

Effect of Freight Forwarders' Services on Performance of Port Operations in Kenya

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Abstract

The aim of the research was to determine the effect of freight forwarder services on performance of port operations in Kenya. This research employed a descriptive research design. The research used self-administered questionnaires to obtain main information. The target population was 202 employees including respondents used for reliability testing and sample size was 129 employees in customs brokerage, transport, warehousing, supply chain and shipping departments for the top global freight forwarding companies operating in Kenya. The data was edited, coded and input into the Statistical Package for Social Sciences (SPSS) version 23 for analysis. The analysis was descriptive and inferential (correlation and regression analysis). The results indicated that documentation and system integration, positively and significantly influenced performance of port operations in Kenya. Notably, documentation has enhanced document accuracy, thereby contributing to port operation efficiency that is instrumental in eliciting superior performance. Also, through the utilization of ICTs, better information is generated on the status of the cargo to the recipient. Consequently, to improve operational efficiency at the port, it is crucial to have document accuracy such that there are no misdeclarations and incorrect entities. Also, there is a need for companies to capitalize on the use of ICTs in both asset monitoring and sharing and the generation of information on the status of cargo.

Keywords; Documentation, System Integration, Performance, Port Operations

INTRODUCTION

Globalization affects all sectors deeply and sharply, the global logistics sector has been subjected to various structural changes, many organizations faced comprehensive challenges to execute of their international transport activities in the utilization of global sourcing. Hence, these structural changes enabled global logistics firms to set up new a customized logistics service provider which is named as a freight forwarder. Saeed, (2013), stated that Freight forwarders assume a significant job in the global carriage of products. A freight forwarder is considered as a connection between the proprietor of the payload and the bearer, giving sending or clearing administrations. Forwarders have contracts with shipping line carriers to move cargo and provide a secure network of movement of cargo at competitive prices. They act as supply chain experts and their services include commercial invoicing, warehousing, packaging, documentation, declaration of shippers' export, import and distribution at the final destination.

Due to its nature, a freight forwarding company affects the relation between shippers and consignees and takes over some part of the primary parties' role (Stefansson, 2006). Freight forwarders providers play vital role in cost reduction, productivity, profits as well as the improvement of the service quality of their customers and thus become important part of supply chain management and successful logistics outsourcing can provide significant benefits, both, to industries and freight forwarders, (Vishal, Nitin, Satiish, & Nishant, 2013). The objectives and concerns related to freight forwarding outsourcing are cost reduction, reduction of delivery time, concentration on core competencies, increasing flexibility and concerns are loss of control, dependence on service provider and losing direct customer contact (Vishal et al., 2013). The top three global freight forwarders ranked by turnover and volumes are DHL Supply Chain and Global Forwarding, Kuehne and Nagel and DB Schenker.

There are several ramifications that arise from the fragmentation observed in the East African logistics system, the problems stemming from the many actors taking part in the logistics chain, poor infrastructure, physical constraints in Kenyan ports, inefficient customs and Port processing systems causing delays and

confusion, creating an environment where errors easily occur. These problems increase the cost of conducting international trade in East Africa largest port Mombasa, and in this way they act as a constraint on trade and limit the economic gains from trade (Refas & Thomas 2011).

According to Gerald, (2010), the Mombasa Port's facilities are overstretched and under intense pressure leading to complaints from the local and international freight forwarding firms and customers about container dwell time at the port. Atonga. (2010), reported that KPA unveiled a new plan to cut red tape at Mombasa port where the commissioner general of KRA blamed the delay to a number of signatures required on the documents which he said were too many and were to be reduced plus port handling equipment breakdown. A review of regulations and laws is needed to address this.

In the year 2016, there were one hundred and fifty (150) complaints by freight forwarders pertaining delays in clearing of their cargo. In 2017 the number of complaints rose to three hundred (300) showing an increase of hundred percent (100%) and at the end of the year 2017, the number of complaints had risen to four hundred reflecting, 166.7% increase in the three-year period (KRA Publication, 2017). In December, 2017 the major stakeholders who are the importers and clearing agents held a crucial meeting in Mombasa to deliberate on the delays in clearance and the subsequent colossal amounts of port storage paid to KPA as a result of clearance delays. Mombasa port through freight forwarding activities contribute 10% of GDP while it is 13% in South Africa and 12% in Ghana, it is also lower than most of the port operating nations (Kay, 2012). The main reason for this is the relatively higher level of inefficiencies in the system, with lower average trucking speeds, higher turnaround time at ports and high cost of administrative delays.

