
Utomo Sarjono Putro and Minaco Rino

ABSTRACT

Indonesia as developing countries, continues to implement various strategic action to increase economic activities through infrastructure development named National Strategic Project (PSN) that are deemed to be strategically important and must be completed quickly. To fulfill the PSN, PT KPI has ultimate goal namely OTOBOSOROR (On Time, On Budget, On Schedule, On Regulation, On Return) where there are still many project delays, cost overrun or under specification. Therefore, the main goals of the project is a fast-tracking strategy in developing projects to achieve earlier project completion with lower Capex and meet owner specification. However, in fast-track projects, starting an activity without comprehensive data and knowledge entails additional risks and uncertainties than in typical project. Therefore, the author will assess appropriate scenario planning for future contract strategy scheme to achieve OTOBOSOROR target by exploring the internal organization as well as the external environment using McKinsey's 7S and PESTEL. Then, scenario planning analysis will be conducted where's ten driving forces are identified and analyzed. Four scenarios are created from crucial uncertainties by combining the important variables of project scheduling and project cost. Implications and options are arranged for the respective scenario. At the end this study proposes Design Build Competition (DBC) contract strategy concept to complete the fast-tracking strategy, reduce project costs and maintain owner specification. However before initiating an activity, PT KPI should manage all risks and uncertainties in fast-track initiatives to avoid potential events that are not beneficial for future PT KPI projects.

Keywords: Contract Strategy Scheme, OTOBOSOROR, PESTEL Analysis, Scenario Planning.

I. INTRODUCTION

Indonesia as developing countries, continues to implement various strategic action to increase economic activities through infrastructural construction. Conducting policymaking is one of the key actions. accelerate projects transformation called National Strategic Project/Proyek Strategis Nasional (PSN) that are considered strategic and have high urgency to be realized in a short period of time.

In order to fulfill the National Strategic Project, PT Kilang Pertamina Internasional (PT KPI) has ultimate goal namely OTOBOSOROR (On Time, On Budget, On Schedule, On Regulation, On Return). Therefore, one of the main goals of the project is a fast-tracking strategy in developing projects to achieve earlier project completion (PMI, 2004). The accomplishment of the project's primary goals can serve as a general indicator of project predictability (Henry et al. 2007). To put it another way, the goals serve as predictability indices that show how close or distant the project is from achieving its planned objectives such as cost, timeline, and quality of the project (Atkinson 1999). Reducing project duration can be achieved starting from the beginning of the project's construction phase before the design package is finished by overlapping activities in each phase, therefore the project's duration can be cut down. In fast-track projects, to start an activity without comprehensive data and information will create more risks and uncertainties than normal situations. Based on their investigation on the effects of timetable pressure on construction performance, Nepal et al. (2006) emphasized that schedule acceleration could lower the project's quality. Therefore, it is important to maintain cost, schedule and quality as the same priority.

One of the most critical phases to achieve OTOBOSOROR target is selecting project procurement method /contract strategy scheme that used to select contractors/licensors/consultant. The contract strategy scheme is useful for identifying the contractor's service needs by the company, preparing bidding packages, conducting bidding process until signing contracts to handle the physical construction of the project.
Chang and Ibbs (1998) stated the use of contracting strategy by dividing the project work into task orders and distributing them to the parties in phases. The purpose of this method is to find contractors who have the skills, tools, and method to carry out construction projects in an efficient and economical manner without any significant difficulties.

II. BUSINESS ISSUE

In order to achieve the best decision, an understanding of various conditions of the contract strategy scheme for each type of project is required. Therefore, to gain faster project delivery, and optimized engineering design with minimize unnecessary deviations during EPC execution stage that impact to lowering total project cost, PT KPI will have consideration to decide the most suitable contract strategy scheme to execute different type of projects.

