

Cargo Handling: A Key Enabler of Operational Success in the Nigerian Port Authority

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Abstract

This study examined cargo handling as a key enabler of operational success in the Nigerian Port Authority. The study adopted the descriptive survey research design. Both primary and secondary methods of data collection were used to obtain relevant data for analysis. The instrument of data collection was questionnaire. The study population comprised of six (6) major port terminals in Nigeria as enlisted in the Nigerian Maritime Administration and Safety Agency (NIMASA, 2017). The study selected six (6) top management staff from each of the ports under study making it a total sample of thirty-six (36) respondents. The data was analyzed using the Pearson's Product Movement Correlation statistic through the aid of statistical packages for social science version 23.0. The result of the findings revealed that there is a significant positive relationship between cargo handling and operational success in the Nigerian Port Authority. The study concluded that significant and positive relationships exist between cargo handling and operational success in the Nigerian Port Authority. The study recommended that Nigerian Port Authority should ensure standard equipment for their cargo handling as this can enhance their operational success.

Key Terminologies: *Cargo Handling, Operational Success, Efficiency, Productivity, Nigerian Port Authority.*

1. Introduction

Maritime operations are very integral part of any nation's economy as it has both direct and multiplier effects on the transportation, economic, safety, security, manufacturing, construction, education among other sectors of the country. However, maritime transportation is considered complex dynamic system because of the high level of international, national, organizational interactions and communication networks which generates a complex business environment (Stephens & Ukpere, 2011). Cargo operation has become an important aspect of maritime transport and remains the most effective method of international exchange of goods. Fundamentally, a marine terminal transfers cargo between sea and inland transport, quickly, efficiently and at a reasonable cost, with the aid of special equipment designed to handle specific types of cargo for transshipment (Celik, 2009). In Nigeria, marine terminal operation is an essential organ of the transportation system. It is also recognized as an entry point for goods coming into a country from other countries. This implies that marine terminal is a place for exchange of intermodal transfer of passengers and cargoes (Ugboma, Ibe & Ogwude, 2004). It is a place of transfer between land and sea transport. A marine terminal as a knot where ocean and inland transport lines meet and intertwine has the functions of providing resting place for ships as well as the provision of facilities and equipment for safe transfer of passengers and cargoes from ocean to land transports and vice versa. Generally speaking, transportation networks have a positive causal effect on all sectors of an economy. Esoh (2013) states that the port activities resulted

in an increase in fiscal revenue and accelerated economic growth. The achievement of certain economic levels is believed to encourage the development of the transportation system (Pangihutan, 2008). Overtime, the maritime industry has substantially changed from an industry that was always international in its character to a truly global entity with routes that span across hemispheres, transporting raw materials, spare parts and finished goods. Maritime transportation plays a major role in the national and international trade and economic growth. The seaborne trade represents over 90% of the international trade in the world.

Since marine terminal operation is one of the most global industries that has its regulations and standards generated and implemented on an international basis for efficient and productive operation, to become a successful, port terminals need to go beyond mere compliance with their organizations to handling their cargo operations in line with international best practices. Delivering and gaining success in ports operations is challenging issue in maritime mode, where increasing complexity of the system allows greater scope for organizational shortfalls Celik (2008), cargo handling is regarded as a critical factor in building a successful organizational operation especially, in the maritime industry. The marine terminal operation as gateway to the nation in the transaction of trade with the outside world has been given little attention in Nigeria and this negligence has adversely affected operational success of marine terminals ranging from inefficiency to poor productivity. The inefficiencies in the Nigerian sea ports culminates to other problems such as congestion, excessive high cost payable by shippers and shipping companies which have caused many cargoes to be diverted to neighboring countries' port, causing the nation to lose huge revenue (Ugboma, Ibe & Ogwude, 2004). In spite of the crucial role the maritime sector plays in the country's economy which handles about 80% of the country's inward and outward cargo, the Nigerian marine terminals are rated among the least terminals in the West African region especially in terms of efficiency and productivity. The forgoing empowers that achieving success in maritime terminal operations through efficiency and productivity require establishment of competent systems integrated with advance technologies and reliable scientific models. However, it is not the current situation; there are still great milestones for the Nigerian maritime terminals to become successful in transportation modes Celik (2008) and this places demand on cargo handling research of this kind object of which is provide efficiency and productivity in marine terminal operations. The motivation behind this study is to fil the identified gap in knowledge.

