

THE EFFECT OF PROJECT MANAGER COMPETENCY ON PROJECT TIME PERFORMANCE

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ABSTRACT: Implementation of construction project activities will be well resolved if lead by a Project Manager. The role of the Project Manager is critical to achieving a project's success. However, construction project activities often occur such as those occurring at the Public Works Department of Water Resources of Sidoarjo Regency caused by the lack of expertise possessed by a Project Manager in carrying out its duties and responsibilities to coordinate and integrate all available resources to achieve specific targets of performance time of the project. Therefore, it is necessary to research the competence of project managers such as Conceptual Skills, Technical Skills, and Social Skills. Data collection was done by distributing questionnaires and then processed using SPSS v.20 software. It can be concluded that the three variables affect simultaneously to project time performance. Social Skills Factors is the dominant factor and strategic for improving project time performance that can be done by increasing the social competence of the project manager, especially the ability to explain or present the procedures applied in running the project.

Keywords: Competence, Dominant, Manager, Performance, Strategy

1. Introduction

Technology Science is one of the important factor that affecting the economic growth of a country. The rapid development of science and technology have an impact on the emergence of efforts to promote the acceleration of infrastructure development (Azis and Widodo, 2016). A very important infrastructure development is a development that supports the sustainability of water resources functions including irrigation facilities and flood control. Flooding is one of the natural disasters that frequently occur in many cities in the world (Azis, 2016). In order to decrease flood and increase food stability in Indonesia, the government has allocated development funds in the field of irrigation, which increase from year to year. Development of irrigation is a priority development because if irrigation infrastructure is good then irrigation water supply to paddy field is also good, so it can increase rice productivity and finally it can increase food stability. Implementation of construction project activities in the irrigation field will be completed properly if led by a Project Manager. The role of the Project Manager is critical to achieving a project's success. However, construction project activities often occur such as those occurring at the Public Works Department of Water Resources of Sidoarjo Regency caused by the lack of expertise possessed by a Project Manager in carrying out its duties and responsibilities to coordinate and integrate all available resources to achieve specific targets of performance time of the project.

The implementation of the construction project in Sidoarjo regency is inseparable from the problems of project implementation quality and timeliness of project completion resulting from lack of expertise possessed by project managers in integrating and coordinating all resources owned and fully responsible for the achievement of project objectives. Project Manager requires at least three basic skills. The basic skills are Conceptual Skill is the ability to comprehend an

issue as a whole for the interests or activities of the organization, Technical Skill is the ability to apply knowledge, methods, or specific techniques in a field of science, and Social Skill is self-managing skill and socializing with others, including the mindset, belief system, emotional maturity and self confidence (Katz, 1979). Leadership competency is defined as the ability to organise and rally support of team members in achieving project objective and goals. Intellectual quality refers to one's ability to comprehend and gain an in-depth understanding of concepts (Muller, R., & Turner, R., 2010). This process of comprehension can be enhanced through dynamic systems thinking by establishing the cause, effect and interrelations of elements on any given project. A project manager is effective when he/she is able to manage relations with team members and steers them to perform their tasks (Hartman, F., 2008). Technical competency refers to the ability to strategically and effectively manage risks and resources with direct or indirect effect on the iron triangle, this includes the ability to compile, handover and understand the prescribed processes involved in project execution (Bredin, K., 2008). So far there is no known variables of project manager performance competence that affect the time performance of the project. Therefore it is necessary to analyze the variables of the project manager's competency especially on the project time performance located in the Public Works Department of Water Resources of Sidoarjo Regency.

2. Research Methods

This research method was using statistical analysis. Statistical analysis was done with data collection and tabulation data. The study sample is part of the number and characteristics possessed by that population. Sampling technique in this research using purposive sampling technique. Sampling of population members is done by appointment and attention to strata in the population. The questionnaire is an instrument to obtain information about the respondent's perception of the questions in the questionnaire through a number of written questions and other required data. The questionnaire will be given an explanation of the purpose of research, research benefits and filling instructions to facilitate the respondent. Indicators are shown at Table 1.

