JIM: Jurnal Ilmu Multidisiplin
E-ISSN : 2829-4580
P-ISSN : 2829-4599
GREENATION PUBLISHER
+62 812 1046 7572 http://greenpub.org greenation.info@gmail.com
DOI: https://doi.org/10.38035/jim.v3i4

Analysis of The Influence Auto Gate System and Terminal Booking System on Customer Satisfaction PT. JICT

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Abstract: PT. JICT is one of the operators in the terminal part of PT Subholding PT. Pelindo terminal container. The purepose of this study was to analyze the effect oh the Auto Gate System (AGS) and Terminal Booking System (TBS) on customer satisfaction. This research uses quantitative methods. The sampling technique used was saturated sampling with 30 respondents and the data was processed using SPSS version 26. The data was analyzed by validity test, reability test, multiple regression analysis, determination coefficient test (R2), T test, and F test. Based on the result of the analysis and discussion the test shows that the F-count > F-table which atates that AGS and TBS have a positive and significant effect on customer satisfaction at PT. JICT. The F test shows that the F-count> F-table partially AGS and TBS have a positive and significant effect on customer satisfaction at PT. JICT. PT JICT has supporting facilities to meet the needs of service users so that the services provided are as expected. This company provides services for loading and unloading export and import containers from and to ships, providing temporary stacking services for export and import containers, providing reefer services and providing Gate services. Loading and unloading of export containers is the most frequently served activity in this company, the development of technology from year to year, the development of services must also be further developed, so this company tries to provide facilities and equipment in accordance with developments and technology so as not to be left behind so that service users will be more interested in choosing PT JICT services. Apart from facilities and equipment, this company also has reliable human resources and high integrity. After the facilities and equipment are available, it is necessary to provide good service starting from the entry of goods into PT JICT through the Gate using a new system, namely the JICT Auto Gate System (JAGS).(Immanuel, 2015)

Keywords: Auto Gate System, Terminal Booking System, Customer Satisfaction, Truck, Port Service, Tanjung Priok.

INTRODUCTION

Tanjung Priok Port is one of the busiest and most strategic ports in Indonesia, serving as the country's door to International trade. PT Jakarta International Container Terminal (JICT) is one of the container port operators at The Tanjung Priok port terminal which peovides container loading and unloading services and leaving the port. PP number 101 of 2021 dated October 1, 2021 is the merger of the company PT. Pelindo I, II, III, and IV in PT. Pelindo so that PT. JICT is a subsidiary of PT Pelabuhan Indosensia II (Persero), which is a state – owned port company in Indonesia. PT. JICT is the operator that is granted a licenser or contract to manage the container terminal at the port. There fore, technically, the land belongs to the government or the port entity that manages the port. PT. JICT plays a role in operating and managing the container terminal on the land in accordande with the exiting agreement. Customer satisfaction is a major factor in maintaining the company's competitiveness and success in the sector.

Sea transportation mode has its own charm attraction to be chosen as an option for exporters because the amount of cargo that can be handled is very large, and the price is also relative in the sea transportation mode sea transportation mode, even special containers are provided for cargo that is required to use special handling in its shipment, such as cargo that cannot be loaded in containers, namely propellers, flanges, or also trucks that are carried using flat track or open top which if the cargo exceeds the weight, width and height of the capacity of the container is called out of gauge cargo. (Fadillah Soraya Batubara et al., 2022)

The company shows that there are still weaknesses safety of sea transportation where the lack of competence of the crew so that crew's proficiency on board the ship has not been maximized, there are still incomplete infrastructure facilities on board the ship, prevention of ship accidents in training incomplete infrastructure on board, prevention of ship accidents in training is only done twice a month and transportation safety is lacking on board. training is only carried out twice a month and transportation safety is less maximized by the company. (Setyadi et al., 2023)

Based on the preliminary survey problems were identified where port operational performance at Port of Tanjung Priok has not been organized well organized where there are priority rights for passenger ships that will dock at the Port. So, it will result in the ship will shifting or anchoring waiting until the completion of the passenger ship process this has an impact on the performance of loading and unloading stopped for a moment which resulted in productivity productivity decreases. (Syayuti et al., 2023)