This research can be used by various companies, institutions, governments as policy makers, investors/shareholders, and other related parties. Therefore, the research question in this study are the following items:

- a. What are the differences between each contract strategy scheme?
- b. What are the main focal issues and driving force to choose appropriate contract strategy scheme?
- c. What is the appropriate scenario planning for future contract strategy scheme to achieve OTOBOROR target and reduce project delay, cost overrun and change order?
- d. What are the effects of each scenario and the available solutions in that case?

Therefore, the objective of this project is to investigate the ambiguous conditions choose a suitable contract strategy scheme at PT KPI to expedite project execution. Understanding the crucial driving forces/elements that might serve as motivators for creating future scenario planning is necessary for exploring the uncertainty aspects from any angle. The scenario is anticipated to provide the Company with mitigation so the company can plan and make the proper option during this ambiguous business environment. The project suggests scenario planning for the company's growth to meet goals by accelerating time schedules, minimizing capex & change orders, and comply with regulations by overcoming obstacles by implementing which contract strategy scheme is most suitable for the business's current situation.

III. LITERATURE REVIEW

Fast-track initiatives drastically cut down on the amount of time needed to predict project results. This leads to high levels of risk and uncertainty due to overlapping activities (Moazzami et al., 2011). According to Aboushiwa and Bower (2000), in order to achieve the cost, schedule, and quality goals of a given project, a contract strategy should be defined in the early stages. According to Bower (2003), choosing the incorrect contract method may result in the project going over budget and taking longer than expected to complete.

The simplest method to comprehend the various kinds of construction contracts strategy scheme, in accordance with Carty (1995), is to look at them from the standpoint of the risk associated with them. According to Wang and Hu (2018) in the construction sector, the success of a project depends on two key factors: a Project Delivery Method (PDM) and a Project Contract Strategy (PCS). With a number of cutting-edge PDMs and PCSs emerging in tandem with the expansion of the industry, they currently have a choice of options available to them in the construction sector (Ding et al., 2018). According to this research, the PDM and PCS should be constructed in tandem due to their close association. This literature focuses on the Project Delivery and Contract Strategy (PDCS) design to establish a conceptual foundation for the PDCS design. The design process is separated into two stages: preliminary design and detailed design, using engineering design as a point of comparison. As a tool in the design process, the value-added analysis of project objectives is employed.

According to Perry (1985), schematic of bidding system or procurement system could be divided into:

1. Separated and co-operative procurement system (conventional), where the responsibility for design and construction is the responsibility of a different organization. The design responsibility goes to the design (BED/FEED) consultant and construction is the responsibility of the contractor.
2. Integrated procurement system, where design and construction are the responsibility of one organization. Examples of this system are: Dual Feed Competition, Design Build Competition, & Lumpsum Turnkey.
3. Management oriented procurement system, which emphasizes the management of design and construction by integrating various participant activities through planning, organization, and control. Examples of this system are Construction Management, Contracting Management and Design and Manage.

According to Liu (2016), different project delivery strategies that incorporate multiple project life cycle phases are shown in Fig. 1. Many of these project delivery methods go well beyond the limitations of design-build contracts by allocating expanding functional responsibilities.

As illustrated in Fig. 2, there are eight key elements that are chosen from the standpoint of a procurement, according to Liu (2016).

According to Liu (2016), The PDCS design approach has various advantages:

1. By designing PDCS, it is feasible to incorporate the unique aspects of certain projects into the PDM and PCS. It also promotes innovation that is not restricted to PDMs already in use.
2. The owner can make decisions that are more advantageous overall by combining PDM with PCS.
3. Designing the PDCS based on the value-added analysis of the project objectives offers a clearer and more direct approach to decision-making than current methodologies.
IV. METHODOLOGY

This study begins by identifying the problem that occurs in the PT KPI that results in project delays, cost overruns and change orders caused by both technical and non-technical factors. Martin (2003) went on to say that underruns and cost overruns are both detrimental to predictability. As a State-Owned Enterprise (SOE) conducts business in the energy sector, it is undoubtedly impacted by several factors, including unforeseen factors.

