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Celestina Chinyere Okere

Department of Maritime Transport Technology, Faculty of Maritime, Rivers, State University, Nkpolu-Oroworukwo, PMB 5080, Port Harcourt, Nigeria

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Abstract

This study examined the relationship between cargo handling equipment and Ports Performance in Nigeria. The study adopted the cross-sectional survey in its investigation of the variables. Primary source of data was generated through structured questionnaire. The population of the study was 2,416 employees of six ports in Nigeria including Abuja office. The sample size of 344 was determined using the Taro Yamane's formula for sample size determination. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. Data generated were analyzed and presented using both descriptive and inferential statistical techniques. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The study findings revealed that there is a significant relationship between cargo handling equipment and Ports Performance in Nigeria. The study recommends that management of ports in Nigeria should seek to have modern cargo handling equipment should be taken as a step toward delivering efficient and timely port capacity.

Keyword: *Cargo Handling Equipment, Ports Performance, Cargo Turnaround, Vessel Turnaround*

1.0 Introduction

Understanding port performance is an essential concept to any port management, be it the measurement of port productivity against utilization and output, or against port competition (Hart 2019). Chung (2005) cited in Hart (2019) opined that, "the operational performance of a port is generally measured in terms of speed with which a vessel is despatched, the rate at which cargo is handled and the duration that cargo stays in port prior to shipment or post discharge" invariably, this statement suggests that cargo-handling performance is measured by two indicators, vessel turn-around time and cargo dwell-time, which is to a large extent determined by the time frame taken to handle cargo at the port. As indicated by UNCTAD (1999), "operational performance can be measured using indicators, these indicators are either macro or micro performance indicators.

Cargo handling equipment play key role in the port performance and subsequently in economic growth and development. This is due to the fact that, large percentage of trade in Africa and

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the rest of the world are handled in ports. Thus, the importance of ensuring efficiency in cargo handling equipment in the ports is related to the ability to adapt efficiency in order to meet the ever changing and developing needs of industry.

Effective and efficient utilization of cargo handling equipment in port operations contribute immensely to port productivity. In terms of services offered to vessels at the ports, Hart (2019) posits that vessel's turnround time is highly influenced by cargo handling performance. The application of automated systems and skilled labour in cargo handling operations therefore, are essential in ensuring timely operations, reduction in human errors, improvement in quality of service and reduced cost of operation (Hart, 2019). Ports with modern berths and cargo handling equipment systems have the capacity to offer competitive international transport distribution services since they attract modern tonnage (Branch, 1986). The overall cost of transportation from one port to another is influenced by speed with which cargo is handled. However, additional time spent in loading or discharging alternative ports' cargo could translate to additional cost to port users such as shippers and shipowners.

As noted by Branch (1986), the failure of a port to modernize its berths and associated cargo-handling systems could encourage shipowners and shippers to use others. Accordingly, the need to eliminate inefficiencies in shipping logistics and improve operational efficiency in Nigerian ports necessitated port reforms involving concessioning of Nigerian seaports to private terminal operators in the year 2006 (Aponjolosun, Ojo & Sam, 2017; Bello, 2017). There have been some major investments in cargo handling equipment in the ports by private terminal operators. Anagor (2015) notes that the investments in cargo handling equipment by the private terminal operators in Nigerian ports have resulted in improved cargo throughputs and vessel traffic.

The purpose of this paper therefore was to examine the relationship between cargo handling equipment and ports performance in Nigeria. The specific objective includes to:

i. Examine the relationship between cargo handling equipment and cargo turnaround time in Nigerian Ports.
ii. Assess the relationship between cargo handling equipment and vessel turnaround time in Nigerian Ports.

Figure 1: ***Cconceptual model for the relationship between cargo handling equipment and ports performance***

Source: Desk Research (2022)

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2.0 Literature Review

2.1 Cargo Handling Equipment

As used in this study cargo refers in particular to goods or produce being conveyed generally for commercial gain either by ship, boat or aircraft (Okoroafor, 2020). Nonetheless, the term is now often extended to cover all types of freight including that carried by train, van, track and intermodal container. On the other hand, the term is also used in case of goods in the cold chain, because the perishable inventory is always in transit towards a final end use, even when it is held in cold storage or other similar climate-controlled facility.

