

Performance Analysis of the Supervising Consultant on the Banjarbaru-Batulicin Trans-Regional Road Project

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Abstract: This study discusses the performance of supervisory consultants on the Banjarbaru - Batulicin cross-road construction project at the PUPR Office of South Kalimantan Province. Implementation obstacles are increasing, requirements are becoming more extensive, space for movement is increasingly limited, challenges of unavoidable land conditions, problems of limited funds, time and level of professionalism of implementers, problems of making the available resources effective, problems of discipline, level of accuracy, and various other problems that are challenges that must be overcome, accommodated, considered, regulated and secured in its implementation. In contrast to previous research which is general in nature, this study focuses on supervisory consultants on the Banjarbaru - Batulicin cross-road construction project at the PUPR Office of South Kalimantan Province with the aim of identifying the most influential factors and formulating improvement strategies. This research was conducted using the Spearman's rank correlation coefficient, then continued with the Customer Satisfaction Index (CSI) test to determine the level of satisfaction of the Supervision Consultant's performance on the Banjarbaru - Batulicin Cross-Road Construction Project, then tested with Importance Performance Analysis (IPA) to find out which indicators are in the main priority category that need attention because they show the lowest quadrant. After 3 indicators of supervisory consultant performance satisfaction were tested using the Customer Satisfaction Index (CSI) and obtained a "Satisfied" result for the 3 indicators, then continued testing with Importance Performance Analysis (IPA) to obtain 4 variables that entered quadrant A and the main priority of the strategy to improve the strategy is the variable of work method supervision in construction implementation. The right strategy to improve the performance of the Supervision Consultant on these variables is a. Periodic control using the weekly schedule control method, acceleration through the Show Cause Meeting (SCM) mechanism and the application of a seasonal adaptive schedule.

Keywords: Supervision Consultant, Highway Project, Performance Expectations, Performance Satisfaction, Improvement Strategy.

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I. INTRODUCTION

Roads are a fundamental spatial infrastructure that forms the basis for the movement of goods and people to meet economic and social needs. In South Kalimantan Province, the regional road network plays a central role in connecting commercial centres with potential industrial areas. However, various challenges on the ground often hinder the achievement of optimal road quality. The complexity of geotechnical soil conditions, extreme weather fluctuations, limited regional budgets, and issues regarding the discipline of construction service providers constitute a series of

tangible obstacles to physical construction work carried out under the auspices of the South Kalimantan Provincial Department of Public Works and Spatial Planning (PUPR).

To anticipate deviations in quality, cost and project duration, the presence of a supervisory consultancy team is essential.

The supervisory team acts as an extension of the Technical Activity Implementation Officer (PPTK) to ensure compliance with all technical and administrative clauses set out in the contract documents.

The Banjarbaru–Batulicin Trans-Regional Road construction project is a key focus of this study. This 104-km alternative route is projected to reduce journey time from the original 6 hours via the existing national road to just 3.5 hours. In the 2024 financial year alone, the government has allocated funds totalling Rp 217,034,360,000.00, divided across six construction work packages. Although all packages were physically connected by the end of 2024, a technical evaluation revealed ongoing issues with road geometry, a lack of safety facilities, and the presence of three critical points requiring intensive repairs during the 2025–2026 period. Weak on-site supervision is believed to be one of the factors contributing to these shortcomings. Consequently, an in-depth evaluation of the performance of the supervision consultants on this road section is urgently required.

II. METHODS

➤ Research Framework and Sample

This study employed a descriptive quantitative approach using a structured questionnaire. Primary data was collected through purposive sampling, involving a total of 30 expert respondents directly involved in the Banjarbaru–Batulicin road project. The composition of the respondents included internal staff from the South Kalimantan Provincial Public Works and Public Housing Agency (Head of Agency, Head of the Road Development Division, Project Implementation Unit, and Site Supervisors), experts from the Project Management Consultancy (KMP), and representatives of the Main Contractor. Secondary data was collected from the Terms of Reference (ToR), the Contract Quality Plan (CQP), and the project's monthly reports.

