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Logistics Management Strategies and Performance of Food and Beverages Manufacturing Firms in Nairobi City County, Kenya

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ABSTRACT

Purpose: This study investigated the influence of four critical logistics management strategies warehouse management and transportation management on the performance of food and beverage manufacturing firms in Nairobi City County. Firm performance was examined through key indicators: market share, profitability, and quality assurance. Guided by well-established theories including the Resource-Based View and Systems Theory.

Methodology: Primary data was collected using a semi-structured questionnaire administered to a purposively selected sample of 205 respondents. Descriptive and inferential statistical analyses were conducted to establish the relationship between logistics strategies and firm performance.

Findings: The study concludes that warehouse management practices have a positive and significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya. Further, the study concludes that transportation management practices have a positive and significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya.

Unique Contribution to Theory, Policy and Practice: Based on the findings, the study recommends that the management of food and beverage manufacturing firms in Kenya should adopt route optimization and fleet management technologies that enhance the efficiency of goods transportation.

Keywords: *Logistics Management Strategies, Warehouse Management Practices, Transportation Management Practices*

Background of the study

Logistics management strategies play a pivotal role in determining the efficiency and competitiveness of manufacturing firms globally (Kumar & Rajeev, 2023). In Kenya, the food and beverage subsector is among the largest within the manufacturing industry, playing a vital role in job creation and contributing significantly to the country's Gross Domestic Product (GDP). According to the Kenya Association of Manufacturers (KAM) 2023 Manufacturing Priority Agenda, there are approximately 187 registered food and beverage manufacturing firms operating in Kenya, with about 130 of these located in Nairobi City County (KAM, 2023). This study focused on the firms in Nairobi, aiming to understand how logistics strategies influence their operational performance.

This research specifically examined four key logistics management strategies: warehouse management, inventory management, transportation management, and information technology management. These components were recognized in recent studies as critical drivers of supply chain efficiency and firm competitiveness (Mutiso et al., 2022; Wanyama & Mburu, 2023). The study assessed the performance of the firms based on key indicators, including market share, profitability, and quality assurance.

The target group for this study comprised senior management staff with direct oversight of logistics-related operations. Specifically, the unit of analysis included heads of inventory, logistics, warehousing and operations departments within those firm. These respondents were expected to provide informed perspectives on their firms' logistics strategies and performance.

The decision to focus on these departmental heads was informed by their central roles in implementing and monitoring logistics management practices. According to Mwangi and Omondi (2023), departmental heads in these functional areas possess the requisite knowledge of supply chain activities, resource allocation, and performance monitoring, making them ideal informants for research on logistics strategy.

To ensure a robust and comprehensive understanding of logistics management practices within the sector, the study's target population was systematically determined by multiplying the total number of identified firms (130) by the average number of departmental heads per firm (four). This approach yields an anticipated population of approximately 420 respondents, thereby enhancing the diversity, reliability, and representativeness of the data collected for meaningful analysis and valid conclusions.

The research was conducted over a three-month period, specifically between July and September 2025. This timeline was planned to allow adequate time for questionnaire distribution, data collection, follow-ups, and initial data analysis, ensuring the reliability and validity of the findings.

The food and beverage manufacturing sector in Nairobi City County significantly contributes to Kenya's economic output, employing thousands and supplying a large portion of both domestic and regional markets. According to the Kenya Association of Manufacturers (KAM, 2023), Nairobi is home to over 130 registered food and beverage firms, accounting for a large share of processed dairy, cereals, beverages, and edible oils. These firms are critical in promoting food security, value addition, and regional exports.

However, firm-level performance varies widely. Indicators such as profitability, delivery lead times, stock accuracy, customer satisfaction, and market expansion are largely dependent on logistics strategies. Some firms have adopted lean inventory systems, modern warehousing, ERP platforms, and vendor-managed inventory, while others face persistent challenges such as obsolete equipment, fragmented transport networks, and poor inventory control (Nzuma & Ndeto, 2022; Okumu, 2022). These gaps lead to inconsistent quality, high product returns, and lost sales opportunities.

Moreover, consumer expectations, regulatory standards, and competition are forcing Nairobi-based firms to invest in logistics modernization. Reverse logistics, cold chain management, and sustainability compliance are no longer optional but necessary. Muthoni (2018) and Mutuku and Moronge (2020) show that logistics strategies such as route planning, returns management, and warehouse digitization significantly affect firm-level KPIs, making logistics a decisive factor in firm performance and survival.

