INVENTORY MANAGEMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE OF DAIRY PROCESSING FIRMS IN KIAMBU COUNTY, KENYA

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JUNE, 2022
DECLARATION

This research project being my original work hasn’t been presented for any award in any other University. No part of it should be reproduced without the author’s authority or that of Kenyatta University.

Sign: ____________________ Date: _________________

Benedict Mwendwa Ndiwa

D53/OL/CTY/26967/2018

The research project has been submitted for examination with my approval as the university appointed supervisor.

Sign: _________________ Date: _________________

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DEDICATION

I also dedicate this work to my dad Paytheas, mum Annastacia, my sister Faith, brothers Chris and Benjamin not forgetting my lovely nieces Chebby, Charlyne, Queenzel and nephew Anzel for their love and encouragement while I was pursuing my studies. May God bless you all.
ACKNOWLEDGEMENT

I owe God thanks for his guidance and love. In addition to cultivating a deep sense of hope and faith in me, my master's degree program was filled with His Grace. Dr. Perris Wambui Chege being my supervisor deserves special recognition for her patience and assistance throughout the research project preparation. Her advice, encouragement, and timely comments on this study effort are much appreciated.
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**OPERATIONAL DEFINITION OF TERMS**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Dairy Processing Firms:</strong></td>
<td>Firms that act as a link between the dairy farmer and the consumer of their product.</td>
</tr>
<tr>
<td><strong>Economic Order Quantity</strong></td>
<td>Order minimal to the company's cost of ownership and inventory ordering costs.</td>
</tr>
<tr>
<td><strong>Inventory Management Practices:</strong></td>
<td>These are methods helping dairy firms through adding value in terms of having control over and maintaining inventory. They include information integration, material handling, transportation and warehousing.</td>
</tr>
<tr>
<td><strong>Just in Time:</strong></td>
<td>This is a management concept used by dairy firms to act in response to demand where non-value-adding activities are targeted for removal.</td>
</tr>
<tr>
<td><strong>Supply chain:</strong></td>
<td>This is a centralized management process for dairy companies, covering upstream and downstream product flows from source to consumer or customer.</td>
</tr>
<tr>
<td><strong>Vendor Managed Inventories:</strong></td>
<td>These are inventory choices made by suppliers in a corporate environment of dairy firms, for example, replenishment, stock carrying expenses and ordering costs of a company's inventory are minimized by placing an order in an economic order quantity (EOQ).</td>
</tr>
<tr>
<td><strong>Material handling</strong></td>
<td>This is the transfer, storage and management of materials from the manufacturing process to storage.</td>
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and distribution.

**Transportation**
This is the movement of goods from place to place.

**Warehousing**
This is the process of storing physical inventory for sale or distribution.

**Supply chain performance**
Activities of an extended supply chain to meet end-user requirements, including all inventory and supply chain capacity necessary to enable product availability, delivery on time and fast performance.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>EOQ</td>
<td>Economic Order Quantity</td>
</tr>
<tr>
<td>FMCGs</td>
<td>Fast Moving Consumer products</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic goods</td>
</tr>
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<td>JIT</td>
<td>Just In Time</td>
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<tr>
<td>KCC</td>
<td>Kenya Cooperative Creameries</td>
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<td>KDB</td>
<td>Kenya Dairy Board</td>
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<td>MRP</td>
<td>Material Requirement Planning</td>
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<td>PPDA</td>
<td>Public Procurement and Disposal Act</td>
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<td>RBV</td>
<td>Resource Based View</td>
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<td>RDT</td>
<td>Resource Dependence Theory</td>
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<tr>
<td>SC</td>
<td>Supply Chain</td>
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<td>SCM</td>
<td>Supply Chain Management</td>
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<tr>
<td>SCOR</td>
<td>Supply Chain Operation Reference Model</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>ToC</td>
<td>Theory of Constraints</td>
</tr>
<tr>
<td>VMI</td>
<td>Vendor Managed Inventory</td>
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<tr>
<td>WMS</td>
<td>Warehouse Management System</td>
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ABSTRACT

Costs and losses connected with the supply chain performance impacts firms thus its success is considered crucial in dairy firms. In Kiambu’s dairy industry, the problem of inefficiency and unexplored contradiction in addressing supply chain performance challenges has had disadvantages in terms of operational flexibility, the costs associated with material handling, and the inefficiencies of dairy firm’s reliability and responsiveness. The studies’ general objective was to investigate the effect of supply chain performance and inventory management practices of the dairy processing firms in Kiambu County. The research objectives were to find out the effect of information integration on supply chain performance of Dairy Processing firms in Kiambu County, to determine the effect of material handling on supply chain performance of dairy Processing firms in Kiambu County, to find out the effect of transportation on supply chain performance of Dairy processing firms in Kiambu County and to determine the effect of warehousing on supply chain performance of dairy processing firms in Kiambu County. The study focused on the theory of constraints, Resource Based View theory (RBV) and the Institutional theory. The study employed a descriptive research design. The target population was three dairy firms in Kiambu, therefore the study used census sampling method to sample 96 respondents chosen from the supply chain departments, stores department and the consumer department, 85 closed ended questionnaires were answered and returned for data analysis. In assessing reliability the study used cronbach alpha while content validity was used to test reliability. The study analysis was done with the help of (SPSS) a statistical Package for Social version 22 where findings were provided in tables and figures to show frequency, percentage, mean standard deviation, and significance level of association between study variables. Descriptive statistics were used to assess central tendency and variability. Researcher analyzed the field data using multiple linear regression models and then examined the mean and standard deviation while making conclusions and recommendations. Regression data show that integration of information is the most important supply chain performance variable that contributes to supply chain performance, followed by material handling, warehousing, and transportation. Inferential statistics showed that there was a significant relationship between information integration and supply chain performance, transportation and supply chain performance, and warehousing and supply chain performance. The study concluded that transportation management plays an important role in giving companies a competitive advantage through customer care and outstanding business. Effective logistics management improves the performance and logistics of the entire supply chain. It is recommended that Kiambu's dairy firms should make full use of the facility, reduce material waste, improve production methods, limit dairy inertia and improve customer interests in these ways. Also dairy companies need to focus on supply chain performance to achieve operational agility, meet customer demands, reduce unnecessary procurement costs, and better manage their facilities. This study recommends conducting a future study of the impact of logistics management practices on the supply chain performance of other organizations such as manufacturing and service.
CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Globally firms are adopting many business improvement methods to improve performance. As competition intensifies, organizations face the ever-increasing challenge of delivering goods and services to the intended clients at the right time while taking into consideration the costs involved. Supply chain performance is generally aimed at improving the creation of customer value. Companies need to work with chain members to meet consumer demand and maximize business profits. A logistics cost survey conducted in the EU found that inventory costs accounted for 13% (%) of total logistics costs and warehouses accounted for 24% (Baker, 2007). In any case, to decide stock expenses and to control buying in many cases will be unable to check buying costs along these lines to the business which is serious. Account administration practices give extraordinary possible to companies to diminish prices and further develop production network performance (Jeffrey, et al., 2008).

Aristides et al. (2007) in his study in Europe showed that supply chain performance is critical for the dairy industry. He focused on impact of supply chain performance on long-term partnerships in the dairy industry, where he demonstrated its effect on the success of supply chain activities.

The Nigerian research community is experiencing a surge in research on supply chain performance. Since inventory network performance studies have been fragmented in the past (eg Chia et al., 2009; Adebayo, 2012), key factors that can drive SCM and improve hierarchical performance models has been removed. An example of a supply chain

With respect to Ethiopian dairy businesses, inventory management practices idea just as the performance of very much organized and regulated product supply chain management is late evolved. In spite of the fact that it applies to industry and horticulture drove economies, the requirement for standardized store network coordination is fundamental in light of the fact that, the achievement of such drive, in addition to other things, relies upon the degree of store network coordination (Lemma, et al., 2015).

According to a study by Naliaka and Namusonge (2015) in Kenya, supply chain performance impacts a manufacturer's competitiveness if inventory management is not considered. According to a similar survey, the company's competitiveness depends on the quality and timely delivery of customers. Lack of coordination in the inventory network occurs when chain members do not have enough information about the movement of goods, data, and assets. These causes reduction in the overall performance of the supply chain. In this sense, the study faces challenges related to supply chain performance and leads to disadvantages in terms of operational flexibility, material handling costs, and inefficiencies of the Kiambu County milk processing firms. This study aims at investigating the status of supply chain performance in response to inventory management practices of the dairy firms in Kiambu County Kenya.