➤ Design of the Evaluation Instrument

The questionnaire was designed by dividing the assessment aspects into three main variables, which were further broken down into 18 operational indicators:

- **Administrative Variables (A.1 – A.5):** These cover the validity of personnel qualifications, work experience records, compliance with reporting requirements, documentation, and medical check-up.
- **Work Method Supervision Variables (P.1 – P.6):** Measure on-site attendance, supervision of laboratory tests, monitoring of the timetable, health and safety compliance, and financial absorption.
- **Technical Competence Variables (K.1 – K.7):** Assessing communication skills, design review, accuracy in calculating measured volumes, and the preparation of CCO documents in the face of on-site challenges.

Respondents provided dual ratings for each indicator using a 1–5 Likert scale to assess the degree of 'Importance' and the actual level of 'Performance Satisfaction' in the field.

III. RESULTS

The characteristics of the respondents indicate a high level of competence to provide objective assessments. In terms of organisational background, 43 per cent were from the South Kalimantan Public Works and Public Housing Agency (Dinas PUPR Kalsel), 37 per cent were from project management consultancy firms, and 20 per cent were from contractor management. In terms of professional experience in the field of road construction, the majority of respondents had more than 10 years' service (33% had 10 years' experience and 37% had 15 years' experience), with educational qualifications dominated by Bachelor's degree holders (80%) and Master's degree holders (20%).

Instrument validation was carried out to ensure the validity of the data before proceeding to the satisfaction modelling stage.

- **Validity Test:** Spearman's rank correlation coefficient was used, with a significance threshold of $P_value < 0.05$. The results of the SPSS calculations showed that all indicators in the expectations and satisfaction questionnaire had P_values ranging from 0.000 to 0.016, meaning that all instruments were deemed valid.
- **Reliability Test:** Using Cronbach's alpha (α) with a minimum acceptable threshold of 0.60. The expected reliability values ranged from 0.793 to 0.855, whilst the satisfaction reliability values ranged from 0.785 to 0.896. As all α values were greater than 0.60, the instrument was assessed as having high reliability.

➤ Quantitative Analysis of Customer Satisfaction (CSI)

The Customer Satisfaction Index is calculated separately for each macro variable by determining the Mean Importance Score (MIS), Mean Satisfaction Score (MSS), Weight Factor (WF) and Weighting Score (WS).

➤ Analisis Indeks Kepuasan Administrasi (CSI-A)

Based on the summary of the questionnaire data, the highest average expected score was for the indicator on regular health checks (A.5), with a MIS value of 4.200. Conversely, the lowest actual performance was observed in the fulfilment of proficiency certificates and physical documentation of packages. The mathematical calculation of the CSI for the administrative aspect is presented in the following table:

Table 1 The Mathematical Calculation of the CSI

Code Administrative Performance Indicators	Code Administrative Performance Indicators	MIS	MSS	WF (%)	WS
A.1	Alignment of staff education with Competency Standards (SKK)	3,833	3,933	19,426	76,408
A.2	Alignment of professional qualifications and experience	3,767	3,800	19,088	72,534
A.3	Compliance with work reporting procedures	4,167	3,867	21,115	81,644
A.4	Ability to document project packages	3,767	3,800	19,088	72,534

A.5	Staff medical check-ups (MCU)	4,200	3,800	21,284	80,878
Total		19,733	19,200	100,000	383,998

$$CSI_{\text{Administration}} = \frac{383,998}{5} = 76,800\%$$

- Interpretation: An index score of 76.800% indicates that the supervisory consultant's administrative performance is rated as 'Satisfactory'. The orderly nature of internal administration has proven capable of supporting structured periodic reporting.