Statement of the problem

Performance is generally defined as the extent to which an organization achieves its planned objectives effectively and efficiently. According to Neely et al. (2005), performance encompasses the measurement and management of both financial and non-financial outcomes that reflect how well an organization meets its strategic goals. Muthoni (2018) observes that for food and beverage manufacturing firms in Kenya, performance is demonstrated by the ability to deliver consistent product quality, achieve and grow profitability, and secure a stable or expanding market share all of which are crucial for long-term competitiveness in an increasingly demanding industry.

Logistics management strategies refer to the deliberate, structured approaches that firms adopt to plan, coordinate, and control the efficient flow and storage of goods, services, and related information throughout the supply chain, from raw material suppliers to end consumers (Christopher, 2016). Studies indicate that well-executed logistics strategies enhance operational performance by minimizing unnecessary costs, reducing lead times, and sustaining consistent product quality (Gunasekaran et al., 2017).

In Kenya, particularly within the food and beverage manufacturing sector, logistics management plays a critical role in determining operational efficiency, cost control, and market

competitiveness. However, numerous studies have highlighted persistent inefficiencies in the implementation of key logistics strategies such as warehouse management, inventory control, transportation systems, and ICT-enabled logistics. For example, in a study conducted on reverse logistics strategies in Kenya's manufacturing firms, it was found that such practices accounted for nearly 49.4% of the variation in firm performance, yet their adoption remained significantly low (Muchangi et al., 2022). Similarly, research by Njenga and Gathenya (2023) revealed that many food manufacturers in Kiambu County experience major operational bottlenecks due to poor logistics integration, leading to performance-related setbacks such as missed delivery schedules, poor inventory visibility, and rising operational costs.

Nairobi City County, the nation's industrial and commercial hub, hosts the highest number of food and beverage manufacturing firms. Despite this, the region continues to face pressing logistics challenges including urban congestion, high transportation costs, poor warehousing standards, and delays in distribution. According to studies by Mwaura and Kimani (2023), urban congestion and delays along the supply chain disrupt the seamless flow of goods, negatively affecting delivery times, quality assurance, and customer satisfaction. Moreover, while some firms have adopted isolated strategies such as third-party logistics (3PL) or virtual logistics, the overall implementation of core logistics strategies remains fragmented, with limited integration between systems such as inventory management tools, transport optimization, and IT infrastructure (Kariuki & Irungu, 2023).

Although past research has explored the effect of specific strategies like collaboration or green logistics, there is limited empirical evidence on how core and traditional logistics strategies warehouse management, inventory control, transportation, and information systems jointly influence firm performance in the food and beverage sector within the Kenyan context**.** Most local studies have focused on isolated strategies, overlooked the interconnectedness of these functions, or generalized findings across diverse sectors, thus creating a gap in sector-specific understanding.

This research was therefore motivated by the need to address these persistent challenges and knowledge gaps. As a resident of Nairobi and a scholar in procurement and logistics, I have observed firsthand the logistical inefficiencies, delayed deliveries, urban congestion, and rising consumer complaints within the food and beverage supply chains. By investigating how these four core logistics strategies influence key performance metrics such as market share, profitability, and quality assurance, this study seeks to generate data-driven insights that can inform practical improvements in logistics management among food and beverage firms in Nairobi City County.

General Objective of the Study

To assess the influence of logistics management strategies on food and beverage manufacturing firms in Nairobi City County Kenya.

Specific Objectives of the Study

i To examine the effect of warehouse management practices on the performance of food and beverage manufacturing firms in Nairobi City County Kenya.
ii To determine the influence of transportation management practices on performance of food and beverage manufacturing firms in Nairobi City County Kenya.

Theoretical Review

A theory is a systematic and coherent set of concepts, principles, and propositions that aims to explain phenomena or a group of related phenomena in a particular domain. Theories are important because they enable users to be efficient. They are developed based on observations, experimentation, and evidence, and they provide a framework for understanding and predicting outcomes within their area of application. This study was guided by Resource-Based View (RBV) theory, and Systems Theory

Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, as articulated by Barney (1991), asserts that a firm's internal resources and capabilities are critical drivers of its sustained competitive advantage and superior performance (Nee, 2020). According to this perspective, resources must be valuable, rare, inimitable, and non-substitutable (VRIN) to provide a lasting advantage over competitors. In logistics management, warehouse facilities and related operational capabilities represent strategic resources that can differentiate a firm in the marketplace (Hura & Dushimimana, 2024). Effective warehouse management characterized by optimal layout design, advanced handling systems, robust security, and skilled personnel can reduce inventory carrying costs, minimize damages and losses, and ensure timely order fulfillment (Odhiambo & Noor, 2023). Such efficiencies directly support profitability, improve customer satisfaction through reliable deliveries, and strengthen market position. This study applied the RBV theory to explain how investing in and strategically managing warehouse assets can become a source of competitive advantage for food and beverage manufacturers in Nairobi City County, enabling them to respond flexibly to market fluctuations and maintain high service standards.