1.1.1 Supply Chain Performance

The term supply chain performance has been classified into two classes that is quality measures, e.g. satisfaction of customer and the quality of the product and secondly quantity measures; for instance, order-to-delivery lead time, flexibility, distribution
presentation, resource operation, source chain reaction time, and delivery performance (Agamy, Selah, & Ramsy, 2012).

Stewart (2015) identifies four supply chain performance metrics that companies need to excel in cost, flexibility, delivery performance, responsiveness, asset management, and more in order to be superior or competitive. Beamon (2018), states in his article that two major supply chain KPIs were used and these include cost and customer satisfaction. In addition, every business enterprise’s overall performance is considered in another way and is subjective from business enterprise to business enterprise (Kleijnen, & Smits, 2013).

Supply chain consists of five principally coordinated cycles including planning, sourcing, generating, shipping, and returning (Stewart, 2015). In particular, the performance of most cycles is estimated from five perspectives: asset, flexibility, responsiveness, cost, and reliability. As the model progresses to the customer through the chain form provider, it requires a clear foundation, fully dedicated management resources, and continuous redesign of business measures to match functional procedures, materials, work, and data streams which is considered a comprehensive framework to help companies adapt to best practices. Stewart (2015).

The SCOR model is a management instrument employed by managers to address supply chain performance choices inside an organization and with providers and clients of an organization. It depends on various particular administration measures which incorporate arranging, sourcing, decide, convey and return, Rolf (2017). The framework's appropriateness and productivity may be evaluated using supply chain performance indicators. SCOR model is utilized in classifying the cycles that make up the chain, allotting measurements to such cycles and auditing similar benchmarks.
This study used the SCOR model as a measure where Nagurney and Yu, 2011 further asserts that SCOR is mostly used to improve process, and communicate supply chain management decisions within a company and with its suppliers and customers while describing the business processes required to meet customer’s needs. SCOR model also explains the procedures involved throughout the supply chain management processes. The model is considered as the accepted standard overview of the supply chain processes, performance metrics, best practices, and. In a nutshell SCOR model explains all the supply chain processes as five integrated processes known as planning, sourcing, manufacturing, shipping and returns. The study will use the SCOR model as it represents the key business activities required to satisfy the customer needs of these dairy companies. Modeling critical supply chain processes and providing essential insights on how to improve them is also a key benefit. It is worth mentioning that five key areas are repeated throughout the supply chain in response to continuous improvement (Nagurney and Yu, 2011).

1.1.2 Inventory Management Practices

These are control method that monitors inventory levels and determines which levels need to be maintained, when inventory needs to be replenished, and the size of orders (Waters, 2003). Silver et al., (2018) stated that inventory management seeks to improve the risk level of all warehouse work habits and improve the development of equivalent assets such as data, objects, and people and energy from creation to usage levels.

Eroglu and Hofer (2011), focused on US manufacturers between 2003 and 2008, findings indicated that thinness had a positive effect on profit margins. Further Eroglu and Hofer (2011), asserts that companies that are leaner than the industry average generally generate positive returns when they are lean. Their study used empirical lean indicators as a measure of warehouse management. However, their study focused on assessing the
relationship between inventory performance and the overall performance of an organization.

Lean theory dictates that warehouse management is an important part of any supply chain, whether it's a product or a service supply chain. Inventory management is key in coordinating the supply and demand of individual partners throughout the supply thus managing external and internal events in today’s uncertain and globalized business environment (Floyd et al. 2010).

Poor inventory management practices are some of the main problems faced by industries in developing countries. Chen, Frank and Wu, (2007) explains that this is caused by a series of interrelated factors ranging from the heavy reliance on imported industrial raw materials by developing countries, endemic bureaucratic delays associated with communication problems in as well as order lead times (Chen, Frank and Wu, 2007).

Information integration involves sharing of data within a supply chain network and is empowered by information technology. The primary rationale for data coordination is to prepare data required for decision making, and most importantly, support continuous data transmission. Lee et al., (2000) note that data sharing can reduce costs by decreasing inventory costs and firm deficiencies. However, to understand this worth, changes in the coordination framework are necessary, like Vendor-Managed Inventory (VMI) programs, lead time decreases, request amount decreases and more frequent deliveries.

Material management entails the management of raw material procurement to the actual manufacturing processes to delivery of final products to customers (Coyle et al., 2014). Material handling is an imperative and key factor in the whole supply chain network and it supports material development, item handling, storage unit combinations, and collection of materials for shipping purposes (Andre Langevin and Rio Perdiana, 2015). Effective
material trading in store ensures optimal production and distribution of perfect products, primarily for the primary purpose of reducing costs and improving performance. A warehouse management system involves the use of technology to manage warehouse activities, including storage (Coyle et al., 2014). Bhat (2011) investigates the important role of warehousing, one of them being integration. According to Bhat (2011), integration means collecting small quantities of goods and combining them in large quantities to reduce shipping costs.

1.1.3 Dairy Processing Firms in Kiambu County, Kenya.

Kiambu’s dairy firms form one of cornerstone of Kenya’s dairy economy. With key advancements in technology, speculations and complexity of the sector, new threats have emerged in the past several years. Kiambu County comprise of the following 12 sub-counties as outlined in Appendix II. However, as milk is produced and sold to the informal sector, there is no official data on dairy co-operatives and production in Gatundu north, Thika and Juja districts. The other eight unions produce 108.9 million liters annually, most of the milk is produced by one union, Githunguri, 75.5 million liters and the rest of the 33.4 million liters produced by the other seven unions (Kiambu County Annual Report of Daily Cooperative, 2013). The co-operative receives raw milk, where it is further processed and packaged in fresh mala, yoghurt, butter, or ghee products. There are 415 registered co-operatives in the county, of which 330 are active. Milk production in this county is produced by small dairy farmers and large herds of dairy cows, but with zero grazing. However, they are operating below peak because they are not achieving optimal production. Despite the growth of dairy in Kiambu County, farmers face many problems. Based on the approach majoring of the dairy, farmers fail to understand the connection between the productivity and farming practices (Kenya Dairy Board, 2017).
Similar to other milk processors Brookside invested US$35 million (Kshs. 3.5billion) in the nation's second milk powder plant in 2014, to take advantage of the overabundance milk volumes during the blaze time frame in Kenya, when milk was depleted due to the need for enough milk to feed the nation (Kenya Dairy Board, 2018).

Whereas government efforts target sector-wide upgrades, members in the milk production network can shape the expenses of exchanges through decision of fitting administration structures. There is additionally acknowledgment that the impact of these variables isn't homogenous across the different phases of the production network (Birachi, 2006). Setting up the connection between stock administration practices and production network performance of Dairy Processors in Kiambu County, Kenya is important to give conceivable future bearings to coordination and performance improvement in the dairy business.

1.2 Statement of the Problem

As a result of legislative changes at the local, regional, and international levels, the Kenyan dairy industry has seen a considerable transformation with intensified globalization, competition among companies has grown and necessitated development of strategies to guarantee dairy processing enterprises in Kenya especially Kiambu County to successfully manage their supply chain performance. Moreover, both academics (Fawcett et al., 2012) and practitioners are still grappling with the issue of how to get all supply chain participants to comprehend each other's advantages and performance (Grocery Manufacturers Association, 2008). There has been a number of research investigating the relationship between supply chain management and inventory management methods as well as corporate supply chain methods (Zacharia; Nix, & Lusch, 2011).
A study done by Kemokai (2012), Milk production and processing firms in Kiambu were asked to determine the link between SC failure and customer happiness. Failures in milk production, bad relationships with suppliers, and inventory theft were cited as reasons for SC failure in the research. Because it concentrated on SC failures rather than inventory organization methods and supply chain presentation, the research did not align with the current research.

Kenya's dairy sector is undergoing major changes in the local, regional and international political environment. As globalization continues, competition between companies is intensifying and we need to find a way to ensure the success of Kenya's dairy processing business. Finding a common understanding of the interests and performance of partners in a supply chain setup has presented challenges for both academics and stakeholders as mentioned by Fawcett et al., (2012) ,Grocery Manufacturers Association, (2008), Zacharia, Nix, & Lusch (2011).

Though several studies have been done on account management performs and its effect on the supply chain performance no study has covered the dairy industry which greatly relies on the inventory management practices to make sure its supply chain performance is attained and the firms stay profitable, most studies done have also concentrated on other markets which are structurally different from the Kenyan market which this study will seek to address.

