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The Work Commitment of Construction Project Managers in Indonesia Using the Structural Equation Modelling Method

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ABSTRACT

The aims of this research were to determine how much influence the independent variables have on the dependent variable and to identify the variable with the dominant influence on the dependent variable the work commitment of construction project managers. The independent variable is a variable that can affect the value of other variables. The dependent variable is influenced by the independent variable either directly or indirectly. After data collection, the research method used was data analysis using the Structural Equation Modeling (SEM) Amos program. The results showed that the following independent variables have a positive effect on the dependent variable work commitment: leadership, organizational climate, organizational culture, communication climate, trust, work motivation, work experience, salary, and job satisfaction. The variable with the dominant influence on the work commitment of construction project managers was found to be salary. The salary variable is the variable that has the highest influence on work commitment and is a motivator to achieve high performance. Good culture management will encourage the achievement of high productivity and the project can be completed according to plan. The contribution that can be made through this research is that salary is the main need that must receive attention from the company, and is a work motivator to achieve high productivity.

1. INTRODUCTION

Work commitment is a condition in which a person sided with a particular company and its goals. Work commitment is multidimensional and must be managed properly so it is important to pay attention to the development and implications of the various constellations of work commitment [1].

Project managers must recognize the importance of emotional intelligence and their commitment to being able to manage projects successfully [2]. Project managers need to develop competencies that will allow them to lead a team in a stressful environment; thus, the manager's work commitment is crucial to achieving project success [3]. The emotional intelligence of project managers influences project performance through the mediating effect of project commitment [4]. Project managers are a determinant of project success. They positively influence project success through never-ending training and learning [5]. However, it is not enough for just the managers to be committed: their teams must also have strong commitment. The project managers need to develop competencies in team members and commit the teams to project goals [6]. Project managers who have strong work commitment is the key to project success.

One study has shown that one of the most influential factors in construction delays is lack of commitment [7]. Results of this and other studies have shown that when the level of commitment is low, communication is poor, and decision quality is low. On the other hand, when the level of commitment is high, communication is good and so is decision quality [8]. We urgently need public managers who are more committed than ever, more involved than ever, and more effective in their work responsibilities to improve the public sector performance than ever [9]. Having a high level of commitment results in good performance and wise decision making which leads to the achievement of sustainable development [10].

Rewarding people for their achievements can also create a sense of belonging and encourage commitment to work and the organization [11]. There is a close relationship between commitment and organizational climate. This correlation is positive and has been shown in the relationship between organizational climate and organizational commitment in a factory environment in Australia [12].

Good communication and commitment between project managers and their teams affects the success of a project. Managers who engage in frequent, open, and effective communication can improve the commitment to a project and have positive effects on project performance and outcomes [13].

Thus, if the commitment variable is the dependent variable, then communication is an independent variable. A study was conducted on commitment, trust, and leadership and how these affect the development of commitment. This study contributed to the growing literature on the influence of HR management

practices, leadership, and trust on the development of organizational commitment [14]. Leadership and trust are, thus, also independent variables that can affect the dependent variable, commitment. Organizational clarity as an aspect of organizational climate and participation as an aspect of communication climate are significant predictors of the level of commitment of workers to an organization [15].

Thus, if the commitment variable is the dependent variable, organizational climate and communication climate are independent variables. In the completion of a project, a project manager with great commitment needs the support of a positive organizational climate such that project objectives are achieved Organizational climate has a positive relationship with job satisfaction, therefore organizational climate is a key variable to the success of an organization [16]. Studies have been conducted on the interrelationship of job satisfaction and organizational commitment [17]. It was found that the job satisfaction variable has a positive influence on commitment and so is an independent variable that affects the dependent variable of work commitment. In addition to a project manager having a high level of commitment, he or she must be good at communicating to ensure the project will be managed successfully. Project managers who are trusted by the team can get a team to work together and communicate successfully [18]. Project managers must have high commitment to the project, leadership abilities, and skills. The choice of a project manager should emphasize leadership abilities and skills to ensure improved communication that leads to project success [19]. Money is always a good motivator. All employees work for money. A decent salary and good compensation are key factors in satisfying employees [20]. Salary is a key factor to employee satisfaction, job satisfaction affects work commitment, and work commitment affects the success of a project. Therefore, the salary variable has a positive influence on project success. The salary variable does not directly affect commitment but there are indications toward it and so the salary variable has been included as an independent variable in this study.

