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Model of Influence to Delay Construction Projects of Multistoried Buildings Using Multi-Dimensional of Stage with Analysis of Second Order

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ABSTRACT

Delays in project activities will cause serious impact on the implementation of the multistoried building construction projects. Moreover many construction project built multistoried building, originally the scope of work that should have been known not described in detail, such incidents often occur in this construction project. A lot of causes of project delays, where this research in terms of the fact that experienced actors such as the project's main contractor, consultant and owner of the project, which is generally used for decision making. This study determines the factors that cause delays in processing by the independent variables were measured. That wants to be known in this study was the influence of factors derived from the main actors of the project, include: the vagueness of policies and procedures, decision-making is slow, unnecessary interference, delay of the work without reason, the inability to coordinate, many meetings do not produce decisions, and others that influence the construction *project delays*. To know how big influence in this research is to use a second order analysis of statistical analysis Structural Equation Modeling based Covariance. This study begins with a literature study, relevant previous research, to determine the causes of delays in construction projects.. Questionnaires conducted beforehand arrange dimensions and indicators of each variable. Further, of data tabulation was conduct analysis to obtain coefficients and path coefficients ways simultaneously. The results of this study are expected to be able to explain the influence and contribution of the factors that cause delays in construction projects going on in Indonesia.

KEYWORDS: Delay, project, main actor, SEM

INTRODUCTION

The time value is increasingly important if the construction project activity occurs when a critical, if not in doing good management, the project will be delayed. Motto *time is money*, *time flies like arrow*, *time losses never found again*, *to postpone means to steal time*. [1]. So that no delay in the implementation of construction projects, it must dare to start by holding on predetermined specifications together, since the start means it's expectation that half the work has been done. [2]. Time schedule some planning the implementation of construction projects should be made with a realistic and reasonable, and carried out carefully, with proper implementation and strict control, the delay in the project was never going to happen. Labor control is necessary because with such control can perform all causes of delays can be overcome. [3].

Every construction project work scope has many problems causing the delay, then when viewed from the elements 5M from the man factor, material factor, machine factor, the method factor and the money factor. [4] [5]. Project submission must not exceed a predetermined time, in case of scheduling changes, then the project is said to be problematic for scheduling time, project delays will lead to various kinds of problems in the conflict of the main participants of the project. In the process of implementing a construction project using time duration is the most important element. Every construction project is always faced with the objectives of the project as a *constraint*. [6]. One project targets of three main objectives are scheduling a time, so the success of the project is the fulfillment of the time table that has been planned according to the contract document that has been agreed can be implemented without delay time. [2].

In every process of project activities is a possible change resulting execution time becomes too late, and delay factor which is based on the main actors of the project: (1) *Delays in projects* funded contractors are workers who are not professional, unclear assignment, inability to create a work schedule, there is no balance of reward and punishment, the payroll is often too late, and the inability to control of the project, late payment the contractor, [2] [7]. (2). *Delays in projects* funded by the project owner, are: the vagueness of policies and procedures, delayed decision making, intervention is not necessary, the inability to coordinate, too many meetings without a decision, delay in payment, a design that is always changing, factors that are not Surprisingly, the availability of human resources, slow in making decisions, inconsistent scheduling, policy changes, environmental conditions, safety, complaints from the public. [6] [8]. (3). *Delays in projects* funded by

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the consultants, are: design errors, requests that do not immediately respond, and delay the work without reason, delays in the payment approval process, [9] [10]. *Delays in project* implementation will result in a loss to the completion of the project. Formulation of the problem in this research is to determine the factors vagueness policies and procedures, decision-making is slow, unnecessary interference, delay of the work without reason, the inability to coordinate, and many meetings do not produce decisions, affect the time performance.

MATERIALS AND METHODS

1. Understanding of Delay in Project

Some understanding of project delays are as follows: (1). *Delay the project* activity is part of the time that has been done ca not be utilized as well as possible in accordance with the plan, so that the activities that follow behind became involved pending to be completed on time as planned. [3] [6]. (2). *Delays in project* activities is to delay the time implementation project is measured based on the facts and the time events from a project activity that is not in accordance with the original plan. (3). *Delays in project* activities is an event that if the measured time will be longer than a predetermined time. [11]. (4). *Delays in project* activity will reduce the productivity that would result, in other words, to avoid waste in the financing of projects undertaken or the cost increases (*overrun*) in the project. (5). *Delays in project* activities will extend the duration of time that will be swelling costs and also increase the cost of the project. If a construction project has been targeted, completed in accordance with the plan, and should be completed just in time, for various reasons, it can be said that the project has been delayed from the original plan. [1] (6). *Delay in project* will have an impact on the loss of opportunity for project owners, consultants and contractors either alone or simultaneously to get the chance do other projects in locations and in different places. [12]. (7). *Delays in project* activities will result in increased direct costs, i.e. costs directly related to project implementation and indirect costs are office expenses and other costs not related to the financing of the project will result in overall expenses be great to reduce the profits that had been planned originally.

