



DOI: <https://doi.org/10.38035/dijms.v7i3.6231>  
<https://creativecommons.org/licenses/by/4.0/>

## The influence of policy and competitiveness on service quality and its implications on customer satisfaction for foreign ship agency approval at the Directorate of Sea Traffic and Transport

Nadiah Sofyan<sup>1</sup>, Robensius Saragih<sup>2</sup>, April Gunawan Malau<sup>3</sup>, Wilhelmus Hary Susilo<sup>4</sup>

<sup>1</sup>Sekolah Tinggi Ilmu Pelayaran, Jakarta, Indonesia, email. [nadiahs Sofyan@gmail.com](mailto:nadiahs Sofyan@gmail.com)

<sup>2</sup>Sekolah Tinggi Ilmu Pelayaran, Jakarta, Indonesia, email. [roben.pip@gmail.com](mailto:roben.pip@gmail.com)

<sup>3</sup>Sekolah Tinggi Ilmu Pelayaran, Jakarta, Indonesia, email. [aprilgunawan22@gmail.com](mailto:aprilgunawan22@gmail.com)

<sup>4</sup>Sekolah Tinggi Ilmu Pelayaran, Jakarta, Indonesia, email. [wilhel1708@gmail.com](mailto:wilhel1708@gmail.com)

Corresponding author: [nadiahs Sofyan@gmail.com](mailto:nadiahs Sofyan@gmail.com)<sup>1</sup>

**Abstract:** This research analyzes the influence of policy and competitiveness on service quality and its implications on customer satisfaction related to the Foreign Ship Agency Approval at the Directorate of Sea Traffic and Transport. The sea transportation sector plays an important role in Indonesia's international trade, with nearly 90% of the trade volume conducted by sea. The Foreign Ship Agency Approval Service is the initial entry point for foreign ships into Indonesian waters which has undergone digital transformation through the Sea Transportation Traffic Management Information System since 2016. This quantitative research involved 92 customer respondents who were selected using *a simple random sampling technique*. Data analysis using *Structural Equation Modeling* with the help of SmartPLS showed that policy had a significant influence on service quality by 64.4% and competitiveness contributed by 28.9%. Service quality has proven to be a full mediator in policy relations and competitiveness to customer satisfaction with the strongest contribution of 75.6%. The dimensions of policy compliance, technology infrastructure, service reliability, and information accessibility are the dominant factors that affect customer satisfaction. The findings of the research show the importance of improving service reliability and information technology integration between agencies to improve the efficiency of coordinating foreign ship agency approval services.

**Keyword:** Maritime Policy, Competitiveness of Sea Transportation, Service Quality, Customer Satisfaction, Foreign Ship Agency Approval.

### INTRODUCTION

The transportation, distribution, and logistics services sector has a vital role in facilitating domestic and international trade, while supporting the improvement of economic performance, especially in archipelagic countries such as Indonesia. Indonesia's geographical condition as the world's largest archipelagic country with an area of 1,904,569 km<sup>2</sup> and 17,504 islands with a population of more than 270 million people in 2020, adds urgency to address significant

connectivity challenges. Sea transportation is a crucial element in supporting the integration of scattered islands, not only for domestic connectivity but also for international trade, considering that almost 90% of Indonesia's international trade volume is carried out by sea with sea ships as its mode of transportation.

Competitiveness in the maritime industry is greatly influenced by government policies that support infrastructure development, fair regulations, and incentives to improve services that can directly affect the competitiveness and satisfaction of service users (customers). The Government of Indonesia has established a number of regulations to support the competitiveness of national sea transportation, including Regulation of the Minister of Transportation Number 93 of 2013 on the Organization and Operation of Sea Transportation, and Regulation of the Minister of Transportation Number 65 of 2019 on the Organization and Operation of Ship Agency Businesses. This regulation requires foreign vessels that will conduct activities to and from Indonesian ports that are open to foreign trade to appoint national companies as general agents.

Any ship that sails must call at a port to carry out the loading or unloading of cargo required by the vessel, however, not all ships have branch offices at the ports they call at. Therefore, ship owners (principals) must appoint a shipping company located at a particular port to handle all vessel-related needs while the ship is in port (Kwartama & Karimunanto, 2022). The Foreign Ship Agency Approval Service (PKKA) is the initial entry point for foreign ships into Indonesian waters served by the Ministry of Transportation through the Directorate of Sea Traffic and Transport. Along with technological developments, PKKA, which was initially carried out manually, then in 2016 experienced innovation with the launch of a service-based *Website* through the Sea Transportation Traffic Management Information System (SIMLALA), as regulated in the Regulation of the Minister of Transportation Number 89 of 2018. Increased value for customers is the result of effective service management, which in turn will strengthen the competitiveness of the company or the country (Gronroos, 2016).

