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STRATEGIC PROCUREMENT PRACTICES AND PERFORMANCE OF MILK PROCESSING COMPANIES IN KIAMBU COUNTY, KENYA

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ABSTRACT

Over 25% of milk processed in Kiambu is lost or wasted along the value chain due to delayed procurement of packaging materials, machine breakdowns caused by poor supplier servicing, and inconsistencies in raw milk supply. In addition, procurement-related costs account for nearly 60% of total operational expenses among agro-processing firms, highlighting the need for a more strategic and cost-effective approach to sourcing and supplier relationship management. This study therefore sought to assess the influence of strategic procurement practices on performance of milk processing companies in Kiambu County, Kenya. Specifically, the study sought to ascertain how technology utilization affects the performance of milk processing companies in Kiambu County, Kenya and to establish the effect of cost management on performance of milk processing companies in Kiambu County, Kenya. The study used descriptive research design. The population consisted of 11 milk processing firms in Kiambu County. Kiambu County was selected as it hosts some of the largest dairy processing firms in Kenya such as Brookside and Fresha Dairies. The target population was all the 11 milk processing plants in Kiambu County (Kenya Dairy Board report, 2020). The processing plant formed the unit of analysis while the management staff formed the unit of observation. The total target population was therefore 198 respondents. The study adopted Yamane 2018) formula for a finite population. The study used simple random sampling technique to select 132 respondents from the target population. The study used the Statistical Package for Social Studies (SPSS) version 24 as a data analysis tool. The findings and results were presented using tables and figures. The study concludes that technology utilization influences performance of milk processing companies in Kiambu County, Kenya. The study also concludes that cost management influences performance of milk processing companies in Kiambu County, Kenya. From the findings, the study recommends that the management of State Corporations in Nairobi City County should formulate and implement supplier management strategies to ensure proper management of suppliers. In addition, the management should encourage technology adoption in all departments of the organization.

Key words: Strategic Procurement Practices, Technology Utilization, Cost Management, Performance of Milk Processing Companies

Background of the study

Dairy farming plays a crucial role in the global economy by contributing to agricultural GDP, supporting livelihoods, and enhancing food security. It generates income for over a billion people worldwide, especially in rural areas, and supplies essential nutrients like protein and calcium (Marco & Nicola, 2020). Major milk-producing countries such as India, the United States, and the European Union dominate global output, with dairy farming accounting for up to 17% of global agricultural value. The sector also promotes rural development and resilience by providing steady income and employment across various stages of the supply chain (Okori, 2021). Milk processing firms build on this foundation by adding value to raw milk through the production of a wide range of dairy products like cheese, yogurt, and butter. These firms are vital for industrialization, job creation, and export earnings. Globally, over half of all milk is processed, with developed economies processing more than 90%. Countries like New Zealand and the EU generate billions annually through dairy exports. Additionally, milk processors drive technological innovation, stabilize markets through farmer contracts, and play a key role in ensuring product quality, safety, and sustainability across the dairy value chain (Debora Alban & Leonada, 2020).

Strategic procurement practices are essential for enhancing operational efficiency, reducing risks, and creating long-term value in organizations. Effective supplier management is central to this, involving the selection, evaluation, and continuous collaboration with suppliers to ensure quality, reliability, and innovation (Kosgei & Gitau, 2020). Building strong relationships with key suppliers helps secure favorable terms, reduce supply chain disruptions, and foster shared growth. Additionally, technology utilization—such as e-procurement systems, data analytics, and automation—enhances transparency, speeds up procurement cycles, and improves decision-making by providing real-time insights into supplier performance and market trends. Organizational capacity plays a pivotal role in aligning procurement strategies with broader business objectives. Skilled procurement teams, clear policies, and cross-functional integration ensure that procurement activities support cost, quality, and delivery goals (Wachira, 2020). Cost management is also a critical component, going beyond price negotiations to include total cost of ownership analysis, demand management, and process optimization. Together, these strategic procurement practices help organizations build resilient supply chains, drive down costs, and maintain a competitive edge in a dynamic business environment (Magiri & Barasa, 2024). This study therefore sought to assess the influence of strategic procurement practices on performance of milk processing companies in Kiambu County, Kenya

Caldwell, Roehrich and Davies (2020) argued that proper strategic procurement practices is essential for an organization to procure right quality goods. Detailed specifications are necessary from all stakeholders involved. These stakeholders could be requesting entity, end users, procurement department, technical experts and even suppliers to give relevant inputs on specific requirements. A specification whether simple or complex, depends on the nature of procurement. He further argued that effective and efficient procurement process can only be achieved by proper planning and competent staff. PPDA (2020)

Kiambu County is a key hub for Kenya's dairy industry, hosting a mix of large-scale milk processors, cooperatives, and private firms that play a critical role in value addition and rural development. Notable among these is Brookside Dairy Limited, headquartered in Ruiru, which is the largest milk processor in the country with a wide product range and regional market reach. Equally significant is the Githunguri Dairy Farmers Cooperative Society, which processes milk under the "Fresha" brand and stands out as a successful example of a farmer-owned enterprise contributing to economic empowerment and local milk commercialization (Mwangi, 2023).

