

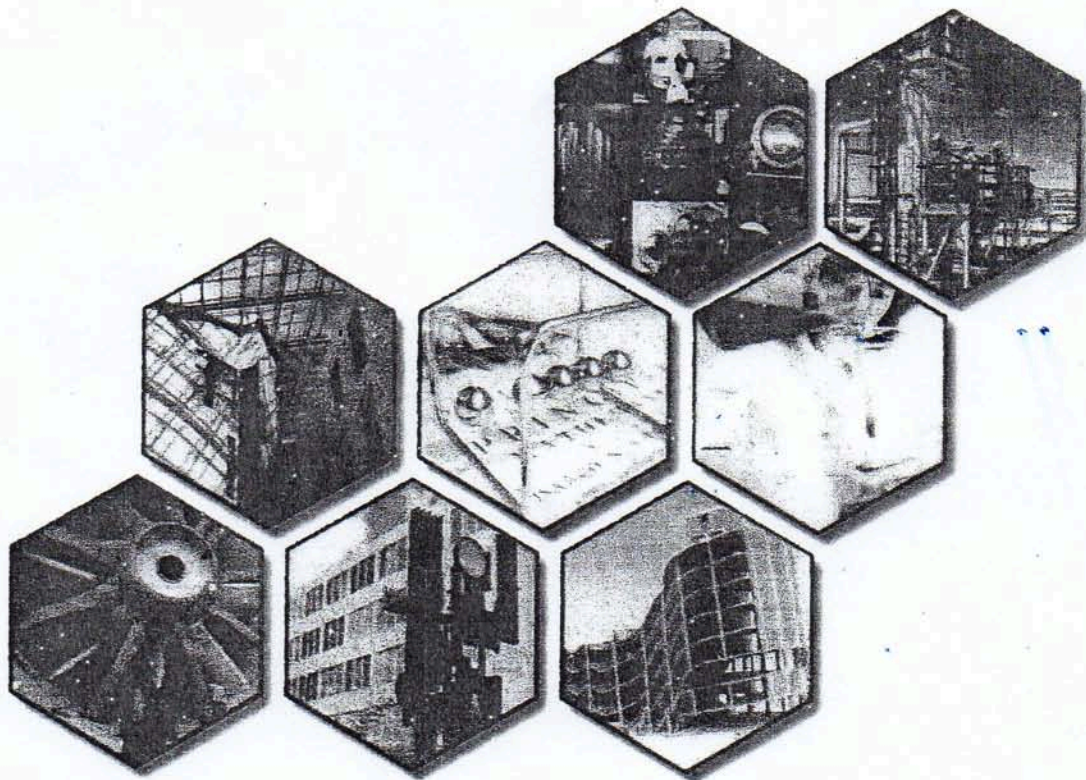
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Strategies, Performance, Sustainability and Competitiveness Model: Small and Medium Construction Services Industries in Indonesia

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Abstract: Some previous researchers had conducted a study on the relationship of competency management, resources and company capabilities, strategy, performance, sustainability and competitiveness variables. This study focused on analyzing the relationship model of strategy, performance, sustainability and competitiveness of small and medium construction services companies in Indonesia. The survey was conducted through interviews using a Likert scale (1-5) questionnaire. The population and study sample are a group of construction services companies that had been certified for business entities and already had at least five years experience. The respondents consisted of leaders or owners of a small or medium construction services company in Indonesia. A combination of *stratified, proportional and purposive sampling method* was used. SEM (Smart PLS) was used to test the validity and reliability of the model as the data analysis technique. The research concludes that the competitiveness of small and medium construction services companies were influenced by corporate sustainability, which influenced by firm performance, which influenced by the strategy, competency management, resources and capabilities of the company.

