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THE EFFECT OF THE STOCKING FIELD CAPACITY AND THE LOADING AND UNLOADING PRODUCTIVITY ON THE OPERATIONAL PERFORMANCE OF PT. JAKARTA INTERNATIONAL CONTAINER TERMINAL (JICT) DURING THE COVID-19 PANDEMIC

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Abstract: This study is titled "THE EFFECT OF STOCKING FIELD CAPACITY AND UNLOADING PRODUCTIVITY ON OPERATIONAL PERFORMANCE OF PT. JAKARTA INTERNATIONAL CONTAINER TERMINAL (JICT) DURING THE COVID-19 PANDEMIC". PT. Jakarta International Container Terminal is a company in the field of container loading and unloading services which is a very wide stacking field that is used as a terminal operator specifically serving the unloading and loading of goods stored in containers for security. The purpose of this research is to find out the effect of field capacity and loading and unloading productivity simultaneously on operational performance at PT JICT and to find out whether there are any effects of the capacity of the stacking yard and loading and unloading productivity on the operational performance. This research is a descriptive research with the method of quantitative, with a sample of 50 respondents using random sampling. This study has three variables, namely the capacity of the stacking field as variable X1, loading and unloading productivity as variable X2, and operational performance as variable Y.

Keywords: Stacking Field Capacity, Loading and Unloading Productivity, Operational Performance

Introduction

Corona Virus was first discovered in Wuhan, China, in December 2019. The Regulation of the Minister of Health of the Republic of Indonesia Number 9 in 2020 concerning Guidelines for Large-Scale Social Restrictions (PSBB) was implemented to accelerate the handling of Coronavirus disease. The steps taken have a major impact on the smooth running of goods production activities that lead to the initial process of unloading bulk cargoes because in this process, it allows interaction with the general public and several stakeholders who are authorized in the process of unloading bulk cargoes. Not only that, the health protocols that have been strictly implemented by the government also reach all regions, especially in several areas in Indonesia that are included in the list of danger zones.

The port consists of land and water as a place for the government and business activities that are intended as a place for ships to dock, to board or disembark passengers, and to load and unload the goods. The port has a function as a liaison between land and sea transportation that can connect among regions or islands separated by the sea where in its operation the quantity sent through the port is on a very large scale.

The field is used to store temporary containers that will be loaded onto the ship or after being unloaded from the ship, both loaded and empty.

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Port operational performance determined by the Directorate General of Sea Transportation (Ditjen Hubla) is the result of measurable works achieved at the port in carrying out ship services, goods, within a certain period of time and units. With the performance of the port, it shows the level of port service to port users (ships and goods), which depends on the service time of the ship in the port. A high port performance indicates that the port can provide good services. (Triatmodjo, 2009).

Based on the description, the author is interested in studying more deeply and expresses it through a thesis with the title **"INFLUENCE OF STACKING FIELD CAPACITY AND UNLOADING PRODUCTIVITY OF CONTAINERS ON OPERATIONAL PERFORMANCE (PT.JICT) DURING THE COVID 19 PANDEMIC."**

Objective

1. To determine the effect of the field capacity accumulation of the operational performance at PT JICT.
2. To determine the effect of the loading and unloading productivity on the operational performance at PT JICT.
3. To determine the effect of the field capacity and loading and unloading productivity simultaneously on the operational performance at PT JICT

Method

This research was a descriptive study with quantitative methods, and the data collection used a questionnaire that was manifested in the form of statements and was given to respondents to be filled according to the circumstances. Moreover, this study used three variables, namely the stacking field capacity variable as the X1 variable, the loading and unloading productivity as the X2 variable, and the operational performance as the Y variable. In addition, these two variables were analyzed to determine the effect of the capacity of the stacking field and the loading and unloading productivity on the operational performance. Therefore, the data analysis technique carried out in this study used quantitative descriptive analysis techniques using questionnaires.

Discussion and Result

Simple linear Regression

Simple linear regression equation was used to explain the stacking field capacity (X1) on the operational performance (Y) .

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	20.327	3.727		5.455	.000
STOCKING FIELD CAPACITY	.294	.116	.344	2.541	.014

a. Dependent Variable: Y

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The results obtained from the regression coefficient above is as follows,

Y = 20.327+ 0.294 X1

Where:

Y = the operational performance

X_1 = the stacking field capacity

The simple linear regression equation means that any increase in the value of the stacking field capacity (X1) of 0.294, it will be followed by an increase in the operational performance (Y) of 20.327.

