

TRANSPORTATION STRATEGY AND SUSTAINABLE PROCUREMENT PERFORMANCE AMONG KENYA TEA DEVELOPMENT AGENCY FACTORIES IN KENYA

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DOI: <https://doi.org/10.5281/zenodo.12749876>

Published Date: 16-July-2024

Abstract: The purpose of this study was to examine the relationship between transportation strategy and sustainable procurement performance among KTDA factories. The study adopted a correlational research design. The target population of the study was 188 staff drawn from the 16 KTDA managed Region 5 factories. A census method was used to collect data from the production managers, ICT managers, procurement Managers, leaf base managers, factory unit managers and directors using a structured questionnaire. The validity of the instrument was determined through professional judgment and reliability was determined using Cronbach's alpha coefficient where the alpha coefficient of 0.865 was actualized. The findings revealed that transportation strategy had a positive significant correlation with sustainable procurement performance ($r = 0.352$, $p < 0.05$). The study recommends that KTDA transportation strategies need to align to organizational sustainability goal. The study may contribute to the existing body of knowledge on transportation strategies and sustainable procurement performance by creating new knowledge based on the research findings. Other researchers may benefit from the literature on transportation and sustainable procurement performance since the current study provided a basis for further studies.

Keywords: Transportation strategy, sustainable procurement practices.

1. INTRODUCTION

Council of Supply Chain Management Professionals (2018), noted that procurement process focuses on acquiring the required materials, goods and components. It also involves; buying of goods and services, planning, inventory management, traffic, receiving, inbound inspection, and salvage operations

In their empirical case study in Italy, Gualandris & Kalchschmidt (2016) emphasized the importance of monitoring the supply chain's long-term performance from the viewpoints of procurement and supplier management. The study concluded that manufacturing companies' environmental and social performance can be enhanced by sustainable supply chain management

Rajeev *et al.*, (2017), observed in a study in India that sustainable procurement makes it easier to combine consumer base, distribution network, internal firm activities, and supply base in their study on the evolution of sustainability in supply chain management. As a result, SCM techniques have a big impact on how stakeholders outside the company see organizational success, sustainability performance, and other factors. The strategic management of all internal and

external stakeholders, from raw material suppliers to end users, is the main focus for sustainable procurement given the current trend of globalization and rising competition.

In Kenya, according to Tea of Board Kenya (2018), poor infrastructure, unstable electricity, expensive fuel, and expensive packing materials are examples of inbound logistical activities that drives manufacturing costs. The restriction on obtaining wood fuel from the forest also severely affected the factories. This is as a result of the tea being dried using wood fuel. The manufacturers have been forced to buy fuel from farms where trees are scarce and consequently sold at excessive costs ever since the prohibition went into place three years ago.

According to International Financial Corporation (2020), the COVID-19 epidemic has had a direct impact on businesses involved in the flow, storage, and transit of commodities, according to an assessment on its effects. Transport enables trade and commerce as a crucial component of value chains and aids in getting goods from producers to consumers. Therefore, supply chain interruptions brought on by the pandemic could affect the sector's competitiveness and economic expansion. Governments all throughout the world implemented measures including lockdowns and border closures that limited the flow of people and products in accordance with WHO recommendations (World Bank, 2020). KTDA managed factories adhered to Ministry of Health protocols which entailed social distancing in their work area which was introduced to ensure safety of workers and this contributed to bottlenecks on operations.

The transfer of product ownership is facilitated by transportation as a business enabler where businesses benefit from time and location utilities as they move goods from the source to the point of use. Hence for effective movement of materials to predetermined production, a business can choose one mode of transportation or combine several modes since efficient transportation promotes sustainable procurement by cost-effectively and securely delivering goods to the final customer (Branch, 2019). Therefore, KTDA managed factories should prioritize transport visibility by striking a balance between customs clearance, holding costs, transport lead times, and inventory holding costs since SPP is impacted by transportation costs, delivery times, and consistency of product delivery of materials in the proper quantity, quality, order, and time (Bowersox, 2020).