1.3 Research Objectives

1.3.1 General Objective

The study general objective was to assess the effect of inventory management practices on supply chain performance of Dairy processing firms in Kiambu County, Kenya.
1.3.2 Specific Objectives

The study specifics include:

i. To find out the effect of information integration on supply chain performance of Dairy Processing firms in Kiambu County, Kenya.

ii. To evaluate the effect of material handling on supply chain performance of Dairy Processing firms in Kiambu County, Kenya.

iii. To find out the effect of transportation on supply chain performance of Dairy Processing firms in Kiambu County, Kenya.

iv. To evaluate the influence of warehousing on supply chain performance of Dairy Processing firms in Kiambu County, Kenya.

1.4 Research Questions

i. How does information integration affect supply chain performance of Dairy Processing firms in Kiambu County, Kenya?

ii. How does material handling affect supply chain performance of Dairy Processing firms in Kiambu County, Kenya?

iii. How does transportation affect supply chain performance of Dairy Processing firms in Kiambu County, Kenya?

iv. What is effect of warehousing on supply chain performance of Dairy Processing firms in Kiambu County, Kenya?

1.5 Significance of the study

The study adds knowledge in Kenya about the measurement of downstream, midstream, and upstream performance of supply chains as a result, regulators would be directed in the development of appropriate regulations. The study's findings might be useful in
formulating policy, particularly in relation to inventories, replenishment, and ordering that optimizes profits.

To all stakeholders within the dairy enterprise in Kenya it will help them achieve knowledge needed to deliver chain overall performance. The authorities are anticipated to enjoy by using information gathered to streamline overall performance within Supply Chain of the complete institutional shape of dairy enterprise.

There has been little take on current studies on idea of delivery of chain overall performance within the dairy enterprise. This study will contribute to the know-how of downstream, midstream and upstream supply chain overall performance in Kenya. Researchers might substantially enjoy the take in view that it'd discover subjects for added investigation.

1.6 Scope of the Study

The area of the study was confined strictly within the dairy processors based in Kiambu County, Kenya. The study was carried out from 2021 to 2022 and the respondents’ included officers from the supply chain departments, stores department and the consumer department. The study variable included information integration, material handling, transportation and warehousing. The dependent variable was supply chain performance of the dairy processing firms in Kenya. Constraints theory, resource-based view theory and the institutional theory were used in the study.

1.7 Limitation of the Study

In the selected sample, most participants depended on a particular individual to contribute to the study. Designing self-managed responses for some participants using structured questionnaires was a significant limitation. To ease this limitation, researchers allowed participants to contact him immediately in case of difficulty.
Another limitation was that it took participants one day to fill out the questionnaire. Therefore, this was a limitation of data collection if respondents were unable to make the required time from their frequently busy work schedules. The subjects of the survey were dispersed among three dairy companies in Kiambu County. This was the limit of the study, as researchers had to traverse remote areas to collect samples from participants. To ease these restrictions, researchers hired three research assistants to help collect data across large geographic areas.

1.8 Organization of the Study

Chapter one looked at study background, statement of problem, research objectives, research questions, significance, scope, limitation and organization of the study. This chapter also dealt with research restrictions and breaks. Chapter 2 focused on various theories on the subject of the research project. In Chapter 3, researchers focus on study design, tools used to collect data, study populations, sampling procedures used, data processing and analysis, and the effectiveness and reliability of data. This chapter also covers ethical considerations. Chapter 4 gives a detailed report on research findings and discussions. Chapter 5 looked at study summary, conclusion, recommendations and areas for further research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter lays out the theories that support the study; the theories are backed up by empirical literature on the subject written by different authors and their findings. The conceptual framework is also laid out and the research gap identified.

2.2 Theoretical Review

How different theories approach a problem may be seen by doing a theoretical analysis. The study was guided by the following theories, Resource Based View (RBV), theory of Constraints (ToC), and the Institutional Theory.

2.2.1 Theory of Constraints

The theory of constrains commonly referred to as (ToC) was developed by Goldratt (1990a) The theory mostly aims at initiating and executing advanced improvement by looking on a need that prevents a system from achieving a higher degree of performance. According to the Theory of Constraints, every business should have a single requirement. Goldratt and Cox (1992), as the owner of a framework, you are required to determine its goal. Most business aspects have as their primary goal the generation of cash now and in the future. Important requirements that must be satisfied for the framework to continue to function may be set out by different stakeholders. The Theory of Constraints (ToC) tries to develop creation throughput performance or framework by and large performance estimated through pay through the recognizable proof of those practices that are compelling the assembling gadget (Goldratt, 2004).
According to Kazim (2008), it is important to raise and regulate limits in order to support the concept of limits. The required items are as follows, Lead times are too long, orders are not fulfilled, unusable or related inventory is often lost, high degree of critical orders and travel, high degree of decentralization, loss of key customer involvement and all non-appearances of controls identified in normal changes or demand orders lead to on-time conflicts of sources (Goldratt, 2004). According to this theory dairy processors need to use inventory management practices to avoid shortages.

2.2.2 Resource-based view theory (RBV)

The RBV views the firm as a collection of assets or resources which are tied to the firm (Wernerfelt 1984). As a result of the RBV, businesses may be thought of as a group of resources. Some of these assets may be considered important (Wernerfelt, 1984, Barratt and Oke, 2007). According to the idea, the determinants of a business's presentation, outside of the actual firm, are determined by the industry in which it is situated. While IO views sustainable advantage from an external perspective, RBV views it from an internal perspective, seeking to explain why businesses in the same industry perform differently (Kushwaha, 2011).

In his work, Barney (2001) contends that feasible upper hand can be gotten from what the firm controls as far as assets and capacities. These assets have remarkable qualities in that, they are uncommon, they are important, and they can't be subbed and furthermore hard to copy. In addition, such assets and functions can be viewed as both essential and elusive resources, including: Organizational management capabilities, related cycles and schedules, and organization-managed data and information (Barney et al., 2001).

It is inescapable for and organization to work without depending on both human and monetary asset. This hypothesis places that proficient and fruitful performance of stock
administration practices, for example, stock administration frameworks, monetary request amount, without a moment to spare, merchant oversaw stock is reliant upon authoritative assets. This theory is valuable to this examination since directors assume a crucial part in upgrading the exhibition of their organizations. Managers in the Kenyan dairy processing area should show a ceaseless obligation to put resources into data reconciliation, monetary request amount, without a moment to spare, merchant oversaw stock as an asset to direct the dangers along their inventory chains and in this way improve their business, piece of the pie and productivity of their organizations. By investing in a warehouse management system, managers can make decisions.

2.2.3 Institutional Theory

Powell and DiMaggio first suggested this idea in 1991, and it has been widely accepted since. This process is concerned with the interplay of structure, norms, routine, and standards, which serve as guidelines for appropriate practices. The activities of organizations are satisfying the necessities of the law and the clients. The two players compress the association to embrace practices that are earth mindful (Laosirihongthong et al., 2013).

Organizations have regulated acts of converse coordination because of both interior and outer pressing factor. The imminent factor of imitation arises from the duplication of competitors' results when federations attempt to imitate what is fruitful in other federations like them (Cox, 2010, Barua and Whinston, 2009). According to Carter, Smeltzerand, and Narasimhan (1998) the perception of consequences if the association regulates opposition adjustment practices and disagrees with natural goals, fearing losing supply to competitors in the market. On account of the difficulties and pressing factor, organizations
are compelled to place into thought the ecological effects as they continue with their tasks (Di Maggio & Powell, 1983).

For this study, this theory is deemed acceptable since it clarifies the necessity for supply chain institutions to have integrated operational systems. There are other normative factors, such as consumer and market demands. It is essential to use logistics management systems in order to survive in the fast-moving consumer goods (FMCG) sector. The theory is relevant to the study's objectives of transportation. For supply chain performance to improve, businesses should use logistics management systems, according to the notion.

2.3 Empirical review

2.3.1 Information Integration and Supply Chain Performance

Integration of supply chain information and logistics was investigated by Anzam, Prajogo, and Olhager (2009) in the context of business performance. Using informational index from 232 Australian firms, we found that coordination’s incorporation significantly affects operation performance. Information Technology abilities and data sharing both effectively affect coordination’s incorporation. Besides, essential provider connections have both immediate and circuitous impacts on the functional execution of the firm; with the roundabout impact by means of data coordination and coordination’s reconciliation.

Okore and Kibet (2019) information exchange and tourist supply chain performance in Kakamega County were examined. The study was designed as an explanation study. Four recognized travel groups and five authorized inns in Kakamega County, Kenya participated in the survey, which had 459 representatives. The study findings indicated that collaboration has a positive influence on the functioning of the supply chain.