Key words: Construction services • Sustainability • Performance • Strategies • Competitiveness

INTRODUCTION

The number of industrial construction services companies in Indonesia reached approximately 177.000 companies in 2012, consisting of 174,800 (99%) small-medium companies and 1,200 (1%) large companies [1]. Construction service industry contributed approximately 7.53% of Gross National Product (GNP) in Indonesia from 2006 to 2011 of the average total project value of Rp 491.36 trillion per year [2]. The amount of absorbed manpower reached 15 million people in 2011 [1], while approximately 94% was absorbed by small and medium companies and 6% was absorbed by a large companies [3]. The development of construction industry in Indonesia is getting more prospective considering that about over 63% of state budget funds was allocated to infrastructure projects (Directorate-General of General Services, 2010) and in 2011, the turnover of construction

services companies reached Rp 756.54,- trillion [2]. The growth of industrial construction services companies in 2005-2011 increased by approximately 46.5% per year, but only about 71.2% of them did re-registration [1]. There were indications that industrial construction services companies took much interest of the community, but many of them eventually did not progress, did not succeed and did not operate anymore [4]. In the current global economy, construction service businesses were required to have competitive strategies and to provide the best performance for the company. Construction is a one-of-a-kind production: its products are highly complex; its supply chain is extremely fragmented; its processes are somewhat different [5]. To improve its performance, the company must have good strategy, competence, resources and management skills [6]. Performance is maximized when an organization develops a creative strategy and achieves effective implementation [7].

Good strategy in the company management is affected by the choice of corporate strategy [8,9] and owned management competencies [6]. One of the ways to keep the company survive was a specific strategy to win the tenders held, in order to build sustainable competitive advantage [10, 11]. The key of success of a company was must having and maintaining competitiveness. Companies that did not have competitiveness would not succeed in the market [12]. In understanding the competitiveness of companies, Gaither [13] explained that the production function in the company should generate competing priorities, namely low production costs, speed and timeliness of delivery, as well as superior quality products and services [14-16]. Today, therefore the life cycle of product is more and more shorten and competition is intensive [17].

The hard competition in construction services business made the business people of construction services in Indonesia should strive hard to maintain the sustainability of the company and continue to survive in facing competition. Maintaining the existence of a company depended on the company's ability to see and anticipate the opportunities that exist through competence management and improved resource as well as management ability [18]. The main challenge of the construction company is a deficit of skilled engineers has a set of professional competence and social [19].

The concept of environment care in creating the discourse of green construction or sustainable development is the professional way of contractor companies in the globalization era. Green construction is equal as well as identical to the concept of sustainability, namely: global awareness for environmental issues, socio-economic, poverty and health concerns in the future [20]. The green construction or sustainability concepts emphasized a balance between short-term gains against long-term risks, while the establishment now that did not jeopardize the health, safety and welfare of the future [21], as a support from the management of the company's obligation to consider profit, customer satisfaction and well-being of society equally in evaluating the performance of the company in the long term [22, 23]. Contractor's services in the future must know and understand the concept of green construction, applied in the construction according to the standards followed in order to compete in both local and international competition [24, 25].

Responding to the increasingly fierce competition of market construction services industry, the company has developed the strength of the qualifying relationship with

other parties related to the company (client, unions and government), competency management a more detailed project management (time, cost, quality, human resources, risk, inventory, claims, knowledge, health and safety management), capacity and resources of the company (such as financial resources, technical competence, leadership, experience, organizational image) is closely related to how the company's strategic plan of the company [6].

While the small and medium construction company generally only had planned their strategies informally, simply and very commonly [26, 27]. In the other hand, GAPENSI (2012) mentioned that the market share of large construction services in Indonesia reached 85% of the number of projects implemented and the remaining 15% was for small and medium construction company. Generally, the condition of small and medium construction services company in Indonesia was still very weak in terms of management skills, human resources, technology, equipment, marketing, access to information [15], funding sources, innovation and strategy as well as the ability to compete, so it was less well developed, low in survival chance and competitiveness. Larger challenges were faced because of the ongoing changes in the world trading system from protection to liberalization [28, 29], many international requirements such as the new ISO 9000, ISO 14000, ISO 18000, ISO 26000, green construction and so on, as well as the ongoing AFTA era that was in need of full support from the government. In the short term the requirement to meet these standards was a must and it was a new hurdle for construction companies, especially small and medium ones because of the limitation of some owned things and the lack of government support [30]. Required motivation behavior, multi-level leadership, internal entrepreneurship and empowerment processes to support social behavior and favorable personnel within a company's organization [31].

