement strategies, resulting in improved cost management and resource allocation. This iterative methodology not only enhances operational efficiency but also cultivates adaptability and resilience, which are indispensable attributes for navigating the intricate dynamics of the animal feed industry.

5.4 Recommendations

5.4.1 Recommendations for Implementation

Firstly, it is recommended that animal feed manufacturers should prioritize the implementation of dynamic sourcing methods to swiftly adapt to market fluctuations to enhance their resilience against supply chain disruptions. Additionally, conducting routine and thorough market analyses is crucial for recognizing emerging trends, customer preferences, and competitor strategies. Utilizing tools for market intelligence and data analytics can provide valuable insights to guide procurement decisions effectively.

Secondly, animal feed manufacturers should embrace flexible contract arrangements that permit adjustments in scope, pricing, and terms to accommodate evolving business requirements and market dynamics.

Thirdly, animal feed manufacturers should encourage collaboration among procurement, supply chain, operations, and pertinent departments is essential to ensure alignment in goals and strategies. Regular communication and information exchange facilitate prompt decision-making and problem-solving.

Finally, animal feed manufacturers should encourage feedback and engage stakeholders in procurement planning and decision-making processes are essential practices. Utilizing advanced procurement technologies, such as e-procurement platforms, supply chain

management systems, and predictive analytics tools, can optimize operations, increase visibility, and enhance decision-making processes.

5.4.2 Recommendations for Further Research

Future studies should investigate how agile sourcing strategies can enhance the procurement performance of animal feed manufacturers. Furthermore, other scholars should assess the effects of agile procurement on supplier dynamics, and overall organizational performance. Furthermore, it is essential to analyze how regulatory frameworks influence the adoption of adaptive procurement strategies in the animal feed manufacturing sector.

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APPENDICES

APPENDIX I: CONSENT FORM FOR PARTICIPATION IN RESEARCH

Dear Participant,

I invite you to participate in a research study entitled **(*Assessment of Agile Procurement***

***Strategies and Operational Performance of Animal Feed Manufacturers in Nakuru County, Kenya*)**: I am currently enrolled in the **(*Master of Science in Procurement and Supplies Management*)** at Mount Kenya University and am in the process of writing my Master's project. The purpose of the research is to determine the operational performance of animal feed manufacturers with a focus on potential efficiencies attainable through the implementation of agile procurement strategies. The enclosed questionnaire has been designed to collect information on agile procurement strategies and operational performance of animal feed manufacturers.

Your participation in this research project is completely voluntary. You may decline altogether, or leave blank any questions you don't wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your individual answers to this questionnaire. There are no direct benefits to you for participating in this research. However, you may find it interesting to talk about the issues addressed in the research and it may be beneficial to the field and to future clients or individuals who have experienced similar concerns.

If you agree to participate in this project, please answer the questions on the questionnaire as best you can. It should take approximately *(45 Minutes)* to complete. Please return the questionnaire as soon as possible to enable me complete the project report.

If you have any questions about this project, feel free to contact:

The Investigator: Abdulrahman Hussein Kasai-0722109791

The Supervisor: Dr. Ruthwinnie Munene-0722835443

If you have questions about your rights as a research participant, please be in touch with the Chairman, Mount Kenya University, Ethical Review Committee, P.O Box 342-

01000, Thika. Thank you for your assistance in this important endeavor.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature_____Date _____

Investigator's signature_____Date _____

APPENDIX II:

INTRODUCTION LETTER

Dear Sir / Madam,

RE: PERMISSION TO COLLECT DATA FOR ACADEMIC RESEARCH

I am Abdulrahman Hussein Kassai, and I am currently enrolled in a Master of Science program in Procurement and Supplies Management at Mount Kenya University. As part of the course, I am conducting research titled ***"Assessment of Agile Procurement Strategies and Operational Performance of Animal Feed Manufacturers in Nakuru County, Kenya"***. I kindly request for information, assuring you that all gathered

information will be exclusively used for academic purposes and treated with the utmost confidentiality.

Yours Faithfully,

Abdulrahman Hussein Kasai

APPENDIX III: QUESTIONNAIRE

Please give information by marking {√} where applicable in the provided spaces. The data gathered will be solely used for academic purposes, and the researcher assures the safeguarding of your privacy and confidentiality. Kindly express your level of agreement concerning the statements/questions using the following scale: 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree.

Section A: Dynamic Sourcing

	Strongly Agree 5	**Agree 4**	**Neutral 3**	**Disagree 2**	**Strongly Disagree 1**
1) Dynamic sourcing enables animal feed manufacturers to swiftly respond to fluctuations in market conditions.					

2) The flexibility of dynamic sourcing enable procurement officers to respond promptly to alterations in demand.					
3) Dynamic sourcing fosters innovation within procurement processes.					
4) Sourcing agility enhances efficiency in the procurement function.					
5) Flexible costs contribute to cost-effectiveness and financial adaptability.					