Mathae, Paul, and Mbura, (2018) looked at the effect of bullwhip on performance of milk processing firms in Kenya. Case study design was used in in the research. There were 167
divisions at New KCC Ltd's headquarters, thus a descriptive research design was used. Out of the list of staff members, 117 respondents were selected using stratified sampling approach as part of the sample. Structured questionnaires were the primary source of data collection. The study results showed that information distribution affected the performance of New KCC Ltd. However, Inventory management procedures and distribution channels had a negative effect on the firm. Mathae, Paul, & Mbura, (2018)

2.3.2 Transportation Systems and Supply Chain Performance

According to Musau, Namusonge, Makokha and Ngeno (2017), a textile manufacturing firm's profitability, dependability, cost, responsiveness, flexibility and asset management efficiency were all affected by the transport management of their supply chains. The researcher employed convergent parallel mixed-methods techniques to arrive at his conclusions. 196 respondents were selected from Nairobi County's acquisition offices and department heads of 15 textile manufacturing industries. This was the size of the sample. There were 139 responders to the survey. The examination reasons that transport the board have the capability of emphatically affecting production network performance of Textile firms and hence perceive the significance of transport the executives in the production network.

In their study to investigate the distribution routes and supply chain performance: New KCC Eldoret, Chesesio and Makokha (2016) aimed at investigating how product productivity impacts supply chain performance in the New KCC, the study set out to determine how product productivity impacts supply chain performance. In this study, an expressive examination plan was used as part of the study's methodology. There were 84 participants in the research, who came from different departments within the business. Questions with open and closed ends were included in self-administered surveys. Using
both descriptive and inference statistics, the study concluded that supply chain performance is strongly influenced by the supply chain. In order for the business to survive, the essential diversification of the corrugated board cycle for passing the finished product from the manufacturer to the end customer is necessary.

According to a survey by Patlins (2016), today we take an ideal approach to reducing shipping costs and time, enabling customers to perform accurate shipping of fresh food and serve them. We conclude that design is important. Requirements to meet the forwarder's competent transport. Companies need to reduce the cost, fuel consumption and driving time of variable and billing vehicles. Product packaging also affects the outcome of the shipping process. Retailers want to get short-lived products that aren't difficult to adjust, aren't exorbitantly expensive, and aren't possible to pack or handle, yet maintain shelf capacity. In addition, packaging, product safety, and vehicle stacking time also affect the criteria for transport productivity.

2.3.3 Material Handling and Supply Chain Performance

Kisioya and Moronge 2019 Materials Handling Practices and Performance in Manufacturing Organizations and Companies in Kenya were studied in their study. In Nairobi, 355 big industrial businesses in Kenya were studied in a descriptive research approach. They selected 188 large-scale industrial businesses in Nairobi using stratified random sampling. Using well-structured questionnaires, primary data was obtained. As responders, we used all of the general managers from the selected businesses. They were then coded, put into SPSS and analyzed. Both descriptive and inferential statistics were used in the study of the data. According to the findings of the study, most material handling practices have a favorable impact on the performance of the organization or any manufacturing businesses in Kenya.
While analyzing the effect of materials management on the productivity of packaging organizations in Nigeria, Nwosu (2014) used a sample size of 368 organizations. The survey uses interviews and questionnaires to collect information. Reviews show that raw material purchasing and storage has a significant impact on profitability from packaging organizations. The review also shows that the raw material inventory has a notable commitment to the profitability of the fermentation businesses; and cross-departmental cooperation has essentially added to the productivity of the prepared businesses. The review also confirmed that materials management is key to preparing businesses to be profitable.

Kolarovszki and Vaculík (2013), looked at warehouse Management Systems based on selected automatic identification technology in Slovakia. The study established that materials management are all those functions involved in the supply and logistics process from initial identification to final receipt by end-user or customer. Typically, some of these functions may not report through to a materials manager but rather to finance, engineering or production, but for the purposes of this chapter are deemed to include; specification, sourcing, purchasing and expediting, cataloguing and inventory control, warehousing and materials handling, quality assurance, testing and tracking, internal and external distribution. While all of these' functions are just as likely to exist in a pure manufacturing environment, their relative importance and the optimum approach to carrying out each function is generally very different in the capital-intensive sector (Tozay, 2012).

2.3.4 Warehousing and Supply Chain Performance

Ngugi, Muhalia, and Moronge (2021) One of Kenya's finest consumer merchandise makers wanted to know what influence warehouse management solutions had on its
supply chain. The researcher used a descriptive study approach. Nairobi’s 51 FMCG manufacturers each have an operations manager; Kenya was among the responders. The research included Nairobi-based operations managers from FMCG manufacturers. A census technique was used to choose 51 makers of FMCGs. The study used the questionnaires to gather the results from the respondents; the data used only primary data. An FMCG supply chain research in Nairobi and Kenya found that management of warehouse systems has a favorable and critical impact on supply chain performance. The warehouse administration system assists to optimize the control of the stock; warehouse management systems grow and improves productivity of the work.

A study done by Subramanya, Ramaa and Rangaswany (2012), on the impact of WMS on India’s. Focus of the study was on a major retailer involved with consumer goods. The study looked at 60 retailing businesses and concluded that those with WMSs that were programmed had seen their process length reduce to 773 minutes. Mungu (2013) did an examination concentrate fully intent on deciding what use of practices of overseeing coordinations can mean for the degree of loads of fundamental medications in general wellbeing organization. The study was conducted in Bungoma Kenya. The study reviewed 15 wellbeing organizations. It was established that acts of overseeing inventories, transport, and stockroom like quality control, naming, clear specialization and evaluating emphatically affected degree of supplies of fundamental medications in the offices.

2.3.5 Supply Chain Performance

According to Cai and his colleagues (2017), improving supply chain performance requires a comprehensive and analytical performance monitoring system. One has to be able to take action to achieve key performance indicators (KPIs). Performance Metrics reports make it easier to achieve your workplace performance goals when planning and
performance are linked Kai et al. (2018). Supply chain performance is affected by many factors, including the financial and cost impact of the transportation supply chain. Supply chain management is an important driver of supply chain operations.

Chinese artists Zhang and Okalo Afa (2015), Albano, Racca, and Albano, asserts that in order to improve sales performance, companies have improved the performance of the entire procurement and supply chain beyond the performance of individuals within the organization. Supply chain performance measurements are also known as the popular benchmark used to evaluate both features and supply chain features (Kurein & Qureshi, 2011).

In their study Kimeu and Malala (2015), Inventory management systems enhance supply chain effectiveness, according to a study of industrial businesses. This was due to the benefits of inventory management systems (JIT, EOQ). Marketing executives and supply chain officers were polled in a sample of ten firms. The target demographic was studied using a census method. An inventory management system's implementation, according to the study, resulted in a more efficient supply chain.

Aggrey and Oxley (2018) while looking at the use of inventory management systems established that inventory management systems (JIT and VMI) led to improved cost savings and the firms that employed the technology had an efficient supply chain. The target population was sampled via purposive sampling in this study. 2010 to 2015 were the years covered by the research. Using inventory management systems enhanced supply chain performance was achieved according to the study's findings.
2.4 Conceptual Framework

Independent variable

Inventory management practices

- Information Integration
  - Information Flow
  - Suppliers System

- Transportation Systems
  - Route planning
  - Fleet control system

- Material Handling
  - Stock control
  - Material Packaging

- Warehousing Systems
  - Minimum Level
  - Optimum level

Dependent variable

Supply chain performance
- Reliability
- Responsiveness
- Flexibility
- Asset
- cost

