

PROJECT MANAGEMENT PERFORMANCE ANALYSIS FOR IMPROVING ROAD CONSTRUCTION IMPLEMENTATION KARAWANG CIKAMPEK PAMANUKAN

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Abstract

This study aims to determine and analyze the influence of planning, organizing, implementing, and supervising the performance of the Karawang-Cikampek-Pamanukan road construction project, both partially and simultaneously. The research method used in this study is a quantitative research method. This study was conducted on the Karawang-Cikampek-Pamanukan road construction improvement project by collecting data using a questionnaire, the sample used was 45 respondents. The data source in this study is primary data with multiple linear regression analysis and hypothesis testing, with data processing using SPSS software version 26. The results of the study indicate that planning has a positive and significant effect on the performance of the Karawang-Cikampek-Pamanukan road construction improvement project. Organizing has a positive and significant effect on the performance of the Karawang-Cikampek-Pamanukan road construction improvement project. Implementation has a positive and significant effect on the performance of the Karawang-Cikampek-Pamanukan road construction improvement project. Supervision has a positive and significant effect on the performance of the Karawang-Cikampek-Pamanukan road construction improvement project. Project management consisting of planning, organizing, implementing, and supervising has a significant influence on the performance of the Karawang-Cikampek-Pamanukan Road construction improvement project.

Keywords : Management, Project, Road Construction and Performance

1. Introduction

1.1 Background

National road infrastructure development is a strategic sector that plays a role in driving economic growth, equitable development, and increasing connectivity between regions in Indonesia. (Ahmad, 2022). As a primary transportation infrastructure, national roads support public mobility and the distribution of goods and services, so their performance significantly impacts the efficiency of the transportation system. Therefore, implementing road improvement projects requires planned, systematic, and integrated project management to optimally achieve time, cost, and quality targets. (Kurniawan et al., 2024).

The construction industry is one of the sectors is important in supporting economic growth. The increasing complexity and scale of construction projects require the implementation of effective project management to ensure project implementation runs according to target. (Tumilantouw & Brilia, 2024). Delay settlement work, Cost overruns, quality discrepancies, and poor implementation of occupational health and safety (OHS) remain issues in construction projects. Therefore, effective project management is necessary to ensure projects are implemented within established time, cost, and quality targets.

Project management is the process of planning, implementing and controlling a project to achieve goals in accordance with predetermined time, cost and quality targets. (Putri, 2026). Good project management is able to anticipate various challenges in the field, such as work delays, material distribution constraints, communication barriers, and risks that can affect project implementation. (Rochmawati et al., 2024).

The implementation of road construction projects will improve if all stakeholders coordinate and carry out their responsibilities effectively. (Sadam & Sangidana, 2024). Thus, implementing effective project management is a crucial factor in improving construction project performance. Proper management of time, cost, quality, resources, and risk is expected to support the effective and efficient achievement of project objectives.

This research was conducted on the Karawang–Cikampek–Pamanukan Road West Java Province. This project is a strategic one with a high level of complexity, both technically and managerially, and involves various stakeholders, including the government, implementing contractors, and supervising consultants. The Karawang–Cikampek–Pamanukan road section is a national strategic route that plays a crucial role in supporting connectivity and logistics distribution in the North Coast of West Java. The high complexity of the project implementation and the involvement of various stakeholders make effective project management a crucial factor in achieving time, cost, quality, and safety targets.

Studies on the effectiveness of project management implementation have developed extensively, both conceptually and empirically. In general, previous research emphasizes that project success is determined by the ability to systematically manage the planning, implementation, and control processes to achieve time, cost, and quality targets (Hussain et al., 2022) . Research conducted by (Stringer et al., 2025) shows that project management plays a crucial role in improving the efficiency and effectiveness of resource use through planning, organizing, implementing, and monitoring functions.

1.2 Formulation of the problem

Based on the background above, the research problems can be formulated as follows:

1. How does planning affect the performance of the Karawang–Cikampek–Pamanukan road construction ?
2. How does organization influence the performance of the Karawang–Cikampek–Pamanukan road construction ?
3. How does implementation affect the performance of the Karawang–Cikampek–Pamanukan road construction ?
4. How does supervision affect the performance of the Karawang–Cikampek–Pamanukan road construction ?
5. How do planning, organizing, implementation and supervision affect the performance of the Karawang–Cikampek–Pamanukan road construction ?