On the other hand, Cambridge Dictionaries online defined cargo handling equipment as an activity of moving goods on and off ships, planes, trucks (Cambridge University Press 2015). This implies Multi-modal container units, designed as reusable carriers to facilitate unit load handling of the goods contained. They are also referred to as cargo, especially by shipping lines and logistics operators. Cargo handling equipment includes equipment used to move cargo (containers, general cargo, and bulk cargo) to and from marine vessels, railcars, and on road trucks. The equipment typically operates at marine terminals or at rail yards and not on public roadways or lands. This inventory includes cargo handling equipment of 25 hp or greater using diesel, gasoline, or alternative fuels.

Due to the diversity of cargo, there is a wide range of equipment types. The majority of the equipment can be classified into one of the following equipment types: Forklift. Rubber tired gantry (RTG) crane, Side handler, Sweeper, Top handler, Tractor-Trailer, Heavy Duty Forklift, Straddle-Carrier, Yard Tractor and others. Sislian, Jaegler and Cariou (2016) posited that Cargo Handling Equipment (CHE) includes all the equipment at ports, rail yards, and warehouse distribution centers used to either handle freight or perform other on-site activities such as maintenance or repair activities. Cargo handling equipment is as diverse a group of equipment as the cargo that it handles and the tasks it performs. Cargo that arrives and/or departs by ship, truck, or train, can include liquid, bulk (break bulk and dry bulk), and containers. Liquid cargo, such as petroleum products and chemicals, are often transported via pipelines, and therefore, do not usually have mobile CHE associated with their operation. Break bulk cargo, such as lumber, steel, machinery, palletized material, and dry bulk cargo, such as cement, scrap metal, salt, sugar, sulfur, and petroleum coke, are handled using loaders, dozers, cranes, forklifts, and sweepers. Container cargo, which is the most common type of cargo at ports and intermodal rail yards, are handled using yard trucks, rubber-tired gantry (RTG) cranes, rail-mounted gantry cranes (RMGs), top picks, side picks, forklifts, and straddle carriers.

Cargo handling equipment are used to transport goods and materials from one location to another. Cargo handling equipment vehicle varies according to cargo type. Cargo handling equipment are employed widely in marines and railways for the transportation of heavy goods, containers, and components. Cargo handling equipment Vehicle generally comprises cranes, container handlers, yard tractors and forklifts (Sislian, Jaegler & Cariou, 2016). The global cargo handling equipment market can be segmented based on propulsion, equipment type, application, and region. Based on propulsion, the cargo handling equipment vehicle market can be classified into diesel, electric, and hybrid. In terms of propulsion, the diesel segment accounts for a prominent share of the market. Based on equipment type the market can be segmented into Conveyer, Forklift, Truck, Aviation Dolly, Automated Guided Vehicles (AGV), Crane and various others.

Also, Sislian, Jaegler and Cariou (2016), highlight the regional outlook and segments the market into four main regions, Americas (Canada, Mexico, USA), Europe, Asia-Pacific and RoW (Argentina, Russia, Brazil). Each of the regions is further divided into various countries.

Asia-Pacific is the largest market for cargo handling equipment market. China is the global leader in cargo handling equipment capacity and accounted for nearly 30% of the total cargo handled in 2017. The high cargo handling equipment capacities of the ports in China is driving the growth of the market in Asia Pacific. This trend is likely to continue in the coming years, leading to an increase in the demand for cargo handling equipment as well as automation at ports is expected in the region in coming years.

The assumption of the study on cargo handling equipment is a facilitating apparatus that determines level of port performance. It is common knowledge that ports play a key role in economic growth and development. Similarly, European Union (2013) reported that nearly 75% of the trade worldwide is handled in ports. This implies that effective cargo handling leads to positive outcomes to port performance and countries economic growth and development. According to Sislian, Jaegler and Cariou (2016) the process of cargo clearance in its international standards should take three to four days. But this is not the case in African port where the processes take 15 days to three weeks. Their assumption is that dwell time and clearance time are major commercial instruments used to attract cargo and revenues.

In a similar manner, Alderton (2013) notes that cargo handling is the backbone of a port. This is in line with Rigot (2012) who suggest that the port performance indicators that focus on the cargo-handling are very important in evaluating the performance of a port. Based on the analysis provided above no one can deny that cargo handling equipment have effects to port performance. Therefore, more plans and efforts geared towards developing cargo handling equipment at ports should be given a priority. This is due to the fact that Tongzon (2009) recognized that there are factors influencing the decisions to route cargo through a certain port over the other.

