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Management Support as Determinants of Green Logistics Implementation Management at Motor Vehicle Industry in Kisumu, Kenya

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Abstract: This research analyzed green logistics implementation management in motor vehicle industry in Kisumu. The study analysed management support as determinant of green logistics implementation management. The target population for this study included all the employees working in the selected motor vehicle industry in Kisumu which were, CMC motors, General Motors and Subaru motors. These were the sales executive, the technicians, parts sales, the administrators and the managers. Data was collected by use of structured questionnaires that were be issued by the researcher and collected later for analysis. Multiple regression analysis was used to establish the relationship between dependent and independent variables. Descriptive analysis such as frequencies, percentages, mean and mode were used to describe the independent and dependent variable while inferential analysis was used to test relationship between management support and green logistics implementation management. The results were presented using tables and associated interpretation. The study found out that management support is a significant factor towards green logistics implementation management. It was concluded that green logistics is significantly affected by management support revealing that management of the motor vehicle industry should place more emphasis on green logistics implementation management. Management of motor vehicle industries should play a key role in ensuring that green logistics implementation management is fully realized in order to conserve our environment for sustainability. Further research should be done to establish the level of awareness of employees of motor vehicle industry on information communication technology, organizations environmental policy and economic benefits resulting from green logistics implementation management.

Keywords: Management Support, Green Logistics, Motor Vehicle Industry

1. Introduction

Throughout history, logistics has always played a key role for economic development and social prosperity. Study by [16] as cited by [16] stated that logistics has over the last 50 years come to be regarded as a key determinant in business performance. The emphasis here is that Logistics is heavily dependent from the world economy and as the economy is growing, the logistics is also growing as the demand for movement of goods and services also increases.

The world economics will stop completely without logistics, manufacturers couldn't get raw materials-customers-products- food fuel, electricity. At the level of

company, logistics process is getting more and more important in every company's life [38].

In addition, Green logistics has been a popular concept dating back to the 1980s and 1990s. People's awareness grew considerably due to the increasing and staggering environmental problems and the industry's depletion of natural resources [16]. As a result, environmental sustainability received increasing publicity and public awareness in politics and in the economic area.

In Thailand for instance, [21] states that the impact of environmental problems had affected the government to enact

a law for protecting the environment. This was seen when the European Union members enacted regulations such as Waste Electrical and Electronics Equipment, Restriction of Hazardous Substances in Electrical and Electronics Equipment. According to [23], Green logistics is a form of logistics which is calculated to be environmentally and often socially friendly in addition to economically functional. It describes all attempts to measure and minimize the ecological impact of logistics activities. This includes all activities of the forward and reverse flows of products, information and services between the point of origin and the point of consumption. It is the aim to create a sustainable company value using a balance of economic and environmental efficiency [34].

Green Logistics therefore plays a critical role in order for the environmental conservation objectives to be realized by organizations and the world at large. Countries must therefore take the initiative of going green in every activity in order to reduce the effect of global warming [45]. Article twelve of the Kyoto protocol stated that; emission reductions resulting from each project activity shall be certified by operational entities to be designated by the conference of the parties serving as the meeting of the parties to the protocol, on the basis of voluntary participation approved by each party involved; real, measurable, and long-term benefits related to the mitigation of climate change; and reductions in emissions that are additional to any that would occur in the absence of the certified project activity. For example, they may partially compensate for their emissions by increasing forests, which remove carbon dioxide from the atmosphere. Several mechanisms have been set up for this purpose [18]

Study by [11] recommended further studies to be done on green logistics in the developing countries. The study further recommended study on the clients/customers perception on green logistics. To investigate whether or not they are willing to purchase green and environmentally friendly logistic activities. Clients' view on sustainability [16].

The Kenya National climate change action plan further emphasizes the need for the green logistics implementation management [13]. This is seen in the eight subcomponents of the action plan; long-term national low carbon climate resilient development pathway facilitated reflection and mainstreaming of climate change aspects in the country's long- term development planning and budgeting.

A document on knowledge management and capacity development which designed a knowledge management system to address the sharing of climate change-related knowledge and proposed capacity building measures to address the institutional and technical capacity needs of the various actors [19].The Public Procurement and Disposal act of Kenya is also seen to be in support of laws and actions that mitigate the environmental degradation through promotion of Green Procurement and Reverse logistics [14]

Study by [16] recommended that green procurement should be seen as a critical investment and set aside adequate financial resources in their budgeting processes in order to for environmental standards and policies to be achieved [24].

