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The Impact of Performance Factors on Performance on Quality in Project Implementation

Hermawan Tedi, Oktavia Futri Fajarni, Aminudin, Marpaung Richo Ronald, Iman Darul, Acep Hidayat*
Universitas Mercu Buana, Indonesia
Email : isradi@mercubuana.ac.id

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****Corresponding Author***

ABSTRACT

This study aims to analyze the impact of various performance factors on contractor performance in the implementation project, as part of the National Police's institutional transformation toward a predictive, responsive, and transparent work system. The performance factors analyzed include managerial competence, work experience, communication, and time management. Using a questionnaire and Partial Least Square (PLS) analysis, the study finds that managerial factors (P-value 0.000) and occupational safety and environment (K3L) (P-value 0.016) significantly influence contractor performance. However, legal and licensing, financial, technical, and social aspects do not show significant effects. The study suggests focusing on improving managerial training and enhancing K3L standards, while also maintaining compliance with licensing and social relationships. This research highlights the importance of management and safety training in educational settings to improve professional performance in construction projects.

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INTRODUCTION

The construction industry has an important role in supporting national development, especially in providing strategic infrastructure that supports the performance of government institutions (Andreamara et al., 2025). One of the crucial aspects in the successful implementation of a construction project is the role of the supervisory consultant, who is responsible for ensuring that all construction activities run according to the technical specifications, budget, and time that has been planned (Nova et al., 2025). The quality of performance of supervisory consultants is strongly influenced by various factors, such as

individual competence, work experience, communication skills, and effective time management (Ali et al., 2019).

The Trunojoyo Precision 2 Building project, located in South Jakarta, is one of the strategic projects owned by the National Police of the Republic of Indonesia (Polri) to support the institutional transformation program of the "Precision Police" (Predictive, Responsible, Transparent, and Just). This building is designed to be a data management and information technology center to improve the quality of public services, crime monitoring systems, and data-based decision-making (Erlita et al., 2023). With the importance of the building's function, quality project supervision is needed so that the construction process runs optimally (Rauf et al., 2023).

Every company has different quality standards, and every customer has different quality standards. In the construction services industry, the quality of contractors who have capital, equipment resources, human resources, and business experience are factors that support the quality of work (Isradi et al., 2021; Neva & Assa, 2025). However, in practice, the quality of project supervision is often affected by an imbalance between the demands of the job and the human resource capacity that the supervisory consultant has. Therefore, an in-depth analysis is needed on what factors affect their performance, as well as how much it affects the quality of the supervision produced (Karimi & Piroozfar, 2022; Pamungkas & Susetyo, 2024). The quality of contractor performance can be seen from the achievement of the project success parameters, namely the right quality, on time, and the right cost. According to the Project Management Institute (PMI, 2017), the quality of project implementation is the result of careful planning, good technical implementation, and effective internal supervision from the contractor (Shakeri et al., 2022). Good performance also reflects compliance with contract documents and work safety provisions (Susetyo et al., 2021).

In this context, educational management plays a pivotal role in shaping the competence of supervisory consultants, as well as in structuring and managing training and professional development programs that enhance the skills required in handling complex projects such as this one. Effective management of educational programs ensures that consultants are well-equipped with both theoretical knowledge and practical skills to address the challenges they encounter during project implementation. Educational management also ensures that consultants have continuous access to learning opportunities, fostering a culture of improvement that aligns with the ever-evolving demands of construction project management. Research by Sears et al. (2010) shows that work experience and time management are the dominant factors that affect the success of construction projects. Stevenson (2012) also

found that the effectiveness of internal communication within the contractor team greatly determines the efficiency and quality of work implementation.

The Trunojoyo 2 Precision Building is a strategic project that plays an important role in supporting the digitization and integration of the Indonesian National Police's information system. The technical complexity and quality targets of the project demand superior contractor performance (Pourrostam & Ismail, 2011). Therefore, understanding the influence of various performance factors on the quality of implementation is very important so that projects can be completed on time, according to specifications, and provide added value for the institutions that use them (Shakeri & Khalilzadeh, 2020).

