Performance Analysis and Public Services to Support Sailing Safety and Prevent Sea Traffic Accidents in the Shipping Lanes of L. Say Maumere Port
(Studies in KSOP Class IV Maumere)

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Abstract: This study aims to determine the analysis of Performance, Public Service and Accident Prevention on Shipping Safety at the L. Say Maumere Port shipping lane. This research was conducted at the Class IV Maumere Harbormaster and Port Authority Office with Shipping Company Agents located at the Port of L. Say Maumere as the population. Data was collected through the methods of Observation, Literature Study, Interviews, Documentation and Questionnaires. The analytical technique used is based on the results of research and multiple analysis with the help of the SPSS V.26 program. Based on the results of research and multiple analysis, the following equation is obtained: $Y = 0.106 + 0.376 X_1, + 0.357 X_2 + 0.256 X_3 + \mu$. From the multiple linear regression equation, it can be seen that the most dominant variable that influences shipping safety is the performance variable ($X_1$) with a regression coefficient of 0.376. With a coefficient of determination (Adjusted $R^2$) of 0.730 or 73%, which means that the safety of shipping on the shipping lane of L. Say Maumere Port is influenced by the variables of Performance, Public Service, and Accident Prevention, which is 73% and other factors that affect Shipping Safety on the shipping lane. port of L. Say Maumere is 27%. Thus the results of the study indicate that Performance, Public Service, and Accident Prevention have a positive and significant impact on Shipping Safety at the L. Say Maumere Port shipping lane.

Keywords: Performance, Public Service, Accident Prevention and Shipping Safety.

1. INTRODUCTION

As part of a government organization that serves the public or shipping companies, the Class IV Maumere Port Authority and Port Authority Office is required to continue to improve the quality of its performance and service so that service users, including shipping companies, are satisfied with the services provided so that these service users will be more comfortable in utilizing services at the Maumere Class IV Harbormaster and Port Authority Office. To be able to maximize services to the community including shipping companies, the Class IV Maumere Harbor Authority and Port Authority Office as a public agency must carry out various policies that can provide excellent and quality service that all citizens can take care of their ship documents at KSOP without having to go through the agent.

In Ministerial Regulation Number 36 of 2012 concerning the organization and work procedures of the Harbor master’s Office and Port Authority, it is explained that the security and safety of shipping in waters and ports is the duty and function of the government at ports, namely the Harbor master’s Office and Port Authority. Seeing the importance of the task of the Port Authority and Harbor master’s Office in a port to support the orderly administration of shipping and shipping safety, this task must be supported by human resources who have expertise in the maritime field.
By the Decree of the Minister of Transportation Number 36 of 2012 dated 01 June 2012, the Class IV Maumere Harbor Authority and Port Authority Office have the task of carrying out the provision of traffic and sea transportation services, security, and safety in port waters to facilitate sea transportation. In carrying out the main tasks above the Maumere Class IV Harbormaster and Port Authority Office, in general, the organization is guided by the Regulation of the Minister of Transportation Number KM. 135 of 2015. In carrying out shipping and maritime operational or technical tasks, there are guidelines for existing provisions or regulations, namely Law No. 17 of 2008 concerning shipping and PP No. 76 of 2018 concerning KSOP work procedures. Besides the guidelines to Law No. 17 of 2008 mentioned above in carrying out the government's duties the Class IV Maumere Harbor master’s and Port Authority Office is also guided by the regulations or implementing provisions of Law No. 25 of 2009. In carrying out this task, the Maumere Class IV Harbormaster and Port Authority Office provide services to the community, especially the maritime community.

Performance is a need for human life that is not only material but also non-material, such as pride and job satisfaction. Each individual tends to be faced with things that may not be expected beforehand in the process of achieving the desired needs so that through work and experience growth, a person will gain progress in life. One can see how the performance is in the work process (Kurniasari 2018:34). Performance, namely the results of work in quality and quantity that a person achieves in carrying out his duties by the responsibilities given to him (Mangkunegara 2009:67) in the journal (Setiadi 2020).

