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Five-key Strategies for Reducing Indonesia Ports' Dwelling Time

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Abstract: This paper discusses the implementation of five key strategies for reducing dwelling time at ports. The five strategies are deregulation of administrative procedures, availability of infrastructure and port facilities, integration of information technology, quality of services, price and incentive strategies. Using the partial least squares method and bootstrapping testing, these five variables are a good fit, reliable, and robust as a factor for reducing dwelling time at the Port. However, the implementation at Ports in Indonesia still needs to be improved. Four strategies have been running well, and they have a significant effect either directly or indirectly on the decrease of dwelling time, namely deregulation of administrative procedures, availability of infrastructure and port facilities, integration of information technology, and quality of services. At the same time, prices and incentives have not been maximized to reduce dwelling time at Ports in Indonesia.

Keywords: Dwelling time, key success, ports in Indonesia.

Introduction

The increasing competitiveness of a nation is necessary to improve the bargaining position of national trade value. One of the decisive factors for the success of a trade is the port availability as a motor to transport goods quickly and safely to the hinterland. The process of logistics service at ports determines the level of product competitiveness as well as national industrial and trade competitiveness. Through ports, the shipping concept by using containers is the most efficient way, so it becomes the most appropriate choice for export\import activities of goods [1]. Currently, the condition of ports as a gate of trade for both domestic and ocean-going still requires improvements, especially on improving the quality of goods flow services and import/export documents.

According to World Bank, the speed of port services is measured by how much time it takes to unload a container from vessels until the Container leaves the port terminal through the main door or known as Dwelling Time [2, 3]. The Dwelling Time problem is technical and involves many agencies to require an integrated settlement from various agencies/institutions [4]. Dwelling time at ports in Indonesia in 2019 reaches an average of 4-5 days, while in other countries it is very low, including the dwelling time in Malaysia 3 days, in Australia 3 days, America 3 days, in France 3 days, in Hong Kong 2 day, in Singapore 1,2 days [5]. Besides, Indonesia's logistics performance is compared to other countries in the world. Indonesia's logistics performance has not been able to compete. High logistics costs make Indonesia's Logistic Performance Index (LPI) ranking low, namely at position 51 in 2018. Although it managed to climb 12 places from 63 in 2016, Indonesia still lost to Malaysia at 35, Vietnam in 45, Thailand in position 34, and Singapore in position 5. The cost burden for exporters is high because the licensing process and trade regulations are still complicated. Exporters in Indonesia need up to 5.4 days to complete export documents. This time is longer than Thailand, which recorded only 2.3 days, Malaysia 1.6 days, and Singapore only half a day. This results in logistics costs in Indonesia in 2020 still 23.5% of the Gross Domestic Product (GDP), higher than Malaysia by 13 percent, Vietnam 20 percent, Thailand 15 percent, and Singapore 8 percent.

This phenomenon needs to be resolved so that the target of the Indonesian government in reducing logistics costs by up to 7% and consistent dwelling time of 2 - 3 days can be achieved. Several factors affect port performance improvement, which will also affect the decrease in waiting time for loading and unloading services at ports, including costs at ports, port facilities, shipping services, port information systems, and customs and government regulations [5]. Meanwhile, according to Yang [6], there are five main factors that must be considered in global port logistics, including the political-economic environment, operating environment, cost environment, infrastructure facilities environment, and preferential incentive environment. At the same time, World Bank [2] also has found five factors contributing to the low performance of ports in Indonesia include geographic constraints, labor issues, lack of security, corruption, lack of port infrastructure. Furthermore, the logistics performance index report [6] states that there are six indicators to improve the logistics performance index in Indonesia, including; clearance process efficiency,

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quality of trade and transportation infrastructure, ease of delivery of goods at competitive prices, logistical competence, and quality of logistics services, the ability to track goods shipments, and on-time delivery.

According to Tentowi et al. [6], several obstacles cause high dwelling time, including inadequate infrastructure in terms of quality and quantity; Uncertainty of time for completion of services, fees, and unofficial charges for transactions made, causing a high-cost economy; poor compliance with export and import processing times, limited port services; insufficient capacity and service network to support national logistics service providers; infrastructure conditions that do not fully support export-import activities; and overlapping regulations. Besides, the most crucial obstacle faced in improving port logistics performance is the structuring of document flows [7]. This is because there are 18 institutions/institutions that are involved and play a role in the loading and unloading process at the Port, and these institutions/institutions still maintain their respective ego-sectoral behavior.