To develop the best strategy for the company, to obtain comprehensive information, data collection is required from primary sources originating from in-depth interviews and secondary sources originating from company internal data or other sources such as related journals and the internet. The selection of a list of interviewees is very important to determine in the early stage with the aim of accuracy and reliability of information, completeness of viewpoints, relevance to objectives or topics as well as credibility and authority.
Therefore, in this research, interviewees are determined from end-to-end business process. Starting from the project planning, engineering stages, EPC execution stages as well as the project budget and schedule team that plans the overall project. Then it is necessary to outline the external and internal analyses. Analyzing the company's possible dangers and possibilities is characterized as the external environment. When a company's internal structure is defined to examine its strengths, these will be its long-term competitive advantage. This chapter will explore the internal organization as well as the external environment. Using PESTEL analysis, the external environment is described. McKinney’s 7s analysis defines the internal organization.

The VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) condition makes it crucial to create several strategy strategies to handle potential future scenarios. The appropriate strategy must be defined to consider the potential future developments that could affect the organization to identify the best course of action. In the strategy-planning process known as scenario planning, top management develops a number of scenarios to anticipate potential futures and determine strategic responses (Rothaermel, 2017). The business can use it as a tool to adjust and gather information for future development as depicted in Fig. 4.

VI. RESULTS

The fundamental issue and related challenges are identified during this initial stage of scenario planning preparation using preliminary interviews and other research methodology. The main objective is to highlight the significant and pertinent information so that better decisions may be made. Hence, internal and external analysis are used to determine internal and external analysis. Internal and external analysis are two key components of strategic management that organizations use to assess their current situation, identify opportunities and threats, and inform their strategic decision-making. This study uses McKinsey 7S Framework to assess Internal analysis and PESTEL to assess external analysis.

A. McKinsey 7S Framework

Based on data collection in-depth interview and literature review, this study develops McKinsey 7S framework for analyzing and assessing the internal elements of an organization to determine its overall effectiveness and alignment. The model summarized and consisted of seven interrelated elements that are categorized into “hard” and “soft” components, as shown in Fig. 5.

B. PESTEL Analysis

Based on data collection in depth interview and literature review, this study develops PESTEL analysis for systematically assessing and analyzing external factors that can influence their business environment as shown in Fig. 6.

V. DATA COLLECTION METHOD

The use of qualitative data is appropriate for this study since it gives the author more chances to obtain a deeper understanding of a certain subject and to be flexible and exploratory as they test hypotheses. However, various quantitative data will be included in the study to support it and may be used appropriately. So, scenario planning needs pertinent facts to ensure that the intricate forecasts that will be made are trustworthy to address the challenges in the real world. Referring to Lindgren and Bandhold (2002), there are seven (7) techniques: actor-oriented, timeline-based, intuitive/generative, interview-based, media-based, consequence-focused, and system-based. This research will employ primary data collection by interview-based methodologies and secondary data collection by several sources as shown in Fig. 4.
C. Scenario Planning Analysis

Based on point 3 Methodology research, five stages will be followed in the scenario planning analysis for the PT KPI: 1) Orientation; 2) Exploration; 3) Scenario Creation; 4) Option Consideration; 5) Integration. The following analysis will be further explained:

1) Stage 1: Orientation
The main issues that will be the focus of this study are:
   i. How can PT KPI run the project and achieve OTOBOSOROR target?
   ii. What kind of strategies can be taken by PT KPI to run the project and achieve OTOBOSOROR target in the next 5 years?

2) Stage 2: Exploration
The macroenvironment that affects the major focal issue is designated as the driving force. Previous explanation external and internal analysis have determined the macro environment.

Based on data collection in depth interview and literature review then the data processed by Author and come out with 10 driving forces that can be classified into six groups using the PESTEL framework as indicated in Table 1.

The exploration of the driving elements was then classified to the primary driving variables that the interviewer strongly emphasized, which are project schedule, project cost, consistency of design, project complexity, PT KPI resources, potential tender failed, tender rule & guidance, market interest, owner interest/control and potential audit finding.

