



ANALYSIS OF THE APPLICATION OF THE SINGLE SUBMISSION SYSTEM (SSM) ON THE EFFECTIVENESS OF FOREIGN CONTAINER SHIP CLEARANCE AT PT JASA CENTINA SENTOSA TANJUNG PERAK SURABAYA

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Abstract

Key word :

*Single Submission
System (SSM),
Effectiveness,
Clearance In,
Clearance Out*

This study aims to analyze the effect of the Single Submission System (SSM) implementation on the effectiveness of clearance in and out activities of foreign container ships at PT Jasa Centina Sentosa at Tanjung Perak Port, Surabaya. The research method used is a combination (mixed methods) with a sequential explanatory design. Primary data were obtained through surveys and interviews with employees of PT Jasa Centina Sentosa, with a sample of 30 respondents. The independent variable in this study is the implementation of the Single Submission System (SSM) of the carrier, while the dependent variable is the effectiveness of the ship clearance process. Data were analyzed using simple linear regression. The results of the analysis show that the implementation of the Single Submission System (SSM) has a positive and significant effect on the effectiveness of the ship clearance process. The more optimal the implementation of SSM, the more effective the clearance in and out activities of foreign container ships at the port. This study also identified several obstacles that can hinder the implementation of SSM, such as less than optimal coordination between agencies and lack of education for system users

INTRODUCTION

International trade is an activity that involves buying and selling transactions of goods and services between countries (Arsyad, 2021). This process is influenced by various factors, such as differences in natural resources, climate, and economic conditions between countries. This growing trade activity creates dependency between countries, and to ensure its smooth operation, international trade is regulated through various international treaties and regulations. As part of this global system, ports play an important role as a connecting point between countries and as a place for loading and unloading goods.

Ports have a very vital function in international trade, because apart from being a connecting point between islands and countries, ports are also the main place for loading and unloading goods to be traded (Ayunda et al., 2021). Adequate infrastructure and efficient information systems at ports are essential to ensure that the process runs smoothly. One of the efforts made to improve the efficiency of port operations is to utilize digital technology, which is increasingly developing in the era of the industrial revolution 4.0.

According to Firdani & Supomo (2024), the evolution of industry 4.0 is a turning point in digital transformation that affects various sectors, including in the world of ports and logistics. By utilizing digital-based technology, companies and government agencies can manage processes more efficiently. In this context, digital systems such as Inaportnet and the Indonesia National Single Window (INSW) play a major role in increasing the transparency and effectiveness of services at ports.

The Inaportnet system, introduced by the Ministry of Transportation in 2016, aims to increase transparency in ship and freight services. This system integrates various port services and facilitates communication between related parties, such as port operators and customs authorities (Fitharti et al., 2019). The use of the Inaportnet system has been implemented in major ports in Indonesia, including at the Port of Tanjung Perak, Surabaya, which is one of the main ports in Indonesia.

In addition, the INSW system under the Ministry of Finance functions to facilitate the process of managing documents related to customs and excise and ports in export and import activities. These two systems, Inaportnet and INSW, work together to support the smooth clearance of ship documents at ports. With the integration of this system, the ship clearance process becomes faster and more efficient, which in turn has a positive impact on the smooth running of international trade (Malau et al., 2023).

Cooperation between the port and related ministries is also being strengthened. In July 2022, the Port of Tanjung Perak signed an integrity pact with the aim of accelerating the Single Submission process of Carriers. This is expected to increase the effectiveness of port services and reduce logistics costs, thereby facilitating the flow of goods and ships coming and going at the port.

One of the companies that utilizes this system is PT. Jasa Centina Sentosa, which acts as an agency and logistics company at the Port of Tanjung Perak. PT. Centina Sentosa services use the INSW and Inaportnet systems in the process of clearing ship documents at KSOP Class I Tanjung Perak. The implementation of this system shows the importance of system integration in managing the ship licensing and documentation process, which ultimately improves operational efficiency at the port.

In this study, the author is interested in analyzing the implementation of the Single Submission (SSM) system and how the system can improve the effectiveness of clearance activities in and out of foreign container ships at PT. Centina Sentosa Services. By analyzing the implementation of the SSM system, it

is hoped that this study can provide insight into the positive impact of this system on the smooth operation of ports and the international trade process..

LITERATURE REVIEW

Application

Application is the act of practicing a theory or method to achieve a certain goal. According to Wahab (2018), the implementation involves three elements: the existence of the program implemented, the target group that is expected to benefit, and the responsible implementer. Successful implementation if the existing program can provide benefits in accordance with the set goals.

The Single Submission System (SSM)

SSM is a system for submitting single data through INSW to reduce duplication in the ship arrival and departure processes. The integrated services include ship arrivals, manifests, and health clearances. INSW supports the smooth flow of export-import goods and simplifies port administrative processes. This system is regulated by IMO policies and Presidential Regulation No. 91/2017.