In addition to large processors, Kiambu is home to several farmer cooperatives and small private processors such as the Limuru Dairy Farmers Cooperative Society, Ndumberi Dairy, and Muthiga Dairies Limited. These organizations not only engage in processing but also support farmers through input provision, training, and access to markets. Their operations have been strengthened by partnerships with development agencies and government support. Collectively, these firms contribute to job creation, improved livelihoods, and enhanced food security, reinforcing Kiambu's role as a cornerstone of Kenya's dairy value chain (KNBS, 2024).

Problem Statement

Despite the critical role of strategic procurement practices in enhancing supply chain efficiency and organizational performance, milk processing companies in Kiambu County continue to face persistent operational challenges such as procurement delays, supplier unreliability, poor inventory management, and inflated costs. These inefficiencies not only hinder productivity but also compromise the competitiveness of the dairy sector—a key pillar of Kenya's economy (KNBS, 2023). According to the Kenya Dairy Board (2022), Kiambu County accounts for approximately 13.5% of the national milk production, making it one of the top milk-producing regions in the country. However, despite this advantage, many milk processing firms in the county operate below capacity, with utilization rates reported to be as low as 40% to 60%, largely due to erratic supply chain flows and poor procurement planning (KDB, 2022).

Moreover, a report by the Ministry of Agriculture (2021) revealed that over 25% of milk processed in Kiambu is lost or wasted along the value chain due to delayed procurement of packaging materials, machine breakdowns caused by poor supplier servicing, and inconsistencies in raw milk supply. In addition, procurement-related costs account for nearly 60% of total operational expenses among agro-processing firms, highlighting the need for a more strategic and cost-effective approach to sourcing and supplier relationship management (KNBS, 2023). The lack of structured procurement frameworks and reliance on non-competitive tendering processes further expose these companies to risks such as stockouts, inflated pricing, and low-quality supplies. Therefore, there is a pressing need to investigate how strategic procurement practices—such as supplier selection, contract management, and inventory control—can be leveraged to improve performance and sustainability of milk processing companies in Kiambu County. This study sought to fill this gap by assessing the influence of these practices on firm performance within this context.

General Objective

The general objective of the study was to assess the influence of strategic procurement practices on performance of milk processing companies in Kiambu County, Kenya

Specific Objectives

i. To ascertain how technology utilization affects the performance of milk processing companies in Kiambu County, Kenya
ii. To establish the effect of cost management on performance of milk processing companies in Kiambu County, Kenya

Theoretical Review

Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed by Fred Davis in 1985. It was introduced in his paper, "A Technology Acceptance Model for Empirically Testing New End-

User Information Systems: Theory and Results." The model aims to explain and predict how users come to accept and use new technologies (Kadiri & Adetoro, 2020). TAM posits that two key factors, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), determine the likelihood that users will embrace a new technology. Perceived Usefulness refers to the degree to which a person believes that using a particular system would enhance their job performance, while Perceived Ease of Use is the degree to which a person believes that using the system would be free from effort. According to the model, if users perceive the technology as both useful and easy to use, they are more likely to adopt it (Ward & Zhou, 2020).

The central idea of TAM is that user acceptance of technology is influenced by both cognitive and behavioral factors. Perceived Usefulness directly impacts an individual's attitude toward using the technology, which in turn influences their behavioral intention to use it. Similarly, Perceived Ease of Use can affect the attitude toward technology, with easier-to-use systems being more likely to be adopted (Onia, 2020). These factors shape how individuals interact with new technologies in organizational settings, ultimately determining the level of technology integration into daily operations. The model suggests that the easier and more beneficial a technology is perceived, the more likely it is to be accepted and utilized by users (Mbugua & Namada, 2020).

Linking TAM to technology utilization, organizations can apply this model to ensure the successful adoption of new technologies such as e-procurement systems, data management tools, or order processing platforms (Shale, 2020). To increase adoption, companies need to focus on enhancing the perceived usefulness of the technology by demonstrating how it can improve efficiency, reduce costs, or streamline operations. They also need to ensure that the technology is easy to use, providing training and support to users to reduce resistance and build confidence (Wanyoike, Mukulu & Waititu, 2020)

Transaction Cost Economics Theory

Transaction Cost Economics (TCE) was developed by Ronald Coase in his 1937 paper, "The Nature of the Firm," and further refined by Oliver Williamson in the 1970s and 1980s. TCE seeks to explain the reasons why firms exist and why they make certain decisions, particularly with regard to transactions between organizations (Akkoyun & Ankara, 2020). According to TCE, firms emerge to minimize the costs associated with economic exchanges, which are referred to as transaction costs. These include costs such as negotiating contracts, enforcing agreements, and monitoring supplier performance. TCE suggests that firms will choose the most efficient governance structure (whether market-based, hierarchical, or hybrid) to minimize these transaction costs while maximizing overall economic efficiency (Egbu, 2020).

The theory focuses on three key factors that influence transaction costs: asset specificity, uncertainty, and frequency of transactions. Asset specificity refers to the degree to which investments made in a particular transaction cannot easily be redeployed for other purposes (Lwesibawa, 2020). The higher the specificity of assets, the more likely it is that firms will engage in hierarchical structures, such as vertical integration, to reduce the risk of opportunism. Uncertainty refers to the unpredictability of the environment, including market conditions, regulatory changes, or changes in technology, which increases transaction costs. Frequency of transactions also plays a role, as frequent exchanges are more likely to be governed by formal contracts or internal governance structures to reduce the costs of negotiating and enforcing agreements for each transaction. TCE suggests that firms will opt for the governance structure that minimizes the sum of production and transaction costs, leading to more efficient outcomes (Obuo & Nyang’au, 2024).