1.3 Purpose and Objectives of the Research

The aims and objectives of this research are:

1. the Karawang–Cikampek–Pamanuka road construction implementation .
2. To determine and analyze the influence of organization on the performance of the Karawang–Cikampek–Pamanukan road construction project .
3. To determine and analyze the influence of implementation on the performance of the Karawang–Cikampek–Pamanukan road construction .
4. To determine and analyze the influence of control on the performance of the Karawang–Cikampek–Pamanukan road construction project .
5. To determine and analyze the influence of planning, organizing, implementing and supervising the performance of the Karawang–Cikampek–Pamanukan road construction .

1.4 Research Usefulness

This research is expected to provide theoretical and practical benefits.

1. Theoretical Benefits

This research is expected to enrich the study of project management, particularly regarding the impact of project management performance on road construction implementation. Furthermore, the results can serve as a reference for future researchers developing research in the field of construction management.

2. Practical Benefits

This research is expected to be input for project owners, implementing contractors, and supervisory consultants in improving project management performance, so that road construction implementation can run according to the predetermined targets.

2. Literature Review and Framework Thinking

2.1 Project Management

opinion in (Yuliana, 2022) Project management is an approach that integrates various management methods and techniques to improve the performance of construction project implementation. According to PMBOK (Project Management Body of Knowledge) project management includes the systematic application of knowledge, skills, tools, and techniques to project activities to ensure the fulfillment of needs and achievement of project objectives (Paharuddin et al., 2024) . According to (Pratiwi et al., 2026) explains project management is the systematic application of management functions such as (planning, organizing, implementing and monitoring) to project activities by using specified resources effectively and efficiently so that project objectives are achieved optimally.

In this study, the independent variables used the opinion (Pratiwi et al., 2026) , namely the planning variable (X1) with indicators of time, cost, and quality. The organizing variable (X2) with indicators of time, cost, and quality. The implementation variable (X3) with indicators of time, cost, and quality. The monitoring variable (X4) with indicators of time, cost, and quality .

2.2 Project Performance

According to Soeharto (1999), project performance is the result of project implementation measured based on the effectiveness of resource use, time achievement, cost, quality, and work safety (Silalahi et al., 2023) . Project performance achieves efficiency and effectiveness that are in line with objectives and can also influence the overall success of the project (Safari et al., 2021) . Project performance is how the project works by comparing the work results that have been carried out with the estimated work methods in the work contract agreed by the party that has the work with the partner (Junjuran et al., 2022) .

Project performance measurement According to Madushika in (Safari et al., 2021) project performance can be measured using the following indicators :

1. Time performance

Time performance is the level of project success in completing work according to the planned schedule or time.

2. Cost performance

Cost performance is the level of project capability in controlling and using the budget according to planned costs.

3. Quality performance

Quality performance is the level of project success in producing work that meets the planned standards, specifications and quality.

2.3 Framework

The thinking framework is a conceptual model which describes the relationship between theory and various factors identified as important problems (Sugiyono, 2023) .

According to (Pratiwi et al., 2026) explains that project management is the systematic application of management functions such as (planning, organizing, implementing and supervising) in project activities by using the specified resources effectively and efficiently so that project objectives are achieved optimally. Based on this description, the independent variables in this study are : Planning variable (X1) . Organizing variable (X2) . Implementation variable (X3) with indicators of time, cost, and quality. Supervision variable (X4) .

Project performance achieves efficiency and effectiveness that is in line with objectives and can also influence the overall success of the project and can be measured by time performance indicators, cost performance, and quality performance (Safari et al., 2021) . Dependent variable (Y) project performance , based on Madushika's opinion in (Safari et al., 2021) project performance measured by time performance indicators, cost performance, and quality performance.

