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Research Article

Selecting The Best Alternative for Procurement of Equipment Labeling Facilities at PT XYZ Using the Delphi and AHP Methods

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Abstract: PT XYZ is a company that manages the Balikpapan Refinery Development Master Plan (RDMP) Project. This project aims to increase the refinery processing capacity and produce products with EURO V quality that are more environmentally friendly. Currently, the project is in the final construction phase, which will be followed by the commissioning phase, a phase that greatly requires effective equipment identification. In this project, the labels available on the equipment are not operationally adequate, and the procurement of facilities for equipment labeling is not included in the project's scope of work. There are three alternatives to solve this problem: implementing a change order in the project contract, implementing a label procurement framework contract, and procuring facilities independently by the relevant department. This study aims to choose the best procurement method among the three alternatives. Based on the questionnaire data filled out by respondents and processed using the Delphi analysis method, four criteria and twelve sub-criteria were obtained. These criteria were then processed using the AHP method to produce criteria weighting, namely cost (0.404), time (0.332), quality (0.164), and operational (0.100). Based on these criteria and sub-criteria, the best alternative for procurement of equipment labeling facilities at PT XYZ is independent facility procurement by the relevant department (0.454), followed by the implementation of label procurement framework contract (0.320), and the implementation of change orders on project contracts (0.226).

Keywords: *AHP, Change Order, Commissioning, Delphi, Equipment Labelling.*

A. INTRODUCTION

To support national energy independence, the Indonesian government has designated the Balikpapan Refinery Development Master Plan (RDMP) project as a National Strategic Project (PSN). This project is expected to increase the production capacity of the Balikpapan refinery and improve fuel product quality to meet EURO V emission standards. Project implementation is entrusted to PT XYZ which is currently entering the final construction phase and will continue with the commissioning phase. At this stage, all assets, such as equipment and control systems, must be ensured to function optimally and be safe for operation (Amaechi et al., 2022).

However, field observations indicate that equipment identification is suboptimal. Asset labels or tags are small and contain varying information depending on the manufacturer, making it difficult for operational teams to quickly identify items. The absence of an effective labeling system has the potential to slow down the commissioning process and risk project delays. Yet, equipment labeling is a crucial element in supporting the safe and efficient operation of industrial facilities. This labeling process should ideally meet oil and gas industry standards and be carried out systematically and verified (Chen et al., 2025).

The problem that arose was that the procurement of labeling equipment was not within the scope of work of the main contractor. Therefore, managerial decisions were required to determine the most appropriate procurement method. Three alternatives were available: implementation of change order in the project contract, implementing a label procurement

framework contract, and procuring facilities independently by the relevant department. Each had different implications in terms of cost, time, and operational efficiency. Because the decision involved many aspects and was strategic, a multi-criteria decision-making approach was crucial (Heaton et al., 2022).

To reach an informed decision, this study integrated two methods: Delphi analysis and the Analytical Hierarchy Process (AHP). Delphi analysis was used to gather and synthesize the views of experts in various fields to generate relevant criteria and sub-criteria. AHP was used to weight and rank the three available procurement alternatives. This allowed for systematic, objective decision-making, considering various technical and managerial perspectives (Jahanvand et al., 2023).

Based on this background, this study aimed to identify important criteria and sub-criteria in selecting alternative procurement options for labeling equipment, assign weights to each criterion, and determine the best feasible alternative. This research is expected to contribute to supporting the efficiency of the commissioning phase of the Balikpapan RDMP project, as well as being a reference in strategic decision-making in the energy, oil, and gas industry sectors.

B. LITERATURE REVIEW

1. Project

A project can be defined as a temporary activity lasting for a limited period, with specific resource allocations to produce a clearly defined outcome (Sholeh, 2022). Based on the definition of a project, the main characteristics of a project are:

a. It aims to produce a specific deliverable in the form of a final product or work product.
b. It is temporary, meaning its lifespan is limited by the completion of the task. The starting and ending points are clearly defined.
c. It is non-routine and non-repetitive. The type and intensity of activities change throughout the project.

In the process of achieving these objectives, certain limitations must be met, including the allocated cost or budget, the schedule, and the quality requirements. Large-scale, highly complex projects typically utilize the Engineering, Procurement, and Construction (EPC) management concept. EPC is a project management concept responsible for engineering design and planning activities, procurement of materials and equipment, and implementation of construction work (Safaeian et al., 2022). After the EPC is implemented, the next phase is commissioning. Commissioning is a rigorous, systematic, and documented process to ensure that a new or installed facility, system, or component complies with the design intent, client requirements, and all relevant codes, standards, and regulations. It is often used in industries such as petroleum, manufacturing, and information technology (Singh & Anumba, 2024).