Systems Theory

Systems Theory, first introduced by Von Bertalanffy (1950), posits that organizations should be understood as complex, open systems composed of interconnected and interdependent subsystems working toward common goals (Sohail, Ullah & Majeed, 2021). In logistics, transportation management is a critical subsystem that must interact efficiently with warehousing, inventory control, and information flows to ensure seamless supply chain operations (Azeb, Heyaw & Berhanu, 2025). Poorly managed transportation can disrupt the entire logistics system, leading to delivery delays, increased fuel costs, and customer dissatisfaction. Conversely, integrated transportation planning—encompassing route

optimization, fleet management, and scheduling—enhances coordination across the supply chain, reduces transit times, and lowers operational costs (Ngesa & Namusonge, 2023). For food and beverage firms, timely and efficient transportation is vital for preserving product quality and meeting stringent delivery timelines, particularly given the perishability of many products. This study used Systems Theory to conceptualize transportation management as an integral component of the larger logistics network that, when effectively managed, contributes significantly to overall firm performance.

Conceptual Framework

A conceptual framework according to Mugenda, (2008) can be defined as a concise description of the phenomenon under study accompanied by a graphical or visual description of the major variables of the study. Young (2009) asserts that a conceptual framework is a diagrammatical representation that demonstrates the relationship between dependent variables and independent variables. The study was guided by the Resource Based Theory, which posits that organizational performance is driven by the internal strategies and external conditions. The framework linked logistics strategies as independent variables to key performance indicators (KPIs) such as economic efficiency, lead time, customer satisfaction, and overall productivity as dependent variables as shown in Figure 2.1 below

