LGJDX ISSN No: 1008-0562 Journal Of Liaoning Technical University Natural Science Edition

# AN ASSESSMENT OF PORT GOVERNANCE MODEL AND ITS IMPACT ON PORT PERFORMANCE: A CASE STUDY OF NIGERIAN SEAPORTS

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Abstract

This study critically assesses the implementation and impact of the landlord port governance model on port performance in selected Nigerian seaports—Onne, Warri, Apapa, Tin Can Island, and Port Harcourt. The study aimed to evaluate the model's governance structure, investigate its influence on time-related performance metrics, and explore transparency-enhancing components critical to its implementation. A descriptive survey design was employed, targeting senior personnel from regulatory agencies, shipping lines, terminal operators, freight forwarders, and relevant trade associations. A sample of 393 respondents was drawn using Yamane's formula from a population of 24,966. Data were collected using structured questionnaires comprising both closed- and open-ended questions across five thematic sections. Quantitative data were analysed using SPSS, with inferential statistics conducted via One-Way ANOVA to determine significant differences in stakeholder perceptions. The findings reveal statistically significant impacts of the landlord port governance model on port performance. Governance structure and configuration were shown to significantly affect transparency and operational efficiency ($F = 109.3$; $p < 0.05$). Time-related performance metrics also demonstrated substantial influence ($F = 143.23$; $p < 0.05$). Furthermore, transparency components, including stakeholder integration and digitalisation efforts, were found to be central to improved port outcomes ($F = 73.19$ and $25.40$; $p < 0.05$, respectively). The study concludes that the landlord model, when underpinned by robust governance, transparency mechanisms, and stakeholder collaboration, significantly enhances port performance. Key recommendations include continuous review of governance structures, formal stakeholder integration in decision-making, institutionalisation of digital transparency tools, and standardised performance metrics across seaports to ensure sustainable and accountable port reform in Nigeria.

**Keywords:** Landlord port model, Port performance, Transparency, Governance structure, Stakeholder integration

## Introduction

From a historical standpoint, ports were primarily developed for economic exploration and exploitation, and they played an integral role in connecting global regions (Palmer, 1999; Ducruet, 2022). Over time, these maritime hubs were repurposed by imperial powers as instruments for invasions, colonial domination, and the slave trade. However, following international condemnation of slavery and colonialism, such uses declined due to the lack of sustainable economic returns (Verschuur, Koks & Hall, 2022). With the advent of globalisation in the late 20th century, port roles shifted dramatically. Technological innovations and global trade demands necessitated the lowering of cargo handling costs and improvements in operational efficiency, prompting ports to evolve into hubs of rapid

logistical processing (Kowalewski, 2021). Governments, due to the extensive capital required, traditionally controlled port development. However, bureaucratic inefficiencies made it imperative to invite private sector participation to enhance port performance, particularly in auxiliary services. Edgar (1999) highlighted that despite increasing privatisation, the state retained authority over maritime safety and environmental regulations in line with international maritime law.

In Nigeria, prior to the 2000s, there was a growing demand for private investment in the maritime industry to boost technical and operational performance. Duyile et al. (2020) outlined the evolution of Nigerian port governance in four phases. The first phase, between 1887 and 1954, involved a private model of Build-Operate-Own, mainly in the Niger Delta and Eastern ports. The second phase began in 1956 with a mix of service port, private port, hire-for-reward, and landlord models. Between 1979 and 1991, the tool port model was introduced for the RoRo Terminal Company. The third phase (1993–2005) saw the Onne port operating under a private model while others retained the service port structure. The fourth and current phase started in 2006 with the adoption of the landlord port model, which led to the concession of 25 terminals to private operators under Lease-Operate-Transfer (LOT) and Build-Operate-Transfer (BOT) arrangements. The evolution of these models was heavily influenced by the prevailing political regime, be it military or civilian. Before these reforms, Nigerian ports suffered significant operational inefficiencies. Mohammed (2009) described this period as marred by delays in cargo clearance, outdated infrastructure, and a lack of political will to implement improvements. These challenges underscored the urgency for reform, especially since ineptitude among port officials and agencies was commonly accepted, adversely impacting productivity and transparency under the control of the Nigerian Ports Authority (NPA).

The NPA, established in 1955, was initially created to mitigate bureaucratic inefficiencies. However, Eto (2019) argued that the port system became complex and inefficient largely due to its outdated governance structure. Agabi (1999) echoed this sentiment, citing prolonged ship turnaround times and frequent equipment failures due to poor maintenance. These inefficiencies necessitated a transition to the landlord port model, which was expected to introduce better transparency and service efficiency. Monios (2019) noted that fragmented stakeholder responsibilities contributed to mismanagement, which the landlord model aimed to rectify by consolidating oversight under a clearer institutional framework.

The key objectives of adopting the landlord model, as articulated by Zhang et al. (2019), were to improve efficiency, promote competition, encourage integration and stakeholder participation, and establish sound corporate governance. This model necessitated restructuring the NPA to function primarily as a technical regulator while decentralising operational control to port terminals. Okorie et al. (2016) confirmed that this institutional shift aligned with global best practices and was crucial for improving Nigerian port operations. Consequently, the ports in Lagos and Port Harcourt were decentralised into autonomous authorities to enhance management and decision-making. Each entity was tasked with implementing service reforms within its jurisdiction, with defined roles for key stakeholders such as the federal government, the Federal Ministry of Marine and Blue Economy (FMMBE), the NPA, the Nigeria Shippers' Council (NSC), and private terminal operators.

The decentralised model aimed to ensure that services were delivered swiftly and transparently. Knatz (2017) noted that the reform was designed to achieve efficient service delivery at all levels of port operations. During President Olusegun Obasanjo's tenure (1999–

2007), the landlord port model was prioritised to reform the port system, particularly between 2003 and 2007. According to Oriaku et al. (2011), this reform had a dual objective: to separate the NPA's administrative functions from operational responsibilities and to encourage more inclusive policymaking through stakeholder engagement and decentralised decision-making. To support this decentralisation, the federal government established two autonomous operational zones, the Eastern and Western Commands headquartered in Port Harcourt and Lagos respectively (Iwuoha, Okafor & Ifeadike, 2022). These changes were aimed at enhancing service delivery by creating more flexible communication channels and improving localised decision-making processes.

