

Critical project manager competencies in managing highway projects in West Sumatera - Indonesia

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Abstract. The Highway development projects currently being implemented in West Sumatera, Indonesia is important in increasing the competitiveness in the country's economy. At the same period, it will also give a positive impression such as being able to reduce the cost of transportation, increase the quality of life, the value of use and labour productivity. The project managers play an important role in the success of the project. There is a consensus that project managers increase the likelihood of project success even though their projects face major problems. In this paper, the focus is on identifying the competency of Highway Project Managers in West Sumatera in carrying out the Project Management concept that leads to project success. Based on that and in accordance with this study, the approach used in data collection and processing is a qualitative approach. The results of the factor analysis are shown to experts, to establish that all these factors are important in development the performance of a project managed by the Project Manager. The results of the factor analysis derive 31 factors that are validated by the experts. And all these factors are crucial in determining the performance of the Project Manager.

1. Introduction

Currently of Highway development projects in West Sumatera, Indonesia is considered as a critical step towards increasing the competitiveness in the country's economy. The projects bring a lot of positive impact to the wellbeing of the people such as reduced transportation cost, increased quality of life, enhanced value of use and increased labour productivity.

In general, majority of road construction projects in West Sumatera area have completed within specified timing, schedule and scope. In term of time performance, the implementation of these road projects can be said to be successful as the projects completed within the specified timeframe and schedule [1]. However, in term of quality performance, the road construction projects were considered unsuccessful as most of the completed projects had problems that can be linked with poor quality of work. National audit investigations conducted [2], found that many roads were damaged due to issues related incompetency and quality that were below the prescribed standard. Therefore, measuring the success of a project is no longer just a measure of the success of a project management that is usually measured in terms of time, cost and scope of work or known as the iron triangle. But the success of a project must be measured by the overall outcome of the project [3]. The success criteria of a project must be seen in some aspects including time, cost, quality, customer appreciation, project team member, user, partner and stakeholder [4]. The success of a project is the effort made in achieving the best performance and fulfilling the desired results.



In road projects, project managers play an important role in ensuring the success of the project. There are studies showing that efficient project managers increase the probability of success of the project even though their projects face major problems [5, 6, 7]. However, project managers must know their roles and responsibilities, and the core competencies they need to have.

Project Management Institute defines the project manager as the person responsible for meeting the goals and targets of the project [8]. The project manager is a businessman, psychologist, accountant, and a technician [9]. It should be personally knowledgeable about the technical aspects of the project as well as possesses the ability to achieve the goal by effectively directing the project team member, [10] shows that project managers seem to be involved in acting rather than executing valid behaviour throughout their projects. Similarly, [11] point out that project managers are actors in the context of project management and they wear outfits in front of viewers who are project stakeholders.

A project manager should have a core competency that allows him to properly manage the project to achieve its objectives and results successfully. Recently, there has been an emphasis being given in the study of project manager’s competency from the customers and government perspectives. In line with this trend of study [12] identifies the core competencies of project managers in order to improve their performance. [6] highlight that the critical factors of project success are difficult to measure. Also, [13] concluded that the project manager's efficiency is a major factor affecting project output. Furthermore, organizational success depends on their competent staff [14]. In addition, successful project managers are dependent on the project manager's efficiency [15, 16, 17, 18]. In this paper, the focus is on identifying the competency of Highway Project Managers in West Sumatera in carrying out the Project Management concept that leads to project success

2. Research Methodology

In this study the qualitative approach had been selected. The subjects in this study were road construction project stakeholders in West Sumatra who have direct involvement in projects completed within the last 5 years, with project value of more than 5 Billion Rupiah. The targeted main stakeholders were Consultants, Contractors and Project Owners. Respondents were selected based on proportional sampling or sample determination based on the objectives of the study. The main criteria for selecting the respondents were based on levels of education and experience.

In the first stage, interview surveys were carried out involving 15 Project Managers from 3 related agencies involved in the construction of highways in West Sumatra, i.e. Project Owners, Consultants and Contractors. The respondents were asked what problems they faced in carrying out their work in relation to competencies of Project Managers. The results of the responses from the Project Managers had been arranged according to frequency of responses for further confirmation by the experts.

In the second stage, interview surveys were also carried out involving 15 Project Managers from 3 related agencies involved in the construction of highways in West Sumatra, namely from Project Owners, Consultants and Contractors. The respondents were asked to give opinion on the critical competencies of Project Manager that had been gathered through a thorough review of literature. The results of the responses from the Project Manager were also arranged based on frequency of responses.

