FACTORS WHICH FORM COSTS IN CONSTRUCTION COMPANIES IN SURABAYA

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ARTICLEINFO	ABSTRACT
	The goal is to recognize and examine the factors that shape costs in construction companies in Surabaya. The sample of this research used employees at construction companies in Surabaya. The sample group is equivalent to the full population, namely 103 respondents. Research variables used in the study are: Product Quality Improvement (x1); Increased Worker Productivity (x2); Reducing Unnecessary Costs (x3); Material Order Timeliness (x4); Material Delivery Timeliness (x5); Materials and Tools Inventory (x6); Rework; (x7) Company overhead (x8); Cost of Materials/Materials (x9); Project duration (x10); Performance optimization (x11); Ensure inventory and tool performance (x12); Company performance control (x13); Rework (x14); Reduced rework (x15); Management of the financial performance of the firm (x16); Improving the financial performance of the firm (x17); Material cost control (x18); Optimizing material costs (x19); Control the time working on the project (x20); and Optimizing project execution time (x21). The approach employed in this study is quantitative exploratory. The analytical approach utilized is exploratory factor analysis. The findings indicated that from 19 tested indicators, 6 factors formed the cost of construction companies. The six factors that shape costs in construction companies are: timeliness of orders, contractor costs, quality control, optimization of project work, on time delivery and inventory performance, and financial control.
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1. INTRODUCTION

The construction sector plays an important role in a country's economy. Part of the construction industry in Indonesia becomes a major component of national output and contributes greatly to the country's Gross Domestic Product. Each year, the industry contributes about 10% to Indonesia's GDP, with projected construction value growth between 6.50% and 8.31%.

An example is one of the construction companies PT. X which has been established since 2005. When the Covid-19 Pandemic hit Indonesia in early April 2020, PT. X is still quite restrained. However, the fairly stable income turned out to be a loss.

To support and strengthen this phenomenon, an initial focus group discussion was carried out with the aim of digging deeper information than a number of companies operating in the construction industry. From the results of the focus group discussion on 5 informants to identify the initial variables related to costs at the contracting company, the following data were obtained: (1) Product Quality Improvement, (2) Increased Worker Productivity, (3) Reducing Unnecessary Costs, (4) Timeliness of Material Orders, (5) Timeliness of Material Delivery, (6) Material and Tool Inventory, (7) Rework, (8) Company overhead, (9) Material/material costs, and (10) Length of project work.

Seeing the importance of profit growth figures and the many factors that affect construction companies, so it aims to identify and analyze "Factors that shape costs in construction companies in Surabaya".

2. LITERATURE REVIEW
Material costs

Material is an element of raw materials used in the manufacture of a useful item (Widiasanti, et al., 2021). The cost of purchasing materials is also considered in the cost shaping of the Construction company. This is because in the construction process, the most important cost is the purchase of raw materials / materials. As a contractor, of course, you must first plan and consider the materials to be used. When,

purchasing materials on a large scale, the contractor can negotiate with suppliers in order to achieve the best price, and in the activity of buying materials, the company needs to compare prices between different suppliers to prove that the price obtained is the best price.

Worker

A productive population that is ready to work is an important part of the workforce. Including those who are already working, are looking for a job, studying, or taking care of the household (Primalasari, Indarti, & Adnanti, 2020). According to Djojohadikusumo (Jayani & Ruffaida, 2020), the workforce includes people who are willing and able to work, both those who are unemployed despite their ability and willingness to work, and those who are unemployed due to the unavailability of vacancies. For construction companies, workers are needed to build a project. Skilled labor will speed up the implementation of project construction.

Wages

According to Rizal et al. (2019), Salary is money received by workers as compensation for the work done. This ensures that individuals have a decent source of income and can make ends meet. Wages are also an important factor in employment deals.

From the notion of wages, it shows that they are not given a decent reward. Therefore, wages are an important factor that motivates a person to do work and maintain the ability to work for a certain period of time, without obtaining adequate wages or rewards. This happens because wages are the lifeblood of workers.

