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STUDY OF PARAMETERS FOR IMPROVING PERFORMANCE AND COMPETITIVENESS OF CONSTRUCTION COMPANIES IN INDONESIA

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ABSTRACT

This research¹² is a continuation of research and development from previous years research. The purpose of this study is to analyze and prove the relationship between parameters to improve the performance and competitiveness of construction companies in Indonesia¹⁶. The location of research data collection was conducted purposively in six provinces in Indonesia, namely : DKI Jakarta, West Java, Central Java, Bali and West Sumatra. The research sample of 386 small, medium and large qualification construction companies whose numbers are determined proportionally. While the research respondents were company owners, directors and company managers. Data collection tools use nominal scale questionnaire¹¹ (Likert 1-5). Statistical data analysis¹⁰ using SPSS and Smart PLS software. The results of the study concluded that the project management process group²³ parameters and project management knowledge area according to PMBOK^{5th} had a positive and significant effect on improving the performance and competitiveness of Indonesian construction companies. There are differences in the importance of group process implementation priorities for small, medium and large qualification construction companies.

Key words: process group, management, performance, competitiveness, construction.

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1. INTRODUCTION

1

The Indonesian construction sector has a strategic role in national development, being able to make a significant contribution to gross national product and employment. Indonesia's construction market is growing rapidly, with an average increase of around Rp. 53.3 trillion per year [1]. However, these business prospects also pose national and international problems and challenges for national construction companies, partly because Indonesia has joined the AFAS and MEA [2][3] in the Southeast Asian environment and the WTO in the world environment [4]

1

Challenges or problems faced by construction companies include; (1) there is a change in the world trade system from protection to ongoing liberalization, (2). The many new

3

international requirements and standards such as ISO 14000, ISO 21500, ISO 18000, PMBOK and so on [5][6], (3) The era of globalization demands the standardization of construction project management that can be accepted by all countries, such as ISO 21500 or PMBOK [7][8], states that construction project management process group is part of the construction companies resources and capabilities to support the quality of the construction company strategy and improve construction companies performance [9][10][7][11]. Until now, Indonesia does not yet have construction project management standards that can be applied and accepted regionally and internationally [7].

In general, the performance of construction companies in Indonesia is still relatively low [12][13][14], because most do not yet have Standard Operating Procedures (SOP) and quality standards, so the quality of their work is still low [15]. Competence and resources and performance are still low, so that the competitiveness of Indonesian contractors is also still low [16]. The results of the study [17], stated that the competitiveness of Indonesian contractors was still low. Data from the Board of Management Development Institutions' National Construction Services (LPJKN) (2014) [18] and the Indonesian Central Bureau of Statistics (2014) [1], many Indonesian contractors did not survive and no longer operate.

Based on the background description of the problems mentioned above, the parameters to improve the performance and competitiveness of construction business entities (BUJK) in Indonesia are very necessary and important to study. The purpose of this study is to find out and analyze what parameters can improve performance and competitiveness. Indonesian construction companies.

2. METHOD AND MATERIAL

2.1. Previous research

This research is a continuation of previous research conducted by Huda, et al. (2018) [7], entitled Implementation of PMBOK5th Standard to Improve the Performance and Competitiveness of Contractor Companies. The results of the study conclude that the implementation of project management processes PMBOK^{5th} standard project management knowledge can simultaneously improve the performance and competitiveness of Indonesian construction companies. This study developed the location, population and research respondents who were initially located in the East Java-Indonesia province, then expanded in several provinces, namely in five provinces in Indonesia.

Besides that, the variables and indicators of this study were also developed by adopting several theories and the results of previous studies. Figure 1. The above summarizes some previous research related to the relationship of parameters that can improve the performance and competitiveness of construction companies. The importance of improving performance by using PMBOK or ISO 21500 standards is carried out by: Skogmar, 2015; Gasik, 2015; Rehacek, 2014 and Brioso, 2015 [19][20][6][21]. Research and theory of the relationship of competence with construction project management according to : Latif & Ihsan, 2009; Isik et al., 2009; Yuliana, 2011; Ghasem, 2011; Pianto, 2013; Brahmantariguna, 2015[22][8][23][24][25][26]. Research and theory of the relationship between company performance and competitiveness are conducted according to : Absah, 2008; Isik et al., 2010; Ardiana, 2010; Huda & Wibowo, 2013; Huda et al., 2018 [10] [8] [11] [16] [7].