Section B: Adaptive Contracting

	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
1) The flexibility embedded in adaptive contracting allows animal feed manufacturers to adapt to shifting market dynamics.					

2) Renegotiation provisions in contracts are valuable for sourcing sustainability.					
3) Our organization actively adjusts contract specifications based on changing business conditions.					

4) Adaptive contracting is essential for competitiveness in the market.					
5) Adaptive contracting ensures that contractual relationships remain aligned with evolving product requirements.					

Section C: Collaborative Supplier Relationships

	Strongly Agree 5	**Agree 4**	**Neutral 3**	**Disagree 2**	**Strongly Disagree 1**
1) Collaborative supplier relationships are essential for enhancing the quality of products or services.					

2) Long-term collaboration with suppliers is prioritized to foster an efficient supply chain in our organization.					
3) Our organization actively engages in collaborative evaluation with suppliers.					
4) A partnership- oriented approach is					
recognized as crucial in our relationships with suppliers.					
5) Information sharing with suppliers is a regular practice in our organization.					

Section D: Iterative Procurement Planning

	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
1) Continuous cycles of assessment and modification are integral to the procurement planning.					
2) Robust market analysis is regularly conducted to align procurement function with current conditions.					
3) Contingency plans are continually reviewed and adjusted based on ongoing assessments.					

4) High contract compliance rates reflect our dedication to optimizing procurement processes.					
5) Our organization considers iterative planning as a key element for enhancing efficiency.					

Section E: Operational Performance

	Strongly Agree 5	**Agree 4**	**Neutral 3**	**Disagree 2**	**Strongly Disagree 1**
1) Our production yield is adequate.					
2) Our cycle times for key processes are consistently optimized for efficiency.					

3) Our organization's capacity utilization is sustainable.					
4) We adopt a proactive approach to fluctuating capacity requirements.					
5) Regular assessments are conducted to ensure optimal production.					
6) Agile procurement strategies affect operational performance.					

APPENDIX IV: WORK PLAN

Activity	**October, 2023**	**November, 2023**	**December, 2023**	**January, 2024**	**May, 2024**	**June, 2024**
Concept paper preparation and Presentation						
Introduction						

Literature review and Methodology						
Proposal presentation						
Data collection, processing and analysis						
Presentation of Research Project.						
Publication						

Source: Researcher (2024)

APPENDIX V: BUDGET

Item	**Amount in Kshs**
Stationary	5,000
Library charges	7,500
Transport	25,000
Meals	25,000
Computer services: Internet charges, Printing, binding and photocopy	45,000

Data Collection	35,000
Contingency	30,500
Publication	40,000
Total	**213,000**

Source: Researcher (2024)

APENDIX VI: LIST OF ANIMAL FEEDS MANUFACTURERS IN NAKURU COUNTY

1) Bidco Land O'Lakes Ltd
2) Century Feeds
3) Kenya Highlands DF & AP Ltd
4) Key Feeds Kenya Limited
5) Kings Animal Feeds
6) Lens Agri-Agencies Ltd
7) Menengai Afya Feeds
8) Miracle Animal Feeds Ltd
9) Naku Modern Feeds Ltd
10) Royal Animal Feeds
11) Unga Farm-Care East Africa Ltd
12) Ushindi Feeds Limited
13) Wonder Feeds Limited
14) Milling Corporation Of Kenya Ltd
15) Yetu Feeds Ltd
16) Bunda Cake Feeds Ltd

17) Kays Animal Feeds Ltd

Source: Kenya Association of Manufacturers (2022)

APPENDIX VII: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 953826

Date of Issue: 14/June/2024

RESEARCH LICENSE

This is to Certify that Mr.. Abdulrahman Hussein Kasai of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nakuru on the topic: ASSESSMENT OF AGILE PROCUREMENT STRATEGIES AND OPERATIONAL PERFORMANCE OF ANIMAL FEED MANUFACTURERS IN NAKURU COUNTY, KENYA for the period ending : 14/June/2025.