Wachira further recommends that management of Kenya electricity generating company should initiate policies that would make environmental impact consideration criteria in the procurement process. The study recommend that the management of organizations should organize seminars and workshops and sensitize employees and suppliers on the benefits of green purchasing and need to embrace it [45]. Organizations are in essence required to conduct activities in line with Kyoto protocol [45]. Adoption of Paris agreement as well as in line with Kenya national climate change action plan and Public Procurement and Disposal Act 2005 and 2015 [16]. The motor vehicle industry is not left either. CMC, General Motors and Subaru are some of the leading companies in Africa which has embraced the green logistics implementation management activities. According to their environmental policies, green logistics implementation is a must.

For these reasons stated, it is therefore necessary to pay more attention on effects of organizational factors on environmental conservation. This assessed the determinants of green logistics implementation management at three motor vehicle industries in Kisumu which are CMC motors, General Motors and Subaru. These three branches of motor vehicle were chosen because they deal in new motor vehicle manufacturing, service and repair as well as selling of the motor vehicle parts. Furthermore, Kisumu was chosen as the area of study because it is majorly a juakali town dominated by motor vehicle industries as it is surrounded by sugar manufacturing industries. These manufacturing industries and the many non-governmental organizations heavily rely on the motor vehicle industry for their efficient transportation and operations. The permanent employees from various departments; operational managers, warehouse and the technicians were interviewed.

1.1. Statement of the Problem

Indeed, there has been more need for environmental conservation in the whole world and more so the developing countries. Because of that, green logistics implementation is not an option especially in the motor vehicle industry. Even though organizations are expected to go green on their activities in order to comply with the Kyoto Protocol, Adopt Paris agreement and be in line with Kenya National Climate Change Action Plan as well as complying with [12], they still fall far much behind when it comes to implementation. Over the past decades global historical greenhouse emissions have been increasing steadily, with small variations around a longer term trend. The other studies noted above which were done in the year 2014 and 2015 in South Africa and Kenya also recommended for the need to study green logistics in the developing countries. They further emphasized on the need to embrace green procurement as an investment.by organizations in order to meet environmental standards. It is for this reason that there is need to assess the determinants of green logistics implementation management. The study therefore was intended to assess management support and assess its effect on green logistics implementation management.

1.2. Objective of the Study

The objective of the study was to assess the influence of management support on implementation of green logistics management at motor vehicle industries in Kisumu.

1.3. Research Hypothesis

Ho1 Management support is insignificant in the implementation of green logistics management at motor vehicle industry in Kisumu.

2. Literature Review

2.1. Theoretical Review

This study was guided by two theories; Contingency theory, and Environmental model theory. These theories enhance the understanding of green environment strategies which drives the green logistics implementation management concept.

2.1.1. Contingency Theory

The contingency theory of leadership was proposed by the Austrian psychologist Fred Edward Fiedler in his landmark 1964 on the article of effective leadership. The theory emphasizes on the importance of both the leader's personality and the situation in which that leader operates. It asserts that when managers make a decision, they must take into account all aspects of the current situation and act on those aspects that are key to the situation at hand [10] This approach is a continued effort to identify the best leadership or management style and it conclude that the best style depends on the situation. If one is leading a hospital, university, or such like an organization, a more participative and facilitative leadership style is probably best. This is because the management will be required to involve all the relevant employees to understand the current pertinent issue which needs to be adhered to or implemented in order to comply with some government legislation or international convention requirements.

Currently, organizational processes and activities have adverse effects to environments hence should remain clean in order to reduce environmental degradation and carbon dioxide emissions. Managers' decisions therefore must be seen to be promoting green logistics implementation management [21]. For this reason, management decisions seem to play a role towards policy implementations in organization. Because of these argument, management support play critical role in an organization on the implementation of green logistics management. This will be achieved because the decisions they make will have to take into consideration of promotion of green logistics implementation They will as well incorporate the employees on the needs and the importance of green logistics implementation management to the environment.

2.1.2. Environmental Model Theory

Environmental models propose to sustain biological diversity and ecological integrity. That is, they not only focus on opportunity or capital as the key unit of sustainability, they focus majorly on the health of the living world [13]. As cited by [21] According to Jenkins, there are three pillars of sustainability which are a powerful tool for defining the complete sustainability problem. This consists of at least the economic, social, and environmental pillars. If anyone pillar is weak then the system as a whole is unsustainable [36]. This further explained as environmental performance of a company and the practices which firms have in place to reduce the impact on the climate. As consumers are becoming more environmentally aware, [16] explains that firms are becoming attentive and are introducing green programs within their businesses, which is in turn improving the organizations performance. These initiatives reduce the impact on the environment and sustain it. Indeed, we all rely on clean environment for healthy leaving hence the need for its sustainability. The environmental models as have been shown advocates for environmental sustainability. All corporate world and business must play a role on environmental sustainability for the survival of the future generations. The future generations rely much on the activities of the current generations hence the need to protect the environmental depletion by the current business organizations in their everyday activities.

