The competency component needed by the Project Manager in managing the Road Project in West Sumatera, Indonesia

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Abstract. Road construction and upgrading projects are currently being intensively implemented in West Sumatra, and this is very important in increasing the competitiveness of the Indonesian economy. During the construction period, it will give a positive impression to be able to reduce transportation costs, use value and labour productivity. In this case, a project manager will play an important role in the success of the project. There are some opinions that a project manager will determine the likelihood of a project success, even though their projects often facing big problems. In this paper, the focus is on determining the competency component of the Road Project Manager in West Sumatra in implementing the Project Management concept that leads to project success. Based on this and in accordance with this study, the approach used in data collection and processing is a qualitative. The results of the factor analysis are shown to the experts, to establish that all of these factors are important in developing the success of the project managed by the Project Manager. The results of the factor analysis obtained 65 combined factors what has been validated by experts. In conclusion, all these factors are important in determining the performance of a Project Manager in West Sumatra.

1. Introduction
Road construction and upgrading projects are currently being intensively implemented in West Sumatra, and this is very important in increasing competitiveness in the Indonesian economy. During the construction period, it will provide a positive impression to be able to reduce transportation costs and labour productivity.

When seen in general, most of the road construction projects in the West Sumatra region are completed within the specified schedule and scope. In terms of time performance means that the implementation of the road project can be said to be successful because the project can be completed within a predetermined time frame and schedule [1]. However, in terms of quality performance, Road construction projects are considered unsuccessful because most of the completed projects still have problems that attributed to poor quality of work. The results of a national audit investigation [2], found facts in the field that many roads were damaged due to problems related to carrying capacity and quality that were below the specified standard.
To determine the success of a project is no longer only measured by the success of a project management which is usually measured in terms of time. But it is also the cost and scope of work, which is also known as the iron triangle. Indeed, for the success of a project must be measured by the overall results of the project and not only can be measured in terms of time alone [3]. Success criteria for a project must be seen in several aspects including time, cost, quality, customer satisfaction, project team members, users, partners and other stakeholders [4]. The success of a project is an effort made to achieve the best performance and meet the desired results.

2. Literature Review
In this case, a project manager will play an important role in the success of the project. There are some opinions that a project manager will determine the likelihood of a project success, even though their projects often facing big problems [5-7].

The Project Management Institute defines the project manager as the person responsible for meeting the goals and targets of a project [8]. The project manager also is an entrepreneur, psychologist, accountant, and technician [9]. He must have personal knowledge about the technical aspects of the project as well as having the ability to achieve goals by directing the project team effectively [10]. In other words, project managers seem to be more involved in acting than carrying out valid behaviour throughout their projects. Likewise, [11] show that the project manager is an actor in the context of project management and they wear clothes in front of the viewers who are all project stakeholders. A project manager must have core competencies that enable him to manage the project well to achieve his goals and results successfully. Lately, there has been emphasis given in the study of project manager competencies from a customer and government perspective. In line with this study trend [12] identify the core competencies of project managers to improve their performance. [6] highlighted that the critical factors for project success are difficult to measure. Also, [13] concluded that project manager efficiency was the main factor influencing project output. Furthermore, organizational success depends on competent staff [14]. In addition, successful project managers depend on the efficiency of project managers [15-18]. In [19], there are several obstacles that can generally occur and become decisive factors in the successful completion of construction projects including financial factors [20], material support factors [21], equipment factors [22], human resource factors [21], company experience for similar contracts [23], managerial and teamwork [24], coordination and communication of contractors [25], legal or contract risk, and weather and environment.

In this paper, the focus to determine the competency component of the Road Project Manager in West Sumatra in implementing the Project Management concept that leads to project success.

3. Research Methodology
In this study the authors chose a qualitative approach. The subjects in this study were the stakeholders of the road construction project in West Sumatra who had direct involvement in the projects completed in the last 5 years, with a project value of more than 5 billion rupiah. The respondents were selected from stakeholders including consultants, contractors and project owners. They were selected based on purposive sampling the determination of samples based on research objectives. The main criteria for selecting respondents were based on their level of education and experience.

In the first stage, an interview survey was conducted involving 15 project managers from 3 related organizations involved in road construction in West Sumatra, namely project owners, consultants and contractors. Respondents were asked what problems they faced in carrying out their work related to the competence of the project manager. The results of the responses from the project manager have been arranged according to the frequency of responses for further confirmation by experts.

In the second stage, it was carried out which collected the critical success factors of the project manager which had been gathered through a thorough literature review. The critical factor for the success of the project manager is that it refers to PMBOK that has been developed by global Project Management researchers.
In the third stage, a combination of problem factors and critical manager success factors was collected through a literature review. All the competency factors of the project manager were brought to several experts to be ratified.

In the fourth stage, all the project manager competency factors are made into a questionnaire. Then the questionnaire was given to 30 respondents, namely the project managers of the road project in West Sumatra.

In the fifth stage, the respondent's answers for all the project manager competency factors were processed and analyzed using SPSS 24.0 to obtain the reliability and validity test value. The results of the processed data analysis factor will be a determining factor for the success of a road project manager in West Sumatra.