SIMLALA data shows that for year of 2017-2023, services related to reports on overseas sea transportation activities have been dominated by PKKA services by more than 80% every year, with the average number of foreign ship visits to Indonesian ports reaching 6,299 per month and domestic ships sailing abroad reaching an average of 4,468 per month. Overall, overseas sea transportation services reached 347 services per day. PKKA complaint data in 2023 through the One-Stop Integrated Service showed an increase of 90.48% compared to 2022, with 54.10% of complaints highlighting the need to accelerate the verification process in the implementation of *online services* that take place 24/7.

Based on a report by Drewry Shipping Consultants (Global Ports Report, 2021), the cost of ship delays (*Demurrage Costs*) can reach around USD 15,000 to USD 30,000 per day depending on the size and type of vessel. Data from the Indonesian Logistics and Forwarder Association (ALFI, 2020) shows that the average additional costs due to ship delays at Indonesia's main ports range from Rp 50 million to Rp 100 million per day.

Effective maritime policies not only improve the efficiency of port operations but also have a significant impact on overall economic growth (World Bank, 2021). Policies formulated with the involvement of all relevant parties in mind and continuous evaluation can significantly improve the efficiency and competitiveness of the maritime sector (Kishore et al., 2024). On July 13, 2023, the Directorate of Sea Traffic and Transport held a Ship Agency Consultation in the Context of Optimizing SIMLALA Services which identified various obstacles faced by service users in PKKA services. This study aims to analyze the influence of policies and competitiveness on service quality and its implications on customer satisfaction related to the Foreign Ship Agency Approval at the Directorate of Sea Traffic and Transport.

## METHOD

### Research Design

This study uses a quantitative method with a causal relationship approach involving cause and effect, where there are independent variables that affect and dependent variables that are affected (S. Sugiyono, 2017). Quantitative research methods are methods based on the philosophy of positivism to test predetermined hypotheses (S. Sugiyono, 2017). Analysis of the relationship between variables was carried out using *Structural Equation Modeling* (SEM) with the support of SmartPLS software, while the descriptive analysis was carried out with the help of SPSS version 29.

### Data Types and Sources

Primary data were collected through observation, literature studies, and questionnaires. Literature studies involve reading, reviewing, and analyzing scientific papers related to policy, competitiveness, service quality, and customer satisfaction. The questionnaire uses a Likert scale that is distributed to respondents. Primary data is data obtained directly in the field by researchers (Hasan, 2002). Secondary data is in the form of journals and scientific papers on overseas sea transportation services.

### Population, Sample and Sampling Techniques

A population is a series of elements that are similar but differ due to their characteristics. The study population was 1,211 companies of the Foreign Ship Agency Approval service. Researchers may select a portion of the population as a sample with the note the sample must represent the entire population (P. Sugiyono, 2016). Method *Probability sampling* with techniques *Simple random sampling* used so that every member of the population has an equal opportunity to be elected (S. Sugiyono, 2017). The sample size is determined using the Slovin formula:

$$n = \frac{N}{1 + N(e)^2}$$

with  $n$  as the sample size,  $N$  as the population size, and  $e$  as the error rate of 0.1, resulting in 92 respondents.

### Research and Operationalization Variables

This study uses two independent variables (policy and competitiveness), intervention variables (service quality), and dependent variables (customer satisfaction). Policies are measured through the effectiveness dimension with indicators of policy support, level of user understanding, and effectiveness of goal achievement; dimensions of conformity with indicators of policy relevance, operational effectiveness, and strengthening of international positions; Communication dimensions with indicators of policy development and the conformity of expectations. Competitiveness is measured through the dimensions of economic growth, innovation, human resources, and infrastructure with nine indicators. Service quality is measured through *real dimensions*, *reliability*, *responsiveness*, *certainty*, and *empathy* with ten indicators. Customer satisfaction is measured through service dimensions, staff, accessibility, and *pricing* with nine indicators, all using an ordinal scale.

### Test Research Instruments

Validity testing was conducted on 30 respondents as a minimum requirement (Field, 2024). Validity was measured by three methods, namely the correlation of item scores to the total score, bivariate correlation, and *Analysis of Confirmation Factors* (Augustine, 2006). Validity is tested using a correlation formula *Product Moments*:

$$r_{xy} = \frac{nXiYi - (Xi)(Yi)}{\sqrt{\{nXi - (Xi)^2\}\{nYi^2 - (Yi)^2\}}}$$

Significance testing using t-test with formula (Supranto J and Nandan L, 2016):

$$t = \frac{r\sqrt{n - 2}}{\sqrt{1 - r^2}}$$

Reliability tested using *Average variance extracted* (AVE) which indicates how much variance is explained by latent constructions (J. Hair & Alamer, 2022). An AVE value above 0.50 indicates good convergent validity (Larckel, D.F. and Fornell, 1981).

**Data Analysis Techniques**

Descriptive analysis includes *Central Tendencies* with measurements *red* using the formula  $\mu = \Sigma X/N$ , *Variability* with standard deviation  $SD = \sqrt{\frac{(X - X_1 - n)^2}{n}}$  and *Relative Position* Using Z-Score (Indrawan & Yaniawati, 2016). The hypothesis test uses a t-test with a significance level of 5%. SEM describes a simultaneous linear relationship between the observed variable and the latent variable. PLS as an alternative method of SEM *Free distribution* For 70-100 samples (Noor, 2016; Yamin & Kurniawan, 2009). The research was conducted in January-December 2023 at the Directorate of Sea Traffic and Transport with a questionnaire *online* through *Google Forms*.

