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CONTRACTOR SELECTION CRITERIA AFFECTING PROJECT PERFORMANCE CONSTRUCTION SEBA PIER PORT FACILITIES, SABU RAIJUA, NTT

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Abstract

The selection of contractors will affect the performance of the project to be implemented. The criteria for selecting a contractor consist of 3 factors, namely Factor 1 which includes accuracy, reputation, and cooperation relationships, Factor 2 which includes knowledge of work, work ability, initiative, and social ability as well as Factor 3 which includes work experience, control, and commitment. This study aims to analyze the criteria for selecting contractors that affect the performance of construction projects. This research was conducted using quantitative methods by conducting field surveys or field studies. The sample population in this study was Seba Pier Port Facilities Project, Sabu Raijua, NTT Owner as many as 57 people. The analysis technique in this study was Multiple Linear Regression Analysis. The results of the research and discussion can be concluded that the criteria for selecting a contractor that affects the performance of a construction project are price, financial capability, equipment support, and contractor performance. Meanwhile, the criteria for experience and occupational safety and health (K3) do not affect the performance of construction projects. Meanwhile, if the contractor had the appropriate benchmark price, financial capability, equipment support, and performance of the contractor, then the performance of the construction project will certainly be good.

Keywords: Contractor Performance, Equipment Support, Financial Capability, Occupational Safety and Health (K3), Project Performance

1. INTRODUCTION

Indonesia's large population must be balanced with the availability of adequate infrastructure. According to the Central Statistics Agency (BPS), Indonesia's population will reach 275.77 million by mid-2022 (Annur, 2022). Only 60,9 % of households currently have access to adequate and affordable housing. From this, we can conclude that there are still a large number of Indonesians who do not have a place to live or have no place to live. The Indonesian government has therefore implemented a number of development programs to address these issues.

In the development process, the role of the contractor cannot be separated. Contractors are the key to the success of any construction operation and will determine the success of infrastructure development (KEMENPUPR., 2020). Therefore, the selection of a contractor to entrust the implementation of the project is very important. In fact, if the contractor selected is not competent, the process and outcomes of the work may not be in accordance with expectations and plans.

Contractor selection is a contractor selection process conducted by the owner based on a set of criteria to identify prospective contractors to bid on projects at auction (Jean Cross Sihombing, 2016). Selecting this contractor is the initial step toward completing a highly significant and fruitful project. In addition, the performance of completed projects is affected by the selection of contractors (Lela et al., 2022).

There are several criteria for selecting a contractor. A study by Sattung et al. (2019), criteria for selecting contractors was based on three factors: 1) factors such as thoroughness, reputation, and cooperative relationships; 2) factors such as job knowledge, work ability, initiative, and social skills; Said to be structured, and 3) Factor 1 includes Factor 3 which includes work experience, management and commitment. According to Harianto & Budi (2021), the criteria for selecting contractors are price criteria, contractor financial capabilities, contractor experience, equipment support, contractor performance and occupational health and safety (K3).

Based on a background that emphasizes the significance of hiring a contractor based on the criteria established by the project owner or property owner. Therefore, researchers are interested in conducting a study on the impact of contractor selection criteria and construction project performance. This study aims to analyze the contractor selection criteria that affect the performance of construction projects.

2. THEORETICAL FOUNDATION

2.1. Project

Generally, the definition of a project is a series of work activities that are linked in a chain to achieve one or more objectives with constraints of time, cost, and the desired end result. A project is defined as a series of unique activities that are interrelated and carried out within a certain period of time to achieve certain results (Ihwanudin, 2017). A new project can be declared complete when it can provide results that are intended to meet the expectations of the more important, functional objectives of the project (Ervianto, 2002).

2.2. Contractor

Contractor is an individual or legal entity who accepts work and carries it out in accordance with predetermined plans, rules and regulations (Ervianto, 2002). The rights and obligations of the contractor are to carry out the work in accordance with the plan drawings, prepare working drawings approved by the supervisory consultant, provide work safety equipment, report the results of the work, and or present them (Stefany, 2015).

2.3. Contractor Selection

Contractor selection is a decision-making process that involves many aspects, the results of which will affect project performance (Chandra, 2013). The selection of contractors will determine the success of a project where if the selected contractor does not meet the criteria set, it is certain that the project will be hampered and will not meet the quality standards set.