The research gaps of this study with previous research, which is: the research of Hidayat [11], Satria [32], Sudarto [33], Wibowo [28], Raduan *et al.* [34], Raduan *et al.* [35], Abidin [36] and Isik *et al.* [6], were, a) This study focused on small and medium construction services company in Indonesia as the object, b) The variable in this study was an integrated combination of partial variables in previous research, c) Issues raised is a combination of the micro, mezo and macro level of construction services companies. According to the description above, the research related to strategy, performance, sustainability and competitiveness of small-medium construction company business is

necessary, because based on the LPJKN's data, many small and medium-sized construction services companies were not operating anymore or did not survive. Yet according to *the Business Monitoring Indonesia* (2011), the trend of the development of Indonesia's construction industry will be higher in the year 2012-2014, but there will be greater challenges as well as less than optimal central and local government support. We hope this research will be able to provide an overview of the construction company about how to develop a strategy to maximize the company's performance, enhance corporate competitiveness and improve the sustainability of the company.

MATERIALS AND METHODS

Modelling: This research model is based on several theories and previous research. Several previous studies that became reference were; the research of Absah [37], Isik *et al.* [6], Asmarani [38], Reichheld [39], Abidin [36], Raduan *et al.* [34] and Raduan *et al.* [35]. The research of Absah [37] showed that: The competence of a company had a strong influence on the performance and competitive advantage of the company and company performance was a consequence of specific resources and owned competencies. The research of Isik *et al.* [6] concluded that, (a) The strength of the relationship and project management competencies and resources affected the ability of the company (b) Project management competencies affected strategic decisions of the company (c) The resources and capabilities, as well as strategic decisions directly affected the company performance and (d) Project management competencies indirectly affected the performance of the company through the resources and capabilities of the company, or through the company's strategic decisions. Asmarani [38] concluded that (a) managerial factors, environmental and organizational culture had a positive effect of the company's strategic planning, (b) strategic planning had a positive effect on firm performance and (c) the performance of the company had a positive effect in creating competitive advantage of the company. Reichheld [39] stated that the performance of the company (customer perspective) affected the competitiveness of enterprises. The research of Abidin [36], suggested that the construction industry, management changes and demolition effect on environmental sustainability. Environmental sustainability

also affected the sustainability of construction services. Raduan *et al.* [34][35] concluded the company a competitive advantage affect the performance of the company.

Based on several studies mentioned above, the model of this research was structured as Figure 1 below. By Figure 1 below our model consists of six variables, two exogenous variables namely Project M management Competency (X) and Competitiveness (Y5) and four endogenous variables, namely: Resources and Capabilities (Y 1), Strategic Decisions (Y2), Performance (Y3) and Sustainability (Y4).

Definitions and Indicators of Variables: The definition of operational based on previous theory and research in this study, were as follows: (a) project management competency (X), was the enterprise management capabilities in handling projects that exist and could not be separated from the overall company performance. (B). resources and capabilities (Y1); was tangible and intangible assets owned by the company. It is including financial resources, technical competence, leadership characteristics, experience, corporate image, research and development capability and innovation capability (c) Strategic decisions (Y2): was strategic decision making to achieve company goals. Starting from the perspective of an individual strategy to strategy management techniques to the implementation of the strategic decisions on the conditions in the field (*real situations*) (d) Company performances (Y3): overview of the company's success is the construction industry from the financial aspects, customer satisfaction, business processes within the compan, as well as activity in the learning and growth of the company to improve the company's financial performance in the future (e) corporate sustainability (Y4): is the company's commitment to account for the impact of its operations in the social, economic and environmental, as well as the effects of continuously keeping the contribute benefits to the community and environment (f) Corporate Competitiveness (Y5): The competitiveness of the company is the company's ability to compete in local and global markets with similar companies with all owned capabilities.