3. Data Collection and Analysis

The first stage is to take factors from 3 (three) Project Management Development Books, namely PMCD (PMI), ICB (IPMA) and ACF (APM). Then proceed with taking the Project Management Competency factor from SKKNI (Indonesia). From the two groups of frameworks, a table of comparison competency factors was made. The second stage is take data from Competency factors of fifteen (15) Highway Project Manager in West Sumatera (see table.1)

Table 1. Project Manager’s Competencies for Projects Implemented in West Sumatera

No.	Competencies Identification	Knowledge	Performance	Personal
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Method				
1.	Opinion on PM Competency Related Problems	-Contract Administration -Technical Specifications -Design Drawing -Late Equipment -Inadequate Equipment -Equipment Trouble -Late Material -Material resources -Quality of Material -Experts Availability -Personal Experience -Labour expertise -Bad Cash flow -Initial Cost -Budget Allocation	-Initial Land Acquisition -Acquisition Handling -Remote Area -Site Obstacle -Rainfall -Inadequate Initial Survey -Inadequate Schedule Planning -Lack of Work Method -Resources Allocation -Social Issues	-Personal Leadership
2.	Opinion on Critical Competency	-Contract Understanding -Project Aims -Initial Planning Detail -Detail Scope -Sponsorship -Procurement Process -Realistic Schedule -Vendor quality -Project Team -Inadequate Resources -Price increase of material -Quality Issues -Safety Programs -Realistic Cost Estimation -Inadequate Budgetary -Financial Supporting -Cost Increase -Risk Mitigation -Owner's Involvement -Stakeholder Commitment -Project Ownership -Client Satisfaction -Owner Consultation	-Training & Briefing -Top Management Supporting -Project Size & Complexity -Specific of Project -Project Mission -Acquisition Issues -Regulation Understanding -Project Standards -Project Permits -Site Condition -Project Accessibility -Management Effectivity -Realistic Aims -Drawing Completion -Organization Structure -Failure Possibility -Political Stability -Environmental Issues -Information Availability -Performance Assessment -Technical Assignment -Monitoring Effectivity -Product Certification	-Management Competence -Good Communication -Strong Business Concept -Leadership -Soulless -Technology Understanding -Methodology Expertise -Project Team Ability -Performance Rewards -Problems Solving -Execution Policy -Project Team Motivation -Feedback Effectivity

Referring to the competency factors and critical success factors shown in Table 1 above, it can be found against the 11 items specific problems of competency factors of Highway Project Manager in West Sumatera (Table.2) while those factors not available in the previous study as summarised in Table.3:

Table 2. Classification of new competency factors

No.	Problems factor of competency
1	Inadequate equipment
2	Administration & Contract understanding
3	Expert availability
4	Safety devices availability
5	Labour availability
6	Awareness to the stakeholder
7	Response to the notification
8	Engineering Drawing revision
9	Inadequate Consumable material
10	Site condition
11	Site location accessibility

Table 3. Summary analysis of competency factors

No.	Kind of competency	Number of factors	Remarks
1	Related problems factors (Q)	31	Q = Questionnaires
2	Critical success factors (PS)	55	PS = Previous Studies
3	Related problems in CSF (RP)	20	RP = Related Problem
4	Specific factors	11	CSF = Critical Success Factors

4. Results and Discussion

Based on project references, delay factors or cost overrun in the construction phase are mostly caused by a lack of competence on the part of project managers. The encourage to improve the project success is one of the reasons why certain stages are passed without adequate define factors. According to several references from the

Project Manager Competency Development Framework, Project Manager Competency which is measured by the compliance of Project Managers toward various stages, where project management concept starting from planning and continuing through the entire life cycle of project. Those concepts must be equipped with problems factors in the method of implementation, proper work equipment and materials that comply with schedule, cost and quality standards. The Project Manager role in the execution process shall be responsible for schedule, cost and quality — thus reviewing a company’s history of Project Manager Competency should be part of selecting a Construction Service Company. The next stage is the comparison stage with competences factor based on Critical Success Factors. In this case, efforts are necessary to find out the standard of competency between International Framework

for Project Manager and Local Standards of Competency. In the last stage, collections are critical success factors to managing the highway project's completion.

Based on data collected from the Project Manager problems and Critical Success Factors of Project Manager Competency and some references within many sources, There are problem factors of Project Manager Competency (Table.1)

Referring to the above problem factors, it is clear that the problem factors of Project Manager Competency are somewhat critical factors in order to manage the progress of project success by the project of completion to the its performance. There is a need for competency development from the Project Managers who play a role in the development of these highway projects, so that the same focus is reminded each other about the competence factors that will require in the infrastructure work place especially in the highway projects. The Construction service company is one of the main executor in this work should be very concern in the competency factors of their project manager that refers to the competency factors that are referred to in the work.

Table 2 shows that out of 31 problem factors, there are 11 problem factors of Project Manager competences that was not available in the 55 critical success of the competency factors in managing Highway Projects in West Sumatera - Indonesia. However, those competences factors of project manager competency was also supported by the process of developing their knowledge and personal competences.

Based on above mentioned, almost all competences factors were related to the successful of project completion using project performance indicators, which must pay attention to the time, cost and quality.

5. Conclusion

According to the description in the section above, the parties involved in the infrastructure work activities seemed must be understand to the meaning of critical success factors starting from the project manager and their related staff who assigned in these projects. Where ever in every activity, they must have concern to the success factors that will achieve and be reminded in the regular meeting, project progress meeting and owner meeting discussion.

Beside that matter, it is quite required that every party involved in regulating and overseeing the performance of national infrastructure in West Sumatera, to conduct many kind of the project manager development and all of his employees in implementing specific project management programs in his/her projects.

In addition, related institutions that play a role in providing competency test certification for Highway Project Managers, to be even more stringent in certifying their ability.

6. References

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