Simple linear regression equation was used to explicate the loading and unloading productivity (X2) on the operational performance (Y)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.489	3.961		3.910	.000
unloading productivity	.460	.127	.463	3.616	.001

a. Dependent Variable: Y

The results obtained from the regression coefficient above is as follows,

Y = 15,489+ 0,460 X1

Where:

Y = the operational performance

X_2 = the loading and unloading productivity

The simple linear regression equation means that any increase in the value of the loading and unloading productivity (X2)of 0.460, it will be followed by an increase in the operational performance (Y) of 15,489.

T Test

Partial hypothesis testing (t-test) is intended to determine whether there is an effect of the independent variable partially on the dependent variable. This hypothesis has the following results:

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Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	20.327	3.727		5.455	.000
stacking field capacity	.294	.116	.344	2.541	.014

a. Dependent Variable: Y

The t_{count} value for the stacking field capacity is 2.541, while the t_{table} value is 2.010. Then, it can be seen that the t_{count} is 2.541 greater than t_{table} which is 2.010. Moreover, the significance value is 0.014 less than 0.05. Hence, the hypothesis is known that there is a positive and significant influence between the capacity of the stacking field on the operational performance.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.489	3.961		3.910	.000
Loading and unloading Productivity	.460	.127	.463	3.616	.001

a. Dependent Variable: Y

The value of t_{count} for the loading and unloading productivity is 3.616, while the value of t_{table} is 2.010. Thus, it can be seen that t_{count} is 3.616 greater than t_{table} which is 2.010. Furthermore, the significance value is 0.001 less than 0.05. Therefore, the hypothesis shows that there is a positive and significant influence between the loading and unloading productivity on the operational performance.

Multiple Linear Regression

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.566	3.961		3.930	.000
Capaticy Yard Stacking	-.230	.228	-.268	-1.006	.320
Loading and unloading productivity	.694	.265	.698	2.617	.012

a. Dependent Variable: Y

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Then, a multiple linear regression equation can be made from the regression coefficient above as follows: $Y = 15.566 + 0.230\ X_1 + 0.694\ X_2$.

Where :

Y= the operational performance.

X_1 = the stacking field capacity

X_2 = the loading and unloading productivity

The multiple linear regression equation means that every increase in the application score on the stacking field capacity (X_1) of 0.230 will be followed by an increase in the operational performance (Y). If there is an increase in the score for the the loading and unloading productivity(X_2) of 0.694, it will be followed by an increase in the operational performance (Y). From the above equation, the Y value will be 15,566.

F test.

The F statistic test shows whether all independent or independent variables included in the model have a simultaneous effect on the dependent variable. The F statistic test was used to fulfill all the effects of the independent variables tested at a significance level of 5%. The results of the simultaneous significant coefficient test can be seen in the following table:

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	138.391	2	69.196	7.044	.002[a]
	Residual	461.689	47	9.823		
	Total	600.080	49			

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

If F_{count} is greater than F_{table}, Ha is accepted, meaning that independent variables simultaneously have a significant influence on the dependent variable. The value of F_{table} can be searched with the equation of df 1 = the number of independent variables; meaning df 1 = 2, while df 2 = nk-1; (50-2-1); df 2 = 47.

By using a significance of 5% (0.05), it is seen in F_{table} row 47 which is 3.20. Thus, it can be concluded that F_{count} is greater than F_{table} (7.044 > 3.20), and a significance value of 0.002 is less than 0.05. Therefore, Ho is rejected, and Ha is accepted. The stacking field capacity (X1) and the loading and unloading productivity (X2) have a positive and significant effect and simultaneously on the operational performance (Y).

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Conclusion

The results discuss the stacking field capacity (X1) on the operational performance (Y).

a) In simple linear regression , it is obtained Y = 20.327+ 0.294 X1 .

The simple linear regression equation implies that any increase in the value of the stacking yard capacity (X_1) of 0.294 will be followed by an increase in the operational performance (Y) amounted to 20.327.

b) In the t-test, it can be seen that the t_{count} is 2.541 is greater than t_{table} of 2.010, and the significance value is 0.014 less than 0.05. This means that Ho is rejected, and Ha is accepted. This means that there is a significant influence between the stacking field capacity of operating performance.

The results of the discussion of loading and unloading productivity (X2) and loading and unloading performance (Y)

a) In simple linear regression, obtained Y = 15.489 + 0.460 X2

The simple linear regression equation means that every increase in the value of the variable X2 (unloading productivity) of 0.460 it will be followed by an increase in Y (operational performance) of 15,489.

b) In the t-test, it can be seen that the t-count is 3.616 > t-table 2.010 and the significance value is 0.001 <0.05. So the hypothesis that reads there is a positive and significant influence between loading and unloading productivity on operational performance.