Effectiveness

Effectiveness refers to the extent to which the resources used can achieve the established goals. According to Sondang P. Siagian (2018), effectiveness is the optimal utilization of resources to produce the desired output.

RESEARCH METHOD

A hypothesis is a conjecture or provisional statement that is put forward to answer the problem being researched. This statement is based only on relevant theories or concepts, and has not been empirically proven through data collection. Therefore, the hypothesis is considered provisional and needs to be further tested to see if it is true. In this study, based on a review of the literature and previous research, the hypothesis proposed is the effect of the use of the Single Submission (SSM) system on the effectiveness of ship clearance process services at PT. Centina Sentosa Services.

Research by Malau et al. (2023) revealed that the implementation of the Indonesia National Single Window (INSW) through Single Submission (SSM) has a positive impact on improving operational efficiency and accelerating economic growth, especially in Indonesia's maritime sector. Single Submission (SSM) is an integration system used in improving the ship clearance process by Ship Agency Companies, which aims to simplify and speed up services. Based on the relationship found in previous studies regarding service efficiency and clearance process, the hypothesis proposed in this study is that the use of Carrier SSM (X) has a positive effect on the effectiveness of clearance process (Y) services in the company studied.

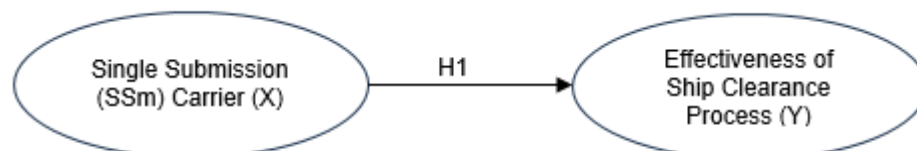


Figure 1 : Framework

This study uses a combination method or Mixed Methods with a Sequential Explanatory design, which combines quantitative and qualitative approaches. The first stage is collecting and analyzing quantitative data, then continuing with qualitative data analysis to strengthen the quantitative results (Sugiyono, 2018).

The operational definition describes how the variables in the study are measured and applied to ensure that the variables used are measured consistently. In this study, there are two main variables:

Effectiveness of the Ship Clearance Process: The effectiveness of the Ship Clearance Process is the level of effectiveness and speed with which all procedures are required to obtain a shipping permit for a ship, both for departure (clearance out) and arrival (clearance in).). This effectiveness includes aspects such as the time required to process documents, coordination between various parties (such as port authorities, shipping agents, and other related parties), as well as the completeness and accuracy of the submitted data (Puspitasari & Pangestu, 2021).. This variable measures the speed and completeness of the ship's shipping permit procedure (Puspitasari & Pangestu, 2021).

Implementation of Single Submission (SSM) of Carriers: The implementation of Single Submission (SSM) of carriers is the use of an integrated digital system to facilitate the submission of documents and permits related to ship transportation activities. The system is designed to simplify and speed up administrative processes by combining various stages of licensing in a single platform that can be accessed by related parties, such as shipping companies, port authorities, and government agencies (Malau et al., 2023). This is an integrated digital system that simplifies the ship licensing process (Malau et al., 2023).

This research was conducted at PT Jasa Centina Sentosa in Tanjung Perak Port, Surabaya, for two months, with data collection lasting for one month and data analysis for one month.

The method used to collect data is interviews and questionnaires with the Likert scale, which measures the attitude or view of respondents towards the phenomenon being studied (Sugiyono, 2018).

The instruments used to collect data are questionnaires and interviews, which are designed to obtain valid and reliable data related to the variables studied.

The population of this study is all employees of PT Jasa Centina Sentosa in Tanjung Perak Port, Surabaya, which totals 30 people. The sample was taken using the total sampling technique due to the small population (Sugiyono, 2018).

Data analysis uses the Sequential Explanatory method, which involves quantitative analysis with multiple linear regression, followed by qualitative analysis through interviews or content analysis.

Quantitative Data Analysis: Quantitative data testing involves several important stages, starting with descriptive statistical tests to describe data characteristics such as mean and standard deviation. Furthermore, the instrument test is carried out through validity and reliability tests to ensure that the questionnaire used is valid and consistent. Before conducting regression analysis, classical assumption tests such as normality test and heteroscedasticity test are performed to check the residual distribution and variant inequality. Simple linear regression analysis is used to measure the relationship between independent and dependent variables. Finally, hypothesis tests are conducted to evaluate the influence of independent variables on dependencies, while model goodness tests with determination coefficients (R^2) assess the extent to which the model explains the variability of the data.

Qualitative Data Analysis: This process delves into quantitative results with interviews to uncover further insights into the variables being analyzed, broaden understanding, and provide context to existing quantitative outcomes.