2. Variables, Dimension and Indicators

The source of the problem causes delays in the project if the review of the subject of the main perpetrators of the project affected by factors: (1). *Delays in projects* funded by the contractor is not professional worker, unclear assignment, inability to create a work schedule, there is no balance of *reward and punishment*, the payroll is often too late, the inability to control of the project, delays in receiving payment terms, the inability to finance the project, often late submission of the request, unfavorable financial administration, [7] [13]. (2). Delays *in projects* funded by the project owner, are: the vagueness of policies and procedures, delayed decision making, intervention is not necessary, the inability to coordinate, delays in providing payment terms, a design that is always changing, factors that are not Surprisingly, slow in making decisions, inconsistent scheduling, policy changes, environmental conditions, safety rule, complaints from the public, design change policy, lack of experts. [14] [15]. (3). *Delays in projects* funded by the consultants, are: availability of human resources, many meeting without decision, unclear consultant assignment, design errors, requests that do not immediately respond, delay the work without reason, delays in the terms payment, data backup of payment is not complete, design document is not complete, inflation and monetary [13] [16]. Relation between dependent variable with independent variable Figure 1. Relation Among Variables, and Table 1 Variable, Dimension and Indicator, as illustrated as follow:

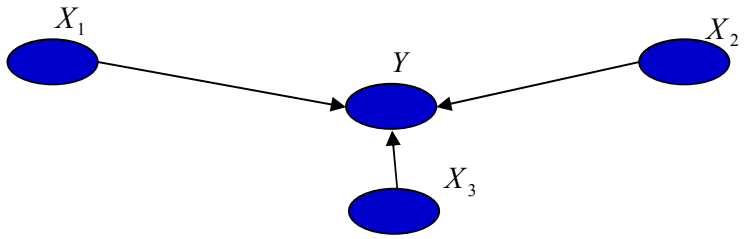

Figure 1. Relation among Variables

Table 1 Variable, Dimension and Indicator

No	Variables	Dimensions	Indicators
1	X1. Contractor	X1.1. Administration Ability	X1.1.1. Unclear contractor assignment
	(3 Dimension)	(3 Indicators)	X1.1.2. No balance of *reward and punishment*
			X1.1.3. Payroll is often too late
		X1.2. Engineering ability	X1.2.1. Not professional worker
		(4 Indicators)	X1.2.2. Inability to create a work schedule
			X1.2.3. Inability to control of the project
			X1.2.4. Often late submission of the request
		X1.3. Finance ability	X1.3.1. Delays in receiving *termijn* payment
		(3 Indicators)	X1.3.2. Inability to finance the project
			X1.3.3. Unfavorable financial administration
2	X2. Consultant	X2.1 Administration ability	X2.1.1. Data backup of payroll is uncompleted
	(3 Dimension)	(3 Indicators)	X2.1.2. Design document is uncompleted
			X2.1.3. Design detail was not include
		X2.2. Engineering Ability	X2.2.1. Many meeting without decision
		(6 Indicators)	X2.2.2. Availability of human resources
			X2.2.3. Inconsistent scheduled
			X2.2.4. Design error
			X2.2.5. Requests that don't immediately respond
			X2.2.6. Delay the work without reason
		X2.3. Finance Ability	X2.3.1. Delays in the *termijn* payment
		(3 Indicators)	X2.3.2. Internal finance problem of consultant
			X2.3.3. Unclear of consultant assignment
3	X3. Owner	X3.1. Administration ability	X3.1.1. Vagueness of policies and procedures
	(3Dimension)	(8 Indicators)	X3.1.2. Delayed decision making
			X3.1.3. Intervention is not necessary
			X3.1.4. Inability to coordinate
			X3.1.5. Policy change
			X3.1.6. Environmental condition
			X3.1.7. Safety rule
			X3.1.8. Complaints from the public
		X3.2. Engineering ability	X3.2.1. Design that is always changing
		(3 Indicators)	X3.2.2. Design change policy
			X3.2.3. Lack of experts
		X3.3. Finance ability	X3.3.1. Delays in providing *termijn* payment
		(3 Indicators)	X3.3.2. Financial policy of government
			X3.3.3. Inflation and monetary
	Y. Project	Y1. Delay in beginning project	Y1.1. Delays already realized in the beginning
	(3) Dimensions)	(3 Indicators)	Y1.2. Delay hasn't been realized in the beginning
			Y1.3. Delay is not realized in the early
		Y2.Delay in the middle project	Y2.1. Delays already realized in the middle
		(3 Indicators)	Y2.2. Delay hasn't been realized in the middle
			Y2.3. Delay is not realized in the middle
		Y3. Delay in the end project	Y3.1. Delays already realized at the end
		(3 Indicators)	Y3.2. Delay has not been realized at the end
			Y3.3. Delay is not realized at the end

Source: Results of Research.