The purpose of commissioning is to ensure that a building or system is designed, installed, and operated to meet the operational requirements of the owner or end client. This involves verifying that all systems and components of a building or structure are installed and functioning correctly, are integrated, and work together effectively. Commissioning also helps identify and correct any problems or deficiencies in equipment or a system before it is put into service. This can help prevent operational problems and improve the overall performance and reliability of the equipment or system (Jradi et al., 2021).

2. Program Equipment labelling

Equipment labeling is an element of an effective operational behavior program. An effective equipment labeling program will identify each component necessary for facility operation, warn of specific hazards, and identify emergency equipment. Effective labeling will enhance training effectiveness and help reduce operator and

maintenance errors resulting from incorrect identification of facility equipment (Xu et al., 2023). The complexity and range of activities performed in industrial facilities demonstrate the need for a coordinated labeling program to enhance safe and efficient operations. The objectives of implementing an equipment labeling program include:

a. Reducing operator and maintenance team errors due to misidentification of facility equipment.
b. Reducing personnel exposure to radiation or hazardous materials by reducing the time spent identifying components.
c. Helping identify piping contents so that hazard-related mitigation can be implemented.
d. Helping identify the normal flow direction of a system, thereby helping to prevent or mitigate leaks and spills.
e. Helping identify electrical equipment, thus aiding isolation for lockout/tagout, and improving rapid and accurate response to emergencies (Zafar et al., 2024).

An equipment labeling program is established and implemented to ensure that facility personnel are able to effectively identify the equipment they operate. Therefore, several criteria for implementing an equipment labeling program are outlined, namely:

a. Equipment, components, and piping requiring labeling are identified by the facility owner.
b. Information on labels meets regulatory requirements and is consistent with facility procedures.
c. Label materials and attachments are compatible with the components and the environment in which they are used.
d. Labels are correctly positioned and oriented to enhance legibility and component identification.
e. Inspections are conducted to verify that labels are correct and comply with the operations specified in the procedures.
f. Establish procedures for replacing lost or damaged labels and for obtaining new labels when necessary (Shahriar et al., 2022).

Labels should provide a concise and meaningful verbal description of the function of the identified equipment and a unique alphanumeric code that identifies the system and components. The proper nouns and alphanumeric codes used on labels should be consistent with those used in all facility procedures, engineering drawings, and piping and instrumentation diagrams. Information on control panel labels must also be consistent with the information on labels placed on the controlled equipment. Alphanumeric codes must be developed in a manner that assists personnel in consistently identifying the correct components and prevents misidentification (Gayialis et al., 2022).

Labels must be placed on or near the equipment to be identified in a manner that associates the labels with their respective components. Equipment labels must be permanently attached to the equipment, for example, to the valve body, not to removable parts such as handwheels, in a manner that does not interfere with normal operational use or testing of the equipment (Emmert-Streib & Dehmer, 2022).

3. Delphi Analysis Method

The Delphi Analysis Method is a method for organizing ideas among experts in order to improve the future condition of an institution. According to Lewis, the Delphi Technique is defined as a process for gathering opinions among experts about social phenomena that will affect the institutional situation. Witkins, on the other hand, defines the Delphi Technique as a method for determining consensus among experts regarding the goals and pressing needs of an institution (Lianto, 2023). According to

Pfeiffer, there are three main steps in this process:

a. The first questionnaire is sent to expert panelists, asking for their opinions (based on experience or simply their judgment), predictions, and recommendations (Spranger et al., 2022).
b. In the second round, a summary of the results of the first questionnaire is sent to each expert panelist so they can reevaluate their initial assessments using established criteria (Sipos et al., 2021).
c. In the third round, the questionnaire is re-administered, providing information on the panelists' assessment results and the consensus. The panelists are again asked to revise their opinions or explain their reasons for disagreeing with the group consensus (Islam et al., 2024).

According to Dalkey, the general characteristics of this method can be explained as follows:

a. Anonymity, meaning that when using questionnaires or other communications related to responses, the identification of panel members is kept anonymous (closed) (Yep et al., 2023).
b. Feedback control, meaning that this control allows interaction between panel members to reduce distortion. This interaction occurs at each stage, where the results of the previous stage are presented in the next stage, and panel members are asked to re-evaluate their initial assessments by comparing them with the group assessments (Donia et al., 2022).
c. Statistical group responses, meaning that the group assessment is expressed as a statistical average of the panel members' assessments, with each panel member's assessment reflected in the final response (Yang et al., 2022).