Several factors are taken into account when producing port efficiency indices: physical and IT infrastructure, management and services, governance, regulations, customs and institutional framework. African ports have a medium efficiency, between 3.72 and 4.63 on a scale of 7, with 7 being the best and 1 the worst but they have the worst customs clearance, especially in Sub-Saharan Africa, more than 11 days, (African Development Bank report, 2010). The containerized cargo clearance has been slow leading to congestion at the port, causing prices of various products in the market to rise (KRA Publication, 2017). Hence the study filled this gap by establishing the effects of freight forwarders on performance of port operations in Kenya.

The study specific objectives were:

1. To determine the effect of documentation on performance of port operation in Kenya.
2. To assess the effect of system integration on performance of port operation in Kenya.

Theoretical Review

The Principal Agency Theory assisted the study to find out the effect of Documentation by freight forwarders on the performance of Port Operations. This theory is based on the separation of ownership and control of economic activities between the agent and the principal. Jensen and Meckling (1976), stated that in agency relationships, one party, the principal, delegates work to another party, the agent. The principal grants permission to the agent to raise documents and approve, liaise with shipping lines, regulatory agencies and other logistics providers on their behalf. The contract between the principal and the agent governs the relationship between the two parties, and the aim of the theory is to design a contract that can mitigate potential agency problems (Mitnick 1976). This theory helped explain delegation by exporters and importers, principal, the role of managing movement of cargo to freight forwarders who is the agent, to undertake customs documentation, warehouse simulation and handling all system integration aspects.

The Systems theory assisted the study to find out the effect of System Integration on Performance of Port Operations in Kenya. Bertalanffy (1950), a biologist introduced the Systems Theory as a modeling devise that accommodates the interrelationships and overlap between separate disciplines. Freight forwarding includes many actors namely; Customs and other regulatory agencies, IT and physical infrastructure for

import and export, shipments lines, warehouses, transporters, tracking and tracing capabilities, regulations and laws.

Popovych, Shyriaieva and Selivanova (2016), studied the interaction of participants in freight forwarding activities. They established that the main services offered by forwarding companies include organizing, coordinating and ensuring the delivery from shipper to consignee. Any of the actors within the system can impact the overall performance of the system as a whole. Reforms should follow an integrated approach the system, focusing on the interaction, addressing coordination failures, and constraints to the system for reform, (Lawrence et al, 2008).

Jan & Kiryukhina, (2005), establish that freight forwarding may offer extra services needed for the delivery including checking the quantity and condition of cargo, its loading and unloading, payment of duties, fees and expenses assigned to the client, storage of goods to its receipt at the destination, receiving necessary for export and import documents and customs formalities.

Empirical Review

The empirical review gives an insight of the present situation of the cases which include their operations, strategies in various aspects such as general aspects in the in freight forwarding, Documentation, System Integration, Warehouse Simulation, Regulatory Framework and problem areas in freight forwarding. The empirical literature review offers an efficient method of building professional knowledge base, understanding performance issues, identifying potential interventions and measurement methods, providing a foundation for asking the right questions in a project, and defining common practices in organizations (Kothari & Garg, 2011).

Documentation

In international trade, documentation has been an important part when goods were moved with sailing ships (Koivula 2015). A legal document, the Bill of Lading (B/L), has been in use to ease the exchange of goods internationally. According to Jafari (2015), in order to record the transactions as required under the prevailing national and international freight laws, over a period of time, a number of different trade documents relating to the transportation of goods by sea, such as sea waybills and negotiable bill of lading have evolved, depending upon the nature of the transaction. Each country has its customs legislations and documentation required when exporting or importing cargo. The freight forwarder ensures these are adhered to.

The terms of sales define the needed documentation as well as the incoterms for the sales contract will be agree then. All parties involved in the trade have their part on the documentation; either they issue, secure or require them (Hinkelman, 2008). To enforce the international convention to which the country, or economic entity, has committed to, the country needs to ensure that its internal legislation does not contradict with the regulations in the international convention (Sisula-Tulokas 2007)..

All Kenyan imports are required to have the following documents: Manifest, B/L, Import Declaration Forms (IDF), a Certificate of Conformity (CoC) from the Pre Shipment Verification of Conformity (PVoC) agent for regulated products; an import standards mark (ISM) when applicable; and valid pro forma invoices from the exporting firm. KRA will assess duty payable depending on the value of the item(s) and the duty rate applicable. Accuracy of data entered into the various documents or lack of any of the required documents by the freight forwarder plays a big role in determining how fast the cargo will be cleared from the port. In addition to this, customs may

Misdeclarations can lead to huge penalties which may also delay the movement of cargo from the port. Mutema (2013), opined that Customs Services Department is faced with corruption practices like engaging

in bribery which leads to misdeclaration of documents leading to importation of counterfeit goods or attempts at tax evasion leading to loss of government revenue. The penalty when caught is usually high with subsequent delays and extra storage charges to the consignee.