From the various previous research literature, it was found five keywords to improve port performance in Indonesia, especially to reduce dwelling time, including Availability of Infrastructure and Port Facility, Integration of Information System Technology, Price, and Incentive Strategy, Quality of Service, Deregulation of Administrative Procedure. These five factors are the latent variables in this study, and these variables form a model of five key strategies for reducing dwelling time in the Port of Indonesia. By using the partial least squares method and bootstrapping testing, all of these variables are connected to form a model that can be tested for validity, reliability, and suitability of the model to form a good model and its effects on reducing port dwelling time in Indonesia.

Methods

Dwelling Time

Dwelling time is the loading and unloading time of containers starting from the time the containers are unloaded from the ship until they leave the temporary storage area at the Port. The process of dwelling time is divided into three, namely pre-clearance, custom clearance, and post-clearance.

Pre-clearance is the time required from the time the Container is unloaded from the ship until the importer submits a notification of import of goods (PIB) to Customs; Pre-Clearance Activities include, among others, containers are placed in the temporary storage area (TPS) and preparation of Import Declaration (PIB) documents, preparation of complementary documents of import licenses in ministries/institutions regulating and supervising security, health, distribution, and/or trading of imported goods. The documents issued are related to the prohibition or restriction of goods circulation, and activities carried out include applying for Lartas license (Restriction and Prohibition) and Recommendation of Import Duty Payment, Tax in Import (PDRI) through foreign exchange bank, Take B / L and Endorse Bank, Release B / L to be D / O, Issuance of L.S.

Customs clearance is the time it takes from the time the PIB is received until the issuance of approval for releasing goods (SPPB) by Customs. The determining factor for custom clearance is the withdrawal of containers from the stockpile at the TPS to the physical inspection point (red line). The readiness of facilities and places for physical inspection by other entities. Customs clearance activities include a physical inspection of containers (specifically for the red channel), verification of documents by Customs, and the issuance of Letter of Approval for Release of Goods (SPPB). The inspection of documents by Customs is done by the risk management method, so the physical inspection is only carried out to goods of PIB Submission of Physical Inspection (Red channel).

Post-customs clearance is the time it takes from the SPPB to the release of imported goods from the temporary storage place. The determining factors for post-clearance are the readiness and activeness of importers to immediately release goods and the readiness of TPS and other parties to facilitate the release of goods that have SPPB during working hours or outside working hours. Post-clearance activities include containers that are transported out of Port, and the payments shall be made to port operators. Process of releasing goods from the Port shall be performed after obtaining SPPB, the filing of delivery order (D.O.), payment of fees at the transport fleet terminal, the readiness of the receiving warehouse [6-8]. The flow of goods at Ports can be seen in Figure 1.

Strategy for Reducing Dwelling Time

Deregulation of Administrative Procedure

Deregulation of administrative procedures is the deregulation of export-import procedures between 18 agencies/institutions, which are still overlapping and hampering the document process during the loading and unloading process at the Port. According to the World Bank [2], one of the 6 LPI indicators in measuring the level of global logistics competitiveness is the category of regulatory / policy areas. For the category of regulatory / policy area, which shows the main input to the supply chain, one of which is

Figure 1. The flow of containers in a port

customs. Chi-Lok [7] found that customs and government regulations affect port competitiveness. Likewise, Yang [6] also conducted the same study that included customs factors in operating environment variables, including the efficiency of local government administration, ease of customs procedures, the efficiency of port operations and logistics, and integration of customs information and port logistics.

The customs indicator shows how much efficiency in customs and border checks (border clearance). According to Yang [6], the efficiency factor of customs clearance and administration procedure is a very important factor in port management, especially in the import-export process of goods. The process of import-export of goods requires permission from the government because there are several items of goods that are prohibited and supervised by the State so that it requires strict supervision. However, this bureaucratic process is expected not to interfere with the flow of goods on the green line so that the process of removing containers at the Port will speed up. Another strategy that is very important to do is that the document (manifest) of the goods must be sent before the Container reaches the Port, and the customs inspector must always be ready according to the inspection target

Infrastructure and Port Facility

Availability of Infrastructure and Port Facility is the ability of port operators to provide fast loading and unloading infrastructure and adequate port facilities in the loading and unloading process of goods at the Port. According to the World Bank [2], from his research report on the Indonesian port sector reform and the 2008 Shipping law, one of the factors that contribute to low port performance in Indonesia is the lack of port infrastructure. In a study Mussoa [8] entitled Italian seaports' competition policies: Facts and figures, and research Yang [6] with the theme "Determinants of global logistics hub ports: Comparison of the port development policies of Taiwan, Korea, and Japan," concluded that one of the factors that influence global hub ports is the infrastructure facilities environment. In the journal Caldeirinha [9] also concluded that one of the factors that influence the quality of loading and unloading services at ports is the availability of adequate infrastructure and loading and unloading equipment.