License No: NACOSTI/P/24/36748

953826

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX VII: ERC CLEARANCE

Mount Kenya University

REF: **MKU/ISERC/3760** Date: 03 June 2024

TO: **ABDULRAHMAN HUSSEIN KASAI**

REG: **MPSM/2023/39781**

Dear Sir/Madam,

RE: ASSESSMENT OF AGILE PROCUREMENT STRATEGIES AND OPERATIONAL PERFORMANCE OF ANIMAL FEED MANUFACTURERS IN NAKURU COUNTY, KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2804.** The approval period is **03/06/2024 - 02/06/2025.**

This approval is subject to compliance with the following requirements:

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

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

Yours sincerely, The Chairman Mount Kenya University Ethics Review Committee

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

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 700 103 000 / +254 709 103 200
Email: info@mku.ac.ke Web: www.mku.ac.ke
Chartered and ISO 9001 : 2015 Certified Institution.
Unlocking Infinite Possibilities

Mount Kenya University

REF: **MKU/ISERC/3760** Date: 03 June 2024

TO: **ABDULRAHMAN HUSSEIN KASAI**

REG: **MPSM/2023/39781**

Dear Sir/Madam,

RE: ASSESSMENT OF AGILE PROCUREMENT STRATEGIES AND OPERATIONAL PERFORMANCE OF ANIMAL FEED MANUFACTURERS IN NAKURU COUNTY, KENYA

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Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box ...

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

Abdul Hussein

ASSESSMENT OF AGILE PROCUREMENT STRATEGIES AND OPERATIONAL PERFORMANCE OF ANIMAL FEED MANUFACT...

Assignmenttitle

postgraduate

Mount Kenya University

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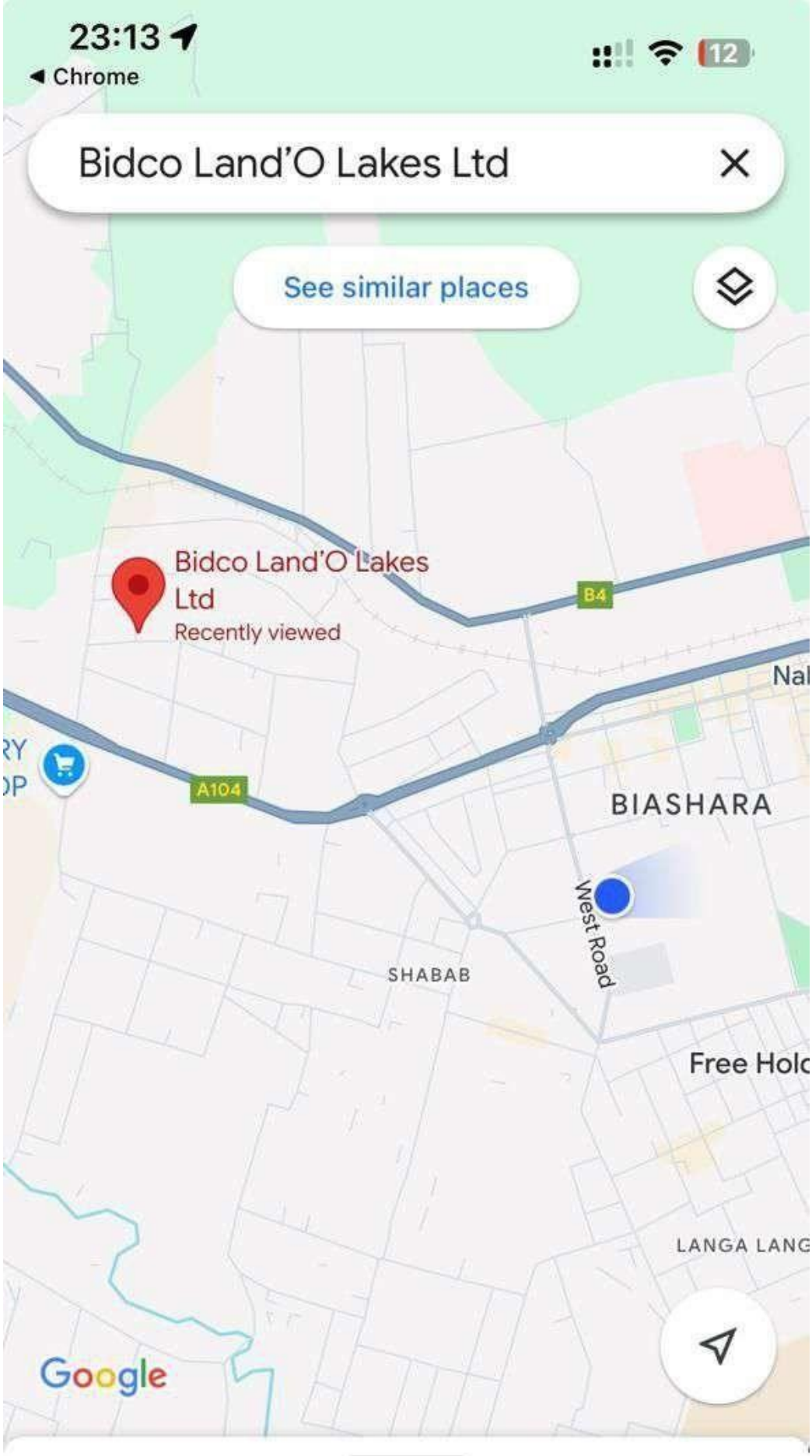

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