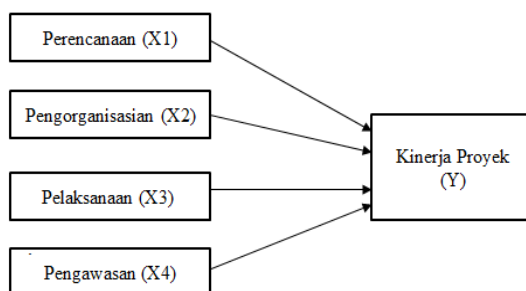


Figure 1. Framework of Thought

2.4 Research Hypothesis

A hypothesis is a temporary answer to a research problem, expressed in the form of a question. The following hypotheses are proposed in this study:

H1: Planning has an impact on the performance of the Karawang-Cikampek-Pamanukan road improvement projec.

H2: Organization has an impact on the performance of the Karawang-Cikampek-Pamanukan road improvement project .

H3: Implementation has an impact on the performance of the Karawang-Cikampek-Pamanukan road improvement project .

H4: Supervision has an impact on the performance of the Karawang-Cikampek-Pamanukan road improvement project .

3. Objects and Methods

3.1 Research Object

Sugiyono (2023) states that research objects are scientific targets for obtaining data with certain goals and uses regarding an objective, valid and reliable right regarding a matter (certain variable) . The object of research in this study is the Karawang – Cikampek – Pamanukan road improvement project .

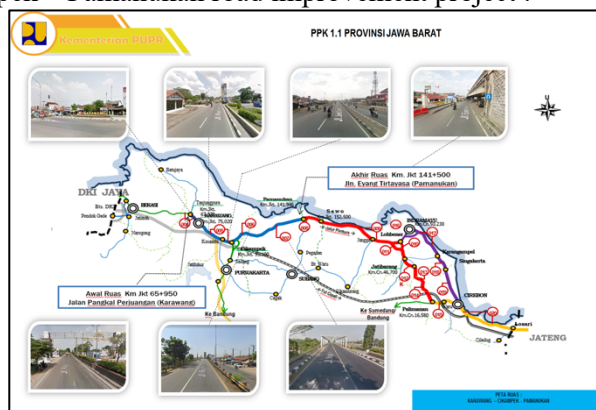


Figure 2. Project Location Map

3.2 Research Methods Used

This research uses a quantitative method based on the philosophy of positivism to test a specific population or sample through appropriate sampling techniques. (Sugiyono, 2023) .

3.3 Research Variables

Research variables are everything that researchers determine to be studied in order to obtain information that forms the basis for drawing conclusions. (Sugiyono, 2023) .

1. Independent variables are variables that influence or cause changes in the dependent variable. The independent variables in this study are Planning (X1), Organizing (X2), Implementation (X3) and Supervision . (X 4)
2. The dependent variable is a variable that is influenced by the independent variable n . The dependent variable in this study is Project Performance (Y).

3.4 Population and Sample

1. Population

The population in this study was all parties involved in the implementation of the Karawang–Cikampek–Pamanukan road improvement project management, totaling 82 people.

2. Sample

The sample size in this study was determined using the Slovin formula to obtain a sample that was representative of the population. (Islah et al., 2024) , with the following equation:

$$n = \frac{N}{1 + Nd^2}$$

Information :

n: Number of samples

N: Population size

e ²: Standard error (10%)

$$n = \frac{82}{1 + 82(0,1)^2} = 45.1 \approx 45$$

Based on the calculation results with an error rate of 10%, a research sample of 45 respondents was obtained .

3.5 Validity and Reliability Testing

1. Validity Test

Validity testing was conducted to measure the accuracy of the research instrument in obtaining data (Sugiyono, 2023). The validity of each questionnaire item was tested using the Corrected Item-Total Correlation value in SPSS 26 output. The decision-making criteria were as follows:

- a. If $r_{xy} > r_{table}$, then the statement is declared valid.
- b. If $r_{xy} < r_{table}$, then statement declared invalid

2. Reliability Test

Reliability testing was conducted using the Cronbach's alpha coefficient in SPSS 26. The Cronbach's alpha coefficient is a reliability coefficient that indicates the quality of the entire data collection process in a study (Ghozali, 2021). An instrument is declared reliable if the Cronbach's alpha value is > 0.60 .