C. METHOD

This research method uses a quantitative descriptive approach by integrating the Delphi method and the Analytical Hierarchy Process (AHP) to evaluate alternative procurement of equipment labeling facilities in the Balikpapan RDMP project. The process begins with a preliminary study and identification of problems in the field, which is then continued with the formulation of objectives and mapping of feasible alternative solutions. Primary data was collected through a three-stage questionnaire distribution to five expert respondents from the production, engineering, facilities, and procurement departments at PT XYZ, who have met the relevant experience and technical competency criteria. In the first stage, the Delphi method was used to obtain consensus on important criteria and sub-criteria in selecting procurement alternatives, while the next stage used the AHP method to assign weights to each criterion and rank alternatives based on their priorities. The analysis was carried out by constructing a decision hierarchy, creating a pairwise comparison matrix, calculating weights, and conducting consistency tests to ensure the validity of the results. This methodology is designed to provide objective and measurable recommendations to support complex managerial decision-making in the oil and gas industry sector (Sarwono & Handayani, 2021).

D. RESULT AND DISCUSSION

1. Overview of Research Object

Currently, PT XYZ is managing the Balikpapan RDMP project, which aims to increase the refinery's processing capacity and produce more environmentally friendly EURO V quality products. This project involves the construction of seventeen new units and the revamping of four existing units. The project is currently in the final construction phase, which will then proceed to the commissioning phase. The commissioning phase will ensure that assets (equipment, instrumentation, and control systems) have been properly designed, installed, and tested so they are ready to operate

safely and according to their intended purpose. Observations of actual conditions found in the field indicate that the assets (equipment, instrumentation, and control systems) currently have tagging installed from their respective manufacturers, but these do not comply with industry operational standards. Therefore, additional equipment labels are required for each piece of equipment. There are three alternatives for adding equipment labels: implementing a change order in the contract, implementing a framework contract for label procurement, and procuring equipment labeling facilities independently. This study aims to delve deeper into the criteria and sub-criteria that influence decision-making regarding the procurement of equipment labeling facilities according to the perspectives of the experts who were respondents in this study.

2. Data Collection Using the Delphi Analysis Method

The next step is to identify the criteria and sub-criteria that need to be considered in selecting alternatives using the Delphi analysis method. This method involves distributing questionnaires in three rounds. In the first round, questionnaires are distributed along with an explanation of the research's purpose and procedures for completing them. The procedures also explain that respondents can add criteria and sub-criteria deemed important but not yet included in the questionnaire. In the second and third rounds, the questionnaire results from the previous round, approved by experts, will be reconstituted as selection criteria and sub-criteria, and new criteria and sub-criteria derived from respondents will be added. In the third round, criteria and sub-criteria with scores below the threshold of approval from respondents will be removed. Criteria and sub-criteria that have been approved by respondents will then be processed using the AHP method (Kaur & Gupta, 2023).

The scores from each respondent are then summed and converted to a percentage. This conversion is performed by dividing the total score by the maximum score, 25, and then multiplying by 100%. In this study, criteria and sub-criteria that have a value below 70% are considered not agreed to by respondents and will be deleted in the next questionnaire (Pannuti et al., 2023).

During the first round of the questionnaire, four criteria and twelve sub-criteria were proposed, representing key factors in selecting alternative procurement options for equipment labeling facilities. All criteria scored above 70% on the first round, thus meeting the requirements for further evaluation. However, two sub-criteria did not meet the requirements: decreased productivity in the cost criterion and decreased reputation in the quality criterion. These two sub-criteria will be removed in the next round of the questionnaire (Arunyanart & Khumpang, 2025).

Respondents also provided suggestions for additional sub-criteria during the first round of the questionnaire. Respondent 1 proposed adding contractor costs as an addition to the cost sub-criterion. Respondent 3 proposed ease of identification as an addition to the quality sub-criterion. Respondent 4 proposed rework as an addition to the time sub-criterion and ease of inter-departmental coordination as an addition to the quality sub-criterion. Respondent 5 proposed ease of payment as an addition to the cost sub-criterion. This resulted in two sub-criteria being reduced while five new sub-criteria were added.

During the second round of the questionnaire, four criteria and fifteen sub-criteria were proposed, representing key factors in selecting alternative procurement options for equipment labeling facilities. In the second round of the questionnaire, three sub-criteria did not meet the requirements: additional contractor costs in the cost criterion, material application duration in the time criterion, and conflict between parties in the operational criterion. These three sub-criteria will be removed in the next questionnaire. In the second round, respondents did not provide any new suggestions for selection

criteria or sub-criteria. Consequently, only three sub-criteria were reduced in the second round (Weng et al., 2025).