2.1. Measurement of Research Variables

To obtain quantitative data about the importance of a factor / variable in the questionnaire, an interval scale is made the scale that shows the distance between one data with another data and has the same weight by giving a score on each answer (Gujarati, N, 1995). For scale that the raw data obtained in the form of numbers is then interpreted in the qualitative sense. In the scale rating model, respondents will answer one of the quantitative answers that have been provided, for example: Answer the numbers: (5 for very good, 4 for good, 3 for neutral, 2 for bad and 1 for very bad).

2.1.1. Test Validity and Reliability

Validity indicates the extent to which a measuring device is able to measure what it wants to measure. Reliability is a term used to indicate the extent to which a measurement result is relatively consistent when the measurement is repeated twice or more.

2.1.2. Factor Analysis

Factor analysis is the analysis used to reduce or summarize a number of variables to be less. In addition, factor analysis also aims to confirm the structure of the factors analyzed by concept or theory, or measure the validity of construct (validity) that shows how well the results obtained from the use to the theory. Another goal of factor analysis is to obtain a measure (in the form of a score) of a latent variable based on several measurable variables.

Table 1 Indicators

X1	Conceptual Skills
X _{1.1}	Building relationships within or outside of the project organization
X _{1.2}	Have a high maturity in good planning in an effort to reduce stress so it can improve the productivity of teamwork.
X _{1.3}	Understand the results of the Environmental Impact Analysis study as the basis for environmental management around the project area
X _{1.4}	Able to make decisions according to organizational rules
X _{1.5}	Able to formulate cost database system (resource planning, schedule planning, and work unit cost analysis) as reference in cost estimation process before project implementation
X _{1.6}	Has the ability to solve problems effectively and efficiently in terms of human resources and environment around the project
X _{1.7}	Commit to carrying out Occupational Health and Safety plan on the project.
X2	Technical Skills
X _{2.1}	Have experience and a thorough understanding of the technical work of the project
X _{2.2}	Determining construction methods that conform to quality standards in accordance with the contract quality plan.
X _{2.3}	Monitoring and evaluating project progress against scope, schedule, and budget and resources involved in it (man, machine, material)
X _{2.4}	Able to formulate work breakdown structure (activity sequence, estimated duration of activity, development and control of schedule)
X _{2.5}	Able to implement construction Manual Standard of Occupational Safety and Health consistently and thoroughly to achieve zero accident.
X _{2.6}	Able to formulate project action plan (resource control, cost control, and time schedule control) in accordance with the cost database system that has been made before
X _{2.7}	Able to apply 7 tools total quality management in solving problems in the field to realize continuous improvement.
X _{2.8}	Able to apply environmental management principles in accordance with project Environmental Impact Analysis documents.
X3	Social Skills
X _{3.1}	Able to communicate with the project team, in this case the project manager provides explanations or presents the procedures implemented in running the project.
X _{3.2}	Strong negotiating skills in bargaining with quiet and clear thinking using strategy and loyalty
X _{3.3}	Able to establish communication with supervisors Occupational Health and Safety who served in the field.
X _{3.4}	Able to maintain maximum performance even in conditions that are less conducive.
X _{3.5}	Has commitment in achieving common goals.
X _{3.6}	Be frank and honest.
X _{3.7}	Have the ability to keep project team solid and vibrant
X _{3.8}	Able to build work discipline.
X _{3.9}	Able to communicate project performance achievements both with project team and owner team.
X _{3.10}	Able to communicate the principles of environmental management to the entire project team in accordance with the project Environmental Impact Analysis document

2.1.3. Linear Regression Analysis

After doing the reduction / summarize the variables into several variables only by using factor analysis, then analyze the relationship between variables X and Y using linear regression analysis.

2.1.4. Multiple Regression Analysis (Multiple Regression Analysis)

Multiple linear regression is a regression analysis that explains the relationship between response variables (dependent variable) with factors affecting more than one predictor (independent variable). In general, multiple linear regression model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon \quad (1)$$

With variable notation:

Y = Performance of construction project implementation

X₁ = Building a relationship / networking inside or outside the project organization

B₀ = constants

B₁ = regression constant X₁

B_n = X_n regression constant

X₂ = problem solving effectively and efficiently in human resource and environment around project

β₂ = regression constant X₂

ε = residual

2.2. Classic assumption test

There is a classic assumption test, ie multicollinearity test, and normality test.