Linking Transaction Cost Economics to cost management, this theory provides valuable insights into how organizations can manage their costs by choosing the most efficient ways to structure their transactions (Subramanian *et al*, 2020). By understanding the underlying factors that drive transaction costs—such as asset specificity, uncertainty, and transaction frequency—organizations can make more informed decisions about outsourcing, partnerships, and vertical integration. For example, if a company faces high asset specificity and uncertainty in a particular supply chain, it may choose to internalize operations to reduce the risk of opportunism and minimize transaction costs. Alternatively, if transactions are frequent and assets are not highly specific, outsourcing or market transactions may be more cost-effective. TCE helps organizations optimize their cost structures by aligning transaction governance with the nature of the transactions involved, ultimately reducing inefficiencies and enhancing cost management strategies (Gitonga, Muchelule & Nyang'au, 2022).

Conceptual Framework

As indicated by Jabareen (2018) a conceptual work framework is an organization interlinked ideas that together give a complete comprehension of a wonder of marvels. As per Orodho (2019) a conceptual framework gets vigorously from the hypothetical survey portray the connection between the examination factors.

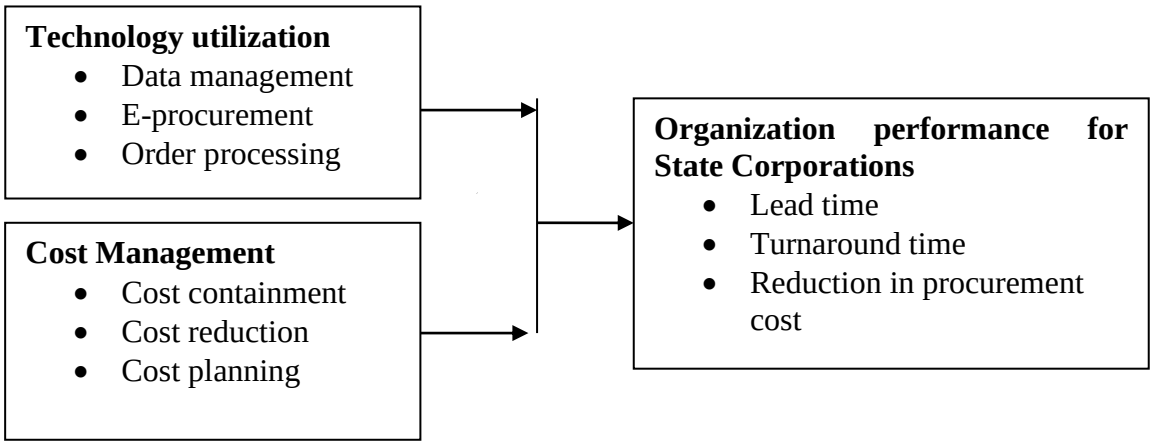

Figure 2. 1: Conceptual Framework

Technology Utilization

Technology utilization plays a key role in improving efficiency, reducing costs, and enhancing the overall effectiveness of an organization's operations. By adopting advanced technologies, businesses can streamline processes, improve decision-making, and enhance customer satisfaction (Ward & Zhou, 2020). Key components of technology utilization include data management, e-procurement, and order processing, each of which contributes significantly to optimizing business performance. Data management involves the collection, organization, and analysis of data to support informed decision-making and operational improvements. With the increasing volume of data in modern organizations, efficient data management systems are crucial for ensuring that information is accurate, accessible, and timely (Kadiri & Adetoro, 2020). By leveraging tools like databases, cloud storage, and data analytics, companies can extract valuable insights that help optimize business operations, forecast trends, and identify opportunities for innovation. Effective data management also aids in compliance, risk mitigation, and maintaining data security (Onia, 2020).

E-procurement is the use of digital platforms and tools to manage procurement activities such as supplier selection, order management, and contract negotiation. It streamlines the procurement process by automating tasks, reducing paperwork, and enhancing transparency (Mbugua & Namada, 2020). E-procurement systems allow organizations to source products and services more efficiently, track spending, and evaluate supplier performance in real time. Additionally, it provides a centralized platform for managing procurement activities, which leads to cost savings, faster procurement cycles, and better collaboration with suppliers. Order processing technology is used to automate and streamline the workflow involved in receiving, managing, and fulfilling customer orders (Shale, 2020). By utilizing software systems such as Enterprise Resource Planning (ERP) or Order Management Systems (OMS), organizations can ensure that orders are processed quickly, accurately, and with minimal manual intervention. These technologies help improve inventory management, reduce errors, and enhance customer satisfaction by ensuring timely delivery and accurate order fulfillment. Order processing systems also enable better tracking and reporting, which helps companies optimize supply chain operations and improve overall customer service (Wanyoike, Mukulu & Waititu, 2020).