➤ *Analysis of the Work Method Supervision Satisfaction Index (CSI-P)*

On-site monitoring variables are of crucial importance in the early detection of defects in road pavement structures. The results of the CSI calculations are set out below:

Table 2 The Results of the CSI Calculations

Code	Monitoring Indicators for Working Methods	MIS	MSS	WF (%)	WS
P.1	Support for laboratory and field testing	3,933	4,133	16,298	67,366
P.2	Monitoring of time and progress (time schedule)	4,200	3,500	17,403	60,912
P.3	Quality control of construction works	4,133	3,933	17,127	67,366
P.4	Monitoring the implementation of occupational health and safety (K3)	3,800	3,733	15,746	58,785
P.5	Monitoring the progress of budget utilisation	3,867	4,200	16,022	67,293
P.6	The consultant's physical presence at the project site	4,200	4,200	17,403	73,094
Total		24,133	23,700	100,000	394,816

$$CSI_{\text{Supervision}} = \frac{394,816}{5} = 78,963\%$$

- Interpretation: The final result of 78.963% places the method supervision variable within the 'Satisfactory' category. High levels of physical presence (P.6) and the smooth flow of financial absorption (P.5) are factors that reinforce the reliability of supervisory performance.

➤ *Analysis of the Technical Capability Satisfaction Index (CSI-K)*

Technical competence reflects the intellectual capacity of the supervision consultancy staff to resolve issues relating to geometric and design deviations on site. The results of the CSI data extraction yielded a cumulative index score of 77.412 per cent, which falls within the 'Satisfactory' category. The consultants were assessed as being responsive

in reconciling operational measurement data with the department's monitoring team.

➤ *Mapping Priority Factors Using the IPA Method*

Although the aggregate CSI results indicate general satisfaction, spatial analysis using Importance Performance Analysis (IPA) has identified specific, hidden areas of weakness. Using the average cut-off points on the expectation axis ($\bar{Y}$) and the performance axis ($\bar{X}$), the distribution of indicators is plotted on a Cartesian coordinate system. The main focus is on Quadrant A (Concentrate Here), which indicates factors with high expectations but below-average performance.

- *Administrative Priorities*

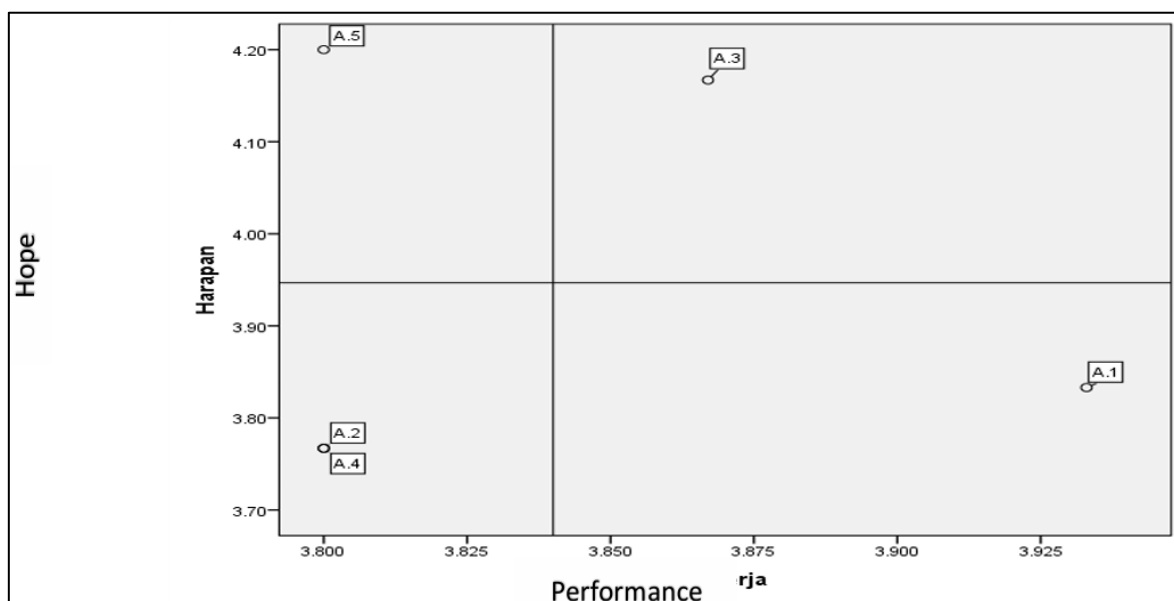


Fig 1 Diagram of the Administrative Importance-Performance Analysis

✓ **Quadrant A**

The indicators in this quadrant are the top priorities for performance improvement, as they have a significant impact on the administrative performance of the supervising consultant on the Banjarbaru–Batulicin Trans-Road construction project. Following an IPA analysis, the indicators falling within this quadrant include:

- *Priorities for Monitoring Working Methods during Construction*
- Medical Check-up (MCU) for supervisory consultancy staff (A.5)

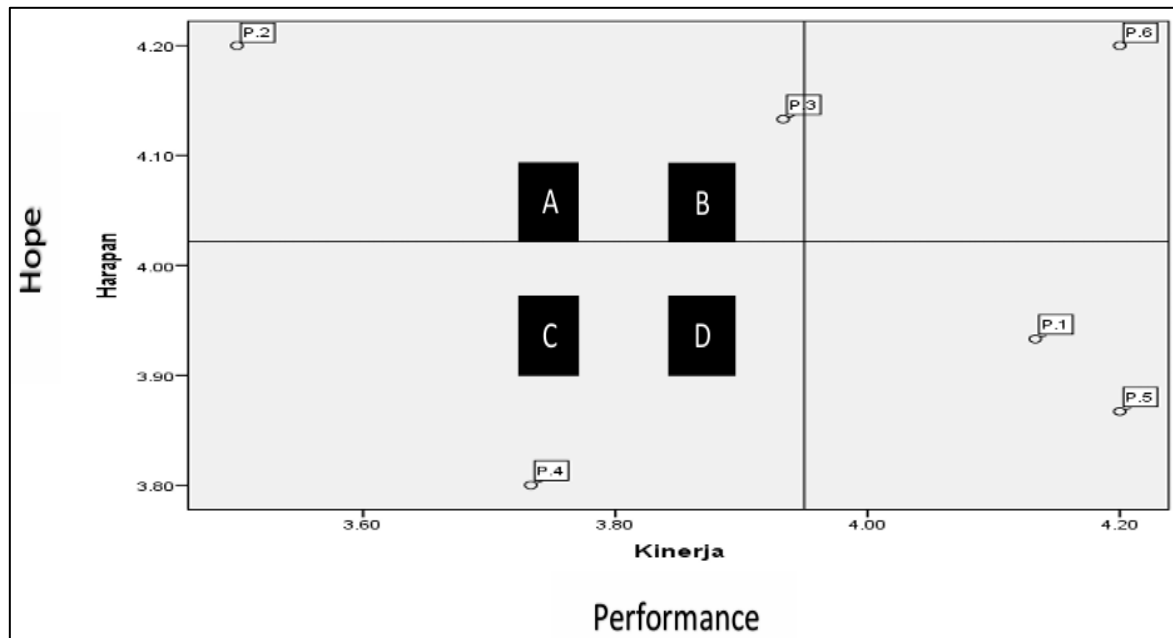


Fig 2 Diagram of the Importance-Performance Analysis for the Supervision of Working Methods in Construction

✓ **Quadrant A**

The indicators in this quadrant are the top priority for performance improvement, as they have a significant impact on the supervision of working methods during the construction phase of the Banjarbaru–Batulicin Trans-Road project, as carried out by the supervision consultant.

Following an IPA analysis, the indicators falling within this quadrant include:

- Monitoring of time and work progress (Time Schedule) (P.2)
- Monitoring of construction quality (P.3)
- *Priority of Technical Skills*