However, despite these reforms, challenges in port performance persisted. This led President Umaru Musa Yar'Adua, who succeeded Obasanjo in 2007, to reverse some of the decentralisation policies. On 7th November 2007, the Federal Executive Council, under Yar'Adua's leadership, re-centralised the NPA into a single corporate entity, revoking the administrative split introduced by the previous administration. This re-centralisation signalled a return to the centralised administrative structure of the Ports Act of 1954, disrupting the trajectory of the landlord model reform efforts. Given these developments, there is a renewed need to assess the effectiveness of the landlord port governance model, especially under the current administration of President Bola Ahmed Tinubu. The study aims to evaluate how the existing governance framework impacts port performance in selected Nigerian seaports and to determine whether the landlord model can still fulfil its intended purpose in a rapidly evolving political and economic environment.

The major objective of this study is to undertake an assessment of the landlord port governance model and their impact on port performance in selected Nigerian seaports of Onne, Warri, Apapa, Tin Can Island (TCIP) and Port Harcourt. The specific objectives are to:

1. Examine the governance structure and configuration of the landlord port governance model in improving transparency and to promote port performance in the selected Nigerian seaports.

2. Investigate the landlord port governance model's impact on time-related port performance metrics in the selected Nigerian seaports.

3. Determine the factors that can assist implementation of the landlord port governance model in the concession ports towards improving transparency and enhancing port performance in the selected Nigerian seaports.

4. Determine what port transparency components could be incorporated into the landlord port governance model to improve port performance in the selected Nigerian seaports.

**Methods**

The research adopted a descriptive survey design to explore stakeholder perspectives on the implementation of the landlord port model in selected Nigerian seaports. The survey method allowed for the systematic collection of data across a wide spectrum of participants directly involved in port activities, operations, and governance. The study targeted senior personnel and key decision-makers drawn from regulatory bodies, shipping companies, port terminal operators, freight forwarders, importers, exporters, and relevant trade associations. These participants were selected using a set of inclusion criteria, which ensured the recruitment of respondents with substantial knowledge and experience. The inclusion criteria involved individuals in managerial or official representative roles, such as port managers or their

deputies, chief executives and directors who had held their positions for at least one year, and employees or members of relevant stakeholder organisations with a minimum of one year of experience. The sampling frame, drawn from bodies such as the Nigerian Ports Authority (NPA), Nigerian Shippers' Council (NSC), Council for the Regulation of Freight Forwarding in Nigeria (CRFFN), and others, totalled 24,966. Using the Yamane (1967) formula for sample size determination at a 5% margin of error, the calculated and approximated sample size was 393 participants.

Data collection was carried out using a structured questionnaire designed to elicit both quantitative and qualitative information. The questionnaire comprised both open-ended and close-ended questions. The open-ended format enabled respondents to freely express their insights and opinions regarding the landlord port model, while the close-ended questions allowed for more structured responses aligned with the research objectives. The questionnaire was divided into five sections: (1) demographic details of the respondents, (2) assessment of the landlord port model and its impact on port governance and performance, (3) analysis of time-related performance indicators under the landlord model, (4) perceptions of transparency and accountability in the implementation of the landlord model, and (5) implementation strategies and their effectiveness. By capturing a comprehensive range of information from respondents, the instrument provided a holistic view of the issues surrounding port reform and governance within the landlord model framework. Particular emphasis was placed on the experience and perceptions of key personnel, enabling the study to gain nuanced insights into the practical realities of the reform process at Nigerian seaports.

The analysis of the data collected involved both manual and software-based approaches, ensuring accuracy and reliability of the findings. Data cleaning was conducted manually to eliminate inconsistencies and prepare the dataset for statistical processing. Quantitative data from the close-ended questionnaire items were analysed using the Statistical Package for Social Sciences (SPSS). The analysis was performed at univariate, bivariate, and multivariate levels, employing nominal scales for measurement. Descriptive statistics such as frequencies and percentages were used to summarise demographic variables and general trends, while inferential statistics were conducted using the One-Way Analysis of Variance (ANOVA) technique. ANOVA was applied to determine whether significant differences existed in perceptions and experiences among various respondent groups concerning the implementation and impact of the landlord port model. This statistical method was appropriate as it allowed the researcher to assess the differences across multiple categories based on a single quantitative variable. The approach provided a robust framework for testing the study's hypotheses and drawing meaningful conclusions about the relationship between port governance reforms and performance outcomes.

Mathematically, ANOVA Model can be formulated as

$$X_{ij} = \mu + \alpha_i + e_{ij};\ i = 1,2,...,k;\ j = 1,2,...,n. \quad \ldots \quad (1)$$

Where: $X_{ij}$ = the measurement in the $(ij)th$ cell

$\mu$ = grand mean

$\alpha$ = effect of the $ith$ treatment

$e_{ij}$ = the error associated with $X_{ij}$ .*Assumptions:* $e_{ij} \sim N(0, \sigma^2)$

$$\sum_i \alpha_i = 0.$$

$$H_0 : \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4$$

$H_A$: at least $\alpha_1 \neq 0$

$x_{ij}$ = Port Governance indices.

$i = 1, 2, 3, 4$ represents Governance structure components, Time related performance metrics, Transparency Implementation metrics and Transparency components

$j = 1, 2, 3, \ldots, 393$ represents number of respondents

To determine the internal consistency of each variable, the Cronbach's Alpha test was conducted based on the result of questionnaire administered during the pilot test where pre-set thesis research questions were administered online to 27 randomly selected members of the study population. The pilot test result revealed that each of the research variables was considered reliable using Cronbach's Alpha with a statistical value that is greater than 0.7. Further construct validity of the research instruments was established, through confirmatory factor analysis, that the Average Variable Extracted (AVE), as additional evidence of construct validity, was greater than 0.05. The outcome of the Cronbach Alpha for the variables is presented below.

