



**DOES FREIGHT SECURITY MANAGEMENT ENABLE OPERATIONAL PERFORMANCE OF HUMANITARIAN VALUE CHAINS IN KENYA?**

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**Accepted: October 13, 2022**

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**ABSTRACT**

*Freight Security Management, and more explicitly in humanitarian value chains, is a subject that has drawn a great deal of consideration from researchers and practitioners in the recent past. The current study sought to answer the question does freight security management influence the operational performance of humanitarian value chains in Kenya? The study adopted a cross-sectional design. A target population of 100 respondents was studied through the census method from humanitarian organizations in Kenya. A semi-structured questionnaire was used to collect information, whereas descriptive and inferential statistics were utilized to analyze the data. Scrutiny of the results of linear regression analysis indicated that freight security management significantly predicted the operational performance of the organizations ( $r=.659$ ,  $p=0.000$ ). The study recommended partnering with firms that offer track and trace services for goods, acquiring a track and trace technology and training their employees in freight security management to understand their role in overall organizational performance.*

**Key Words:** *Freight Security, Humanitarian Organizations, Performance, Value Chains.*

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**CITATION:** Wachieni, L., & Ndolo, J. (2022). Does freight security management enable operational performance of humanitarian value chains in Kenya?. *The Strategic Journal of Business & Change Management*, 9 (4), 633 – 639.

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## INTRODUCTION

Freight Security Management, and more explicitly in humanitarian value chains, is a subject that has drawn a great deal of consideration from researchers and practitioners in the recent past. This has been a result of expansion in the quantity of regular and artificial catastrophes. The expanded crimes in robbery and forgery of goods give stressing indications in value chains. The plethora of security threats on global supply chains have invariably affected quality and timely delivery of goods and services. This has a direct bearing on the performance of humanitarian organizations.

Security lapses in global supply chains result in substantial losses and these affected 5% of global trade in 2017 (World Economic Forum, 2010). Most of these losses, including those from cargo theft go unreported. In addition, studies indicate that losses emanating from direct and indirect costs in supply chains affected the trade in United States of America considerably (World Economic Forum, 2010). Against this background, Schwab, 2010 indicated that freight security management is critical in enhancing the achievement of business goals and objectives by the organizations.

### Study Objective

To determine the influence of freight security management on the operational performance of humanitarian value chains in Kenya.

### Purpose of the Study

In Kenya, the subject of freight security management has become of paramount importance both in the industry as well in academic institutions. It has become a subject of study in academic programs related to supply chain management and logistics. To deal with cargo security threats that are characteristic of transport industry, several legislative interventions have been put into place. According to OECD (2020) the potential security threats on goods in transit include hijacking and redirection of containerized hazardous materials. In Kenya, the supply chains

were affected by actions of the government in closing borders, air and sea ports in an attempt to counter terrorism.

Most of the research work on management of freight security has been done in developed countries. Only a few studies have been carried out in the context of developing countries like Kenya. Against this background, the current study sought to establish the influence of freight security management on the operational performance of humanitarian value chains in Kenya.

## LITERATURE REVIEW

Supply chains consist of computerized organizations possessing a portfolio of assets. Management of resources is also a part of supply chains. According to Closs and McGarrell (2004) the various goods flow from the source to the end user. The raw materials are processed in various production stages to give a finished product. Studies indicate that prudent management of the supply chain activities is required to enhance logical flow from production, packaging and logistics in a cost-effective manner (Kye, Lee, and Lee 2013; Croxton and Zinn 2005).

According to Hints et al. (2009) management of consignment is critical to ensure security of goods though out the supply chain. Closs et al. (2008) indicated that it is important for organizations to take security related measures to protect the value chain against unforeseen risks. Studies indicate that security of cargo is a paramount consideration in value chain (Sarathy, 2006). According to Chapman et al. (2002) and Ekwall (2009) common security lapses while handling cargo include theft, which is a major concern in the supply chain. All over the world, security of goods in transit has gained importance in an endeavor to cut costs (Brummond, Chowdhury and Fries, 2009).

Incidents that occur along the value chains such as theft and rustling of transit goods and terrorism have caused uncertainty in the logistics industry. According to U.S State Department (2004) attacks

from terrorism have doubled in the last two decades. The high cost of acquiring logistics systems by organizations has caused a challenge in securing consignments.

Security during transportation ensures safety of cargo and guards against theft of goods in transit. According to Harris et al (2013) the method by which transport security protects these goods is through “site style and layout, environmental elements, emergency response readiness, training, access management, intrusion detection, power and fireproof protection.” Disaster recovery policies are initiatives set to shield the business against natural disasters and market sabotage. Cargo safety should be structured in such a way to armor the organization’s facilities and the employees’ well beings against unforeseen occasions.