Operational performance and service quality on customer satisfaction in shipping companies. The research sample was 120 customer respondents from import shipping companies in Jakarta. The data collection technique used a questionnaire. The data analysis method used is path analysis. The results of the research on online order delivery that adopts e-service and the web successfully affect service quality. E-service improves service quality, meaning that it has an effect on improving service quality on customer satisfaction. Service quality is able to function as a mediator for delivering online orders for customer satisfaction. (Maemunah et al., 2023)

PT. JICT has a field of 100 hectares with a length of 900 meters north pier and 910 meters west pier and has a container stacking field that can accommodate 39,884 Teus. PT JICT also has operational support tools, namely: 14 units of Quay Crane (QC), 59 units of Rubber Tyred Gantry Crane (RTGC), 105 units of Head trucks, and has a system that is optimally connected so that it makes PT. JICT is the largest and busiest container yard in Indonesia. Good procedures and systems are one of the keys to successful cargo traffic. every company must want the best for the company, therefore, it must have prepared everything related to operational activities so that everything can run well. That's what every shipping company does in general. the ability to organize, estimate schedules appropriately is a

powerful weapon that every shipping company must have so that the distribution of goods runs smoothly.

Definition of Auto Gate System

The Auto Gate System is the separation point between terminal and external transportation of the Container Terminal, and the limit when the Container is considered complete and has left the Container Terminal. The following affect the application of AGS : Service system, Input optimization, Processing time, Monitoring system.

Auto Gate System (AGS) automates the gate by using automatic door technology to increase the speed of the container entry and exit process at the temporary stockpile. The objective af AGS include:

1. Increase the acceleration of container entry and exit.
2. Improve data accuracy and validity.
3. Reduce traffic congestion in the container terminal area.
4. Reducing the face – to – face of afficers, both directorate general of customs (DGCE) and Container Terminal officer. (Gharehgozli et al., 2016)

Definition of Terminal Booking System

Terminal Booking System is a system used in the logistics and transportation industry to plan, organize, and manage the schedulr and capacity of terminal or services. This system is designed to assist terminal or port companies, as well as customers who use their service, in optimizing the cargo loading and unloading procces and avoiding delays or uncertainties. The following affect the application of TBS:

1. Technology readiness
2. Customer satisfaction
3. Data availability and system integration
4. Data security

The following are the implemetation objective of TBS :

1. Optimizing capacity utilization
2. Reducing waiting time
3. Improve operational efficiency
4. Increase transparency
5. Control of operational processes

Definition of Customer Satisfaction

Customer satisfaction is a person’s feeling of pleasure or disappointment that aries after comparing the product’s percevied perfomance (or results) against the expeced one. If the performance is below expectation, the customer is not satisfied. If the performance meets expectations, the customer is very satisfied of happy. (Noer Ikhsan, 2017)

It can be concluded that customer satisfaction is reviewed and the customer side, namely regarding what customer have left for the service that have been fulfilled by the company as expected. With the additional value of a product or service, customers become more satisfied. Factor that affect Customer Satisfaction: Product quality, Service quality, Emotion, Price, Convenience.

Below is an explanation of the factors that affect Customer Satisfaction, namely:

a) Customer will feel satisfied if the result of their evalution show that the product they use are of high quality. In this case, good quality will provide added value to customers.
b) Service quality in the service sector will make customers feel satisfied if they get good service or in accordance with their expectation. Satisfied customers will show the possibility to buy the same product or service again.

c) Customers will feel pround and gain confidence that others will admire the company when using product or service that have a higher level of satisfaction.
d) This element affect conduners in term of cost inscurred, the more expesive the price of a product or service, the customer or consumer has a higher expected value.
e) Customers will be more satisfied if it is relatively easy, convenient, and efficient to get a product or service. (Noer Ikhsan, 2017)