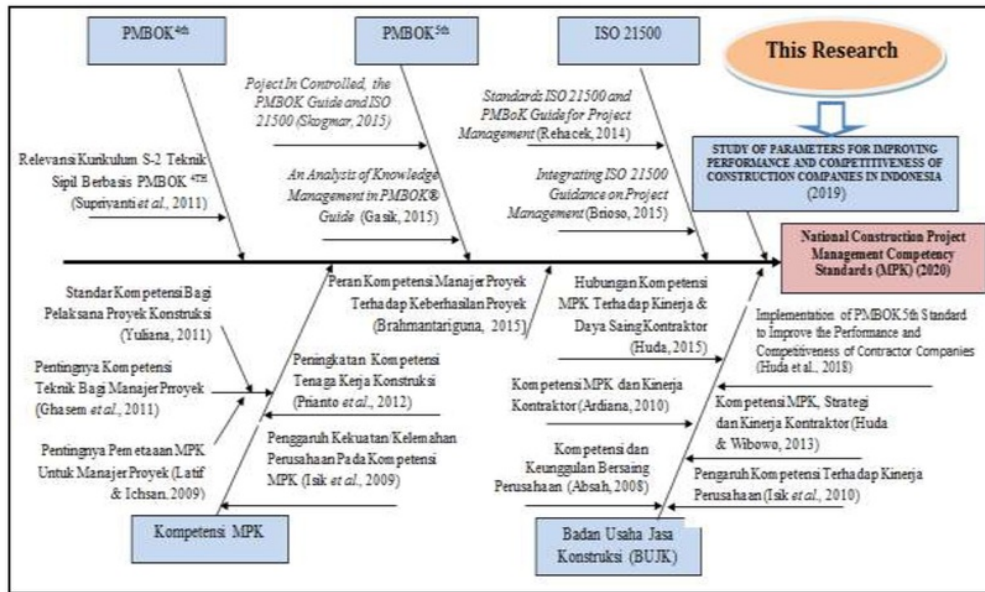


Figure 1 Fishbone Diagram of Previous Research

2.2. Research data collection and instrument

15

The research method is descriptive, that is, research conducted to determine the value of independent variables by making comparisons or combining between variables [27]. While in data collection, this research uses library research and field research methods by conducting interviews, observations and documentation related to the purposes of the discussion. The research instrument was a Likert scale questionnaire (1-5). Research locations in five provinces of Indonesia, namely: Central Java, West Java, DKI Jakarta, West Sumatra and Bali. The research population is 5 construction company that is still actively carrying out construction works until 2019. The sampling technique uses a combination of purposive sampling and proportional sampling methods. Research respondents are the owner, director or manager of a contracting company.

2.3. Data characteristics of respondents

In this study 25 questionnaires were distributed as initial questionnaires as research pilots. After that the validity and reliability tests are carried out. All questionnaire variables are declared valid and reliable as the results are shown in Table 2 below. After that the questionnaire was distributed to 500 respondents spread in 5 provinces proportionally and purposively. Of the 500 distributed questionnaires, 386 returned answers and were worthy of analysis. The characteristics of the company and respondents are shown in Figure 2 through Figure 8 below.