Figure 2.1: Conceptual Framework

Source: Researcher (2022)
## 2.5 Summary of literature review

### Table 2.1 Summary of literature review

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Topic/Question</th>
<th>Method</th>
<th>Sample</th>
<th>Findings</th>
<th>Knowledge gap</th>
<th>Study current focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimeu and Malala (2015)</td>
<td>Inventory management systems use by companies in the manufacturing sector</td>
<td>Census approach</td>
<td>10 companies</td>
<td>Findings indicated that the use of inventory management systems led to a superior supply chain</td>
<td>The study focused on manufacturing firms only</td>
<td>Current study focused on dairy firms</td>
</tr>
<tr>
<td>Chesesio and Makokha (2016)</td>
<td>Supply chain performance and distribution channels: New KCC Eldoret.</td>
<td>Explanatory survey</td>
<td>459 employees</td>
<td>As a result of the research, the performance of the supply chain is influenced by the distribution channel. To increase the productivity of your business, you need an efficient distribution management process to deliver the finished product from the manufacturer to the end customer.</td>
<td>The study focus was only on distribution channels</td>
<td>Current study focused on information integration, transportation systems, material handling and warehousing systems</td>
</tr>
<tr>
<td>Musau, Namusonge, Makokha and Ngeno (2017)</td>
<td>Textile manufacturing businesses’ supply chain profitability, dependability, cost, responsiveness and flexibility are affected by transport management.</td>
<td>Convergent parallel mixed methods design</td>
<td>196 respondents</td>
<td>Textile businesses’ supply chain performance may be improved by transport management, according to the study, which underscores the importance of transport management in supply chains.</td>
<td>The study only focused on transport management on textile businesses</td>
<td>The current study focused on transportation systems in dairy firms</td>
</tr>
<tr>
<td>Authors</td>
<td>Title</td>
<td>Research Design</td>
<td>Sample Size</td>
<td>Findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okore and Kibet (2019)</td>
<td>Tourism sector supply chain performance in Kakamega County is influenced by information exchange.</td>
<td>Descriptive</td>
<td>84 employees</td>
<td>Study concludes know-how sharing has an effect on vacationer enterprise in Kakamega County’s dealer chains. There is a want for the deliver chain branch to enforce powerful networking applications to be able to growth purchaser happiness, deliver chain efficiency, and motel management's capacity to attain facts approximately suppliers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kisioya and Moronge (2019)</td>
<td>Material handling methods' impact on manufacturing businesses' performance in Nairobi, Kenya</td>
<td>Descriptive</td>
<td>Sample size of 188</td>
<td>Indicators of material handling procedures have a favorable influence on business performance, according to research.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muhalia, Ngugi and Moronge (2021)</td>
<td>Kenyan fast-moving consumer goods firms' supply chain performance is impacted by warehouse management systems.</td>
<td>Descriptive</td>
<td>51 FMCG manufactures</td>
<td>The study showed that warehouse management solutions in Kenya have a favorable and substantial impact on FMCG supply chain performance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathae, Paul, and Mbura, (2018)</td>
<td>effect of bullwhip on performance of milk processing firms in Kenya</td>
<td>Descriptive research design</td>
<td>117 staff members</td>
<td>The study results showed that information distribution affected the performance of New KCC Ltd.</td>
<td>Study focused on bullwhip effect on performance</td>
<td>Current study focused on inventory management practices and supply chain performance</td>
</tr>
</tbody>
</table>
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter three presents research design, population, sampling processes and sample size. Also, the chapter looks at research instrument and pilot study, as well as the methodologies for data collection.

3.2 Research Design

Descriptive research design was used in the study (Bryman, 2015). To characterize organizations, Creswell (2011) recommends a descriptive study design. The research design is appropriate if two variables are statistically related, because it’s very possible to forecast one variable based on information about the other variable (Kothari, 2011). As a result of the study design, information and ideas were provided on the key relationships between the variables.

3.3 Target Population

Mugenda et al. (2012) expounded this to which an investigator plans to apply the results of his or her inquiry. According to Kiambu County's Ministry of Agriculture, there are eight dairy processing firms in the county, but only three chosen from the eight were the focus of this study's research efforts (Appendix II). Targeted departments were retail and supply chain, as well as consumer services divisions.
Table 3.1: Target Population

These departments were chosen because the targeted employees would give right information for the study.

<table>
<thead>
<tr>
<th>Target Population (Category)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management committee</td>
<td>16</td>
</tr>
<tr>
<td>Head / Assistant Head of Procurement</td>
<td>8</td>
</tr>
<tr>
<td>Head / Assistant Head of Marketing</td>
<td>8</td>
</tr>
<tr>
<td>Head / Assistant Head of Operations</td>
<td>8</td>
</tr>
<tr>
<td>Head / Assistant Head of Finance</td>
<td>8</td>
</tr>
<tr>
<td>Head / Assistant Head of Human Resource</td>
<td>8</td>
</tr>
<tr>
<td>Quality / Assistant Head Manager</td>
<td>8</td>
</tr>
<tr>
<td>Staff Members</td>
<td>32</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

3.4 Sampling Design and Sample Size

Kombo and Tromp (2016) states that sampling methods is the process of selecting examples for observation. One or more subjects from the research population are chosen as representative samples (Huber, 2008). Sampling aims at describing the sampling unit, sampling procedure and sample size for a study. As a sample design, census sampling was utilized due to the large number of employees working in these dairy firms. "Samples" are small groups taken from the accessible population, as explained by Mugenda and Mugenda (2003).

3.5 Pilot Study

Prior to data collection, the researcher carried out a pretest and tool validation to ascertains its fit for data collection. To test the hypothesis, researchers selected a group of five members from the dairy processing stores and supply chain departments in Muranga.
County, Kenya to test their validity. Expert opinion improved the validity of the content, while the pilot study helped in ascertaining the validity of the tool.

3.5.1 Validity of the Instrument

Theories and evidence must support test results interpretation in order for tests to be valid. Supervisors verified the validity of the instruments (Kothari (2012). Sample size and item validity was determined prior to the actual investigation in the present study. As a result of content validity, tests must be able to measure occurrences in a way that is consistent with objectives and research questions. The validity of items employed in content measurement is determined by their relevance. When objects are deemed valid for sampling, they are selected from a total content area that was selected for measurement. Questionnaire content validity was determined by consulting with a university supervisor. To that end, they examined the instrument and make suggestions for improvements (Matula, 2018).

3.5.2 Reliability of the Instruments

Dairy processing businesses participated in a pilot test that was administered to a total of 100 responders (10 percent of the target demographic). The dependability of the instruments was determined by correlating the scores from both testing. In order to compute the outcomes of the pretesting, Pearson's Product Moment Correlation Co-Efficient Formula was used to them. It is suggested that the dependability co-efficient (r) fall between 0.7 and 0.8 in order to qualify as dependable. The study utilized Cronbach's alpha with an aim of assessing instrument internal consistency.

According to Yin (2017), a score of 0.7 indicates acceptable reliability. This statistic was used as the study's reliability baseline. The comments from the pilot test were used to modify the final questionnaire.
3.6 Data Collection Procedure

Data was obtained using structured as well as unstructured questionnaires. The answer of each respondent was the same as the questions were standardized for the questionnaire. The questionnaires were hand delivered to each respondent. Questionnaire respondents came from Kiambu County selected milk processor. The questionnaires were sent for a week to allow respondents enough time to answer questions. The researcher received approvals from the University and NACOSTI to help collect the data.

3.7 Data Collection Instruments

Survey plans or questionnaires are examples of data collection instruments, according to Borg and Gall (1989), which define them as "any form used to gather input from respondents on identical items" (Roger, 2016). To obtain primary data, a systematic questionnaire was necessary (Appendix II) was employed. A five-point Likert scale for the closed-ended question was used to gather accurate and consistent information form the respondents. (Borg & Gall, 1989).

The questionnaire was designed into four parts, part A had questions about respondents' backgrounds, part B looking at the questions about information integration, and part C containing questions about the respondents' skills and abilities, part C containing questions pertaining to transportation systems, part D containing questions pertaining material handling and section E containing questions pertaining supply chain performance.

3.8 Data Analysis

The integrity and consistency of the questionnaire was checked prior to processing. Quantitative data from the survey had to be encoded and entered into the SPSS analysis program. Descriptive statistics were used to assess central tendency and variability. Researcher examined the mean and standard deviation using regression and correlation
analysis for inference statistics. Multiple regression analysis was performed to examine the link between the variables. It was used to show the relationship between inventory management practices and supply chain performance of dairy firms within Kiambu County, Kenya.

The regression equation was:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \]

Whereby

\[ Y = \text{Supply Chain Performance} \]

\[ X_1 = \text{Information Integration} \]

\[ X_2 = \text{Transportation system} \]

\[ X_3 = \text{Material Handling} \]

\[ X_4 = \text{Warehousing systems} \]

\[ \beta_1, \beta_2, \beta_3 \text{ and } \beta_4 = \text{Coefficients of Determination} \]

\[ \varepsilon = \text{Error term} \]

### 3.9 Ethical Issues

The researcher obtained a research authorization from the university as well as NACOSTI before undertaking the study. Information obtained or collected from respondents is kept private and confidential. The researcher also assured all respondents that no personal information will be shared and thus information provided was solely for academic purposes.
CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

Study findings both descriptive and inferential was provided in this chapter. The study aimed at investigating the inventory management practices and supply chain performance of dairy processing firms in Kiambu County, Kenya. The study was conducted among three dairy farms in Kiambu County.