2.4. Project Performance

Performance is a work achieved by a person in carrying out the tasks assigned to him based on skills, experience, sincerity, and time (Ervianto, 2009:69). Project performance is

a result of the contractor's work in carrying out project work in accordance with the agreement made. Maximum project performance in terms of cost, quality, time, productivity, occupational health and safety and environmental aspects

2.5. Conceptual Performance

The conceptual framework serves as a guide for researchers to systematically interpret the theories used in their research. Below is the conceptual framework of this research.

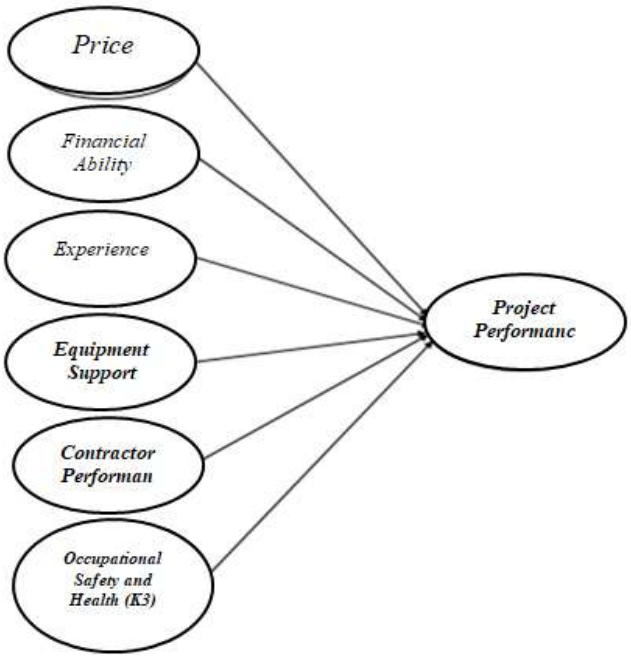

Figure 1 Conceptual Framework

3. RESEARCH METHOD

This research was conducted using quantitative methods by conducting field surveys or field studies. The method used was a quantitative method. The type of data used in this research was quantitative, data in numerical form was obtained through the distribution of questionnaires. Sources of data used in this study was secondary data.

In this study, data were collected from secondary data sources. The secondary data source used in this research was the document method. The analytical technique chosen to analyze the data and test the hypothesis in this study was Multiple Linear Regression Analysis.

The number of owners of Seba Pier Port Facilities Project, Sabu Raijua, NTT in the sample population was 57 people. The identification of research variables was an independent variable consisting of two variables, namely: (1) Independent variables which include: price, financial ability, experience, equipment support, contractor performance, and occupational health and safety (K3). (2) the dependent variable, namely project performance.

4. RESULT AND DISCUSSION

4.1. Analysis Results

4.1.1. Multiple Linear Regression Analysis

Statistical testing was conducted to validate the study's proposed hypothesis. Multiple linear regression analysis was employed in the testing procedure. The data was processed using the SPSS (Statistical Package for Social Science) computer program.

Based on the results of calculations with the help of the SPSS program package, the following analysis results can be obtained:

Table 1 Results of Multiple Linear Regression Analysis

Model		Unstandardized Coefficients	
		B	**Std. Error**
1	(Constant)	0.056	0.162
	Price	0.279	0.099
	Financial Ability	0.386	0.124
	Experience	-0.108	0.089
	Equipment Support	0.191	0.090
	Contractor Performance	0.263	0.121
	Occupational Health and Safety (K3)	0.097	0.075

a. Dependent Variable: Project performance

Source: Processed Data, 2022

Based on the results of the calculations above, the following multiple linear regression equation is obtained:

$$Y = 0.056 + 0.279 X_1 + 0.386 X_2 - 0.108 X_3 + 0.191 X_4 + 0.263 X_5 + 0.097 X_6 + e_i$$

