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STRATEGY FOR BUILDING SUSTAINABLE PERFORMANCE OF EPC CONTRACTOR COMPANIES IN INDONESIA

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ABSTRACT:
This research is motivated by the problems faced by national EPC contractor companies, such as small market share, weak capital and cash flow, low human resource capacity, and limited networking, resulting in low competitiveness. This study aims to evaluate the sustainable performance of national EPC contractor companies in Indonesia. This research approach is qualitative. The research location is in Jakarta in relation to the location of the national EPC company head offices which have their head offices in Jakarta. The research time is one time, namely 2023. The research model uses the sustainable balanced scorecard (SBSC) model, and benchmark analysis uses the competitive professional index (CPM) with the key success factor (KSF). The results of the study show that based on measurements using the SBSC, the sustainable performance of national EPC companies is still in the poor category. Likewise, the results of CPM and KSF analysis show that the performance of national EPC contractor companies is still far behind that of foreign EPC contractors from newly industrialized countries.

Keywords: EPC, SBSC, CPM, KSF

INTRODUCTION

Construction projects continue to experience innovation. DIn terms of project complexity, one of the known models is engineering, procurement and construction (EPC). EPC is a project with a relatively high level of work complexity when compared with other types of construction projects (Wibisana et al., 2020). EPC usually includes three activity components, including engineering design, procurement and

construction activities. These three activities are integrative, which means they are not separate; so that the EPC contractor company becomes the sole person responsible for the three main activity components (Schram, 2003; (Mangalavan, 2019)). EPC is usually found in large-scale projects or often referred to as special projects, such as construction for industry, petrochemicals, oil refineries, other energy projects, fertilizer factories, etc., which usually require large financing, with very complex work because it usually involves thousands of activities in one project, requiring high technology and skilled human resources to carry them out (Schram, 2003).

Why is EPC significant to research? EPC is one of the main areas in the 2020-2024 national industrial policy. The Ministry of Industry has committed to supporting Indonesian EPC industry service providers through the Increased Use of Domestic Products (P3DN) program (Candra, 2023). EPC services play an important role in industrial development and expansion. Data from the Investment Coordinating Board (BKPM) shows that the processing industry sector is the main contributor to industry in Indonesia in the first quarter of 2023 (42.4 percent). This indicates that EPC services in the industrial sector have a large market, both for factory construction and industrial equipment design. This was stated by the Head of the Industrial Services Standardization and Policy Agency (BSKJI), Doddy Rahadi, when delivering a presentation at the Focus Group Discussion (FGD) on Optimizing the EPC industry in Jakarta, May 2023 (Candra, 2023).

The complexity of EPC work is a challenge for EPC contractors, because EPC contractor companies usually have many limitations, both in terms of human resources, materials, costs and tools. Therefore the complexity of EPC creates various risks (Al-Ammar, 2015), including the risk of experiencing significant delays. Around 60 percent to 75 percent of EPC projects fail to achieve project objectives due to deviations from the planned time and costs (Christopher & Wiliams, 2006). As stated by Putra (2008), during 2005-2007 in Indonesia there were 26 EPC projects, but 10 of them failed to achieve the planned project objectives. Kania et al (2020) research results on the project*Engineering Procurement Construction Commissioning* (EPPC) Construction of the 150kV Transmission Network PLTP Karaha-GI Garut shows that the factors causing project delays are: (1) re-route survey work, (ii) foundation work, (iii) work*erection tower*, (iv) installation & measurement of grounding tower resistance, and (v) work*stringing.*

The problem is, even though the Indonesian construction market is experiencing rapid growth, State-Owned Enterprise (BUMN) EPC Contractor Companies are only able to absorb 10% of the total value.*engineering, procurement, and construction* (EPC), where EPC is a type of integrated construction work, which includes design, engineering, procurement and implementation work. 70% of the EPC market is dominated by foreign companies,

and the other 20% by national private companies. Current figures show that the majority of foreign EPC construction companies operating in Indonesia come from Japan, Europe and China. (Sasongko, 2021).

In connection with the problem of weak competitiveness and lack of performance of national EPC contractor companies; So the study in this research will focus on one of the problems above, namely regarding performance, in this case sustainable performance (*sustainable performance*). Continuity (*sustainability)* and/or issues related to a sustainable environment (*sustainable environment*) is one of the important elements of organizational strategy at this time. Sustainable development (*sustainable development*) can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

This research aims to evaluate the sustainable performance of EPC companies in Indonesia. With a focus on research locations in DKI Jakarta and its surroundings. The Jakarta area was chosen as a reference/research reference because Jakarta is the center of EPC contractor service companies in Indonesia and they have succeeded in developing their business and competing with foreign EPC contractor companies. The research question is: How to evaluate the sustainable performance of national EPC contractor companies in Indonesia based on the model*sustainable balanced scorecard* (SBSC) and analysis*benchmarking* using models*competitive profile matrix* (CPM) with*key success factors* (KSF).