This study aims to identify and analyze the influence of several performance factors on the quality of performance of supervisory consultants in the Precision Building 2 Project. By understanding the relationship between these factors, it is hoped that relevant recommendations can be obtained for improving the quality of project supervision, especially in national strategic projects oriented towards the digital transformation of institutions. Additionally, the research seeks to contribute to the field of educational management by offering insights into the importance of structured training and development programs for improving the performance of supervisory consultants in the construction industry.

RESEARCH METHOD

The research method used in this study is designed to provide relevant suggestions based on the collected data. Before conducting the research, a literature review is essential to identify the factors influencing building contractors in Jakarta. This preliminary step helps in understanding the underlying issues and contextualizing the factors that affect construction project implementation. The location for this study is focused on building construction projects in Jakarta, specifically those planned for the 2024 fiscal year. The primary data required to achieve the research objectives includes the work experience of both certified and non-certified experts in the construction field (Irfan Rifai et al., 2021; Rachmadina et al., 2023).

Primary data will be collected through direct interviews or surveys conducted with contractors and project owners. These firsthand accounts will provide detailed insights into their experiences and perceptions of the factors that affect the quality and efficiency of building projects. Secondary data will be gathered from existing literature, media sources, and reports that are relevant to the research topic. This will help to build a theoretical foundation and provide a broader perspective on the challenges faced by contractors in Jakarta's construction industry.

This mixed-method approach, combining both primary and secondary data, will allow for a comprehensive analysis of the factors influencing contractor performance. By integrating firsthand perspectives with established knowledge, the study aims to identify key areas for improvement and propose strategies to enhance the quality of construction projects in Jakarta.

RESULT AND DISCUSSION

Result

There are two kinds of tests that will be used while analyzing data using Partial Least Square: the Inner Model Test and the Outer Model Test. The outside Model describes the connection between the varia bles being studied and their indicators. It is also frequently called the measurement model or outside relation. The Inner Model, meanwhile, evaluates the connection between the independent and dependent latent variables. These are the tests for the Inner Model and Outer Model, respectively.

Respondent characteristics

The number of respondents in this study was 40 people with the following classification of respondents:

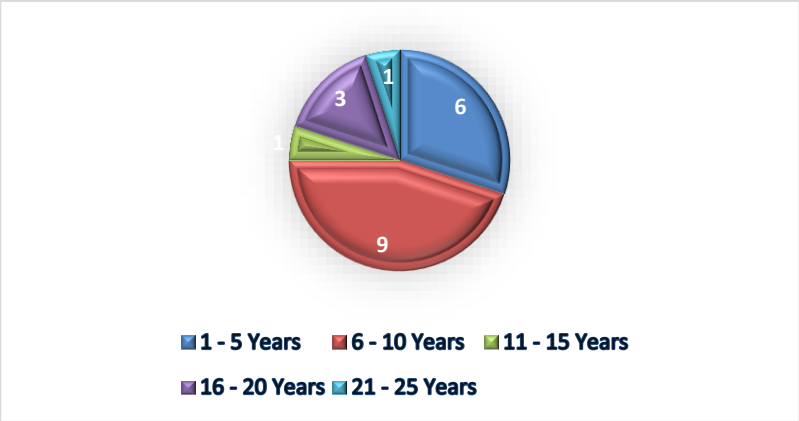

Figure 1. Respondents based on length of work

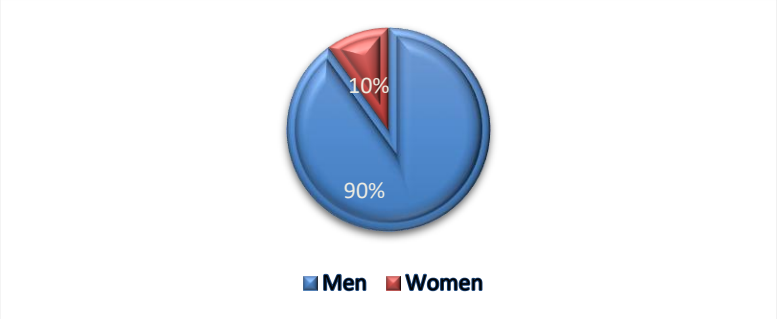

Figure 2. Respondents by gender

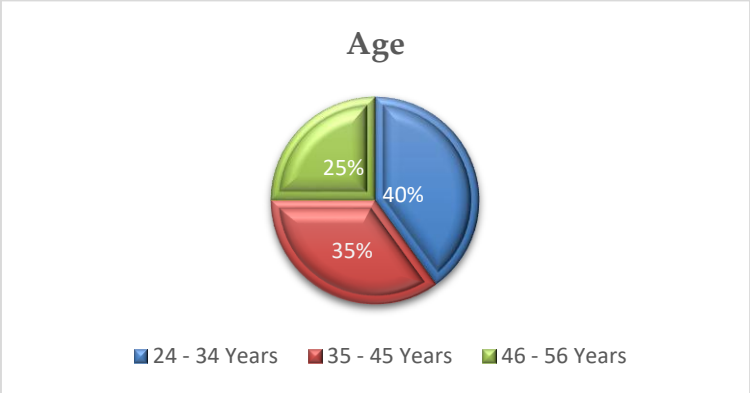

Figure 3. Respondents by age

Outer Model Test

Convergent Validity

The convergent validate values of all indicators in the model are used to test the validity of the indicators. The loading factor value must be greater than 0.5 for each indicator to be tested. If the loading factor value is greater than 0.5, then the evaluation step can be continued. If not, then indicators that have a loading factor value of less than 0.5 must be reduced. The results of the study are seen in table1 as follows.

Table 1. Convergent Validity

Variable	Items	Original Sample	Results
Management (X1)	X1.1	0,671	Valid
	X1.3	0,882	
	X1.19	0,778	
	X1.22	0,724	
Law & Licensing (X2)	X2.1	0,874	
	X2.2	0,860	
Finance (X3)	X3.1	0,970	
	X3.2	0,748	
Technical Aspects (X4)	X4.3	0,962	
	X4.6	0,760	
K3l (X5)	X5.1	0,965	
	X5.2	0,951	
Social (X6)	X6.1	0,918	
	X6.2	0,940	
Contractor Performance (Y)	Y1	0,893	
	Y2	0,876	

Source: PLS Processed Results

Discriminant Validity

The purpose of the discriminant validity test is to evaluate the validity of the indicator block. The results of this test can be seen from the cross-loading between the indicator and its construct, as shown in Table 2. Indicator blocks are considered valid if the value of each indicator that measures a construct variable, or indicator block, is predominantly higher than the value of each indicator that measures other construct variables.

Table 2. Cross Loading

	Management (X1)	Law & Licensing (X2)	Finance (X3)	Technical Aspects (X4)	K3L (X5)	SociaL (X6)	Contractor PerformancE (Y)
X1.1	0,671	0,144	0,391	0,057	0,259	0,078	0,538
X1.3	0,882	0,388	0,722	0,570	0,334	0,571	0,595
X1.19	0,778	0,236	0,713	0,578	0,437	0,643	0,547
X1.22	0,724	0,401	0,609	0,682	0,585	0,725	0,290
X2.1	0,415	0,874	0,204	0,373	0,358	0,405	0,351
X2.2	0,211	0,860	0,142	-0,137	0,097	0,072	0,333
X3.1	0,863	0,288	0,970	0,620	0,508	0,727	0,477
X3.2	0,338	-0,108	0,748	0,571	0,131	0,590	0,173
X4.3	0,484	0,168	0,569	0,962	0,303	0,579	0,272
X4.6	0,617	0,038	0,675	0,760	0,649	0,755	0,115
X5.1	0,423	0,295	0,360	0,280	0,965	0,514	-0,067
X5.2	0,527	0,208	0,511	0,608	0,951	0,672	-0,056
X6.1	0,659	0,256	0,717	0,627	0,665	0,918	0,243
X6.2	0,506	0,264	0,694	0,672	0,487	0,940	0,282
Y1	0,573	0,506	0,229	0,118	-0,033	0,175	0,893
Y2	0,623	0,181	0,551	0,332	-0,083	0,332	0,876