3.6 Data Analysis Techniques

1. Classical Assumptions

Classical assumption tests were conducted to ensure that the multiple linear regression model met the requirements of ordinary least squares (OLS) analysis. In this study, the classical assumption tests used included normality, multicollinearity, and heteroscedasticity.

a. Normality Test

The normality test aims to determine whether the data in the regression model is normally distributed. This study used the One-Sample Kolmogorov–Smirnov test with the Lilliefors correction. A regression model is considered to meet the normality assumption if the data are normally or nearly normally distributed.

The decision-making criteria are as follows:

- 1) value (Sig) > 0.05 means the data is normally distributed.
- 2) value (Sig) < 0.05 means the data is not normally distributed

b. Multicollinearity Test

The multicollinearity test aims to determine whether there is a correlation between independent variables in a regression model (Ghozali, 2021). The test is conducted using Tolerance and Variance Inflation Factor (VIF) values. A regression model is declared free of multicollinearity if the Tolerance value is ≥ 0.10 and the VIF value is ≤ 10 .

c. Heteroscedasticity Test

The heteroscedasticity test aims to determine whether there is inequality in the residual variance in the regression model. A good regression model is one that does not experience heteroscedasticity. Testing was carried out using the Glejser test by regressing the absolute value of the residual on the independent variable. The basis for decision making is as follows:

- 1) If the p-value ≥ 0.05 then H_0 is accepted, which means there is no heteroscedasticity problem.
- 2) If the p-value ≤ 0.05 then H_0 is rejected which means there is a heteroscedasticity problem.

2. Multiple Linear Regression Analysis

Multiple linear regression analysis was performed using SPSS 26 to test the effect of two or more independent variables on the dependent variable (Sugiyono, 2023). The relationship between variables is expressed in the multiple linear regression equation as follows:

$$Y = \alpha + \beta x_1 + \beta x_2 + \beta x_3 + \beta x_4 + e$$

Where :

Y = Project Performance

α = Constant

β_1 = Planning regression coefficient

β_2 = Regression coefficient of Organizing

β_3 = Regression coefficient of Implementation

β_4 = Supervision regression coefficient

X_1 = Planning Variable

X_2 = Organizing Variables

X_3 = Implementation Variables

X_4 = Monitoring Variables

e = standard error

3. Coefficient of Determination

This determination coefficient test is carried out to find out how big the relationship or closeness of the variables is between the independent variable and the dependent variable, so it is necessary to carry out calculations, according to Ghazali (2021) using the following formula:

$$Kd = R^2 \times 100\%$$

Where :

Kd = Coefficient of determination used to measure the contribution of variable X to variable Y

R = Correlation coefficient

3.7 Hypothesis Testing

According to Sugiyono (2023:64) a hypothesis in research is an answer temporary to formulation problem. Hypothesis testing using the SPSS 26 statistical program.

1. Partial Hypothesis Testing (t-Test)

Partial hypothesis testing to determine the extent of influence of each independent variable on the dependent variable partially using the t-test. Riyanto & Hatmawan (2020) explain that the t-test is used to test the partial significant influence between independent variables on the dependent variable. The t-test is carried out by comparing the calculated t with the t-table. The t-table value is determined at a significance level of 5% with degrees of freedom $df = (nk-1)$ where n is the number of respondents and k is the number of independent variables.

2. Simultaneous Hypothesis Testing (F Test)

Based on the opinion of Riyanto & Hatmawan (2020) The F test is a statistical method used to test the influence of independent variables simultaneously (together) on the dependent variable in a model, especially in linear regression analysis.

4. Results and Discussion

4.1 Research result

1. Validity and Reliability Testing

a. Validity Testing

Validity testing was conducted on all statements in each research variable. The research instrument consisted of 30 statements answered by respondents. The criteria for determining the validity of each statement are as follows:

- 1) If $r_{count} > r_{table}$, then the questionnaire item is valid.
- 2) If $r_{count} < r_{table}$, then it can be said that the questionnaire item is invalid.