Public service is something that must be considered in giving and receiving services including how, when, and by whom, tasks must be completed. According to KEPMEN PAN No. 26 of 2004 concerning Technical Guidelines for Transparency and Accountability in the Implementation of Public Services (Mursalin 2021:240). Public service is any action or activity that can be offered by one party to another, which is intangible and does not result in any ownership. Production can be linked or not linked to one physical product. Public service is the behavior of producers to meet the needs and desires of consumers to achieve satisfaction for the consumers themselves (Kanedi 2017: 38).

Accident prevention is an action or effort to avoid a sad event or catastrophe or disaster that befalls the ship itself and its crew and cargo. For this reason, precise and fast coordination is needed between the ship's crew and officers on land, including when it involves other merchant ships. For this reason, it is necessary to pay attention to efforts to prevent ship accidents by obtaining input from various parties, including academics, accident analysis, and rescue experts. Things that need to be considered include re-registration and national audits of Indonesian ships that are still in operation, granting soft credit for the purchase of new ships so that old ships that are no longer seaworthy are replaced with better and better-designed ships. according to developments in international standardization (Thamrin 2015:111).

Shipping safety is very important and occupies a central position in all aspects of shipping (Rachman and Sofian 2019:18). Shipping safety is very important in the world of shipping. Shipping includes characteristics regarding attitudes, values, and fulfillment of safety and security requirements concerning transportation in waters and ports. This low shipping safety can be caused by weak human resource management including education, competence, working conditions, working hours,
and process management resulting in increased economic costs and medical costs, inefficient use of energy, and pollution (Suryani, et al, 2018: 37). Shipping safety concerns the characteristics, attitudes, values, and activities. It is undeniable that safety and accidents have a very close relationship, therefore accidents are the main points that must be avoided.

2. LITERATURE REVIEW

Performance

According to Prabowo (2015: 4) Performance is the ability of the system to complete tasks quickly so that targets can be achieved immediately. Performance is measured by the amount of production (throughput) and the time used to adjust work shifts (response time). According to Sutrisno (2016), performance is a work result that is achieved by someone in carrying out the tasks assigned to him which are based on skills, experience, and sincerity as well as time. According to Prawirosentono (2015: 87) in (Hartono 2021: 18), performance is the result of work that can be achieved by a person or group within an organization according to their respective authorities and responsibilities, to achieve the goals of the organization concerned legally, not unlawful and by morals and ethics. From these opinions, it can be concluded that performance is the result achieved by a person (employee) in carrying out duties and responsibilities by the standards set by each company or organization.

Public service

According to Rukayat (2017: 56) Public service is an attempt by a group or a bureaucratic person to assist the community to achieve a certain goal. According to Maryam (2016: 8) Public service is the provision of services by the government, private parties on behalf of the government, or private parties to the community, with or without payment to meet the needs or interests of the community and public service is the fulfillment of the desires and needs of the community in state administration. Law No. 25 of 2009 concerning Public Services defines public services as follows: "Public services are activities or a series of activities in the context of fulfilling service needs by statutory regulations for every citizen and resident for goods, services, and/or administrative services provided by public service providers”.

Accident Prevention

According to Syaputri (2022: 29) accident prevention is an event that is never expected and something that is never expected. This means that there is no intentional element so there are losses in the form of material and light sufferers to heavy sufferers. According to Aphasedanya, et al, (2022: 22) accident prevention about Occupational Safety and Health issues must refer to and start from the concept of cause and effect accidents, namely by controlling the causes and reducing the consequences of accidents. According to Sudalma (2021: 33) accident prevention is an effort that can encourage the creation of safe and healthy conditions in the workplace, both the workforce and the work environment itself.

Sailing Safety

Shipping safety is everything that exists and can be developed with accident prevention measures when carrying out work in the shipping sector. In Law No. 17 of 2008 concerning Shipping, Article 1 point 32 states that shipping safety and security is
a condition of fulfilling safety and security requirements concerning transportation in waters, ports, and the maritime environment. Article 1 point 33 states that ship worthiness is the condition of the ship that meets the requirements for ship safety, prevention of water pollution from ships, manning, load lines, loading, crew welfare, and passenger health, ship legal status, safety management and prevention of pollution from ships, and ship security management to sail in certain waters. According to Chairunnisa, et al (2021: 40) shipping safety is a condition of fulfilling safety and security requirements regarding transportation in waters and ports.