Many studies on transportation strategy and sustainable procurement performance used secondary data, empirical reviews and case studies while the current study was founded on primary data and deployed correlation approach to find out relationship between the variables being investigated. The results from previous studies in some studies conflicted, in that they supported transportation in sustaining performance, while others did not agree, (Ashuro, 2022; Bowie, 2019; Gitahi & Ogollah, 2014; Prothan *et al.*, 2017; Kyusya, 2015; Langat, 2013; Muchori, 2015; Mukolwe & Wanyoike, 2015; Musau *et al.*, 2017; Musyoka, 2016; Mwangangi, 2016; Mwangi & Ndubi *et al.*, 2016; Waweru, 2013;). There was need therefore to examine the relationship between transportation strategy and sustainable procurement performance for firms in the tea sector.

Hsu & Hu (2008) argued that the concept of sustainable procurement is an approach to improve performance of the process and products according to the requirements of the environments regulation. Procuring organizations and other supply chain partners are more seriously involved in designing and implementing sustainable procurement policies focusing on how environmental issues and issues relating to other aspects of the sustainable development pillars (Society and Economy) can be integrated in the procurement process activities (Hsu & Hu, 2008).

1.1 Statement of the Problem

Companies can manage supply chain more effectively with the help of transportation strategies where they must coordinate their operations through adoption of transportation strategies so as to enhance business performance. Farmers whose produce is marketed by KTDA have seen their earnings drop annually by a quarter or 25% to Sh46.45 billion from Sh62 billion. There is also wide variation in bonuses payment with factories in the East receiving very high bonuses rate as compared to the factories in the West of Rift. The second payment known as tea bonus dropped by 36% to Sh28 billion, compared to Sh 44 billion where farmers in Kiambu, Muranga, Nyeri, Kirinyaga, Embu and Meru earned more per kilo compared to their peers in Kericho, Bomet, Kisii, Nyamira, Vihiga, Kakamega and Nandi. The drop in earnings and high variation in tea bonuses among factories has been attributed to operational cost at the factory. This points out that although transportation strategies have been adopted, they have not resulted in sustainable procurement performance. Most of the previous studies have focused on other strategies and performance but limited studies have been done on sustainable procurement performance. Hence, this study sought to determine the relationship between transportation strategy and sustainable procurement performance of KTDA tea factories in Kenya.

2. LITERATURE REVIEW

Beirão *et al.*, (2016), in a study to investigate how city logistics initiatives impacted the regional economy in their study, investigating the effects of City Logistics Measures on the City's Economy in Europe. The study conducted a survey by interviewing city logistics experts in order to determine the extent of benefits or costs anticipated by the implementation of city logistics measures. According to the research, urban freight transportation has rapidly expanded, posing a threat to the environment and the economy and driving up the cost of logistics and product prices. The study reports that rapid transportation development has negative effects on the environmental and economic as it results in highest logistic cost.

Moen (2016), in another study in Sweden, on commercial vehicle routing software was used to examine a manually dispatched transport network to 324 retail shops. The outcomes were then compared to the route-optimized solution. A new technique of purchasing transport services called the "Five-step model" was then connected to the case study. A problem analysis, simulation of new routes, specification definition, provider selection, procurement process, open book pricing, joint route review, negotiations, contractor agreement, and payment with reverse billing are the five steps that make up the procedure. Stakeholders in the Five-step model bargain in terms of distance, time, and sequential itineraries rather than a single price per stop, as is usual in Sweden's transportation industry. Inferentially, the transport buyer gains control over the transport firm in the supply chain, enhancing transparency and altering the dynamic between the parties.

Sethanan, Chetchotsak, Tongsochowong, Chaikanha, and Kusoncum (2012), investigated inbound logistics models for the Thai Sugar Industry using Arena software to improve mill yard management and reduce wait times for sugarcane transport vehicles. The two alternative scenarios that were presented were the creation of a registration procedure based on grower type priority, serving all grower types on a first come, first served (FCFS) basis, and allocating unloading equipment based on sugarcane grower type. According to the findings, different firms with similar inbound logistics chains will have varying levels of efficiency depending on their management. This suggests that efficiency in the supply chain may be dependent on how inbound logistics aims is managed.