Indicators of each variable in this study is based on existing references and are shown in Table 1 below.

Hypotheses: From Figure 1 and Table 1 above, following research hypothesis were compiled;

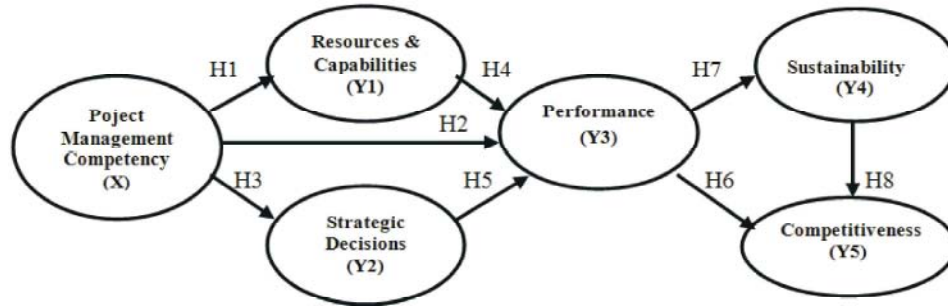


Fig. 1: Research Model and its Hypotheses

Table 1: Variables and Indicators Research

Variable	Indicators	References
Project Management Competence (X)	Management of: time or schedule (X11), cost (X12), quality (X13), human resources (X14), risk (X15), inventories (X16), claim (X17), knowledge (X18), health and Safety (X19)	Kululanga and McCaffer, [40], Absah [37], Raduan, <i>et al.</i> [34], Raduan, <i>et al.</i> [35], Isik <i>et al.</i> [6], Chan <i>et al.</i> [41].
Human Resources and Capabilities (Y1)	Financial resources (Y11), Leadership (Y12), Experience (Y13), corporate image (Y14), Capability R & D (Y15), and innovation capability (Y1 6)	Kululanga & McCaffer [42], Absah [37], Isik <i>et al.</i> [5/6], Ardiana <i>et al.</i> [43]
The company's strategic decisions (Y2)	Strategy includes: differentiation (Y21), market selection (Y22), project selection (Y23), client selection (Y24), partner selection (Y25), project management (Y26), investment management (Y27), organizational management (Y28)	Kotler & Lee [44], Hitt <i>et al.</i> [45], David [46], Absah [37], Isik <i>et al.</i> [6], Cheah and Garvin [47].
Company Performance (Y3)	Perspective includes; finance (Y31), customers (Y32), the internal binis (Y33), growth and learning (Y34)	Kaplan and Norton [48], Asmarani [38], Reichheld [39], Baird [49], Soedarmayanti [50], Mulyadi [51]
Corporate Sustainability (Y4)	In terms of sustainability: economic (Y41), environment (Y42), social (Y43), legal (Y44), ethics (Y45)	Kotler and Lee [43], Lantos [52], Chahal and Sharma [53], Bhattacharya and Sen [54], Sudarto [33], Achda [22], Suharto [55],
Corporate Competitiveness (Y5)	Threat of new entrants (Y51), bargaining power of customers (Y52), the main competitor strength (Y53)	Nelly <i>et al.</i> [56], Gaither [57], Porter [58], Absah [37], Saputra [59]

Sources: Various references

H1: Project management competency significantly influences company resources and capabilities in industrial small and medium construction services companies in Indonesia. The hypothesis is supported by the research results of Isik *et al.* [6]. Other supporting references related by project management competencies which consist of indicators; time or schedule, cost, quality, human resources, risk, inventory, claim, knowledge, health and safety [60, 61].

H2: Project management competency significantly influences the performance of companies in the industrial small and medium construction services companies in Indonesia. This hypothesis refers to the research of Isik *et al.* [6]. The influence of determinants which took the project to success or failure also has been studied by some researchers (eg, Brown and Adams [62],

Cooke-Davies [2002], Chan *et al.* [40], in which most them shows the importance of project management competence among other criterias.