Integration of Information System Technology

Integration of Information System Technology is a document service system integration between 18 ministries/agencies involved in the licensing process for the export-import of goods and the loading and unloading of goods at the Port. The one-stop information technology system through the Indonesia National Single Window (INSW) will accelerate the licensing process for Indonesian exports and imports. With an integrated system through this one-stop service, it will be able to suppress the sectoral ego of each ministry/agency. Moreover, when there is an integrated system of shipping line, port operator, Directorate General of Customs and Excise, banking, and trucking, which is managed by the government or an independent party, it will make it easier for exporters and importers in tracking their goods. This system also provides delivery order redemption features, including electronic payment, no more cash, a truck parking system, so you don't queue on the highway outside the Port, and auto gate system, and Inaportnet integration. With this system, it will improve the quality of service at the Port.

Price and Incentive Strategy

The Price and Incentive Strategy is the tariff and incentive imposed on exporters and importers who will load and unload goods at the Port. Fees related to customs can include the imposition of import duties on imported goods, 10% VAT, 10% income tax (PPH Article 22 Import) for NPWP owners, and 20% for those without NPWP, and Luxury Sales Tax (PPnBM). To avoid the accumulation of containers at the Port and to overcome the behavior of importers

who deliberately store goods at the container stockpile at the Port, progressive rates are applied. The tariff for container stacking services at Tanjung Priok is free on the 1st day after the goods are unloaded from the ship. On the second day onwards, a stacking service rate of 900% applies. The basic stacking tariff (TDP) for 20 'containers is Rp 27,200 and 40 'of Rp 54,400. In terms of the time limit for the stacking of imported containers at the Port Terminal, a maximum of 3 (three) days after the goods are stacked in the storage area is allowed. If more than three days, the cargo will be moved. This is done with the consideration that the Port is a transit point, not a container storage place. Therefore, progressive tariffs are also imposed in the form of penalties for imported containers that have finished the customs process by 200%. This strategy is expected to reduce the buildup of containers at ports, especially inline 1. Another strategy that needs to be implemented is the existence of banking services for 24 hours in 7 days, as well as the need for incentives to be given to container ships anchored at the Port of Indonesia so that costs and long waiting times for containers at the Port can be reduced.

Quality of Service

Quality of Service is the quality of service provided by port operators in loading and unloading goods and customs as well as ministries/agencies serving import-export documents of goods at the Port. From the final report European Commission (2013) states that performance measurement to improve efficiency and quality of port services found that there are several factors in service quality that must be considered, namely; First, the availability of services, namely the ability of customers to determine the cargo handling services to be provided by ports, and the ability of ports to provide or facilitate added value to logistics services. Second, speed of service, which is the speed of service, is sufficiently well measured in terms of ship service, such as ship turn-around time or time of arrival and departure of ships. Third, reliability of service, namely service reliability, becomes more important by moving towards lean manufacturing and inventory minimization. Fourth, Flexibility of service, namely service flexibility, is an important issue in interviews with stakeholders, and there is very little attention in the academic literature. Besides, several kinds of literature also state that to improve the quality of service at ports. So, several strategies need to be taken into account, including the existence of adequate equipment, reliable operators in operating cranes, the ability of port operators to modernize equipment including innovation and service flexibility [6], the existence of 24-hour loading and unloading services, and for export-import document services, consistent implementation of Service Level Agreement is expected [7, 8].

From literature study and direct interviews with Indonesian export/import associations, freight forwarders, and port operators, there are several factors that cause the length of dwelling time, among others;

Availability of Infrastructure and Port Facility consists of 3 indicators, namely the availability of Loading and Unloading Equipment and other facilities at ports [10, 11], the availability of adequate Warehouse and Stacking Field including the development of Bonded Logistics Center [12], and the availability of train accessibility and trucking facilities [13].