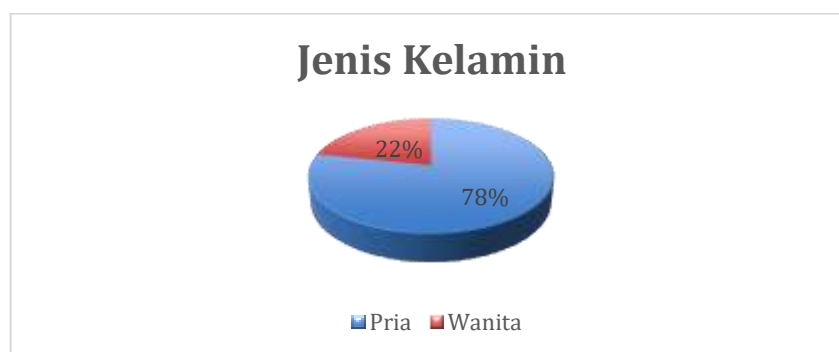
**RESULTS AND DISCUSSION**

**Research results**

This study involved 92 respondents who were users of foreign ship agent approval services at the Directorate of Sea Traffic and Transport. Before the main analysis was carried out, the research instrument was first tested for validity and reliability using 30 initial respondents. The distributed questionnaire consisted of 36 statements covering four main variables: Policy (8 statements), Competitiveness (9 statements), Quality of Service (10 statements), and Customer Satisfaction (9 statements). All distributed questionnaires were successfully recollected and ready for analysis using the SmartPLS model.

**Respondent Characteristics**

The respondents' profiles showed the dominance of men by 78% (72 people) and women by 22% (20 people). The age distribution showed that the largest group was in the 41-50 age range (28%), followed by the group over 51 years old (27%). The education level of the majority of respondents was D4/S1 at 61% (56 people), indicating adequate educational qualifications in understanding the services studied.



**Figure 1. Characteristics of Respondents by Gender**

In terms of tenure, 45% of respondents have more than 15 years of experience, indicating that the majority of respondents have a deep understanding of foreign ship agent approval services. Based on position, 37% of respondents were staff, while 30% held positions above managers.

**Validity and Reliability Tests**

Validity testing using correlation *Pearson Total Correlation* indicates that all statement items have a value of  $R > 0.361$ , which indicates good instrument validity. Test results *Convergent validity Using External Loading* indicates that the entire indicator has a value above 0.7, meeting the convergent validity criteria set by (J.F. Hair et al., 2019).

**Table 1. Results of the Outer Loading Validity Test - Matrix**

Indicator	Competitiveness (X <sub>2</sub> )	Policy (X <sub>1</sub> )	Customer Satisfaction (Z)	Quality of Service (Y)	Ket.
X <sub>1.1</sub>		0.895			Applicable
X <sub>1.2</sub>		0.889			Applicable
X <sub>1.3</sub>		0.922			Applicable
X <sub>1.4</sub>		0.927			Applicable
X <sub>1.5</sub>		0.926			Applicable
X <sub>2.1</sub>	0.828				Applicable
X <sub>2.8</sub>	0.828				Applicable
Y <sub>1</sub>				0.911	Applicable
Y <sub>4</sub>				0.925	Applicable
Z <sub>1</sub>			0.891		Applicable
Z <sub>6</sub>			0.873		Applicable

Source: Processed by researchers using SmartPLS (2024)

The test of discriminant validity by *cross loading* showed that each indicator had the highest load on its own construction compared to other constructions, indicating good discriminant validity according to the criteria of Fornell & Larcker (1981).

**Table 2. Results of the Reliability Test of Research Variables**

Nope.	Variable	AVE Value	Conclusion of the Reliability Test
1.	Policy (X <sub>1</sub> )	0,807	Reliable
2.	Competitiveness (X <sub>2</sub> )	0,645	Reliable
3.	Quality of Service (Y)	0,762	Reliable
4.	Customer Satisfaction (Z)	0,725	Reliable

Source: Processed by researchers using SmartPLS (2024)

Reliability testing using *Average variance extracted* (AVE) indicates that all variables have an AVE value of  $> 0.5$ , which confirms the high reliability of the research instrument based on the criteria (Larckel, D.F. and Fornell, 1981).

