

Freight Management and Performance of Food and Beverage Manufacturing Firms in Kenya

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Abstract: In the current 21st century, there has been an increase in changes in the business environment that have forced large-scale enterprises to realign their global strategies and manufacturing activities, and flatten their hierarchies in order to speed up information flows. Food and beverage manufacturing companies in Kenya have been experiencing problems in the performance of their production and operations management. In view of the foregoing, it is relevant to investigate how Kenyan organizations could outsource their logistics requirements through freight management in the most efficient manner with regard to customer service and cost. This study therefore, sought to assess the influence of freight management on the performance of food and beverage manufacturing firms in Kenya. Based on the role played by policies and governance in the supply chain processes, this study also sought to assess the moderating effect of internal policy framework. The study was informed by the logistics theory. A descriptive research design was adopted. Food and beverage manufacturing companies were sampled and the data was collected using self-administered questionnaires and analyzed using descriptive and inferential statistics. The findings revealed that freight management had a significant influence on the performance of food and beverage processing firms. Internal policy framework was also found to insignificantly moderate the relationship between freight management and performance of food and beverage processing firms. The study concluded that freight management was critical in enhancing the performance of food and beverage processing firms in Kenya. The study recommends that the management of food and beverage processing firms ought to embrace a freight management framework in order to gain performance.

Keywords: Freight Management, Internal policy Framework, Food and Beverage Manufacturing Firms, Firm Performance

1. INTRODUCTION

1.1. Background to the Study

The competitive manufacturing environment is one that is rapidly changing as globalization and technology force organizations to constantly seek ongoing improvement in all areas in terms of their knowledge, flexibility and performance (Lau & Zhang, 2016). Logistics, is receiving growing attention as an area in which efficiency and productivity increases can be made in order to improve customer service and to lower costs (Sahay & Mohan, 2016). However, logistics is often not an area of core competence for many organizations. In order to compete successfully in the dynamic manufacturing environment, organizations are increasingly choosing to focus on their own area of competence and expertise. Freight management involves the activities involved in shipping any goods or finished products from suppliers to a facility or to warehouses and sales locations. Transport system is the most important economic activity among the components of business logistics systems. Transport system makes goods and products movable and provides timely and regional efficacy to promote value-added under the least cost principle. Transport affects the results of logistics activities and, of course, it influences production and sale. In the logistics system, transportation cost could be regarded as a restriction of the objective market (Ballot & Fontane, 2010). Value of transportation varies with different industries. For those products with small volume, low weight and high value,

transportation cost simply occupies a very small part of sale and is less regarded; for those big, heavy and low-valued products, transportation occupies a very big part of sale and affects profits more, and therefore it is more regarded (Cruijssen, Cools & Dollaert, 2013).

Freight management in the manufacturing sector is that part of procurement management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customer's requirements (Cruijssen, Cools & Dollaert, 2013). Freight management activities in the manufacturing sector typically include inbound and outbound transportation management, fleet management, track and trace systems, fuel management system, order fulfillment, logistics network design and management of fourth party logistics services providers (Lau & Zhang, 2016).

To varying degrees, the freight management function also includes sourcing and procurement, production planning and scheduling, and customer service. It is involved in all levels of planning and execution strategic, operational, and tactical. Freight management is an integrating function which coordinates and optimizes all logistics activities, as well as integrates logistics activities with other functions, including marketing, sales, manufacturing, and information technology in the manufacturing sector (Bask, 2011).

Transportation plays a connective role among the several steps that result in the conversion of resources into useful goods in the name of the ultimate consumer. It is the planning of all these functions and sub-functions into a system of goods movement in order to minimize cost maximize service to the customers that constitutes the concept of business logistics. The system, once put in place, must be effectively managed (Islam & Zunder, 2013). The role that transportation plays in logistics system is more complex than carrying goods for the proprietors. Its complexity can take effect only through highly quality management. By means of well-handled transport system, goods could be sent to the right place at right time in order to satisfy customers' demands (Lai *et al.*, 2012). It brings efficacy, and also it builds a bridge between producers and consumers. Therefore, transportation is the base of efficiency and economy in business logistics and expands other functions of logistics system. In addition, a good transport system performing in logistics activities brings benefits not only to service quality but also to company competitiveness (Lau & Goh, 2014).