Cronbach's Alpha Internal Consistency Reliability Result

| Variables | Number of Items | Cronbach's Alpha |
|---|---|---|
| Assessment of landlord port model port governance structure and its effects on port performance | 7 | 0.921 |
| Analysing the landlord model and time-related port performance | 6 | 0.810 |
| Perception of port transparency on the implementation of landlord port model and impact on port performance | 5 | 0.873 |
| Implementation strategy of landlord model and port performance | 7 | 0.802 |

**Results and Discussion**

Table 1: Demographic Characteristics of the Respondents

| Sex of respondent | Freq. | Percent | Cum. |
|---|---|---|---|
| Male | 311 | 79.13 | 79.13 |
| Female | 82 | 20.87 | 100 |
| Sub-total | 393 | 100 | |
| Marital Status | | | |
| Single | 69 | 17.56 | 17.56 |
| Married | 324 | 82.44 | 100 |
| Sub-total | 393 | 100 | |
| Age of respondent | | | |
| <21yrs | 3 | 0.76 | 0.76 |
| 21 - 30yrs | 60 | 15.27 | 16.03 |
| 31 - 40yrs | 127 | 32.32 | 48.35 |
| 41 - 50yrs | 147 | 37.4 | 85.75 |
| >50yrs | 56 | 14.25 | 100 |
| Sub-total | 393 | 100 | |
| Current rank in office | | | |

| | | | |
|---|---|---|---|
| Managing Dir./CEO | 18 | 4.58 | 4.58 |
| Executive Dir./GM/AGM | 20 | 5.09 | 9.67 |
| Port Manager | 3 | 0.76 | 10.43 |
| Managerial position | 113 | 28.75 | 39.19 |
| Supervisor | 216 | 54.96 | 94.15 |
| Secretary of Org./Assoc. | 5 | 1.27 | 95.42 |
| Leader of Org./Assoc. | 18 | 4.58 | 100 |
| Sub-total | 393 | 100 | |
| Yrs. of Experience in the port system | | | |
| 1 - 5 years | 43 | 10.94 | 10.94 |
| 6- 10 years | 90 | 22.9 | 33.84 |
| 11 - 15 years | 131 | 33.33 | 67.18 |
| 16 - 20 years | 75 | 19.08 | 86.26 |
| 21 - 25 years | 40 | 10.18 | 96.44 |
| 26 - 30 years | 14 | 3.56 | 100 |
| Sub-total | 393 | 100 | |

Source: Author- Data analysis

Table 2: Descriptive Statistics of Rating Response Data from Questionnaire

| Variable/Construct | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|
| qb8 | 2.77 | 1.41 | 1 | 5 |
| qb9 | 3.07 | 1.36 | 1 | 5 |
| qb10 | 3.30 | 1.27 | 1 | 5 |
| qb11 | 2.31 | 1.23 | 1 | 5 |
| qb12 | 2.18 | 1.20 | 1 | 5 |
| qb13 | 3.44 | 1.25 | 1 | 5 |
| qb14 | 3.61 | 1.26 | 1 | 5 |
| qb15 | 3.75 | 1.19 | 1 | 5 |
| qb16 | 4.11 | 0.90 | 1 | 5 |
| qc18 | 4.28 | 0.69 | 1 | 5 |
| qc19 | 3.98 | 0.91 | 1 | 5 |
| qc20 | 3.95 | 0.94 | 1 | 5 |
| qc21 | 2.79 | 1.36 | 1 | 5 |
| qc22 | 2.54 | 1.37 | 1 | 5 |
| qc23 | 4.00 | 0.98 | 1 | 5 |
| qc24 | 4.05 | 0.98 | 1 | 5 |
| qc25 | 2.47 | 1.31 | 1 | 5 |
| qc26 | 2.37 | 1.23 | 1 | 5 |
| qc27 | 3.35 | 1.30 | 1 | 5 |
| qc28 | 3.63 | 1.26 | 1 | 5 |
| qc29 | 3.63 | 1.23 | 1 | 5 |
| qc30 | 2.57 | 1.41 | 1 | 5 |
| qd33 | 4.28 | 0.84 | 1 | 5 |
| qd34 | 4.02 | 0.96 | 1 | 5 |
| qd35 | 3.46 | 1.34 | 1 | 5 |
| qd36 | 4.11 | 0.82 | 1 | 5 |

| | | | | |
|---|---|---|---|---|
| qd37 | 3.97 | 0.89 | 1 | 5 |
| qd38 | 4.16 | 0.78 | 1 | 5 |
| qd39 | 3.95 | 1.07 | 1 | 5 |
| qd40 | 2.83 | 1.34 | 1 | 5 |
| qd41 | 3.24 | 1.34 | 1 | 5 |
| qd42 | 3.97 | 1.02 | 1 | 5 |
| qd43 | 3.72 | 1.17 | 1 | 5 |
| qd44 | 2.97 | 1.39 | 1 | 5 |
| qd45 | 2.96 | 1.35 | 1 | 5 |
| qd46 | 2.90 | 1.39 | 1 | 5 |
| qd47 | 3.21 | 1.37 | 1 | 5 |
| qd48 | 3.86 | 1.17 | 1 | 5 |
| qd49 | 3.90 | 1.02 | 1 | 5 |
| qe51 | 3.31 | 1.37 | 1 | 5 |
| qe52 | 3.72 | 1.01 | 1 | 5 |
| qe53 | 4.05 | 0.84 | 1 | 5 |
| qe54 | 3.88 | 1.00 | 1 | 5 |
| qe55 | 3.89 | 1.01 | 1 | 5 |
| qe56 | 3.92 | 1.01 | 1 | 5 |
| qe57 | 3.94 | 1.06 | 1 | 5 |
| qe58 | 3.96 | 1.00 | 1 | 5 |
| qe59 | 3.32 | 1.38 | 1 | 5 |

No of Obs. 393
Source Author Data analysis

In the analysis of this research question, the statistical tools of mean and standard deviation are adopted. Within the set of data collated for this study, the calculated mean is expected to provide the average of the dataset, while standard deviation would assist the measure of the variability to the mean (Centennial College, 2023). Both tools are expected in giving the study variables greater understanding of the assessment of port performance in the selected seaports in the Nigerian maritime industry. In Table 2, results are presented for the statistical calculations for the mean and standard deviation for the variables measured for the selected seaports.

Research Question One: How has the governance structure configuration of the Nigerian landlord port governance model improved transparent decision-making to promote port performance in selected Nigerian seaports?