**Descriptive Analysis of Variables**

**Table 3. Results of Perception of Respondent Response Policy Variables (n=92)**

Dimensions and Indicators	Code	Statement	Score	Average	Categories
Effectiveness	X <sub>1.1</sub>	Current policies have supported the implementation of foreign ship agent services	401	4,359	Above average
	X <sub>1.2</sub>	Existing policies related to foreign ship agent approval	391	4,250	Below average

Dimensions and Indicators	Code	Statement	Score	Average	Categories
	X1.3	services can be well understood by customers Existing policies have been effective in achieving the goals set regarding the services of foreign ship agents	383	4,163	Above average
<b>Average Effectiveness</b>			<b>391,6</b>	<b>4,257</b>	
<b>Compatibility</b>					
	X1.5	Policies related to foreign ship agent approval services have been effective in supporting the operational activities of customers	383	4,163	Above average
<b>Average Match</b>			<b>375,3</b>	<b>4,079</b>	
<b>Communication</b>					
	X1.7	The latest policy developments are always well communicated to customers	355	3,859	Below average
<b>Communication Average</b>			<b>363,5</b>	<b>3,951</b>	

Source: primary data processing (2024)

Analysis of respondents' perception of the Policy variable showed that the Effectiveness dimension obtained the highest score (average of 4,359), especially on the policy support indicator for the implementation of foreign ship agent services. In contrast, the Communication dimension recorded the lowest score (average of 3,859), indicating that communication of the latest policy developments to customers still needs to be improved.

**Table 4. Results of Respondents' Perception of Response to Competitiveness Variables (n=92)**

Dimensions and Indicators	Code	Statement	Score	Average	Categories
<b>Economic Growth</b>					
	X2.1	The increase in foreign ship agent approval services can affect the competitiveness of the national marine transportation sector	364	3,957	Below average
	X2.3	Existing government policies have supported the competitiveness of national sea transportation	358	3,891	Below average
<b>Average Economic Growth</b>			<b>368,3</b>	<b>4,003</b>	
<b>Infrastructure</b>					
	X2.8	The existence of government support in technological infrastructure can increase the competitiveness of national sea transportation	385	4,185	Below average
	X2.9	The integration of information technology between government agencies is important for the efficiency of coordination in the approval services of foreign ship agencies	389	4,228	Above average
<b>Average Infrastructure</b>			<b>387</b>	<b>4,206</b>	

Source: primary data processing (2024)

For the Competitiveness variable, the infrastructure dimension received the highest perception (average of 4,206), especially in the indicator of information technology integration between government agencies (score 4,228). The Economic Growth Dimension showed the lowest score (average of 3,891), especially in the aspect of government policy support for the competitiveness of national sea transportation.

**Table 5. Results of Respondent Response Results of Service Quality Variable (n=92)**

Dimensions and Indicators	Code	Statement	Score	Average	Categories
<i>Tangible</i>					
	Y <sub>1</sub>	The information relating to the foreign ship agent approval services currently available is informative and clear	364	3,957	Below average
<b>Tangible Average</b>			<b>368,5</b>	<b>4,005</b>	
<i>Return capability</i>					
	Y <sub>4</sub>	The Foreign Ship Agency Approval Office gives priority to provide services according to the schedule or time that has been set	374	4,065	Above average
<b>Average Reusability</b>			<b>373</b>	<b>4,054</b>	
<i>Empathy</i>					
	Y <sub>10</sub>	Customers feel that the service provider puts their interests and needs first.	356	3,870	Below average
<b>Average Empathy</b>			<b>363</b>	<b>3,945</b>	

Source: primary data processing (2024)

In the Service Quality variable, the *Ability to Return dimension* recorded the highest score (average of 4,054), with the priority indicator of service delivery according to schedule obtaining a score of 4,065. The *Empathy dimension* shows the lowest score (average of 3,945), indicating that attention to the interests of customers still needs to be improved.

**Table 6. Respondents' Response Results to Customer Satisfaction Variables (n=92)**

Dimensions and Indicators	Code	Statement	Score	Average	Categories
<i>Service</i>					
	Z <sub>3</sub>	Foreign Ship Agency Approval Services in accordance with the needs and expectations of customers	378	4,109	Above average
<b>Average Service</b>			<b>375,6</b>	<b>4,083</b>	
<i>Accessibility</i>					
	Z <sub>6</sub>	The information required by customers is clearly available and easily accessible	368	4,000	Below average
<b>Average Accessibility</b>			<b>368,5</b>	<b>4,005</b>	
<i>Pricing</i>					
	Z <sub>9</sub>	Customers have a positive perception of the perceived cost of the service	352	3,826	Below average
<b>Average price</b>			<b>360,5</b>	<b>3,918</b>	

Source: primary data processing (2024)

The Customer Satisfaction variable shows that the Service dimension obtains the highest perception (average of 4.083), with the indicator of service suitability with user needs reaching a score of 4.109. *The price dimension* recorded the lowest score (average of 3,918), indicating

that the perception of the fairness of costs compared to the services received is still a concern for customers.