2. Theoretical Foundation of Cargo Handling

Cargo handling has become a very crucial and topical issue in maritime transportation discuss and has changed rapidly in relation to the days of the open stowage of merchandise. Today, cargo equipment handling is necessitated by a number of factors, one of which is the introduction of the new containers forms such as the Roll-on, Roll-off cargoes as well as the pillarization, these have generated the need for a more flexible handling methods and changing cargo handling procedures. Christiansen & Fagerholt (2014) argues that cargo handling is imperative in marine operation as it determines the efficiency and productivity of a country's wharf.

Since ports represent the gateway through which commodities are exchanged from surplus regions to the deficit regions and from one terminal to another, cargoes play major vehicular role in maritime nations like Nigeria particularly, in the areas of economic growth and development as they carry large commodities that small ships may not be able to carry. According to Christiansen, Fagerholt, Nygreen & Ronen (2013), about 75% of trade activities between Nigeria and other parts of the world is handled via maritime operations and mostly through cargoes thus, this assertion makes cargo handling which cuts across gantry crane, derricks, dockside cranes, cranes, fork lifts, level-luffing cranes and mobile cranes very vital for operational success and the overall economic growth within a country. The 21st century ships require new innovations in handling them due to their design. Unfortunately, it appears that Nigerian marine terminals lack efficiency in operation, this is not too good as it may impact negatively on their ability to meet the rapidly-changing and emerging needs of industries. PwC and Panteia (2013) reports that port authorities are often limited in their ability to determine the level of dues, thus to impact on their resources and determine their operating income. The most prominent Nigerian marine terminals include Lagos Apapa, Tincan Island, Port Harcourt, Onne, Bonny, Calabar, Sapele, Warri, Burutu and Koko. The potential ports are Oron, Eket, Opobo Forcados, Badagry, Epe, Nunlbeno, Akassa, Brass and Ikang.

Visiting the port to witness the activities and cargo handling operations may not present the real challenges and situations of Nigerian ports unlike being an importer or exporter. Many ports are unable to provide potential customers with the right mix or standard of services because they do not have the right mix of infrastructure. Common complaints from shipping lines and other port users according to (Pwc and Panteia, 2013) can be related to insufficient depth of water; lack of quay space, resulting in vessels having to wait for a berth; lack of storage space behind the quay, often caused by the city centre locations of older ports and insufficient (or outdated) mechanical equipment. For container ships, the most common problems are too few cranes (preventing the ship from working as many holds as the operator would like) or the absence of ship-to-shore gantry cranes (resulting in slower handling rates). Yard congestion caused by lack of space can also slow down crane handling rates on the berth. For bulk ships, the most common problem is lack of automation (ship loaders and pneumatic or screw discharge equipment linked to high speed conveyor systems to the storage area or plant); and poor interface arrangements for rail and inland waterway transport (Ko, Kim & Yun, 2013). Part of the problem is when customers or shippers want to reserve berthing windows so that scheduled services are not disrupted by unforeseen delays waiting for a berth; to negotiate service contracts with the port authority or cargo handling company giving them a guaranteed loading/discharge rate

or ship turn- around time; dedicated storage areas within the port and extended cargo collection and delivery times. Of course, these always tend to cause commotions and confusion at the ports.