4.1 Pilot Study Results

Prior to the on-site findings, pre-test was carried out to determine the reliability as well as the validity of the research tool. This was necessary to determine the suitability of the research equipment for use in major data acquisition exercises. To pre-test the study, researchers selected a pilot group of five temporary workers from the Muranga County supply chain store and the department of the study population to test validity.

4.1.1 Validity Test Results

A fake efficacy approach was used to determine the effectiveness of the device, and university regulators thoroughly reviewed each section of the device to ensure that all variables were covered correctly. In this study, as shown in Table 4.1, the extracted mean variance (AVE) was used to establish the validity of the composition using the validity of the content and generated a score $=> 0.5$. This shows that the measurement scale provided a sufficient measure of the validity of the content.
4.1 Reliability Test Results

4.1.2 Reliability Test Results

Reliability analysis is shown from the field results shown in Table 4.2. A Cronbach's alpha (α) of > 0.7 was determined thus providing statistical evidence that all five components are reliable.

Table 4.2: Reliability of the Study Instrument

<table>
<thead>
<tr>
<th>Variables</th>
<th>No. of items</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information integration</td>
<td>5</td>
<td>0.720</td>
</tr>
<tr>
<td>Material Handling</td>
<td>3</td>
<td>0.656</td>
</tr>
<tr>
<td>Transport system</td>
<td>5</td>
<td>0.791</td>
</tr>
<tr>
<td>Warehousing</td>
<td>3</td>
<td>0.687</td>
</tr>
<tr>
<td>Supply chain performance</td>
<td>5</td>
<td>0.794</td>
</tr>
</tbody>
</table>

Source: Researcher (2022)

4.2 Study Response Rate

The results of this survey were based on 85 valid responses from data collection from 96 target participants. The data obtained showed a response rate of 88.5%, which is considered reasonable. Mugenda & Mugenda (2003) asserts that a 50% response rate is
appropriate for analysis and reporting. Further they state that 60% is good and a response rate of 70% or more is excellent.

Source: Researcher (2022)

Figure 4.1: Response rate

4.3 General information of the respondents

From table 4.3. Majority of respondents are male (60.00%) and 40.00% female. According to the data, the majority of respondents are 43.52 years old from 41-50 years old, 34.11 years old from 31-40 years old to 10.5 years old from 21-30 years old, the remaining 11.76% are over 50 years old. The majority of respondents (44.70%) were Brookside dairy, 32.92% were Githunguri dairy, and 22.35% were Limuru dairy. According to the survey, the majority of respondents were secondary school graduates 34.11%, university degree respondents 31.76%, bachelor's degree respondents 24.70%, and master's degree respondents 7.05%, 2.35% of respondents with a PhD.
Table 4.3: General information of the respondents

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51</td>
<td>60.00</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>40.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE BRACKET</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>9</td>
<td>10.5</td>
</tr>
<tr>
<td>31-40</td>
<td>29</td>
<td>34.11</td>
</tr>
<tr>
<td>41-50</td>
<td>37</td>
<td>43.52</td>
</tr>
<tr>
<td>Above 50</td>
<td>10</td>
<td>11.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic level</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>29</td>
<td>34.11</td>
</tr>
<tr>
<td>Tertiary</td>
<td>27</td>
<td>31.76</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>21</td>
<td>24.70</td>
</tr>
<tr>
<td>Masters</td>
<td>6</td>
<td>7.05</td>
</tr>
<tr>
<td>PhD</td>
<td>2</td>
<td>2.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookside Dairy</td>
<td>38</td>
<td>44.70</td>
</tr>
<tr>
<td>Limuru Dairy</td>
<td>19</td>
<td>22.35</td>
</tr>
<tr>
<td>Githunguri Dairy</td>
<td>28</td>
<td>32.94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>FREQUENCY</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>85</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Researcher (2022)

The data from table 4.4 below states that 45.88% worked for 5-10, 21.17% worked for less than 5 years and 15 years and above respectively while 18.64% indicated that they have worked for 11-15years.
Table 4.4: Length of service

<table>
<thead>
<tr>
<th>Length of service (years)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5</td>
<td>18</td>
<td>21.17</td>
</tr>
<tr>
<td>5-10</td>
<td>39</td>
<td>45.88</td>
</tr>
<tr>
<td>11-15</td>
<td>13</td>
<td>15.29</td>
</tr>
<tr>
<td>15 and above</td>
<td>15</td>
<td>18.64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

4.4 Descriptive statistics

Likert scale ranging from 1 to 5 where “strongly disagree =1” to “strongly agree=5”. was used to collect data.

4.5 Effect of information integration on supply chain performance

Respondents were asked to rate this on a scale of 1-5. (SD strongly disagrees, D disagrees, N agrees neutrally, SA strongly agrees) Table 4.5 below shows that the supply chain performance information integration results average 3.17, indicating that the organization has worked with both midstream and upstream and downstream suppliers to access and agree to an average of 2.07 that company’s division guarantees that it will work with suppliers to improve their relationships with them. On average, 1.47 agreed that suppliers would work together to improve the company's operations and increase its competitive advantage. Meanwhile, an average of 1.22 agreed suppliers will work with other suppliers to increase access to information, thereby improving the delivery of quality goods and services to businesses.

Majority of respondents stated that company would work with both midstream, upstream and downstream suppliers to improve the performance of the company’s supply chain management. From the results it is clear that the findings are in line with the results of
Christopher (2011), who found that organizations can work with all suppliers to manage supplier networks, promote traceability, and manage distribution networks. Competition is no longer between companies, but between supply chains. The industry recognizes that it must depend on effective supply chain management to have a competitive edge in the market. Supply chain globalization requires companies to look for systems that are better connected across capabilities, multiple logistics strategies, implementation processes, and logistics skills to coordinate the flow of materials inside and outside the company.

**Table 4.5: Effect of information integration on supply chain performance**

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers who work with other suppliers improve access to information, thereby increasing the delivery of quality goods and services to businesses.</td>
<td>85</td>
<td>1.2292</td>
<td>.55211</td>
</tr>
<tr>
<td>A company's supply chain department guarantees to work with suppliers to improve the relationship between them and their suppliers.</td>
<td>85</td>
<td>1.8729</td>
<td>.93183</td>
</tr>
<tr>
<td>For suppliers working with the company, it helps improve the operation of the company, thereby increasing its competitive advantage.</td>
<td>85</td>
<td>1.4792</td>
<td>.79444</td>
</tr>
<tr>
<td>The company guarantees to work with both intermediate and upstream and downstream suppliers to access information.</td>
<td>85</td>
<td>3.1771</td>
<td>1.21391</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td></td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

**4.6 Transportation system on supply chain performance**

Respondents agree with the material transport results in Table 4.6 below, with an average of 3.45, the company is implementing a thorough tour plan. An average of 3.00 strongly agreed that the company has a well-defined disposal policy. An average of 2.56 strongly agreed that the company had enough transportation units. This meant that the company
would carry out preventive maintenance, with an average of 1.39 strongly agreeing that the company had enough transportation units.

These results are similar to the study by Fraselle, E. H. (2016) found that well-designed material handling systems and processes reduce inventory, optimize delivery times, improve customer service, and reduce manufacturing, distribution, and transportation costs. In industries that rely on material handling, the largest application is manufacturing. Issues where material handling can be useful include plant and equipment layout, routing, packaging, and storage.

**Table 4.6: Transportation system**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company has enough transportation units</td>
<td>85</td>
<td>1.3958</td>
<td>.71788</td>
</tr>
<tr>
<td>Current vehicle planning practices have improved material and product transportation</td>
<td>85</td>
<td>2.5625</td>
<td>1.30434</td>
</tr>
<tr>
<td>The company implements a thorough route plan</td>
<td>85</td>
<td>3.4583</td>
<td>1.27252</td>
</tr>
<tr>
<td>The company has a well-defined disposal policy</td>
<td>85</td>
<td>3.0000</td>
<td>1.42164</td>
</tr>
<tr>
<td>Companies use fleet management systems to track all products shipped to their customers.</td>
<td>85</td>
<td>2.2812</td>
<td>1.00214</td>
</tr>
<tr>
<td>Companies use fleet management systems to track all products shipped to their customers.</td>
<td>85</td>
<td>2.1250</td>
<td>.78472</td>
</tr>
<tr>
<td>The firm undertakes preventive maintenance</td>
<td>85</td>
<td>2.5104</td>
<td>1.15161</td>
</tr>
<tr>
<td>Products and services are delivered to customers on time</td>
<td>85</td>
<td>1.7292</td>
<td>.95674</td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

4.7 Material handling and supply chain performance

Results in Table 4.7 below regarding material handling, respondents with a mean of 3.45 agree that the company has extensive route planning; average 3.00 strongly agree that the company has a clearly defined disposal policy; on average 2.56 agree that there are enough
transport units in the company, on average the company performs preventive maintenance, while on average 1.39 agree that there are enough transport units in the company.