Integration of Information System Technology Integration of Information System Technology consists of 4 indicators, namely Optimizing the Application of Indonesia National Single Window (INSW) [14], the implementation of Indonesia National Single Risk Management (ISRM) system [15], the implementtation of auto gate system and delivery order automation in all terminal operating areas [16], Integration of E-payment by Business to Business [17].

Price and incentive strategy consists of 4 indicators, namely the application of competitive loading and unloading costs, time restriction for containers at TPS and the implementation of progressive Cargo Handling Charge, the implementation of banking facilities 24 hours a day and seven days a week through the Application of the Second Generation State Revenue Module (MPN-G2), the provision of customs facilities for the Investment Coordinating Board (BKPM) Importers [15, 18].

Quality of service consists of 4 indicators, namely reliability of equipment and certified human resources both Loading and Unloading Workers (TKBM) and other operators at ports [19], ability to provide alternative solutions in the form of technological innovation and service innovation, speeding up the service time with operating time of 24 hours a week, consistent implementation of Service Level Agreement [20, 21].

Deregulation of administrative procedure consists of 4 indicators, namely efficiency of local government administration [22], speeding up the process of customs clearance with procedure simplification [23], transport documents (manifest) and the submission of Customs notice and Customs Clearance shall be made prior to arrival, acceleration and release of goods from ports to exporters and importers who become the main partners of customs [1].

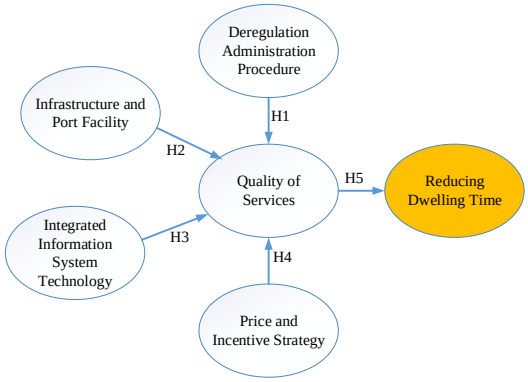

Figure 2. Five-key strategy for reducing dwelling time

Furthermore, There are six latent variables, and 21 indicators are then tested using the Structural Equation Modeling method to determine whether the model is valid and can serve as one of the strategy models in reducing dwelling time, especially at Ports in Indonesia. Furthermore, this model is tested to prove its effect on reducing the dwelling time at Ports in Indonesia.

Research Method

This study used primary data obtained from questionnaires distributed to respondents. There are six latent variables and 21 manifest/indicator variables used and included in the questionnaire questions (See Table 1). The respondents consists of the Port Corporation Association (BUP), freight forwarder and agent, port operators consisting of Pelindo I, Pelindo II, Pelindo III, Pelindo IV, P.T. MTI, P.T. Pelabuhan Indonesia, P.T. JICT, P.T. Koja, Trucking Association, Department of Transportation, Port Authority, Syahbandar, Customs, Indonesia Logistics Association. This study uses a purposive sampling technique to obtain a sample of people. The number of samples is required by PLS [20]. After that, the data were analyzed through partial least squares with Smart PLS Software to know the validity and reliability of the model.

The hypotheses of this study can be written as follows

H1 : There is an effect of Deregulation of Administrative Procedures on Quality of Service to Decrease Dwelling Time

H2 : There is an effect of Infrastructure and Port Facilities on Quality of Service to Decrease Dwelling Time

H3 : There is an effect of Integrated Information System Technology on Quality of Service to Decrease Dwelling Time

H4 : There is an effect of Price and Incentive Strategy on Quality of Service to Decrease Dwelling Time