The results of the discussion of stacking capacity (X1) and loading and unloading productivity (X2) on operational performance (Y)

a) In Multiple Linear Regression, Y = 15.566 + 0.230 X1 + 0.694 X2 Where:

every increase in the score of application on Variable X1 (Stacking field capacity) of 0.230 will be followed by an increase in Y (operational performance). Every time there is an increase in the score for the variable X2 (unloading productivity) of 0.694, it will be followed by an increase in Y (operational performance). From the above equation, the value on Y will be 15.566

b) In F Test, it can be concluded that the F_{count} is greater than F_{table} (7.044> 3.20), so Ho is rejected, and Ha is accepted, which means that there is a significant influence between the stacking field capacity (X_1) and the loading and unloading productivity (X_2) on the operational performance (Y).

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Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

References

Ariyanti, D. (2019). Kt it. The Role of Resource Commitment and Reverse Logistics Innovation in Innovative Capability of Company Performance at PT Frisian Flag Indonesia in 2019, 1–7.

Gunawan, H., & Sianto, E. (2006). Analysis of Factors Affecting Productivity of Loading and Unloading Containers at Diamond Pier Surabaya (Case Study of Pt. Pelayaran Meratus). 79–89.

Oktavia, N., Marimin, M., & Arkeman, Y. (2020). Strategy to Improve Operational Performance of Loading and Unloading Containers: A Case Study at PT Jakarta International Container Terminal. Journal of Business and Management Applications, 6(2), 344–355. https://doi.org/10.17358/jabm.6.2.344

Pelabuhan, PT, & Priok, T. (2017). T itl.
Yahya, SS (2017). Trisakti Institute of Transportation and Logistics. The Effect of Loading and Unloading Speed and Quay Container Crane Equipment Performance on Unloading Labor Costs At Pier 009 Operation Terminal 1 PT. Tanjung Priok Port, Jakarta 2017, April 2018, 8.

(Oktavia et al., 2020)(Yahya, 2017)(Gunawan & Sianto, 2006)(Port & Priok, 2017) Doriah Hasipatul Munah, I Wayan Suteja, I Gede Putu Warka. (2018) Analysis of Sheet Sea Port Performance Measurement Based on Port Performance Criteria. http://journal.unmasmataram.ac.id/index.pnp/GARA

Misliah, Samang, Adisamita, Sitepu (2012), Analysis of the Optimal Capacity of the Samarinda Port Container Stacking Field Based on Port Operators and Users.

Sumarzen Marzuki. (2018). Number of Work Gangs, Time, and Weather on Container Loading and Unloading Productivity.

Clinton Yan Uguy. (2015). Manado Port Operational Performance Analysis.https://ejournal.elemenat.ac.id/index.php/teko/article/view/9734
http://journal.unmasmataram.ac.id/index.pnp/GAR

Arief Witjaksono, Sri Rahardjo The Asian Journal of Technology Management 15 (1), 11, 2016
er:http://library.stmttrisakti.ac.id/repo/index.php?p=show_detail&id=2856&keywords=kapasitas+field+penumpukan

https:// /ejournal.elemenat.ac.id/index.php/teko/article/view/973

Journal of Baruna Horizon Vol. 3, No. 1, June 2020

Journal of Transportation and Logistics Business Management, Vol. 4 No. 1 September 2017

Operational management book: theory and strategy

Journal of Transportation Vol. 17 No. 2 August 2017: 133-144
Directorate General of Sea Transportation. 2011. Decree of the Director General of Sea Transportation No. UM.002/38/18/DJPL-11 dated December 15, 2011 regarding Port Operational Service Performance Standards. Jakarta.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

https://repository.itltrisakti.ac.id/js/ViewerJS/viewer.html#../../repository/224315031

Journal of Management and Business Applications, Vol. 6 No. 2, May 2020

Journal of Logistics D III Transportation UNJ ISSN: 2085-5141 Volume IV No.1. April 2011 Martogi Sihotang, Januarto and Handyasari, Indah (2020)

Crate Capacity Evaluation Pack Jakarta International Container Terminal (JICT)Tanjung Priok Jakarta port. Bachelors Degree (S1) thesis, PLN INSTITUTE OF TECHNOLOGY. Mia Mediana Sari. (2018).

Effect of Stacking Field Capacity and Truck Losing Implementation on Container Loading and Unloading Performance at Pier 107-113 Operation Terminal 2 PT Tanjung Priok Port in 2017