H3: Project management competency significantly influences the company's strategic decisions on the industrial small and medium construction services companies in Indonesia. Hypothesis refers to the results of the research Isik *et al.* [6]. The other supporting references regarding the relationship between project management competencies with strategic decisions are [64, 10, 37, 43, 34].

H 4: Company resources and capabilities significantly influence the performance of industrial small and medium construction services companies in Indonesia. Hypothesis refers to the results of the research Isik *et al.*

[6]. According to the resource-based perspective Mentioned by King and Zeithaml [20], a company's resources and capabilities have to be valuable, rare, inimitable and should lack substitutes to have a positive effect on performance. Previous researchers, among others, performed by (for example: Chenowsky & Meredith [65]; Asmarani [38]; Raduan *et al* [35]

H5: Company strategic decisions significantly influence the performance of industrial small and medium construction services companies in Indonesia. Hypothesis refers to the research of Isik *et al.* [6]. Sun Tzu [65], in his famous "*Art of War*" which was written in the fourth century BC emphasizes the importance of strategy for success by stating: "*All men can see the tactics whereby I conquer, but what none can see is the strategy out of roomates victory is evolved*".

H6: Company performance significantly influences the competitiveness of industrial small and medium construction services companies in Indonesia. Previous researches were performed by (for example: Satria [32]; Asmarani [38]; Reichheld [39]; Sudarto [33]; Ardiana *et al* [43]; Raduan *et al* [34]; Che Rose *et al.* [66]; Miftahul & Wibowo [67])

H7: Company performance significantly influence company sustainability of industrial small and medium construction services companies in Indonesia. Previous researches were performed by (for example: Satria [27]; Asmarani [38]; Reichheld [39];; Ipik *et al.*[6]; Absah [37]; Asa *et al* [60]; Raduan *et al* [34]; Raduan *et al* [35]; Che Rose *et al* [66]; Miftahul & Wibowo [67]).

H8: Company sustainability significantly influences company competitiveness of industrial small and medium construction services companies in Indonesia. Previous researches performed by (for example: Abidin [36]; Miftahul & Wibowo[67]).

MATERIALS AND METHODS

Based on the research model in Figure 1 above, six constructs were developed to measure the latent variable " project management competency", "resource and ability", "strategic decision", "performance", "sustainability" and "competitiveness". Survey methods were by distributing Likert Scale (1-5) based questionnaire which consisted of questions about variables which can measure latent variables. Every question was associated

with variable described in the previous section. Questionnaires were be given by mail, e-mail and/or by face to face interview to 200 small-medium construction services companies across Indonesia which had registered in 2011 at the National Construction Services Development Institute [1]. The determination of total population and sample was conducted using a combination of stratified sampling methods, purposive sampling and proportional sampling. Stratified random sampling method was used to determine the number of qualified construction firms are small (S) and medium (M), which operates and was domiciled in Indonesia. Purposive sampling method was used to determine the number and provinces location of which sampling would be done, namely selected 13 provinces (67% of the total number of firms) as in Table 2 below [1, 2]. The determination of sample size for each small-medium construction services company qualifications in accordance with the desired province, selected by *proportional random sampling* method, as shown in Table 2 below.

From the 200 questionnaires distributed to 13 provinces in Indonesia, 135 viable analyzed answers obtained, consisted of 97 respondents answered through direct interviews, 22 respondents answered via email and 16 respondents through the mail. Most respondents included in the 44-55 years age group, which were 85.9% (116 respondents). Majority of respondents had bachelor degree (S1), which is as much as 71.9% (97 respondents) of the total respondents; ranked second was the group of respondents with master degree (S2) as their highest education, which was 17.8% (24 respondents) and the rest were with a high school education to D3.