H5 : There is an effect of Quality of Service on the Decrease of Dwelling Time

Table 1. Latent and manifest variables

Latent variables	Manifest variables	Symbol
Infrastructure and Port Facility	The availability of Loading and Unloading Equipment and other facilities at ports	Faci1
	The availability of adequate Warehouse and Stacking Field, including the development of Bonded Logistics Center	Faci2
	The availability of train accessibility and trucking facilities	Faci3
Integration of Information System Technology	Optimizing the Application of Indonesia National Single Window (INSW)	System1
	The implementation of the Indonesia National Single Risk Management (ISRM) system	System2
	The implementation of the auto gate system and delivery order automation in all terminal operating areas	System3
	Integration of E-payment by Business to Business	System4
Price and Incentive Strategy	The application of competitive loading and unloading costs	Pri1
	Time restriction for containers at TPS and the implementation of progressive Cargo Handling Charge	Pri2
	The implementation of banking facilities 24 hours a day and seven days a week through the Application of the Second Generation State Revenue Module (MPN-G2)	Pri3
Quality of Service	The reliability of equipment and certified human resources both Loading and Unloading Workers (TKBM) and other operators at ports	Qua1
	Ability to provide alternative solutions in the form of technological innovation and service innovation	Qua2
	Speeding up the service time with operating time 24 hours a week	Qua3
	Consistent implementation of Service Level Agreement	Qua4
Deregulation of Administrative Procedure	The efficiency of local government administration	Admin1
	Speeding up the process of customs clearance with procedure simplification	Admin2
	Transport documents (manifest) and the submission of Customs notice and Customs	Admin3
	Clearance shall be made prior to arrival	
	Acceleration and release of goods from ports to exporters and importers who become the main partners of customs	Admin4
Dwelling Time	Pre Clearance	Pre
	Customs Clearance	Customs
	Port Clearance	Post

Table 2. Outer model specification

Latent variables	Manifest variables	Loading factor	Cronbach Alpha	Composite reliability	Average Variance Extracted (AVE)
Dere-gulation	Admin1	0.756	0.86	0.90	0.70
	Admin2	0.851			
	Admin3	0.861			
	Admin4	0.875			
Port Facility	Faci3	1.000	1.00	1.00	1.00
System	System1	0.805	0.83	0.89	0.66
	System2	0.890			
	System3	0.740			
	System4	0.808			
Price	Pri3	1.000	1.00	1.00	1.00
Quality	Qua1	0.820	0.84	0.89	0.67
	Qua2	0.828			
	Qua3	0.824			
	Qua4	0.804			
Dwelling	Pre	0.844	0.83	0.89	0.74
	Customs	0.910			
	Post	0.823			

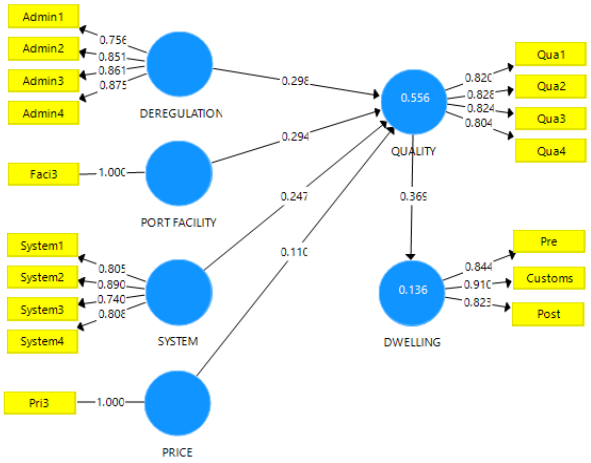

Figure 3. Five-key strategies for reducing dwelling time

Results and Discussions

Outer Model Specification Testing

In this model, there are 6 latent variables and 21 indicators that are connected to each other, then testing the outer model specifications. Testing the outer model consists of 4 specifications that must be met, namely loading factor > 0.7, Composite Reliability value > 0.7, Average Variance Extracted (AVE) value > 0.5, and Cronbach Alpha > 0.6. After the measurement was carried out, of the 21 indicators tested, only 17 indicators had the loading factor value > 0.7. while the other 4 indicators, namely Faci1, Faci2, Pri1, Pri2, have a value of < 0.7 so that it must be removed in the model [24, 25]. While the value of Composite Reliability, Variance Extracted (AVE), and Cronbach Alpha have been fulfilled so that it can proceed to the hypothesis testing stage [25].

Inner Model Specification Testing

To validate the overall structural model, Goodness of Fit (GoF) is used. The GoF index is a single measure

Table 3. The model hypothesis test result

Latent variables	Path Coefficient	Sample Mean	t-statistics	Decision
Deregulation → Quality	0.30	0.31	2.80	Accepted
Port Facility → Quality	0.29	0.28	2.91	Accepted
System → Quality	0.25	0.25	2.57	Accepted
Price → Quality	0.11	0.11	1.62	Not Accepted
Quality → Dwelling	0.37	0.38	4.53	Accepted

to validate the combined performance of the measurement model and the structural model. This GoF value is obtained from the square root of the average communalities index multiplied by the average R2 of the model. GoF values ranged from 0 to 1 with the interpretation of the values: 0.1 (small), 0.25 (moderate), and 0.36 (large). Before calculating GoF, it is necessary to know the values of R2 and Q2. R2 value can be used to see whether the effect of exogenous latent variables on endogenous latent variables and Q2 predictive relevance serves to validate the model. The values of R2 and Q2 determine the value of the GoF. The R2 value is obtained from the PLS-SEM measurement results while the Q2 value is calculated using equation (1)

$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2) \quad (1)$$

so the value of $Q^2 = 1 - (1 - 0.556)(1 - 0.136)$; $Q^2 = 0.616$.