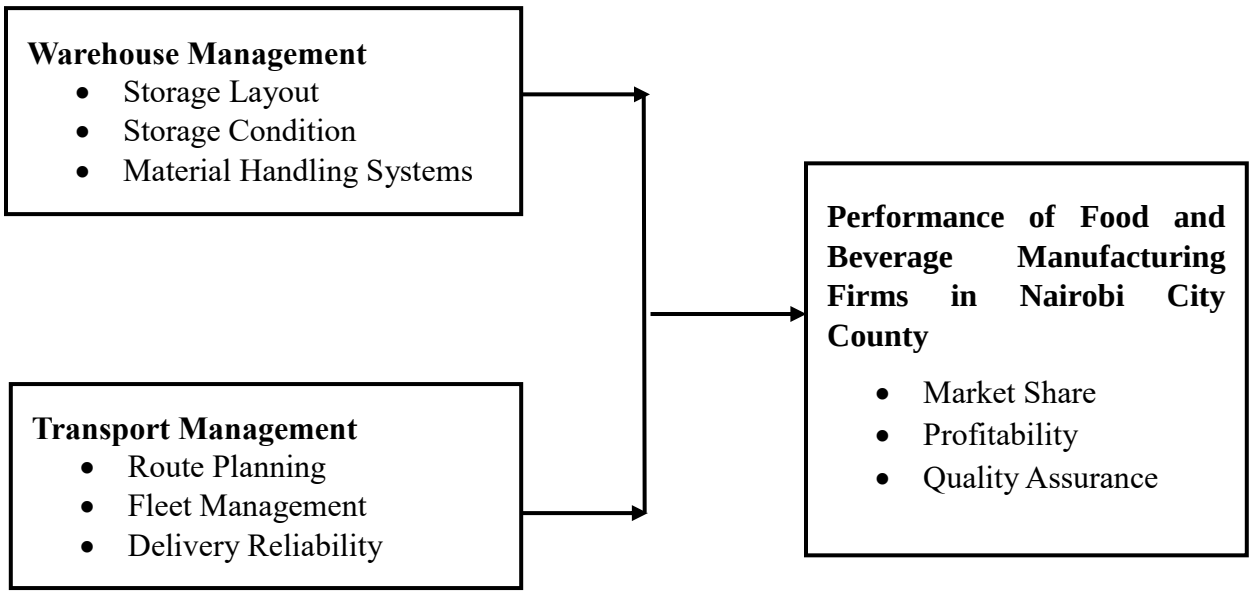

Figure 1: Conceptual Framework

Warehouse Management

Effective warehouse management is widely acknowledged as a pillar of operational efficiency in manufacturing firms. In Nairobi City County, well-designed warehouse layouts enable optimal space utilization, reducing internal movement and speeding up order processing (Odhiambo & Noor, 2023). For food and beverage firms, the quality of storage conditions including temperature control and pest management is critical to preserving product integrity and meeting regulatory standards (Kibet, Wachiuri & Senelwa, 2023). Reliable material handling systems further prevent product damage and lower handling costs, enhancing firms' ability to fulfill customer orders promptly and maintain positive reputations (Chelangat & Ndeto, 2024).

A study by Maina and Waiganjo (2020) found that Nairobi-based food processors with structured warehouse processes reported reduced stock-outs, which improved market share by ensuring products were continuously available. Proper storage also minimized spoilage and wastage, directly improving profitability. Similarly, strict adherence to hygiene standards in warehousing strengthened quality assurance, ensuring compliance with Kenya Bureau of Standards requirements.

Transportation Management

Transportation management is vital for connecting firms to suppliers and customers efficiently. Studies show that optimized route planning and scheduling reduce fuel costs and delivery times, contributing to higher profitability for manufacturers in Nairobi (Ngesa & Namusonge, 2023). Proper fleet management, including regular maintenance and vehicle tracking, reduces breakdowns and ensures timely deliveries, which in turn enhances customer satisfaction and helps firms retain market share (Misuko, 2020).

Delivery reliability is another key factor influencing quality assurance. For food and beverage firms, timely delivery ensures products reach customers while still fresh. Muiruri, Shale and Osoro (2025) highlighted that firms with robust transportation systems experienced fewer delivery complaints and quality-related returns, strengthening brand reputation and regulatory compliance.

Empirical Review

Warehouse Management and Organization Performance

Nee (2020) conducted a study on the effect of warehouse management system and business performance: case study of a regional distribution center in Australia. This paper examines Warehouse Management System (WMS) practices and their effects on operations. The study found that companies that manage warehousing of their products are expected to implement WMS in order to maintain their competitive edge in the global market place. It is concluded that WMS has a positive impact on operations measures.

Hura and Dushimimana (2024) conducted a study on the effect of warehouse management on the organizational performance in a manufacturing company. A case of Cimerwa limited in Rusizi District-Rwanda. The purpose of this study was to analyze the effect of warehouse management on the organizational performance in a manufacturing company. The study found that data was analyzed by using both quantitative data and qualitative data by presenting the findings of respondents through the mean and standard deviation. The study concluded that there is a positive link between warehouse management and the organizational performance of Cimerwa; thus, the warehouse at Cimerwa moves, stores, tracks, and ships items

Odhiambo and Noor (2023) conducted a study on the effect of warehouse management and performance of distribution firms in Nairobi city county, Kenya. The performance of distribution logistics impacts tremendously on the performance of an entire organization, this is mainly because it links the organization to the customers and thereby has much influence on customer satisfaction which influences customer loyalty, arguably the single most important asset of an organization. The target population in this study was 255 managers working in procurement, operations, distribution/logistics, and warehouse and finance departments in the 51 distribution companies in Nairobi City County. The study found that warehouses are the key aspect of modern supply chains and play a vital role in the success, or failure, of Distribution Firms. The study concludes that warehousing management has effect on performance of distribution firms in Nairobi City County, Kenya.

Kibet, Wachiuri and Senelwa (2023) conducted a study on the effect of warehouse management and performance of distribution firms in Kenya. This study sought to establish the effect of warehouse management on performance of distribution firms in Kenya. From the validity findings, construct validity and content validity were met an indication that the data collection tool was valid and was suitable to be used for further data collection as is; no item was excluded/altered. The study concluded that the first null hypothesis assessed whether warehouse management significantly influenced the performance of distribution firms in Kenya

Chelangat and Ndeto (2024) conducted a study on the effect of warehousing management practices and performance of distribution firms in Nairobi city county Kenya. Distribution firms play a pivotal role in the Kenyan economy by facilitating the flow of goods and services essential for both local consumption and export. Based on the findings, the study researched that the management of distribution firms in Kenya should implement a standardized receiving and inspection process. The study concludes that inventory management has a positive and significant effect on performance of distribution firms in Nairobi City County Kenya