3. Formulation of the Problem and Research Hypothesis

To determine the formulation of the problem is based on the background that has identified many project delays from various sources and literature. [17] [18]. The problem of this study was to determine which of the variables, dimensions and indicators that influence and correlated variables (causal) *delay* in *project* of multistoried building construction projects in Indonesia? The hypothesis of this study is to determine the influence and correlation of the variables *(causal) project delay* in construction projects in Indonesia.

4. Testing research instruments

Testing research instrument (questionnaire) with a total of 30 respondents as a trusted normality. according to the central limit theorem put forward expert, [19], normality test considered valid if the number of samples ≥ 30. To determine the construct validity and reliability of the research instrument premise is that if has met the test of validity construct and reliability, the research instrument created can be used to study with a sample that has been set. Measurement of the variables are using a Likert scale with a rating scale (with score) of 1 to 5, where a score of 1 is the value of a negative extreme value and score of 5 is a positive extreme value by providing variations in response to each question item [20], are as follows: (1). Strongly Disagree, with score value of 1, (2). Disagree, with a score value of 2, (3). Neutral, with score value of 3, (4). Agree, with a score value of 4, (5). Strongly Agree, with a score value of 5. [20]. Statistical calculations in the Cronbach alpha to

determining coefficient of reliability of the instrument, using the software program of *SPSS (Statistical Product and Service Solution)*, Version 21.0.

5. Research Design

This survey study illustrates inferential research to determine the causal relationship between the variables and variables between the dimension and the dimension, between the variables or dimensions of the indicator. To facilitate the research process and describe hence the research design is needed. [17] [18]. Figure 2.Thought Flow and Research Design

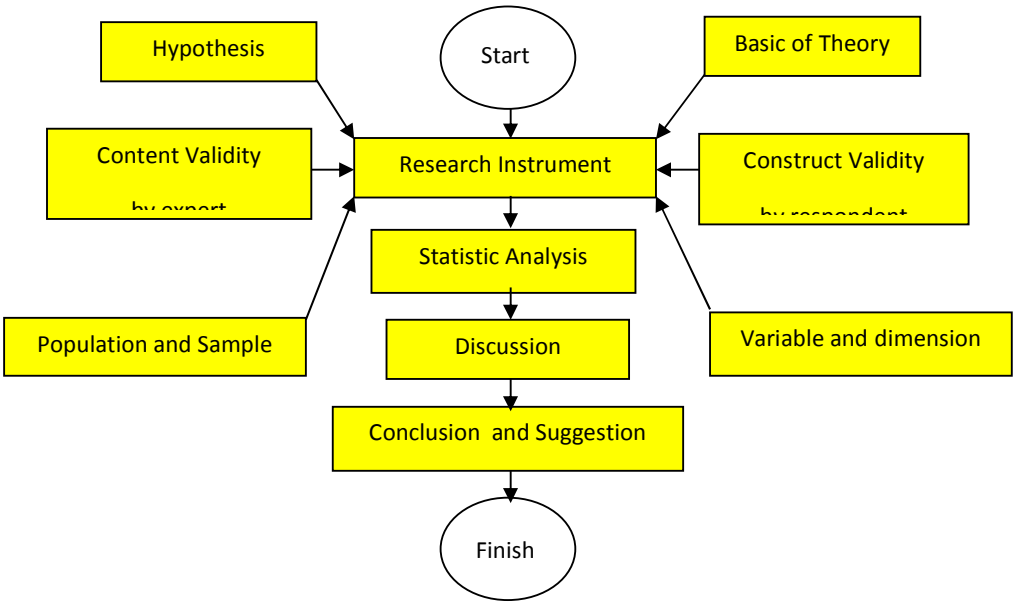

Figure 2.Thought Flow and Research Design

6. Statistic Analysis

The analysis method used in the research is *Structural Equation Modelling based on Covariance (SEM)* with *second order* using *software AMOS version 21.0* program [21][22][23]. It uses Structural Equation Modelling, because the dimensions and the indicators of variable are reflective. Data collection is by distributing questionnaire to 158 respondents, using non-probability sampling and purposive sampling that could represent the population [24]. Before used in the research, the questionnaire as a research instrument was tested on 30 respondents as minimum requirement of instrument testing, and it is valid and reliable so the questionnaire could be used for the next research.

7. Trial Test

The item test, the validity test and the reliability test were on 30 sample, called trial test, because the test is to determine whether the instrument could be used or not in the research, if the result meets the requirement, then it could be used on the research. The item test was done on each indicator, while the tests of validity and reliability were done on each variable and dimension. Table 2 Results of Trial Test.