Table 3: Analysis for Research Question 1

| Questionnaire Item No | Construct/Variable | Mean | Std. Dev. | Decision Accept (Yes) if mean Score >= 2.5 otherwise Reject (No) |
|---|---|---|---|---|
| qb8 | Decentralization of NPA Organizational Structure in the landlord port model's governance structure will improve port | 2.77 | 1.41 | Yes |

| | | | | |
|---|---|---|---|---|
| | performance | | | |
| qb9 | Decentralised administration of the Nigerian Shippers Council in the landlord port model's governance framework will improve Port performance | 3.07 | 1.36 | Yes |
| qb10 | Faster decision-making in the landlord port model's institutional governance structure may improve port performance. | 3.30 | 1.27 | Yes |
| qb11 | Involvement of terminal operators as private investors in the landlord port model's governance structure will positively impact performance. | 2.31 | 1.23 | No |
| qb12 | Infrastructural development by private investors in the landlord port governance model will improve port performance. | 2.18 | 1.20 | No |
| qb13 | Operating multiple regulatory agencies (NPA & NSC) in the landlord port model will improve port performance. | 3.44 | 1.25 | Yes |
| qb14 | Enacting new legislation will improve the organizational structure and efficient functioning of the port regulators. | 3.61 | 1.26 | Yes |
| qb15 | Appointment of board members & Management Team for decision making by FGN will improve performance | 3.75 | 1.19 | Yes |
| qb16 | Enactment of Port Act promoting corporate governance will improve port performance | 4.11 | 0.90 | Yes |

No. of Obs. (N): 393, Max score = 5, Min. Score =1
Source: Author's own elaboration

LGJDX ISSN No: 1008-0562 Journal Of Liaoning Technical University Natural Science Edition

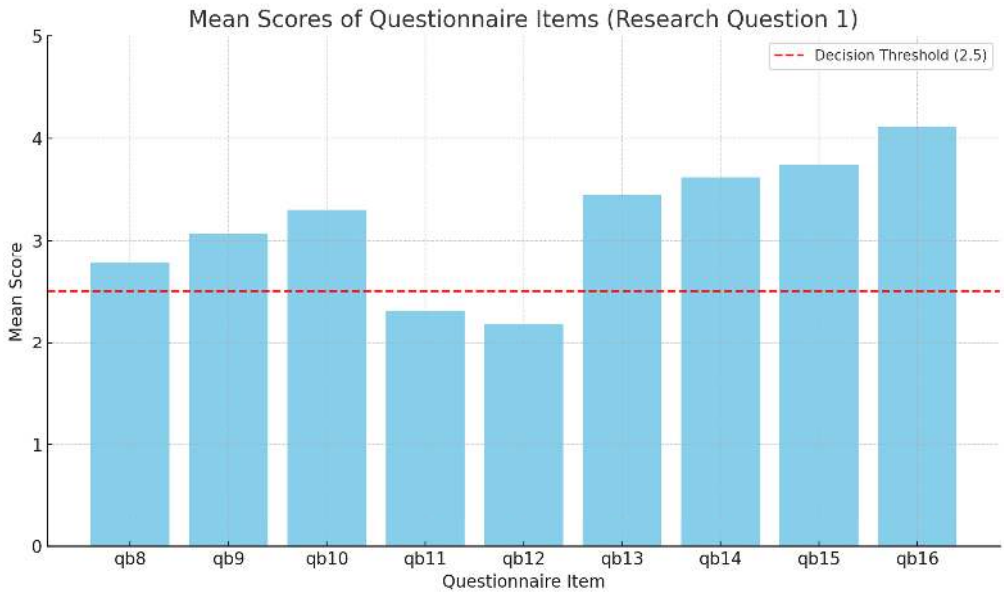


Figure 1: Bar chart showing distribution of responses on whether the *governance structure configuration of the Nigerian landlord port governance model has improved transparent decision-making*

In table 3, the respondents mean response score according to the cluster of sub-statements/constructs are as shown. Since the average score obtainable on the Likert scale's 1-5 continuum is 2.5, we therefore take average response as affirmative Yes (for mean scores 2.5 and above). Where the mean score obtained is below 2.5, we take the average response as No.

Research Question Two: How does the landlord port governance model impact the time-related port performance measurement in selected Nigerian seaports?

Table 4: Analysis of Research Question 2

| Questionnaire Item No | Construct/Variable | Mean | Std. Dev. | Decision: Accept (Yes) if mean Score >= 2.5 otherwise No |
|---|---|---|---|---|
| qc18 | Port stakeholders are expected to be familiar with time-related port performance metrics. | 4.28 | 0.69 | Yes |
| qc19 | Port performance measures such as ship turnaround time, port terminal access gate turnaround time are often observed to be flawed. | 3.98 | 0.91 | Yes |
| qc20 | Current state of poor time-related performance activities likely to improve port performance in the concessioned seaport. | 3.95 | 0.94 | Yes |
| qc21 | The current implementation of ships' Turn-Round Time (TRT) by NPA will improve port performance in the | 2.79 | 1.36 | Yes |

| | | | | |
|---|---|---|---|---|
| | concessioned ports. | | | |
| qc22 | Speedy handling of vessels (pilotage and manoeuvring operations) will enhance port performance. | 2.54 | 1.37 | Yes |
| qc23 | Pre-berthing delays of cargo ships can affect performance. | 4.00 | 0.98 | Yes |
| qc24 | When ships' idling time at berth is not sped up, it affects port performance. | 4.05 | 0.98 | Yes |
| qc25 | The current implementation of monitoring and enforcement of cargo Service Delivery Turn-Round Time (SDTRT) by Nigeria Shippers' Council will improve port performance in the concessioned ports. | 2.47 | 1.31 | Yes |
| qc26 | The installation of public notice boards and operational digital dashboards at the ports will boost port performance. | 2.37 | 1.23 | No |
| qc27 | Current cargo handling time by the terminal operators will improve port performance. | 3.35 | 1.30 | Yes |
| qc28 | The current booking and positioning containers for scanning or examination time-related activities by the terminal operators will improve port performance in the concessioned ports. | 3.63 | 1.26 | Yes |
| qc29 | The current management of the port terminal accessibility of gate and turnaround time by the port users will improve port performance in the concessioned seaport. | 3.63 | 1.23 | Yes |
| qc30 | Speedy handling of and measurement of the port terminal operators' cargo delivery documentary time will enhance port performance. | 2.57 | 1.41 | Yes |

No. of Obs. (N): 393, Max score = 5, Min. Score =1
Source: Author's own elaboration