Transport Management and Organization Performance

Sohail, Ullah and Majeed (2021) conducted a study on the effect of Pakistan management of green transportation and environmental pollution: a nonlinear ARDL analysis. This study aims to inspect the asymmetric impact of air-railway transportation on environmental pollution in

Pakistan by using annual time series data from 1991 to 2019. The findings show that positive shock in air passenger carried and railway passenger carried increases carbon emissions, which implies that 1% increase in air passenger carried (railway passenger carried) enhances environmental pollution by 0.21% (0.32%) in long run in Pakistan. Based on these conclusions, the study suggest some policy implications for the Pakistan's economy

Azeb, Heyaw and Berhanu (2025) conducted a study on the effect of gaps in failure management of public transport supply in Addis Ababa: a comprehensive assessment. Using a mixed-methods approach, data is collected through surveys from 505 respondents, interviews, and focus group discussion (FGD). The result identified unaffordability, overcrowding, inaccessibility and longer waiting time as challenges of public transport. The conclusions showed dissatisfaction among travelers and operators about government interventions to address the failures, stressing the need for quality improvement, improved management strategies, and better supply management.

Ngesa and Namusonge (2023) conducted a study on the effect of transportation management on the performance of logistics firms in Nairobi County, Kenya. Target population was popular top ten logistics services companies in Nairobi County. Sample size comprised of 88 employees from different departments in the 10 entities chosen. Stratified random sampling was applicable in selecting the respondents. Regression results from the analysis based on the first objective show that control activities have a positive significant effect on performance of logistic firms in Nairobi County. The study therefore concluded transportation management system, warehousing management, order processing and inventory management practices systems be strengthened in order to improve the performance of logistics firms.

Misuko (2020) conducted a study on the effect of strategic inbound transportation management practices and performance of large-scale manufacturing firms in Kenya. The population for this study involved the sampled 46 manufacturing firms that were concentrated within Nairobi County. The study used both primary and secondary data sources that were collected using semi-structured questionnaires. The study found that the most widely used strategic inbound transportation practices by large scale manufacturing firms were carriers and forwarders selection management practices and freight consolidation and optimization management practices. The regression results concluded that strategic inbound transportation practices was positively related to transportation performance of large scale manufacturing firms in Nairobi County

Muiruri, Shale and Osoro (2025) conducted a study on the effect of transportation management as a supply chain driver and performance of large manufacturing firms in Kenya. Using a cross-sectional research design, the study targeted supply chain managers drawn from 553 large manufacturing firms in Kenya. Using Slovin's sampling formula, a total of 233 respondents were sampled. A questionnaire was used to collect primary data, which was analyzed using quantitative and qualitative techniques. The findings revealed that transportation management

had not been effectively embraced among most of the surveyed large manufacturing firms in Kenya. The study concluded that transportation management is a crucial supply chain driver that significantly influences performance of large manufacturing firms in Kenya.

RESEARCH METHODOLOGY

Research Design

This study adopted a descriptive research design. A descriptive design is appropriate when the objective is to systematically and accurately describe a phenomenon, its characteristics, or the relationship between variables (Creswell & Creswell, 2018). In the context of this study, the aim was to describe and analyze the relationship between logistics management strategies and the performance of food and beverage manufacturing firms in Nairobi City County, Kenya.

Target population

Population is defined as the entire group of people or things of interest that the researcher wishes to investigate (Sekaran & Bougie, 2010). The target population for this study comprises heads of departments and operational managers who are directly involved in logistics, supply chain, and production functions within the food and beverage manufacturing firms in Nairobi City County. According to the Kenya Association of Manufacturers (KAM, 2023), there are approximately 130 registered food and beverage manufacturing firms operating within Nairobi City County. These firms form the organizational base for the study. To ensure comprehensive data collection across the logistics functions, the study drew respondents from four key departments per firm: warehouse management, inventory management, logistics management, and operations oversight. This approach yields a projected target population of 420 respondents as summarized in Table 1.