4. Data Collection and Analysis
The factors for the project manager of the road project in West Sumatra collected during the first phase and the critical success factors that were gathered in the second phase, can be seen through the following Table 1.

Referring to the competency factors and critical success factors shown in Table 1, it can be found the 66 items critical success of competency factors of road project manager in West Sumatera while those factors not available in the previous study as summarised in Table 2.

5. Discussion and result
Referring to the problem factors in Table 2, it is clear that the problem factors of the project manager's competence are a combination of rather critical factors to manage the progress of the project's success by completing the project to its performance. One factor is that Management Competence is discarded at the request of experts because it is too general and is a dimension of all factors. Therefore, there are only 65 factors left to continue the analysis.

Based on the results of the questionnaire answers circulated and processed the data with the following results:

| Reliability Statistics          |
|--------------------------------|
| Cronbach's Alpha | N of Items |
|------------------|-----------|
| 0.917            | 65        |

For the total respondent data (n) = 30, r table = 0.3061 is available (Table r for Pearson Product Moment) for a significance level of 0.05. The results of SPSS data analysis are not all valid from the value of the validity test (Corrected Item-Total Correlation), namely:
- Contract understanding with a value = 0.196
- Project aims with a value = 0.290
- Project permits with value = -0.330

From the steps of the data analysis results above, it can be seen the results of the data analysis stages as follows:
- The project manager's problem according to the survey was 31 factors
- Critical factors from the literature as many as 55 factors
- Combination factors of competence of project managers are 66 factors
- Initial validation by the expert removes 1 factor, so that the remaining 65 factors
- The results of data processing with SPSS were eliminated 3 factors and the remaining 62 competency factors for road project managers in West Sumatra. These factors were brought back to 3 experts and they agreed.
| No. | Competencies Identification Method | Knowledge | Performance | Personal |
|-----|-----------------------------------|-----------|-------------|----------|
| 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 Cashflow - 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 |
Table 2. Project manager’s competencies for projects implemented in West Sumatera

| No. | Competencies Identification Method | Knowledge | Performance | Personal |
|-----|----------------------------------|-----------|-------------|----------|
| 1.  | Competency Component factors     | - Contract Understanding | - Training & Briefing | - Good |
|     |                                  | - Project Aims | - Top Management Supporting | Communication |
|     |                                  | - Initial Planning Detail | - Project Size & Complexity | Strong Business |
|     |                                  | - Detail Scope | - Specific of Project | Concept |
|     |                                  | - Sponsorship | - Project Mission | Leadership |
|     |                                  | - Procurement Process | - Acquisition Issues | Soulless |
|     |                                  | - Realistic Schedule | - Regulation Understanding | Technology |
|     |                                  | - Vendor quality | - Realistic Cost Estimation | Understanding |
|     |                                  | - Project Team | - Project Standards | Methodology |
|     |                                  | - Inadequate Resources Price increase of material | - Project Permits | Expertise |
|     |                                  | - Quality Issues | - Site Condition | - Project Team |
|     |                                  | - Safety Programs | - Project Accessibility | Ability |
|     |                                  | - Realistic Cost Estimation | - Management Effectivity | -Performance |
|     |                                  | - Inadequate Budgetary | - Realistic Aims | Rewards |
|     |                                  | - Financial Supporting | - Drawing Completion | -Problems |
|     |                                  | - Cost Increase | - Organization Structure | Solving |
|     |                                  | - Risk Mitigation | - Failure Possibility | -Execution |
|     |                                  | - Owner’s Involvement | - Political Stability | Policy |
|     |                                  | - Stakeholder Commitment | - Environmental Issues | - Project Team |
|     |                                  | - Project Ownership | - Information Availability | Motivation |
|     |                                  | - Client Satisfaction | - Performance Assessment | -Feedback |
|     |                                  | - Inadequate Consultation | - Technical Assignment | Effectivity |
|     |                                  | - Inadequate equipment Administration & Contract understanding | - Monitoring Effectivity | |
|     |                                  | - Expert availability | - Product Certification | |
|     |                                  | - Safety devices availability | | |
|     |                                  | - Labour availability | | |
|     |                                  | - Awareness to the stakeholder | | |
|     |                                  | - Response to the notification | | |
|     |                                  | - Engineering Drawing revision | | |
|     |                                  | - Inadequate Consumable material | | |
|     |                                  | - Site condition | | |
|     |                                  | - Site location accessibility | | |

6. Conclusion
According to the description in the section above, the results of this study found 31 items on the problem of the Road Project Manager in West Sumatra. After an extensive literature review 66 competency factors and 65 factors after being validated by experts.
From the results of the factor analysis test using SPSS, the remaining factors are 65 factors which determine the competence of a Road Project Manager in West Sumatra. All these competency factors must be possessed by the Road Project Manager to achieve their successful in managing Road project. Therefore, it is expected that all parties involved in the implementation of the Road project in West Sumatra, in order to pay attention to the Project Manager’s competency factors to be implemented. And for supporting certification bodies to provide certification with appraisal criteria according to the success component of these critical factors.

7. References

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