Maritime industry plays an important role in international freight. It can provide a cheap and high carrying capacity conveyance for consumers. Therefore, it has a vital position in the transportation of particular goods, such as crude oil and grains. Its disadvantage is that it needs longer transport time and its schedule is strongly affected by the weather factors (Ljungberg & Gebresenbet, 2014). To save costs and enhance competitiveness, current maritime logistics firms tend to use large scaled ships and cooperative operation techniques. Moreover, current maritime customers care about service quality more than the delivery price. Thus, it is necessary to build new logistics concepts in order to increase service satisfaction, e.g. real-time information, accurate time windows and goods tracking systems (McKinnon *et al.*, 2015).

Air freight logistics is necessary for many industries and services to complete their supply chain and functions. It provides the delivery with speed, lower risk of damage, security, flexibility, accessibility and good frequency for regular destinations, yet the disadvantage is high delivery fee (Morash & Clinton, 2011). Novack and Thomas (2014) said air freight logistics is selected 'when the value per unit weight of shipments is relatively high and the speed of delivery is an important factor'. The characteristics of air freight logistics are that: airplanes and airports are separated. Therefore, the industries only need to prepare planes for operation; it allows speeding delivery at far destinations; fair freight transport is not affected by landforms.

Land logistics is a very important link in logistics activities. It extends the delivery services for air and maritime transport from airports and seaports. The most positive characteristic of land logistics is the high accessibility level in land areas. The main transport modes of land logistics are railway transport, road freight transport and pipeline transport. Railway transport has advantages like high carrying capacity, lower influence by weather conditions, and lower energy consumption while disadvantages as high cost of essential facilities, difficult and expensive maintenance, lack of elasticity of urgent demands, and time consumption in organizing railway carriages (Pan *et al.*, 2010). Road freight transport has advantages as cheaper investment funds, high accessibility, mobility and availability. Its

disadvantages are low capacity, lower safety, and slow speed. The advantages of pipeline transport are high capacity, less effect by weather conditions, cheaper operation fee, and continuous conveyance; the disadvantages are expensive infrastructures, harder supervision, goods specialization, and regular maintenance needs (Sanchez-Rodrigues et al., 2015).

The food and beverage industry can be defined as the preparation of food and drink products for sale and consumption. It involves the product research and design, testing sourcing of ingredients, processing, and preservation, packaging and marketing (Sink & Langley, 2012). Since achieving independence, Kenya's economy has remained largely agriculture based and manufacturing being part of industrialization is a key factor in Kenya's development plans. According to KAM (2016), food and beverages is the largest sector in the manufacturing industry comprising of 197 companies contributing 21.92% of the total KAM's membership. According to Kenya Institute for Public Policy Research and Analysis (2013), the manufacturing sub-sector in Kenya constitutes 70% of the industrial sector's contribution to GDP.

1.2. Statement of the Problem

According to KAM (2020), the food and beverage manufacturing firms were winding up at notable percentage indices, fluctuating between 49% and 58%; poor logistics outsourcing was cited as the main reason. KAM (2019) noted that the manufacturing sector has always accounted for over 35% of the country's Gross Domestic Product (GDP), provided employment to about 600,000 people in the formal sector and 2 million persons in the informal sectors of the economy. However, the firms have been experiencing problems in the performance of their production and operations management.

The existing literature has shown mixed results with regard to freight management and its influence on firm performance (Taniguchi, Imanishi, Barber, James, & Debauche, 2014; Holguín-Veras, Leal, Sánchez-Díaz, Browne, & Wojtowicz, 2018; Dablanc, Giuliano, Holliday, & O'Brien, 2013). In Kenya, there exists scant literature on the relationship between freight management and the performance of manufacturing firms. This study therefore seeks to fill these gaps by assessing the influence of freight management on the performance of food and beverage manufacturing firms in Kenya.

1.3. Study Objectives

- i. To establish the influence of freight management on performance of food and beverage manufacturing firms in Kenya.
- ii. To determine the moderating influence of internal policy framework on the relationship between freight management and performance of food and beverage manufacturing firms in Kenya.