3. RESEARCH METHODOLOGY

According to Sugiyono (2016: 2), the research method is a scientific way to obtain data with specific purposes and uses. Based on this, four keywords need attention, namely the scientific method, data, purpose, and usability. The scientific method means that research activities are based on scientific characteristics, namely rational, empirical, and systematic. Rational means that research activities are carried out in ways that make sense so that human reasoning can reach them. Empirical means that the ways that are done can be observed by the human senses so that other people can observe them. Systematic means that the process carried out in the research uses certain logical steps.

In conducting this research, the population used was all shipping company agents at the Port of L. Say Maumere, totaling 84 people.

4. RESULTS AND DISCUSSION

Validity test

A validity test is used to measure the validity or validity of a questionnaire. A questionnaire is said to be valid if the questions on the questionnaire can reveal something that will be measured by the questionnaire (Imam Ghozali, 2016). The validity test below uses SPSS V.26. From the test results, the following results can be obtained:

Where the table is seen from the two-way test statistic table, degree of freedom (df) = n-2

Where n = number of samples, so df = 75 - 2 = 73

Level of significance = 0.01 and table = 0.2957

The results of the validity test based on each variable are as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>X</th>
<th>Indicator Description</th>
<th>r hitung</th>
<th>r tabel</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X.1</td>
<td>Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X.1.1</td>
<td>Work productivity</td>
<td>0.743</td>
<td>0.2957</td>
<td>Valid</td>
</tr>
<tr>
<td></td>
<td>X.1.2</td>
<td>Quantity and Quality of Work</td>
<td>0.676</td>
<td>0.2957</td>
<td>Valid</td>
</tr>
<tr>
<td></td>
<td>X.1.3</td>
<td>Ship Exit Time at the Harbor</td>
<td>0.726</td>
<td>0.2957</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>X.2</td>
<td>Public service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X.2.1</td>
<td>Procedures for Distribution of Letters and Documents</td>
<td>0.778</td>
<td>0.2957</td>
<td>Valid</td>
</tr>
<tr>
<td></td>
<td>X.2.2</td>
<td>Facility Provider</td>
<td>0.833</td>
<td>0.2957</td>
<td>Valid</td>
</tr>
</tbody>
</table>
Based on the table above, it can be concluded that the Cronbach's Alpha value of each variable, both the independent variable (Performance, Public Service, and Accident Prevention) and the dependent variable (Sailing Safety) have a value ($\alpha$) > 0.70. Thus all the indicators in the research questionnaire were declared reliable.

**Classic assumption test**

**1) Normality Test**

The Normality Test aims to test whether the data to be used in the dependent variable and independent variable regression models are both normally distributed or not (Imam Ghozali, 2016). A good regression model has normally distributed residual values. Detect whether the data is normal or not can be done in two ways:

a. Graph Analysis
Figure 1. Graph of P-P Normality Test Plot of Regression Standardizer Residual

The picture above is the result of the P-P normality test. The regression standardizer plot of the residuals shows the dots coincide around the diagonal line and this shows that the residuals are normally distributed.

b. Statistic analysis

**Table 3. Kolmogorov-Smirnov Normality Test One-Sample Kolmogorov-Smirnov Test**

<table>
<thead>
<tr>
<th>Unstandardized Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
</tr>
<tr>
<td><strong>Normal Parameters</strong>&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Most Extreme Differences</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Test Statistic</strong></td>
</tr>
<tr>
<td><strong>Asymp. Sig. (2-tailed)</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup> Test distribution is Normal.
<sup>b</sup> Calculated from data.
<sup>c</sup> Lilliefors Significance Correction.
<sup>d</sup> This is a lower bound of the true significance.

Source: Processed primary data know 2022 (Output SPSS V.26)

The results of the Kolmogorov Smirnov test in the table above show that the Kolmogorov Smirnov value in the Unstandardized Residual column is 0.086 with a significant value in Asymp. Sig. (2-tailed) is 0.200 > 0.05 this shows that the data is normally distributed.

2) **Multicollinearity Test**
The multicollinearity test aims to test whether the regression model found a correlation between independent (independent) variables. A good regression model should not correlate with the independent (independent) variables. A good regression model should not correlate with the independent (independent) variables.