Research instruments validity test was performed by looking at the average values of communality, i.e. the value of the average *communality* is equal to 5.00 means an indicator or item each variable is declared Absah. While research instruments reability test was done by looking at the value of composite reliability. Validity test results showed that construct validity were met because the average value of communality ~ 0.5 [70] while the validity test results show that the reliability of measuring instruments was met because the composite reliability score > 7 [68], so that the instrument can be further used.

Overall model analysis was done by using Structural Equation Modeling (SEM), helped by SmartPLS software. Hypothesis test was done by using Bootstrap resampling method which developed by Geisser & Stone. Factor loading was the resulting coefficient of confirmatory factor analysis evaluation for the measurement model.

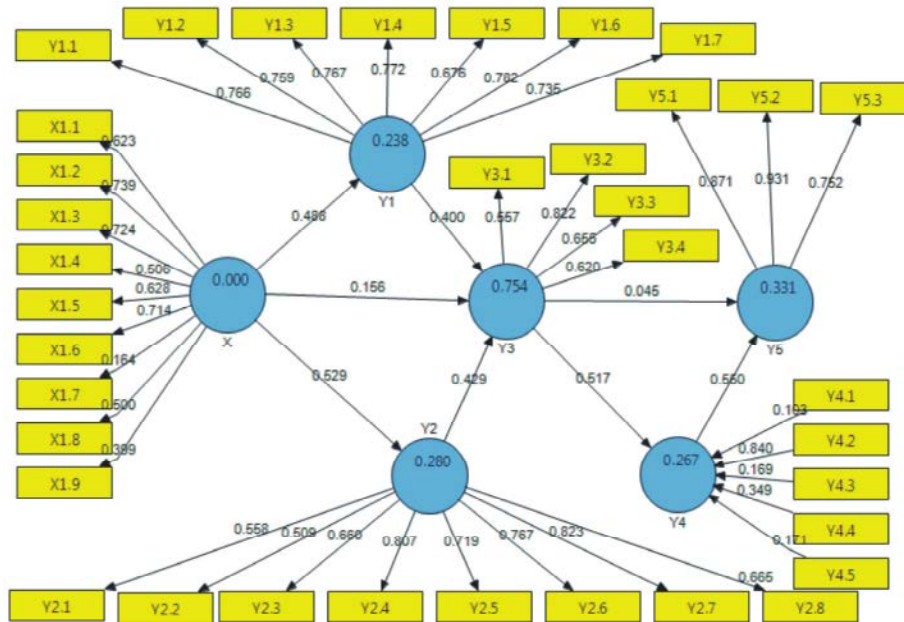


Fig. 2: Loading Factor Analysis Results
Source: Data processed researchers (2012)

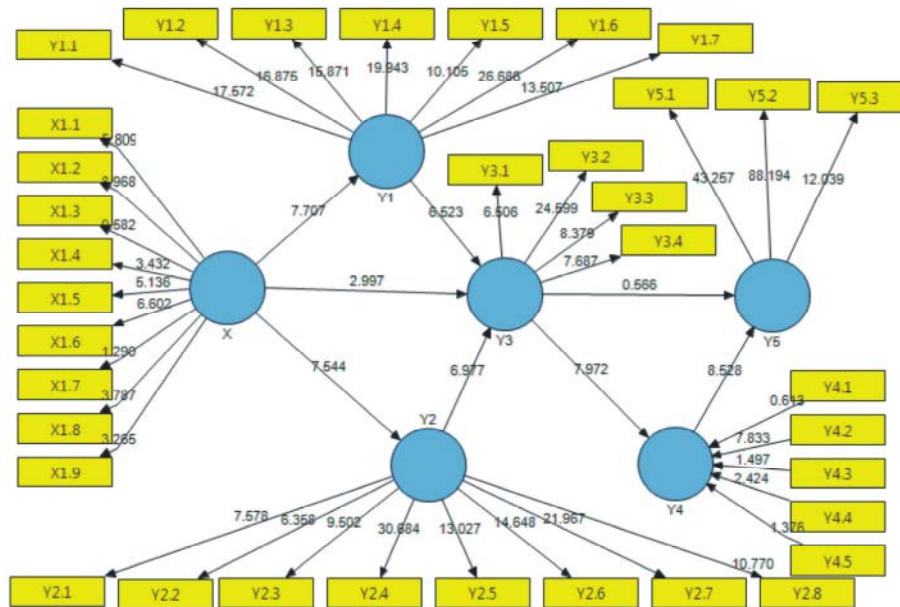


Fig. 3: T-Test Results
Source: Data processed by researchers (2012)