Table 1: Target population

Department Heads	Estimated No. of Respondents Per Firm	No. of Registered Firms (Nairobi City County)	Estimated Total Respondents
Warehouse	1	130	130
Inventory	1	130	130
Logistics	1	130	130
Operations	1	130	130
Total			**420**

Source of information: KAM

Sampling Technique and Sample Size Determination

Sampling Technique

This study employed a stratified random sampling technique to ensure representativeness across the key functional departments involved in logistics management. Stratified sampling is suitable when the population is heterogeneous and can be grouped into relevant subpopulations or strata (Kothari, 2004). The target population consisted of 420 staff members drawn from food and beverage manufacturing firms registered under the Kenya Association of Manufacturers (KAM) and operating within Nairobi City County.

The population was stratified into four departments: warehouse management, inventory management, logistics management, and operations oversight. Once the strata was defined, simple random sampling was used within each stratum to select respondents. This method ensured that each department is proportionately represented thereby minimizing bias and enhancing the validity of the findings.

Sample Size Determination

The sample size for this study was determined using Yamane's (1967) formula**,** which is appropriate for calculating sample sizes from known populations while maintaining a specified level of precision:

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

Where n= the required sample size

N = is the Target Population (420)

e = accuracy level required. (0.05 for 95% confidence level)

Sample calculation

$$n=\frac{420}{1+(420-1)0.05^2}$$

$$n=\frac{420}{1+(419)0.0025}$$

$$n=\frac{420}{1+1.0475}$$

n=205 respondents

Therefore, a total of 205 respondents were selected for participation in the study. The respondents were systematically sampled from the list of logistics-related heads within the selected firms to ensure equitable representation across the four functional areas within each firm

Data Collection Instruments

The study employed a structured data collection procedure aimed at obtaining accurate and relevant data from selected respondents within food and beverage manufacturing firms in Nairobi City County. The primary data was collected through a semi-structured questionnaire**,** which was designed to capture both quantitative and qualitative information related to logistics management strategies and firm performance. The questions were developed in line with the objectives of the study.

The questionnaire was divided into several sections. The first section gathered general background information about the respondents and their respective firms, such as department, gender, job title, years of experience, and academic qualification. The second section assessed the extent to which specific logistics management strategies namely warehouse management, inventory management, transportation management, and information technology are implemented. The final section captured data on performance indicators, specifically focusing on market share, profitability, and quality assurance. A few open-ended questions were included to allow respondents to provide additional insights or comments on the challenges and best practices in logistics management.

Pilot Study

A pilot study is used to test the feasibility of the questionnaires and how they function together in a particular context; it can also reveal ethical and practical issues that could hamper the main study (Doody & Doody, 2015). Prior to the actual data collection, the research instruments were subjected to a pilot study with a small sample of respondents from similar firms not included in the main study. This pre-testing phase helped refine the instrument by identifying any ambiguous or biased items, thereby improving its reliability and validity.

The data collection was carried out over a three-week period. The researcher personally delivered the questionnaires to the selected firms where possible, or sent them electronically via email in cases where in-person access is limited. Where applicable, permission was sought from relevant firm management to allow departmental heads to participate in the study during work hours. Follow-up phone calls and emails were made to encourage timely completion and return of the questionnaires. For electronic responses, a secure Google Form or Microsoft Form link was provided.

To ensure high response rates and data integrity, the respondents were assured of confidentiality, and all information was used solely for academic purposes. Each completed questionnaire was reviewed for completeness before being included in the dataset for analysis.

Data analysis and Presentation

The quantitative data collected through the closed-ended sections of the questionnaire was analyzed using descriptive and inferential statistical methods**.**

All quantitative data was coded and entered into the Statistical Package for the Social Sciences (SPSS) for analysis which was utilized to generate the necessary inferential and descriptive statistics.

Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the demographic characteristics of respondents and assess the extent of implementation of various logistics management strategies namely warehouse management, inventory management, transportation management, and information technology usage.

To evaluate the relationship between logistics strategies and firm performance, the study employed inferential statistics, particularly correlation analysis and multiple regression analysis. Correlation analysis was used to determine the strength and direction of the relationship between the independent variables (logistics strategies) and the dependent variable (firm performance), which were measured using three key indicators: market share, profitability, and quality assurance.

In the study, a statistical model was developed from the conceptual framework as follows: the dependent variable (DV) takes the variable [Y], and the coefficients of the independent variables (IV) denoted by X_1, X_2 were used to show the relationship of the independent variables. Statistically, analysis was carried out using the models. The multiple regression model was as follows:

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

Where;

Y = dependent variable (performance of Food and Beverage Manufacturing firms in Nairobi City County)

β_0 = Constant

β_1, β_2 = Coefficients of determination

X_1 = Warehouse Management

X_2 = Transport Management

ε = Error term

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

Response Rate

The sample size of this study was 205. The researcher distributed 205 questionnaires to the respondents during data collection process and 181 were fully filled and returned to the researcher thus making a response rate of 88.3%. Kothari (2019) argues that a response rate which is more than 50% is considered adequate while excellent response rate is usually above

70%. This implies that the response rate in this research is good for making conclusions as well as recommendations.