In Italy, Evangelista, Santoro, & Thomas (2018), discovered that there is still a gap in the body of literature despite the growing interest in environmental issues in the freight transportation and logistics service sector. Their systematic review of the literature from 2000 to 2016 on environmental sustainability in third-party logistics service providers. Through an analytical framework based on five topic areas influencing factors, information and communication technology (ICT) tools supporting green actions, shipper perspectives, energy efficiency in road freight transport, and collaboration the review gave readers a glimpse into the important aspects of green issues in transportation and logistics service companies. The results show that despite a considerable rise in papers published since 2008, several disciplines, such as ICT and performance assessment, remain significantly under-researched. Each of the listed topic areas has many research gaps that the current study attempts to fill.

In a study on the elements of logistic customer service provided by the commercial cargo motor transport businesses in the Silesian Province in Poland Kadlubek (2015), discovered that the SERVQUAL method places these businesses on a quantifiable level (region in southern Poland). The study's survey questionnaire, which was completed by 294 commercial cargo motor transport enterprises, was constructed around 22 logistic customer service determinants. The study discovered that sustainable transportation and logistics processes lead to sustainability in the transportation and logistics sectors.

In Bangladesh, Prothan, Marazul, Atikur, & Ashrafuzzaman (2017), analysed the transport system at the major roads in Rangpur City. The main objectives of the study were to discuss potential solutions and identify current traffic and transportation issues. Numerous surveys, including traffic volume surveys, physical feature surveys, delay time surveys, and parking surveys, have been carried out to assess the state of transportation and traffic in the area. The design or pictorial data was analyzed using MS Excel, GIS, and Google Sketch-up, in addition to the data, which was analyzed using MS Excel. The study found that organizations involved in the physical movement of goods need a variety of transportation services, and that the best option is chosen based on the type of item that needs to be moved. The demand for distribution and transportation will almost certainly rise as the global economy and trade continue to expand.

Bowie (2019), in Nigeria, Nestle introduced inexpensive nutrition, new routes to the market, ecologically responsible packaging options, and viable methods for moving cocoa plantlets in Nigeria. Nestlé supports and promotes sustainable agricultural practices and green manufacturing in all of its operations around the world, maximizing eco-efficiency

production through conservation programs, by improving capacity utilization of its factories, and through other investments to maximize production while concurrently minimizing resource consumption, reducing waste, and emissions.

A case study of the Bedele Brewery Share Company was used by Ashuro (2022) to analyze the impact of transportation logistics and procurement on the operational performance of Ethiopian brewery Share Company. Both a descriptive and an explanatory research design were used in the study. Techniques of purposeful sampling were used to sample 158 respondents. At the conclusion of the study, it was determined that transportation management and procurement accounted for 65.3% of the total variability in the operational performance of Bedele Brewery Share Company. Multiple regression analysis was used to estimate the relationship between the dependent variable and independent variables.

The government of Kenya views transport sector as the promoters of economic growth and development toward the middle-level economy, as envisioned in the development blueprint of Vision 2030 (RoK, 2012), for example, the logistics market is expected to cross USD 5 billion by 2023 (Ken, 2019). However, the gross domestic product from the transport sector decreased to Kenya Shillings 84312 Million in the first quarter of 2020 from 106123 KES Million in the fourth quarter of 2019 (KBS, 2020) and only 35% of logistics firms cut above-average performance in Kenya (Bailey 2013).

In their study Musau, Namusonge, & Makokha (2017), looked at how transport management affected the supply chains of Kenyan textile manufacturing enterprises in terms of profitability, dependability, cost, responsiveness, flexibility, and asset management effectiveness. The main theoretical foundation of the study was cooperative game theory. The study employed the convergent parallel mixed techniques design. The study's target population consisted of 196 respondents who worked in procurement departments and departmental heads from each of the 15 textile manufacturing sectors present in Nairobi County. 139 respondents who worked in the procurement divisions of their respective textile companies were selected using stratified sampling and basic random selection methods. Inferential statistics were used to analyze the link between the variable and the proposed hypothesis, including hierarchical multiple regression and correlation analysis. The study's conclusion, which acknowledges the importance of transportation management in the supply chain, is that it can enhance the performance of the supply chains for textile industries.