Local culture plays a very important role in determining the success of a project. In-depth interviews from previous studies have shown that project culture has a significant influence on project performance. The respondents of the study acknowledged that positive and appropriate culture contributed to the success of construction projects [21]. Thus, the organizational culture variable has a positive influence on the success of a project. This variable does not directly affect commitment, but there are indications toward it and so the organizational culture variable has been included as an independent variable. Working on projects requires experience because experienced managers work more optimally to achieve project success. If the members of the team are experienced, they will be skeptical of the project manager's ability to contribute to project success [22].

The experience of the project manager is very important when determining policy and has a positive influence on commitment. Affective commitment is correlated with positive work experience (job satisfaction or training experience) and commitment is further correlated with variables that reflect greater investment. Normative commitment is then correlated with positive work experiences and feelings of obligation toward others [23, 24]. Another study also identified that work values and work experience go hand-in-hand in influencing employee commitment [25].

So, the work experience variable has a positive influence on the success of a project, and the experience variable directly affects work commitment. Therefore, the work experience variable has been included as an independent variable that affects the dependent variable. Motivation pushes the success rate of the project. A study has been conducted that developed a conceptual framework for the synergy between owner motivation and commitment to project success. In addition, this study demonstrated the need for active participation in projects and how active project participation can be increased through motivation in the construction industry [26].

This study uses the Structural Equation Modeling (SEM) method as has been used by Ajayi and Oyedele [27] and Eriksson et al. [28]. This study aims to explore and confirm strategies to achieve efficient procurement of waste materials in construction activities. This study uses a sequential exploratory mixed methods approach as a methodological framework, using focus group discussions, statistical analysis and Structural Equation Modeling (SEM) [27]. A construction project organized and managed by the Swedish Transport Administration, Structural Equation Modeling (SEM) demonstrates exploratory collaboration and encourages learning, which enhances adaptation and thereby improves time performance [28].

Based on the description above, the independent variables can be summarized as: leadership, organizational climate, organizational culture, communication climate, trust, work motivation, work experience, salary, and job satisfaction. The dependent variable of this study is the work commitment of construction project managers. According to previous studies, the independent variables that influence the dependent variable of work commitment are as follows: organizational climate, communication climate, leadership, trust, work experience, and job satisfaction. The independent variables that did not exist in previous studies but have shown indications of influence on the dependent variable of commitment are the organizational culture variable and the salary variable.

Based on the literature above, several factors have been shown to influence the work commitment of construction managers in previous studies, but two variables, namely organizational culture and salary, have not been studied yet. This study aims to determine the factors that influence the work commitment of construction project managers.

2. HYPOTHESIS

The independent variables of leadership (X1), organizational climate (X2), organizational culture (X3), communication climate (X4), trust (X5), motivation X6, work experience X7, salary (X8) and job satisfaction (X9) are hypothesized to affect the dependent variable, that is, the work commitment of construction project managers (Y).

3. MATERIALS AND METHOD

3.1 Population and sample

The population refers to the area that is to be studied, which in this case is the entire area of Indonesia, consisting of Western Indonesia, Central Indonesia, and Eastern Indonesia. The samples taken from Western Indonesia constituted

56.80% or 79 respondents. Central Indonesia accounted for 27.00% of the sample or 38 respondents, and Eastern Indonesia accounted for 16.20% or 22 respondents. The respondents consisted of project managers who are currently working on projects or who have finished a project. The education level of the respondents was a minimum of a bachelor's degree in civil engineering or Architectural Engineering and all respondents had a minimum of 3 years' experience working on construction projects. The total number of respondents was 139.

3.2 Data collection method

The questionnaire method was used to collect data from respondents both near and far. The questionnaire was delivered to the respondents, all of whom were project managers. As the researchers are situated in the Special Province of Yogyakarta, project managers located close by were directly handed the questionnaire. The minimum education requirement of the respondents was a bachelor's degree in Civil Engineering or Architectural Engineering and at least 3 years of experience handling construction projects. Data was obtained from 139 respondents.