Well-designed material handling systems and processes reduce inventory, optimize delivery times, improve customer service, manufacture, and it was found that distribution and transportation costs were reduced. As shown in Table 4.7, handling of materials, an average of 2.65 agreed to use the current latest technology in the record of raw materials in the store, averages 2.31 and 2.33, the facts did. The Company accurately achieves prediction to determine manufacturing cost management, and contributes to manufacturing costs and control of material management according to research 2.36, 2.28, 2.19, and 2.07 materials flow process procurement, production, delivery, shipping and distribution. All relevant transport, storage and handling processes include the manufacturing and product requirements for manufacturing and products for delivery to customers. This is done by improving the flow of material.

Most of the respondents (n = 38) do not agree that material bearing control contributes to the reduction of manufacturing costs. Studies with

BURT (2014) explains the importance of material management in important contributions of materials for materials and materials assigned to materials. Efficient material management reduces cost cost and improves profitability and increases investment yield revenue.
Table 4.7: Material handling and supply chain performance

<table>
<thead>
<tr>
<th>Description</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We use the latest technology to accept raw materials in our stores.</td>
<td>85</td>
<td>2.6563</td>
<td>1.34421</td>
</tr>
<tr>
<td>The company achieves accurate demand forecasts to determine inventory range</td>
<td>85</td>
<td>2.3125</td>
<td>1.31639</td>
</tr>
<tr>
<td>Material inventory management helps reduce production costs</td>
<td>85</td>
<td>2.3333</td>
<td>1.14861</td>
</tr>
<tr>
<td>Material inventory management helps reduce production costs</td>
<td>85</td>
<td>2.3125</td>
<td>1.07911</td>
</tr>
<tr>
<td>The organization has an inventory management policy to determine how the warehouse manages the movement of inventory under its control.</td>
<td>85</td>
<td>2.2812</td>
<td>1.25407</td>
</tr>
<tr>
<td>Improving the efficiency of the entire work area is achieved by improving logistics, thus reducing throughput time and inventory.</td>
<td>85</td>
<td>2.1979</td>
<td>.69008</td>
</tr>
<tr>
<td>The material requirements planning system makes materials available for production and products can be delivered to customers.</td>
<td>85</td>
<td>2.0729</td>
<td>.99731</td>
</tr>
<tr>
<td>Logistics processes include procurement, production, shipping, distribution, and all related transportation, storage, and handling processes.</td>
<td>85</td>
<td>2.3646</td>
<td>.98536</td>
</tr>
</tbody>
</table>

Source: Researcher (2022)

4.8 Warehouse management system

According to Table 4.8 below on transportation and supply chain operations, the study found that an average of 2.87 people agreed that the warehouse management system optimizes control. Inventory control, warehouse management systems facilitate maximum use of storage space, this is bet by an average of 2.34 respondents, and respondents with a
median of 2.09 agree that the warehouse management system helps to reduce picking errors.

**Table 4.8: Warehouse Management**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehouse management system helps to reduce</td>
<td>85</td>
<td>2.0938</td>
<td>1.50142</td>
</tr>
<tr>
<td>picking errors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse management system facilities the</td>
<td>85</td>
<td>2.3438</td>
<td>1.67852</td>
</tr>
<tr>
<td>maximum use of storage space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse management system helps to optimize</td>
<td>85</td>
<td>2.8750</td>
<td>1.52350</td>
</tr>
<tr>
<td>stock control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse management system improves work</td>
<td>85</td>
<td>1.3958</td>
<td>.49160</td>
</tr>
<tr>
<td>productivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse management system guide workers</td>
<td>85</td>
<td>1.8125</td>
<td>1.40160</td>
</tr>
<tr>
<td>through risk assessments and flag up warehouse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>safety requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

**4.9 Supply chain performance**

This observe attempted to set up how effective the enterprise deliver chain in Kiambu County and the enterprise relying at the enterprise. The consequences are displayed in Table 4.9 under.

The records in Figure 4.1 under agreed that eight respondents had been very critical to agree overall performance of the enterprise to deliver chain management performance while 15 strongly agreed. On the question of responsiveness of their supply chain performance 59 respondents agreed, 12 disagreed and 5 had no confidence at all yet strongly disagreeing. If there may be a reliability degree that contributes to the green characteristic of the overall performance of the sc performance, 22 strongly agreed to the assertion while 48 respondents agreed, and 12 respondents had been neutral and 7 did not
agree. It additionally does now no longer agree with the aid of using classification. Respondents had been requested to signify whether or not there are bendy structures in vicinity that correctly facilitate Kenya's supply chain. 41, 24, 18, 7, and 6 agree, strongly agree, impartial, strongly disagree and agree, respectively.

![Bar chart showing responses to supply chain performance questions](image)

**Figure 4.1: Supply chain performance**

### 4.10 Multiple regression results

In Table 4.9, the dependent variable for the other predictor below contains information about the amount of dispersion described by the variable above the predictor. The first statistics are .949A’s first statistics, which are multiple correlation coefficients between all variables and dependent variables of the predictor. The cost of the model. 949A indicates that there are many dispersions separated by independent variables and dependent variables. R - simply a square value of R, which explains the excellent inactivity or dispersion amount described by the above predicted variable set. In this case, the value. 900 indicates that 90% of the dispersion of the dependent variable have been described by the independent variable of the model.
Table 4.9: Model summary

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

Predictors: (Constant), a. Warehousing system, b. Material Handling, c. Transportation System, d. Information Integration

*Source: Researcher (2022)*

Table 4.10: ANOVA

<table>
<thead>
<tr>
<th>ANOVA&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
</tr>
<tr>
<td>1 Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

*Source: Researcher (2022)*

b. Predictors: (Constant), Warehousing system, Material Handling, Transportation System, Information Integration

ANOVA analysis was used to determine the given values to use the regression model. The result shows that the value of f-significance is 0.000<sup>b</sup>. The value shows that the regression model has a probability of 0.000 to make an incorrect prediction, so it is effective in producing real results. ANOVA is used to determine if the model fits the data. F calculated was 205.23 while the F critical was 2.522. The p value was 0.000. Since the F calculated was greater than the F-critical and the p value 0.000 was less than 0.05, A
model is considered a good fit to the data. Therefore, this model can be used to predict the impact of warehouse systems, material handling, transportation systems, and information integration on the performance of milk processing enterprises.

The regression model was as follows:

\[ Y = 0.316 + 0.331X1 + 0.387X2 + \varepsilon \]

From the finding’s, warehousing system has a significant effect on dairy processing firms \( \beta_1 = 0.331, \) \( p \text{ value} = 0.002 \). The link was considered significant since the \( p \) value 0.002 was less than the significant level of 0.05. The study findings are in line with the findings of Kimaiyo and Ochiri, (2014) who indicated that there is a very strong relationship between supply chain and performance of dairy processing firms, since \( \beta_1 = 0.387, p \text{ value} = 0.000 \). The relationship was considered significant since

**4.11 Study coefficients**

\[ Y \text{ (Supply Chain Performance)} = 0.095 \text{ (Constant)} + 0.461 \text{ (Information Integration)} + 25.479 \text{ (transport System)} - 6374 \text{ (Processing)} - 3.414 \text{ (Inventory Management)} + 0.206 \text{ (Consumer Error) standard}. \] According to the regression equation, information integration is the most important variable for supply chain performance, contributing 61.21% to supply chain performance, followed by processing with 52.14%. Warehousing system and transportation system.

A significant relationship between information integration and supply chain is evident according to the regression equation \( p = 0.000 \); there is a significant relationship between the transportation system and the performance of the supply chain \( p = 0.000 \); There is a significant relationship between the warehousing system and the performance of the organization \( p = 0.001 \).
<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.095</td>
<td>.206</td>
<td>.461</td>
<td>.646</td>
</tr>
<tr>
<td>Information Integration</td>
<td>1.321</td>
<td>.052</td>
<td>1.098</td>
<td>25.479</td>
</tr>
<tr>
<td>Transportation System</td>
<td>-.438</td>
<td>.069</td>
<td>-.274</td>
<td>-6.374</td>
</tr>
<tr>
<td>Material Handling</td>
<td>.180</td>
<td>.097</td>
<td>.072</td>
<td>1.861</td>
</tr>
<tr>
<td>Warehousing system</td>
<td>-.174</td>
<td>.051</td>
<td>-.140</td>
<td>-3.414</td>
</tr>
</tbody>
</table>

Source: Researcher (2022)

a. Dependent Variable: Supply chain performance
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter 5 closes the entire exercise by closing the study so that the next scientist can proceed with similar research. The chapter consists of a summary, conclusion and recommendations.