Muchori (2015), investigated how the Mombasa port's freight logistics were affected by the volume of traffic. Building on the infrastructure demand on the route from Nairobi to Mombasa, which has continued to disrupt logistical operations at the port, the study utilized a descriptive survey approach and a sample size of 150 replies from a possible 10450 employees. The correlation results show a positive association between transportation expenses and traffic congestion. As a result of the backed-up traffic, freight logistics were less efficient.

In Mukolwe & Wanyoike (2015), assessed how management practices used in logistics have an impact on Mumias Sugar Company's operational efficiency. The study discovered, among other things, that the practices used for physical distribution and transport management are equivalent to the flow of goods and raw materials that is cost-effective, which has a positive influence on operational efficiency. Mwangangi (2016), looked into how logistics management affects manufacturing companies' productivity in Kenya. The inquiry examined primary and secondary data from corporate employees as well as published and unpublished information. Using multiple regression analysis, the study discovered that the use of transport management systems in transport management was a major predictor of business performance.

Gitahi and Ogollah (2014) examined how fleet management practices have an impact on the provision of services to refugees participating in the UNHCR Kenya program. The analysis is based on the premise that transportation is at the center of logistics. The study, which employed a descriptive research approach, included 390 target participants. Researchers came to the conclusion that the rate of fuel consumption on tracking, fuel monitoring, fuel sourcing, fuel allocation on a daily basis, and the rate at which fuel usage is monitored affect the UNHCR program in Kenya's delivery of services to refugees.

Ndubi, Iravo, and Onchiri (2016) looked at how Safaricom Limited's inbound logistics performed in relation to lead time variability. Delivery time, cost, and quantity were used as metrics to assess the effectiveness of inbound logistics. The lead times for production, shipping for customs brokerage, and the velocity for products inspection were found in the study to have direct and substantial effects.

Kyusya (2015) investigated the influence of logistics outsourcing on the efficiency of Kenya's shipping sector's operations. 42 shipping companies with operations in Kenya were included in the study. The data were analyzed using descriptive and inferential statistics. A connection between transport management and a firm's operational success was discovered by the study. Businesses should foster a culture of logistic outsourcing, according to the report, among cross-functional teams made up of service providers and transportation companies.

Mwangi and Waweru (2013), investigated the connection between inbound logistics and the effectiveness of the supply chains for Kenyan mobile phone operators. The study used primary data gathered using semi-structured questionnaires in a descriptive survey approach. The study concluded that inbound logistics procedures have a statistically significant impact on supply chain performance indicators and that transportation is a crucial supply chain link. Additionally, the study reported that rising transportation costs had a negative impact on the supply chain and that sluggish inbound transit jeopardized timely delivery of goods and services.

Maweu (2016), conducted a study to ascertain the connection between incoming logistics and Kenyan mobile phone providers' supply chain performance. In order to gather primary information for the study, which examined inbound logistics practices and supply chain performance, structured and semi-structured questionnaires were used. The study found a statistical significant logistic practices on supply chain cost. However, the study reports that inventory level and accuracy has no significant effect on supply chain cost. Therefore, it is important to establish relationship between inbound logistic strategies, quality management system and sustainable procurement performance among selected Kenya Tea Development Factories in Kenya.

Langat (2013), investigated the impact of inbound logistics management on the efficiency of public procurement at Kenyan public institutions with a focus on the Kenya Medical Supplies Agency. The study's specific goals were to assess how inbound transportation services affected the effectiveness of public procurement. Using proportionate random sampling and simple random sampling techniques, 200 KEMSA employees were sampled for the examination. Questionnaires were used to collect the data, which was then analyzed using descriptive and inferential statistics.

Many studies on transportation strategy and sustainable procurement performance used secondary data, empirical reviews and case studies while the current study being was founded on primary data and deployed correlation approach to find out relationship between the variables being investigated. The results from previous studies in some studies conflicted, in that they supported transportation in sustaining performance, while others did not agree. There is need to examine the relationship between transportation strategy and sustainable procurement performance for firms in the tea sector.

3. RESULTS AND FINDINGS

The study examined the relationship between transportation strategy and sustainable procurement performance among KTDA factories in Kenya. Respondents were asked to respond to the statements on Transportation strategies adopted by KTDA tea factories. The responses were on a Likert scale of 1-5 where: [1]-strongly disagree, [2]-disagree, [3]-Undecided, [4]-Agree and [5]-Strongly agree. A mean of between 0.0 and 2.5 meant disagreed while a mean of between 2.6 and 5.0 meant agree. The findings are presented in Table 1.