Cost management

Cost management is the process of planning, controlling, and monitoring an organization's expenditures to ensure efficient use of financial resources while meeting strategic objectives. It plays a crucial role in achieving financial sustainability, profitability, and operational efficiency. Effective cost management helps organizations minimize waste, avoid unnecessary expenses, and allocate resources to areas that drive growth and value (Kipkech, Wokabi & Bor, 2020). It involves a combination of strategic planning, performance monitoring, and corrective actions to align spending with the organization’s goals, thereby supporting long-term business success. The core components of cost management include cost containment, cost reduction, and cost planning. Cost containment focuses on controlling expenses within predefined limits, aiming to prevent costs from exceeding budgeted amounts. It typically involves improving operational processes, enhancing productivity, and eliminating inefficiencies without sacrificing quality or performance. By maintaining current cost levels, cost containment ensures that the organization can sustain operations without facing financial strain (Omondi, 2020).

Cost reduction, in contrast, seeks to achieve long-term savings by actively identifying and eliminating unnecessary expenditures. This could involve renegotiating contracts, adopting more cost-effective technologies, or streamlining operations. Cost reduction is often a more proactive and strategic effort aimed at fundamentally lowering the cost base. Finally, cost planning is a forward-looking process that involves estimating future costs, setting budgets, and aligning expenditures with the organization's strategic goals (Kilonzo, Bukenya & Mwangi, 2020). It ensures that resources are allocated effectively across different departments and projects, allowing for better financial forecasting and decision-making. Together, these components help organizations control their financial health, adapt to market changes, and maintain a competitive edge (Kipkech, Wokabi & Bor, 2020).

Empirical Review

Technology utilization and Organizational Performance

Ward and Zhou (2020) conducted a study on the impact of technology utilization and lean/just - in - time practices on lead - time performance. Managers seeking to improve lead-time performance are challenged by how to balance resources and investments between process improvement achieved through lean/just-in-time (JIT) practices and information

technology (IT) deployment. The findings provide managers with empirical evidence and a theoretical framework on the balance between lean/JIT and IT for effecting improvement in lead-time performance, thus offering practical guidance on this important question. Future conclusion is needed to extend the lean/JIT practices in this study to supply chain practices and explore the relationship between supply chain practices and IT integration

Kadiri and Adetoro (2020) conducted a study on the effect of information explosion and the challenges of information and communication technology utilization in Nigerian libraries and information centers. The discovery of paper, ink and the printing machine signaled the emergence of Information Explosion. Initially, the discoveries meant multiplication of information materials thus ending the era of keeping of information materials under lock and key. The study found that the emergence of Information Communication Technology led to exponential availability of information, which in spite of its advantages also brought its challenges to users and information managers thus giving birth to information science. The study concluded that the foregoing established the fact that Information Explosion preceded Information and Communication Technology however, Information and Communication Technology complicated the situation as it exponentially increase information available especially through the internet and the World Wide Web

Onia (2020) conducted a study on the effect of education policy of Sudan and utilization of the mobile device (ipad) technology: opportunities and challenges. The Sudanese education system, in recent years, has seen a significant expansion because of the significant increase in the numbers wishing to learn. The study found that therefore, this paper seeks to review the use of mobile device (iPad) technology in education and explore the opportunities and challenges of utilizing iPad technology in the education system of Sudan. The study concluded that Mobile devices and iPads have been securing their place in educational institutions and is clear that these devices have not only become part of our daily lives partly in the 21st century but are likely to stay with us and in our schools for a long time.

Mbugua and Namada, (2020) conducted a study technology utilization effect on operational performance of Kenya's public health sector. The purpose of the research was to examine the effect of information technology integration on the operational performance of the of Kenya's public health sector level five hospitals in Kenya. The study examined the moderating role of public procurement on the relationship between technology utilization and operational performance. Regression analysis was carried out based on data from 164 respondents. In general, the study results support the idea that information technology utilization has a significant effect on operational performance ($\beta1=0.411$, $p<0.05$) with R2 of 0.449 implying that 44.9% of the variation of operational performance is attributed to technology utilization. Technology utilization is vital in coordinating the SCI dimensions leading to the improved operational performance of the health facilities. The study found that public procurement mediates the relationship between technology utilization and operational performance of the health sector as it is an enabler of improved working relationships with the suppliers.

Shale (2020) conducted a study on the role of fleet management optimization on supply chain performance in oil industry in Kenya in Hass petroleum oil refinery examined the effect of cost reduction on supply chain performance, technology utilization, effect of top management support and the effect of lead time on supply chain performance in oil sector in Kenya. The study determined that cost reduction, technology utilization, top management support and lead time all affected management optimization. The study concluded that the organizations needed to have a seamless flow of information in order to achieve management optimization.

Wanyoike, Mukulu and Waititu (2020) conducted a study on technology attributes as determinants of e-commerce adoption by formal small enterprises in urban areas. The authors used stratified random sampling to select a sample of 400 small enterprises located in four main urban towns of Kenya. The findings indicated that small formal enterprises adopted e-commerce by which enabled them to observe visible results emanating from efficient

coordination among various value chain partners and improved customers services that led to customer satisfaction. The study concludes that small formal enterprises in urban Kenya are influenced to adopt e-commerce by being able to observe visible results emanating from its use such as simplification of work routines, efficient coordination among various value chain partners and improved customers services that leads to customer satisfaction.