Operational Success

Understanding and determining exactly what is meant by the word ‘success’ is a critical issue for business environment. Vaidya, Yu, Soar & Turner (2003) opined that success in business operation is used interchangeably with performance. According to Lin (2009), success means well-being gained from the deployment and effective management of the components of a causal model(s) that leads to the timely attainment of stated objectives within constraints specific to the firm and to the situation (cited in Valentine & Gray, 2009). The concept of success concerns itself with what happened in the past or what is happening in the present instance and therefore it is observable and measurable. Hon (2005) views success as that which includes inputs, outputs, intermediate outcomes, end outcomes, net impacts and unintended outcomes (cited in Valentine & Gray, 2009). Success may relate to economy, efficiency, effectiveness, productivity or equity (Folan et al., 2007 in Valentine & Gray, 2009). Operational success is a relatively new concept in transportation and logistics management with multiple dimensions and definition. The phenomenon is applied in different contexts and are classified into two basic dimensions (profit and non-profit). For any organization to remain competitive, it needs to recognize the central role of measuring success thus performance measurement capability is very crucial for organizations’ success compared to lower performing firms (Forslund, 2007). However, it has become a challenge for most organizations to measure their success (Valentine & Gray, 2009), the reason being that they relate to multiple service metrics such as lead times and on time delivery which are well related to one another. Having formal means of measuring performance or success is important in order to achieve competitive advantage in future (Harrison & New, 2002, adopted in Lin, 2009). Research on how organizations use success measurement to manage relationships with vendors is rather rare (Schmitz & Platz, 2004). Forslund (2007) contend that there is need for expanding logistics performance measurements. Forslund went further to say that measurement of these metrics has no value by itself but rather what is important is to improve customer service in the direction of customer expectations. In order to assess the impact of marine terminal operations on operational success, a number of activities preceding measurement maritime transportation are necessary. All aspects of success measurement need to start with definition of success metrics, measurement procedure, analysis, comprehensive evaluation and finally the improvement process (Tian et al 2003, adopted in Lin, 2009). Gunasekaran et al (2004) presents a number of characteristics of effective success measurement systems that can be used in evaluation of these measurement systems. These characteristics include: inclusiveness (measurement of all pertinent aspects), universality (allow for comparison under various operating conditions), measurability (data required are measurable), and consistency (measures consistent with organization goals) (adopted in Lin, 2009). Besides analyzing the measures based on their effectiveness, benchmarking is another important method that is used in performance measurement evaluation. Benchmarking can also serve as a means of identifying improvement opportunities.

Researchers have categorized a large number of performance measures available. Neely et al. (1995) presents a few of these categories namely quality, time, flexibility and cost (cited in Lin, 2009). This categorization is a useful tool if one is to develop a model to improve one characteristic of a system, for example, time. The model may then compare manufacturing lead time or due-date performance by changing the system's configuration. By using this, single type of measure chosen i.e. time, within this category, many different specific measures of time are applicable. Thus, measures within a category can be compared and analyzed, so that performance measurement selection within a category may be easier. Using this approach, it means the performance category is already determined. Gunasekaran (2004) also argues that, a operational success measurement system that consists of a single performance measure is generally inadequate. This is because, it is not inclusive, ignores the interactions among important supply chain characteristics, and ignores critical aspects of organizational strategic goals. Strategic goals involve key elements that include the measurement of resources, output and flexibility. Resources measures (generally cost) and output measures (generally customer responsiveness) have been widely used in supply chain models. Although flexibility has been limited in its application to supply chains, many advantages exist in a flexible supply chain. Gunasekaran (2004) established three levels of operational success measures being strategic, tactical and operational. Strategic level measures include, lead time against industry norm, quality level, cost saving initiatives, and supplier pricing against market. Tactical level measures include the efficiency of purchase order cycle time, booking in procedures, cash flow, quality assurance methodology, productivity and capacity flexibility. Operational level measures include day to day activities, adherence to developed schedule, ability to avoid complaints and the achievement of defect free deliveries. In this study, we used non-profit parameters (efficiency and productivity) as measures of operational success.

Efficiency

Shipping lines have always pursued high efficiency in ship operation to strengthen their competitiveness and maximize profits in competitive markets. To achieve this goal, during the last couple of decades, shipping lines have focused on the improvement of operational productivity to maximize transport capability with minimizing input assets using various operational strategies (Tongzon, 2001). These strategies have enabled shipping lines to not only minimize operating costs with less financial risks but also raise the quality of service. In recent times, a strategic goal in terms of efficiency of ship operation has been changed in liner shipping. Under the intensive pressure of high fuel prices and low freight rates, shipping lines are focusing on more efficient ship operation. Efficiency is defined as the relative production capacity over a given time period either within a firm or amongst firms (Wang et al. 2006). Efficiency involves measuring the use of the firm's own production potential by computing the productivity level over time relative to a firm-specific Production Frontier, which refers to the set of maximum outputs given the different level of inputs. Efficiency measures the performance of a particular firm relative to its best counterpart(s) available in the industry (Lansink et al. 2001). Brooks and Pallis, (2013) intimated that, for a productive supply chain and maritime transport system to be achieved, ports must attain an efficiency status through an efficient cargo-handling operation at the berth, this phenomenon makes berth performance a key issue for any port management system. The importance of analyzing operational success at the port has increased as a result of the intense

competition among ports, increase in containerization, supply chains and the development of new production distribution-consumption systems as well as fluctuation in the shipping market.