Source: PLS Processed Results

Composite Reliability

The composite reliability of the indicator blocks that measure the construct is an additional check. Construction is considered reliable if the reliability value of the composite is above 0.60 (Nunnaly, in Ghozali, 2012).

Table 3. Composite Reability

Variable	Composite reliability
Management (X1)	0,784
Law & Licensing (X2)	0,671
Finance (X3)	1,293
Technical Aspects (X4)	1,108
K3l (X5)	0,930
Social (X6)	0,856
Contractor Performance (Y)	0,725

Source: PLS Processed Results

Cronbach Alpha

Cronbach's alpha value can be used to reinforce reliability tests that have been performed with previous composite reliability. If the Cronbach alpha value of a variable is greater than 0.6, it is considered reliable or meets Cronbach's criteria. The Cronbach alpha values for each of the following variables are presented in the following Table 4:

Table 4. Cronbach Alpha

Variable	Cronbach's Alpha
Management (X1)	0,769
Law & Licensing (X2)	0,669
Finance (X3)	0,723
Technical Aspects (X4)	0,712
K3l (X5)	0,911
Social (X6)	0,843
Contractor Performance (Y)	0,723

Source: PLS Processed Results

Each research variable's Cronbach Alpha value is greater than 0.60, as can be observed from the test results in the above table. Consequently, these findings demonstrate that every research variable satisfies the criteria for the Cronbach Alpha value, indicating that all variables possess a high degree of reliability..

Average Variance Extracted (AVE)

The results of the AVE test are to test the reliability of the construct variables and determine whether the construct variable has a well-validated discriminant value. The AVE value is considered satisfactory if it is more than 0.5. The results of the AVE test are shown in Table 5:

Table 5. Average Variance Extracted (AVE) Value

Variable	Average Variance Extracted (AVE)
Management (X1)	0,590
Law & Licensing (X2)	0,751
Finance (X3)	0,751
Technical Aspects (X4)	0,752
K3l (X5)	0,917
Social (X6)	0,590
Contractor Performance (Y)	0,783

Source: PLS Processed Results

Inner Model

At the beginning of the PLS model assessment, the R-Square value for each dependent latent variable is checked. The influence of a particular independent latent variable on a dependent latent variable can be assessed by looking at the change in the R-Square value. In structural models, endogenous latent variables have a result of R2 of 0.67 indicating that the model is "Strong", R2 of 0.33 indicating that the model is "Moderate", and R2 of 0.19 indicating that the model is "Weak" (Ghozali, 2014). The output of PLS is shown below: The results of the Inner Model test are shown in Table 6:

Table 6. R-Square Value

Variable	R Square	R Square Adjusted
Contractor Performance (Y)	0.725	0.675

Source: PLS Processed Results

The suitability of the structural model can be seen from the calculation of Q^2 as follows:

$$Q^2 = 1 - [(1 - R1)]$$
$$= 1 - [(1 - 0.725)]$$
$$= 1 - [(0.275)]$$
$$= 0.725$$

Hypothesis Test

The research hypothesis in this study was tested using the Partial Least Square (PLS) method. An image of the suggested PLS model can be found below.