The interpretation of the regression model above is as follows (1) Constant (β_0) = 0.056 which indicates the magnitude of the Project Performance variable which is influenced by the variables Price, Financial Ability, Equipment Support, Contractor Performance and Occupational Health and Safety (K3) or the independent variable = 0, then the value of Project Performance is 0.056, assuming other variables are constant. (2) The value of the Price coefficient of 0.279 indicates that if the Price increases by one unit it will result in an increase in Project Performance of 0.279 and vice versa if the Price decreases by one unit it will result in a decrease in Project Performance of 0.279, assuming other variables are constant. (3) The coefficient value of Financial Capability of 0.386 indicates that if Financial Ability increases by one unit, it will result in an increase in Project Performance of 0.386. Conversely, if Financial Ability decreases by one unit, it will result in a decrease in Project Performance of 0.386, assuming other variables are constant. (4) Experience coefficient value of 0.190 indicates that if Experience decreases by one unit it will result in a decrease in Project Performance of 0.108. Conversely, if Experience increases by one unit it will result in an increase in Project Performance of 0.108 assuming other variables are constant. (5) Equipment Support coefficient value of 0.191 indicates that if Equipment Support increases by one unit it will result in an increase in Project Performance of 0.191. Meanwhile, if Equipment Support decreases by one unit it will result in a decrease in Project Performance

of 0.191, assuming other variables are constant. (6) Contractor Performance coefficient value of 0.263 indicates that if Contractor Performance increases by one unit it will result in an increase in Project Performance of 0.263. And vice versa, if Contractor Performance decreases by one unit it will result in a decrease in Project Performance of 0.26, assuming other variables are constant. (7) The coefficient value of Occupational Health and Safety (K3) of 0.097 indicates that if Occupational Health and Safety (K3) increases by one unit it will result in an increase in Project Performance of 0.097. On the other hand, if Occupational Health and Safety (K3) decreases by one unit it will resulting in a decrease in Project Performance of 0.097, assuming other variables are constant.

4.1.2. Analysis of the Coefficient of Correlation (R) and Coefficient of Determination (R^2)

From the results of multiple linear regression, the magnitude of the relationship between variables is known from the value of the multiple correlation coefficient (R) and the coefficient of determination (R^2). The following is the value of each of these relationships:

Table 2 Value of Multiple Correlation Coefficient (R) and Coefficient of Determination (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.959 [a]	0.919	0.910	0.23330

Source: Processed Data, 2022

From the multiple linear regression model that has been obtained, the coefficient of determination obtained is 91.9%. It can be concluded that the influence of the independent variables is Price, financial ability, experience, equipment support, contractor performance, and occupational health and safety (K3) with the dependent variable Project Performance of 91.9%, while the remaining 8.1% is influenced by other factors outside the study. Multiple correlation analysis was used to determine the close relationship between independent variables on Project Performance. The magnitude of the relationship between independent variables on Project Performance calculated by the correlation coefficient is 0.959. This shows a very high relationship between the six independent variables (Price, financial ability, experience, equipment support, contractor performance, and occupational health and safety (K3)) with Project Performance.

4.1.3. Hypothesis Testing Analysis

1) F Test (Simultaneous Test)

The F test is used to determine whether the independent variables have a simultaneous effect on Project Performance. The following is a simultaneous test of the regression coefficient hypothesis.

Table 3 F Test Calculation Results

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	31.072	6	5.179	95,141	0.000
	Residual	2,722	50	0.054		
	Total	33,793	56			

a. Predictors: (Constant), OHS, Equipment Support, Experience, Price, Contractor Performance, Financial Ability
b. Dependent Variable: Project performance
Source: Processed Data, 2022

It is known that the magnitude of the value of Sig. F test = 0,000, so the value of sig. F test < (5%), which means reject H_0 or it can be concluded that simultaneously (simultaneously) the variable price, financial ability, experience, equipment support, contractor performance, and occupational health and safety (K3) have a significant effect on the dependent variable, namely Project Performance.

2) T Test (Partial Test)

This test was conducted to see the significance of the partial effect of the variables of Work Motivation, Financial Ability and Experience on Project Performance.