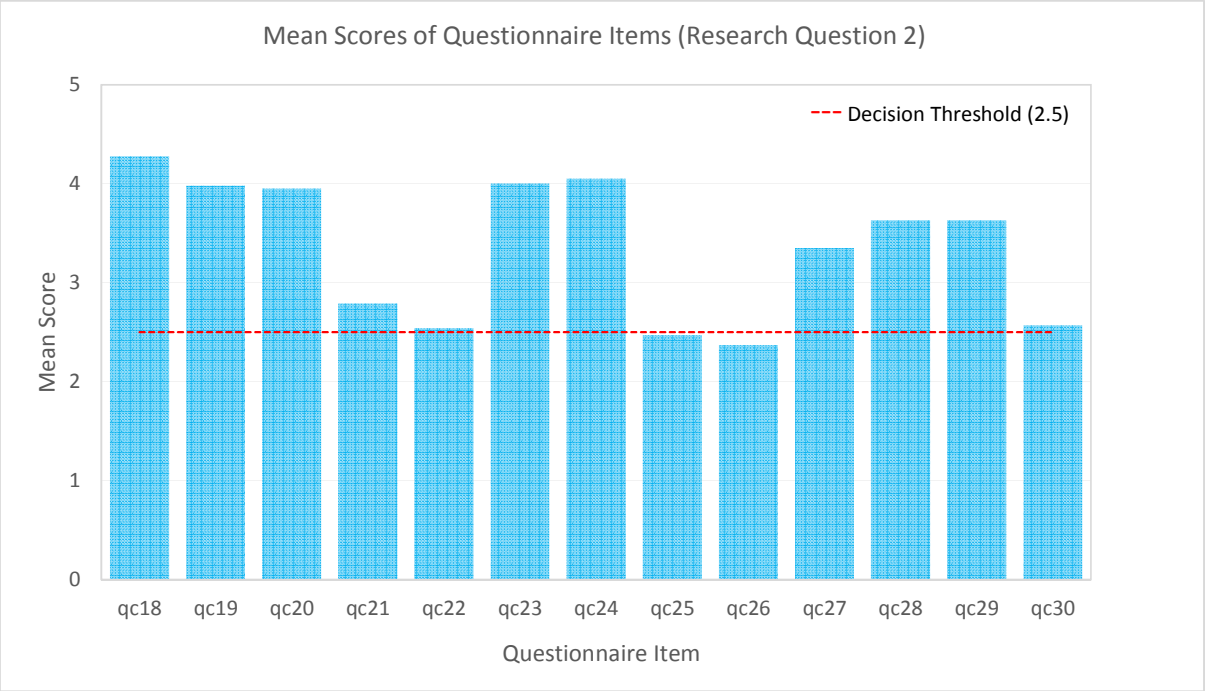


Figure 2: Bar Chart showing distribution of respondents' responses, according to seaports, on the probability that the landlord port governance model could impact the time-related port performance measurement in selected Nigerian seaports

In table 4, the respondents mean rating response score according to the cluster of sub-statements/constructs are as shown. Using the criterion demonstrated above, the rating response of respondents demonstrates that the landlord port governance model could impact the time-related port performance measurement in selected Nigerian seaports via the following factors: Port stakeholders' familiarity with time-related port performance metrics, review of flawed Port performance measures, Current state of time-related performance activities, The current implementation of ships' Turn-Round Time (TRT) by NPA, Speedy handling of vessels, removal of Pre-berthing delays of cargo ships, managing ships' idling time at berth, current implementation of monitoring and enforcement of cargo Service Delivery Turn-Round Time (SDTRT), improvement of cargo handling time by terminal operators and booking and positioning containers for scanning or examination time-related activities by the terminal operators. Others are management of the port terminal accessibility of gate and turnaround time by the port users and Speedy handling of and measurement of the port terminal operators' cargo delivery documentary time. However, we do not find sufficient statistical evidence to accept that installation of public notice boards and operational digital dashboards would impact the time-related port performance measurement.

Also, the study's respondents' acceptance levels vary across constructs. High acceptance is observed, when assessing respondents' opinions for the constructs related to the importance of time related metrics. Firstly, on if the Port stakeholders are expected to be familiar with time-related port performance metrics. The respondents in the study area indicated a higher mean value of (4.28) that reveal the opinion of the participants. In addition, respondents agreed that pre-berthing delays of cargo ships can affect performance with a high value of (4.00) ships' idling time at berth at berth is not sped up, it affects port performance with a mean value of (4.05) which outstandingly influence port performance. Whereas moderate acceptance is revealed for construct for Current state of poor time-related performance activities likely to improve port performance in the concessioned seaport with mean value of

(3.95) and current cargo handling time by the terminal operators will improve port performance with mean value of (3.35) suggested some agreement with regard to probable for improvement.

In comparison, low acceptance is noted for constructs related to effectiveness of current implementations. For Instance, respondents in the study area indicated are neutral or slightly disagree that the current implementation of ships' Turn-Round Time (TRT) by NPA will improve port performance in the concessioned ports with a mean value of (2.79), Speedy handling of vessels (pilotage and manoeuvring operations) will enhance port performance with a mean value of (2.54) and NSC's monitoring and enforcement with a mean value of (2.47) will improve performance.

Similarly, the installation of public notice boards and digital dashboards with a mean value of (2.37) and speedy handling of cargo delivery documentary time with a mean value of (2.57) obtain less acceptance among the respondents, which implied scepticism concerning their probable influence. As a result, the diverse degree of acceptance are the high point areas where the port stakeholders agree on the significance of time-related metrics and the impact of delays, while also pinpoint areas where the current practice are adjudged as ineffective. Indeed, this information can be apprising targeted improvements to strengthen port performance.

Research Question Three

How does the implementation of the landlord port governance model in the concessioned ports improve transparency to enhance port performance in selected Nigerian seaports?