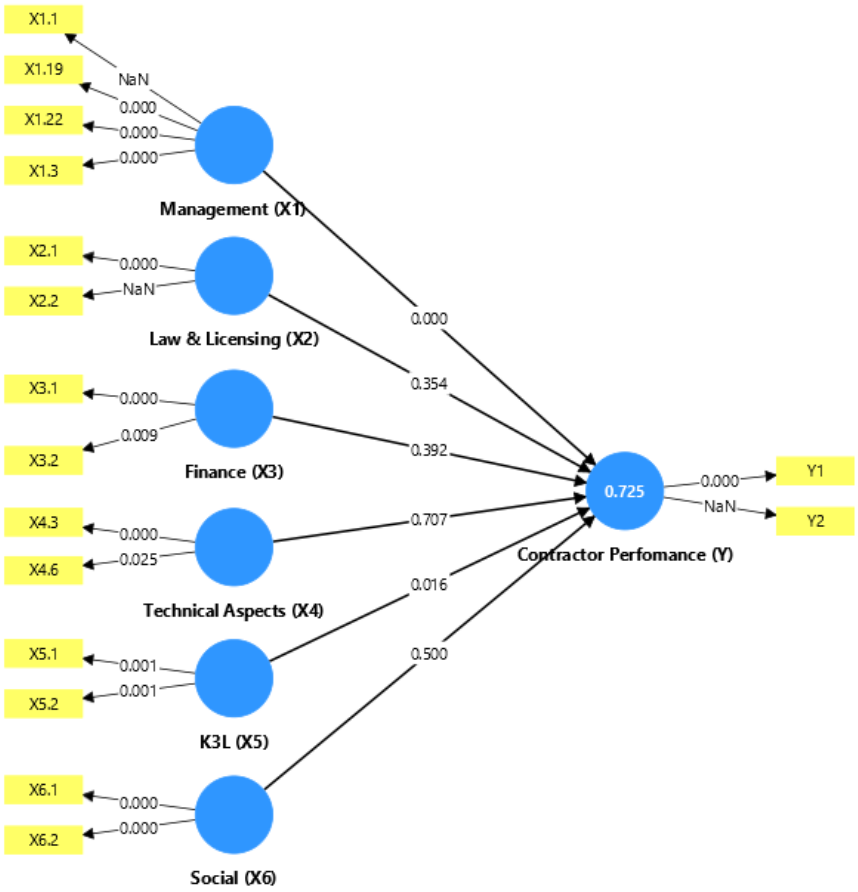

Figure 4. PLS Research Model

Based on the Figure 4, the structural equation can be formed as follows :

$$(Y) = 0.000\ \text{X1} + 0.345\ \text{X2} + 0.392\ \text{X3} + 0.707\ \text{X4} + 0.016\ \text{X5} + 0.500\ \text{X6}$$

Table 7 presents the results of hypothesis testing that show the influence of each independent variable (X1–X6) on the dependent variable, namely contractor performance (Y). Testing is done by looking at the p-value to determine the significance of the relationship between variables. A p-value smaller than 0.05 indicates a statistically significant influence.

Table 7. Hypothesis Testing Results

Hypotehesis	(P-value)
Managerial (X1) -> Contractor Performance (Y)	0,000
Legal & Licensing (X2) -> Contractor Performance (Y)	0,354
Finance (X3) -> Contractor Performance (Y)	0,392
Technical Aspects (X4) -> Contractor Performance (Y)	0,707
K3L (X5) -> Contractor Performance (Y)	0,016
Social (X6) -> Contractor Performance (Y)	0,500

Source: PLS Processed Results

Based on Table 7 above, the following hypothesis results:

1. Managerial variables have a significant effect on contractor performance (P-value 0.000 < 0.05).
2. Legal and Licensing variables did not have a significant effect on contractor performance (P-value 0.354 > 0.05).
3. Financial variables had no significant effect on contractor performance (P-value 0.392 > 0.05).
4. The Technical Aspect variable had no significant effect on the contractor's performance (P-value 0.707 > 0.05).
5. The K3L variable has a significant effect on the performance of the contractor (P-value 0.016 < 0.05).