5.2 Summary of study

It was agreed that the company does thorough route planning thus it is strongly agreed that the company has a well-defined disposition policy. It is also strongly agreed that the company has sufficient transportation equipment, the average is performing preventive maintenance, and an average agrees that the company has sufficient transportation equipment. The study revealed an agreement to the statement that their firm is using the current/latest technology in receiving raw materials in the store, and stated that the firm achieves accurate forecasting to determine stock cost control contributes to Reduction in production costs and Material stock control contributes to Reduction in production costs respectively as a mean of achieving supply chain performance.

The study found that these dairy firms uses current/latest technology to receive raw materials in the store, and said the company achieved Accurate forecasting to determine that controlling inventory costs contributes to production reductions. Cost control and material inventory respectively contribute to reducing production costs as a means of achieving supply chain performance. Transportation, storage and handling processes involved, material requirements planning systems ensure that materials are available for production and products are available for delivery to customers while increasing efficiency across the board line operations through improved material flow and, consequently,
shorter lead times and reduced inventory. The dairy processing firm’s uses material logistics planning to control the movement of materials as a means to achieve successful supply chain performance in their business.

Most respondents did not agree strongly to reduce the cost of material control of stocks. According to Table 4.7 for transportation and supply chain, the maximum usage of warehouse management system, which helps warehouse management system to optimize inventory management, the maximum storage space usage has been delivered.

The data of the regression equation, the integration of information was found to be the most important variables for the productivity of the supply chain. The regression equation also indicated that there is an important link between information integration and supply chain. There was a significant connection between the productivity of the transport system and the supply. There was an important link between the stored system and the organizational efficiency.

5.3 Conclusions

In terms of supply chain management, the regression coefficient was found to be significant. This means that supply chain management makes a difference in company operations when all factors remain constant. This study concluded that the correct and regular data flows required for the flow of the system. Information integration shares data with power chain data power, helps display data for dimension and location, transaction, and data measurement data, logistics status data. Traffic system has been signed that the traffic system has a positive impact on the production of dairy products. In securities management, the study has created a significantly positive relationship between supply reserves and supply chain performance.
Transportation management plays an important role in creating more competitive advantages for businesses in terms of customer support and business performance. Effective logistics management often ensures that logistics and supply chains run smoothly.

5.4 Recommendations

The recommendation are done as per the objectives of this study including not only supply chain performance, but also for further research on the same. This survey recommends a greater focus information integration, material handling, transportation and Warehousing in order to achieve supply chain performance. Kenya’s Dairy Company's Research recommended manager must include an important agreement and interest in information integration and data innovation that can easily implement the company's progress and excellent data supply chain. In addition, the test also specifies the speculation for data structures for the administrator of dairy tasks to achieve quality items and reduce product change costs. Warehouse management is evidence in the survey, ensuring costs of cost, ensure complete use of assets, reducing the loss of data, increasing the nature of the generation, limit the inertia of the dairy plants, and increase the benefits from the customer of this method, it is buried as money but money.

5.4.1 Suggestion for further research

The study recommends further research on effect of logistics management practices on supply chain performance on manufacturing or service firms so that comparison can be drawn from its findings.
REFERENCES


Tozay G. J. (2012). *Warehouse location and design decisions among large scale large manufacturing firms in Nairobi, Kenya*; Research Project, University of Nairobi.


Watson, N. (2010). *Strategic Supply Chain Planning & the Role of Forecasting, Research Associate*. CTL, MIT.


APPENDICES

Appendix I: Staff Questionnaire

PART A: Respondent Profile

Please tick where appropriate;

1. Institution;
   Brookside Dairy ( )
   Limuru Dairy ( )
   Githunguri Dairy ( )

2. Professional Qualification;
   CIPS ( )
   Others specify ______________________

3. Years of service;
   0> 5yrs ( )
   5>10 yrs ( )
   10 >15yrs ( )
   Over 15yrs ( )

4. Highest Academic Qualification
   Doctorate level ( )
   Masters Level ( )
   Bachelors’ level ( )
PART B

Please indicate your level of agreement with the following:

a) **Information Integration**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers working with other vendors increase access to information, increasing the provision of quality goods and services to businesses.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A company's supply chain department engages with its suppliers to improve the relationship between the company and its suppliers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppliers that partner with your company help you increase your competitive edge by improving your company's performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies make sure they work with mid-range and upstream and downstream providers to access information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How does your organization perceive customer feedback? -

________________________________________________________________________

How fast does your organization act towards responding to supplier related information?

________________________________________________________________________
b) Transportation Systems

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sufficient number of transportation units are available inside the company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials and products are now transported more efficiently thanks to the current truck scheduling methods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A detailed route planning process is employed by the company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The company has a clearly defined recycling policy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies use transport management systems to plan distribution routes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies use fleet management systems to track all products shipped to customers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The company is committed to prevention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deliver products and services to customers in a timely manner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How does the organization use transport management system to plan for its routes?  
__________________________________________
c) Material Handling

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our company uses the latest technology when receiving raw materials from our stores.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies achieve accurate demand forecasting to determine inventory ranges.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce production costs with material inventory management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companies use material logistics plans to control the movement of materials to the company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizations have inventory management policies that determine how warehouses manage inventory movement under their control.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The increasing efficiency in the whole operating range done through improvements in material flow and so, shorten lead times and reduce stocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The organization has an inventory management policy that determines how the warehouse manages the movement of inventory under its control.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material flow process includes procurement, production, dispatch and distribution and all related transportation, storage and handling processes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How does material requirement planning ensure materials are available for production in your organization?
_____________________________________________________________________
_____________________________________________________________________

How effective is material stock control in your organization?
_____________________________________________________________________

?
d) Warehousing Systems

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picking mistakes may be reduced with the aid of a warehouse management system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage space is maximized with the help of a warehouse management system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve inventory management with a warehouse management system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase productivity with warehouse management system</td>
<td></td>
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<tr>
<td>Operators are guided by the risk assessment of warehouse management.</td>
<td></td>
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<tr>
<td>Provide recommendations on how top dairy processors can use inventory management techniques to improve supply chain efficiencies</td>
<td></td>
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</table>

e) Supply Chain Performance

<table>
<thead>
<tr>
<th>Supply chain performance</th>
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<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>i) There is flexible System that facilitates efficient functioning of the supply chain performance in dairy sector in Kenya.</td>
</tr>
<tr>
<td>ii) Our supply chain is responsive enough to enhance supply chain performance</td>
</tr>
<tr>
<td>iii) There is reliability measures that facilitates efficient functioning of the supply chain performance.</td>
</tr>
<tr>
<td>iv) Performance measurement is important in the whole supply chain asset management</td>
</tr>
</tbody>
</table>

Thank you for your corporation
Appendix II: Dairy Processors in Kiambu County

1. Githunguri Dairy
2. Kabete Dairy
3. Kiambaa Dairy
4. Kiriita Dairy
5. Lari Dairy
6. Limuru Dairy
7. Ndumberi Dairy
8. Uplands Dairy
### Appendix III: Budget

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>AMOUNT IN (KSH)</th>
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<tbody>
<tr>
<td>Ruled papers</td>
<td>2 ream</td>
<td>1,000</td>
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<tr>
<td>Stationeries</td>
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<td>3,000</td>
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<tr>
<td>Questionnaire</td>
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<td>Typesetting, printing and binding</td>
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<tr>
<td>Transport and lunch</td>
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<td>Research assistants</td>
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<td>Flash disc</td>
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<tr>
<td>Miscellaneous</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td><strong>55,300</strong></td>
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## Appendix IV: Work Plan

<table>
<thead>
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<th>ACTIVITY</th>
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<tr>
<td>Concept paper Writing</td>
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<tr>
<td>Proposal Writing</td>
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<tr>
<td>Proposal Submission</td>
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<tr>
<td>Proposal Defense</td>
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<tr>
<td>Submission to Graduate school</td>
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<tr>
<td>Data Collection</td>
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<tr>
<td>Data analysis</td>
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<tr>
<td>Project submission</td>
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<td>Project Corrections</td>
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<td>Graduation</td>
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