Table 2. Results of Trial Test

No	Variables indicators	Ítem (≥0,30)	Validity (≥ 60%)	Reliable (≥ 0.60)
1	X1. Resource of Contractor	-	-	-
1a	X1.1. Administration Ability of contractor	-	76	0,905
	X1.1.1. Unclear contractor assignment	0,803		
	X1.1.2. No balance of *reward and punishment*	0,831		
	X1.1.3. Payroll is often too late	0,799		
1b	X1.2. Engineering ability of contractor	-	73	0,912
	X1.2.1. Not professional worker	0,765		
	X1.2.2. Inability to create a work schedule	0,837		
	X1.2.3. Inability to control of the project	0,806		
	X1.2.4. Often late submission of the request	0,806		
1c	X1.3. Finance Ability of contractor	-	61	0,875
	X1.3.1. Delays in receiving *termijn* payment	0,631		
	X1.3.2. Inability to finance the project	0,711		

	X1.3.3. Unfavorable financial administration	0,610		
2	X2. Resource of Consultant	-		
2a	X2.1. Administration Ability of consultant of consultant	-	62	0,894
	X2.1.1. Data backup of payroll is uncompleted	0,838		
	X2.1.2. Design document is uncompleted	0,766		
	X2.1.3. Design detail was not include	0,898		
2b	X2.2. Engineering ability of consultant	-	71	0,935
	X2.2.1. Many meeting without decision	0,768		
	X2.2.2. Availability of human resources	0,735		
	X2.2.3. Inconsistent scheduled	0,860		
	X2.2.4. Design error	0,917		
	X2.2.5. Requests that do not immediately respond	0,778		
	X2.2.6. Delay the work without reason	0,801		
2c	X2.3. Finance Ability of consultant	-	61	0,852
	X2.3.1. Delays in the *termijn* payment	0,609		
	X2.3.2. Internal finance problem of consultant	0,673		
	X2.3.3. Inflation and monetary	0,671		
3	X3. Resource of Project Owner			
3[a]	X3.1. Administration Ability of project owner		73	0,952
	X3.1.1. Vagueness of policies and procedures	0,764		
	X3.1.2. Delayed decision making	0,777		
	X3.1.3. Intervention is not necessary	0,909		
	X3.1.4. Inability to coordinate	0,800		
	X3.1.5. Policy change	0,887		
	X3.1.6. Environmental condition	0,924		
	X3.1.7. Safety rule	0,940		
	X3.1.8. Complaints from the public	0,586		
3b	X3.2. Engineering ability of project owner		77	0,906
	X3.2.1. Design that is always changing	0,776		
	X3.2.2. Design change policy	0,848		
	X3.2.3. Lack of experts	0,844		
3c	X3.3. Finance Ability of project owner		77	0,903
	X3.3.1. Delays in providing *termijn* payment	0,884		
	X3.3.2. Financial policy of government	0,832		
	X3.3.3. Inflation and monetary	0,718		
4	Y. Delay in (Construction) Projects			
4a	Y1. Delay in beginning project	-	66	0,890
	Y1.1. Delays already realized in the beginning	0,665		
	Y1.2. Delay has not been realized in the beginning	0,765		
	Y1.3. Delay is not realized in the early	0,765		
4b	Y2. Delay in the middle project	-	72	0,864
	Y2.1. Delays already realized in the middle	0,675		
	Y2.2. Delay has not been realized in the middle	0,824		
	Y2.3. Delay is not realized in the middle	0,850		
4c	Y3. Delay in the end project	-	61	0,806
	Y3.1. Delays already realized at the end	0,730		
	Y3.2. Delay has not been realized at the end	0,680		
	Y3.3. Delay is not realized at the end	0,601		

Source: Results of Research

RESULTS AND DISCUSSION

1. Statistical Analysis of Structural Equation Modelling

The statistical analysis of SEM uses software AMOS version 21.0 with the variables of independent and dependent. The model testing results in the standardized regression weight on the variable. Figure 3 The Result of Testing Initial Models. Figure 4 The Result of Testing Nested Models.