1.4. Research Hypotheses

- i. H_{01} : Freight management has no significant influence on performance of food and beverage manufacturing firms in Kenya.
- ii. H_{02} : Internal policy framework does not significantly moderate the relationship between freight management and performance of food and beverage manufacturing firms in Kenya.

2. LITERATURE REVIEW

2.1. Theoretical Review

The paper has been anchored on logistics theory. The theory was first developed by Mentze (1995) in which he defined logistics as the planning, organization, and control of all activities in the transport flow, from raw material until final consumption and reverse flows of the manufactured product, with the aim of satisfying the customer's and other interest party's needs and wishes that is., to provide a good customer service, low cost, low tied-up capital and small environmental consequences (Liu & Lyons, 2011). Logistics in the manufacturing sector is also defined as those activities that relate to receiving the right product or service in the right quantity, in the right quality, in the right place, at the right time, delivering to the right customer, and doing this at the right cost.

In most of the cases freight management is seen from the perspective of an operative way of transporting or moving materials from one warehouse to another or producing service (McNichols &

Brennan, 2016). The credibility of this operation is based on how good is the design of the system that leads to this kind of logistics. Freight management encompasses operative responsibilities, which include administration, operation and purchase and constructive duties as well as detailed design, examples include track and trace systems, fuel management systems and fleet scheduling and routing (Chang, 2011).

2.2. Conceptual Framework

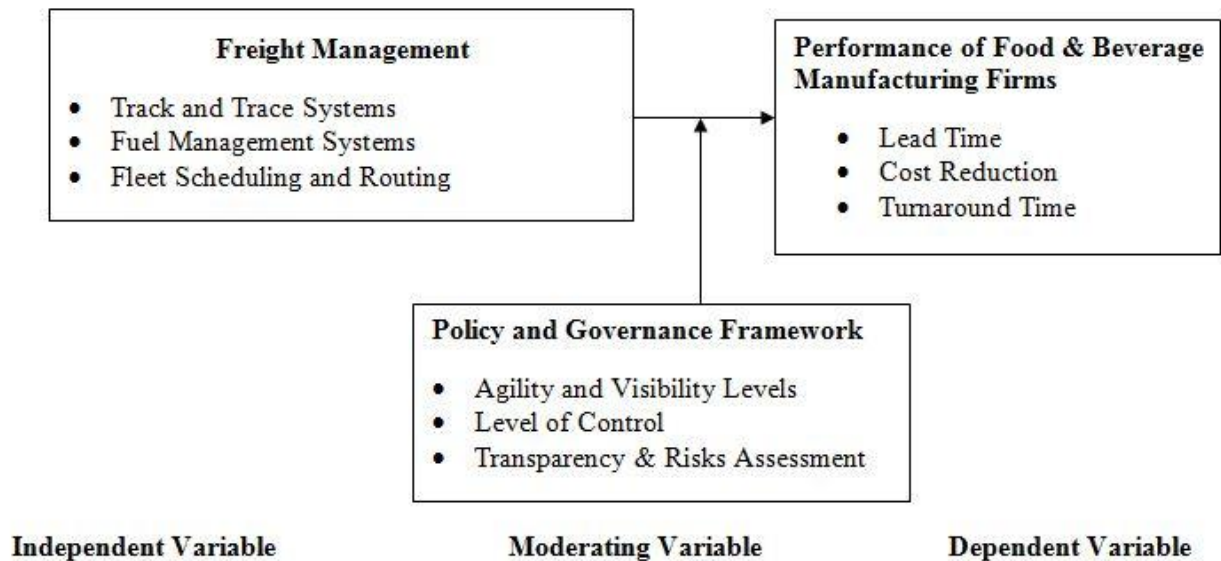


Figure1. Conceptual Framework

2.3. Empirical Review

Taniguchi *et al.* (2013) consider that there are three necessary targets that could be achieved by applying City Logistics: mobility; sustainability; live ability. Mobility is ease of movement, which is the basic requirement for transport of commodities in urban areas. Goods are supposed to be delivered Just-In-Time. Therefore, the balance between sufficient road network capacity and reduced traffic congestion is a main issue. Concerning sustainability, which is more and more important, environmental issues and energy conservation would need to be taken into account. Live ability should be thought of for the residents. It involves an assessment of the conditions that are experienced and interpreted within an individual’s life area, such as safety, peacefulness, attractiveness and charm.