In the modern era, container terminal management increasingly relies on technology to improve efficiency and service quality. Among the information technology used at the Port terminal from the form of customer service, there are two technologies in port terminal operations, namely AGS and TBS services, where the two systems concern the automation system to regulate the smooth entry and exit of trucks to and from the port terminal (AGS) and the information technology system for customers to plan and book truck arrival times to the terminal (TBS). This research examines the effect of AGS and TBS on customer satisfaction at PT. JICT, The effect of these two systems will be further examined to determine the extent to which they affect customer satisfaction in the services provided by PT. JICT. In using this technology, PT. JICT has ensured that there is assistance and guidance so that violations can easily access AGS and TBS, including services if there are problems in operating the system. If there are any improvements or updates to AGS and TBS, the system will clearly notify the customer of the changes. The system at PT. JICT ensures customer and transaction data is protected from potential security attacks, and implements strong data security practices by scheduling routine maintenance for these systems to keep them operating properly. As well as ensuring customers and staff involved in the use and maintenance of the systems have received adequate training.

Literature review

PT. JICT has supporting facilities to meet the needs of service users so that the services provided are as expected. This company provides services for loading and unloading export and import containers from and to ships, providing temporary stacking services for export and import containers, providing reefer services and providing Gate services. In addition to facilities and equipment, this company also has reliable human resources and high integrity. After the facilities and equipment are available, it is necessary to provide good service starting from the entry of goods into PT JICT through the gate using a new system, namely the JICT Auto Gate System (JAGS).

The automatic gate system is a container service system at the gate where the process of checking document and inputting container data is carried out automatically through a computer system without involving gate officers. The advantages of the PT. JICT Auto Gate Systen (AGS), namely: speed up and expedite the container service process at the gate, reduce record – keeping work, for safety, security, and sterilization of people and containers, minimize manual input errors, reduce traffic congestion both in the terminal area and it's surroundings, Minimize direct contact between trucksers and gate officers who are at risk of extortion. (Immanuel, 2015)

In understanding transportation needs, service quality is a basic foundation that can have an impact on consumers to choose various types of services that are developing today. In the era of rapid population development, people tend to choose fast and affordable transportation. The community will ask for better service according to their needs, so consumers are more careful in ensuring everything that can be utilized according to their needs. Especially transportation problems that play a role in providing service functions to facilitate humans in carrying out their daily activities.(Shafira & ., 2020)

There are several technologies used in the implementation of AGS at Tanjung Priok port, one of which is the use of Equipment Interchange Receive (EIR). The EIR is issued by the Port Authority to the haulier after the container exits or enters through the gate. The EIR

confirms the movement of the container through the gate and generates a token. The token contains container information, such as container number, seal number, location, token number, truck number and other container information. Another technology that is planned to be used in supporting efficient gate transactions is Radio Frequency Identification (RFID). (Hartono, 2019)

User Satisfaction of Informantion System The success of a system can be jugdged by the services it provides. Services provided especially in the type of service that has been integrated by the information system. User satisfaction with an information sstem is the way in which the user perceives the information system in real terms, but not in terms of the quantum of the system in technical terms. User satisfaction show how much the user likes and trust the information system that is provided to meet their needs. (Simamora & Supriono, 2017).

The auto gate is a container service process at the gate that processes checks, documents the physical condition of containers that are carried out automatically through a digitization system without involving gate officers [4]. The auto gate is applied to simplify and shorten inspection times, such as physical inspection of trucks, containers, and customs checks. At the terminal gate, it is not only identifying and recording important data such as the number, type, size, condition and weight of the container and information about the owner and shipping but also related to driver information, driving license numbers and chassis that must be identified and recorded [1]. This activity requires a lot of time if it's done with gate-work. (Pramesti et al., 2020)

Structure of the Study

The research framework aids in the formulation of pertinent research questions and clearly outlines the structure of the research plan. In this final project, the following research framework is used:

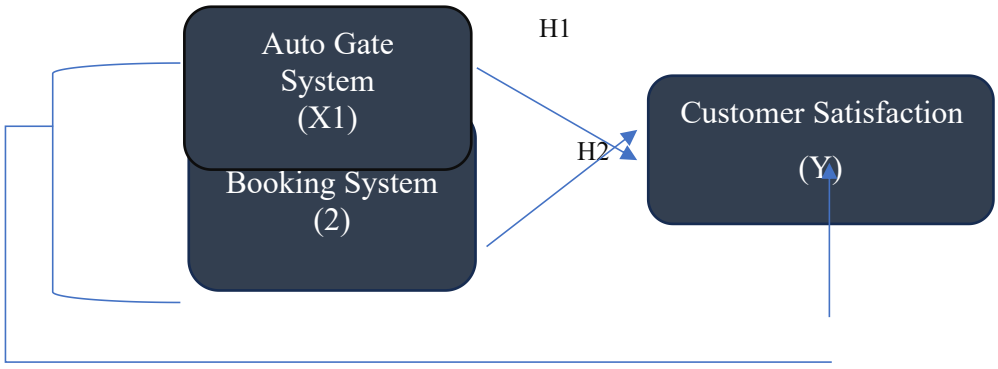

Figure 1: Structure of the Study

Hypotesis :
H1: there is an effect of the auto gate system on customer satisfaction.
H2: there is an effect of terminal booking system on customer satisfaction.
H3: there is an influence of the auto gate system and terminal booking system on customer satisfaction.

METHOD

The study aims to determine the effect of AGS and TBS on customer satisfaction at PT. JICT at Tanjung Priok port. The method use for this research is quantitative method using questionnaire data use to measure customer satisfaction with AGS and TBS technology taken from 30 respondents consisting of Esporters, Importers, Marine Cargo Expedition companies, who use PT, JICT services, this method uses multiple linear regression and the reserch data is analyszed using SPSS version 26.

Table 1. Reserch Indicators

Variable	Indicator
AGS (X1)	1. Waiting time 2. Transaction speed 3. Capacity
TBS (X2)	1. Loading and unloading speed 2. Ketersediaan terminal 3. Adherence to schedule 4. Data security
Customer Satisfaction (Y)	1. User – friendliness 2. Service quality 3. Efficiency and cost saving 4. Accurancy of information

RESULT AND DISCUSSION

This chapter discusses anoverview of the result of data analysis of AGS (X1) and TBS (X2) information technology system on customer satisfaction (Y) using information technology service at PT. JICT. Based on the result of the customer satisfaction analysis, the average user feels helped by the existence of AGS (X1) and TBS (X2) technology in meeting their neds for receiving / delivering. The service provided by AGS technology can function properly, increase efficiency, and reduce customer waiting time in the process of entering and leaving the port. In addition, the service provided by TBS technology can help customers to better plan the delivery or pickup of their containers. These two technologies can make the receiving / delivery process smoother and more reliable for service users.

Table 2. Validity Test

Variable	Questions Items	r-count	r-table	Probability	Description
AGS (X1)	X1.1	0.734	0.361	0.05	Valid
	X1.2	0.696	0.361		Valid
	X1.3	0.680	0.361		Valid
	X1.4	0.654	0.361		Valid
TBS (X2)	X2.1	0.611	0.361	0.05	Valid
	X2.2	0.732	0.361		Valid
	X2.3	0.804	0.361		Valid
	X2.4	0.585	0.361		Valid
	X2.5	0.866	0.361		Valid
Customer Satisfaction (Y)	Y1	0.814	O.361	0.05	Valid
	Y2	0.731	0.361		Valid
	Y3	0.784	0.361		Valid
	Y4	0.611	0.361		Valid
	Y5	0.785	0.361		Valid

Based on the validity test result, the data is considered valid if (R count > R table). R count is obtained from the table (person correlation) and R table (0.361) is obtained fram R table with a significance level of 5%. So it can be stated thet each statement item submitted in the questionnaire is able to represent the objectives of this study. It can be concluded that the tests carried out are valid.