Productivity

According to Valentine & Gray (2002), understanding port performance is an essential concept in any port management, be it the measurement of port productivity against utilization and output, or against port competition. Chung (2005) opined that, the operational success of a port is generally measured in terms of speed with which a vessel is dispatched, the rate at which cargo is handled and the duration that cargo stays in port prior to shipment or post discharge, which is summed up in productivity. To better understand productivity, we start off from defining production as a process by which inputs are combined, transformed and turned into outputs (Case and Fair, 1999). We most often find that these inputs are normally natural resources such as land, human resources, and equipment's. Outputs on the other hand are categorized into more tangible products like goods and also intangible products like services (Wang et al. 2002). Productivity and efficiency are the two most important concepts relevant in measuring performance have over the years been mistakenly treated as having the same meaning in most of the literature available on this topic (Wang et al. 2002). Productivity is easily described as the ratio of output(s) to input(s). When however, there are multiple variables to be compared, this definition may not be suitable. In such a scenario, we refer to productivity as the 'Total Factor Productivity which is a productivity measure involving all factors of production (Coelli et al. 1998).

Empirical Review of the Relationship between Cargo Handling and Operational Success

Ko et al. (2013) conducted a research that intended to optimization the ships maintenance scheduling. Christiansen et al. (2013) suggested four basic models that handle the ship routing and scheduling and related problems and Christiansen & Fagerholt (2014) investigated ship routing and scheduling within the industrial and tramp shipping. These studies established that cargo handling is pivotal to effectiveness of port management. Lam and Notteboom (2014) investigated the port management tools that are used by leading ports in Asia and Europe. The study divided port management into ship operation, port dredging and cargo handling. Questionnaire was used to generate the study data and regression analysis was employed in testing the study hypotheses. The study found that cargo handling dimension has a positive significant relationship with performance of leading ports in Asia and Europe. Moon & Woo (2014) analyzed the impact of port operations on efficient ship operations. The study conceptualized port management with ship operation, equipment infrastructure planning and cargo handling equipment. It employed the questionnaire and personal interview to generate its data. The study used Pearson's product moment correlation to measure the level of impact of port operations on efficient ship operations, it found that there is a strong relationship between of cargo handling dimension of the study and efficient ship operations. Jeon et al. (2014) studied the success factors for ship management companies. The study concluded that cargo handling and ship operation are critical for ship management companies' success. Ugboma, Ibe & Ogwude, (2004) investigated service quality measurements and performance in developing economy; case study of Nigerian port. It used the questionnaire and personal interview to generate its data. The study used

person's product moment correlation to measure the level of relationship between service quality measurements and performance. The study divulged that quality of service towards cargo handling has very strong and positive relationship with performance in developing economy. Olaogbeikan, Njoku, Faniran & Okoko (2014) investigate the performance of Nigerian ports before and after concession policy of the year 2006. The study found that cargo throughput has continued to increase from 2006 probably as a result of the concession policy. Ndikom (2013) evaluated challenges and opportunities for shipping lines services in Nigeria concluded that a significant relationship existed between government policies and shipping operations; the activities of pirates and the profitability of shipping lines; and that adequate cargo handling machines led to faster turn-round time of vessels at seaports. The focus of the study of Stephens and Ukpere (2011) was to establish the relationship between land transport systems in the country of destination and the turn-around time, capacity utilisation of port infrastructure, facilities and cargo-handling equipment and general port performance.

Ho₁: There is no significant relationship between cargo handling and efficiency in the Nigerian Ports Authority

Ho₂: There is no significant relationship between cargo handling and productivity in the Nigerian Ports Authority

3. Methodology

This study adopted the descriptive survey research design. The population of study comprised of six (6) major port terminals in Nigeria as enlisted in the Nigerian Maritime Administration and Safety Agency (NIMASA, 2017). The study selected six (6) top management staff from each of the ports under study making it a total sample of thirty-six (36) respondents. Quantitative and qualitative data were generated from the respondents by the use of a well-structured questionnaire. The 36 copies of questionnaire were usable for the data analysis. Pearson's Product Moment Correlation technique was used in testing the study hypotheses with the aid of the Statistical Packages for Social Sciences version, 23.0.