According to Thompson *et al.* (2011), there are four key stakeholders involved in urban freight transport: shippers; freight carriers; residents; and administrators/governments. Each group has its own specific objectives and tends to behave in a different manner and needs to be considered. Freight carriers and administrators are the media of the delivery tasks. The characteristic of their relationships is that a slight move in one part may affect the whole situation. For instance, a freight carrier with lower efficiency would impact on the service quality of the system and hence increase the difficulties of management for administrators. Besides, it would also reduce the satisfaction level of consumers and the reliability of firms and increase the operation cost. Transportation occupied one-third to two thirds of the amount in the logistics costs hence transport management influenced the performance of logistics system immensely (Bowersox, *et al.*, 2010). Transporting is required in the whole production procedures, from manufacturing to delivery to the final consumers and returns. Only a good management and coordination between each component would bring the benefits of logistics to a maximum. A good transport management in logistics activities could provide better logistics efficiency, reduce operation cost, and promote service quality on firms (Bowersox, *et al.*, 2010).

Lai *et al.*, (2010) discuss the importance of a supply chain focus on the part of transport logistics service providers as they function to link suppliers, manufacturers, sellers, and customers throughout the supply chain. They argue that transport logistics service providers must focus on supply chain performance in addition to organizational performance. Fawcett *et al.* (2008) examines the perfect order, which comprises four main factors, namely: Delivered on time (orders that arrive upon agreed

time between the stakeholders at the correct location); shipped complete (orders which are called off with all units and lines, i.e. in full); shipped damage free (shipped in correct condition); and correct documentation (orders received by customer of which are accurate in terms of required documentation including invoicing). By focusing on perfect order performance, one can foresee operational efficiencies, increased sales and market share and conclusively growth in the bottom line. One should however pay attention to, that achieving the perfect order isn't easy. If every single factor achieves a score of 95 %, the overall percentage is only 81.4 % (Grover & Malhotra, 2013).

Managing logistics require key policies and appropriate governance framework that provide the guidelines and operational approaches. It is the set of activities involved in movement of any goods or finished products from suppliers to a facility or to warehouses and sales locations (Kenyon & Meixell, 2011). It is included because it was a major part of the supply chain due to its power to add value to some goods by moving them from their current location to a more advantageous location. Through research, (Atos, 2012; Kenyon 2011; Xiande, 2008) logistics policy had been found to be a major factor in logistics processes as it was the one which joined the separated activities.

3. RESEARCH METHODOLOGY

3.1. Research Design

This study adopted the descriptive research design using both quantitative and qualitative approaches. Descriptive research design was used to allow researcher to gather, summarize, present and interpret information for the purpose of clarification. It is mainstreamed to fact finding and may result in the formulation of important principles of knowledge and solution to significant problems.

3.2. Target Population

The target population of this study was 197 registered food and beverages manufacturing companies in Kenya as per KAM (2015). Food sector constitutes about 33% of the manufacturing sector in Kenya and the sector adds value to agricultural produce and therefore growth of this sector can have a direct significant impact on the whole Kenya's economy.

3.3. Sampling

The study used stratified random sampling technique where the subjects were selected in such a way that the existing subgroups in the population are more or less reproduced in the sample

Where n is the sample size, N is the population (197) and β denotes the error, set at 0.05

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

$$197 / \{1 + 197(0.05^2)\} = 132$$

Therefore, the study sought to gather information from 132 food and beverage manufacturing firms located in across the country, where the heads of procurement were used. This sample was deemed good representation of the populations since the sample size was greater than 10% of the target population.

3.4. Data Collection

A semi-structured questionnaire was developed to capture the various variables under study, and for the independent variables. The questionnaire contained both closed and open ended questions. The closed ended questions were aimed at giving precise information which minimized information bias and facilitate data analysis, while the open ended questions gave respondents freedom to express themselves.

3.5. Data Analysis and Presentation

Descriptive statistics including frequencies, percentages, mean and standard deviations was used in data analysis. Descriptive statistics was utilized with a view to summarize, reduce data and analyze constructs and items. This form of analysis gave insights into the sample attributes. Descriptive statistics were further offer a basis for inferential statistics using multiple regressions and correlation.