Table 1: Descriptive results Transportation strategy

Transportation strategy	SD	D	U	A	SA	N	M	SD
The growth of transportation have necessitated our organization to device new transportation strategies	4 (2.4%)	10 (5.9%)	4 (2.4%)	116 (68.6%)	35 (20.7%)	169	3.99	0.83
The rapid growth of transportation need experienced by our organization have contributed to increase logistic costs and prices of goods/services	3 (1.8%)	9 (5.3%)	5 (3.0%)	103 (60.9%)	49 (29.0%)	169	4.10	0.83
Our transportation strategies necessitate utilization of transport resources in the most efficient and environmentally friendly way	4 (2.4%)	9 (5.3%)	3 (1.8%)	98 (58.0%)	55 (32.5%)	169	4.13	0.87

Our organizational transport strategies involve determination of transportation mode; feedback and reporting on the choice of transport.	4 (2.4%)	10 (5.9%)	3 (1.8%)	96 (56.8%)	56 (33.1%)	169	4.12	0.89
Our ability as an organization to move items from/to a supplier improves the efficiency of inbound logistics in terms of speed and cost.	3 (1.8%)	11 (6.5%)	4 (2.4%)	101 (59.8%)	50 (29.6%)	169	4.09	0.86
Our transportation solutions enable consolidation of many orders so as to create large volumes hence lower transport costs per volume.	5 (3.0%)	10 (5.9%)	3 (1.8%)	104 (61.5%)	47 (27.8%)	169	4.05	0.89
Overall						169	4.04	0.86

Table 1 reveals that 151 (89.3%) agreed that the growth of transportation have necessitated their organization to device new transportation strategies. Respondents who were 14 (8.3%) disagreed that the growth of transportation has necessitated their organization to device new transportation strategies. Respondents who were 4 (2.4%) were undecided. The mean of 3.99 and a standard deviation of 0.83 imply that growth of transportation have necessitated KTDA factories to device new transportation strategies.

Respondents who were 152 (89.9%) agreed that the rapid growth of transportation need experienced by their organization have contributed to increase logistic costs and prices of goods/services. Respondents who were 12 (7.1%) disagreed that the rapid growth of transportation need experienced by their organization has contributed to increase logistic costs and prices of goods/services while 5 (3.0%) respondents were undecided. The findings implies that rapid growth of transportation need experienced by KTDA factories have contributed to increase logistic costs and prices of goods/services as revealed by a mean of 4.10 and a standard deviation of 0.83.

Majority of respondents who were 153 (90.5%) agreed that transportation strategies necessitate utilization of transport resources in the most efficient and environmentally friendly way. Respondents who were 13 (7.7%) disagreed that transportation strategies necessitate utilization of transport resources in the most efficient and environmentally friendly way. Respondents who were 3 (1.8%) were undecided. Transportation strategies of KTDA factories necessitate utilization of transport resources in the most efficient and environmentally friendly way as revealed by a mean of 4.13 and a standard deviation of 0.87.

Respondents who were 152 (89.9%) agreed that their organizational transport strategies involve determination of transportation mode; feedback and reporting on the choice of transport. Respondents who were 14 (8.3%) disagreed that their organizational transport strategies involve determination of transportation mode; feedback and reporting on the choice of transport while 3 (1.8%) respondents were undecided. The transport strategies adopted by KTDA factories involve determination of transportation mode; feedback and reporting on the choice of transport as shown by a mean of 4.12 and a standard deviation of 0.89.

Respondents who were 151 (89.4%) agreed that their ability as an organization to move items from a supplier to a user offers location and time utilities for a buyer and improves the efficiency of inbound logistics in terms of speed and cost. Respondents who were 14 (8.3%) disagreed that their ability as an organization to move items from a supplier to a user offers location and time utilities for a buyer and improves the efficiency of inbound logistics in terms of speed and cost while 4 (2.4%) were undecided. The mean of 4.09 and a standard deviation of 0.86 imply that the ability of KTDA factory to move items from a supplier to a user offers location and time utilities for a buyer and improves the efficiency of inbound logistics in terms of speed and cost.