The important uncertainties in this study were determined using the findings of interviews with the respondent. Two questions were put to the interviewers. The first question seeks their opinion on the driving force with the greatest impact, while the second seeks their view on the driving force with the greatest uncertainties with the following summaries shown in Fig. 7.

Fig. 5. McKinsey 7S framework Summary.

Fig. 6. PESTEL Model.
TABLE I: POTENTIAL DRIVING FORCE TO ACHIEVE OTOBOSOROR

<table>
<thead>
<tr>
<th>Factors</th>
<th>Driving Force</th>
<th>Brief Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political</td>
<td>Total Project Schedule</td>
<td>The government has set a time schedule for each sector to complete a National Strategic Project. As a result, the project timeline/schedule becomes one of the driving forces to finish the project (including completing Feasibility Study, BEDP, FEED and FID)</td>
</tr>
<tr>
<td>Economic</td>
<td>Project Cost</td>
<td>The total amount of money required to complete all the activities within the project scope. The cost of a project includes all the expenses associated with the project, such as labor costs, materials and supplies, equipment and technology, overhead costs, engineering cost (feasibility study, BEDP and FEED) and any other direct or indirect costs.</td>
</tr>
<tr>
<td>Economic</td>
<td>Consistency of Design</td>
<td>The absence of design changes from the engineering phase (BED &amp; FEED) to the EPC phase. Consistency of engineering design with EPC implementation is one of the main keys to minimizing change orders (CO) and extend of time (EOT) which can cause significant losses in terms of finance, quality, and project completion time.</td>
</tr>
<tr>
<td>Sociocultural</td>
<td>Market Interest</td>
<td>The level of demand or interest in the project within the Consultant/Contractor market. A variety of indicators, including the level of competition, the availability of funding, the size of the target audience or customer base, and the overall economic conditions, can be used to gauge market interest.</td>
</tr>
<tr>
<td>Owner Interest/ Control</td>
<td>PT KPI Resources</td>
<td>The level of involvement and decision-making power that the project owner has in the project's planning, execution, and delivery is referred to as owner control or interest in a project. Depending on the sort of project, there are various levels of owner interest or control, its size and complexity, and the owner's connection with the project team.</td>
</tr>
<tr>
<td>Technological</td>
<td>Project Complexity</td>
<td>The level of difficulty, intricacy, or uncertainty involved in completing the project successfully. Complex projects are typically characterized by a high level of interdependence between tasks, many stakeholders or resources involved, and a high degree of uncertainty or risk.</td>
</tr>
<tr>
<td>Legal</td>
<td>Potential Tender Failure</td>
<td>The potential for a failed tender occurs because if integrated procurement system scheme is selected (either DFC or DBC), one of the contractors resigns at the engineering or commercial stages, it can be concluded that the tender has failed and cannot be continued.</td>
</tr>
<tr>
<td>Legal</td>
<td>Tender Rule &amp; Guidance</td>
<td>Tender rule guidance is a set of principles and rules that govern the tendering process for the procurement of goods or services to provide a fair, transparent, and competitive bidding procedure in which all interested suppliers or service providers compete on an equal treatment.</td>
</tr>
<tr>
<td>Legal</td>
<td>Potential Audit Finding</td>
<td>Potential audit finding on a project is a problem or issue that was discovered during the audit process and could result in a finding or recommendation for improvement.</td>
</tr>
</tbody>
</table>

3) Stage 3: Scenario and narratives creation

Referring to the primary sources obtained from the results of interviews and several supporting documents from the internal company and PT KPI independent consultants. The scenario structure for this final project was created using a 2x2 matrix based on the two main uncertainties, total project schedule and project cost, which were divided into four different quadrants as shown in Fig. 8.