4. FINDINGS

4.1. Response Rate

A response rate of 89% was obtained where 117 respondents gave back the questionnaires for analysis out of a total of 132 food and beverage manufacturing firms. This was perceived adequate for analysis.

4.2. Freight Management

The study assessed the influence of freight management on performance of food and beverage manufacturing firms in Kenya. The study sought to assess the respondents’ views on the freight management as it has been applied in their respective organizations and how it contributed to performance of their respective firms. The respondents were asked to indicate their level of agreement or disagreement with key statements drawn from the sub-constructs of freight management which were: track and trace systems, fuel management systems, and fleet scheduling and routing. The findings are as shown in Table 1.

The findings imply that freight management is a key aspect of fourth party logistics that has been essential in enhancing the effectiveness of logistics management thus leading to enhanced firm performance among the food and beverage manufacturing companies in Kenya. The findings concur with those by Saliba (2013) who found out that embracing the appropriate systems such as fuel management and tracking systems enhances the management of the freight which is important in ensuring effective transportation and delivery of freight as designated thus saving costs and promoting efficiency and performance.

Table1. *Descriptive Analysis for Freight Management*

Statements	Mean	Std. Dev.
The company has embraced a tracking systems for its trucks and other mobile equipment	4.48	0.65
The trace systems are monitored to ensure they are effective and up-to-date	4.02	0.49
There have been minimal cases of freight loss after the track systems are put in place	4.63	0.56
The company has embraced systems for managing fuel in all its vehicles	4.06	0.56
There are proper mechanisms of ensuring the fuel management systems is effectively utilized	3.61	0.75
Embracing systems for managing fuel has enabled the company to save on fuel wastage	3.59	0.73
The organization upholds effective scheduling of delivery routes	4.48	0.67
The fleet in our company are scheduled in a manner that saves on time and cost	3.39	0.55
The framework of scheduling fleet and routes has enabled our firm to enhance effectiveness	3.96	0.16

4.3. Internal Policy Framework

The study sought to assess the moderating effect of internal policy framework on the relationship between freight management and the performance of food and beverage manufacturing firms in Kenya. The respondents were asked to indicate their level of agreement or disagreement with specific statements drawn from these sub-constructs. The findings are as shown in Table 2.

The findings imply that some aspects of internal policy framework have a hand in reducing lead time than others. This shows the need for companies to keenly analyse on how to integrate he policies in their logistics planning for effectiveness and efficiency (Mathenge & Dihel, 2011).

Generally, the findings imply that internal policy framework had a moderate extent of influencing the role of fourth party logistics on the performance of food and beverage processing firms in Kenya. In a study on the effect of partner collaboration in logistics, McNichols, and Brennan (2016) established that the policies set to govern the way logistics operations are carried out in organizations define how effective the logistics framework adopted can become hence the need for continued focus on policies before having given logistic frameworks put in place.

Table2. Descriptive Analysis for Internal policy Framework

Statement	Mean	Std. Dev.
Our company is always alert on changes in policies and regulations	2.99	0.97
The company through the management always ensures that it is visible in the policing process	3.98	1.33
The company has emphasized on carrying out logistics with partners who have adhered to the existing policies	3.76	1.55
The company always ensures that there is a control framework for the logistics operations	3.67	1.03
The level of our company’s control in fourth party logistics has been high	3.82	1.01
The management has set out a standard for adhering to the existing logistics policies	3.49	1.25
There is a significant level of transparency between our company and its logistics partners	3.76	1.48
The company frequently carries out risks assessment on the fourth party logistics partners	3.15	0.97
Through adherence to the existing policies in logistics, their company has enhanced its effectiveness	4.01	1.18

4.4. Performance of Food and Beverage Manufacturing Firms

The study sought to find out the performance of the food and beverage manufacturing firms in Kenya. The respondents were asked to rate customer satisfaction and the extent to which their respective companies were able to reduce the lead time. The findings as shown in Figure 2 revealed that majority of the organizations were able to reduce the lead time to a high extent while majority were unable to enhance customer satisfaction. The findings imply that most of the companies could be upholding logistic aspects that reduce lead time but not focusing on those that enhance the customer satisfaction and this could lead to poor performance.