Table 3. Reliability Test

Variabel	Alpha Cronbach	>/<	Settings	Description
AGS (X_1)	0,630	>	0.600	Reliabel
TBS (X_2)	0,769	>	0.600	Reliabel
Customer Satisfaction (Y)	0,813	>	0.600	Reliabel

From the output table of the reliability test result above, It can be interpreted that each variable is greater than the AGS (X1) value of 0.630 > 0.6000, TBS (X2) of0.769 > 0,600 and customer satisfaction (Y) of 0.813 > 0.600. the test result in this questionnaire are very reliable.

Table 4. T Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.722	2.192		-.786	.439
	AGS (X1)	.823	.163	.592	5.040	.000
	TBS (X2)	.423	.130	.381	3.241	.003

a. Dependent Variable: Customer Satisfaction

a) X1 (AGS)

The coefficient value of variable X1 is 0.823. the significant value of variable X1 is 0.000 which is smaller than α = 0,05. Then variable X1 has a positive and significant effect on customer satisfaction.

b) X2 (TBS)

The coefficient value of variable X2 is 0.423. the significant value of variable has a positive and significant effect on customer satisfaction.

Regression equation :

Y = -1,722 + 0,823 X1 + 0,423 X2

Table 5. Multiple Correlations

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.902[a]	.813	.799	1.00984	.813	58.754	2	27	.000

a. Predictors: (Constant), TBS, AGS

The table above shows that the value of the multiple correlation coefficient (R) is 0.902, which means thaat the level of reletionship between the AGS and TBS variables on customer satisfaction has a significant influence with a coefficient of 0.902.

Table 6. Determinant Coefficient

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902[a]	.813	.799	1.00984
a. Predictors: (Constant), TBS, AGS				

In the regression output result, the output reault of R Square: 0.813 (81.3%) which aims to determine the percentage of the influence of the variable (X) simultaneously on the variable (Y) which means that the AGS and TBS variable contribute to the customer satisfaction variable by 81.3%. the remaining 18.7% is influenced by other variables not explained in this study.

Then KD = (0.779)2 x 100%

= 0,606 x 100%

= 60,6%

Assessment in the F test, if the significant value < 0.05 then the hypothesis is accepted. This study uses a significant level of 5%.

Table 7. F Test

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.833	2	59.916	58.754	.000[b]
	Residual	27.534	27	1.020		
	Total	147.367	29			
a. Dependent Variable: Customer Satisfaction						
b. Predictors: (Constant), TBS, AGS						

Using 95% confidence, df1 (number of vaariable – 1) = 2, and df 2 (n – k) = 28, the results obtained for the F table are 3.340 with a significance value of 0.000. so that the value of F count > F table (58.754 > 3.340) or p value > α (0.000 < 0.05), then Ho is rejected, meaning that together the independent variables have a significant effect on customer satisfaction.

CONCLUSION

Based on the result of the discussion in thin study regarding the effect of AGS and TBS facilities on customer satisfaction at the port of PT. JICT. Then the conclusions of this study are as follows:

AGS service has a positive and significant effect on customer satisfaction, customers feel that the facilities at PT. JICT are satisfactory. In addition, TBS services perceived by customers also have a positive and significant effect on customer satisfaction at PT. JICT. Thus, service users are satisfied with the services provided by PT. JICT because the facilities and service quality are very good.

Implications

a) Improved Operational Efficiency : AGS can assist ports in identifying and addressing disruptions or problems in their operations. This means container and cargo management operation can run more smoothly, with less waiting time for ships, truck,

and cargo.

b) Improved Customer Service: TBS allows customers to make bookings and reservations more easily, allowing them to better plan their cargo trips. This means that booking and reservation service can improve the convenience of customers using port services.
c) Access Control and Security: AGS can also be used to monitor and control access to critical areas in the port, as well as improve operational security.

Research limitations

In this chapter we discuss the limitations of the reserch, where we only got 30 respondent consisting of Exporters, Importers, Marine Cargo Expeditions and Business Devlopment. This is due to limited access to data that is confidential or sensitive. On the other hand, security constraints to the AGS and TBS system that may have information so that companies cannot be disclosed in the study.

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