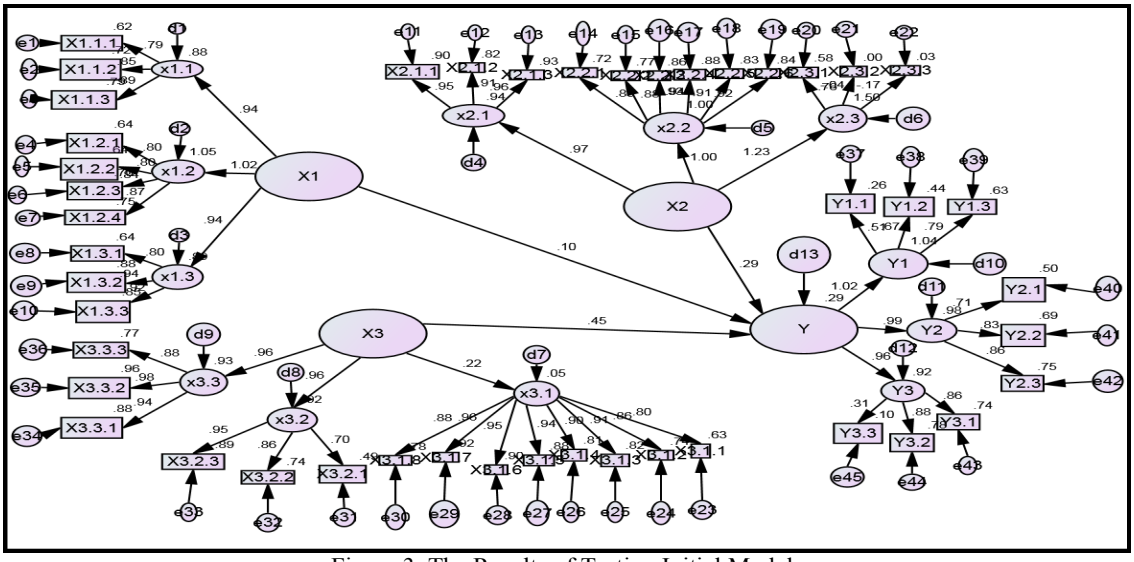

Figure 3. The Results of Testing Initial Models

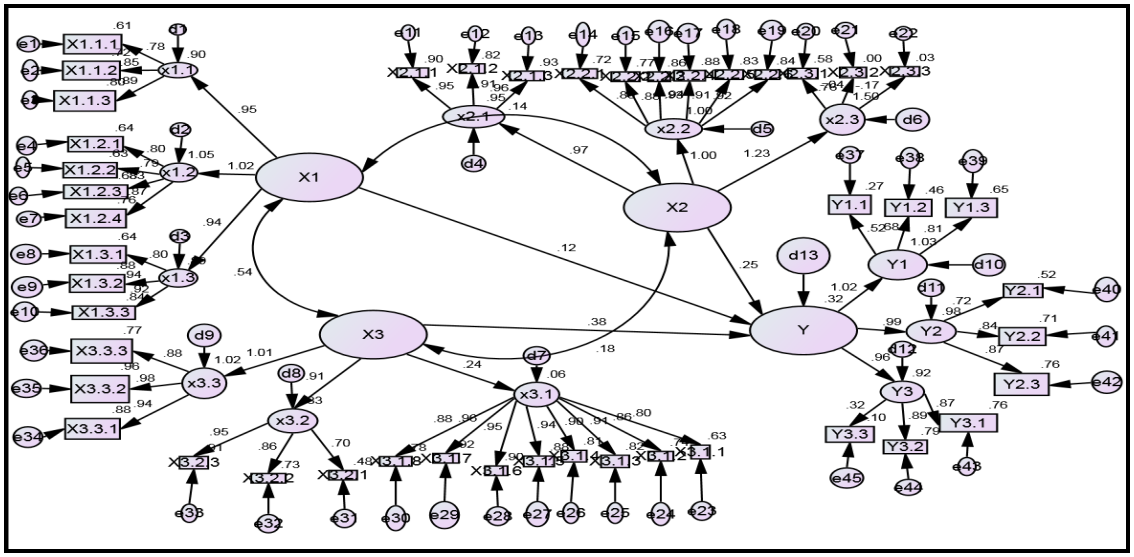

Figure 4. The Results of Testing Nested Models

2. Items test, Validity test and Reliability test

The latent variable is on the independent variable of X1. The contractor source with dimension is X1.1. The competence of contractor administration is X1.2. The competence of contractor technical is X1.3. The financial capability of contractor is X2. The contractor source with dimension is X2. The administration competence of contractor is X2.2. The competence of contractor technical is X1.3. The financial capability of contractor is X3. The source of project owner with dimension is X3.1. The administration competence of project owner is X3.2. The technical competence of project owner is X3.3. The financial capability of project owner and the dependent variable is Y. The delay of project with dimension is Y1. The project delay in the beginning is Y2. The project delay in the middle is Y3. The project delay in the end is through model testing resulting standardized regression weight values. The statistical analysis of Structural Equation Modelling, using program of software Amos version 21.0, to find out the influence of independent variable on the dependent variable, from the respondent statements that meet the sample measurement. Items test, validity test and reliability test. (a) item test: 39 indicators of 4 variables and 12 dimensions, and (b) validity test: 39 indicators of 4 variables and 12 models meet the validity, if the loading factor is more than CR (2.00), (c) Reliability test: 3 variables and 12 dimension of the model is reliable if the reliability is more than CR (≥ 0.70). Table 3. Items test and Validity test. Table 4 is Reliability test.