As noted by Julius and Odiegwu (2019) ports have become an intersection node in logistic chains, in which goods engage in additional operations taking advantage of proximity or their stay in transit to other places. Hence, port efficiency is an important requirement in order to survive in the competitive world of shipping industry. Different facilities in the port are expensive to run and purchase. Hence, under-utilizations will result in capital loss and higher cost for running the port. Vessel tracker (2012) shows that cargo clearance at port is a serious problem. While UNCTAD (2012) noted that internationally, it should take between two to three days to clear the cargo, but in Nigeria it takes between ten to seventeen days for customers to clear their local imports and transit imports through.

Some of the reviewed literatures suggest that many ports are facing similar problems related to cargo handling equipment. One of the main reasons for this shift as explained by Kiwanuka (2013) resulted from poor cargo handling equipment. It is noted that cargo clearance at the port is surrounded with several problems including the delay in clearance.

The most common type of cargo handling equipment at ports and intermodal rail yards is a yard truck. Yard trucks are also known as yard goats, utility tractor rigs (UTRs), hustlers, yard hostlers, and yard tractors. Yard trucks are very similar to heavy-duty on-road truck tractors, but historically, the majority has been equipped with off-road engines. Yard trucks are designed for moving cargo containers. They are used at container ports and intermodal rail yards as well as distribution centers and other intermodal facilities.

A number of conventional methods for handling cargo are available and are worth mentioning since they might be capable of providing at least a partial solution to the transfer problem. These methods include Burton, Housefall, Highline, helicopter, crane, and special purpose container crane. It should be emphasized that all of the above (except the Housefall method) have a common, basic disadvantage that once the cargo is even slightly lifted from the deck, it

becomes pendulous and hence potentially dangerous. Thus, any improvement must provide some method of eliminating the unwanted free motion of the cargo - i.e., the same constraints which were originally supplied by the friction between the deck and the cargo must then be supplied by the transfer method once the cargo is free of the deck. Further, any method which does not use the ship as a reference (that is, not mounted on the ship) must also provide for some type of heave compensation (Sislian,Jaegler & Cariou, 2016).

2.2 Ports Performance

Kaplan and Norton (2002) view performance as a set of financial and non-financial indicators capable of assessing the degree to which organizational goals and objectives have been accomplished. It refers to as the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed (Aloa, 2014). In furtherance, Griffin (2003) posits that it is the degree to which the organization is able to meet the needs of its stakeholders and its own needs for survival. The issue of performance in an organization is considered as the gate way to corporate survival. This is why every organization desires performance, and without the achievement of which, the organization's continuous existence is threatened. In the same trend, Anya, Umoh and Worlu (2017) assert that performance guarantees the continuity of the organization to be competitive in a global market place. Increasing and intense competitiveness in the market has made performance the most important issue for profit and non-profit organizations for businesses. It comprises of three specific areas of firm outcome which includes financial performance, product market performance and shareholder return (Richard, Simon & Brut, 2009).

Ports are recognized as a significant part of the whole maritime supply chain, port efficiency often means the speed and reliability of port services. Hence, time factor is to be one of the major factors for port performance measurement. Increased port congestion and waiting times in ports can lead to delay in delivery by shipping lines to their customers. Therefore, the right choice of key performance indicators (KPIs), for the purposes of port performance's monitoring, is a key success factor of a port's competitive advantage (Naeem, 2013). A port's efficiency basically is in its capacities to load and unload ships; however, the traffic movement is a complex phenomenon, which requires systematic approach to planning and measurement (Oyatoye, Adebiyi, Okoye and Amole, 2011). Traffic movement problems are often the reasons of delays in the system. It causes ships to queue for berthing space thereby creating congestion. Hence, the whole supply chain depends on performance of ports. Time efficiency; in particular, reflects physical performance of a port and determines customer satisfaction.