The results of the multicollinearity test are as follows:

**Table 4. Correlation Matrix Multicollinearity Test between Independent Variables**

<table>
<thead>
<tr>
<th>Source: Processed primary data in 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Based on the table above, shows that the correlation between accident prevention variables (X3) and public services (X2) = 0.009; a correlation between accident prevention and performance = - 0.278; performance with public services = - 0.752. By the provisions of the multicollinearity test, all independent variables have a value of more than 0.90. So it can be concluded that all correlation values between independent variables do not occur multicollinearity in this study.

To detect whether there is multicollinearity by looking at the VIF value. If the VIF value < 10 and Tolerance > 0.10 then the model is free from multicollinearity (Ghozali, 2018: 107).

**Table 5. Multicollinearity Test of Tolerance and VIF Values**

<table>
<thead>
<tr>
<th>Research Variable</th>
<th>Tolerance</th>
<th>VIF Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>.360</td>
<td>2.776</td>
<td>Multicollinearity does not occur</td>
</tr>
<tr>
<td>Public service</td>
<td>.390</td>
<td>2.562</td>
<td>Multicollinearity does not occur</td>
</tr>
<tr>
<td>Accident Prevention</td>
<td>.830</td>
<td>1.204</td>
<td>Multicollinearity does not occur</td>
</tr>
</tbody>
</table>

3) **Uji Heteroskedastisitas**

The heteroscedasticity test aims to test whether, in the regression model, there is an inequality of variance from one residual observation to another. If the residual variance from one observation to another observation remains, then it is called homoscedasticity and if it is different, it is called heteroscedasticity (Ghozali, 2016). The results of the heteroscedasticity test are as follows:
a. Graph Analysis (Scatterplot)

Picture graph Uji Heteroskedastisitas Scatterplot

Source: Processed primary data in 2022

The image above has random dots and does not form a particular wave or shape. Based on these figures, it can be concluded that the regression model is free from the presence of heteroscedasticity symptoms so that it can be used for further analysis.

b. Glejser test

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>.153</td>
</tr>
<tr>
<td></td>
<td>(Constant)</td>
<td>.008</td>
<td>.590</td>
<td>.014</td>
<td>.989</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>-.052</td>
<td>.066</td>
<td>-.153</td>
<td>-.788</td>
</tr>
<tr>
<td></td>
<td>Public service</td>
<td>.030</td>
<td>.048</td>
<td>.117</td>
<td>.629</td>
</tr>
<tr>
<td></td>
<td>Accident</td>
<td>.077</td>
<td>.047</td>
<td>.208</td>
<td>1.635</td>
</tr>
</tbody>
</table>

a. Dependent Variable: RES2
Source: Processed primary data in 2022

It can be seen in the table above that all independent variables have a significance value of more than 0.05. It can be concluded that the regression model has no symptoms of heteroscedasticity

4) Autocorrelation Test

The autocorrelation test aims to test whether, in the linear regression model, there is a correlation between the confounding errors in period t and the confounding errors in
period t-1 (previously). If there is a correlation, then there is called an autocorrelation problem (Imam Ghozali, 2018).

The method of testing is done using DW statistics "Durbin-Watson" (The Durbin Watson Statistics) as follows:

Table 7. Watson Dorbin Test Results

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.861a</td>
<td>.741</td>
<td>.730</td>
<td>.85606</td>
<td>1.882</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Accident Prevention, Public service, Performance
b. Dependent Variable: Sailing Safety

Source: Processed primary data in 2022

The test results obtained a DW of 1.882. Meanwhile, from the Durbin-Watson table for n = 75 and k = 3, dL = 1.5432, dU = 1.7092, and 4- du = 2.2908 are obtained. So the value of DW = 1.882 is between dU = 1.7092 and 4 - dL = 2.4568. Because the value of du (1.7092) < DW (1.882) < 4- du (2.2908), these results indicate that there is no tendency for autocorrelation or confounding errors in the linear regression equation, so it can be concluded that there is no tendency for autocorrelation to occur in a regression equation.

**Multiple Linear Regression Analysis**

The autocorrelation test aims to test whether, in the linear regression model, there is a correlation between the confounding errors in period t and the confounding errors in the t-1 (previous) period. If there is a correlation, then there is called an autocorrelation problem.