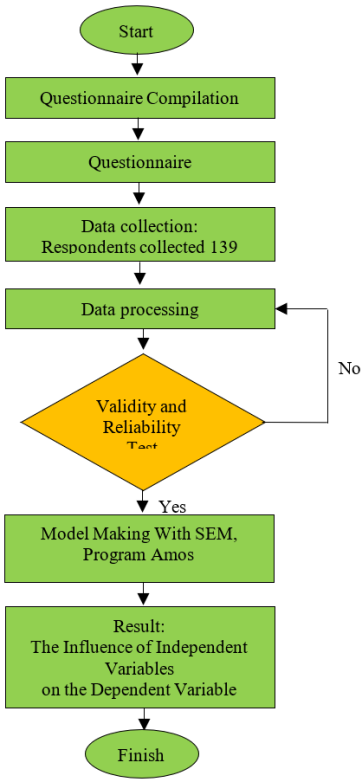


Figure 1. Research process flowchart

3.3 Research methods

This research began with the preparation and distribution of the questionnaire. After collection of the questionnaires, the data obtained was processed. The validity and reliability tests, through structural equation modeling, were used to process the data. Invalid and unreliable data must be removed during this process and if there are less than 100 valid and reliable data, then re-examination must be carried out until 100 are obtained. This is because the requirements of structural equation modeling (SEM) state that the data must have at least 100 respondents [29]. If the validity and reliability test process is complete and the results are good, then the next process is making a model using structural equation modeling (SEM) Amos 16 program. From the results of this model, the size of the influence of the independent variables on the dependent variable can be determined. The research flowchart can be seen in Figure 1.

3.4 Statistical analysis

After the data had been collected from the 139 respondents, it was analysed using structural equation modelling [29]. The questionnaires used in interval scale of 1 to 5 so that the data, which was originally in the form of qualitative data, was weighted to become quantitative. The numbers 1 to 5 are the weight values of each statement and correspond to strongly uninfluential, uninfluential, doubtful influence, influential, and strongly influential. The data collected from the respondents essentially explored the factors that affect the work commitment of construction project managers. These factors were obtained using the structural equation modelling (SEM) method.

4. ANALYSIS AND DISCUSSION

After the data had been collected, it was entered into the SPSS version 16 program and then the prerequisite test was conducted. This test was conducted to see which questions were appropriate to use as representation of the independent variables in this study. Structural equation modelling (SEM) was then carried out to determine the effect or causality relationship between variables.

4.1 Validity and reliability tests

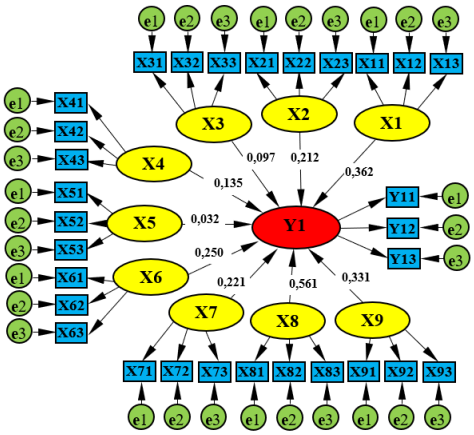
The purpose of the validity test is to determine whether the questions in the questionnaire are adequately representative. The second test is the reliability test which is an index which shows the extent to which the measuring instrument is reliable or trustworthy. Reliability is a measure of the internal consistency of the indicators of a construct variable which show the degree to which each indicator indicates the general formation of the variable. In this study, calculation of reliability uses composite (construct) reliability with a cut off value of at least 0.7 [29]. The validity and reliability tests were carried out using confirmatory factor analysis on each latent variable through the Amos 16 program. The results of the analysis showed that the existing latent variables were valid and reliable.

4.2 Research data

After the data had been collected and entered into the SPSS version 16 program, the next activity was the prerequisite test. This test was conducted to see which questions were appropriate to represent the independent variables in this study. Following this, structural equation modelling (SEM) analysis was carried out to determine the effect or causality relationship between the variables (Table 1). The results of this are displayed in Figure 2.