4. Data Analysis

The primary data analysis was carried out through univariate and bivariate statistics. Pearson's Product Moment Correlation tool was used at a 95% confidence level. The tests cover hypotheses Ho₁ and Ho₂ which were bivariate at all stated in the null manner. The probability criterion of 0.05 significance level was adopted for accepting the null hypotheses at (P>0.05) or rejecting the hypotheses at (P<0.05).

Table 1: Descriptive Statistics of Cargo Handling

	N	Sum	Mean	Std. Deviation	Variance
There are cargoes at your port	36	161	4.60	.976	.953
Our cargoes undergo periodic servicing and maintenance	36	166	4.74	.611	.373
There are cranes and other cargo handling equipment on steady stand by at your port	36	163	4.66	.873	.761
Our cargoes have nautical, rating officers and engineers for emergency repairs	36	155	4.43	.884	.782
All the programs and activities are well married with each other aimed at effective cargo handling at your company.	36	150	4.29	1.100	1.210
Valid N (listwise)	36				

SPSS Output from Survey Questionnaire, 2019.

Table 1 shows high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research question with respect to cargo handling. However, it can be seen that question 2 which was intended to determine the extent to which Nigerian ports authority cargoes undergo periodic servicing and maintenance, has the highest mean scores of 4.74. This shows that question 2 has the strongest influence on the variables.

Table 2: Descriptive Statistics of Efficiency

	N	Sum	Mean	Std. Deviation	Variance
Our port shows proactiveness in its response to new developments.	36	151	4.31	1.207	1.457
Our operational strategies are adequate and are used efficiently	36	154	4.40	1.063	1.129
We manage our risks and resources well	36	157	4.49	.981	.963
We manage our schedule time effectively	36	154	4.40	1.143	1.306
Our organization clearly defines and communicates the nature of the business	36	164	4.69	.758	.575
Valid N (listwise)	36				

SPSS Output from Survey Questionnaire, 2019.

Table 2 shows high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research question with respect to efficiency. However, it can be seen that question 5 which was intended to determine the extent to which Nigerian ports authority clearly defines and communicates the nature of the business, has the highest mean scores of 4.69. This shows that question 5 has the strongest influence on the variables.

Table 3: Descriptive Statistics of Production

	N	Sum	Mean	Std. Deviation	Variance
Our port is very productive	36	160	4.57	.778	.605
Our port uses flexible service process	36	159	4.54	.611	.373
We record profit on daily basis	36	152	4.34	.802	.644
We also record material profit	36	158	4.51	.853	.728
Our production capacity has increased.	36	164	4.69	.796	.634
Valid N (listwise)	36				

SPSS Output from Survey Questionnaire, 2019.

Table 3 shows high mean scores of the questionnaire items ranging over 3.00, this means that greater number of the respondents agreed and strongly agreed to the research question with respect to productivity. However, it can be seen that question 5 which was intended to determine the extent to which Nigerian ports authority use the internet to perform duties that may cost much if done manually, has the highest mean scores of 4.69. This shows that question 5 has the strongest influence on the variables.

Test of Hypotheses

H₀₃: There is no significant relationship between cargo handling and efficiency in the Nigerian Ports Authority

Table 4: Showing the Extent of Relationship between Cargo Handling and Efficiency

		Cargo Handling	Efficiency
Cargo Handling	Pearson Correlation	1	.649**
	Sig. (2-tailed)		.000
	N	36	36
Efficiency	Pearson Correlation	.649**	1
	Sig. (2-tailed)	.000	
	N	36	36

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows a correlational coefficient of 0.649; indicating that there is a strong, positive relationship between cargo handling and efficiency. Again, the probability value is less than the critical value (1.e, $0.000 < 0.05$), which means that there is a strong significant relationship between cargo handling and efficiency in the Nigerian Ports Authority. This further indicates that some of the changes in the dependent variable (efficiency) are attributable to the independent variable (cargo handling), while other changes are caused by externalities. We therefore, reject the null hypothesis that there is no significant relationship between cargo handling and efficiency in the Nigerian Ports Authority and accept an alternate hypothesis, that there is a strong significant relationship between cargo handling and efficiency in the Nigerian Ports Authority.