Majority of respondents who were 151 (89.3%) agreed that their transportation solutions enable consolidation of many orders so as to create large volumes hence lower transport costs per volume. Respondents who were 15 (9.9%) disagreed that their transportation solutions enable consolidation of many orders so as to create large volumes hence lower transport costs per volume while 3 (1.8%) respondents were undecided. The mean of 4.05 and a standard deviation of 0.89 imply that transportation solutions of KTDA factories enable consolidation of many orders so as to create large volumes hence lower transport costs per volume.

The mean of 3.99 and a standard deviation of 0.83 imply that growth of transportation and more home deliveries have necessitated KTDA factories to device new transportation strategies. This is contrary to Beirão *et al.*, (2016), noted that rapid transportation development has negative effects on the environmental and economic aspect as it results in high cost of logistic. The findings concur with Moen (2016), who established that through transportation buyer gains control over the transport firm in the supply chain enhancing transparency and altering the dynamic between the parties.

The findings implies that rapid growth of transportation need experienced by KTDA factories have contributed to increase logistic costs and prices of goods/services as revealed by a mean of 4.10 and a standard deviation of 0.83. This is contrary to the findings of Kadlubek (2015), who reported that sustainable transportation and logistics processes lead to sustainability. The findings concur with Beirão *et al.*, (2016), who established that transportation results in highest logistic cost. This shows that KTDA factories transportation needs has led to increase in logistic cost and this has affected the price of their tea products.

Transportation strategies of KTDA factories necessitate utilization of transport resources in the most efficient and environmentally friendly way as revealed by a mean of 4.13 and a standard deviation of 0.87. This contradicts Beirão *et al.*, (2016), who established that transportation has negative effects on the environment and economic but agrees with the findings of Kadlubek (2015), who found that sustainable transportation and logistics processes lead to sustainability.

The transport strategies adopted by KTDA factories involve determination of transportation mode; feedback and reporting on the choice of transport as shown by a mean of 4.12 and a standard deviation of 0.89. The findings agrees with Jony Prothan *et al.*, (2017), findings which established that organizations involved in the physical movement of goods need a variety of transportation services, and that the best option is chosen based on the type of item that needs to be moved. The findings showed that KTDA factories determine the transportation mode, feedback and reports as a strategy to improve on their transportation.

The mean of 4.09 and a standard deviation of 0.86 imply that the ability of KTDA factory to move items from a supplier to a user offers location and time utilities for a buyer and improves the efficiency of inbound logistics in terms of speed and cost. This agrees with the findings of Musau *et al.*, (2017), who concluded that transportation management enhances performance of the supply chains and that of Mukolwe and Wanyoike (2015), who noted that that the practices used for distribution and transport management equal flow of goods and raw materials positively influence operational efficiency. This shows that KTDA factories move items from a supplier cost effectively in a timely manner.

The mean of 4.05 and a standard deviation of 0.89 imply that transportation solutions of KTDA factories enable consolidation of many orders so as to create large volumes hence lower transport costs per volume. This agrees with Sethanan *et al.*, (2012), who establish that firms with similar inbound logistics chains will have varying levels of efficiency depending on their management. This suggests that efficiency in the supply chain may be defendant on how inbound logistics aims is managed.

3.1 Test of Hypothesis

H₀₁: *There is no statistically significant relationship between transportation strategy and sustainable procurement performance among KTDA factories, Kenya.*

Multiple regression model was used to determine the relationship between transportation strategy and sustainable procurement performance among KTDA factories in Kenya. The findings are presented in Table 2.

Table 2: Model Summary for transportation strategy and sustainable procurement performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.352 ^a	.124	.118	.85386

a. Predictors: (Constant), Transportation Strategy

Table 2 revealed that transportation strategy had positive significant relationship with sustainable procurement performance (R = 0.352). The results showed that 12.4% of sustainable procurement performance is explained by transportation strategy. However, other factors not included in the study attributed to 87.6% variation of sustainable procurement performance. This shows that the model fit well with the research data.

ANOVA analysis was used to test transportation strategy and sustainable procurement performance. The hypotheses were tested at 5% significant level.