System Integration

Ding and Teo (2010), deduced that there was a relationship between data connectivity of a port and throughput. Currently, information systems and business models do not ensure the secure and reliable data management approaches that facilitate the collection and analysis of authorized data so that operational efficiency can be improved while assuring that privacy is maintained. The higher the integration of system, the higher the throughput. Tagging containers at the port, assigning a storage location physically and in a system and providing visibility will ease tracking the cargo by freight forwarders and improve port operations.

Mutema, (2013), opined that the performance of Customs has been in the limelight because of congestion at the Port of Mombasa and other exit points like Malaba and Busia. Further, formation of Kenya Trade Network Agency (KENTRADE) to spearhead implementation of the national Single Window in trade facilitation and such Customs has to devise ways and means of remaining relevant in revenue collection. It is a window that links to other agencies necessary for approvals of importation processes and allows importers to apply for many services including import licenses and bonds.

Kenya's current Customs Management System dubbed SIMBA system has a core customs management system with most of the basic modules and another fourteen (14) subsystems interfaced with the core system. This kind of system architecture means there are multiple points of authentication for users and multiple points of system failure. The system currently experiences downtime of 11 hours a week due to outdated hardware and software. This impacts on the ability of freight forwarders to clear cargo on time leading to congestion at the port, borders and warehouses.

Nzyoki (2010), conducted a study on improving service quality measurements on sustainable tax administration and found out that service quality is the key to the success of public service delivery. The study established that customs officers refer freight forwarders from office to office, lack of proper and timely information to the customers, are rude and aggressive, allegedly rent seeking and deliberately cause long queues. This has led to increased cost of conducting business, low revenue collection, increased barriers to trade, long lead times in moving cargo from the port. The fact that manifests from shipping lines now have to be lodged forty-eight hours before arrival of the vessel means the turnaround time at the port will be reduced improving port operations and that of freight forwarders. This however will depend on how freight forwarders take advantage of this window to lodge for commencement for clearing process.

In an effort to deal with the emerging dilemma of balancing demands to improve trade facilitation while at the same time meeting increasing needs for compliance and modernization of customs administration KRA has rolled out Integrated Customs Management System (iCMS) to deliver agility, accuracy, security, and transparency using systems that are empowering rather than restrictive. This system consolidates all the existing customs systems into one modern, robust and more efficient system built on the latest technology with capability of seamlessly interfacing with other internal and external systems as need arises. It also incorporates all the subsystems built around the main clearance system as well newly defined functionalities. The will great cut the bureaucracies experienced in various customs offices and reduce rent seeking habits among customs officers. Successful implementation of this system has however faced challenges which could be man or development related.

Methodology

The study used descriptive research design since it facilitates the gathering of reliable data describing the effect of Freight Forwarders services on Performance of Port Operations in Kenya. This study targeted 202 senior supervisory and management staff in the top freight forwarding companies in Kenya as rated by Global Freight Forwarding. The researcher adopted Yamane’s formula to obtain a sample size of 129. The study collected and used primary data for analysis which was in the form of structured questionnaires. For the purpose of this study, the researcher sought the opinion of the supervisors to assess the validity of the research instruments. The study adopted the internal consistency measure referred to as the Cronbach’s alpha (α) to measure test data reliability. Descriptive statistics including frequency, percentages, means and standard deviation was used to analyse the findings. The study used multiple linear regression analysis to test the statistical significance of the various independent variables. Model-multiple regression model.

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

Where

y = Performance of Port Operations

α = constant 1 and 2

β_1 = Beta coefficients

β = coefficient, X_1 = Documentation, X_2 = System Integration, ε = error term

RESULTS

The section presents preliminary findings of the study on the basis of which further analyses will be undertaken to test the study questions. It lays focus on various tests of data that were gathered as well as the manifestations of the research variables among the studied organizations.

Descriptive Statistics

The dependent variable of the study was performance of port operations, to this effect the respondents were required to answer a series of questions in relation to this variable. The findings are presented and discussed in the subsequent section. The findings on documentation summed up to a mean of 3.58 and standard deviation of 0.39. The findings suggest that the respondents were in agreement with most of the items on documentation. Evidently, there is adherence with critical aspects of documentation which are adherence to KRA regulations, document accuracy, a harmonized system code, knowledge of up to date custom laws and regulations as well as the timing of import declaration. In line with the results, Salomon (2014) elucidated that Well-ordered and accurate documents are essential for a freight forwarder and are required for a successful export order and receipt of payment for delivery.