Table 5: Analysis of Research Question 3

| Questionnaire Item No | Construct/Variable | Mean | Std. Dev. | Decision: Accept (Yes) if mean Score >= 2.5 otherwise No |
|---|---|---|---|---|
| qd33 | Installation of real-time online public notice and dashboard would be useful for ports users | 4.28 | 0.84 | Yes |
| qd34 | A lack of transparency in the port performance measurement is observed in the landlord port governance model | 4.02 | 0.96 | Yes |
| qd35 | Terminal operators are not seen to be transparent in their management of port operation information. | 3.46 | 1.34 | Yes |
| qd36 | Regular publication of port performance reports by the port regulators is considered to improve port transparency. | 4.11 | 0.82 | Yes |
| qd37 | Under present political settings, industry professionals are not being selected into the boards of agencies in the maritime industry. | 3.97 | 0.89 | Yes |

| | | | | |
|---|---|---|---|---|
| qd38 | Appointment of maritime professionals would impact port performance in the implementation of landlord port governance model | 4.16 | 0.78 | Yes |
| qd39 | Current profiles of board members of agencies in the maritime industry are often considered as a gratification for political associates of politicians in current government). | 3.95 | 1.07 | Yes |
| qd40 | Port terminal operators do not have ethics hotlines (phone numbers that port users can call to report questionable activities). | 2.83 | 1.34 | Yes |
| qd41 | Port terminal operators' ethics hotlines (phone numbers that port users can call to report questionable activities) in the port terminals are not functional. | 3.24 | 1.34 | Yes |
| qd42 | Government's introduction of the landlord port model was to ensure transparency in port operations. | 3.97 | 1.02 | Yes |
| qd43 | Government's involvement of the private sector in the landlord port model was to ascertain transparency in port operations. | 3.72 | 1.17 | Yes |
| qd44 | The introduction of port concessionaires (terminal operators) has not yielded desired level of performance. | 2.97 | 1.39 | Yes |
| qd45 | The current practice of the landlord port model in the concessioned ports has not improved transparency of how port information such as (such as port charges, rates, etc.) is determined. | 2.96 | 1.35 | Yes |
| qd46 | The current practice of the landlord port model has not improved port users' access to port communication in real-time | 2.90 | 1.39 | Yes |
| qd47 | The implementation of the landlord port governance model has not enabled port users the quick access to port-generated operations reports. | 3.21 | 1.37 | Yes |
| qd48 | Other stakeholders (aside from NPA, NSC, customs, immigration, DSS, etc.) should have access to all port-related information. | 3.86 | 1.17 | Yes |
| qd49 | Current style of sharing port-related information by port agencies is too bureaucratic. | 3.90 | 1.02 | Yes |

No. of Obs. (N): 393, Max score = 5, Min. Score =1
Source: Author's own elaboration

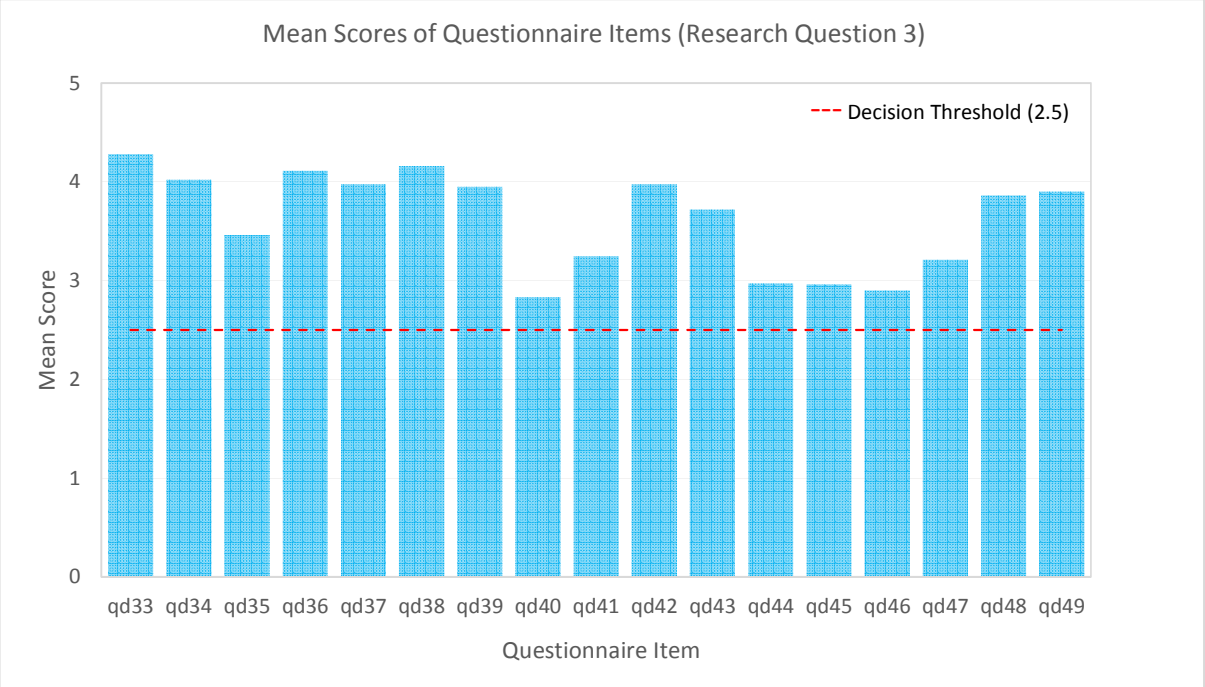


Figure 3: Bar chart showing distribution of respondents' responses, according to seaports, on the perception that implementation of the landlord port governance model in the concessioned ports would improve transparency to enhance performance

In table 5, the respondents mean response score according to the cluster of sub-statements/constructs are as shown. Using the acceptance (Yes) or rejection (No) criterion, the respondents demonstrate that: implementation of the landlord port governance model in the concessioned ports would improve transparency to enhance performance according to the following factors: Installation of real-time online public notice and dashboard would be useful for ports users, Regular publication of port performance reports by the port regulators, Appointment of maritime professionals, provision of Port terminal operators' ethics hotlines (phone numbers that port users can call to report questionable activities), maintenance of transparency in port operations and Other stakeholders should have access to all port-related information.

However, the respondents were of the opinion that: A lack of transparency in the port performance measurement is observed in the ports, Terminal operators are not seen to be transparent in their management of port operation information, industry professionals are not being selected into the boards of agencies due to politics, appointment of board members in the agencies are based on politics, Port terminal operators do not have ethics hotlines, The introduction of port concessionaires has not yielded desired level of performance, The current practice in the concessioned ports has not improved transparency on how port charges, rates are determined, current regime has not improved port users access to port communication in real-time, landlord model has not enabled port users the quick access to port-generated operations reports, implementation of current model has not enabled port users the quick access to port-generated operations reports and Current style of sharing port-related information by port agencies is too bureaucratic.