The questionnaire will be tested on 45 respondents with a significance level of 5% with degrees of freedom $df = n-2 = 45 - 2 = 43$, then the r_{table} obtained is 0.294. The following are the results of the validity test:

Table 1. Results of Planning Validity Test (X1)

Statement	r_{count}	r_{table}	Note
P1	0.694	0,294	Valid
P2	0.729	0,294	Valid
P3	0.716	0,294	Valid
P4	0.798	0,294	Valid
P5	0.767	0,294	Valid
P6	0.783	0,294	Valid

Source: SPSS 26 output processed by the author, 2026

Table 2. Results of Planning Validity Test (X2)

Statement	r _{count}	r _{table}	Note
P1	0.602	0,294	Valid
P2	0.415	0,294	Valid
P3	0.475	0,294	Valid
P4	0.645	0,294	Valid
P5	0.637	0,294	Valid
P6	0.589	0,294	Valid

Source: SPSS 26 output processed by the author, 2026

Table 3.

Results of the Organizational Validity Test (X3)

Statement	r _{count}	r _{table}	Note
P1	0.814	0,294	Valid
P2	0.752	0,294	Valid
P3	0.631	0,294	Valid
P4	0.704	0,294	Valid
P5	0.843	0,294	Valid
P6	0.691	0,294	Valid

Source: SPSS 26 output processed by the author, 2026

Table 4. Results of the Supervisory Validity Test (X4)

Statement	r _{count}	r _{table}	Note
P1	0.550	0,294	Valid
P2	0.626	0,294	Valid
P3	0.457	0,294	Valid
P4	0.516	0,294	Valid
P5	0.472	0,294	Valid
P6	0.500	0,294	Valid

Source: SPSS 26 output processed by the author, 2026

Table 5. Project Performance Validity Test Results (Y)

Statement	r _{count}	r _{table}	Note
P1	0.636	0,294	Valid
P2	0.353	0,294	Valid
P3	0.491	0,294	Valid
P4	0.589	0,294	Valid
P5	0.498	0,294	Valid
P6	0.587	0,294	Valid

Source: SPSS 26 output processed by the author, 2026

The validity test results show that all statement items have a correlation value greater than the r_{table} value. Thus, all items are declared valid and suitable for use in further data analysis.

b. Reliability Testing

The reliability of a variable construct is said to be good if it has a Cronbach's Alpha value > 0.60. The following are the results of the reliability test using the SPSS 26 program.

Table 6. Reliability Test Results

Variables	Cronbach's alpha	Cut Off	Note:
Planning	0.909	0.600	Reliable
Organizing	0.801	0.600	Reliable
Implementation	0.904	0.600	Reliable
Supervision	0.774	0.600	Reliable
Project Performance	0.777	0.600	Reliable

Source: SPSS 26 output, processed by the author in 2026

Based on table 6, it can be seen that all variables in this study own If the Cronbach's alpha value is greater than or above 0.600, it can be concluded that each variable in this study is reliable.

2. Classical Assumption Test

a. Normality Test

Test normality The aim is to determine whether the data is normally distributed as one of the requirements for parametric analysis. The results of the normality test are presented in the following table.

Table 7. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		45
Normal Parameters ^{a,b}	Mean	,0000000
	Standard Deviation	1.51437779
Most Extreme Differences	Absolute	,178
	Positive	,178
	Negative	-,072
Test Statistics		,178
Asymp. Sig. (2-tailed)		,081 ^c
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: SPSS Output 26, 2026

Based on table 7. above, the results show that the significance level of the variables in this study is normally distributed, this can be seen by looking at the normal requirements of Asymp Sig, namely $0.081 < 0.05$.

b. Multicollinearity Test

The multicollinearity test aims to determine whether or not there is a correlation between independent variables in the regression model. The results of the multicollinearity test are presented in the following table.