According to Talley (1994) one of the traditional port performance indicators is comparing actual throughput with its optimum throughput for a specified time period, which is decided by physical maximum throughput that can be handled by a port". Recent studies by Petit and Beresford (2008), indicated that port traffic is still used as an important port performance measurement. Due to the fact that costs of port logistics are incurred by linear companies as well as inland carriers, it was also stated that performance indicators relate to the optimum economic throughput rather than the physical throughput, that is, efficiency or effectiveness have been used popularly like the study by Mentzer and Konrad" (1991). Effectiveness is relates to the quality of service rendered to users by the port, while Efficiency relates to the utilization of resources available (how well it is being utilized).

2.2.1 Cargo Turnaround Time

The average turnaround time illustrates the capability of the port to efficiently handle cargo flows at the terminals and beyond. It can be defined as the average time a vessel needs to stay in a port (difference between time of entrance and time of departure). In the same category, the

dwell time is "the number of days a container can remain at a container terminal once it has been unloaded from a ship before incurring a storage fee (Le-Griffin and Murphy, 2006). Port and terminal authorities can modify the container dwell time in order to gain space and increase the capacity of storage yards. Turnaround time of vessel includes the time taken to unload and load cargos/containers. When unloading and loading a ship, cranes usually spend only half of their moves carrying a container/cargo. During the time of unloading, the crane comes empty while moving to the ship.

During the time of loading, the crane is empty when returning to the dock. Double cycling is the practice of making use of these "empty" moves to carry a container, thus making the crane more productive, and reducing turn-around time. Sarafidis, (2002) with current single cycling or status quo methods, the number of moves necessary to turn-around the ship is fixed, and does not depend on the order in which the crane operates on the ship's columns. With double cycling, however, the number of moves depends on the order of operations. Therefore, the problem of double cycling is one of scheduling jobs, or finding the order in which to operate on the columns that minimizes ship turn-around time. The benefits of double cycling are significant for both hatched and hatch less ships, and are robust to constraints on the sequence of operations. Higher ship turnaround time is an indication that vessels spend longer than necessary in such port, and since time is an important component of cost determination in transport, higher ship turnaround time imposes higher cost of port usage which from the customers' perspective is a sure sign of poor port performance (Baird & Valentine, 2006).

2.2.2 Vessel Turnaround Time

Oram and Baker, (2011) define vessel turnaround time as the process needed for loading, discharging and servicing a vessel from berthing until vessel's departure. This period starts from actual arrival of a vessel at berth to its actual departure from the berth. Hartmann, (2004) argues that container terminals are facing challenges of reaching turnaround time with more and larger vessel in the shortest possible time. Clark et al. (2004) elaborate further that port efficiency is directly affected turnaround time for vessel in wharf. And it is varies widely from country to country and region to region. As being proven, Singapore and Hong Kong are the most efficient ports in the world, whereas, inefficient ports are located in developing and third world countries such as Ethiopia, Nigeria, Malawi for Africa continent, or in South America such as Colombia, Venezuela and Ecuador. Since port efficiency is highly correlated with handling cost, therefore, lower turnaround time for vessel means that particular container terminals are having higher handling costs. And the length of time spent by vessels in port represents a loss of revenue from economic point of view.

2.3 Cargo Handling Equipment and Ports Performance

Cargo handling equipment as a facilitating apparatus however, has been found to affect port performance (Okoroafor, 2020). For example, operational performance of cargo handling equipment has direct connection with berth operations, ship operation, transfer operation, storage operation and receipt/delivery operation (Shahjahan, 2000). Thus, improvement in port performance/productivity cannot be achieved without productive cargo handling equipment. Investment in port facilities is therefore necessary for acquisition of modern cargo handling equipment to suit the growing technological development in ports and shipping (Shahjahan, 2000). However, failure to ensure that the acquired equipment is effectively and efficiently utilized will result in low equipment productivity and poor competitiveness of the ports (Shahjahan, 2000; dos Barbosa, 1999).

The terminal operators in Nigerian ports claim that significant investments in form of high-capacity gantry cranes, straddle carriers, expanded storage areas have been made. However,

impacts of such investments on port operations can be measured using performance indicators. These include indicators of utilization of facilities and indicators of service to vessels and cargo owners (UNCTAD, 2006). These indicators according to UNCTAD (2006) are operationalized into the following metrics: ships waiting time, ships times at berth, berth occupancy and ships turnround times. The level of service obtained from deployment of ship and cargo handling facilities as well as constraining factors can also be assessed from opinion of port users. This approach dictates the framework for addressing the pertinent research questions raised in this paper. The combination of indicators of utilization, service and perceived factors impacting facility performance from port users could offer some insights into ports' utilization of cargo handling facilities.