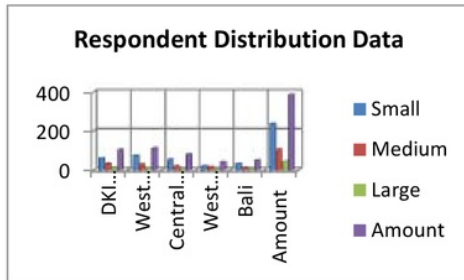


Figure 2 Respondent Distribution Data

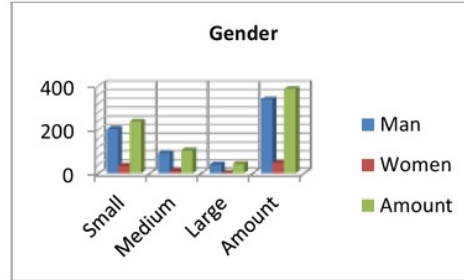


Figure 3 Respondent Gender

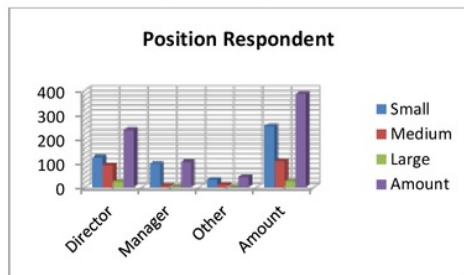


Figure 4 Respondent Position Data

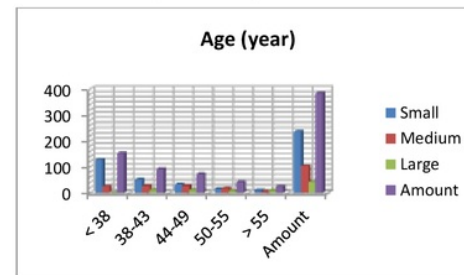


Figure 5 Respondent Age Data

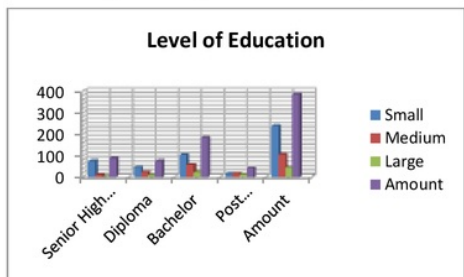


Figure 6. Education Level of Respondents

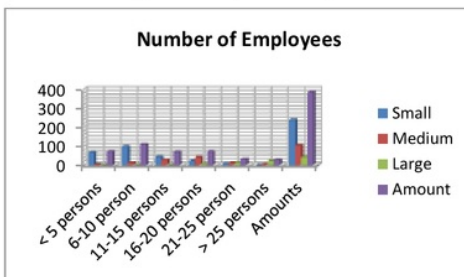


Figure 7. Number of company workers

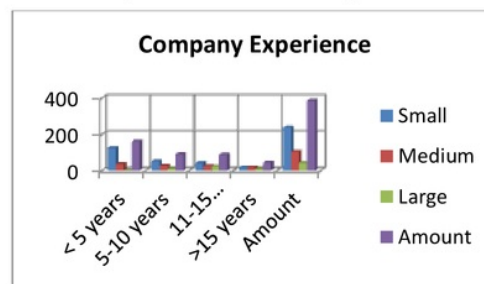


Figure 8 Data on Company Experience

2.3. Research model

Referring to several theories [19] [20] [21] and some previous studies [16] [7] [28], the research model is arranged as shown in Figure 9 below. Parameter relations : project management process group consisting of five group processes and project management

knowledge area consisting of ten project management sciences [19] [20] [21] are predicted to improve company performance [16] [7] [28]. The company's performance which consists of aspects: finance, business sustainability, internal business and company growth [16] [7] [28] is predicted to increase the company's competitiveness which consists of aspects: related industries, work relationships, corporate strategy and government factors [29] [30] [31] [32].

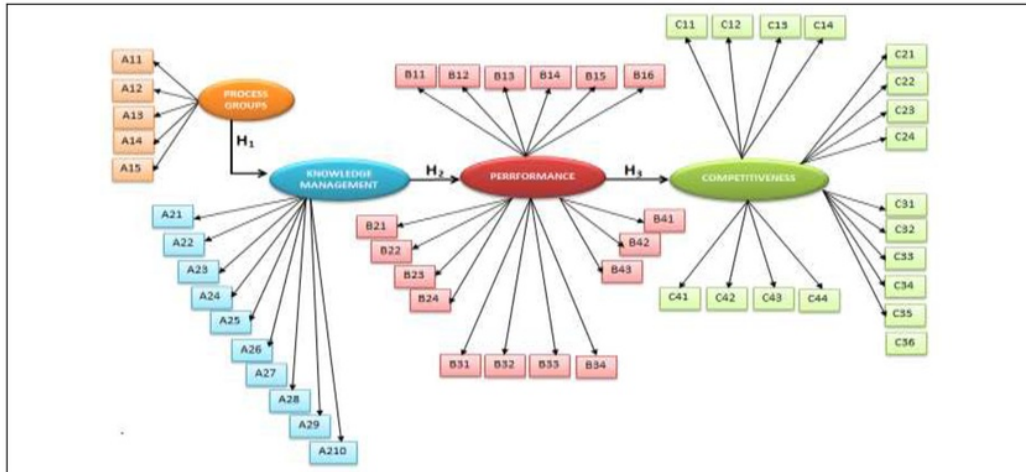


Figure 9 Research Model

Figure 9 explains a research model that links parameters (project management process group and project management knowledge area) to improve the performance and competitiveness of construction companies in Indonesia. Each parameter consists of variables and indicators as described in Table 1 below. The relationship between each variable is assumed with a hypothesis (H_1 , H_2 and H_3) (See Figure 9)