Table 8. Multicollinearity Test Results

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Planning	,527	1,896
	Organizing	,317	3,154
	Implementation	,262	3,823
	Supervision	,288	3,469
a. Dependent Variable: Project Performance			

Source: SPSS Output 26, 2026

Based on table 8 , it is known that the tolerance value for the independent variable is $\neq 0$, so it can be said that there is no significant relationship between planning, organizing, implementation and supervision . Meanwhile, the VIF value for the independent variable is $\neq 0$. obtained < 10 , then it can be said that there is no collinearity between the independent variables of planning, organizing, implementation and supervision .

c. Heteroscedasticity Test

Heteroscedasticity test using the Glejser test by regressing the absolute value of the residual on the independent variable. The test results are as follows:

Table 9. Heteroscedasticity Test Results

Coefficients ^a					
Model		Unstandar dized Coefficien ts		Stand ardize d Coeff icient s	Sig .
		B	Std. Erro r	Beta	
1	(Constant)	- ,46 1	,737		-,626 ,53 5
	Planning	- ,02 9	,031	-,188	-,930 ,35 8
	Organizing	,01 9	,056	,088	,336 ,73 9
	Implementatio n	,03 9	,050	,227	,791 ,43 4
	Supervision	,04 1	,058	,194	,709 ,48 2
a. Dependent Variable: Abs Res					

Source: SPSS Output 26, 2026

Based on table 9 , it is known that all significant values the independent variable obtains a value > 0.05 , then it can be said that there is no heteroscedasticity, so that it can be continued with the next data analysis.

3. Multiple Linear Regression Analysis

Multiple linear regression analysis was used in this study with the aim of determining whether or not there was an influence of the independent variable on the dependent variable , namely as follows :

Table 10. Multiple Linear Regression Results

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	,059	1,173		,050	,960
Planning	,132	,049	,178	2,691	,010
Organizing	,474	,088	,458	5,361	,000
Implementation	,188	,079	,223	2,373	,023
Supervision	,217	,092	,210	2,343	,024

a. Dependent Variable: Project Performance

Source: SPSS Output 26, 2026

From the results in Table 10 , the regression equation can be formulated as follows:

$$Y = 0.059 + 0.132 X_1 + 0.474 X_2 + 0.188 X_3 + 0.217 X_4$$

- Constant (α) = 0.0 59, meaning that if all independent variables are equal to 0 , then project performance has a value of 0.0 59 .
- The regression coefficient of the planning variable has a positive effect on project performance of 0.132 . If the implementation of planning is increased, project performance will increase by 0.132 .
- The regression coefficient of organizing has a positive effect on project performance of 0.474 . If organizing increases, project performance will increase by 0.474 .
- The regression coefficient of implementation has a positive effect on project performance of 0.188 . If implementation increases, project performance will increase by 0.188 .
- The supervision regression coefficient has a positive effect on project performance of 0.2174 . If implementation increases, project performance will increase by 0.2174 .

Based on this description , improvements in planning, organization, implementation and supervision have an impact on improving the performance of the Karawang Road construction project. – Cikampek –Pamanukan. The better the implementation of these project management functions, the higher the project performance achieved.

4. Coefficient of Determination

To calculate how much influence (contribution) is given overall, this can be determined using the coefficient of determination (Kd), with the formula:

$$Kd = R^2 \times 100 \%$$

Table 11. Coefficient of Determination

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	,953 ^a	,907	,898	1,588
a. Predictors: (Constant), Supervision, Planning, Organizing, Implementation				
b. Dependent Variable: Project Performance				

Source: SPSS Output 26, 2026

$$\begin{aligned}
 Kd &= R^2 \times 100 \% \\
 &= 0.953^2 \times 100 \% \\
 &= 90.7 \%
 \end{aligned}$$

The coefficient of determination (Kd) of 90.7 % means that the influence of planning, organizing, implementing and supervising the performance of the Karawang-Cikampek-Pamanukan road construction improvement project = 90.7 %. While the remainder = 9.3 % is influenced by other variables not examined in this study .

5. Hypothesis Testing

a. Partial Hypothesis Testing (t-Test)

Partial hypothesis testing (t-test) was used to determine the influence of each independent variable (planning, organizing, implementing, and supervising) on the dependent variable (project performance). Table 12 shows the results of the t-test calculation using SPSS version 26.