While the Goodness of Fit (GoF) value is calculated using equation (2)

$$\text{GoF} = \sqrt{\overline{\text{AVE}} \text{ X } \overline{\text{R}^2}} \quad (2)$$

Since the $\overline{\text{AVE}} = 1/6(0.7 + 1 + 1 + 0.67 + 0.66 + 0.74 = 0.795$ and the $\overline{\text{R}^2} = 1/2(0.556 + 0.136) = 0.391$. Then $\text{GoF} = \sqrt{0.795 \text{ X } 0.391} = 0.557$

The value of testing R^2, Q^2 and GoF are all greater than 0.5 than it can be concluded that the model is robust. Therefore, the model hypothesis testing and the effect of each variable can be deduced (see Table 3).

The Effect of Deregulation of Administrative Procedure on Dwelling Time.

The deregulation variable consists of 4 indicators: Efficiency of local government administration (Admin1), Accelerating customs clearance process with procedure simplification (Admin2), Transport documents (manifest) and the submission of Customs notice and Customs Clearance shall be made prior to arrival (Admin3), acceleration and release of goods

from ports to exporters and importers who become the main partners of customs (Admin4).

According to respondents, these four indicators have a significant effect on the decrease in waiting time for loading and unloading of goods at the Port. This can be seen in all the loading factor values of the variable deregulation indicator above 0.7. The deregulation variable indirectly affects the dwelling time performance. This variable is part of the dependent variable of the Quality variable, which will then be associated with the dwelling time variable. As for the effect of deregulation on service, quality can be viewed from the calculation of partial least square where the coefficient of deregulation is positive at 0.298 with t statistic of 2.8 > 1.96 so that it can be concluded that the hypothesis H1 is accepted and the strategy of deregulation of the administrative procedure has a significant effect on the improvement of service quality in order to decrease the dwelling time at Ports.

The Effect of Infrastructure and Port Facilities on Dwelling Time.

The availability of Infrastructure and Port Facilities consists of 3 indicators, namely the availability of Loading and Unloading Equipment and other facilities at Ports (Faci1), the availability of adequate Warehouse and Stacking Field, including the development of Bonded Logistics Center (Faci2), the availability of train accessibility and trucking facilities (Faci3). Of the three indicators, only one indicator is included in the model and meets the convergent validity value > 0.7 and the loading factor standard > 0.7, namely the availability of train accessibility and trucking facilities (Faci3). Variable of Facility in this model indirectly affects the dwelling time performance. This variable is part of the dependent variable of the Quality variable, which will then be associated with the dwelling time variable. As for the effect of the facility on service, quality can be viewed from the calculation of partial least square where the coefficient of deregulation is positive at 0.294 with t statistic of 2.91 > 1.96 so that it can be concluded that the hypothesis H1 is received, which means that the strategy of Port Facility has a significant effect on the decrease of dwelling time. The results of the interview with port logistics expert show that factor causing the significance of service quality from the port facility perspective is the capability of equipment modernization from port operators, which is still not maximized, and the low productivity of loading and unloading equipment, which causes the target of loading and unloading operations cannot be achieved. Similarly, the condition of the temporary storage area is limited so that congestion and queue of containers occur at Ports during national holidays.