Table 1 Variables and Indicators

Variables & References	Indicators
Project management process group	
A1. Stages of the Implementation Process [7][16][19][20][21][28]	(A.11) Project initiating stage (A.12) Project planning stage (A.13) Project excuting stage (A.14) Project monitoring (controlling) stage (A.15) Project closing stage
A2. Project management knowledge area [7][16][19][20] [21][28]	(A.21) Project integration management (A.22) Project scope management (A.23) Project time (schedule) management (A.24) Project cost management (A.25) Project quality management (A.26) Project human resource management (A.27) Project communication management (A.28) Project risk management (A.29) Project procurement management (A.210) Project stakeholder management
Company Performance	
B1. Financial aspect [7][16][28]	(B.11) Provide project costs (B.12) Anticipate term delays (B.13) Anticipating currency exchange rate fluctuations (B.14) Anticipate interest rate fluctuations (B.15) Company revenues and profits

	(B.16) Arrangement of financial cash flows
B2. Business Sustainability Aspects [7][16][28]	(B.21) Finding and obtaining projects
	(B.22) Maintaining employment relations
	(B.23) Perform solutions to market barriers
	(B.24) Maintaining and increasing customer satisfaction
B3. Internal Business Aspects [7][16][28]	(B.31) Project implementation process
	(B.32) Implementation of the innovation process
	(B.33) Project maintenance period services
	(B.34) Entrepreneurial managerial ability
B4. Company Growth Aspects [7][16][28]	(B.41) Entrepreneurial managerial ability
	(B.42) Provision of infrastructure for company growth
	(B.43) Provision of infrastructure for company growth
Company competitiveness	
C1. Related Industries [29][30][31][32]	(C.11) Threats of new entrants (contractors)
	(C.12) Threats of new products (substitution)
	(C.13) Threats of foreign contractors
	(C.14) Threats of new Technology
C2. Employment Relations [29][30] [31] [32]	(C.21) Work Relationship with Project Owners
	(C.22) Working Relationship with Subcontractors / Suppliers
	(C.23) Relationship with the Government
	(C.24) Public Relations
C3. Company Strategy [29][30][31][32]	(C.31) Competitive strategies
	(C.32) Suitability of strategy with company conditions
	(C.33) Implementation of the strategy
	(C.34) Tender strategy
	(C.35) Tender experience
C4. Company Strategy [29][30][31][32]	(C.36) Tender resources
	(C.41) Government Laws & Regulations
	(C.42) Banking Conditions
	(C.43) Political Conditions
	(C.44) Government Policy

Source: various references

3. DATA ANALYSIS

3.1. Test the validity and reliability of measuring instruments

This research was started from pilot research by distributing questionnaires to 25 respondents. The results of the respondents' answers were tested for validity and reliability to test the level of accuracy of the questionnaire measurement tools. The results of the validity and reliability tests are shown in Table 2 below. Table 2 explains that the validity and reliability test results meet the requirements, meaning that the research questionnaire can be used for data collection.

Table 2 Validity and Reliability Test Results

Variables	<i>AVE</i>	Remarks	Compsite Reliability	Remarks
10 Project management process group (A1)	0.608	Average = 0,528 > 0,50 (OK) Valid	0,896	CR > 0,70 Reliabel (OK)
Project management knowledge area (A2)	0.504		0,940	
Company performance (B)	0,506		0,929	
Company competitiveness (C)	0.494		0,936	

Source: Results of PLS analysis

3.2. Hypothesis testing

Hypothesis testing is done by comparing the value of t-count of each latent variable with t-table (1.96), which is said to be significant if the t-count of the latent variable is greater than t-table (t-count > 1.96). The test results for each variable are shown in Table 3 below.

Table 3. Effects of Latent Variables

	Latent Variable	Path Coefficient	t-count	Criteria for t-count > t-table (1.96)
H1	Project management process group (A1) -> Project management knowledge area (A2)	8,970	1,96	significant
H2	Project management knowledge area (A2) -> Performance (B)	2,771	1,96	significant
H3	Performance (B) -> Competitiveness (C)	6,085	1,96	significant

Source: Results of PLS analysis

Based on the results of Smart PLS analysis (Table 3) above, the results are obtained that: (1) Stages of processes group [7] [16] [19] [20] [21] [28] consisting of five processes have an influence on improving implementation project management knowledge area [7] [16] [19][20][21][28]. (2) The implementation of project management knowledge area consisting of ten management has an influence on improving the performance of contractor companies [7][16][28]. (3) The performance of a contracting company consisting of three aspects influences the competitiveness of construction companies [29] [30] [31] [32].

3.4. Analysis of contribution of the effect of latent variables

Smart PLS analysis provides an explanation of the results that the influence between latent variables formed or the percentage of variance between variables is shown in Table 4 below. The project management process group (A1) exert a 55% influence on the project management knowledge area (A2). Project management knowledge area (A2) has an effect of 16.5% on company performance (B) and company performance (B) has an effect of 21.20% on the competitiveness of construction companies in Indonesia.