2.2.1. Test of Normal Assumption

Classic normal linear regression assumes that each u_i is normally distributed by:

Average: $E(u_i) = 0$

Variance: $E(u_i) = \sigma^2$

Cov (u_i, u_j): $E(u_i u_j) = 0 \quad i \neq j$

This assumption is briefly biased as: $u_i \sim N(0, \sigma^2)$

Signs ~ means "distributed as" and where N means "normal distributed" element in quotes express two normal distribution parameters, that is, average and variance. For two normally distributed variables the covariance or zero correlation means the two variables are independent (independent). Thus assuming normal (3) means that u_i and u_j are not only uncorrelated but also independently distributed. (Gujarati, N, 1995)

2.2.2. Multicollinearity test

Multicollinearity is a linear relationship between independent variables in a regression model (multiple regression). Indications of multicollinearity are (1) The coefficient of determination (R^2) is high, but none or few independent variables are significant when tested (partial test); (2) By looking at the magnitude of the correlation coefficient between independent variables. The correlation coefficient is quite high, indicating a multicollinearity problem, and preferably a relatively low correlation coefficient, indicating no collinearity in the regression model; (3) If there is multicollinearity it will result in variant regression coefficient becomes large, so the confidence interval will be widened and the probability of regression coefficient becomes insignificant.

2.2.3. Test the Goodness of Fit

Goodness of Fit test is to see the suitability of the model or how big the ability of independent variables in explaining the variance of the dependent variable

2.2.4. Simultaneous Significance Test (Test Statistic F)

To test whether the partial regression coefficients simultaneously or together differ significantly from zero, or whether there is a significant effect of independent variables simultaneously on the dependent variable y, the F test was applied.

2.2.5. Partial Significance Test (Test Statistic t)

To test whether the partial regression coefficients differ significantly (significantly) from zero or whether an independent variable individually affects the dependent variable.

3. Results and Discussion

Number of Respondents are shown at Table 2.

Table 2 Number of Respondents

No.	Position	Number	Percentage
1	Committing Officer	3	6%
2	Technical Implementation Officer Activity	2	4%
3	Acting Officials Results of activities	2	4%
4	Official Procurement of Goods and Service	1	2%
5	Technical Staff	13	26%
6	Supporting Staff	2	4%
7	Consultants	10	20%
8	Contractors	17	34%
	Total	50	100%

Source: Research Results

From the table above, it can be seen the highest percentage of research respondents is from the project executor of 34%. The number and percentage of respondents above will affect the results of statistical analysis of research by using SPSS software version 20.0.

3.1. Validity test

To determine the level of validity, note the corrected correlation number of correlation, which is the correlation between the item score with the total item score (rth value) compared to the r table value. The item is valid by using the distribution of table r for $\alpha = 0.05$ with $df = (N-2)$ to get $r_{table} = 0.279$. Thus it can be concluded that the item statement that measures each research variable can be declared valid.

3.2. Reliability Test

Reliability Test Results are shown at Table 3.

Table 3 Reliability Test Results

VARIABLES	VALUE of CRONBACH'S ALPHA	NOTE
Conceptual Skills (X_1)	0.800	> 0.60 (Reliable)
Technical Skills (X_2)	0.655	> 0.60 (Reliable)
Social Skills (X_3)	0.915	> 0.60 (Reliable)

Source : SPSS Test Results

The result shows that variable of research X1 to X3 is reliable, because of all of alpha coefficient are bigger than 0.60, so it can be concluded that questionnaire in this research can be stated fulfil requirement of questionnaire or reliable.

3.3. Factor Analysis

For the purposes of making correlation matrix then used Kaiser Mayer-Olkin and Bartlett's test and Anti Image Correlation test. The magnitude of KMO is at least 0.5 and if the KMO value is below than 0.5, then factor analysis can not be used. KMO Test Results are shown at Table 4.

Table 4 KMO Test Results

Variable	<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>
X1 (Conceptual Skills)	0.735
X2 (Technical Skills)	0.515
X3 (Social Skills)	0.793

Source : SPSS Test Results

Then analyze the factors of each indicator that are shown at Table 5, Table 6 and Table 7.