RESULT AND DISCUSSION

PT Jasa Centina Sentosa is engaged in container transportation services and cooperates with Regional Container Lines (RCL), which has been operating since 1979 and has been listed on the Stock Exchange of Thailand since 1988. RCL operates 40 container ships with a capacity of 500–2,732 TEUs, serving more than 60 destinations in Asia, Australasia, and the Middle East. The company prioritizes quality services with fixed schedules, fast transit times, and advanced information technology. This study involved 30 employees of PT Jasa Centina Sentosa with the majority being male (70%), aged 36–45 years (40%), and having a D4/S1 education (53.33%). The study used a simple regression analysis with data from a 20-question questionnaire regarding the effect of the Implementation of Single Submission (SSM) of the Carrier on the Effectiveness of the Ship Clearance Process. The assessment technique uses a Likert scale (1–5) with the total sampling method. The average score of the Carrier SSM Implementation is 44.03 with a standard deviation of 3.337, while the Ship Clearance Process Effectiveness has an average of 44.10 and a standard deviation of 5.135. The validity test shows that all indicators have a value of r calculation $>$ r table (0.3610), so it is declared valid as shown in Table 1 below.

Table 1. Validity Test Results

Research Variables	Indicators	Calculation	r table	Information
Implementation of Single Submission (SSM) Carrier (X)	X1	0.996	0.3610	Valid
	X2	0.979	0.3610	Valid
	X3	0.996	0.3610	Valid
	X4	0.979	0.3610	Valid
	X5	0.979	0.3610	Valid
	X6	0.996	0.3610	Valid
	X7	0.996	0.3610	Valid
	X8	0.996	0.3610	Valid
	X9	0.996	0.3610	Valid
	X10	0.996	0.3610	Valid
Effectiveness of Ship Clearance Process (Y)	Y1	0.996	0.3610	Valid
	Y2	0.979	0.3610	Valid
	Y3	0.979	0.3610	Valid
	Y4	0.996	0.3610	Valid
	Y5	0.996	0.3610	Valid
	Y6	0.996	0.3610	Valid
	Y7	0.996	0.3610	Valid
	Y8	0.996	0.3610	Valid
	Y9	0.996	0.3610	Valid
	Y10	0.996	0.3610	Valid

Source : processed data, 2025

The results of the reliability test showed that the Carrier Single Submission (SSM) Implementation variable had a Cronbach's Alpha value of 0.693, while the Ship Clearance Process Effectiveness was 0.845. Thus, both variables as seen in Table 2 below are declared reliable and ready for further testing.

Table 2. Reliability Test Results

Research Variables	Cronbach's Alpha	Information
Implementation of Single Submission (SSM) Carrier (X)	0,693	Reliable
Effectiveness of Ship Clearance Process (Y)	0,845	Reliable

Source : processed data, 2025

The results of the normality test using the one-sample kolmogorov-smirnov test as shown in Table 3 show an Asymp. Sig. value of 0.200 which is greater than 0.05, so it can be concluded that the data is normally distributed.

Table 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
Unstandardized Residual		
N		30
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	3.77498828
Most Extreme Differences	Absolute	.096
	Positive	.093
	Negative	-.096
Test Statistic		.096
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Meanwhile, based on the results of the heteroscedasticity test as illustrated in Table 4, the significance value (sig) of the independent variable is greater than 0.05, which indicates the absence of heteroscedasticity symptoms in this regression model.

Table 4. Heterokedasticity Test Results

Coefficients ^a					
	Model	Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	Sig.
1	(Constant)	10.127	4.045		0.015
	Probability of being a Foreign Ship	-.164	.049	-.322	.000
	Port of Origin				
	Port of Destination				

a. Dependent Variable: Effectiveness

In the hypothesis test, the results of the study showed that the Carrier Single Submission Implementation (SSM) variable had a calculated t value of 4.880, greater than the table t of 1.697, and a probability value of 0.000 which was smaller than 0.05. Thus, the alternative hypothesis (H1) is accepted, which means that there is a significant and positive influence between the Implementation of Single Submission (SSM) of the Carrier on the Effectiveness of the Ship Clearance Process. The increase in the implementation of SSM Carriers is directly correlated with the increase in the effectiveness of ship clearance, so that the implementation of SSM at the Port of Tanjung Perak Surabaya has proven to have a significant impact on the efficiency of the clearance process of foreign ships. Full details of the results of multiple regression analysis in this study can be seen in Table 5 below.