Table 4 Determination Coefficient (R^2)

Latent Variable	(R^2)	Remarks
Project management process group (A1)	0,550	Project management process group (A1) give a 55% influence on the project management knowledge area (A2)
Project management knowledge area (A2)	0,165	Project management knowledge area (A2) Influence 16.5% on company performance (B)
Company performance (B)	0,212	Company performance (B), has an effect of 21.2% on company competitiveness (C)

Source: Analysis Results

3.5. Comparison of importance

Comparison of the level of importance of the need to apply the stages of the group process and project management knowledge area based on the results of the analysis can be seen in Table 5 below. In general, the need for applying the stages of project management process group and the application of project management knowledge areas for large qualification contractors answered "very important", with an index of 86.4 - 90.9%, for middle qualification contractors respondents answered "important", with an index of around 63.9 -

72.2%. Whereas for small qualification contractors the respondents answered "quite important", with an index of around 62.5 - 73.6%.

27

Table 5 Comparison of the importance of stages in the process group

Project management process group	Qualification of Contractor	Level of Importance		
		Quite important	important	Very important
Initiating	Small	62,5%	37,5%	0,0%
	Medium	0,0%	69,4%	30,6%
	Large	0,0%	9,1%	90,9%
Planning	Small	70,8%	29,2%	0,0%
	Medium	0,0%	63,9%	36,1%
	Large	0,0%	13,6%	86,4%
Excuting	Small	66,7%	33,3%	0,0%
	Medium	0,0%	72,2%	27,8%
	Large	0,0%	13,6%	86,4%
Monitoring	Small	70,8%	29,2%	0,0%
	Medium	0,0%	69,4%	30,6%
	Large	0,0%	9,1%	90,9%
Clossing	Small	73,6%	26,4%	0,0%
	Medium	0,0%	66,7%	33,3%
	Large	0,0%	9,1%	90,9%

Sumber : Hasil Analisis SPSS

4. RESULT AND DISCUSSION

21

- **The Effect of the project management process group stages on the project management knowledge area:** process group stages [7][16][19][20][21][28] consisting of five processes, namely: initiating, planning, excuting, monitoring and clossing has a positive and significant impact on improving the knowledge of project management area [7][16][19][20][21][28], which consists of management: project integration, project scope, project schedule, project cost, project quality, human resources, communication, risk, procurement and stakeholders. The results of this study are consistent and support the results of research conducted by: Huda et al., 2018 [7]

26

- **The Effect of project management knowledge area on company performance:** project management knowledge area [7][16][19][20][28], which consists of management: project integration, project scope, schedule, cost, quality, human resources, communication, risk, procurement and stakeholders have a positive and significant impact on company performance [7][16][28], which consists of aspects: finance, business sustainability, internal business processes and company growth. The results of this study are consistent and support the results of research conducted by: Waluyo, 2014 [4]; Huda et al., 2018 [7]; Isik et al., 2010 [8]; Ardiana et al., 2010 [11]; Brahmantariguna, 2015 [26] and Huda, M. 2017 [28]
- **The effect of company performance on company competitiveness :** company performance which consists of aspects: finance, business sustainability, internal business processes and company growth [7] [16] [28], a positive and significant effect on corporate competitiveness consisting of aspects: industry related, employment relations, company strategy and government policy factors [29] [30] [31] [32]. The results of this

study are in accordance and support the results of research conducted by: Wibowo, 2011 [5]; Huda et al., 2018 [7]; Huda & Wibowo, 2013 [16]; Huda, 2017 [28]; Orozco et al., 2011 [29]; Kaming et al., 2017 [30][31] and Yan, 2017 [32].

5. CONCLUSIONS

The results of the study concluded that the project management process group consisting of stages: initiating, planning, executing, monitoring and closing had a positive and significant effect on improving the implementation of construction project management. The project management knowledge area which consists of ten management areas, namely management: integration, scope, time, cost, quality, human resources, communication, risk, procurement and stakeholders have a positive effect on the performance of Indonesian construction companies. Construction company performance consisting of aspects: finance (4 indicators), business sustainability aspects (consisting of 6 indicators), internal business aspects (consisting of 3 indicators) and company growth aspects (consisting of 4 indicators) have positive and significant effects on company competitiveness which consists of aspects: related industries, employment relations, corporate strategy and government factors. There are different levels of importance for small, medium and large qualification construction companies in implementing project management process group, where large qualification construction companies have a greater importance than small and medium qualification construction companies.

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Study of Parameters for Improving Performance and Competitiveness of Construction Companies
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PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11