Based on Figure 2, it can be seen that from the 8 (eight) criteria used to determine whether a model is feasible or not, 7 (seven) of the criteria have been met, and thus, no modification is needed. From this it can be said that the model is acceptable

- the model and the data match.



Y1=commitment variable, X1=leadership variable, X2=organizational climate variable, X3=organizational culture variable, X4=communication climate variable, X5=trust variable, X6=motivation variable, X7=work experience variable, X8=salary variable, and X9=work satisfaction variable

Figure 2. Full model

Table 1. Goodness of fit after modification results

Index	Cut off Value	Result	Model Evaluation
Chisquare	as small as possible	4512.310	Good fit
Probability	≥ 0.05	0.064	Good fit
CMIN/ DF	≤ 2.00	1.397	Good fit
RMSEA	≤ 0.08	0.057	Good fit
GFI	≥ 0.90	0.931	Good fit
AGFI	≥ 0.90	0.927	Good fit
TLI	≥ 0.95	0.953	Good fit
CFI	≥ 0.95	0.968	Good fit

From an appropriate model, the path coefficient can be interpreted. The path coefficients constitute the hypothesis in this study. Testing of the path coefficients is displayed in Figure 2 and the equation is presented in detail in Table 2 below.

Based on Table 2, the interpretation of each path coefficient is as follows:

Leadership has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.362, the C.R value of 5.311, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, leadership has a direct effect on commitment to a value of 0.362, which means that when leadership improves, commitment increases by 0.362. The leadership of a contractor company affects the work commitment of the construction project manager. Firm, disciplined, and honest leadership is followed by high commitment from project managers. On the other hand, if leadership is weak and dishonest, the project manager's commitment will follow the attitude of his or her superiors, which will negatively impact on the company in the future, and will not benefit the company. The results of this study were found to be in line with the findings of previous studies [14].

Organizational climate has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.212, the C.R value of 7.244, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, the organizational climate has a direct effect on commitment by 0.212, which means that every time organizational climate improves, commitment increases by 0.212. A healthy organizational climate makes a manager comfortable working, so a healthy organizational climate will increase the work commitment of project managers.This finding is in line with results of previous studies [15].

Organizational culture has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.097, the C.R value of 5.062, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, organizational culture has a direct effect on commitment by 0.097, which means that when organizational culture improves, commitment increases by 0.097. Organizational culture is the development of a person's personality or attitude under the influence of his or her environment. Culture plays a very important role in managing an organization, especially in project-based organizations. Knowing the character of each individual from the beginning allows for the determination of the individual's work productivity. In turn, knowing the work productivity of each individual allows for the identification of the needs of the entire project workforce, and then the commitment of the manager to complete the project according to the plan can be realized. Organizational culture is a new variable that has not been investigated in studies prior to this one. This variable has demonstrated an influence on the dependent variable, commitment.

Communication climate has a positive and significant effect on work commitment. This can be seen from the path coefficient which is positive 0.135, the C.R value of 5.847, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, communication climate has a direct effect on commitment by 0.135, which means that when communication climate improves, commitment increases by 0.135. In an organization, communication is a vital tool for conveying and receiving information. This information can be in the form of policies, rules, or other information. A good communication climate is a sign of a healthy organization. The findings of this variable are in accordance with the findings of previous studies [15, 30].

Table 2. Model conformity test results

Variable	Coefficient	C.R.	Prob.	Description
Leadership → Commitment	0.362	5.311	0.000	Significant
Organizational Climate→ Commitment	0.212	7.244	0.000	Significant
Organizational Culture→Comitment	0.097	5.062	0.000	Significant
Communication Climate→ Commitment	0.135	5.847	0.000	Significant
Trust→ Commitment	0.032	4.000	0.000	Significant
Motivation→ Commitment	0.250	2.715	0.007	Significant
Work Experience→ Commitment	0.221	7.196	0.000	Significant
Salary→ Commitment	0.561	7.833	0.000	Significant
Job Satisfaction→ Commitment	0.331	2.600	0.009	Significant

Trust has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.032, the C.R value of 4.000, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, trust has a direct effect on commitment by 0.032, which means that when the level of trust increases, commitment increases by 0.032. Trust is the main capital for an organization or individual. Assertiveness and honesty are the characteristics of someone who can be trusted and trust has an influence of the work commitment of project managers. This result is in line with the findings of previous studies [14, 30].