The Effect of Information System Technology Integration on Dwelling Time

Variable of information system integration consists of 4 indicators, namely optimizing the application of Indonesia National Single Window (System1), the implementation of Indonesia National Single Risk Management system (System2), the implementation of auto gate system and delivery order automation in all terminal operating areas (System3), integration of E-payment by Business to Business (System4). Variable of System Integration in this model indirectly affects the dwelling time performance. This variable is part of the dependent variable of the Quality variable, which will then be associated with the dwelling time variable. As for the effect of the system on service, quality can be viewed from the calculation of partial least square where the coefficient of deregulation is positive at 0.247 with t statistic of 2.57 > 1.96 so that it can be concluded that the hypothesis H1 is received, which means that the strategy of Information System Technology Integration has a significant effect on the improvement of service quality in order to decrease the dwelling time at Ports. This is due to the application of the Indonesia National Single Window and the integration of Inaportnet with INSW, E-payment, and other electronic information systems that have not run optimally. Socialization and integration of system between port operators and customs through INSW are still needed so that in the processing of export/ import documents, hardcopy documents with signatures and wet stamps, as well as the submission of documents through face-to-face are no longer required. It is simply done through K/L and INSW electronic systems so as to speed up service time. Through INSW, a business actor needs only once to access online for the submission of an export/import license. After that, the INSW system will forward to the related K/L for further processing. The business actor is required only once to submit the requirements for the submission of export/import license, so no more repetitive information is needed for different inter-system licensing procedures in K/L (Single Submission).

The Effect of Price and Incentive Strategy on Dwelling Time

Price and Incentive Strategy consists of 4 indicators: the application of competitive loading and unloading costs (Pri1), Time restriction for containers at TPS and the implementation of progressive Cargo Handling Charge (Pri2), the implementation of banking facilities 24 hours a day and seven days a week through the application of the Second Generation State Revenue Module (MPN-G2) (Pri3). Of the three indicators, only one indicator is included

in the model and meets the convergent validity value > 0.7, and the loading factor standard > 0.7, namely the implementation of banking facilities 24 hours a day and seven days a week through the application of the Second Generation State Revenue Module (MPN-G2) (Pri3). Variable of Price and Incentive Strategy in this model indirectly affects the dwelling time performance. This variable is part of the dependent variable of the Quality variable, which will then be associated with the dwelling time variable. As for the effect of Price and Incentive Strategy on service, quality can be viewed from the calculation of Structural equation modeling where the coefficient of the price is positive at 0.11 with t statistic of 1.62 < 1.96 so that it can be concluded that the hypothesis H1 is not accepted and the Price and Incentive Strategy has no significant effect on the improvement of service quality in order to decrease the dwelling time at Ports.

The Effect of Service Quality on Dwelling Time

The variable of Service Quality consists of 4 indicators: Reliability of equipment and certified human resources both Loading and Unloading Workers (TKBM) and other operators at ports (Qua1), Ability to provide alternative solutions in the form of technological innovation and service innovation (Qua2), Speeding up the service time with operating time 24 hours a week (Qua3), consistent implementtation of Service Level Agreement (Qua4). Variable of Service Quality in this model indirectly affects the dwelling time performance. As for the effect of Service Quality on dwelling time can be viewed from the calculation of Structural equation modeling where the coefficient of Quality is positive at 0.369 with t statistic of 4.53 > 1.96 so that it can be concluded that the hypothesis H1 is accepted, which means that the strategy of Service Quality has a significant effect on the decrease of dwelling time at Ports.

Conclusions

Through partial least squares method and bootstrapping testing, the five key success strategies of dwelling time reduction meet the Goodness of Fit Index (GOFI) measurement standards. All Goodness of Fit Index indicators of this model is Good Fit so that this model can be concluded valid, and the data strongly supports the model. The implementation of the Five Key Strategies has not been running optimally at Ports in Indonesia. This can be viewed from the result of the partial least square measurement so that these strategies still need the implementation to be improved and reduce dwelling time. In this research, there are fourth strategies that have been successfully applied at the ports and could significantly to reduce dwelling time, such as Deregulation of Administrative Procedure, infrastructure and Port Facilities, Information System Technology Integration, and quality of service, while Price and Incentive Strategy has no significant reduction in dwelling time. In addition, there are several factors that also need further improvement, namely the availability of Loading and Unloading Equipment and other facilities at ports, The availability of adequate Warehouse and Stacking Field, including the development of the Bonded Logistics Center, The application of competitive loading and unloading costs, Time restriction for containers at TPS and the implementation of progressive Cargo Handling Charge, and Information System Technology Integration, especially INSW in the order that the target of dwelling time reduction can be achieved and national logistics competitiveness can be able to compete with port services in ASEAN.