Table 3. Items test and Validity test

No	*Variable, Dimension indicator-indicator*	*Factor Loading*	CR	*Remark* (≥ 2,00)
1	X1. Resource of Contractor	-	-	-
1a	X1.1. Administration Ability of contractor	0,947	Ref Var	Valid
	X1.1.1. Unclear contractor assignment	0,782	12,171	Valid
	X1.1.2. No balance of *reward and punishment*	0,846	14,214	Valid
	X1.1.3. Payroll is often too late	0,892	Ref Var	Valid
1b	X1.2. Engineering ability of contractor	1,023	13,919	Valid
	X1.2.1. Not professional worker	0,801	12,726	Valid
	X1.2.2. Inability to create a work schedule	0,794	12,532	Valid
	X1.2.3. Inability to control of the project	0,827	13,633	Valid
	X1.2.4. Often late submission of the request	0,874	Ref Var	Valid
1c	X1.3. Finance Ability of contractor	0,944	13,791	Valid
	X1.3.1. Delays in receiving *termijn* payment	0,800	13,893	Valid
	X1.3.2. Inability to finance the project	0,938	20.881	Valid
	X1.3.3. Unfavorable financial administration	0,919	Ref Var	Valid
2	X2. Resource of Consultant	-	-	-
2[a]	X2.1. Administration Ability of consultant of consultant	0,972	Ref Var	Valid
	X2.1.1. Administration Ability of consultant of consultant	0,949	Ref Var	Valid
	X2.1.2. Data backup of payroll is uncompleted	0,905	21,107	Valid
	X2.1.3. Design detail was not include	0,964	27,570	Valid
2b	X2.2. Engineering ability of consultant	1,001	15,859	Valid
	X2.2.1. Many meeting without decision	0,847	Ref Var	Valid
	X2.2.2. Availability of human resources	0,879	14,946	Valid
	X2.2.3. Inconsistent scheduled	0,927	16,228	Valid
	X2.2.4. Design error	0,937	16,602	Valid
	X2.2.5. Requests that do not immediately respond	0,913	15,937	Valid
	X2.2.6. Delay the work without reason	0,917	16,168	Valid
2c	X2.3. Finance Ability of consultant	1,227	21,737	Valid
	X2.3.1. Delays in the *termijn* payment	0,762	Ref Var	Valid
	X2.3.2. Internal finance problem of consultant	0,042	0,548	No Valid
	X2.3.3. Lack of experts	0,169	2,560	Valid
3	X3. Resource of Project Owner	-	-	-
3a	X3.1. Administration Ability of project owner	0,240	Ref Var	Valid
	X3.1.1. Vagueness of policies and procedures	0,795	Ref Var	Valid
	X3.1.2. Delayed decision making	0,858	12,829	Valid
	X3.1.3. Intervention is not necessary	0,906	13,875	Valid
	X3.1.4. Inability to coordinate	0,898	13,589	Valid
	X3.1.5. Policy change	0,938	14,545	Valid
	X3.1.6. Environmental condition	0,949	14,812	Valid
	X3.1.7. Safety rule	0,960	15,108	Valid
	X3.1.8. Complaints from the public	0,884	13,348	Valid
3b	X3.2. Engineering ability of project owner	0,911	2,801	Valid
	X3.2.1. Design that is always changing	0,695	Ref Var	Valid
	X3.2.2. Design change policy	0,856	10,219	Valid
	X3.2.3. Lack of experts	0,952	10,683	Valid
3c	X3.3. Finance Ability of project owner	1,012	2,959	Valid
	X3.3.1. Delays in providing *termijn* payment	0,940	Ref Var	Valid
	X3.3.2. Financial policy of government	0,979	28,071	Valid
	X3.3.3. Inflation and monetary	0,879	18,799	Valid
4	Y. Delay in (Construction) Projects	-	-	-
4a	Y1. Delay in beginning project	1,017	Ref Var	Valid
	Y1.1. Delays already realized in the beginning	0,522	Ref Var	Valid
	Y1.2. Delay has not been realized in the beginning	0,681	6,312	Valid
	Y1.3. Delay is not realized in the early	0,806	6,628	Valid
4b	Y2. Delay in the middle project	0,991	6,336	Valid
	Y2.1. Delays already realized in the middle	0,720	Ref Var	Valid
	Y2.2. Delay has not been realized in the middle	0,844	10,446	Valid
	Y2.3. Delay is not realized in the middle	0,872	10,604	Valid
4c	Y3. Delay in the end project	0,959	6,814	Valid
	Y3.1. Delays already realized at the end	0,871	Ref Var	Valid
	Y3.2. Delay has not been realized at the end	0,890	15,146	Valid
	Y3.3. Delay is not realized at the end	0,321	3,940	Valid