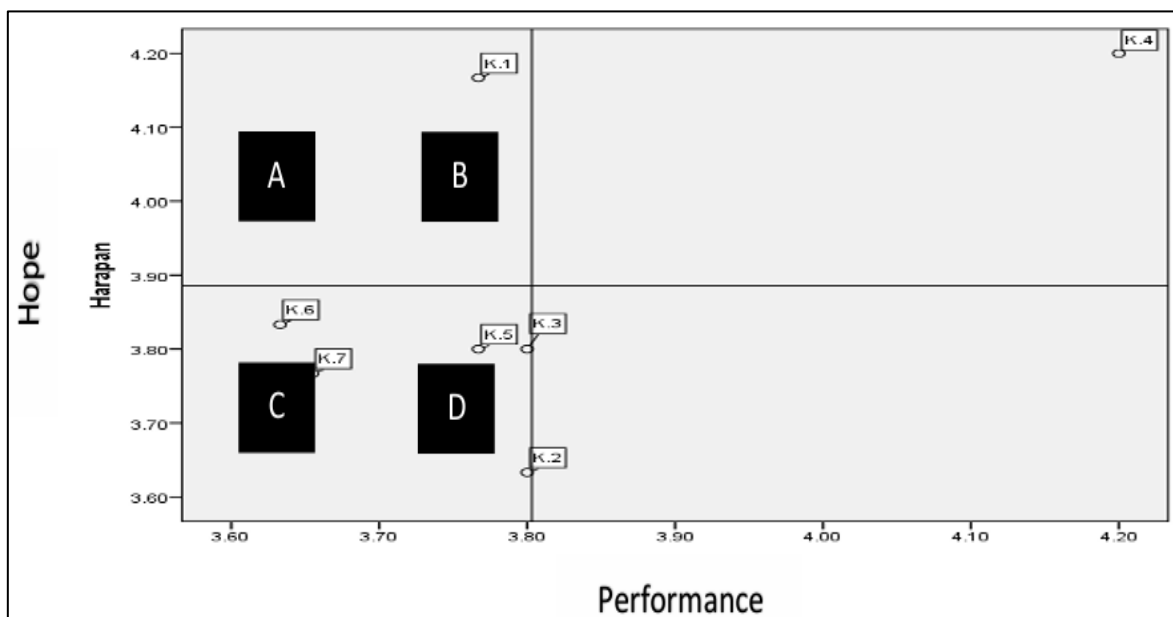


Fig 3 Importance-Performance Analysis Diagram for Technical Capabilities

✓ *Quadrant A*

The indicators in this quadrant are the top priorities for performance improvement, as they have a significant impact on the technical capabilities of the supervising consultants on the Banjarbaru–Batulicin Trans-Road construction project.

Based on the IPA Quadrant visualisation, four key variables were identified in Quadrant A that require urgent intervention:

- Monitoring of Time and Work Progress / Time Schedule (P.2): Respondents demanded adherence to the schedule whilst the through-road completion target was being met; however, the consultants were deemed to have been insufficiently firm in identifying delays on the part of the contractor.
- Communication and Coordination Skills (K.1): There is a technical information bottleneck between the project management (department), the supervising consultant, and the on-site construction team.,
- Diligence in Ensuring Quality in Accordance with the RKS/KAK (K.6): There is a lenient tolerance for road

Following an IPA analysis, the indicators falling within this quadrant include:

- ✓ *Ability to Communicate and Coordinate with the Project Owner, Service Providers and Site Workers (K.1)*
geometric tests in steep hilly areas, which risks triggering premature damage to the asphalt pavement.
- Regular Health Checks / Medical Check-ups for Personnel (A.5): The high workload in remote areas leads to physical fatigue amongst supervisors, which reduces the thoroughness of on-site inspections.

➤ *Strategies for Improving the Performance of Supervising Consultants*

To address the weaknesses in the four variables in Quadrant A, three pillars of a comprehensive strategy have been formulated, which have been validated through in-depth interviews with the Head of the South Kalimantan Provincial Public Works and Public Housing Department and the Chair of the Project Management Consultancy (KMP):