Table 3: ANOVA results for transportation strategy and sustainable procurement performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.182	1	17.182	23.567	.000 ^b
	Residual	121.756	167	.729		
	Total	138.938	168			

a. Dependent Variable: Sustainable Procurement Performance

b. Predictors: (Constant), Transportation Strategy

Table 3 on ANOVA revealed that there existed significant relationship between transportation strategy and sustainable procurement performance ($F_{(1,167)} = 23.567$, $p < 0.05$). The findings showed that the significance value is 0.000 which is below 0.05. These findings showed that the model was fit for the data.

Table 4: Coefficients results for transportation strategy and sustainable procurement performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error			
1	(Constant)	2.360	.168		14.060	.000
	Transport	.246	.051	.352	4.855	.000

a. Dependent Variable: Sustainable Procurement Performance

As presented on Table 4, it was established that there exists a significant positive relationship between transportation strategy and sustainable procurement performance ($\beta = 0.246$, $p < 0.05$).

The beta coefficient of 0.246 means that when transportation strategy increases by an additional unit, sustainable procurement performance of KTDA factories increases by 0.246.

From the coefficient of determination findings, the regression model now becomes:

$$Y = 2.360 + 0.246 X_2 \dots \dots \dots (ii)$$

Where Y = Sustainable Procurement Performance, X_2 = Transportation Strategy

The study findings showed that transportation strategy significantly influence sustainable procurement performance. This concurs with the findings of JonyProthan, et al., (2017), who found that organizations involved in the physical movement of goods need a variety of transportation services, and that the best option is chosen based on the type of item that needs to be moved. The study also agrees with Ashuro (2022) who concluded that transportation management and procurement accounted for 65.3% of the total variability in the operational performance. The study also agrees with the findings of Musau, Namusonge, and Makokha (2017) who acknowledge that the importance of transportation management in the supply chain, in that it enhance the performance of the supply chains.

The study therefore concludes that the hypothesis **H₀₁**: “There is no statistically significant relationship between transportation strategy and sustainable procurement performance among KTDA factories, Kenya,” is **rejected** since the findings showed that there exists a significant positive relationship between transportation strategy and sustainable procurement performance ($\beta = 0.246$, $p < 0.05$).

4. CONCLUSIONS

Transportation strategy was found to have a positive significant correlation with sustainable procurement performance ($r = 0.352$, $p < 0.05$). The findings further show that the growth of transportation and more home deliveries have necessitated KTDA factories to device new transportation strategies; rapid growth of transportation need experienced by KTDA factories have contributed to increase logistic costs and prices of goods/services; transportation strategies of

KTDA factories necessitate utilization of transport resources in the most efficient and environmentally friendly way; transport strategies adopted by KTDA factories involve determination of transportation mode; feedback and reporting on the choice of transport; KTDA factory to move items from a supplier to a user offers location and time utilities for a buyer and improves the efficiency of inbound logistics in terms of speed and cost; KTDA factories enable consolidation of many orders so as to create large volumes hence lower transport costs per volume.

The study concludes that transportation strategy had a positive significant correlation with sustainable procurement performance. The study finds that the growth of transportation and more home deliveries necessitated KTDA factories to device new transportation strategies; rapid growth of transportation need experienced by KTDA factories contributed to increase logistic costs and prices of goods/services; transportation strategies of KTDA factories necessitated utilization of transport resources in the most efficient and environmentally friendly way; transport strategies adopted by KTDA factories involved determination of transportation mode, feedback and reporting on the choice of transport; KTDA factory move items from a supplier to user offers location and that KTDA factories enabled consolidation of many orders so as to create large volumes hence lower transport costs per volume.

The study recommends that KTDA factories should; align suppliers sourcing strategies need to organizational sustainability goal by considering results-oriented supplier during sourcing for suppliers; adopt transportation strategies that will enable them reduce on logistic costs and prices of goods/services; develop procedures and policies on material handling with sustainability goal well outlined; manage return flows in accordance with organizational objectives so as to prevent wastage and minimize environmental costs in an ethical and ecological way; employ quality management system by following total quality concept's guiding principles in the management and purchase of material resources; chose suppliers based on their competence and commitment to sustainability practices and regularly monitor their compliance with regulation.

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