Loading factor was used to assess the suitability, suitability or unidimensionalitas of dimensions in forming a factor. The estimated value of loading factor was obtained simultaneously with the factor of each variable on their indicators, as shown in Figure 2 below.

Hypothesis testing was done partially by t-test on each of the direct influence paths among latent variables.

The indirect effect among latent variables proved by the evidence of each direct influence paths, i.e. if all direct effect paths were significant, the direct effect would also significant. Nevertheless, if there was at least one non-significant indirect effect, the indirect effect would be nonsignificant. The summary of hypothesis testing results are shown in Figure 3 below.

Table 2: Distribution of the number of samples in each Province Based on Contractor Qualification Class

Island & Province	Desired Population			Proportion of Sample		
	Small	Intermediate	Total	Small	Intermediate	Total
<i>Sumatra</i>						
1. NA Darussalam	7.095	1.010	8.105	12	2	14
2. North Sumatera	8.789	705	9.494	15	1	16
3. West Sumatera	5,156	356	5.512	10	0	10
<i>Java & Bali</i>						
4. DKI Jakarta	5.860	2.978	8.838	10	5	15
5. West Jawa	12.472	1.269	13.741	21	3	24
6. Central Jawa	12.054	868	12.922	21	1	22
7. East Jawa	19.150	1.297	20.447	33	2	35
8. Bali	2.448	172	2.620	4	0	4
<i>Kalimantan</i>						
9. West Kalimantan	5.860	582	6.442	10	1	11
10. East Kalimantan	7.168	1.347	8.515	12	3	15
<i>Sulawesi</i>						
11. South Sulawesi	9.226	738	9.964	16	1	17
<i>Irian Jaya & Others</i>						
12. NTT	4.570	353	4.923	8	0	8
13. Papua	4.199	741	4.940	7	1	8
TOTAL	104.047	12.416	116.463	180	20	200

Sources: Data of LPJKN Processed by Researcher (2012)

Table 3: Influence Between Latent Variables

Independent Variable	Dependent Variable	Path Coefficient	t-count	Criteria t count> t-table (1.96)
Project management competency (X)	Resources and capabilities (Y1)	0.488	7.707	Significant
Project management competency (X)	Strategic decisions (Y2)	0.529	7.544	Significant
Project management competency (X)	Company performance (Y3)	0.156	2.997	Significant
Resources and capabilities (Y1)	Company performance (Y3)	0.400	6.523	Significant
Strategic decisions (Y2)	Company performance (Y3)	0.429	6.977	Significant
Company performance (Y3)	Corporate Sustainability (Y4)	0.517	7.972	Significant
Company performance (Y3)	The competitiveness of enterprises (Y5)	0.045	0.566	Not Significant
Corporate Sustainability (Y4)	The competitiveness of enterprises (Y5)	0.550	8.528	Significant

Source: Data processed by researchers (2012)

Hypothesis testing was done by comparing the t-value of each latent variable with a t-table (1.96), which would be said to be significant if the t-test latent variables is greater than t-table ($t\text{-count} > 1.96$). Based on the value of loading factor (Figure 2) and the T test results (Figure 3), then the criteria for significance of each hypothesis can be seen in Table 3 below

RESULTS AND DISCUSSION

Effect of Project Management Competencies: Project competency management had a positive and significant effect on resources and capabilities of the company, strategic decision and performance of the company. This

research result matched to the results of the study conducted by Isik *et al* [6]. The influence of determinants that take a project to success or failure have been Investigated by several Researchers (eg, Brown & Adam [62]; Cooke-Davies [63]; Chan *et al.* [41]), the majority of whom pointed out the importance of project management competencies among other criterias. The research of Chenowsky & Meredith [64] emphasized the importance of strategic management implementation in the construction industry to achieve good effectiveness and the importance of workers' knowledge, new markets and using information technology that supporting management strategies. There was a strong relationship between the organization system and company

performance. Thus to arrange powerful strategy, resources and capabilities as well as to improve the performance of small-medium construction companies in Indonesia, it required high project management competency.