The items measured included issues that could impact transparency as port users go about their daily businesses. These include the installation of digital notice boards to reveal port operations' information such as incoming and outgoing vessels, or names of vessels in line for berthing, regular physical or online information of port performance reports, appointment of non-professionals into agency boards, and for the implementation of the landlord port model, availability ethics hotlines and their functionality, introduction of landlord port governance model by government and private sector involvement, and the bureaucratic nature of sharing port related information.

Research Question Four: What are the possible factors that are necessary for port transparency components under the landlord port governance model as a way of improving port performance.

Table 6: Analysis of Research Question 4

| Questionnaire Item No | Construct/Variable | Mean | Std. Dev. | Decision: Accept (Yes) if mean Score >= 2.5 otherwise No |
|---|---|---|---|---|
| qe51 | Other stakeholders (aside from NPA and NSC) are rarely informed about real-time shipping reports to ensure transparency. | 3.31 | 1.37 | Yes |
| qe52 | Other stakeholders (aside from NPA and NSC) have no access to port operational reports until they are published. | 3.72 | 1.01 | Yes |
| qe53 | Port regulators' (NPA & NSC) involvement of port stakeholders with regular port stakeholders' engagements i.e., non-state port stakeholders' functions would improve transparency. | 4.05 | 0.84 | Yes |
| qe54 | The exclusion of stakeholders who are not states port stakeholders (aside from NPA and NSC) will not allow accountability in the post-port concession's policy formulation, decision-making and assessment stages of the landlord port model | 3.88 | 1.00 | Yes |
| qe55 | Non-participation of stakeholders (aside from NPA and NSC) in managing port information portals under the landlord port model structure may affect transparency. | 3.89 | 1.01 | Yes |
| qe56 | The non-inclusion of cargo importers/freight forwarding agencies in the port landlord port governance model structure may negatively affect transparency. | 3.92 | 1.01 | Yes |

| | | | | |
|---|---|---|---|---|
| qe57 | The non-inclusion of terminal operators in the landlord port governance model structure may affect transparency. | 3.94 | 1.06 | Yes |
| qe58 | The non-inclusion of shipping agencies in the landlord port governance model structure may affect transparency. | 3.96 | 1.00 | Yes |
| qe59 | The lack of involvement of other non-state port stakeholders in the measurement of port performance processes would affect accountability. | 3.32 | 1.38 | Yes |

No. of Obs. (N): 393, Max score = 5, Min. Score =1
Source: Author's own elaboration

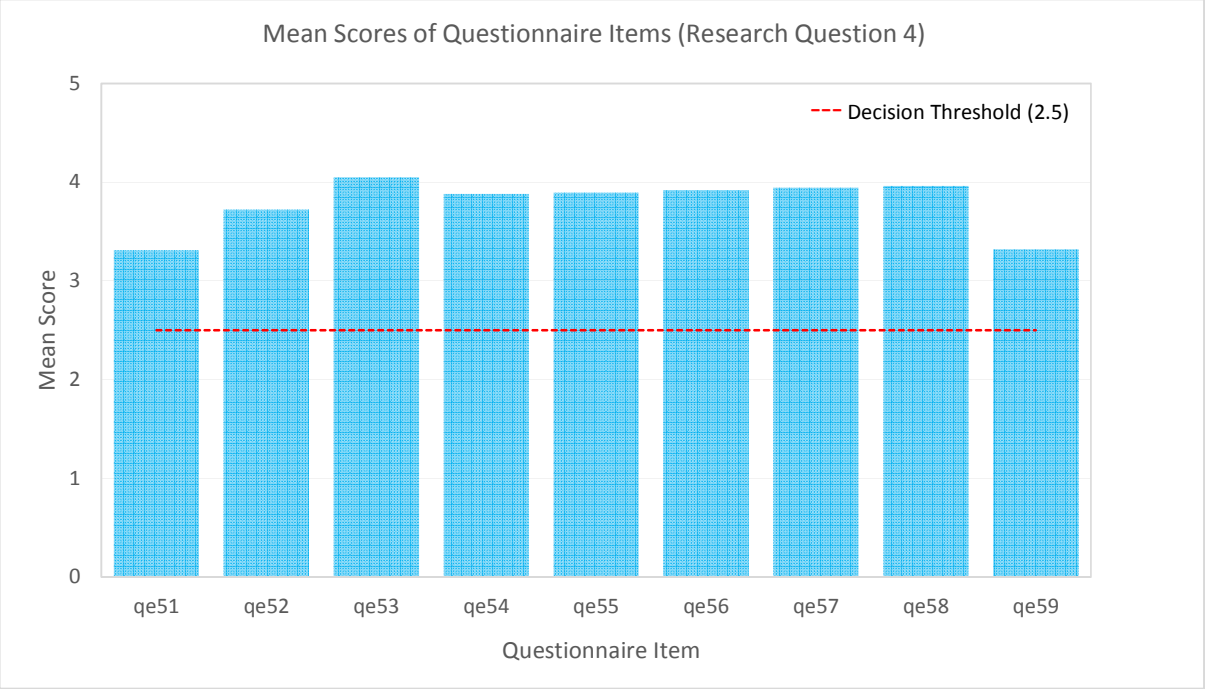


Figure 4: Bar chart showing the distribution of respondents' responses, according to seaports, on the possible factors that are necessary for port transparency components under the landlord port governance model as a way of improving port performance.

The variables under consideration for this analysis include transparency components such as real-time shipping reports, non-participation of stakeholders in the management of information portals, non-inclusion of inputs from terminal operators, freight forwarders, shipping agencies in landlord port model had impacted port performance in the port industry. In Table 6, the mean and standard deviation results are presented for each variable measured for the selected seaport.

Based on opinion of respondents shown in table 6, the possible factors that are necessary for port transparency components are as follows: Port regulators' (NPA & NSC) involvement of port stakeholders with regular port stakeholders' engagements, informing other stakeholders

about real-time shipping reports to ensure transparency, providing access to port operational reports until they are published to other stakeholders, inclusion of stakeholders who are not states port stakeholders (aside from NPA and NSC) in the post-port concession's policy formulation, decision-making, participation of stakeholders (aside from NPA and NSC) in managing port information portals, inclusion of cargo importers/freight forwarding agencies in the port landlord port governance model structure and inclusion of terminal operators in the landlord port governance. Others are inclusion of shipping agencies in the landlord port governance model structure and involvement of other non-state port stakeholders in the measurement of port performance processes.