2.2. Empirical Review

2.2.1. Management Support on Green Logistics Implementation Management

According to [16], support from top management is the initial significant issue to the implementation of green supply chain management. The study, used a questionnaire-based survey, and used analytic hierarchy process to analyse the data. The finding were that commitment of top management plays a significant role in bringing green supply chain management strategies to achieve successful results. The study concluded that support from top management is the second rank of factors in implementation green supply chain management. The attitude of top management toward environmental issues and visions is directly affected to organization policy. Thus, top management should commit to complete environmental policies, encourages employees to learn green knowledge, and provides resources for the environmental projects. For these reasons, it is therefore seen that the first step towards green logistics implementation in an organization will be management support.

According to imperial study on strategic green logistics paper, the supply chains, corporate executives should consider taking several actions in the green logistics strategy. The study emphasized that first and foremost, corporate executives need to structure the supply chain with suppliers and customers who share similar views on sustainable practices, and are focused on initiatives that will minimise the impact of their transportation greenhouse gase missions [1]

Study by [6] on green logistics in South Africa. In the findings, the study answered questions on to how logistic managers' perceived green logistics in South Africa and to what extent do transportation companies apply green

logistics. The study used qualitative approach of semi-structured interviews in order to understand the managers' views and perceptions on green logistics. The findings of the study were that, there was a high degree of consensus between the managers' perceptions of green logistics in South Africa. The study concluded that, within green activities, green logistics is implemented to a large extent among the major transportation companies in South Africa. The further findings were that green logistics was being implemented to a large extent among the major transportation companies in South Africa. The study identified fuel efficiency and route optimization to have had hire emphasis among companies. However, reverse logistics and packaging optimization were other two activities that were less frequently applied [16]. From here, we see a management support as an important factor towards green logistics implementation management through managers' perception.

In the study of factors affecting adoption of reverse logistics, a company's sense of corporate citizenship had an influence on the decision to adopt reverse logistics [6]. The study used a case studying the study, further finding syndicated that legislation, economics, corporate citizenship and collaboration among supply chain partners' influences a company to adopt reverse logistics. The study concluded that social responsibility of a firm may force it to adopt strategies that are environmentally friendly such as reverse logistics. A gain collaboration among supply chain partners was also found to have a great effect on the success of reverse logistics. This act of corporate social responsibility clearly shows that the management must provide their support towards reverse logistics implementation which is an element of green logistics in the study of analysis of the effect of environmental impact on procurement decision, [16] noted that pollution control influences procurement decisions to a great extent.

The study used a case study which was however descriptive in nature. The study findings indicated that there was a strong significant positive relationship between environment impacts consideration and procurement decisions of Kenya electricity generating company. The study further recommended that the management of organizations should organize seminars and workshops and sensitize employees and suppliers on the benefits of green purchasing and need to embrace it. This showed that management play a major role in green logistics implementation management by organizing seminars where campaign awareness are organized [28].

2.2.2. Implementation of Green Logistics Management

Even though Implementation of green logistics Management has various advantages and benefits to an organization, its implementation, especially in the developing countries continues to face various challenges of not meeting the expectations of stakeholders. Different stakeholders have different expectations from logistics and transport sectors. There is therefore need to develop and clearly outline the effects of organizational factors responsible in the implementation of green logistics management. The concept of green logistics management is not new. According to [3], implementation of green logistics will result in lower environmental impacts due to higher efficiencies in operations, lower inventory levels, minimized warehousing requirements, higher load factors, reduced material waste and optimized material flow

According to Imperial logistics, benefits that a business can gain from getting into green logistics that are; reduction in carbon dioxide emissions, unlocking significant cost savings, heightened supply chain optimisation and boosted business performance [17]. Study by [7] also agrees that logistics are an important function of modern transport systems [34].

This is seen as a major sector because almost all business organizations must have a transport sector within themselves. While traditional logistics seeks to organize forward distribution, that is the transport, warehousing, packaging and inventory management from the producer to the consumer, environmental considerations opened up markets for recycling and disposal, and led to an entire new sub-sector: green logistics [18] as cited by [34]. The study reveals that environmental considerations through the whole life-cycle of a product (production, distribution, consumption and disposal). For example, BMW was designing a vehicle whose parts would be entirely recyclable [26] as cited by [16]. At the same time, individual logistics firms are finding a match between environmental considerations and profitability. It is becoming acceptable within the industry to adopt green logistics measures. Sometimes they reduce costs, but more often than not they lead to more intangible benefits such as image and reputation enhancement. This is seen as a motivation towards the realization of green logistics implementation management by organizations.