### Structural Model Analysis Results

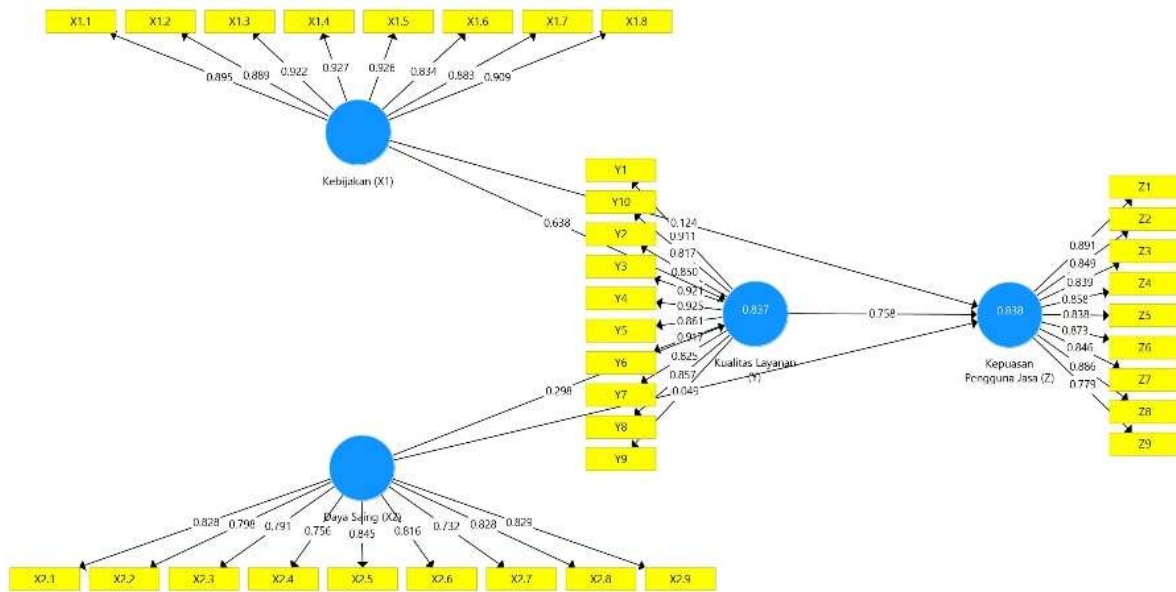


Figure 2. SmartPLS Model Calculation

Structural model testing using SmartPLS showed a significant relationship between variables. The results of the *direct effect analysis* show the path coefficient for each relationship between constructs.

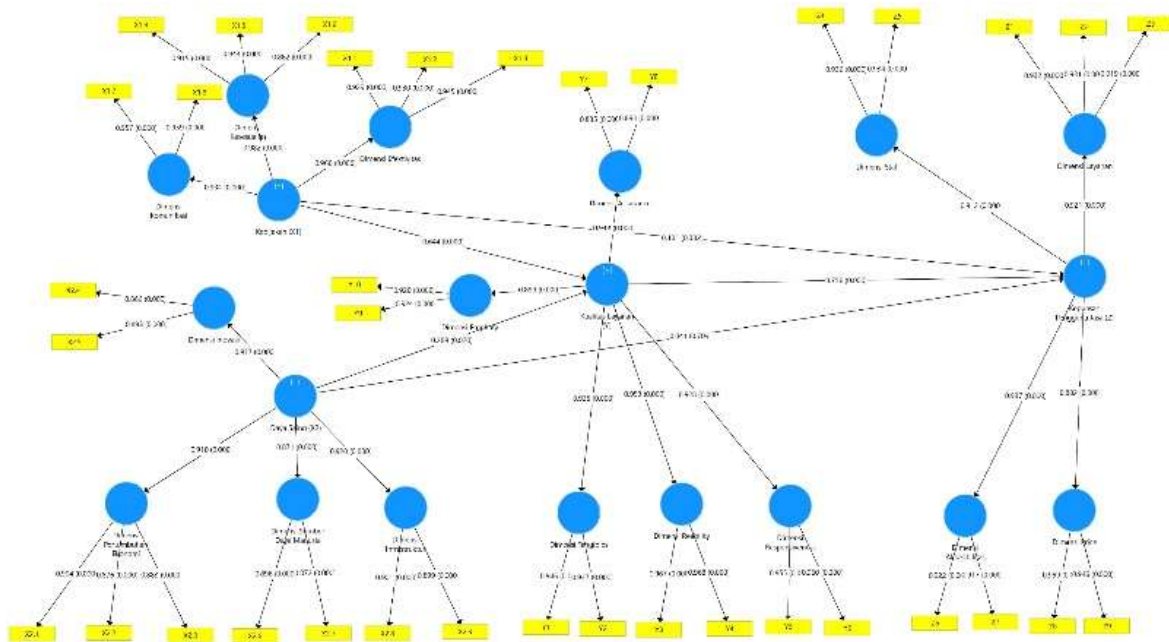


Figure 3. SmartPLS Direct Effect Analysis Results - Line Coefficient

**Table 7. Bootstrapping Results - Path Coefficient**

Relationships	Original Sample (O)	Average Sample (M)	Standard Deviation (STDEV)	Statistics T	P value
Policy (X <sub>1</sub> ) → Quality of Service (Y)	0,644	0,636	0,124	5,176	<b>0,000</b>
Competitiveness (X <sub>2</sub> ) → Quality of Service (Y)	0,289	0,298	0,125	2,318	<b>0,020</b>
Policy (X <sub>1</sub> ) → Customer Satisfaction (Z)	0,131	0,121	0,135	0,970	<b>0,332</b>
Competitiveness (X <sub>2</sub> ) → Customer Satisfaction (Z)	0,041	0,055	0,109	0,373	<b>0,709</b>
Quality of Service (Y) → Satisfaction of Customers (Z)	0,756	0,752	0,120	6,289	<b>0,000</b>