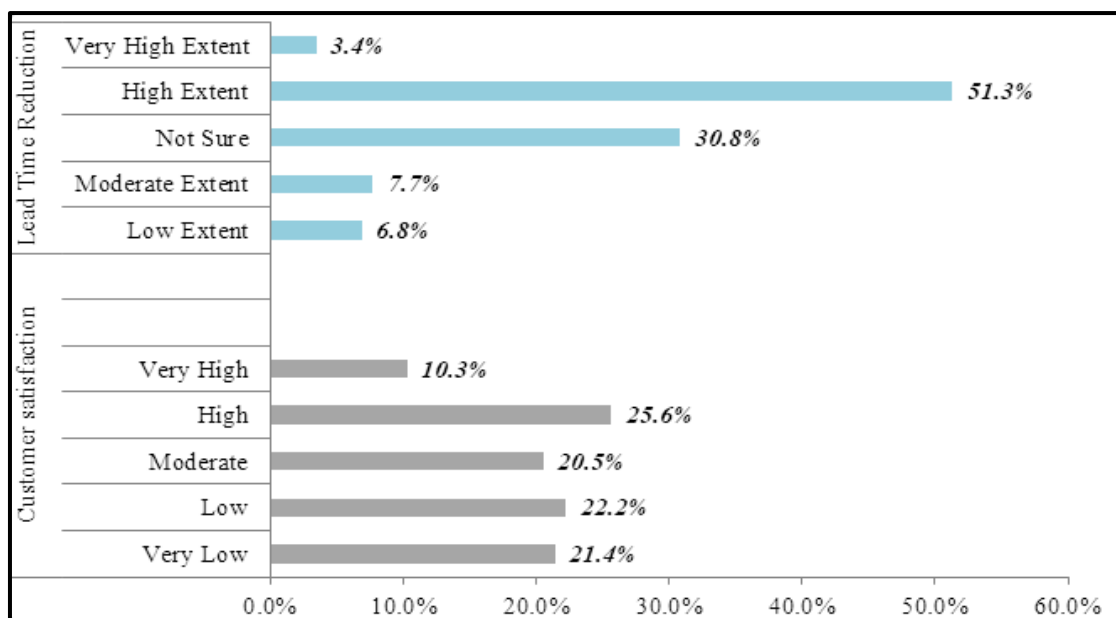


Figure2. Firm Performance

4.5. Regression Analysis

H₀₁: Freight management has no significant influence on performance of food and beverage manufacturing firms in Kenya.

To test for this hypothesis, a univariate regression model was adopted. The model was of the form:

$$Y = \beta_0 + \beta_1 X_1 + e$$

Model summary, Analysis of Variance (ANOVA), and regression coefficients were used to show whether to reject or fail to reject the null hypothesis. The results are as shown in Table 3.

As the model summary results reveal, the R^2 for the model was 0.493. This implies that the variation in the performance of the food and beverage processing firms can be explained by up to 48.8% as a result of freight management. This shows that there is a possibility for freight management to significantly influence the performance of the firms. However, this is confirmed further by the ANOVA analysis.

The ANOVA results on the other hand show that at a F-statistic of 111.606, the significance of the model is at 0.000. This being less than the standard P-value of 0.05, the study draws that the model can significantly predict the relationship between freight management and the performance of food and beverage processing firms in Kenya.

The regression coefficient results are also shown. The results reveal that the Beta (β) coefficient for the freight management is 0.560. From the results, the model can now be presented as follows:

$$Y = 1.141 + 0.560X_1 + e$$

The findings imply that a unit change in freight management can influence up to 56% of the performance of food and beverage processing firms. Further, the results show that the P-value for the model is 0.000 which is less than the standard p-value of 0.05. This implies that there is a significant relationship between freight management and the performance of food and beverage processing firms. The study therefore rejects the null hypothesis that freight management has no significant influence on the performance of food and beverage processing firms in Kenya.

Table3. Regression Model Results on Freight Management

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.702 ^a	.493	.488	.65815

a. Predictors: (Constant), Freight Management

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.343	1	48.343	111.606	.000 ^b
	Residual	49.813	115	.433		
	Total	98.156	116			

a. Dependent Variable: Firm Performance

b. Predictors: (Constant), Freight Management

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.141	.157		7.277	.000
	Freight Management	.560	.053	.702	10.564	.000

a. Dependent Variable: Firm Performance

H_{02} : Internal policy framework does not significantly moderate the relationship between freight management and performance of food and beverage manufacturing firms in Kenya.