Study was conducted on challenges facing implementation of green procurement in manufacturing companies. The study used descriptive research design was used to determine these factors. The research findings concluded that effective implementation of green procurement in manufacturing sector can be enhanced [28]. In their findings there was lack of structural and organizational change to support implementation of green procurement, poor legal and regulatory framework, cost of green procurement was also relatively high and the resources required to implement green procurement were limited in manufacturing sector. The study recommended that the government and other stakeholder ensure that there is structural and organizational change to support implementation of green procurement, improvement of legal and regulatory framework on environment, reduction of cost associated with green procurement and allocation of resources necessary for effective implementation of green procurement.

Study by [19] agreed that logistics which focuses on transfer of goods, information coordination of the process and also focuses on how to reduce environmental impact of

logistics processes and how to switch to greener transport modes should focus on optimization, reducing costs, increasing delivery speed, and gaining maximal revenue [22]. Green logistics focuses on all logistics fields where appear emissions, waste, inefficient use of resources. Some of green solutions may be not useful for business, as it may reduce flexibility of logistics process. The study concludes by presenting proposals to modernize and decarbonise the transport sector thereby contributing to increased competitiveness. This is because a company which is always competitive will always perform in the global market.

3. Research Methodology

3.1. Research Design

A research design constitutes the blueprint for the collection, measurement and analysis of data. It is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure [25]. Interviews, literature reviews or close observations are usually used, with the intention to understand a phenomenon or generation of theory. The study adopted descriptive research design where a survey was done in order to establish determinants of green logistics implementation management at three motor vehicle industries in Kisumu. The research control variable was ex post facto design where the researcher had no control over the variables.

3.2. Population

Population refers to the target population, which is the group of units (individuals or elements) of interest for study [27]. The target population study was 40 employees working in various sections; the sales executives, the technicians, the administrators, the parts sales and the operations managers. The employees from these sections were settled on since they are all involved at certain point on matters touching on the implementation of green logistics within the motor vehicle industry. There was guideline of topics that the questions were based upon.

3.3. Sampling Frame

According to Kothari the sample size should be large enough to give a confidence interval of desired width and as such the size of the sample must be chosen by some logical process before sample is taken from the universe [23]. The study however chose a survey instead of case study since the target population was not very large and could easily be surveyed. A target population of 40 employees from all the three organizations in Kisumu were surveyed. The study interviewed 40 respondents from the three motor vehicle industries in Kisumu which were the total number of employees in the three organizations in Kisumu. The distribution of the respondents is as shown in table 1 below

Table 1. Sample Frame.

No	Branch	Population
1	CMC Motors	14
2	General Motors	14
3	Subaru Motors	12
Total		40

3.4. Data Collection Procedures

The questionnaires were dropped to all the respondents and picked later by the researcher. The respondents was given time to fill the questionnaires after which they was collected for analysis.

3.5. Validity and Reliability Analysis

Validity test measures the ability of the research instruments to measure what it is intended to [25].The reliability of the instruments was ensured by conducting a pilot study and interviewing four technicians at General Motors in Nakuru which is outside the area of study. This was chosen because it had homogenous characteristics as the study area. 4 questionnaires were given to four respondents to complete. The results were found to be consistent and reliable the instrument and hence was adopted for the study. The validity of the research was achieved through the expert guidance of the research supervisor who ensured that the instrument were in line with the objectives of the study. Reliability of the variable were tested by piloting giving the average of 0.743 with the individual variable giving the following results:

Table 2. Reliability analysis.

Variable	Number of items	Cronbach Alpha α
Management Support	4	0.745
Green Logistics	4	0.740
Average		0.747

3.6. Data Processing, Analysis and Presentation

The data collected was first checked for completeness and comprehensibility. The data was then coded and analyzed using the SPSS version 21. Descriptive analysis such as frequency, percentages, mean and mode was used to describe the dependent and independent variables.

To establish the relationship between management support and green logistics implementation, multiple regression analysis: This analysis was adopted when the researcher has one dependent variable which is presumed to be a function of two or more independent variables. The objective of this analysis was to determine the effect of the independent variables on the dependent variable [25]. Simple regression was used to tests how change in management support affects the level of implementation of green logistics implementation management [21].