Ho4: There is no significant relationship between cargo handling and productivity in the Nigerian Ports Authority

Table 5: Showing the Extent of Relationship between Cargo Handling and Productivity

		Efficiency	
		Cargo Handling	Productivity
Cargo Handling	Pearson Correlation	1	.858**
	Sig. (2-tailed)		.000
	N	36	36
Productivity	Pearson Correlation	.858**	1
	Sig. (2-tailed)	.000	
	N	36	36

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5 depicts a correlational coefficient of 0.858; indicating that there is a very strong, positive relationship between cargo handling and productivity. Again, the probability value is less than the critical value (1.e, $0.000 < 0.05$), which means that there is a very strong significant relationship between cargo handling and productivity in the Nigerian Ports Authority. This further indicates that some of the changes in the dependent variable (productivity) are attributable to the independent variable (cargo handling), while other changes are caused by externalities. We therefore, reject the null hypothesis that there is no significant relationship between cargo handling and productivity in the Nigerian Ports Authority and accept an alternate hypothesis, that there is a very strong significant relationship between cargo handling and productivity in the Nigerian Ports Authority.

5. Discussion of Findings

Relationship between Cargo Handling and Efficiency

The analysis of the study revealed a correlation coefficient of 0.649* between cargo handling and efficiency; indicating that there is a strong, positive relationship between cargo handling and efficiency. Again, the probability value is less than the critical value (1.e, $0.000 < 0.05$), which means that there is a strong significant relationship between cargo handling and efficiency in the Nigerian port

authority. We therefore, reject the null hypothesis that there is no significant relationship between cargo handling and efficiency and accept the alternate, that there is a strong significant relationship between cargo handling and efficiency in the Nigerian ports authority.

Relationship between Cargo Handling and Productivity

The study findings revealed a correlation coefficient of 0.858** between cargo handling and productivity; indicating that there is a very strong positive relationship between cargo handling and productivity. Again, the probability value is less than the critical value (i.e, $0.000 < 0.05$), which means that there is a very strong significant relationship between cargo handling and productivity in the Nigerian port authority. We therefore, reject the null hypothesis that there is no significant relationship between cargo handling and productivity and accept the alternate, that there is a very strong significant relationship between cargo handling and productivity in the Nigerian port authority. Thus, these findings are in consonance with the empirical findings of Ko et al. (2013) on optimization of ships maintenance and schedule effectiveness; Christiansen et al. (2013) on ship routing and scheduling and related problems and Christiansen & Fagerholt (2014) on ship routing and scheduling within the industrial and tramp shipping. These studies established that cargo handling is pivotal to effectiveness of port management. Again, the study findings share position with Lam and Notteboom (2014) who investigated the port management tools that are used by leading ports in Asia and Europe. The study divided port management into ship operation, port dredging and cargo handling. Questionnaire was used to generate the study data and regression analysis was employed in testing the study hypotheses. The study found that cargo handling dimension has a positive significant relationship with performance of leading ports in Asia and Europe. Similarly, the study outcome corroborates with Moon & Woo (2014) on the impact of port operations on efficient ship operations. The study conceptualized port management with ship operation, equipment infrastructure planning and cargo handling equipment. It employed the questionnaire and personal interview to generate its data. The study used Pearson's product moment correlation to measure the level of impact of port operations on efficient ship operations, it found that there is a strong relationship between of cargo handling dimension of the study and efficient ship operations. Jeon et al. (2014) success factors for ship management companies supports our study findings as it concluded that cargo handling and ship operation are critical for ship management companies' success. Finally, the study findings are validated by Ugboma, Ibe & Ogwude, (2004) on service quality measurements and performance in developing economy; case study of Nigerian port. The study used the questionnaire and personal interview to generate its data. The study used person's product moment correlation to measure the level of relationship between service quality measurements and performance. The study divulged that quality of service towards cargo handling has very strong and positive relationship with performance in developing economy.

6. Conclusion

Sequel to the findings of this study, we conclude that significant and positive relationships exists between cargo handling and operational success in the Nigerian Port Authority thus cargo handling critical to successful operation in the Nigerian Port Authority.

7. Recommendations

Based on the theoretical and empirical findings of this study, we put forward the following recommendations. Nigerian Port Authority should ensure standard equipment for their cargo handling as this can enhance their operational success. Nigerian Port Authority should capitalize on the pivot role of marine plays in nations economic development in building and operating port terminals for high rational success

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