Effect of Resources and Capabilities: The resources and capabilities of a company had positive and significant effect on company performance. This result matched with the research of Isik *et al.*[6] which concluded that the company's resources and capabilities, as well as strategic decisions and significant directly affected company performance. According to the resource-based perspective mentioned by King and Zeithaml [20], a company's resources and capabilities have to be valuable, rare, inimitable and should lack substitutes to have a positive effect on performance. The results of correlation analysis showed that the human resource competence of small and medium companies had affected company performance significantly. Similarly, skills and abilities had significant effect on the performance of the construction company [43]. Thus to improve the performance of small and medium construction services companies in Indonesia, it was necessary to increase the resources and capabilities of the companies.

Effect of Strategic Decisions: Strategic decisions had positive and significant effect on company performance. This result was matched with the research of Isik *et al* [6] which concluded that the strategic decisions had a strong impact on the performance of construction services companies. According to Chenowsky & Meredith [64], the implementation strategic management in the construction industry is required in order to achieve optimal effectiveness. Miftahul H. & M. Agung Wibowo [67], recommended that the strategy of small and medium construction services company which consisted of differentiation strategy, market selection strategy, partner selection strategy, project management strategy and organizational strategy affecting the performance of the company. Thus to improve the performance of the small and medium construction services companies in Indonesia, it was needed good strategic decisions as well.

Effect of Performance: Corporate performance had positive and significant effect on the sustainability of the company, but no significant effect on the company competitiveness. This results were consistent with the research of Amsarani [38] and Miftahul H. and M. Agung Wibowo [67] which stated that the performance of the

company had positive influence in creating competitive advantage and corporate sustainability. Reichheld [39] declared that because of the consumer pressure forces, it needed analytics firm competitiveness indicators, threat of new entrants for similar products or services and the bargaining power of customers is the strength of consumers, which meant that company performance (from customer perspective) affected the company competitiveness. According to Raduan *et al.* [33], there were significant positive relationship between competitive advantage, organizational resources and organizational capabilities on company performance. Thus to keep the sustainability of small and medium construction services companies in Indonesia, high performance would be needed.

Effect of Sustainability: Company sustainability had positive and significant effect on the company competitiveness. The results are consistent with the research of Miftahul H. & M. Agung Wibowo [67], which stated that company sustainability had positive effect in creating competitive advantage of construction services company. Economic sustainability, environmental sustainability, social sustainability, law sustainability and ethical sustainability were the important aspects that must be maintained by small and medium construction services companies. The influence of company sustainability on company competitiveness were a discovery of the researchers that still need to be developed further considering that the number of researches related to company sustainability variable were still relatively limited.

CONCLUSION

To improve the performance of small and medium construction services companies, it is required good competence of project management (including management time or schedule, manajemen project cost, quality management, human resource management, risk management, inventory manajemen, claims management, knowledge management, health management and safety), beside the necessary strategy decisions (including differentiation strategies, market selection strategy, project selection strategies, client selection strategy, partner selection strategy, project management strategies, investment management strategies, organizational management strategies) and the company's capabilities and resources (including financial resources, leading experiences, company image, R & D capability and innovation capability). To maintain the sustainability of

small and medium construction services company, a good performance (including financial perspective, customer perspective, internal business processes, learning and growth) is needed. Meanwhile to increase the competitiveness of companies in terms of corporate sustainability, it required economic, environmental, social, legal and ethical sustainability.

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