In addition, according to Surbakti (2018), salary is an element that can increase income and is also an appreciation of a person's performance results. In general, the wage systems implemented are: Time System, Wholesale System, and Yield System. The implementation of the proper wage system will improve the performance of workers.

Rework

Revisions to development projects result in cost, time, quality, and motivation losses due to design errors, work processes, and lack of oversight. Revision is known as the main cause of productivity losses in the country (Immanuel & Yuwono, 2020).

Research Variables

From the results of the Focus Group Discussion, it is summarized into observed variables. The following is a grid of variables that will be studied and then later reduced to latent variables and interpreted into a factor.

The variables of this study are: Product Quality Improvement (x1); Increased Worker Productivity (x2); reducing unnecessary costs (x3); Timeliness of Material Order (x4); Timeliness of Material delivery (x5); Material and Tool Inventory (x6); Rework; (x7) Corporate overhead (x8); Material/Material Costs (x9); Duration of project work (x10); Performance optimization (x11); Ensuring the performance of supplies and tools (x12); Enterprise performance control (x13); Rework (x14); Reduced rework (x15); Control of the company's financial performance (x16); Optimizing the Company's financial performance (x17); Control of material costs (x18); Optimizing material costs (x19); Control project time (x20); and Optimizing project uptime (x21).

3. METHOD

This research uses an exploratory quantitative approach. Exploratory factor analysis is intended to find a number of variables actually (accurately) forming a single factor variable or construct (Hair et al., 2006).

Data was collected through filling out a 1-5 likert scale questionnaire on 103 construction company employees in Surabaya using a saturated sampling method, namely through the use of all employees as samples in this study. The time of this study starts from November 26, 2021 to January 15, 2022.
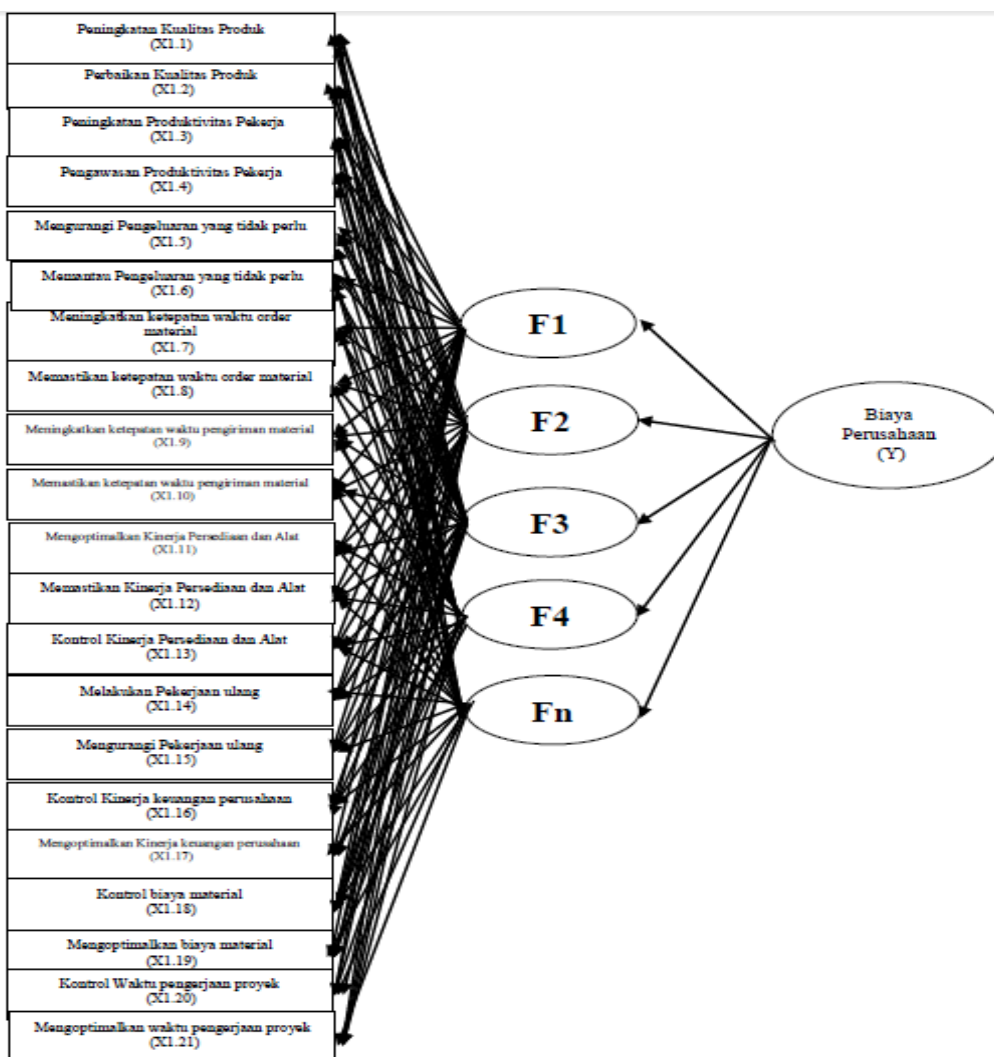The analysis model of this research includes:

Figure 1: Research Analysis Capital

The stages of analysis in this study are: (1) choosing inputs in factor analysis, (2) Carrying out assumption testing, (3) guessing parameters, (4) choosing the number of factors formed by the eiden value standard, (5) If there is an overlap in the variable, then rotate, and (6) perform factor interpretation.

Validity and Reliability Testing

Validity of the test with product-moment Pearson Correlation, comparing item scores with total scores and comparing with a critical number of 0.05 at a significance level of 5%. Reliability test to determine the reliability of the questionnaire, with the Cronbach alpha coefficient number > 0.6 and the cronbach alpha value if the item is smaller than the cronbach alpha value then it can be said that the entire question item is reliable.

Test assumptions

To ensure the validity of factor analysis, KMO is used to compare correlation and partial coefficients. The KMO must be greater than 0.50. The Sphericity (Barlett) test was performed to measure the correlation between variables. The significance figure should be 0.000. The Anti Image Correlation test uses MSA to ensure indicators can be used in factor analysis. MSA value > 0.5 for variables to be used.

Determination of the Number of Factors

Determination of Number of Factors Factors that have an eigenvalue greater than 1 are selected for the model, while those less than 1 are not included.

Factor Rotation

Factor rotation function to obtain a factor structure that is easy to interpret. Research using orthogonal turnover. The varimax method can reduce some indicators that are indicated to have high weight.

Factor Interpretation

There are 5 stages in interpreting exploratory factors, namely: (1) conducting a factor matrix examination, (2) identifying significant factors, (3) calculating community scores, (4) classifying the necessary model factors and (5) naming factors.

4. RESULT AND DISCUSSION
Validity Test

From the Sig value (2 tailed) of the 21 Indicators, a Sig value of < 0.05 was obtained. The correlation value is all positive. The conclusion is that all these data are already Valid.

Reliability Testing

The CA value amounts to 0.862. From X1.3 it is found that the CA if the Item is deleted is worth 0.865 then it is necessary to drop one item X1.3. After that, reliability retesting is carried out. In the second test, the CA score was 0.865. Based on the results of the retest, the value of X1.5 was obtained that the CA if the Item was deleted was worth 0.865, it was necessary to drop one item X1.5. After that, a re-test of its reliability is carried out. In the third test, the CA score was 0.865. From the results of retesting, all CA items if the item is deleted are already worth below 0.865 so that the data is reliable.

KMO and Bartlet Testing

Table 1: KMO and Bartlet Test Results

Keiser-Meyer-Oikin Measure of Sampling Adequacy	0.7
Bartlelt's Test of Sphericity Approx Chi-Square	929.859
df	210
Sig.	.000

The KMO MSA value of 0.700 is already in the Medium / Somewhat Sufficient category so that it can proceed to the next analysis. A significant value of 0.00 is less than 0.50, meaning that the conditions for analyzing factors in the study have been met.

Anti-Correlation Matrix Metrics

MSA is viewed through the value of (a) X1 to X21, with a value of > 0.50, which means it is worthy of factor analysis.