Descriptive Statistics

Warehouse Management Practices and Organizational Performance

The first specific objective of the study was to examine the effect of warehouse management practices on the performance of food and beverage manufacturing firms in Nairobi City County Kenya. The respondents were requested to indicate their level of agreement on statements relating to warehouse management practices and performance of food and beverage manufacturing firms in Nairobi City County Kenya. The results were as presented in Table 2.

From the results, the respondents agreed that their warehouse layout supports efficient movement and access to goods (M=3.831, SD= 0.552). In addition, the respondents agreed that they utilize systems such as barcoding or RFID for tracking goods (M=3.817, SD= 0.683). Further, the respondents agreed that their warehouse is equipped with cold storage or preservation facilities (M=3.798, SD=0.890). The respondents also agreed that they regularly conduct stock-taking and inventory checks (M=3.774, SD= 0.874). In addition, the respondents agreed that safety and hygiene standards in the warehouse are strictly adhered to (M=3.758, SD=0.537).

Table 2: Warehouse Management Practices and Organizational Performance

	Mean	Std. Deviation
Our warehouse layout supports efficient movement and access to goods.	3.831	0.552
We utilize systems such as barcoding or RFID for tracking goods.	3.817	0.683
Our warehouse is equipped with cold storage or preservation facilities	3.798	0.890
We regularly conduct stock-taking and inventory checks.	3.774	0.874
Safety and hygiene standards in the warehouse are strictly adhered to	3.758	0.537
Aggregate	**3.796**	**0.707**

Transportation Management Practices and Organizational Performance

The second specific objective of the study was to determine the influence of transportation management practices on performance of food and beverage manufacturing firms in Nairobi City County Kenya. The respondents were requested to indicate their level of agreement on various statements relating to transportation management practices and performance of food and beverage manufacturing firms in Nairobi City County Kenya a. The results were as presented in Table 3.

From the results, the respondents agreed that the firm owns or contracts reliable transport vehicles for distribution (M=3.865, SD= 0.811). In addition, the respondents agreed that they track deliveries using GPS or fleet management systems (M=3.844, SD= 0.762). Further, the respondents agreed that their delivery schedules are consistently adhered to (M=3.820, SD=0.516). The respondents also agreed that they optimize transport routes to reduce cost and delivery time (M=3.804, SD= 0.809). In addition, the respondents agreed that they evaluate and manage risks in transportation (e.g. spoilage, theft) (M=3.786, SD=0.791).

Table 3: Transportation Management Practices and Organizational Performance

	Mean	Std. Deviation
The firm owns or contracts reliable transport vehicles for distribution.	3.865	0.811
We track deliveries using GPS or fleet management systems	3.844	0.762
Our delivery schedules are consistently adhered to	3.820	0.516
We optimize transport routes to reduce cost and delivery time.	3.804	0.809
We evaluate and manage risks in transportation (e.g. spoilage, theft).	3.786	0.791
Aggregate	**3.824**	**0.731**

Organizational Performance

The respondents were requested to indicate their level of agreement on various statements relating to food and beverage manufacturing firms in Nairobi City County Kenya. The results were as presented in Table 4.

From the results, the respondents agreed that their logistics systems have contributed to increased market share (M=3.847, SD= 0.615). In addition, the respondents agreed that there has been an improvement in profit margins due to logistics strategies (M=3.816, SD= 0.783). Further, the respondents agreed that the quality of their products has improved due to better logistics systems (M=3.783, SD=0.546). The respondents also agreed that customer satisfaction has improved due to timely and safe deliveries (M=3.740, SD= 0.815). In addition, the respondents agreed that their firm has maintained a competitive edge due to logistics innovations (M=3.704, SD=0.843).

Table 4: Organizational Performance

	Mean	Std. Deviation
Our logistics systems have contributed to increased market share.	3.847	0.615
There has been an improvement in profit margins due to logistics	3.816	0.783

strategies.		
The quality of our products has improved due to better logistics systems.	3.783	0.546
Customer satisfaction has improved due to timely and safe deliveries.	3.740	0.815
Our firm has maintained a competitive edge due to logistics innovations.	3.704	0.843
Aggregate	**3.778**	**0.720**

Correlation Analysis

This research adopted Pearson correlation analysis determine how the dependent variable (performance of food and beverage manufacturing firms in Nairobi City County Kenya) relates with the independent variables (warehouse management practices and transportation management practices).