The results of the hypothesis test showed that the influence of the Policy on Service Quality (H<sub>1</sub>) was accepted with a path coefficient of 0.644 and a t-statistic of 5.176 (p value of 0.000 < 0.05). Each improvement of one policy unit can improve the quality of service by 64.4%. The effect of Competitiveness on Service Quality (H<sub>2</sub>) was also accepted with a coefficient of 0.289 and a t-statistic of 2.318 (p-value 0.020 < 0.05), showing a contribution of 28.9%. Different results were found in direct effect testing. The Customer Satisfaction (H<sub>3</sub>) policy was rejected with a t-statistic of 0.970 (p value 0.332 > 0.05). Similarly, Competitiveness to Customer Satisfaction (H<sub>4</sub>) was rejected with a t-statistic of 0.373 (p value 0.709 > 0.05). On the other hand, Service Quality showed the strongest influence on Customer Satisfaction (H<sub>5</sub>) with a coefficient of 0.756 and a t-statistic of 6.289 (p-value 0.000 < 0.05).

**Table 8. Bootstrapping Results - Specific Indirect Effects**

Relationships	Original Sample (O)	Average Sample (M)	Standard Deviation (STDEV)	Statistics T	P value
Policy (X <sub>1</sub> ) → Quality of Service (Y) → Customer Satisfaction (Z)	0,487	0,483	0,141	3,456	<b>0,001</b>
Competitiveness (X <sub>2</sub> ) → Quality of Service (Y) → Customer Satisfaction (Z)	0,219	0,219	0,088	2,492	<b>0,013</b>

Mediation effect testing showed significant results. The indirect influence of the Customer Satisfaction Policy through Service Quality (H<sub>6</sub>) was accepted with a coefficient of 0.487 (t-statistic 3.456, p value 0.001 < 0.05). The indirect influence of Competitiveness on Customer Satisfaction through Service Quality (H<sub>7</sub>) was also accepted with a coefficient of 0.219 (t-statistic 2.492, p-value 0.013 < 0.05).

The R Square value of the effect of Policy and Competitiveness on Service Quality 0.837 (Adjusted R Square 0.833) shows that 83.3% of the variation in service quality can be explained by these two exogenous variables, including the medium category based on the criteria of Sarstedt et al. (2017). The R Square value of the influence of Policy, Competitiveness, and Service Quality on Customer Satisfaction of 0.838 (Adjusted R Square 0.833) shows that 83.3% of the variation in customer satisfaction can be explained by these three variables.

**Table 9. R Square Analysis Results**

R-square - Overview		
	R-square	R-square adjusted
Kepuasan Pengguna Jasa (Z)	0.838	0.833
Kualitas Layanan (Y)	0.837	0.833

The effect *size* ( $F^2$ ) analysis showed that the Policy had a strong influence on Service Quality (0.494), while Service Quality had a strong influence on Customer Satisfaction (0.580), in accordance with the criteria of Chin (1998) in Ghozali (2015).

**Table 10. Dimensions and Indicators with the Strongest Coefficient Values**

Nope.	Research Variables	Dimensions	Dimensional Coefficient Value	Indicator	Indicator Coefficient Values
1.	Policy ( $X_1$ )	Compatibility	0.982	$X_{1.s}$ Effectiveness of policies in supporting operational activities	0.944
2.	Competitiveness ( $X_2$ )	Infrastructure	0.920	$X_{2.s}$ Technological infrastructure to improve the competitiveness of sea freight	0.901
3.	Quality of Service ( $Y$ )	<i>Return capability</i>	0.953	$Y_4$ Prioritizing services according to schedule/time	0.968
4.	Customer Satisfaction ( $Z$ )	Accessibility	0.937	$Z_6$ Availability of information	0.922

Based on the results of the research analysis shown in Table 9, it can be seen that the dimensions and indicators have the strongest coefficient values in reflecting the coefficient values of the research variables. The dimension of policy conformity was the strongest factor (coefficient of 0.982) with the indicator of policy effectiveness in supporting operational activities recording the highest value (coefficient of 0.944). The infrastructure dimension on competitiveness has a coefficient of 0.920 with a technology infrastructure indicator of value of 0.901. The dimension of *recapability* in service quality recorded a coefficient of 0.953 with a service timeliness indicator of 0.968. Meanwhile, the accessibility dimension on customer satisfaction has a coefficient of 0.937 with an information availability indicator of value of 0.922.