The regression coefficients for the moderating effect of internal policy framework are as shown in Table 4. The findings imply that the moderator (internal policy framework) had a moderating effect on the relationship between freight management and the performance of food and beverage processing firms ($\beta=0.442$; P-value= 0.000<0.05). However, the findings revealed that internal policy framework has no direct relationship with the performance of food and beverage processing companies ($\beta= -0.094$; P-value= 0.150>0.05).

Table4. Moderating Effect of Internal policy Framework
Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.325	.224		1.449	.150
Freight Management* Internal policy framework	.442	.046	.445	9.588	.000
Internal policy framework	-.094	.065	-.050	-1.448	.150

a. Dependent Variable: Performance

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the study findings, the study concluded that freight management influences performance. Freight management has significant influence on performance of food and beverage manufacturing firms in Kenya. The sub-constructs of freight management that is tracking and tracing system, fuel management systems, fleet scheduling and routing influences performance positively.

The study recommended that the management of manufacturing firms in Kenya should put in place freight management strategies as it leads to high performance. The firms should ensure they have a tracking and tracing system, fleet scheduling and routing and fuel management system in the company. The study also recommends that future scholars and researchers should aim to test the relationship between freight management and performance using different sub constructs apart from tracking and tracing system, fleet scheduling and routing and fuel management.

REFERENCES

Atos, K. (2012). The elements of a successful logistics partnership: *International Journal of Physical Distribution & Logistics Management*, 26(3), 7-15.

Ballot, B., & Fontane, F. (2010). Reducing transportation Co2 emissions through pooling of supply networks: perspectives from a case study in French retail chains: *International Journal of Production Planning & Control*, 21(6), 640-650.

Bask, A. H. (2011). Relationships among TPL providers and members of supply chains- a strategic perspective. *The Journal of Business and Industrial Marketing*, 16(6), 470-486.

Bowersox, J., Closs, J., & Cooper, M. (2010). *Supply Chain Logistics Management* (3rd Ed); Boston, Mass: McGraw-Hill.

Chang, W., Chiang, M., & Pai, Y. (2012). Cooperative Strategy in Supply Chain Networks. *International Journal of Industrial Marketing Management* 12 (1), 11-19.

Chang, Y.H. (2011). *Logistical Management*. Hwa-Tai Bookstore Ltd., Taiwan.

Crujssen, F., Cools, M., & Dollaert, W. (2013). *Horizontal Cooperation in logistics: Opportunities and Pediments*. *Logistics and Transportation Review*, 4(2), 129-147

Dablanc, L., Giuliano, G., Holliday, K., & O'Brien, T. (2013). Best practices in urban freight management: Lessons from an international survey. *Transportation Research Record*, 2379(1), 29-38.

Deloitte (2016). *Optimizing supply chain management*. Turning a Cost into a Value Proposition Accessed on 30th June 2017

Fawcett, E., Gregory, M., & Mathew, W, (2008). Benefits, barriers, and bridges to the effective supply chain management, *Supply Chain Management. International Journal of Operations Management*, 9 (2), 188-196.

Grover, V. & Malhotra, M. (2013). Transaction cost framework in operations and supply chain management research: theory and measurement, *Journal of Operations Management*, 21(4), 457-473

Holguín-Veras, J., Leal, J. A., Sánchez-Díaz, I., Browne, M., & Wojtowicz, J. (2018). State of the art and practice of urban freight management: Part I: Infrastructure, vehicle-related, and traffic operations. *Transportation Research Part A: Policy and Practice*.