Cost Management Strategy and Organization Performance

Akkoyun and Ankara (2020) conducted a study on the effect of cost of quality management: An empirical study from Turkish marble industry. In this study, a quality cost model to measure and control costs of quality (COQ) occurring in marble plants was developed. It was found that quality costs vary depending on product types in range from 9 to 34% of total production costs for three different stone types. The concluded that the following can be said when these tables and graphs are evaluated: Unpolished slab has the lowest unit cost value in every product type in three stone types

Egbu (2020) conducted a study on the use of costs management tools and techniques in highway projects in Rwanda. The purpose of this research is to investigate tools and techniques for managing costs in highway projects in General and particularly in Rwanda. From the research study, it was found that the order of magnitude estimates; expert judgment, analogous estimating, parametric and reserve analysis are techniques most frequently used in highway projects in Rwanda while truly, they are techniques only used when there is no much information about the project i.e. at the earliest stage of the project, therefore not accurate. Examinations of conclusions across the objectives show that cost management tools and techniques are of vital importance in project development but they are not frequently used in highway construction projects in Rwanda.

Lwesibawa (2020) conducted a study on the role of cost accounting in transport management in Uganda Railway Corporation. This research was on to obtain the major purpose of instituting cost. The study found that the researcher was interested in this topic because usually managers are handicapped in making prompt decision s for transport department clue to lack of accurate analysis of behaviors of the costs relating to the operation of the transport service. The study concluded that the researcher expected the role of cost accounting to improve on the management to confine the known cost - profit facts to a select few who need to know than fewer people will be committed to cost management.

Obuo and Nyang'au (2024) conducted a study on the effect of project cost management process and performance of road projects in Nairobi city county, Kenya. The general objective of the study was to determine the effect of project cost management processes on performance of road projects in Kenya. The study target population was 51 road projects in Nairobi City County, Kenya. The unit of observation was 51 project managers, 51 project contractors, and 51 roads engineers. Sample size was 153 road project professionals since the study adopted census. The findings revealed that cost scheduling, and cost control significantly influence project performance, with cost control having the highest impact. The results indicate that effective management of these processes enhances project success by ensuring timely completion, cost efficiency, and stakeholder satisfaction. The study concludes that comprehensive cost management practices are critical for the successful implementation of road projects.

Subramanian et al (2020) conducted a study a study on the effect of cost-effectiveness of risk stratified medication management for reducing premature cardiovascular mortality in Kenya. Cardiovascular disease (CVD) is a major contributor to the burden from non-communicable diseases in Sub-Saharan Africa and hypertension is the leading risk factor for CVD. The study developed a micro simulation model to evaluate CVD risk over the lifetime of a cohort of individuals. The study found that Treating high risk individuals only was generally more cost-effective that treating high and moderate risk individuals. The study concluded that In

Kenya, our results indicate that the risk stratified approach to treating hypertension may be cost-effective especially for men and women at a high risk for CVD events, but these results are highly sensitive to the cost of medications

Gitonga, Muchelule and Nyang'au (2022) conducted a study on the effect of project cost management and performance of urban road projects in Kenya. The construction industry has complexity in its nature because it contains a large number of parties such as clients, contractors, consultants, stakeholders, shareholders, and regulators. The study adopted descriptive survey research, while the target population was 408 construction registered professionals within Kenya urban roads authority projects. Findings revealed that project cost management had a positive and statistically significant influence on the performance of urban road projects in Kenya. The study concluded that project cost management significantly contributes to the enhanced performance of urban road projects in Kenya.

RESEARCH METHODOLOGY

Research Design

Through a research design, a researcher is able to provide detailed arrangements on how the study is to be conducted. (Schindler 2018).so the study used descriptive which involved qualitative and quantitative research in form of a survey so as to explain observations and scrutinize the findings to come up with conclusions by a correlation between strategic procurement as an independent variable and procurement performance as a dependent variable and recommendations for implementation. The information was collected without altering anything in the area of study (Tashkkori 2019).

Target population

The target population, according to Kothari (2019), is a physical representation that contains all the units that could be members of the sample. A population can alternatively be thought of as the whole collection of elements from which the study wants to draw conclusions.

The population consisted of 11 milk processing firms in Kiambu County. Kiambu County was selected as it hosts some of the largest dairy processing firms in Kenya such as Brookside and Fresha Dairies. The target population was all the 11 milk processing plants in Kiambu County (Kenya Dairy Board report, 2020). The processing plant formed the unit of analysis while the management staff formed the unit of observation. The total target population was therefore 198 respondents.

Sample size and Sampling Technique

The study adopted Yamane 2018) formula for a finite population. The sample size is given by:

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

Where n= the required sample size

N = is the Target Population (198 employees)

e = accuracy level required. Standard error = 5%

Sample calculation

n=198/ (1+198 (0.05)2

n= 198/ 1.495

n=132 Respondents

Table 3. 1: Sample Size

Category	Target Population	Sample Size
Top Managers	33	22
Middle Level Managers	55	37
Lower Level Managers	110	73
Total	**198**	**132**

Data Collection Procedures

Primary data was collected by use of questionnaires administered by the researcher with the help of trained research assistants. The questionnaires were administered using the drop-pick later technique. This technique was most appropriate because the researcher gets to personally introduce the questionnaire and its purpose to the respondents. Also, respondents were allowed a week to fill in and return their questionnaires.