Table 1: Documentation

	Mean	Std. Dev
KEBS provides the support required for documentation and smooth cargo movement through the port.	3.33	0.87
Adherence to KRA regulations reduces the time taken to clear cargo at the port	3.77	0.69
Mis declarations and incorrect entries will lead to delays in clearance of cargo	3.69	0.9
Timing of lodging of Import Declaration determines time taken to clear cargo	3.89	0.58
Document accuracy is a critical factor in port operation efficiency	3.73	1.04
Knowledge of up to date customs laws is important in cargo movement through the port.	3.59	0.68
Knowledge of up to date KEBS regulations is important in cargo movement through the port.	3.53	0.82
Preshipment Verification of Conformity enables shorter clearing of cargo	3.43	1.44
Harmonized System Code is important for cargo clearance	3.5	0.98
Documentation	3.58	0.39

The findings on system integration summed up to a mean of 3.646 and standard deviation of 0.426. The implication is that the respondents were in agreement with most items on system integration. Notably, ICT supports asset monitoring and sharing, management of freight forwarding activities and it eases coordination of cargo shipping and clearance. Moreover, system integration has contributed to reduction in coordination costs and has facilitated cargo movement. There is however some sort of redundancy with the cloud-based application which points to the need to upgrade and integrate the systems at the port. The findings are in conformity with that of Watanuki (2015) which established that system integration minimizes human intervention and reduces opportunities for error.

Table 2: System Integration

	Mean	Std. Dev
ICT eases coordination of cargo shipping and clearance	3.78	0.629
ICT supports asset monitoring and enhanced management enabling asset sharing as well as generating better information on the status of cargo all the way to the recipient	3.93	0.59
Our company uses ICT to manage freight forwarding activities	3.89	0.65
Collaboration between freight forwarders and multimodal providers enables shipping and clearance of cargo	3.27	1.302
Data and information sharing is important in shipping and clearing of cargo	3.37	1.195
System integration allows reduction of coordination costs	3.82	0.999
System uptime at the port determines cargo movement time	3.79	1.351
Cloud based applications create redundancy and allow for cargo clearing	3.48	1.329
There are many systems in cargo management through the port delaying the process	3.48	1.176
There is need to upgrade and integrate systems in the port to facilitate freight forwarding.	3.71	0.729
System integration	3.646	0.426

Performance of Port Operation

The findings on the performance of port operation summed up to a mean of 3.640 and standard deviation of 0.894. Consistent with the results, a report by UNTAD (2016) elucidated that port performance features a number of measurement dimensions. They range from service quality and value for money, to investment returns and economic efficiency. Policy makers will be interested in cross-national and temporal comparisons on a port-wide basis. Port customers are interested in operational and financial measures relating to cargo movement through the port. A key cost driver in maritime trade is time. The longer a vessel and cargo stays in the port, the higher the costs for the consignment.

Table 3: Performance of Port Operation

	Mean	Std. Dev
Port services provided cover all customers necessities with reliable and skilled services being one of the most relevant operators	3.71	0.808
KPA provides facilities for berthing and anchoring ships and provide equipment for transfer of goods from ship-shore, shore-ship & ship-ship	3.38	1.09
The time taken to clear cargo at the port determines the efficiency of the port	3.73	0.886
Maintaining accurate records showing cargo, up-to-date information on inventory and cargo movements, and stuffing/de-stuffing containers drives efficiency	3.64	0.894
Cost reduction is an important factor in port performance	3.698	0.963
Performance	3.682	0.512

Inferential statistics

Pearson correlation coefficient was undertaken to examine the strength and direction of the linear relationship between the study variables. This section also presents the results after performing a multiple regression analysis. Regression analysis is a set of statistical process for estimating the relationships among variables. From the findings in Table 4, the relationship between documentation and performance of port operations in Kenya was found to be positive and significant, $\rho = 0.82$, p -value = 0.000. Furthermore, the relationship between system integration and performance of port operations in Kenya was found to be

positive and significant, $\rho = 0.717$, p -value = 0.000. Tables 4, results of the summary model indicate Value of R = 0.908 and the coefficient of determination $R^2 = 0.825$. This suggests that the influence of documentation and system integration on performance of port operations in Kenya is 82.5 percent, while the rest is explained by other causes. Additionally, the adjusted R square is 0.818 which is less than the R squared value. From the results, the above-discussed coefficient of determination was significant as evidenced in F ratio of 112.082 with p value 0.000 <0.05 (level of significance). Therefore, the model was fit to predict the performance of port operations in Kenya using documentation and system integration