Table 5: Correlation Coefficients

		Organization Performance	Warehouse Management Practices	Transportation Management Practices
Organization Performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	181		
Warehouse Management Practices	Pearson Correlation	.831**	1	
	Sig. (2-tailed)	.001		
	N	181	181	
Transportation Management Practices	Pearson Correlation	.865**	.277	1
	Sig. (2-tailed)	.000	.054	
	N	181	181	181

From the results, there was a very strong relationship between warehouse management practices and performance of food and beverage manufacturing firms in Nairobi City County Kenya (r = 0.831, p value =0.001). The relationship was significant since the p value 0.001 was less than

0.05 (significant level). The findings are in line with the findings of Nee (2020) who indicated that there is a very strong relationship between warehouse management practices and organizational performance.

Further, there was a very strong relationship between transportation management practices and performance of food and beverage manufacturing firms in Nairobi City County Kenya (r = 0.865, 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 findings of Ngesa and Namusonge (2023) who indicated that there is a very strong relationship between transportation management practices and organizational performance.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (warehouse management practices and transportation management practices) and the dependent variable (performance of food and beverage manufacturing firms in Nairobi City County Kenya).

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.801	.641	.640	.10428

a. Predictors: (Constant), warehouse management practices, and transportation management practices

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 0.641. This implied that 64.1% of the variation in the dependent variable (performance of food and beverage manufacturing firms in Nairobi City County Kenya) could be explained by independent variables (warehouse management practices and transportation management practices).

Table 7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72.101	2	36.0505	158.81	.002[b]
	Residual	40.317	178	.227		
	Total	112.418	180			

a. Dependent Variable: performance of food and beverage manufacturing firms in Nairobi City County Kenya

b. Predictors: (Constant), warehouse management practices and transportation management practices

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 158.81 while the F critical was 2.423. The p value was 0.002. Since the F-calculated was greater than the F-critical and the p value 0.002 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of warehouse management practices and transportation management practices on performance of food and beverage manufacturing firms in Nairobi City County Kenya.

Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.261	0.068		3.838	0.000
	warehouse management practices	0.336	0.089	0.337	3.775	0.001
	transportation management practices	0.370	0.095	0.371	3.895	0.000

a Dependent Variable: performance of food and beverage manufacturing firms in Nairobi City County Kenya

The regression model was as follows:

$$\mathbf{Y = 0.261 + 0.336X_1 + 0.370X_2 + \varepsilon}$$

According to the results, warehouse management practices has a significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya β_1=0.336, 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 findings of Nee (2020) who indicated that there is a very strong relationship between warehouse management practices and organizational performance.

Furthermore, the results revealed that transportation management practices has a significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya β1=0.370, p value= 0.000). The relationship was considered significant since the p value 0.000 was less than the significant level of 0.05. The findings are in line with the findings of Ngesa and Namusonge (2023) who indicated that there is a very strong relationship between transportation management practices and organizational performance.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concludes that warehouse management practices have a positive and significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya. Findings revealed that storage layout, storage condition and material handling Systems influence performance of food and beverage manufacturing firms in Nairobi City County Kenya

Further, the study concludes that transportation management practices have a positive and significant effect on performance of food and beverage manufacturing firms in Nairobi City County Kenya. Findings revealed that route planning, fleet management and delivery reliability influence performance of food and beverage manufacturing firms in Nairobi City County Kenya.

Recommendations

The study recommends that the management of food and beverage manufacturing firms in Kenya should adopt advanced inventory management systems that integrate real-time tracking, demand forecasting, and automated replenishment processes. By leveraging such systems, firms can reduce stockouts and overstock situations, minimize waste of perishable goods, and streamline warehouse operations, which in turn enhances operational efficiency, lowers costs, and improves overall organizational performance.

Further, the study recommends that the management of food and beverage manufacturing firms in Kenya should adopt route optimization and fleet management technologies that enhance the efficiency of goods transportation. By strategically planning delivery routes, monitoring vehicle performance, and scheduling maintenance proactively, firms can reduce fuel costs, minimize delivery delays, and ensure timely distribution of products.

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