a) Scenario A: Conventional

In the construction industry, the design-bid-build/conventional contracting scheme is a common project delivery method. The owner benefits from a clear division of labor between the designer and the contractor thanks to the design-bid-build/conventional contracting approach. The contractor is in charge of building the project in accordance with the design and specifications, while the owner has complete authority over the project's design and specifications. This strategy, however, may result in longer project schedules and communication challenges between the designer and contractor.
b) Scenario B: LSTK
Lump Sum Turnkey (LSTK) contract is a form of construction contract in which the contractor undertakes to deliver a finished project to the owner at a given fee and within a set timeframe. The design, engineering, procurement, building, and commissioning of the project are all entirely the Contractor’s responsibilities under an LSTK contract. Based on the data and information generated from the basic design, the contractor implements the full detail design. The contractor assumes complete responsibility for the design and construction of the plant and delivers it "at the turn of a key" operational.

c) Scenario C: DFC
The DFC contract plan requires two engineering companies to develop a FEED study for the project at the same time, based on the same set of specifications and requirements provided by the project owner. Following that, engineering firms compete to give the best design and engineering solutions for the project. The DFC contract model is intended to stimulate competition and innovation among engineering firms, resulting in increased project quality, cost-effectiveness, and timeliness.

d) Scenario D: DBC
Design-Build Competition (DBC) is a project delivery technique that integrates a project’s design and EPC phases into a single contract. It involves competition among design and construction teams to create the best solution to a project’s requirements. The teams typically include architects, engineers, contractors, and other professionals who work collaboratively to develop a comprehensive solution that meets the project’s needs.

To simplify the flowchart comparison between Conventional, DFC, DBC and LSTK depicted in Fig. 9.

In order to facilitate the reader to compare the pros-cons of each contract strategy, this study prepared Table II, which is based on data collection from in-depth interviews and literature review.

Fig. 9. Comparison of Contract Strategy Scheme.

<table>
<thead>
<tr>
<th>TABLE II: PROS-CONS EACH CONTRACT STRATEGY SCHEME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>LSTK</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DFC/DBC</td>
</tr>
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4) Stage 4: Options considerations

After constructing the scenario matrix and narratives, this stage involves the study of implications and the selection of options. Table III are the implications and options for each scenario.

5) Stage 5: Integrations

Finding early warning signs is the aim of the integration stage. The purpose of early warning signals is to detect early warning signs that affect the scenario's future orientations. Table IV shows the early warning signals for each scenario based on data collection in depth interview and literature review.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Implication</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>The EPC cost relatively higher because there’s no design optimization during FEED stage.</td>
<td>May require extensive design scrubbing during FEED stage to identify cost saving opportunity.</td>
</tr>
<tr>
<td></td>
<td>There are 3 different bidding process to select BDP Licensor, FEED Contractor and EPC Contractor (longer total schedule).</td>
<td>Find the best strategy to minimize the bidding process/engineering stage to shorter the schedule.</td>
</tr>
<tr>
<td></td>
<td>Potential to lead change order due to different Contractor who execute 3 different stages.</td>
<td>• Make a clear SOW for EPC Phase to prevent CO dan EOT. • Keep the same key personnel among the stages to maintain historical data.</td>
</tr>
<tr>
<td>LSTK</td>
<td>Owner should deeply involve in the project control including cost monitoring and the progress check. If there’s not enough strong team it will cause high Capex and longer total schedule.</td>
<td>Build a strong team member because Owner is deeply involved in the project control including cost monitoring and the progress check, the Owner could easily make variation or field change.</td>
</tr>
<tr>
<td></td>
<td>Longer time needed during bidding stage, because it’s hard to evaluate the proposal in early stage (including technical &amp; commercial criteria)</td>
<td>A strong procurement and technical team during tender phase for Contractor selection. Because it could be longer compared to Conventional (more efforts will be required to select the most competitive contractor)</td>
</tr>
<tr>
<td></td>
<td>The Contract price relatively will be highest compared to others because all responsibility/risk will be delivered to Contractor.</td>
<td>Owner should have a good strategy to negotiate due to contract price will be relatively higher as Contractor takes most of responsibilities.</td>
</tr>
<tr>
<td>DFC/DBC</td>
<td>Potential different design fulfillment by Contractor because no equal strong technical team to review the documents to meet Owner requirements.</td>
<td>• The owner should have a strong equal technical team member to evaluate BED and FEED documents. • Prepare detail engineering standard to make equal treatment for both Contractors. • Prepare detail Scope of Work, and no bias information for both Contractors.</td>
</tr>
<tr>
<td></td>
<td>Owner will face with the task of managing two development processes in parallel.</td>
<td>• Owner shall prepare 2 different team members with equivalent technical expertise. • Hire PMC to help Owner to review the documents</td>
</tr>
<tr>
<td></td>
<td>Potential leak of information due to one of the contractor's designs is spread to other contractors</td>
<td>Prepare Communication protocols, SOP and guidance.</td>
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</table>