The first objective of the study sought to determine the effect of documentation on performance of port operation in Kenya. Research findings confirmed that documentation had a significant effect on performance of port operations basing on $\beta_1 = 0.501$ (p -value = 0.000 which is less than $\alpha = 0.05$) implying that documentation had a significant effect on performance of port operations in Kenya. In line with the results, Mutema (2013) opined that misdeclarations in documentation bring about delay in the movement of cargo from the port thereby negative impacting on port operations.

The second objective of the study sought to examine the effect of system integration on performance of port operation in Kenya. Findings showed that system integration had coefficients of estimate which was significant basing on $\beta_2 = 0.146$ (p -value = 0.019 which is less than $\alpha = 0.05$) hence we conclude that system integration has a significant influence on performance of port operations in Kenta. This implies that for each unit increase in system integration, there is up to 0.0146 unit increase in performance of port operations. Also, the effect of system integration is shown by the t-test value of 2.378 which implies that the effect of system integration surpasses that of the error. Consistent with the findings, Ding and Teo (2010) confirmed that assigning a storage location physically and in a system and providing visibility will ease tracking the cargo by freight forwarders and improve port operations.

Table 4: Correlation and Regression analysis

	Unstandardized Coefficients		Standardized Coefficients			correlation r
	B	Std. Error	Beta	T	Sig.	
(Constant)	-0.837	0.217		-3.859	0.000	
Documentation	0.649	0.099	0.501	6.540	0.000	.872**
System integration	0.176	0.074	0.146	2.378	0.019	.717**
Model Summary						
R	0.908					
R Square	0.825					
Adjusted R Square	0.818					
Std. Error of the Estimate	0.21854					
Durbin-Watson	1.664					
ANOVA Analysis						
F	112.082					
Sig.	0.000					

a Dependent Variable: performance

Conclusion

In conclusion, documentation positively and significantly influenced the performance of port operations in Kenya. The improvement in performance is attributed to the reduction in the time taken in clearing cargo. Besides, up to date knowledge of customs laws and regulations has not only facilitated compliance with KRA regulations but has also improved cargo movement. As well, documentation has enhanced document accuracy, thereby contributing to port operation efficiency that is instrumental in eliciting superior performance. However, the gaps in the provision of the required documentation by KEBs is deterrent to ensuring smooth cargo movement at the port.

Also, system integration positively influenced the performance of port operations in Kenya. Through the utilization of ICTs, better information is generated on the status of the cargo to the recipient. Besides, there is asset sharing and better co-ordination of cargo shipping and clearance that is key to cost reduction and to improve the overall productivity. Nevertheless, it appears that the systems at the port are not harmonized in such a way that instances of delays are reduced. The reason for this is that the cloud-based applications create some form of redundancy. Moreover, collaborations between multimodal providers and freight forwarders that are crucial in facilitating both shipping and clearance of cargo are limited. As such, the companies have not optimally integrated their system to attain the desired levels of port performance.

Recommendations

Undoubtedly, documentation is essential in enhancing the performance of port operations in Kenya. As such, to reduce the time taken to clear cargo, there is a need to adhere to KRA regulations. Further, to improve operational efficiency at the port, it is crucial to have document accuracy such that there are no misdeclarations and incorrect entities. Moreover, it is utmost important for organizations to have up to date knowledge on custom laws and regulations so that there are no delays in cargo movement. As well, the firms need to ensure they are provided with the required documentation from KEBs to enable smooth cargo movement at the port.

Since system integration is essential in enhancing the performance of port operations in Kenya, there is a need for companies to capitalize on the use of ICTs in both asset monitoring and sharing and the generation of information on the status of cargo. Moreover, the management of freight forwarding activities should be done entirely with ICTs to reduce the co-ordination costs. Besides, there is a need to upgrade and integrate systems in the port to facilitate freight forwarding. Also, there is a need for collaboration between freight forwarders and multimodal providers to facilitate shipping and clearance of cargo. Future scholars could examine other factors that than documentation, system integration, warehouse simulation and regulatory framework that influence the performance of port operations. For instance, future could examine how decentralized governance has affected port operations. Thirdly, in terms of methodology, future scholars can conduct a longitudinal study as well as appreciate both the quantitative and qualitative aspects of research. Nonetheless, the study has contributed knowledge that is needed for this kind of research.

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