Source: Results of Research

Table 4. Reliability test

No	Variable, Dimension	Reli ability-	(CR ≥ 0,70)	Remark
1	X1. Resource of Contractor			
1a	X1.1. Administration Ability of contractor	0,89	> 0.70	Reliable
1b	X1.2. Engineering ability of contractor	0,87	> 0.70	Reliable
1c	X1.3. Finance Ability of contractor	0.95	> 0.70	Reliable
2	X2. Resource of Consultant			
2a	X2.1. Administration Ability of consultant of consultant	0.98	> 0.70	Reliable
2b	X2.2. Engineering ability of consultant	0.91	> 0.70	Reliable
2c	X2.3. Engineering ability of project owner	0.69	< 0.70	No Reli
3	X3. Resource of Project Owner			
3a	X3.1. Administration Ability of project owner	0.97	> 0.70	Reliable
3b	X3.2. Engineering ability of project owner	0.89	> 0.70	Reliable
3c	X3.3. Finance Ability of project owner	0.98	> 0.70	Reliable
4	Y. Delay in (Construction) Projects		> 0.70	Reliable
4a	Y1. Delay in beginning project	0.71	> 0.70	Reliable
4b	Y2. Delay in the middle project	0.79	> 0.70	Reliable
4c	Y3. Delay in the end project	0.72	> 0.70	Reliable

Source: Results of Research

3. Initial Model Test

The initial model of the variable X1. The contractor source with dimension is X1.1. The administration competence of contractor is X1.2. The technical competence of contractor is X1.3. The financial capability of contractor is X2. The consultant source with the dimension is X2.1. The administration competence of contractor is X2.2. The technical competence of contractor is X1.3. The financial capability of contractor is X3. The source of project owner with dimension is X3.1. The administration competence of project owner is X3.2. The technical competence of project owner is X3.3. The financial capability of project owner is against Y. The project delay is with Y1. The project delay in the beginning is Y2. The project delay in the middle is Y3. The project delay in the end is a hypothesis relation that could be seen on the table and figure. Table 5 The Result of Goodness of fit index for testing Initial Models. The table shows the initial model based on the rejected theory, because some of the requirements are rejected, so the result is not fit. From the seven goodness of fit index, only one is accepted. In order to be fit, it is modified based on the modification indices supported by the relevant theory and related to the matter. In modification, it must find a correlation between the indicator, both indicator in one dimension and indicator outside dimension, so there is goodness of fit index in the model showing the criteria of model acceptance. The rejected Initial model is not discussed, because it does not give the goodness of fit index.

Table 5. The Result of Goodness of Fit Index for Testing Initial Models

No	Goodness of Fit Index Testing	Result	Criteria	Explanation
1	Probality	0,00	> 0,05	Acepted
2	CMIN / DF	4,427	< 5	No-Acepted
3	GFI	0,683	< 0,90	No-Acepted
4	AGFI	0,617	< 0,90	No-Acepted
5	TLI	0,853	< 0,90	No-Acepted
6	CFI	0,892	< 0,90	No-Acepted
7	RMSEA	0,116	< 0,90	No-Acepted

Source: Results of Research

4. Modification Model Test

Modification model is done based on the modification index. If the initial model is rejected, the modification of initial model changes the relations pattern between indicator and variable and keeps the initial independent variables against the dependent variable, Y. The project delay keeps the related theory. The model modification is evaluated to find out which model that meet the goodness of fit index as the requirements and the result shows on the figure and table. There are five requirement of goodness of fit index that are accepted. Table 6 The Goodness of Fit Index for Testing Nested Models. The figure and table show the modification model that could be accepted, because it is supported by the empiric data, so the result is fit and the result is accepted.

According to the requirement, if all or one to three shows the goodness of fit index that is fit and not rejected, it could be concluded that the model fit, it means the proposed model could be accepted. Next, analysis of influence between variable is to find out the relations, and to determine the correlation of indicators related to the relations of dimension and variable.

Table 6. The Goodness of Fit Index for Testing Nested Models

No	Goodness of Fit Index Testing	Result	Criteria	Explanation
1	Probality	0,00	> 0,05	Acepted
2	CMIN / DF	2.838	< 5	Acepted
3	GFI	0,831	> 0,90	No-Acepted
4	AGFI	0,814	> 0,90	No-Acepted
5	TLI	0,912	> 0,90	Acepted
6	CFI	0,933	> 0,90	Acepted
7	RMSEA	0,087	> 0,90	Acepted

Source: Results of Research

1. Analysis of Influence between Latent Variable

As the research model is accepted according to the change of initial model into modification model, the next step is test of influence of between latent variable on the independent variable, X1. The contractor source with dimension is X1.1. The administration competence of contractor is X1.2. The technical competence of contractor is X1.3. The financial competence of contractor is X2. The contractor source is X2.2. The administration competence of consultant is X2.2. The technical competence of consultant is X1.3. The financial competence of consultant is X.3. The source of project owner is X3.1. The administration competence of project owner is X3.2. The technical competence of project owner is X3.3. The financial competence of project owner is against Y. The project delay is dimension Y1. The project delay in the beginning is Y2. The project delay in the middle is Y3. The project delay in the end is on hypothesis.