Because of their busy schedule, this allowed them to have a humble time to fill the questionnaire at their best time and location. Care and control was also exercised to make sure that the issued questionnaires were returned. To achieve this, a register of questionnaires was maintained by the researcher, by tracking issued questionnaires against returned questionnaires. The researcher also did a follow up (through phone calls and emails) with those respondents who had not returned their questionnaires to increase the response rate.

Pilot Study

A pilot study should be done to measure the research instruments reliability and validity (Nandan 2017). Hence in the quest to minimize the possible instrumentation error and increase the reliability and validity of the data collected, a pilot study was conducted. According to Schindeler (2019), this helped detect weaknesses in design and instrumentation to provide proxy data for selection of a probability sample. The pilot study was undertaken on 5% of the sample that will not include in the final sample. According to Mugenda and Mugenda (2018) it is adequate to use between 1% and 10% of the sample size for pilot study.

Data Analysis and presentation

Data analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. It has two components, statistics. The descriptive statistics contained measures of central tendency and involved using frequency tables, graphs, mean, standard deviation and percentages to describe, organize, summarize, and present raw data enabling the researcher to meaningfully describe distribution of measurements (Cooper & Schindler, 2018). Inferential statistics involved using correlation and linear regression analysis as methods of drawing conclusions from the sample data. Correlation analysis is determining the strength and direction of the relationship. Linear regression analysis is the modeling of relationship between two variables (Creswell & Creswell, 2018).

The linear regression model that was used in this study was as follows

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where; Y= performance of milk processing companies in Kiambu County, Kenya

β_0=constant

β_i is the coefficient for Xi (i=1, 2,)

X_1= Technology utilization

X_2= Cost management

ε = error term

RESEARCH FINDINGS AND DISCUSSION

Descriptive Statistics

Technology Utilization and Organization Performance

The first specific objective of the study was to establish the effect of technology utilization on performance of milk processing companies in Kiambu County, Kenya. The participants were

requested to rate various statements relating to technology utilization and performance of milk processing companies in Kiambu County, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.1.

From the results, the respondents agreed that E-procurement system is well integrated with other systems in operation. This is supported by a mean of 4.388 (std. dv = 1.010). In addition, the respondents agreed that the employees are trained in the use of the e-procurement Process. This is supported by a mean of 4.230 (std. dv = 0.935). Further, the respondents agreed that the organization has in place an appropriate form of E- procurement process to automate the procurement process. This is supported by a mean of 4.218 (std. dv = 1.064).

With a mean of 4.155 (std. dv = 0.902). The respondents also agreed that technology utilization leads to simplification of processes. The respondents also agreed that the period from requisition (ordering) to issuing (order fulfillment) is reduced when e-procurement application is used. This is supported by a mean of 4.079 (std. dv = 1.150). In addition, the respondents agreed that online procurement facilitates effective information sharing across departments. This is supported by a mean of 4.055 (std. dv = 0.802). With a mean of 3.779 (std. dv = 1.158). The respondents also agreed that Use of e-procurement reduces ordering costs e.g. stationery costs, secretarial expenses, follow up costs. The respondents also agreed that technology utilization in the procurement process is vital in data management. This is supported by a mean of 3.679 (std. dv = 1.158).

Table 4. 1: Technology Utilization and Organization Performance

	Mean	**Std. Deviation**
The organization has in place an appropriate form of E-procurement process to automate the procurement process	4.218	1.064
Technology utilization in the procurement process is vital in data management	3.679	1.158
Technology utilization leads to simplification of processes	4.155	0.902
E-procurement system is well integrated with other systems in operation	4.388	1.010
The employees are trained in the use of the e-procurement Process	4.230	0.935
Use of e-procurement reduces ordering costs e.g. stationery costs, secretarial expenses, follow up costs	3.779	1.158
The period from requisition (ordering) to issuing (order fulfillment) is reduced when e-procurement application is used	4.079	1.150
Online procurement facilitates effective information sharing across departments	4.055	0.802
	4.054	**1.013**

Cost Management and Organization Performance

The second specific objective of the study was to establish the effect of cost management on performance of milk processing companies in Kiambu County, Kenya. The participants were requested to rate various statements relating to cost management and performance of milk processing companies in Kiambu County, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.2.

From the results, the respondents agreed that state Corporations have taken in place cost containment in all their departments. This is supported by a mean of 4.255 (std. dv = 0.839).

In addition, the respondents agreed that the enterprises have to cost plan any product that they procure for use. This is supported by a mean of 4.242 (std. dv = 0.898). Further, the respondents agreed that cost containment reduces ordering costs e.g. stationery costs, secretarial expenses, follow up costs. This is supported by a mean of 4.158 (std. dv = 0.969).

With a mean of 4.133 (std. dv = 0.751). The respondents also agreed that the period from requisition (ordering) to issuing (order fulfillment) is reduced when cost reduction application is used. The respondents also agreed that the employees are trained in the use of the items that are procured to reduce cost. This is supported by a mean of 4.115 (std. dv = 0.112). In addition, the respondents agreed that the organization has in place an appropriate form of cost reduction. This is supported by a mean of 4.055 (std. dv = 0.172).