2.4 Empirical Studies

Lam, Ko, Sim and Tee (2017) and Usman (2015) have studied the state of cargo handling equipment in African ports. In doing so, their studies show that there is a problem of cargo handling equipment in many of the African ports. In fact, their findings occasioned the need to undertake the study of this kind as they noted that; the case of cargo delivery time is an illustration of a more general problem in African port development. Most, if not all, the binding constraints to grow such infrastructure are the result of an equilibrium in which certain actors cause the problems. One of the resulting problems is the delay in cargo clearance and delivery because of insufficient cargo handling equipment.

Cargo handling equipment similarly, enhance ship operations, especially loading and unloading of cargoes (Somuyiwa and Akindele, 2015). The efficiency of terminal operations is important for cargo transshipment that will ensure Nigeria ports comply with the 48 hours cargo clearance rule of the International Maritime Organisation (IMO). However, Igbokwe (2013) suggests that there has been little improvement over time on the efficiency and productivity of Nigeria Ports Management in meeting the IMO stipulation on cargo clearance. By the assessment of Somuyiwa and Akindele (2015) handling plants and equipment in Nigerian Ports are either old, obsolete, malfunctioning, broken down or insufficient, with adverse effects on cargo handling operations.

Using Apapa Port Complex as a case study, Emaghara and Ndikom (2012) linked delays at seaports in Nigeria to inadequate functional cargo handling equipment as the most critical factor causing delays at the port. The researchers concluded as follows: "though the private operators have invested resources in the procurement of cargo handling equipment in both quantity and quality, the result is not yet significant because private terminal operators still rely mostly on the outdated and obsolete equipment inherited from Nigerian ports authority (NPA) during the concession arrangement". It is evident that private terminal operators no longer depend on the outdated and obsolete equipment inherited from NPA as the results of their investment has yielded into equipment with new technologies that requires special technical know-how. The high technical demand of the new equipment is throwing a lot of challenges at efficient operation of cargo handling equipment at the port's terminals (Usman, 2015).

Alderton (2013) has studied the role of cargo handling equipment to port performance. Their main concern was why cargo spends weeks in Sub-Saharan African ports. Their findings suggest that there is a problem of cargo handling equipment in many of the African ports. In fact, their findings influence the will to undertake the study of this kind as they noted that; the case of cargo dwell times is an illustration of a more general problem in African port developments. Most, if not all, the binding constraints to grow such infrastructure are the result of an equilibrium in which certain actors cause of problem. One of the resulting problems is the delay in cargo clearance and delivery.

According to them, the process of cargo clearance in its international standards should take three to four days. But this is not in case of African port where the processes take 15 days to three weak. Their assumption is dwell time and clearance time is a major commercial instrument used to attract cargo and revenues. There has major concern worldwide about the role of cargo handling equipment to port performance. In so doing several researchers, author and organization have attempted to research about this topic. One among them is Rigout (2012), in his study on the effect of container terminal concessions on port performance; analyzed the way cargo handling equipment contributes to port performance. In a similar manner Du et al (2016), explain that the backbone of ports is cargo handling equipment. His study continues to note that the port performance indicators that focus on the cargo-handling product are very important to analyze. The study provides three possible indicators concerning cargo-handling products. However, it is noted that Port throughput is the most widely used in the port industry since it can be measured uniformly. Also, port throughput, to a large extent, is a determinant for the other port performance indicators. For example, the size of logistics space depends on port throughput volumes. If a port has higher throughput volumes, the logistics capacity has to increase with the throughput volumes.

From the foregoing discourse, the study hypothesized thus:

Ho_1: There is no significant relationship between cargo handling equipment and cargo turnaround time.

Ho_2: There is no significant relationship between cargo handling equipment and vessel turnaround time.