Common Variances

The result of this calculation shows that the value of the extraction > 0.5. This means that all factors are considered to be able to explain the factors well.

Variance Total

Its calculations are utilized in showing the value of each variable. There are two kinds of analysis of this calculation, the first is Initial Eigenvalues to show the formation of factors on the condition that the value of Eigenvalues must be > 1 then it can be called a factor. If the values of all factors are totaled then the result shows the number of variables studied. Furthermore, Eigenvalues shows the number of factors toform.

In the Total column if the whole sum is done (5,684 + 2,291 + 1,803 + 1,419 + 1,094 + 1,023 + 0.858 + 0.725 + 0.660 + 0.568 + 0.529+ 0.463+ 0.396+ 0.363+ 0.294+ 0.280+ 0.250+ 0.196+ 0.108 = 19 variables). In the withdrawal section of the Total Squared Load there are six variations of factors, namely: 29,913, 41,970, 51,458, 58,926, 64,683, 70,065 whose Eigenvalue value is > 1.

Rotated Komponen Matrix

The data shows that there are 6 components with the following grouping: Component 1 consists of factors X7, X8, X10 and X11. Component 2 consists of factors X4, X14, X17. Part three is formed from X15 and X21. The four are formed from X1, X2, and X18. The fifth is formed from X9 and X13. Last but not least is that component 6 consists of X6 and X16.

Component Transformation Matrix

Table 2: Transformation Matrix components

Component	1	2	3	4	5	6
1	.536	.514	.375	.316	.353	.290
2	-.524	.426	.607	.002	-.412	-.071
3	-.308	-.429	.093	.781	.033	.319
4	.058	.397	-.441	.532	-.213	.562
5	.469	-.460	.503	.086	-.245	-.497
6	-.346	-.026	.187	-.003	.774	-.496

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table 2 shows that six factors have a good degree of correlation with values greater than 0.50. Component 1 has a correlation of 0.536, Component 2 has a correlation of 0.514, Component 3 has a correlation of 0.607, Component 4 has a correlation of 0.781, Component 5 has a correlation of 0.774, and Component 6 has a correlation of 0.562. These results indicate that these six factors are feasible to describe the 19 variables analyzed.

Factor 1 is the timeliness of the order indicates that improving the timeliness of the material order can build construction costs efficiently. This is in line with DGT (2021) mentioning the need for timely control and supervision because it is related to financial performance

Figure 2 Factors That Shape the Cost of Construction Companies

Factor 2 is the contractor's cost indicates the operational costs in running a construction company. The results of Monica's (2018) aligned research show the effect of price on buying interest in housing or construction products.

Factor 3 is that quality control indicates the quality of construction workmanship. The results of the research aligned Kam (2018) show that the quality of construction products is very important according to and answers the identification of basic housing needs and psychographic characteristics of developer housing preferences and future planning.

Factor 4 is that the optimization of project work shows improvement and supervision of the project. The results of the research in harmony with Sutrisno (2019) showed that improved operational performance can be achieved by determining appropriate operational practices.

Factor 5 is the timeliness of material delivery and inventory performance indicates that material delivery on a DIFOTEF basis has an impact on inventory performance. This is in line with Christian (2018) stating that companies need to pay attention to the company's financial and non-financial developments to determine the company's performance.

Factor 6 is that financial control indicates that strict financial control will improve the financial performance of the construction company. This is in line with Anggi Angga Resti's research (2021) which states that companies need to pay attention to financial and non-financial developments to determine their company's performance.

5. CONCLUSION

Based on the exposure of the results and discussion, various factors in the formation of construction costs in Construction companies, there are 19 indicators. After the factor analysis stage, the 19 indicators have met the requirements, so that the 19 indicators can provide explanations related to the six factors that are already available.

This study shows that Construction Costs are built by 6 cost components which include: (1) Timeliness of Orders, (2) Contractor Costs, (3) Quality Control, (4) Optimization of Project Work, (5) Timeliness of Material Delivery and Inventory Performance and (6) Financial Control.

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