Table 4. 2: Cost Management and Organizational Performance

	Mean	**Std. Deviation**
The organization has in place an appropriate form of cost reduction	4.055	0.172
State Corporations have taken in place cost containment in all their departments	4.255	0.839
The enterprises have to cost plan any product that they procure for use	4.242	0.898
The employees are trained in the use of the items that are procured to reduce cost	4.115	0.112
Cost containment reduces ordering costs e.g. stationery costs, secretarial expenses, follow up costs	4.158	0.969
The period from requisition (ordering) to issuing (order fulfillment) is reduced when cost reduction application is used	4.133	0.751
Aggregate	**4.165**	**0.598**

Performance of Milk Processing Companies in Kiambu County, Kenya

The participants were requested to rate various statements relating to performance of milk processing companies in Kiambu County, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.3.

From the results, the respondents agreed that they are satisfied with the level of employee productivity. This is supported by a mean of 4.212 (std. dv = 1.005). In addition, the respondents agreed that the organization is able to pay its debts as they become due. This is supported by a mean of 4.152 (std. dv = 0.608). Further, the respondents agreed that the productivity of their employees has improved over the years. This is supported by a mean of 4.030 (std. dv = 0.972). With a mean of 3.958 (std. dv = 0.636). The respondents also agreed that they are satisfied with the level of organizational performance. The respondents also agreed that the general performance of their organization has been improving over the years. This is supported by a mean of 3.915 (std. dv = 0.776).

Table 4. 3: Performance of Milk Processing Companies in Kiambu County, Kenya

	Mean	Std. Deviation
The general performance of our organization has been improving over the years	3.915	0.776
Am satisfied with the level of organizational performance	3.958	0.636
The productivity of our employees has improved over the years	4.030	0.972
Am satisfied with the level of employee productivity	4.212	1.005
Our organization is able to pay its debts as they become due	4.152	0.608
Aggregate	**4.014**	**0.819**

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (technology utilization and cost management) and (performance of milk processing companies in Kiambu County, Kenya) dependent variable

Table 4. 3: Correlation Coefficients

		Organization Performance	Technology Utilization	Cost Management
Organization Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	114		
Technology Utilization	Pearson Correlation	.764**	1	
	Sig. (2-tailed)	.002		
	N	114	114	
Cost Management	Pearson Correlation	.867**	.246	1
	Sig. (2-tailed)	.000	.060	
	N	114	114	114

Findings revealed that there was a very strong relationship between technology utilization and performance of milk processing companies in Kiambu County, Kenya (r = 0.764, p value =0.002). The relationship was significant since the p value 0.002 was less than 0.05 (significant level). The findings are in line with the results of Ondiek and Makokha (2018) that there is a very strong relationship between technology utilization and organization performance.

The study findings also revealed that there was a very strong relationship between cost management and performance of milk processing companies in Kiambu County, Kenya (r = 0.867, p value =0.000). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the results of Sosiawani, *et al.,* (2015) that there is a very strong relationship between cost management and organization performance.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (technology utilization and cost management) and (performance of milk processing companies in Kiambu County, Kenya) dependent variable.

Table 4. 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.939	0.881	0.882	0.06184

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.881. This implied that 88.1% of the variation in the dependent variable (performance of milk processing companies in Kiambu County, Kenya) could be explained by independent variables (technology utilization and cost management).

Table 4. 5: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.294	2	9.647	536	.000
	Residual	.943	111	.009		
	Total	20.237	113			

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 536 while the F critical was 2.455. 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, the model was considered as a good fit for the data. Henceforth, it can be used to predict the influence of technology utilization and cost management on performance of milk processing companies in Kiambu County, Kenya.

Table 4. 6: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.251	0.088		2.852	0.001
	Technology Utilization	0.380	0.09	0.381	4.222	0.001
	Cost Management	0.345	0.089	0.349	3.876	0.001

The regression model was as follows:

$$\mathbf{Y = 0.251 + 0.380X_1 + 0.345X_2 + \varepsilon}$$

The results also revealed that technology utilization has significant effect on performance of milk processing companies in Kiambu County, Kenya, $\beta 1=0.380$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the results of Ondiek and Makokha (2018) that there is a very strong relationship between technology utilization and organization performance.

In addition, the results revealed that cost management has significant effect on performance of milk processing companies in Kiambu County, Kenya $\beta_1=0.345$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings are in line with the results of Sosiawani, *et al.,* (2015) that there is a very strong relationship between cost management and organization performance.

CONCLUSION AND RECOMMENDATIONS

Conclusions

The study concludes that technology utilization influences performance of milk processing companies in Kiambu County, Kenya. Findings revealed that data management, E-procurement and order processing influences performance of milk processing companies in Kiambu County, Kenya.

The study also concludes that cost management influences performance of milk processing companies in Kiambu County, Kenya. Findings revealed that cost containment, cost reduction and cost planning influences performance of milk processing companies in Kiambu County, Kenya.

Recommendations

The study recommends that the management of milk processing companies in Kenya should adopt automated milk testing and quality control systems. By using modern technologies such as electronic milk analyzers and digital record-keeping tools, processors can ensure consistent quality, detect contaminants early, and reduce losses due to spoilage or rejection.

The study also recommends that the management of milk processing companies in Kenya should implement activity-based costing (ABC) systems. Unlike traditional costing methods, ABC provides more accurate insights into the actual costs associated with specific processes, products, and services by linking expenses to activities. This enables managers to identify cost drivers, eliminate inefficiencies, and allocate resources more effectively.