Motivation has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.250, the C.R value of 2.715, and the significance probability (p) of 0.007, which is smaller than the significance level (α) determined to be 0.05. Thus, motivation has a direct effect on commitment by 0.250, which means that when motivation grows, there is an increase in commitment by 0.250. The motivation or enthusiasm of a project manager is the driving force for a successful project. There are various obstacles that get in the way of project success, but if the manager has high morale, success of the project is not hindered. The project will still be easy to implement and completed on time, within budget, and of the expected quality. The results for this variable are in line with the findings of previous studies [26].

Work experience has a positive and significant effect on work commitment. This can be seen from the path coefficient which is positive 0.221, the C.R value of 7.196, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, work experience has a direct effect on commitment by 0.221, which means that with greater work experience, commitment increases by 0.221. A person's work experience is his or her's individual wealth, in terms of physical skills and project management, that can be used to carry out the next project. Experienced people are more capable and act more wisely in project completion. The results of this variable are in line with the findings of previous studies [25].

Salary has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.561, the C.R value of 7.833, and the significance probability (p) of 0.000, which is smaller than the significance level (α) determined to be 0.05. Thus, salary has a direct effect on commitment by 0.561, which means that an increase in salary leads to an increase in commitment of 0.561. Salary is a basic human need to meet the necessities of life. Everyone who works needs a salary that is sufficient to meet his or her needs and project managers are no exception. Project managers carrying out their duties as the person in charge of the project require sufficient salaries from the construction companies. Furthermore, salaries are able to foster good morale during the project completion encouraging on time completion, adherence to budget, and attainment of the expected quality. The results of this study indicate that salary has a positive effect on the work commitment of construction project managers. The salary variable is a new variable that has not been reported in previous studies. Thus, this result is very significant.

Job satisfaction has a positive and significant effect on commitment. This can be seen from the path coefficient which is positive 0.331, the C.R value of 2.600, and the significance probability (p) of 0.009, which is smaller than the significance level (α) determined to be 0.05. Thus, work satisfaction has a direct effect on commitment by 0.331, which means that greater levels of satisfaction at work lead to an increase of commitment by 0.331. Job satisfaction is the positive emotional state of a person when that person's expectations are fulfilled and is not something that affects just project managers. A satisified manager is more likely to complete a project on time, within budget, and of the expected quality. The results of the work satisfaction variable are in accordance with previous studies [17].

5. CONCLUSIONS

Based on the results of this study, the following conclusions can be drawn: the leadership variable has a positive effect on work commitment with a value of 0.362; the organizational climate variable has a positive effect on work commitment with a value of 0.212; the organizational culture variable has a positive effect on work commitment with a value of 0.093; the communication climate variable has a positive effect on work commitment with a value of 0.135; the trust variable has a positive effect on work commitment with a value of 0.032; the work motivation variable has a positive effect on work commitment with a value of 0.250; work experience has a positive effect on work commitment with a value of 0.221; salary has a positive effect on work commitment with a value of 0.561; and work satisfaction has a positive effect on work commitment with a value of 0.331. The variable found to have the dominant influence on the work commitment of construction project managers is salary, with a value of 0.561.

In addition, the new variables are organizational culture and salary. Construction service companies must pay attention to the salary for a manager because salary is a basic need. Better submitted to a manager should at least be standard and delivered on time. The culture of each individual must be manageable, so that each can work in a supportive and comfortable environment increasing productivity that maximizes project results and most importantly, timely completion.

Research limitations. In this study, the project manager's work commitment was limited to only 9 variables. In future research, new variables can be added so that the research is more perfect.

Recommendation. After knowing the variables that affect the work commitment of construction project managers, construction companies must pay attention to these 9 variables, so that they are right in placing a project manager. So that the project can run according to plan and will be completed on time, with the right quality and at the right cost.

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