$Y_i = \beta_0 + \beta_1 x_1 + e$

Y_i = Implementation of Green logistics management

x_1 = Management support

$\beta 0$, $\beta 1$= Beta Coefficients.

e= Error Term

The results were then presented using tables which were accompanied by interpretation.

4. Findings and Recommendations

4.1. Descriptive Findings

The study descriptively analysed the variables. The findings were as presented in table 3 below.

Table 3. Findings on Management Support.

	SA	A	NS	D	SD	Mean	Std. Dev.
Managers informed of importance of green logistics in the industry	57.6	39.4	3.0	0.0	0.0	4.55	.564
Organization fully committed to implementation of green logistics	33.3	57.6	9.1	0.0	0.0	4.24	.614
Campaign for green logistics to evolve further in the industry	33.3	54.5	9.1	0.0	3.0	4.15	.834
The organization's mission and vision in line with green logistics	21.2	66.7	9.1	3.0	0.0	4.06	.659
Organization's employees informed on green logistics	33.3	60.6	6.1	0.0	0.0	4.27	.574
Managers frequently organize training on environmental issues	24.2	63.6	12.1	0.0	0.0	4.12	.600
Valid N (list wise)	33						

From table 3 on management support the question with the highest mean at 4.55 was the question on the awareness of information by managers green logistics in motor vehicle industry with the highest percentage at 58 on strongly agreeing while 39 agreeing, translating to a standard deviation of 0.564. The question with the lowest mean of 4.06 was on the alignment of the organization vision and mission in line with green logistic and the response of agreement at 67% and 22% strongly agreeing with a standard deviation of 0.659. All other response are having high means averaging 4. This means that the respondents in the research have high opinion and regards and importance of green logistics within the motor vehicle industry. This might be because of the recent change in business environment in management in aspect of environmental issues and motor industry is no exception

Table 4. Descriptive Findings on Green Logistics.

	N	Min	Max	Mean	Std. Dev.
Management support has improved the green logistics implementation management	33	2	5	4.39	.747
Management has built ICT that has enhanced the implementations of green logistics management	33	2	5	4.12	.650
Management has developed policy that has helped in the green logistics implementation management	33	2	5	3.88	.781
Management support on green logistics at the organization has motivated the implementation of green logistics management	33	1	5	4.03	.847
Valid N (listwise)	33				

From table 4 on the dependent variable management support question registered a mean of 4.39, followed by availability of ICT with a mean of 4.12, economic benefit at 4.03 and organization environmental policy with the lowest at 3.88. The standard deviation had economic benefit at 0.847, organization environmental policy at 0.781, management support at 0.747 while ICT at 0.651. From the findings most respondents are high regards and knowledge and support on management support in relation to environmental issues considered to the other variable while ICT being the lowest meaning there matters that are still not commonly considered amongst the respondents. The response on the variable was on economic benefit derived from green logistics this might be because of the difficulties in quantification of the benefit and the inclusion of questions outside the scope of the respondents touching on third parties.

4.2. Inferential Analysis

Attempt was made to determine the kind of relationship that exists between implementation of green logistics management and management support. This was done by use of a F-test and regression analysis. The findings were as presented in this section;

Table 5. F-Test Results.

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	3.879	1	3.879	11.602	0.002
Residual	10.364	31	0.334		
Total	14.242	32			

The findings; F=11.602 and p=0.002<0.05 implied statistically significant influence of management support on implementation of green logistics.

Table 6. Regression coefficients table for management support.

Model	Unstandardized Coefficients		Standardized Coefficients	T	p-value
	B	Std. Error	Beta		
(Constant)	1.000	0.931		1.074	0.291
Management Support	0.727	0.214	0.522	3.406	0.002

The simple linear regression model obtained was of the form,

$$Y = 1.00 + 0.727X$$

Where

Y = Green logistics implementation

X = Management support

5. Conclusions

It was found out that management support is a significant

factor towards green logistics implementation management. This was in agreement with the [2; 3; 4] who found out in their respective studies that support from top management was the initial stage of green supply chain management. These studies further agreed that corporate executives should take strategic initiatives to implement green logistics.

Motor vehicle is fast growing in Kenya as a result of importation of grey model vehicles by private individuals as well as brand new ones by registered companies. This should be keenly monitored in order to avoid making our country a damping site for poor standard vehicles in order to avoid environmental degradation. Management of these motor vehicle industries should play a key role in ensuring that green logistics implementation management is fully realized in order to conserve our environment for sustainability. Other determinants like employees' educational professionalism as well as involvement in the green logistics implementation can further be studied. Private individuals and organizations importing greys models should also be surveyed in order to determine their understanding of green logistics implementation.

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