Table 4 Results of T Test Analysis

	t	Sig.
Price	2.808	0.007
Financial Ability	3.119	0.003
Experience	-1.211	0.232
Equipment Support	2.122	0.039
Contractor Performance	2.180	0.034
Occupational Health and Safety (K3)	1,292	0.202

Source: Processed Data, 2022

Based on Table 4 above, the test results are obtained as follows:

a) Partial Test between Price variable and Project Performance (Y).
Based on the results of the regression analysis, the $t_{statistic}$ value is 2.808 with a significance value of 0.007. The significance number of the t-test is 0.007 which is smaller than α=5%, so H_0 is rejected so that the conclusion is that the price variable partially has an influence on project performance. The direction of the effect of Price on Project Performance is positive. Thus, the higher the Price, the higher the Project Performance and conversely, the lower the Price, the lower the Project Performance.

b) Partial Test between Financial Capability variable on Project Performance (Y).
Based on the results of the regression analysis, the $t_{statistic}$ value is 3.119 with a significance value of 0.003. The significance number of the t-test is 0.003 which is smaller than α=5%, so H_0 is rejected so that the conclusion is partially that the

Financial Capability variable has an influence on Project Performance. The direction of the influence of Financial Capability on Project Performance is positive. Thus, the higher the Financial Capacity, the higher the Project Performance and conversely, the lower the Financial Capability, the lower the Project Performance.

c) Partial Test between Experience variables on Project Performance (Y).
Based on the results of the regression analysis, the $t_{statistic}$ value is -1.211 with a significance value of 0.232. The significance value of the t-test is 0.232 , which is greater than α=5%, so H_0 is accepted so that the conclusion is that partially the Experience variable has no effect on Project Performance. The direction of the influence of Experience on Project Performance is Negative. Thus, the lower the Experience the lower the Project Performance and conversely the higher the Experience the higher the Project Performance.

d) Partial Test between Equipment Support variables on Project Performance (Y).
Based on the results of the regression analysis, the $t_{statistic}$ value is 2.122 with a significance value of 0.039. The significance number of the t-test is 0.039 which is smaller than α=5%, so H_0 is rejected so that the conclusion is partially that the Equipment Support variable has an influence on Project Performance . The direction of the influence of Equipment Support on Project Performance is positive. Thus, the higher the Equipment Support the higher the Project Performance and conversely the lower the Equipment Support the lower the Project Performance.

e) Partial Test between Contractor Performance variable and Project Performance (Y).
Based on the results of regression analysis, the $t_{statistic}$ value is 2.180 with a significance value of 0.034. The significance value of the t-test is 0.034 which is smaller than α = 5%, so H_0 is rejected so that the conclusion is that the Contractor Performance variable partially has an influence on Project Performance. The direction of the influence of Contractor Performance on Project Performance is positive. Thus, the higher the Contractor's Performance, the higher the Project's Performance and conversely, the lower the Contractor's Performance, the lower the Project's Performance.

f) Partial Test between Occupational Health and Safety (K3) variables on Project Performance (Y).
Based on the results of the regression analysis, the $t_{statistic}$ value is 1.292 with a significance value of 0.202. The significance value of the t-test is 0.202 , which is greater than α=5%, so H_0 is accepted so that the conclusion is partially that the Occupational Health and Safety (K3) variable has no effect on Project Performance. The direction of the influence of Occupational Health and Safety (K3) on Project Performance is positive. Thus, the higher the Occupational Health and Safety (K3) the higher the Project Performance and conversely the lower the Occupational Health and Safety (K3) the lower the Project Performance.

4.2. Discussion

The selection of contractors is based on very important criteria set by the project owner or property owner (Ruci & Kristiana, 2019). The selection of contractors according to certain criteria aims to attract contractors who are considered eligible to participate in project tenders at auction. This determines the success of a project which is certain if the selected contractor does not meet the standards that have been set, the project will be hampered and will not meet the quality standards that have been set. show. Data based on test results show that price, financial capability, equipment support and contractor performance have a significant positive effect on construction project performance. This is indicated by the tests carried out on the variables of price, financial capacity, equipment support, and contractor performance, and produced by the variables of price, financial capacity, equipment support, and contractor performance with a significance value less than 0.05. The results of this study are in line with the research carried by Harianto & Budi (2021), where several criteria in selecting contractors are price criteria, contractor financial capabilities, contractor experience, equipment support, contractor performance, occupational health and safety (K3).

5. CONCLUSION

Based on the results of research and discussions that have been carried out, it can be concluded that the criteria for selecting contractors that affect the performance of a construction project are price, financial capability, equipment support, and contractor performance. While the criteria for experience and occupational safety and health (K3) do not affect the performance of construction projects. In addition, if the contractor has the appropriate price benchmark, financial capability, equipment support, and contractor performance, then the construction project performance will certainly be good.

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