Table 11. Partial Hypothesis Testing (t-Test)

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	,059	1,173		,050	,960
Planning	,132	,049	,178	2,691	,010
Organizing	,474	,088	,458	5,361	,000
Implementation	,188	,079	,223	2,373	,023
Supervision	,217	,092	,210	2,343	,024
a. Dependent Variable: Project Performance					

Source: SPSS Output 26, 2026

- 1) Partial test results indicate that planning has a positive and significant effect on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. This is indicated by a significance value of $0.010 < 0.05$. and the $\text{calculated } t \text{ value} > t_{\text{table}} (2,691 > 2,015)$
- 2) The partial test results indicate that organization has a positive and significant effect on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. This is indicated by a significance value of $0.000 < 0.05$. and the $\text{calculated } t \text{ value} > t_{\text{table}} (5,361 > 2,015)$
- 3) The partial test results show that implementation has a positive and significant effect on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. This is indicated by a significance value of $0.023 < 0.05$. and the $\text{calculated } t \text{ value} > t_{\text{table}} (2,373 > 2,015)$
- 4) The partial test results indicate that supervision has a positive and significant effect on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. This is indicated by a significance value of $0.024 < 0.05$. and the $\text{calculated } t \text{ value} > t_{\text{table}} (2,343 > 2,015)$

b. Simultaneous Hypothesis Testing (F Test)

The F test is used to test the simultaneous influence of independent variables on the dependent variable. The hypothesis is accepted if the $\text{calculated } F \text{ value} > F_{\text{table}}$ or a significance value < 0.05 . The results of the F test in this study are presented in the following ANOVA table.

Table 12. Simultaneous Hypothesis Testing (F Test)

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	989,893	4	247,473	98,100	,000 ^b
Residual	100,907	40	2,523		
Total	1090,800	44			
a. Dependent Variable: Project Performance					
b. Predictors: (Constant), Supervision, Planning, Organizing, Implementation					

Source: SPSS Output 26, 2026

Based on the table above , $F_{\text{hitung}} = 98.100$ and the F_{table} value with a degree of freedom of numerator 4 and denominator 40 at $\alpha (0.05)$ is 2.61 . Thus, $F_{\text{count}} (98.100) > F_{\text{table}} (2.61)$, then H_0 is rejected and H_a is accepted. Then $\text{sig } 0.000 < \alpha = 0.05$, indicating that H_0 is rejected and H_a is accepted. Based on the test results, it means that planning, organizing, implementing, and supervising have a significant effect on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project.

4.2 Discussion

1. The Impact of Planning on Project Performance

Planning has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. The better the planning implementation, the higher the project performance achieved. These results indicate that planning is a critical factor in enhancing the success of project implementation .

2. The Effect of Organization on Project Performance

Organization has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. The better the implementation of organization , the higher the project performance achieved. These results indicate that organization is an important factor in increasing the success of project implementation .

3. Impact of Implementation on Project Performance

Implementation has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. The better the implementation , the higher the project

performance achieved. These results indicate that project implementation is a critical factor in increasing the success of project implementation .

4. Impact of Implementation on Project Performance

Supervision has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project. The better the supervision , the higher the project performance. These results indicate that project supervision is a critical factor in enhancing the success of project implementation .

5. The Influence of Planning, Organizing, Implementation and Supervision on Project Performance

The results of the study show that project management (Planning, Organizing, Implementation and Supervision) has an effect on the performance of the Karawang-Cikampek-Pamanukan Road construction improvement project, thus if project management (Planning, Organizing, Implementation and Supervision) is implemented well, the performance of the Karawang-Cikampek-Pamanukan Road construction improvement project will increase.

5. Conclusions and Recommendations

5.1 Conclusion

Based on the research results and discussions that have been described previously, it can be concluded that :

1. Planning has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project .
2. Organization has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project .
3. Implementation has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project .
4. Supervision has a positive and significant impact on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project .
5. Project management consisting of planning, organizing, implementing, and supervising has a significant influence on the performance of the Karawang–Cikampek–Pamanukan Road construction improvement project .

5.2 Recommendation

Based on the research results, the author recommends the following:

1. Project managers are enhancing the application of project management functions, particularly in planning, organizing, implementing, and supervising, to improve construction project performance. Thorough planning, effective organization, on-plan implementation, and continuous monitoring are expected to support the achievement of project time, cost, and quality targets.
2. For future researchers, it is recommended to add other variables that could potentially influence project performance, such as risk management, leadership, human resource competency, project communication, or information technology utilization. Furthermore, research could be conducted on different project types and regions with a larger sample size to allow for broader generalizability.

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