The highest priority of transport security is to ensure that the employees are safe. The second priority ensures that computerized operations can be securely retrieved in the occurrence of a disaster. Information safety measures involve data privacy of cargo in the value chain process to ensure that persons outside the organizations are unable to access it. This locks out hackers from accessing sensitive data and storage recordings and interrupting organization operations (Brummond, Fries and Chowdhury, 2009).

According to Rice et al. (2003) potential steps of enhancing freight security include four progressive levels. The four levels include basic, reactive, proactive and advanced. Freight security lapses in the supply chain take place when some of these initiatives are neglected thereby creating weak points which are often exploited by criminals. Undoubtedly, attacks on goods on transit take place when there is convergence of culprit, target and security lapse. Urciuoli and Ekwall (2009) and Purtell and Rice (2006) indicated that increased security surveillance on goods in transit has tremendously reduced incidents of theft. Studies indicate that supply chains characterized with weak

security points are increasingly vulnerable to theft (Closs and McGarrell, 2004; Rice and Spayd, 2005; Ortiz et al, 2004).

Gutierrez and Wieser (2006) indicated that freight security management might be a relatively new discipline in operations management analysis. As a result, there is inadequate preliminary and seminar papers in the discipline. The current considerations in safety in international supply chains are driving the introduction of the modern security ingenuities to the extent that they are changing into an essential segment of freight security management. The paper shows that there exists a niche between theoretical supply chain security studies, rising security standards and practical social control actions. According to Cowen (2014) securing the international supply chain and industrial safety of cargo in ports has been a challenge throughout the planet.

## **METHODOLOGY**

A cross-sectional survey design was employed for the study. The target population was the top 20 leading NGOs in Kenya in terms of utilization of funds on projects as per NGO Board Annual Sector Report, 2019. The census technique based on regions was used to include all twenty humanitarian organizations. The units of analysis were one functional officer from each of the four functions (Logistics, operations, finance and security) from the twenty humanitarian organizations. This gave a total of 100 active personnel who were selected to participate in the study. Descriptive and Inferential Statistics were used to analyze primary data obtained by use of semi-structured questionnaires. Tables were used to present the results.

## **FINDINGS AND DISCUSSIONS**

Trustworthiness of the study data was established by use of Cronbach's alpha (Table 1). Consistency of the instrument’s measurements each time it is used implied reliability. The coefficient of Cronbach’s alpha ranged from 0.853 to 0.976. According to George and Mallery (2019), Cronbach’s Alpha value

which is > .9 is Excellent, > .8 is Good, > .7 is Acceptable, > .6 is Questionable, > .5 is Poor, and < .5 is Unacceptable. Table 1 shows that all variables

had Cronbach alpha value of more than 0.7 and thus acceptable.

**Table 1: Summary of Cronbach’s Alpha of Research Instrument**

Variable	No of items	Alpha ( $\alpha$ )	Decision
Freight Security Management	8	0.853	Reliable
Operational Performance	5	0.963	Reliable

**Descriptive Statistics of Freight Security Management**

The respondents indicated the extent to which they agreed with the influence of freight security management on the operational performance of

humanitarian organizations using the five-point Likert Scale of (1=Strongly Disagree, 2= Disagree, 3= Undecided, 4=Agree, 5=Strongly Agree). The data was summarized using percentages, means and standard deviations as shown in Table 2.

**Table 2: Descriptive Analysis of Freight Security Management**

Statement on Freight Security Management	1 %	2 %	3 %	4 %	5 %	Mean	Std Dev
I am familiar with Freight/Transport security initiatives in our organization.	1.1	23.7	6.5	45.2	23.7	3.67	1.12
Our firm always maintains accurate inventory records.	-	21.5	18.3	55.9	4.3	3.43	0.88
Our firm has security control which are unambiguous procedures that are strictly adhered to.	-	20.4	22.6	53.8	3.2	3.40	0.85
Our firm tracks and traces all goods during transport and storage.	-	47.3	7.5	34.4	10.8	3.09	1.12
Our Cargo safety measures improve our supply chain reliability.	-	8.6	11.8	77.4	2.2	3.73	0.65
Our tracking and tracing ability reduces our operational costs.	-	24.7	9.7	60.2	5.4	3.46	0.93

Scrutiny of the results showed that majority of the respondents agreed that they were familiar with the freight security initiatives in their organizations, as shown by a mean of 3.67; the firm always maintains accurate inventory records, as indicated by a mean of 3.43, the organizations’ security controls procedures are unambiguous and strictly adhered to with a mean of 3.40, the organizations’ cargo safety measures improves the reliability of their supply chain with a mean of 3.73 and tracking and tracing of goods reduces their operational costs with a mean of 3.46. However, most respondents indicated that the organizations do not track and trace all the goods during transportation and storage, as shown by a mean of 3.09.