**Tests of Hypotheses**

Hypothesis 1: The post-port reform, comprising the governance structure and configuration of the landlord port model, has significant influence on port performance in selected Nigerian seaports.

Table 7: Analysis of Variance (ANOVA)

| Analysis of Variance (ANOVA) | | | |
|---|---|---|---|
| Source | SS | df | MS |
| Between groups | 1334.618 | 8 | 166.8273 |
| Within groups | 5384.921 | 3528 | 1.526338 |
| Total | 6719.539 | 3536 | 1.900322 |
| F Statistic = 109.3 | | | |
| Prob. > F = 0.000 | | | |

Source: Author, data analysis

In table 7, the researcher observes the descriptive summary of mean rating scores of Governance Structure Components and Analysis of Variance (ANOVA) model results. Thus, from the Anova model results, we observe that there are significant differences in means scores of the governance structure components. This can be ascertained from the result of 'F' statistic which has a value of 109.3 and a probability value of 0.000. In other words, we reject the null hypothesis that the mean rating response scores are all equal to zero (i.e. there are not statistically significance differences in the mean rating scores). To observe how far the mean scores differ from each other we applied the ranking method.

Hypothesis 2: The implementation of landlord port model, with time related port performance metrics adopted, has not significantly influenced port performance in selected Nigerian seaports.

Table 8: ANOVA Model

| Analysis of Variance (ANOVA) | | | |
|---|---|---|---|
| Source | SS | df | MS |
| Between groups | 2360.279 | 12 | 196.690 |
| Within groups | 6998.188 | 5,096 | 1.373 |
| Total | 9358.467 | 5,108 | 1.832 |
| F Statistic = 143.23 | | | |
| Prob. > F = 0.000 | | | |

Source: Author, data analysis

In table 8 the researcher observes the descriptive statistics (mean and standard deviation) of time related factors of transparency adopted in the landlord port governance model for port performance. The ANOVA model is applied to test the hypothesis that the mean rating response scores (of the constructs) are not significantly different from zero. Thus, from the ANOVA result, we establish that the mean rating response scores are not equal to zero (i.e. significant differences exist). This is evident from the 'F' statistic of value 143.23 and p-value which is 0.000. .

Hypothesis 3: The implementation of port transparency component has no significant improvement in the landlord governance model practice in the Nigerian seaports.

Table: 9: ANOVA table on implementation of port transparency component

| Analysis of Variance (ANOVA) | | | |
|---|---|---|---|
| Source | SS | Df | MS |
| Between groups | 1558.28738 | 16 | 97.393 |
| Within groups | 8868.19338 | 6,664 | 1.331 |
| Total | 10426.4808 | 6,680 | 1.561 |
| F Statistic = 73.19 | | | |
| Prob. > F = 0.000 | | | |

Source: Author, data analysis

In table 9, the researcher noted the descriptive statistics and ANOVA model on rating response scores on transparency components in the Nigerian seaports. The 'F' statistic for the Analysis of Variance results has a value of 73.19 with significant p-value of 0.000 (which is less than 0.05 the critical value). This is significant and shows that the mean rating response scores are not equal to zero; that is significant differences exist. Based on this outcome, we can rank the scores on constructs as priority placed by the respondents on implementation of port transparency components.

Hypothesis 4: The integration of key stakeholders and investors (such as terminal operators and shipping companies, etc.) as part of the transparency component in the landlord port model implementation has no significant influence on port performance in Nigeria seaports.

Table: 10: Analysis of Variance (ANOVA)

| Analysis of Variance (ANOVA) | | | |
|---|---|---|---|
| Source | SS | Df | MS |
| Between groups | 241.020 | 8 | 30.128 |
| Within groups | 4,184.188 | 3,528 | 1.186 |
| Total | 4,425.208 | 3,536 | 1.251 |
| F Statistic = 25.40 | | | |
| Prob. > F = 0.000 | | | |

Source: Author, data analysis

The statistical outcome of Hypothesis 4 (F = 25.40; p = 0.000) confirms that the inclusion of non-state stakeholders such as: terminal operators, shipping lines, freight forwarders, and other investors, has a statistically significant impact on port performance in Nigerian landlord-model seaports. This evidence sharply contrasts with any notion that such actors are merely peripheral. Instead, they are central to effective governance, coordination, and measurable operational outcomes. However, as the qualitative data reveal, this integration is still more aspirational than institutional.

## Conclusion

The findings of the study provide robust evidence that various components of the landlord port model significantly influence port performance in Nigerian seaports. The governance structure underpinning the reform demonstrated a strong impact on operational effectiveness, indicating that the institutional framework and administrative arrangements play a vital role in determining performance outcomes. Similarly, the adoption of time-related performance metrics within the landlord model was found to significantly affect efficiency, suggesting that temporal indicators are effective in capturing the operational benefits of port reforms. Furthermore, the implementation of transparency mechanisms within the landlord governance structure showed a substantial and statistically meaningful effect on port performance, highlighting the importance of openness and accountability in port administration. Notably, the integration of key stakeholders—such as terminal operators and shipping companies—was also found to be a critical factor influencing performance, underscoring the central role of collaborative governance and private sector involvement in port reform success. Overall, the study reinforces that the landlord port model, when effectively implemented with strategic governance, transparency, performance metrics, and stakeholder engagement, contributes positively and significantly to the improvement of port operations in Nigeria.

## Recommendations

1. Regulatory agencies and port authorities should ensure the continuous review and reinforcement of governance frameworks to reflect international best practices. Clearer delineation of responsibilities among stakeholders, transparent decision-making processes, and accountability mechanisms are crucial to sustain improvements in port performance.

2. It is recommended that comprehensive transparency measures, including the digitalisation of port processes, real-time performance dashboards, and independent audits, be institutionalised. This would foster trust among stakeholders and enable better tracking of port efficiency and compliance with reforms.

3. Port authorities should intensify efforts to formally integrate terminal operators, shipping companies, freight forwarders, and other relevant non-state actors into strategic decision-making processes. Regular stakeholder forums, public-private partnership frameworks, and inclusive governance structures should be encouraged to promote shared responsibility and synergy.

4. There should be a standardised adoption of time-related and efficiency-based performance metrics across all seaports. Regular evaluations using these metrics will help identify performance gaps, ensure accountability, and guide policy interventions aimed at enhancing port service delivery

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