RESEARCH METHODS

The research method used in this research is a qualitative method (Cooper & Schindler, 2014: 145).This research method is a qualitative methoddescriptive. Among the five qualitative research approaches (narrative research, phenomenological research, research*grounded theory*, ethnographic research, and case study research) (Crewell & Poth, 2018: 146), this research chooses a case study approach (*case studies research*).(Zikmund et al., 2013), Babin, Carr, and Griffin (2013: 140) (Joullié, 2016) define case studies as research that refers to the documented history of certain cases involving people, groups, organizations, or events.

The location of this research was carried out at several large national EPC contractor companies, such as Tripatra and JGC Indonesia.Viewed from the perspective of research time, this study was conducted only at one time (*cross-sectional*), differentiate it from the time series (*time-series*) as well as intertemporal studies (*longitudinal study*) (Cooper & Schindler, 2014: 660; Nurdini, 2006: 52-58; Supranto, 2008: 11). This research was conducted only in 2023.

The type of data in this research consists of qualitative data, namely data in the form of words/*words;* and quantitative data, namely data in the form of numbers/numerics (Sekaran & Bougie, 2016:

2). The criteria used in this research are sustainable performance criteria which are classified into four perspectives*balanced scorecard* (BSC), namely the internal business perspective, customer perspective, financial perspective, and growth and learning perspective (Niven, 2008; Elbanna et al., 2015; Moullin, 2017; Ayadin, 2019).

The subjects in this research consisted of key informants or sources for the so-called in-depth interviews*interviewee.* According to Cooper & Schindler (2014: 156)*interviewee* for individual interviews (*individual depth interview*) has the criteria that the source has a dominant opinion and represents the research problem; have experience (*experience*) on the problem; have knowledge (*knowlwdge*) or skills (*skill*) related to the problem, and/or has authority (*authority*) (including position) related to the problem.

Specifically for primary data, this research uses two primary data sources, namely: (1) in-depth interview techniques (*in-depth interview*) (Cooper & Schindler, 2014: 152-157), either individually (in-depth interviews with individual sources or*individual depth-interview*) as well as group interviews, via*Focus Group Discussion* (FGD). Meanwhile, for secondary data, this research uses literature study (*library research*).

The data analysis in this research is to evaluate sustainable performance, using analytical techniques*balanced scorecard* (BSC), Competitive profile matrix or*competitive profile matrix* (CPM) and allows a company to evaluate itself against their main competitors using critical success factors or*key success factor* (KSF) (Zimmerer, Scarborough, & Wilson, 2008).

RESULTS AND DISCUSSION

A. Results and discussion of SBSC Analysis

Findings related to research questions are the results of sustainable balanced scorecard data and benchmark analysis. This benchmark analysis uses the CPM) and KSFs models. Next, the answers of the six sources were made into an average value. Creating an average value is important so that the value of each indicator is only one number. That is one indicator number, for evaluation purposes based on the SBSC which refers to (Elmousalami, 2020) which was modified by the author. Then this one number is converted to a percent number. This means that the 1-5 Likert scale is converted to 20%-100%, which means number 1 Likert = 20%, number 2 Likert = 40%, number 3 Likert = 60%, number 4 Likert = 80%, number 5 Likert = 100 %. More easily, each average number on the Likert Scale is multiplied by 20, so that a conversion of the average value on the Likert Scale of 1-5 is obtained.

Furthermore (conversion of the average value on a 1-5 Likert Scale), in the SBSC context it is actual performance (*actual performance*) national EPC construction services company. When taking into account the SBSC recapitulation in Table 2, the EPC company's actual performance figures are multiplied by the respective weights from the four BSC perspectives. The weight value of each perspective refers to the weight determined by Abdulrazek (2019), namely

the weight of the financial perspective is 42%. The internal process perspective weight is 21%, the customer perspective weight is 21%. The learning and growth perspective weight is 16%, the total weight is 100%. In contrast to Abdulrazek (2019), the weight of each indicator has a different weight, so in this study each weight is the same, namely taken from the average value, which is the result of dividing the weight value of each perspective by the number of each indicator. . After obtaining the weight value for each indicator, the result is obtained which is the multiplication of the weight by the actual performance.

The overall SBSC value is 31.43% which is the sum of the results of all indicators. This figure of 31.43% is certainly a bad number, because the measurement scale is assumed to be between 0-100%. The results of SBSC calculations show that the sustainable performance of national EPC contractor companies is very worrying. In the condition that the SBSC value is 31.43%, national EPC construction service companies cannot be expected to beat foreign EPC companies, nor can they be expected to increase their market share at home or even more so their market share abroad.

B. Results and discussion of CPM and KSFs analysis

The competitive profile matrix (CPM) allows a company to evaluate itself against its main competitors using key success factors (KSF) (Zimmerer, Scarborough, & Wilson, 2008). Meanwhile, David (2011) stated that CPM identifies main competitors, especially strengths and weaknesses related to the company's strategic position. These two definitions of CPM show two important things. First, identify competitors and their strengths and weaknesses; and second, identify key success factors (KSF).