The findings concur with other studies that freight security management is increasingly becoming essential, as global economies are dependent on secure and efficient value chains (Fries, Chowdhury and Brummond, 2009).

**Descriptive Statistics of Operational Performance of Humanitarian Organizations**

The respondents were asked to indicate the extent to which they agreed with the statements regarding the performance of humanitarian organizations using the five-point Likert scale of (1=Strongly Disagree, 2= Disagree, 3= Undecided, 4=Agree, 5=Strongly Agree). The study used percentages, means and standard deviations to report the data, as shown in Table 3.

**Table 3: Descriptive Analysis of the Operational Performance of Humanitarian Organizations**

Statement on Operational Performance	1	2	3	4	5	Mean	Std Dev
	%	%	%	%	%		
We have a highly reliable supply chain.	-	8.6	11.8	69.9	9.7	3.81	0.73
We have a flexible supply chain to meet our customers' needs.	-	12.9	29.0	50.5	7.3	3.53	0.82
We have customer needs' responsive supply chain	1.1	20.2	14.0	57.0	7.5	3.49	0.94
Our operational costs are within planned levels.	-	20.4	17.2	59.1	3.2	3.45	0.85

Results presented in table 3 indicated that 69.9% of the study participants concurred that they had a highly reliable supply chain in their organization while 8.6% did not agree. Similarly, 50.5% of the respondents agreed with the information that they had a flexible supply chain that met customer needs. However, 12.9% of the respondents felt otherwise. With regards to the responsiveness of the supply chain to customer needs, 57% of the respondents agreed with the idea while 20.4% did not support the statement. Finally, 59.1% of the respondents agreed that the operational costs were within the planned levels. However, 20.4% of the respondents did not agree with the statement. The current trend of results is in concurrence with findings of Urciuoli et al. (2014) who highlighted that there was a close interrelation between security and efficiency in the supply chain. This can be ascribed to enhanced security which results in reduced customs delays and increased transparency of information concerning goods leading to reduced operating cost and time.

#### **Regression Analysis**

This section contains the inferential analysis of freight security management and operational performance of humanitarian organizations as independent and dependent variables, respectively.

Results presented in table 4 indicate details of regression coefficients of the variables under study.

Model summary results indicate that the coefficient of determination was 56.5% ( $R = .565$ ) implying that this percentage variation of operational humanitarian performance can be attributed to freight security management. Further scrutiny of the results indicated that the F statistics value was 259.921 which was significant at  $p = 0.05$ . Consequently, the proposed model is a perfect fit in predicting the dependent variable. In addition, the coefficient of regression of freight security management was significant ( $\beta = 0.602$ ,  $p < 0.05$ ) and positive implying a direct positive effect on operational performance of humanitarian organizations. Consequently, a unit change in freight security management increased the operational performance of humanitarian organizations by 0.602 units. The findings are consistent with those of Ambe (2012) who established that freight security management was significant in influencing firm performance. Similarly, other studies concluded that freight security management was a significant determinant of firm performance (Khan, Bakkappa, Metri & Sahay 2009; Purvis, 2010; Sendil 2015; Tarafdar & Qrunfleh 2017; Bakkappa, Metri & Sahay 2009).

**Table 4: Regression Model: Freight Security Management and Operational Performance**

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.934	.091		10.261	.000
	X1	.602	.037	.752	16.122	.000
	R Squared	.565				
	Adjusted R Squared	.563				
	F statistic	259.921				
	P value	.000				

a Dependent Variable: Y

## **CONCLUSION, RECOMMENDATIONS AND SUGGESTION FOR FUTURE RESEARCH**

Study results indicated that freight security management influences the performance of humanitarian organizations. This means that humanitarian organizations should enhance freight security management since it is a critical factor affecting their performance. This can be achieved by training more personnel in security management thus making their employees understand their role in overall organizational performance. Further, humanitarian organizations should consider

partnering with organizations that offer track and trace services for their goods during transit and in their storage facilities. Adoption of appropriate track and trace technology could also help in making the organizations respond quickly to aids. This paper conducted research to determine the influence of freight security management on the performance of humanitarian value chains. Future research can be conducted to establish the influence of freight security management on the performance of value chains in the manufacturing sector.

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