REFERENCES

Akkoyun, O. & Ankara, H. (2020). Cost of quality management: An empirical study from Turkish marble industry. *Scientific Research and Essay, 4*(11), 1275-1285

Bell, J., & Waters, S. (2018). *Doing Your Research Project: A Guide for First-Time Researchers* (7th ed.). McGraw-Hill Education.

Blumberg, B., Cooper, D. R., & Schindler, P. S. (2020). *Business Research Methods* (4th ed.). McGraw-Hill Education.

Bryman, A. (2019). *Social Research Methods* (5th ed.). Oxford University Press.

Creswell, R. (2019). Research design: *qualitative, quantitative, and mixed methods approaches*. USA: Sage Publications.

Cronbach, L. J. (2019). *My Current Thoughts on Coefficient Alpha and Successor Procedures.* Washington, D: Educational and Psychological Measurement.

Crowther, D. & Lancaster, G. (2018). *Research Methods: A Concise Introduction to Research in Management and Business Consultancy*. New York: Butterworth-Heinemann.

Debora, C.K Alban, D.M & Leonada, R.M (2020) *Influence on Supplier relationship management and business performance of small-scale grapes processing firms in Dodoma, Tanzania: the moderating role of logistics capabilities* Retrieved from https://www.emerald.com/insight/content/doi/

Egbu, C. (2020). *The use of costs management tools and techniques in highway projects in Rwanda*. Retrieved from https://dr.ur.ac.rw/bitstream/handle/

Flick, U. (2019). *An Introduction to Qualitative Research* (6th ed.). SAGE Publications.

Gitonga, J.M., Muchelule, Y., & Nyang'au, S. (2022). Project cost management and performance of urban road projects in Kenya. Journal of Entrepreneurship and Project Management, 2(5), 21-28.

Ishem-Reynier, D. (2020). *Building governance capacity at the organizational level: facilitating local ownership in Zambia*. Retrieved from https://digital.lib.washington.edu/server/api/

Kadiri, J. A. & Adetoro, N. A. (2020). Information explosion and the challenges of information and communication technology utilization in Nigerian libraries and information centers. *Ozean Journal of Social Sciences, 5*(1), 21-30

Kiflom, R. (2020). *Assessment of the organizational capacity of NGOs supporting old age people in Addis Ababa*. Retrieved from http://repository.smuc.edu.et/bitstream/

Kilonzo, H, Bukenya, D. & Mwangi, J. (2020). Measuring organizational capacity: developing tools to measure civil society organizations capacity to receive grants for HIV/AIDS response in Kenya. *International Review of Management and Business Research, 4*(1), 152-162

Kothari, C. R. (2019). Research methodology: Methods and techniques. New Age International

Lütfi, S., (2020) Validity and reliability in quantitative research. *Business and management studies. An International Journal, European Leadership University*

Lwesibawa, Y. K. (2020). *The role of cost accounting in transport management in Uganda Railway Corporation*. Retrieved from https://irbackend.kiu.ac.ug/server/api/core/

Magiri, J. W. & Barasa, P. W. (2024). Influence on Supplier Relationship Management Practices on Organizational Performance of Supermarkets in Kenya: A Case of Naivas Supermarkets in Nakuru County. *African Journal of Empirical Research, 5*(4), 1-11

Marco, P. & Nicola, S (2020) *Influence on Integration techniques in customer–supplier relationships: An empirical research in the Italian industry of household appliances* Retrieved from https://d1wqtxts1xzle7.cloudfront.net

Maxwell, J. A. (2021). *Qualitative Research Design: An Interactive Approach* (3rd ed.). SAGE Publications.

Okori, T (2021) *Influence on supplier relationship management and organizational performance in the petroleum industry in Uganda: a case study of Hashi energy Uganda limited*. Retrieved from https://pub.nkumbauniversity.ac.ug/xmlui/bitstream/

Omondi, S. O. (2020). *Influence of capacity building programs on project performance in non-governmental organizations in Kenya: a case of the Danish refugee council*. Retrieved from https://erepository.uonbi.ac.ke/bitstream/handle/

Onia. S. I. (2020). Education policy of Sudan and utilization of the mobile device (ipad) technology: opportunities and challenges. Indonesian Journal of Educational Research and Technology, 2(3), 205-212

Patton, M. Q. (2019). *Qualitative Research and Evaluation Methods* (4th ed.). SAGE Publications.

Punch, K. F. (2019). *Introduction to Social Research: Quantitative and Qualitative Approaches* (3rd ed.). SAGE Publications.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students* (8th ed.). Pearson Education.

Wachira, R. W. (2020*). Influence on supplier relationship management and supply chain performance in alcoholic beverage industry in Kenya* Retrieved from https://erepository.uonbi.ac.ke/bitstream/

Wanyoike, D. M., Mukulu, E., & Waititu, A. G. (2020). ICT attributes as determinants of e-commerce adoption by formal small enterprises in urban Kenya. *International Journal of Business and Social Science,* 3(23), 48-60

Ward, P. & Zhou, H. (2020). Impact of Information Technology Integration and Lean/Just-In-Time Practices on Lead-Time Performance. *Decision Sciences*, 37(1), 177-203