Table 7. The Influence between Latent Variable for Nested Models

No	Variable	Path Coeficient (Standardized)	Critical Ratio (CR = 2,00)	Criteria (CR > 2,00)
1	X1 -- > Y	0,119	1,257	No Sig
2	X1 -- > X2	0,142 *(correlation)*	1,668	No Sig
3	X1 -- > X3	0,541 *(correlation)*	2,627	Sig
4	X2 -- > X3	0,179 *(correlation)*	1,674	No Sig
5	X2 -- > Y	0,253	3,123	Sig
6	X3 -- > Y	0,383	2,184	Sig

Source: Results of Research

Hypothesis testing was done by comparing the value of critical ratio (CR), variable and dimensions and significant CR (CR > 2.00), it means that variable and dimension is significant, if the value of CR is more than 2.00. From the result of modification model, the influence between variable and the correlation between independent variables is against the dependent variable and its indicator. Table 7. The Influence between Latent Variable for Nested Models. The research is to find out the latent independent variable affecting significantly the latent dependent variable of project delay, describe as follows:

1. Independent variable, X3. The CR of project owner source is 2.184 > 2.00, the coefficient is 0.383, and it is more than other independent variable and the only independent variable that is significant dominant. The source of project owner is significant dominant against the dependent variable, Y. the project delay.
2. Dimension X3.1. The administration competence of project owner has correlation (loading factor) of 0.240, X3.2. The technical competence of project owner has correlation (loading factor) of 0.911, X3.3. The financial competence of project owner has correlation (loading factor) of 1.017, X3.3. The financial competence of project owner has the strongest correlation (loading factor) against X3, source of project owner.
3. Indicator of X3.3.1. The delay of payment has correlation (loading factor) of 0.940, X3.3.2. The governmental financial policy has correlation (loading factor) of 0.979, X3.3.3. The inflation and monetary have correlation (loading factor) of 0.879, so the indicator is X3.3.2. The governmental financial policy has the strongest correlation (loading factor) against dimension X3.3. The financial competence of project owner.

2. Regressive equation

The result of statistic analysis is made up of X1. The contractor source is with dimension X1.1. The administration competence of contractor is X1.2. The technical competence of contractor is X1.3. The financial competence of contractor is X2. The consultant source is with dimension, X2.1. The administration competence of consultant is X2.2. The technical competence of consultant is X1.3. The financial competence of consultant is X3. The source of project owner is with dimension: X3.1. The administration competence of project owner is X3.2. The technical competence of project owner is X3.3. The financial competence of project owner is against Y. The project delay is with dimension Y1. The project delay in the beginning is Y2. The project delay in the middle is Y3. The project delay in the end is using the following equation:

Y = 0.119 X1 + 0.253 X2 + 0.383 X3

3. Contribution of variable correlation

The next step is to determine the determination coefficient, it is to find out the contribution of correlation that can be explained by each variables. The purpose of the research is to find out the contribution of independent variable correlation that has a significant influence on the dependent variable. From the Table 7, Determination Coefficient (R-square), it could be explained as follows:

1. Contribution X1. The contractor source is X2. The consultant source is X3. The source of project owner is against Y. the project delay is 31.70%. it Means that 31.70% of variance Y. The project delay is explained by X1. The Contractor source is X2. The consultant source is X3. The source of project owner is the remaining of 68.70% explained by other variable.
2. Contribution X3.3. The financial competence of project owner is against X3. The source of project owner is 2.50%. It means 2.50% of variance X3. The source of project owner could be explained by X3.3. The financial competence of project owner is the remaining of 97.50% explained by other variable.

Table 7. The Influence between Latent Variable for Nested Models

No	Latent Variable	R-Square	Explanation
1	X1, X2, X3 to Y	0,317	Contribution X1. The contractor source is X2. The consultant source is X3. The source of project owner is against Y. the project delay is 31.70%. it Means that 31.70% of variance Y. The project delay, the remaining of 68.70% explained by other variable.
4	X3.3. to X3	0,025	Contribution X3.3. The financial competence of project owner is against X3. The source of project owner is 2.50%. It means 2.50% of variance X3. The source of project owner, the remaining of 97.50% explained by other variable.

Source: Results of Research

CONCLUSION

Based on the problem formulation, the purpose of the research and the hypothesis are following: (1) the regression equation between the independent variable and dependent variable is Y = 0.119 X1 + 0.253 X2 + 0.383 X3, (2) the dominant variable has significant influence on dependent variable Y. The project delay is independent variable of X3. The source of project owner. (3) Dimension having strongest correlation of dominant variable has significant influence X3. The source of project owner is X3.2. The technical competence of project owner (4). The strongest correlation indicator of dominant variable has significant influence X3. The source of project owner and dimension are X3.2. The technical competence of project owner is X3.3.2. The governmental financial policy.

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