## Discussion

### The Influence of Policy on Service Quality

The findings of the study show that policies have a positive and significant influence on service quality with a contribution of 64.4%. These results are in line with the theory of service quality described by (Parasuraman et al., 1988) in the SERVQUAL model, where proactive policies in improving the quality of services will have a positive impact on consumer perception of the services provided. The dimension of policy conformity is the strongest factor (coefficient of 0.982) in reflecting the influence of policy, especially on the indicator of policy effectiveness in supporting operational activities (coefficient of 0.944). This shows that policies that are relevant to the development of the sea transportation sector and effective in supporting the operations of customers will significantly increase the perception of service quality. (Shin et al., 2020) emphasizing that public policy is a policy made by the government as a policymaker in which it regulates orders regarding what an interest group must do to achieve a certain goal in society. This means that more effective policies in supporting operations will greatly contribute to the right policy overall.

### The Influence of Competitiveness on Service Quality

Competitiveness has been proven to have a positive and significant effect on service quality with a contribution of 28.9%. These findings support the theory (Porter, 1980) about the competitiveness strategy, which states that increasing the competitiveness of service

products can improve the quality of service perceived by consumers. The infrastructure dimension emerged as the dominant factor (coefficient of 0.920) with the technology infrastructure support indicator recording the highest value (coefficient of 0.901). This is in line with the findings (Hu et al., 2022) which emphasizes the role of technological infrastructure in increasing efficiency and competitiveness in the maritime industry. The integration of information technology between government agencies has proven to be a crucial factor in improving the efficiency of service coordination. (Damayanti, 2016) It also states that technological innovation is an important factor in gaining a competitive advantage in the marine transportation sector.

### **Effect of Policy on Customer Satisfaction**

The results showed that the direct influence of policy on customer satisfaction was not statistically significant (coefficient 0.131, p value  $0.332 > 0.05$ ). This indicates that the policy does not have a significant direct influence on the satisfaction of customers. These findings are in line with (Oliver, 1997) in his book *Satisfaction: A Behavioral Perspective on Consumers*, which suggests that policies tend to affect other dimensions more than they directly affect satisfaction.

### **The Influence of Competitiveness on Customer Satisfaction**

The direct influence of competitiveness on customer satisfaction was also not significant (coefficient 0.041, p-value  $0.709 > 0.05$ ). Previous research by (Kotler & Keller, 2016) in *Marketing Management* It also emphasizes that the influence of competitiveness on user satisfaction is more mediated by other variables such as service quality.

### **The Effect of Service Quality on Customer Satisfaction**

Service quality showed the strongest influence on customer satisfaction with a contribution of 75.6%. These findings are very much in line with the theory (Kotler & Keller, 2016) which emphasizes the feeling of pleasure or disappointment that results from the comparison between product performance and customer expectations, which is the basis for understanding the relationship between service quality, customer expectations, and creating user satisfaction. Dimensions *Capabilities* became the most significant factor (coefficient of 0.953) with the service punctuality indicator recording the highest value (coefficient of 0.968). It supports the introduced Quality of Service 4.0 Model (Zeng et al., 2025) in *Journal of Service Research*, which integrates Industry 4.0 principles with digital elements such as automation and big data analytics. This model underscores the importance of consistency in the delivery of reliable services, which is particularly relevant to the reliability dimension.

### **The Role of Service Quality Mediation**

An important finding from this study is the crucial role of service quality as a mediator in the relationship between policy and competitiveness to customer satisfaction. Policies contribute indirectly by 48.7% through service quality, while competitiveness contributes 21.9%. These results confirm the role of quality of service as a full mediator (*Full Mediation*) in accordance with the findings (Grönroos, 1993) in *The Service Quality Model and Its Marketing Implications*, which emphasizes the importance of service quality mediation in the relationship of policy and customer satisfaction. The accessibility dimension in customer satisfaction showed the highest value (coefficient of 0.937) with the information availability indicator recording a coefficient of 0.922. This emphasizes the importance of information accessibility in influencing satisfaction, in accordance with the definition of service quality according to (Grönroos, 1993) which emphasizes on meeting customers' needs and wants, as well as the accuracy of delivery to meet their expectations. The findings of the study show the need to focus on improving service reliability, especially in the aspects of timeliness and

consistency of service delivery. Better integration of information and communication technology between government agencies is also key to improving the efficiency of coordinating approval services for foreign ship agents. Overall, the study emphasizes that improving service quality is a key strategy in improving customer satisfaction, with effective policy support and adequate technology infrastructure.

## CONCLUSION

This study concludes that policies and competitiveness have a significant influence on the quality of foreign ship agency approval services, but do not have a direct effect on the satisfaction of customers. Policies make the largest contribution with a coefficient of 64.4% in shaping service quality, especially through the dimension of policy conformity that effectively supports the operational activities of customers. Competitiveness contributes 28.9% to service quality with the dimension of technological infrastructure as the dominant factor that reflects the importance of information system integration between government agencies. The most significant findings show that service quality plays a very strong role as a full mediator with a contribution of 75.6% in influencing customer satisfaction, where the dimension of service reliability, especially the timeliness aspect of service is the most crucial factor. The indirect influence of policies on customer satisfaction through service quality reached 48.7%, while competitiveness contributed 21.9%, confirming that increasing customer satisfaction is highly dependent on optimizing service quality. The dimension of information accessibility in customer satisfaction shows the highest value, indicating that the availability of clear and accessible information is key to improving satisfaction. This research makes a theoretical contribution in strengthening the understanding of the complex relationship between public policy, sector competitiveness, service quality, and customer satisfaction in the context of Indonesian maritime services, as well as confirming the relevance of the application of the SERVQUAL model and Porter's competitiveness theory in the public service industry in the marine transportation sector.