<table>
<thead>
<tr>
<th>Driving Force</th>
<th>Indicator</th>
<th>DBB</th>
<th>LSTK</th>
<th>DFC</th>
<th>DBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Cost</td>
<td>License Fee</td>
<td>Smaller Only 1 licensor</td>
<td>Smaller Only 1 licensor</td>
<td>Bigger 2 different licensors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eng. Fee</td>
<td>Smaller Only 1 FFED Contractor</td>
<td>Smaller Only 1 FFED Contractor</td>
<td>Bigger 2 different FFED Contractors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction Fee</td>
<td>Normal</td>
<td>Higher All risk belongs to Contractor</td>
<td>Smaller Integration FEED to EPC completed with same Contractor</td>
<td>Smaller Integration BED to FEED to EPC completed with same Contractor</td>
</tr>
<tr>
<td></td>
<td>Potential Change Order</td>
<td>High because BED, FEED and EPC completed with different Contractor</td>
<td>Lowest because all responsibility /Risk starting from BED to EPC belongs to Contractor</td>
<td>Lower because FEED to EPC completed with same Contractor</td>
<td>Lowest due to integration BED to FEED to EPC completed with same Contractor</td>
</tr>
<tr>
<td></td>
<td>Bidding Schedule</td>
<td>Owner has 3 different bidding for BED, FEED and EPC</td>
<td>Owner have only 1 bidding to choosing Contractor for BED, FEED &amp; EPC</td>
<td>Lower Owner has 2 different bidding for BED and DFC.</td>
<td>Lower Owner have only 1 bidding for DBC.</td>
</tr>
<tr>
<td></td>
<td>Completion of Engineering</td>
<td>Longest Every stage (BED, FEED &amp; EPC) in a series</td>
<td>Lowest Contractor could make a parallel design for BED, FEED and DED</td>
<td>Lowest Contractor could make a parallel design for FEED and DED</td>
<td>Lowest Contractor could make a parallel design for BED, FEED and DED</td>
</tr>
</tbody>
</table>

**Table IV: The Scenarios Early Warning Signals**
VII. IMPLEMENTATION PLAN

Currently, Contract strategy that commonly used in PT KPI is conventional/Design Bid build. The business solution has been carried out by a joint meeting between related departments and obtained PT KPI management approval through the principal permit of the Director of Projects and Business Development as shown in Fig. 10. Conclusion

The conclusions of this study are based on the results of assessments of the external and internal environments carried out through literature reviews, interviews, and FGD, as follows:

1. The key focal issues of this research are:
   a. How can PT KPI run the project and achieve OTOBOSOR target? and
   b. What kind of strategies can be taken by PT KPI to run the project and achieve OTOBOSOR target in the next 5 years?

2. During the scenario building process, ten driving forces are identified and analyzed, which are based on a questionnaire and then deepened through interviews:
   a. Project Schedule
   b. Project Cost
   c. Consistency of Design
   d. Project Complexity
   e. PT KPI Resources
   f. Potential Tender Failure
   g. Tender Rule & Guidance
   h. Market Interest
   i. Owner Interest/Control
   j. Potential Audit Finding

3. Ten driving forces are investigated further in terms of the extent of the influence and the high uncertainty effect on the major focal issue, resulting in crucial uncertainties.