Table 3 Draft Strategy

No.	Indicator	Respondent's Recommendation		Strategies required by researchers
		Head of PUPR South Kalimantan Provincial	Project Management Consultant Expert	
1	Monitoring of Time and Work Progress (Time Schedule) (P.2)	Closely monitor and prioritise progress against the schedule to ensure the project does not suffer a domino effect of delays caused by protracted logistical mobilisation challenges, extreme weather and site conditions.	Prioritise time management, as the longer a project runs over schedule, the higher the operational costs incurred. There is also the risk of material cost escalation, which is susceptible to market price rises (inflation).	Implement a structured weekly schedule monitoring method to detect early deviations. In the event of a delay, immediately convene a Show Cause Meeting (SCM) and draw up an action plan to speed up progress. Draw up a seasonally adaptive schedule
2	Medical Check-up (MCU) for supervisory consultancy staff (A.5)	Include the cost of medical check-ups (MCU) for supervisory consultants in the HPS so that the consultancy firm allocates funds for regular check-ups. This is important to mitigate the risks posed by elderly staff or those with comorbidities, which could disrupt field supervision.	It is recommended that, where the budget is limited, health checks should focus on critical illnesses and comorbidities that most frequently trigger emergencies in the field. In addition, a strict shift rota is required to prevent extreme fatigue, and replacement staff should always be on standby in the event that a team member falls ill.	Include MCU cost components as mandatory items (Non-Personnel Costs) in the HPS preparation package for forthcoming tender packages. Require service providers to attach the results of health screenings, at a minimum for key personnel, when submitting technical proposals. Implement a fatigue management system and procedures for the rapid mobilisation of replacement personnel.
3	Ability to communicate and coordinate with project owners, service providers and site workers (K.1)	Establish an effective, regular coordination forum, utilising daily tactical meetings via online groups to respond swiftly to issues arising on site, as well as weekly meetings to review work progress and discuss potential risks and obstacles, so that preventative measures can be taken	Engaging senior Project Management Consultants (PMCs) to provide direct coaching and support to field staff in order to speed up decision-making.	Establishing a regular coordination forum, Holding weekly meetings Involving senior consultant experts (KMP) to provide direct guidance and support to field staff in order to speed up decision-making

		immediately before the project is delayed.		
4	Quality Monitoring of Construction Works (P.3)	Daily, weekly and monthly reports must be prepared in a clear and comprehensive manner, complete with appendices and field documentation, as the primary control mechanism for ensuring the physical quality of the road.	There must be evidence that the materials have been checked before work commences on site.	There must be evidence of checks. Implement a quality clearance system ('no check, no work') and apply strict standardised procedures for requests for work (RFI). Construction must not commence until the supervising consultant has signed the material approval sheet (evidence of laboratory tests/inspections) Systematic reporting must be required, accompanied by material inspection logs and photographic documentation (geotagged).

➤ *Regular Monitoring Using a Weekly Control Schedule*

Supervising consultants are required to change the progress monitoring scheme from monthly to strict weekly evaluations. Any negative deviation on the S-curve exceeding 1 per cent in a single week must be immediately followed by the issuance of an internal Warning Letter (SP) and written corrective instructions. This control also includes the obligation to carry out weekly joint surveys to minimise discrepancies in the calculation of work volume measurements.

➤ *Acceleration Through the Show Cause Meeting (SCM) Mechanism*

Should delays persist to the extent that they trigger a critical deviation (minus 5 per cent during the 0–70 per cent implementation period), the supervising consultant is obliged to recommend to the Authorising Officer (PPK) that a Level 1 Show Cause Meeting (SCM) be convened. During the SCM, the consultant acts as a technical auditor, reviewing the contractor's proposed test cases to ensure that any increase in labour, equipment, or overtime is realistic and does not compromise the quality of the road pavement.

➤ *Implementation of a Seasonal Adaptive Schedule*

Soil and weather conditions along the Banjarbaru–Batulicin corridor are highly variable, particularly in the hilly sections prone to landslides and in wetland areas. The consultant must implement a seasonal adaptive schedule, namely a strategy to massively increase the volume of sub-base works (compacted fill and aggregate foundations) during the dry season, as well as to complete road drainage works in advance of the rainy season in order to protect the prime coat from damage caused by surface runoff.

IV. CONCLUSION

- The project owner's level of satisfaction with the performance of the supervisory consultant on the Banjarbaru–Batulicin Trans-Road Construction Project generally falls within the 'Satisfied' category, with a CSI

index of 76.800% for Administration and 78.963% for Supervision of Work Methods.

- Based on the IPA matrix analysis, the key priority factors (Quadrant A) that require urgent improvement include time schedule supervision, coordination and communication skills, the rigour of RKS quality enforcement, and the management of field personnel health.
- The operational strategies formulated and deemed valid are the implementation of integrated weekly progress checks, the early activation of SCM mechanisms to address delays, and operational flexibility through seasonally adaptive scheduling.

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