## REFERENCE

- ALFI. (2020). *Ship Delay Costs and Their Impact on Operational Costs at Indonesian Ports*.
- Damayanti, N. (2016). *Analysis of the Quality of Sea Transportation Passenger Services at the Technical Implementation Unit of the Liem Hie Djung Cross-Border Post, Nunukan Regency*.
- Field, A. (2024). *Find statistics using IBM SPSS statistics*. SAGE Publications. <https://books.google.co.id/books?id=83L2EAAAQBAJ>
- Gronroos, C. (2016). *Service Management and Marketing: Managing Service Profit Logic*. Wiley. <https://books.google.co.id/books?id=CSrdCQAAQBAJ>
- Grönroos, C. (1993). The service quality model and its marketing implications. *European Journal of Marketing*, 18, 36–44. <https://doi.org/10.1108/EUM0000000004784>
- Hair, J., & Alamer, A. (2022). Modeling of Partial Least Squared Structural Equations (PLS-SEM) in Second Language Research and Education: Guidelines Using Applied Examples. *Research Methods in Applied Linguistics*, 1(1), 181–183. <https://doi.org/10.5054/tj.2010.215611>
- Hair, J.F., Hult, G.T.M., Ringle, C., & Sarstedt, M. (2019). *Primer on Partial Least Square Structural Equation Modeling (PLS-SEM)*. SAGE Publications. [https://books.google.co.id/books?id=C\\_EmjgEACAAJ](https://books.google.co.id/books?id=C_EmjgEACAAJ)
- Hasan, M. I. (2002). *The main points of the research methodology and its application material*. Jakarta: Ghalia Indonesia.
- Hu, M., Chaudhry, P.E., & Chaudhry, S.S. (2022). Connecting customized logistics services in online retail with E-satisfaction and E-loyalty. *International Journal of Engineering Business Management*, 14, 1–12. <https://doi.org/10.1177/18479790221097528>

- Indrawan, R., & Yaniawati, R.P. (2016). *Research methodology: Quantitative, qualitative and blended for management, development and education*.
- Kishore, L., Pai, Y. P., Ghosh, B. K., & Pakkan, S. (2024). Performance of maritime shipping ports: a systematic literature review. *Discover Sustainability*, 5(1). <https://doi.org/10.1007/s43621-024-00299-y>
- Kotler, P., & Keller, K.L. (2016). *Marketing Management*. Pearson. <https://books.google.co.id/books?id=UbfwtwEACAAJ>
- Kwartama, A., & Karimunanto, S.L. (2022). Optimization of Ship Agency Services at PT. USDA Merak Seroja Jaya Branch. *Proceedings of the National Seminar "Sipma 2022" North Sulawesi Shipping Polytechnic, 1*, 5–19.
- Larckel, D.F. and Fornell, C. (1981). Evaluate structural equation models with non-observable variables and measurement errors. *Journal of Marketing Research*, 18(1), 39–50.
- Noor, J. (2016). *Research Methodology: Thesis, Thesis, Dissertation & Scientific Paper*. Kencana Prenada Media Group. <https://books.google.co.id/books?id=yai6AQAACAAJ>
- Oliver, RL (1997). *Satisfaction: A Behavioral Perspective on Consumers*. McGraw Hill. <https://books.google.co.id/books?id=iCeQQgAACAAJ>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: Multi-item scale to measure consumer perception of service quality. *Liahona*, Nov. 1988, 64(1), 12–40.
- Porter, M.E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press. <https://books.google.co.id/books?id=5xxHAAAAMAAJ>
- Shin, N., Park, S., & Kim, H. (2020). Quality management of social commerce services based on consumer satisfaction. *BRQ Business Research Quarterly*, 24(1), 34–52. <https://doi.org/10.1177/2340944420916098>
- Sugiyono, P. (2016). Quantitative, qualitative, and R&D research methods. *Alphabet*, Cv, 239–254.
- Sugiyono, S. (2017). *Qualitative, Quantitative and R&D Research Methods (25th.)*. Bandung: ALFABETA Cv.
- World Bank. (2021). *Maritime Trade and the Global Economy*.
- Yamin, S., & Kurniawan, H. (2009). SPSS Complete Statistics: The Most Complete Statistical Analysis Techniques with SPSS Software. *Comparative Analysis of Discrimination*, 330.
- Zeng, F., Chen, A., Xu, S., Chan, H.K., & Li, Y. (2025). Digitalization in the Maritime Logistics Industry: A Systematic Literature Review on Enablers and Barriers. *Journal of Marine Science and Engineering*, 13(4), 1–29. <https://doi.org/10.3390/jmse13040797>