Table 8. Multiple Linear Regression Analysis

<table>
<thead>
<tr>
<th>Coefficientsa</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.106</td>
<td>.958</td>
<td>.111</td>
<td>.912</td>
</tr>
<tr>
<td>Performance</td>
<td>.376</td>
<td>.107</td>
<td>.354</td>
<td>3.518</td>
</tr>
<tr>
<td>Public service</td>
<td>.357</td>
<td>.078</td>
<td>.443</td>
<td>4.582</td>
</tr>
<tr>
<td>Accident Prevention</td>
<td>.256</td>
<td>.077</td>
<td>.222</td>
<td>3.345</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Sailing Safety

Source: Processed primary data in 2022

The results of the linear regression analysis above, it can be seen that the multiple linear regression equation with the equation:
\[ Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \mu \]

Judging from Table 4.26 above, we get multiple linear equations that can be seen from the unstandardized coefficients with the mathematical equation:

\[ Y = 0.106 + 0.376 \, X_1 + 0.357 \, X_2 + 0.256 \, X_3 + \mu \]

Hypothesis testing

1) t-test

Testing the hypothesis using the Significant Test of Individual Parameters (Statistical Test t) is used to determine whether partially the independent variable has a significant effect or not on the dependent variable. The t-test is used to determine how far the influence of an independent variable on the dependent variable. To be able to see how far the independent variables (Performance, Public Services, Accident Prevention) affect the dependent variable (Sailing Safety) individually.

Looking for t table:
- Number of respondents (n) = 75 people
- Significance level \( \alpha = 0.05 \) (5%)
- Degree of freedom (df) = \( n - k - 1 = 75 - 3 - 1 = 71 \)
- t table = 1.99394

The basis for decision-making:
- Ho is accepted if \( t \) count < t table.
- Ha is accepted if \( t \) count > t table.

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients</th>
<th>Standardize d Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>( .106 )</td>
<td>( .958 )</td>
</tr>
<tr>
<td>Performance</td>
<td>( .376 )</td>
<td>( .107 )</td>
</tr>
<tr>
<td>Public service</td>
<td>( .357 )</td>
<td>( .078 )</td>
</tr>
<tr>
<td>Accident Prevention</td>
<td>( .256 )</td>
<td>( .077 )</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Sailing Safety

Source: Processed primary data in 2022

The table above can be explained as follows

a. Hypothesis Test 1

The results of testing the Performance variable (X1) on Sailing Safety give a t count of 3.518 and a t table value of 1.99394 with a significance value of 0.001. Thus, t count (3.518) > t table (1.99394) means that H1 is accepted. Thus it shows that t count 3.518 > t table 1.99394 which means that Ha is accepted, meaning that performance has a positive and significant effect on shipping safety.

b. Hypothesis Test 2

The results of testing the Public Service variable (X2) on Sailing Safety provide a t count of 4.582 and a t table value of 1.99394 with a significance value of 0.000.
Thus obtained t count (4.582) > t table (1.99394) which means H2 is accepted.
Thus, the second hypothesis is that public service has a positive and significant effect on shipping safety.
c. Hypothesis Test 3
The results of testing the variable Accident Prevention (X3) on Sailing Safety provide a t count of 3.345 and a t table value of 1.99394 with a significance value of 0.001. Thus obtained t count (3.345) > t table (1.99394) which means H3 is accepted. Thus, the third hypothesis is that Accident Prevention has a positive and significant effect on Shipping Safety.

2) Coefficient of Determination (R2)
The coefficient of determination aims to determine how much influence the independent variables have on the dependent variable. By using the SPSS V.26 program the following results are obtained:

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.861</td>
<td>.741</td>
<td>.730</td>
<td>.856</td>
</tr>
</tbody>
</table>

Source: Processed primary data in 2022

Based on the results of regression calculations using the SPSS V.26 application, it is known that the coefficient of determination (R²) obtained from Adjusted R² is 0.730. (Adjusted R² = 0.730 x 100%). This states that 73% of Shipping Safety in the shipping lanes of L. Say Maumere Port can be influenced by Performance, Public Service, and Accident Prevention factors while the remaining 27% is influenced by other variables not found in this study such as Facilities, Rescue Equipment, and Safety Equipment.

5. CONCLUSIONS
The results of statistical tests with multiple linear regression equations show that the variables Performance (X1), Public Services (X2), and Accident Prevention (X3) simultaneously have a positive and significant influence on the Maritime Safety variable (Y).

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