The most significant impact driving force is project cost, and the most uncertain factor is project schedule.

4. Four scenarios are created from crucial uncertainties by combining the important variables of project scheduling and project cost, namely:
   a. Conventional
   b. LSTK
   c. DFC
   d. DBC

5. Table III displays how implications and options are arranged for the particular case.

6. The following 8 (eight) factors have been recognized as early warning signs:
   a. Licensor Fee
   b. Engineering Fee
   c. Construction Fee
   d. Potential Change Order
   e. Product Specification
   f. Bidding Schedule
   g. Completion of Engineering
   h. Potential Extension of Time

As stated above, the major objective of finishing the project is for PT KPI to reach the OTOBOSOR aim to use a fast-tracking strategy in project development in order to complete projects faster and reduce project costs in order to attract investors to provide funding to run the project. As a result of the preceding explanation, the Design Build Competition (DBC) scheme can accomplish fast tracking and low project costs. Before initiating an activity, the PT KPI should have proper data and information to manage all risks and uncertainties in fast-track initiatives to avoid potential events that are not beneficial for future PT KPI projects. Projects that are accelerated without enough planning may
undergo transformation as a management response to the problem. However, the change would lead to further modifications that would require more labor and be of lesser quality (Park, 2002).

VIII. RECOMMENDATION

Based on the findings of the previous chapter's data analysis, as well as to address the research problem, this research can be used as evaluation material by company management to improve company performance, notably by effectively controlling risk levels. This can be accomplished by engaging in the following activities:

- a. Using another contract strategy, to be able to achieve OTOBOSORAR target.
- b. Prepare all regulations, SOP, engineering standard and all related documents for other contract strategy.
- c. Improve personnel quality by training and provide related engineering tools/software, previous project databank and prepare digitalization working platform.

CONFLICT OF INTEREST

The authors affirm that there are no conflicts of interest.

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Coordinating Ministry for Economic Affairs. (2022). National Strategic Management Research can be used as evaluation material by company analysis, as well as to address the research problem, modifications that would require more labor and be of lesser problem. However, the change would lead to undergo transformation as a management response to the problem.


Utomo Sarjono Putro graduated with a B.Eng. from the Department of Industrial Engineering at the Institut Teknologi Bandung in 1992. He continued to earn a Master’s degree in decision science from the Tokyo Institute of Technology in 1995, followed by a Doctoral degree from the Department of Value and Decision Science at the same institution in 2001. The IEEE Transaction on Systems, Man, and Cybernetics, Systems Analysis Modeling Simulation, Systems Research and Behavioral Science, and Procedia Social and Behavioral Science are just a few of the worldwide publications where Prof. Utomo has published work.

He has presented several articles at numerous international conferences in countries like Japan, Singapore, China, and Vietnam, as well as journals like IEEE Transactions on Systems, Man, and Cybernetics and the Asia Pacific Conference on Operation Research Society. In the areas of negotiation, systems modeling for policy formulation, agent-based modeling, strategic decision making, systems modeling, and decision science, he has provided advice and training to public and commercial organizations as well as governments. His areas of interest in research span negotiation, service sciences, agent-based modeling, systems thinking, and systems approach to decision-making. As a member of the editorial board, he also reviews articles for a number of international journals, including Asian Journal of Management Science and Applications and Systems Research and Behavioral Science.

Minaco Rino graduated with a B.Eng. from the Department of Chemical Engineering at the Universitas Diponegoro in 2012. He continues Master's degree in Energy MBA from Institut Teknologi Bandung and Professional Engineer from Universitas Indonesia. Currently, He is working as Process Control and Engineering System Engineer in PT Kilang Pertamina Internasional (PT KPI) as subsidiary of PT Pertamina (Persero). He is a certified Project Management Professional with 5+ years’ experience in oil & gas company. He has achieved grand prize winner for Quality Control Circle in PT Indopoly Swakarsa Industry and has project experience for revamping existing refineries in Balongan and TPPI Tuban.