Table 5. Results of Simple Regression Analysis

Simple Regression					
Model	Predictor	Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error		
1	Constant	1.000	.000		1.000
	Perceived Stress	1.000	.000		1.000
	Perceived Stress	1.000	.000		1.000

Based on the results of simple regression analysis, the regression equations obtained are:

$$Y = -1,833 + 1,043X + e$$

Where Y is the Effectiveness of the Ship Clearance Process, X is the Carrier's Single Submission (SSM) Implementation, and e is the error. The constant value of -1.833 indicates that if the Carrier Single Submission (SSM) Implementation variable is zero, then the Ship Clearance Process Effectiveness will be -1.833. The regression coefficient of 1.043 indicates that every increase of one unit in the Carrier Single Submission (SSM) Implementation will increase the Effectiveness of the Ship Clearance Process by 1.043 units. Finally, the results of the determination coefficient (R^2) test as illustrated in Table 6 show that the R^2 value is 0.460 or 46%. This means that the implementation of the Carrier Single Submission (SSM) is able to explain 46% of the variability of the Effectiveness of the Ship Clearance Process, while the remaining 54% is influenced by other variables that are not included in this study.

Table 6. Coefficient of Determination Results

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.678 ^a	.460	.440	3.842
a. Predictors: (Constant), Penerapan SSM Pengangkut				
b. Dependent Variable: Efektivitas Proses Clearance ship				

Qualitative Analysis

The qualitative analysis in this study aims to complement and strengthen the findings of the quantitative analysis, as well as answer questions related to factors that affect the implementation of the Carrier's Single Submission (SSM) on service efficiency in the ship clearance process at PT Jasa Centina Sentosa. Data was collected through interviews with operational managers, service staff, and system users to understand the effectiveness of SSM, as well as through direct observation to identify technical and operational issues that were not revealed in the quantitative data.

The results of the interviews showed several factors that hinder the implementation of SSM, such as internet network instability, errors on the website, and lack of training for officers that cause a less than optimal understanding of the system. However, the implementation of SSM also brings benefits, such as more centralized and integrated processes, reduced use of physical documents, and automation of procedures that speed up the clearance process and minimize the risk of data errors. System integration in SSM also reduces data duplication and improves the efficiency of real-time document management, saving time and costs.

Pre-survey observations show that the implementation of the Carrier SSM accelerates the process of ship clearance services, although there are still obstacles such as network disruptions and system downtime. Comparative data shows that the clearance time of ships with the old system takes more than 12 hours for arrival and 19 hours for departure, while with the Carrier SSM, the time is drastically reduced to only 18 minutes for arrival and 1 hour for departure. The successful integration of the system in SSM has reduced manual intervention and improved service efficiency. Data synchronization with related agencies, such as syahbandar, the Port Health Office (KKP), and Customs, speeds up the clearance process compared to the previous system which still relied on manual data input. Thus, the implementation of SSM Carrier not only simplifies procedures, but also increases operational effectiveness at PT Jasa Centina Sentosa.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of the research and discussion that has been described above, several conclusions can be drawn as follows:

1. The integration of SSM Carriers makes the clearance process for foreign ships at the Port of Tanjung Perak more structured. Filling in ship data and manifest documents is now carried out in one integrated system, so the time needed is shorter. Users no longer need to access various agencies separately, as in the old system. This makes the process faster, easier to understand, and efficient in its implementation.
2. The application of SSM Carriers has been proven to significantly increase the effectiveness of the ship clearance process. The arrival time of the ship, which previously reached more than 12 hours, now only takes 18 minutes. Similarly, the departure process, which was previously almost 19 hours, can now be completed in about 1 hour. This efficiency helps reduce operational costs for stakeholders at the port. Overall, SSM Carriers have a positive impact in accelerating port services.
3. Despite providing great benefits, the implementation of SSM Carriers still faces some technical obstacles. Internet connection disruptions, system errors, and synchronization failures between agencies often occur. In addition, the lack of understanding and training of officers makes the implementation of the system not always optimal. Prolonged system maintenance also hampers the clearance process, sometimes forcing the team to return to manual methods. Continuous improvement efforts are needed so that the system can run more stably and effectively.

Recommendations

Based on the conclusion above, some suggestions that can be put forward to improve the effectiveness of the use of SSM Carriers at the Port of Tanjung Perak Surabaya are as follows:

1. **Technological Infrastructure Improvement:** It is necessary to improve technological infrastructure, especially in terms of internet connection. Ensuring a stable and fast internet network is essential to support the smooth operation of SSM Carriers.
2. **Training and Human Resource Development:** PT Jasa Centina Sentosa must hold regular training for officers involved in the use of SSM Carriers. This training aims to improve officers' understanding and skills in using the system, so that they can minimize errors and speed up the clearance process.

3. Efficient System Maintenance: Companies must carry out more efficient and well-scheduled system maintenance planning. This will minimize disruption to operational processes and keep the system functioning properly.
4. Evaluation and Feedback: Conduct periodic evaluations of the effectiveness of the Carrier's SSM and solicit feedback from users to improve and develop the system in the future. This can help in identifying problems and finding the right solutions to improve the service.
5. For future research, the variables used or to be researched involve human resources, training and government regulations.

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