In this KSF analysis, seven key factors in the EPC industry can be identified. The seven KSFs in this CPM analysis will be compared between the companies that are the focus of the research, namely the top national EPC contractor company, in this case chosen Tripatra, and JGC Indonesia; and two foreign companies from newly industrialized countries, in this case the EPC Enka company from Turkey and the SK Engineering & Construction company from South Korea were chosen.

Table 1
Key Factors in the EPC Industry

Code	
A	Finance (capital & cash flow)
B	Technology
C	HR capacity
D	Research and development
AND	Network Power
F	Marketing
G	Quality of work results

Table 1 shows that there are seven key factors in the EPC industry. These seven key factors determine sustainable performance. The key factors (key success factors/ KSFs) or critical success factors (CSF) are extracted from the SBSC indicators which are then carried out by expert judgment.

Based on the analysis above, it is possible to fill in the numbers per calculated paired comparison KSF factor, as presented in Table 2. Codes A to G in Table 2 are taken from the codes in Table 2.

Table 2

Calculation*Paired Comparison* Factor KSF

Factor	A	B	C	D	AND	F	G	Total	Adjust-ment *)	Weight
A		0	1	0	0	0	0	1	7	0,250
B	1		1	0	0	0	0	2	6	0,214
C	0	0		0	0	0	0	0	5	0,179
D	1	1	1		1	1	1	6	3	0,107
AND	1	1	1	0		0	1	4	2	0,071
F	1	1	1	0	1		1	5	4	0,143
G	1	1	1	0	0	0		3	4	0,143
								21	28	1

*) *Adjusment* because nothing can be zero

Table 2 shows the results of paired comparison calculations. The weight of each factor is known, and the total weight for the seven factors is 1 (one). Then Table 3 shows a recapitulation of the results of the paired comparison analysis.

Table 3

Analysis Results *Paired Comparison*

	Factor	Adjustment result value	Weight
A	Finance (capital & cash flow)	7	0,250
B	Technology	6	0,214
C	HR capacity	5	0,179
D	Research and development	3	0,107
AND	Network Power	2	0,071
F	Marketing	4	0,143
G	Quality of work results	4	0,143
	TOTAL	28	1,000

Table 3 shows a recapitulation of the results of the paired comparison analysis. The value of the adjustment results for each indicator is known, as well as the weight for each indicator. Meanwhile, Table 4 shows the adjustment results regarding the value of each indicator for the four companies, namely two national EPC companies

(Tripatra, and JGC Indonesia) and foreign EPC companies, namely ENKA from Turkey, and SK Engineering from South Korea. The assessment is only between numbers 1 to 4. Number 1 indicates the lowest value, and number 4 indicates the highest number.

Table 4
Variable*Paired Comparison* Factor KSF

Code	Variable	Tripatra	JGC Indonesia	ENKA (Turkey)	SK *Engineering & Construction* (South Korea)
A	Finance (capital & cash flow)	2	2	4	4
B	Technology	2	2	3	3
C	HR capacity	2	2	3	4
D	Research and development	2	2	3	3
AND	Network Power	2	2	4	4
F	Marketing	2	2	3	3
G	Quality of work results	2	2	3	3

Table 4 shows the results of the paired comparison of KSF factors. This data shows that there are companies being compared, namely two companies (Tripatra and JGC Indonesia) which are assumed to be top national EPC contractor companies; and two other companies (Enka and SK E & C) which are foreign EPC contractor companies.

The indicators compared are the seven indicators as set out in Table 3. Furthermore, Table 5 shows the results of the paired comparison of KSF factors for national EPC and foreign EPC contractor companies. The score value is the multiplication of each company's rating value with its weight.

Table 5
Comparison Results*Paired Comparison* KSF Factor for National EPC Contractor Companies and Foreign EPC

Factor	Weight	Tripatra		JGC Indonesia		Enka (Turkey)		SK E & C	
		Rating	Score	Rating	Score	Rating	Score	Rating	Score
A	0,25	2	0,5	2	0,5	4	1	4	1
B	0,214	2	0,428	2	0,428	3	0,642	3	0,642
C	0,179	2	0,358	2	0,358	3	0,537	4	0,716
D	0,107	2	0,214	2	0,214	3	0,321	3	0,321
AND	0,071	2	0,142	2	0,142	4	0,284	4	0,284
F	0,143	2	0,286	2	0,286	3	0,429	3	0,429
G	0,143	2	0,286	2	0,286	3	0,429	3	0,429
Total	**1**		**2,214**		**2,214**		**3,642**		**3,821**

Table 5 shows the score values for each indicator for each of the four companies (Tripatra, JGC (Indonesia, Enka, and SK E & C). The table also shows the total score for each company. It can be seen that the highest score (3.821) was obtained by a foreign EPC company (SK E C from South Korea). Likewise, Enka (Turkey) obtained second place with a total score of 3.642. Meanwhile, the national EPC contractor company occupied the third and fourth positions respectively. with a total score of 2.214.

CONCLUSION

Based on the evaluation results using the SBSC model, it can be concluded that the sustainable performance of national EPC contractor companies is still relatively low. When compared with foreign EPC companies from newly industrialized countries using the CPM and KSF matrices, it appears that the performance of national EPC companies is still inferior to the performance of foreign EPC companies.

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