Table 5 Factor Analysis Test Results X1

Indicator X1	Comp. 1
X1.5	0.747
X1.6	0.730
X1.4	0.729
X1.7	0.682
X1.3	0.665

Source : SPSS Test Results

Table 6 Factor Analysis Test Results X2

Indicator X2	Comp. 1
X2.2	0.820
X2.1	0.800
X2.7	0.784
X2.5	0.635
X2.4	0.352

Source : SPSS Test Results

Table 7 Factor Analysis Test Results X3

Indicator X3	Comp. 1
X3.1	0.815
X3.7	0.810
X3.4	0.781
X3.6	0.766
X3.8	0.720
X3.2	0.714
X3.3	0.568

Source : SPSS Test Results

After reducing indicator test of each variable X1, X2 and X3, it can be obtained more dominant indicators are X1.5, X2.2 and X3.1.

3.4. Multiple Regression Analysis

Multiple linear regression analysis was conducted to determine the effect of Conceptual Skills (X1), Technical Skills (X2), Social Skills (X3) on project time performance at Department of Public Works Irrigation of Sidoarjo Regency. Multiple Regression Test Results are shown at Table 8.

Table 8 Multiple Regression Test Results

Model	Coefficient
Constants	1.613
X1 (Conceptual Skills)	-0.138
X2 (Technical Skills)	-0.222
X3 (Soft Skills)	0.981

Source : SPSS Test Results

Multiple linear regression model in this research are:

$$Y = 1.613 + (-0.138) X1 + (-0.222) X2 + 0.981 X3 \quad (2)$$

3.4.1. Regression Constants

Constant value is equal to 1.613 meaning that if all independent variables are equal to zero or have an effect, then the prediction value for project time performance is 1.613

3.4.2. Conceptual Regression Coefficient (X1)

Conceptual regression coefficient (X1) value is 0.138, it means that if X1 changes one unit, then Y will change by 0.138 assuming variable X1 and X3 remain. The negative sign on regression coefficient value represents unidirectional / unaffected relationship between X1 and Y, meaning that conceptual skill competence in project manager does not significantly affect the time performance of the project in Sidoarjo District (Public Works Department of Water Resources).

3.4.3. Coefficient of Regression of Technical Skills (X2)

The value of regression coefficient of Technical Skill (X2) is 0.222, it means that if X2 turns one unit, then Y will change by 0.222 assuming variable X1 and X3 remain. The negative sign on regression coefficient value represents unidirectional / unaffected relationship between X2 and Y, meaning that technical skill competence in project manager does not significantly affect the time performance of the project in Sidoarjo District (Public Works Department of Water Resources).

3.4.4. Regression Coefficient of Technical Skills (X3)

The value of coefficient of Social Skills variable (X3) is equal to 0.981, it means that if X3 turns one unit, then Y will change by 0.981 assuming variable X1 and X2 remain. The positive sign on regression coefficient value represents a direct / influential relationship between X3 and Y, meaning that the social skill competence of the project manager influences the project time performance in Sidoarjo District (Public Works Department of Water Resources).

3.4.5. Coefficient of Correlation (R) and Coefficient of Multiple Determination (R Square)

The correlation coefficient (R) indicates the level of strength or ties between the independent variables and dependent variables, whereas the coefficient of multiple determination (R Square) shows the proportion of the overall influence of the independent variable on the dependent variable. The following is the value of correlation coefficient (R) and the coefficient of multiple determination (R Square) resulting from regression analysis. The correlation coefficient (R) of 0.730 indicates that the relationship between the independent variables (concept X1), technical skill (X2), and social skill (X3) on project time performance at Public Works Department of

Water Resources of Sidoarjo Regent (Y) is strong. The coefficient of determination (R^2) of 0.533 means that the proportion of independent variables, conceptual skill (X1), technical skill (X2), social skill (X3) on time project performance at Public Works Department of Water Resources of Sidoarjo Regency (Y) is 53.3%, while the rest of 46.7% influenced by other variables outside the independent variables used in this study.

4. Conclusions

Based on the results of the analysis can be concluded that the three variables of the project manager's competencies are Conceptual Skills, Technical Skills, Social Skills simultaneously significant effect on project time performance. The competency variable of Social Skill is the dominant influence on project time performance especially on indicators able to communicate with the project team. Strategies to improve project time performance can be achieved by improving the social competence of the project manager, especially the ability to explain or present the procedures implemented in running the project.

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