Discussion

The results of this study show that several independent variables, such as managerial (X1) and K3L (X5), have a significant effect on contractor performance (Y), while other variables such as law & licensing (X2), finance (X3), technical aspects (X4), and social (X6) do not show a significant effect. This is consistent with some findings from previous studies that suggest managerial factors and safety (K3L) often play a key role in improving organizational performance. For example, Ghozali (2014) found that the role of managers in resource management and safety policies can improve project performance. However, the unexpected findings are the lack of significant effects from financial variables and law & licensing, which have not shown a direct impact. Previous studies, such as those by Smith et al. (2017), showed that regulation and proper financial management can improve performance in construction projects. The absence of a significant relationship may indicate that external factors such as regulations or available funding are not yet strong enough to directly impact contractor performance.

The theoretical implications of these findings highlight the importance of reassessing the theoretical models used in previous research, especially those focusing on the direct influence of factors such as law & licensing or finance on performance. These findings suggest that while these factors were expected to have a large influence, their impact may be more indirect or reduced by other variables, such as management and safety. In the context of education management, this suggests that the approach to managing training or professional education programs for contractors should focus more on developing managerial skills and knowledge related to safety, rather than just focusing on legal or financial aspects.

The practical implications for education management are the importance of designing training programs that emphasize stronger managerial and safety skills in the construction world. These programs should consider risk

management, internal policies focused on improving managerial quality, and training on the importance of workplace safety. Therefore, educational institutions, especially those focused on engineering or construction, should incorporate broader modules related to project management, leadership, and safety into their curriculum. Furthermore, emphasizing the importance of managing contractors with a focus on efficient and safe performance can have a significant impact on reducing safety issues on-site.

In this regard, the finding that K3L (safety and health) has a significant effect on contractor performance can be used to strengthen education in workplace safety in the construction sector. Education that includes best practices in K3L will equip contractors with the skills needed to prevent workplace accidents and improve project efficiency. Additionally, this finding reminds us that, although external factors such as legal regulations and finances are important, they may not directly affect performance without the support of good management and well-implemented safety policies.

In conclusion, these findings provide valuable insights for education practitioners in designing more effective curricula to prepare professionals in the construction field. By focusing on key factors that have been shown to have a significant impact, such as management and workplace safety, education programs should emphasize practical skills and a deeper understanding of these aspects, rather than just theoretical knowledge or existing regulations. This also opens up opportunities for further research to explore the relationships between other variables that may play a role in improving contractor performance.

CONCLUSION

This study revealed that managerial factors have a highly significant impact on contractor performance in the Precision Building 2 Trunojoyo Project in South Jakarta, with a P-value of 0.000. This shows that effective management in terms of planning, organization, and supervision is crucial for achieving optimal work results. On the other hand, factors such as legal and licensing, finance, technical aspects, and social aspects did not show significant effects on contractor performance. This provides the lesson that although these factors are important, they do not directly contribute to the quality of the work. One factor that did show a significant influence was K3L (Occupational Safety and Health), with a P-value of 0.016, indicating that safety and compliance with safety standards significantly affect the smooth running of the project and the quality of the work produced.

The scientific contribution of this study lies in providing a deeper understanding of the factors influencing contractor performance, particularly in the context of construction projects in Indonesia. The findings offer important

insights for project managers and policymakers to focus more on managerial management and safety aspects, while other factors may require more specific approaches. However, this study has limitations, particularly in terms of generalizing the findings, as it focuses solely on one specific project in South Jakarta. Therefore, future research can expand the scope to include more projects with different contractor characteristics and locations, in order to strengthen the findings and provide broader insights into the factors affecting contractor performance in various contexts.

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