3.0 Methodology

The study adopted the cross-sectional survey in its investigation of the variables. Primary source of data was generated through self- administered questionnaire. The population of the study was 2,416 employees of six ports in Nigeria including Abuja office. The sample size of 344 was determined using the Taro Yamane's formula for sample size determination. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. Data generated were analyzed and presented using both descriptive and inferential statistical techniques. The hypotheses were tested using the Spearman's Rank Order Correlation Statistics. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

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4.0 Data Analysis and Results

Table 1 Correlation for Cargo Handling Equipment and Ports Performance Measures

			Heavy Duty Forklift System	Cargo Turnaround Time	Vessel Turnaround Time
Spearman's rho	Cargo Handling Equipment	Correlation Coefficient	1.000	.675**	.811**
		Sig. (2-tailed)	.	.000	.000
		N	325	325	325
	Cargo Turnaround Time	Correlation Coefficient	.675**	1.000	.956**
		Sig. (2-tailed)	.000	.	.000
		N	325	325	325
	Vessel Turnaround Time	Correlation Coefficient	.811**	.956**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	325	325	325

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

Source: SPSS Output

Ho_1: There is no significant relationship between cargo handling equipment and ports performance

Table 1 shows the result of correlation matrix obtained for cargo handling equipment and cargo turnaround time. Similarly displayed in the table is the statistical test of significance (p - value), which makes possible the generalization of our findings to the study population. From the result obtained in table 1 above, the correlation coefficient (rho) showed that there is a significant relationship between cargo handling equipment and cargo turnaround time. The correlation coefficient of 0.675 confirms the extent and strength of this relationship and it is significant at p 0.000<0.01. The coefficient represents a strong correlation between the variables. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between cargo handling equipment and cargo turnaround time in Nigerian Ports.

Ho_2: There is no significant relationship between cargo handling equipment and vessel turnaround time in Nigerian Ports.

Table 1 shows the result of correlation matrix obtained for cargo handling equipment and vessel turnaround time. Similarly displayed in the table is the statistical test of significance (p - value), which makes possible the generalization of our findings to the study population. From the result obtained in table 1 above, the correlation coefficient (rho) showed that there is a significant relationship between cargo handling equipment and vessel turnaround time. The correlation coefficient of 0.811 confirms the extent and strength of this relationship and it is significant at p 0.000<0.01. The coefficient represents very strong relationship between cargo handling equipment and vessel turnaround time.

4.1 Discussion of Findings

The findings revealed a significant relationship between cargo handling equipment and Ports performance in Nigeria. The finding of this study corroborates with Victor, Olusegun and

Adebambo (2016) who examined the analysis of cargo handling operations in Apapa and Tincan Island Ports and found that there is positive relationship between the cargo handling equipment and dock workers in the output performance of the selected ports. However, it was realized that equipment is more versatile and effective than the use of labour in carrying cargo at the ports. Although; equipment cannot function without labour, that is why there is linear relationship between the two. The level of efficiency attained in vessel pilotage, anchorage and cargo handling maximizes cargo output in the berth and quickens the turnaround time of ships in the port and reduces cargo handling cost, demurrage and enhances international distribution of goods and logistics. Derricks, cranes and winches, together with their associated fittings should be regularly overhauled and inspected under a planned maintenance schedule, appropriate to the ship. Winch guards should always be in place throughout winching operations and operators should conform to the Code of Safe Working Practice (CSWP).

Furthermore, the finding agrees with the earlier study by Hart (2019) who examined Cargo Handling Performance and Its Effect on Turnaround Time of Liner Ships (A Case of Tema Port) and found that the vessel turn-around time is highly influenced by cargo-handling performance. It is studied from the findings above, that there are three key factors to measure cargo-handling performance of containers at the port; the first one is customer satisfaction, this is reflected to vessel's crew and ship's agent's satisfaction. The second one is waiting time, service time, idle time and output, and which reflect on container flow service time which as a direct effect on vessel turn-around time.

The findings of this study confirmed the views of Kiwanuka (2013) who used a case study approach to analyze the effects of cargo handling equipment to port performance. His findings showed that there is a problem in cargo handling equipment especially in the port of Dares Salaam. Among the greatest problem identified are cargo clearances. The study continues to note that in the port of Dar es Salaam it takes between ten to fifteen days for one to clear the cargo. He identified that several countries which were served their cargo to Dares Salaam port were now shifted to Mombasa. This is different from port in Western countries, as noted by UNCTAD (2012) that at international standard cargo clearance should take between two to three days.

5.0 Conclusion and Recommendation

Based on the findings, this study concludes that cargo handling equipment significantly relate ports performance in Nigeria. Therefore, the study recommends that management of ports in Nigeria should seek to have modern cargo handling equipment should be taken as a step toward delivering efficient and timely port capacity.

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