Islam, D.Z. & Zunder, T. H. (2013). Performance evaluation of an online benchmarking tool for European freight transport chains, *Benchmarking: An International Journal* 20 (2), 233-250

ISO (2010). *Quality management and quality assurance vocabulary*, International Organization for Standardization, Geneva

Kenya Association of Manufacturers, (2016). *Kenya manufacturers & Exporters Directory*. (11th ed.). Nairobi: Kenya Association of Manufacturers

Kenya Institute for Public Policy Research and Analysis. (2013). *Kenya Economic Report*. Nairobi: KIPPRA

Kenyon, G. & Meixell, M. (2011). Success factors and cost management strategies for logistics outsourcing. *Journal of Management and Marketing Research*, 8(7), 1-17

- KNBS (2010). *Kenya Manufacturing Firms Survey*. Nairobi:
- Lai, H., Ngai, T., & Cheng, E. (2012). Measures for evaluating supply chain performance in transport logistics: *International Journal of Transportation Research* 3(8), 439-56
- Lau, H. & Goh, Y. (2014). *An intelligent brokering system to support multi-agent web-based 4th-party logistics*, In Proceedings of the 14th IEEE international conference on tools with artificial intelligence, 30(5), 154–161
- Lau, K.H. & Zhang, J. (2016). Drivers and Obstacles of Outsourcing Practices in China. *International Journal of Physical Distribution & Logistics Management* 36 (10), 776-792
- Liu, C., & Lyons, A. (2011). *An analysis of third-party logistics performance and service provision*. *Transportation Research Part E: Logistics and Transportation Review*34(47),547-570.
- Ljungberg, D., & Gebresenbet, G. (2014). Mapping out the potential for coordinated goods distribution in city centres: The case of Uppsala *International Journal of Transport Management* 8(3), 161-172.
- Mathenge, J., & Dihel, N. (2011). *The Role of Clearing and Forwarding Agents in Reforming the EAC Logistics Sector*. *Africa Trade Policy Notes*, Nairobi: Africa Trade Policy.
- McKinnon, A., Edwards, J., Piecyk, M., & Palmer, A. (2015). Traffic congestion, reliability and transport performance: a multi-sectorial assessment *International Journal of Logistics: Research and Applications* 12(5), 1-15.
- McNichols, T. & Brennan, L. (2016). *Evaluating Partner Suitability for Collaborative Supply Networks*, *Int. J. Networking and Virtual Organizations*, 3(2), 220-237
- Morash, E.A. & Clinton, S.R. (2011). The role of transportation capabilities in international supply chain management: *Transportation Journal*, 36(3), 5-17
- Novack, R.A. & Thomas, D.J. (2014). The challenges of implementing the perfect order concept, *Transportation Journal*, 21(12), 121-34
- Pan, S., Ballot, E., & Fontane, F. (2010). The reduction of greenhouse gas emissions from freight transport by pooling supply chains. *International Journal of Production Economics*, 10 (4), 95-115.
- Sahay, S. & Mohan, R. (2016). 3PL practices: an Indian perspective. *International Journal of Physical Distribution & Logistics Management* 36 (9), 666-689.

- Saliba, M. (2013). Evaluation of the implementation of public sector supply chain management and challenges: A case study of the central district municipality, West province, South Africa; *African Journal of Business Management*, 2 (12), 230-242.
- Sink, H. L., & Langley, C. J. (2012). A managerial framework for the acquisition of third-party logistics services. *Journal of Business Logistics* 18 (2), 56-87.
- Taniguchi, E., Imanishi, Y., Barber, R., James, J., & Debauche, W. (2014). Public sector governance to implement freight vehicle transport management. *Procedia-Social and Behavioral Sciences*, 125, 345-357.
- Taniguchi, E., Thompson, G., & Yamada, T. (2013). Visions for city logistics. Proceedings 3rd *International Conference on City Logistics, Institute for City Logistics*, 3 (2), 13-17.
- Thompson, G. & Taniguchi, E. (2011). *City logistics and freight transport*. Handbook of Logistics and Supply Chain Management, Elsevier Science Ltd., UK, 12(6), 393-405
- USAID (2012). *Selecting and implementing vendor managed inventory systems for public sector supply chain: Deliver Project*, USAID
- World Bank (2010). *World Economic Forum. Global Competitiveness Report*. World Bank's Logistics Performance Index (LPI) Measuring Logistics Performance
- World Bank (2013). *Kenya economic update: Accelerating growth and poverty reduction in the Kenya*.
- World Bank (2013). *Reducing Supply Chain Barriers Could Increase Global GDP Up To 6 Times More Than Removing All Import Tariffs Report*", Switzerland
- Xiande, Z. (2008). Understanding drivers of performance in the 3PL industry in Hong Kong. *International Journal of Operations & Production Management*, 28(8), 772-800

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