References

1. Caldeirinha, V., J. Augusto Felício, and S.F. da Cunha, Government Policies and Portuguese Port Governance in the Period from 2005 to 2015, *Research in Transportation Business & Management*, 2017, 22, pp. 11-20.
2. World Bank, *State of Logistics, Indonesia 2015.* 2015.
3. World Bank, *State of Logistics, Indonesia 2013.* 2013.
4. OECD, *Time Efficiency at World Container Ports.* International Transport Forum, 2014.
5. Chi-Lok, A. Y. and Zhang, A., Effects of Competition and Policy Changes on Chinese Airport, *Journal of Air Transport Management*, 15, 2009, pp. 166–174.
6. Yang, Y.-C., and S.-L. Chen, Determinants of Global Logistics Hub Ports: Comparison of the Port Development Policies of Taiwan, Korea, and Japan, *Transport Policy*, 45, 2016, pp. 179-189.
7. Chi-Lok, A. Y., Zhang, A. and Cheung, W., Port Competitiveness from the Users' Perspective: An Analysis of Major Container Ports in China and Its Neighboring Countries. *Research in Transportation Economics*, 35, 2012, pp. 34-40.
8. Mussoa, A., Piccioni, C., and Voorde, E.V.d., Italian Seaports' Competition Policies: Facts and Figures. *Transport Policy*, 25, 2013, pp. 198-209.
9. Caldeirinha, V.R., Felicio, J.A., and Coelho, J., The Influence of Characterizing Factors on Port Performance, Measured by Operational, Financial, and Efficiency Indicators, *Recent Advances in Environment, Energy Systems, and Naval Science*, 2013.

10. Sambrani, V.N., PPP from Asia and African Perspective towards Infrastructure Development: A Case Study of Greenfield Bangalore International Airport, India. *Procedia - Social and Behavioral Sciences,* 157, 2014, pp. 285 - 295.
11. Stern, J., and Holder, S., Regulatory Governance: Criteria for Assessing the Performance of Regulatory Systems an Application to Infrastructure Industries in the Developing Countries of Asia. *Utilities Policy*, 8, 1999, pp. 33-50.
12. Talley, W.K. and M. Ng, Hinterland Transport Chains: Determinant Effects on Chain Choice*, International Journal of Production Economics*, 185, 2017, pp. 175-179.
13. Yang, Y.-C., A Comparative Analysis of Free Trade Zone Policies in Taiwan and Korea based on a Port Hinterland Perspective. *The Asian Journal of Shipping and Logistics*, 25(2), 2009, pp. 273-303.
14. Cepolina, S. and Ghiara, H., New Trends in Port Strategies: An Amerging Role for ICT Infrastructures. *Research in Transportation Business & Management*, 8, 2013: p. 195-205.
15. Customs, *Customs Clearance, and Joint Gate TPS in Tanjung Priok Port*. 2015.
16. The Secretariat for the Committee on Infrastructure Planning Commission, G.o.I., *Customs Procedures, and Functioning of Container Freight Stations and Ports*. 2005.
17. Pelindo, *The Strategy of Developing the Port of Tg Priok as an Interface for Province of West Java and Jakarta*. 2013.
18. Pelindo, *Annual Report Pelindo 2 the Year 2016*. 2016.
19. Sirajuddin, Zagloel, T.Y., and Sunaryo, Model of Governance and Port Performance Improvement Strategy in Indonesia. 2017 *The 6th IEEE International Conference on Advanced Logistics and Transport* (ICALT), 2017, pp. 189-194.
20. Lupo, T., Strategic Analysis of Transit Service Quality Using Fuzzy AHP Methodology*, European Transport*, 53, 2013, pp. 1 - 18
21. Sayareh, J., Iranshahi, S., and Golfakhrabadi, N., Service Quality Evaluation and Ranking of Container Terminal Operators. *The Asian Journal of Shipping and Logistics*, **32**(4), 2016, pp. 203-212.
22. Li-Wen Chena and Hsin-Yi Yub, Corporate Governance, Political Involvement, and Internationalization: An Empirical Investigation in Japan and Taiwan. *Research in International Business and Finance*, 2016, pp.1-16
23. Ferrari, C., Parola, F.. and Tei, A., Governance Models and Port Concessions in Europe: Commonalities, Critical Issues, and Policy Perspectives*, Transport Policy*, 41, 2015, pp. 60-67.
24. Harjanti, D., Burnout, and Employee Performance in Hospitality Industry: The Role of Social Capital*, Jurnal Teknik Industri*, 21(1), 2019, pp. 15-24.
25. J. F. Hair, M. Sarstedt, T. M. Pieper and C. M. Ringle., The Use of Partial Least Squares Structural Equation Modeling in Strategic Management Research: A Review of Past Practices and Recommendations for Future Applications. *Long Range Planning*, 45(5-6), 2012, pp. 320-340.