In the third round of the questionnaire, four criteria and twelve sub-criteria were proposed, representing important factors in selecting alternative procurement options for equipment labeling facilities. The third round of the questionnaire found that all sub-criteria met the requirements.

3. AHP Method Data Processing

The next step is to weigh the four criteria and twelve sub-criteria that were determined and agreed upon in the previous stage using the AHP method. Respondents will complete a questionnaire to determine the weights of the criteria and sub-criteria. These weights are derived from the pairwise comparison matrix assessment. After all the weight calculations for the criteria and sub-criteria are obtained, the final weights will be determined in selecting alternative procurement options for equipment labeling facilities. Table 1 shows the final weights for each criterion and sub-criterion that have been normalized.

Table 1. Weighting of Criteria and Subcriteria

No	Criteria and Subcriteria	Weighting	Normalization
	Criteria: Cost	40.4%	
1	Additional Procurement Costs	57.2%	23.1%
2	Additional Overhead Costs	22.3%	9.0%
3	Ease of Payment	20.6%	8.3%
	Criteria: Time	33.2%	
4	Duration of Contract Process Implementation	42.4%	14.1%
5	Duration of Procurement Implementation	40.7%	13.5%
6	Rework	16.8%	5.6%
	Criteria: Quality	16.4%	
7	Material Quality	58.6%	9.6%
8	Ease of Installation	20.1%	3.3%
9	Ease of Identification	21.3%	3.5%
	Criteria: Operational	10.0%	
10	Ease of Format Customization	32.9%	3.3%
11	Ease of Replacement	33.3%	3.3%
12	Ease of Coordination Between Sections	33.8%	3.4%

4. Determining Alternative Selection

In the next step, respondents will weigh the three alternatives using the AHP method against the twelve sub-criteria that were weighted in the previous stage. These weights are derived from the pairwise comparison matrix assessment using the Saaty scale. After obtaining all the weight calculations for the alternatives against the sub-criteria, the final weights will be determined in selecting the alternatives for procuring equipment labeling facilities. The weights for each alternative against the sub-criteria are then multiplied by the normalized sub-criteria weights. Table 2 shows the final weights for each normalized alternative.

In the next step, respondents will weigh the three alternatives using the AHP method against the twelve sub-criteria that were weighted in the previous stage. These weights are derived from the pairwise comparison matrix assessment using the Saaty scale. After obtaining all the weight calculations for the alternatives against the sub-criteria, the final weights will be determined in selecting the alternatives for procuring

equipment labeling facilities. The weights for each alternative against the sub-criteria are then multiplied by the normalized sub-criteria weights. Table 2 shows the final weights for each normalized alternative.

Table 2. Final Weighting for Each Alternative

No	Criteria and Subcriteria	Subcriteria Weight	Normalized Subcriteria Weights	Alternative Weighting			Normalized Weighting		
				A1	A2	A3	A1	A2	A3
	Criteria: Cost	0.404							
1	Additional Procurement Costs	0.572	0.231	0.155	0.312	0.533	0.036	0.072	0.123
2	Additional Overhead Costs	0.223	0.090	0.269	0.309	0.422	0.024	0.028	0.038
3	Ease of Payment	0.206	0.083	0.162	0.336	0.501	0.014	0.028	0.042
	Criteria: Time	0.332							
4	Duration of Contract Process Implementation	0.424	0.141	0.187	0.317	0.496	0.026	0.045	0.070
5	Duration of Procurement Implementation	0.407	0.135	0.234	0.297	0.469	0.032	0.040	0.063
6	Rework	0.168	0.056	0.309	0.320	0.371	0.017	0.018	0.021
	Criteria: Quality	0.164							
7	Material Quality	0.586	0.096	0.371	0.297	0.332	0.036	0.029	0.032
8	Ease of Installation	0.201	0.033	0.332	0.371	0.297	0.011	0.012	0.010
9	Ease of Identification	0.213	0.035	0.309	0.371	0.32	0.011	0.013	0.011
	Criteria: Operational	0.100							
10	Ease of Format Customization	0.329	0.033	0.269	0.303	0.428	0.009	0.010	0.014
11	Ease of Replacement	0.333	0.033	0.197	0.433	0.369	0.007	0.014	0.012
12	Ease of Coordination Between Sections	0.338	0.034	0.150	0.334	0.516	0.005	0.011	0.017

Final Weighting		
0.227	0.320	0.454

5. Sensitivity Analysis

In this study, a sensitivity analysis was conducted to determine the level of influence on the priority order of alternatives if the weight value in the criteria changes. To see the level of sensitivity, the Super Decisions software was used. Based on Table 4.12, the weight of the cost criterion is 0.404, the weight of the time criterion is 0.332, the weight of the quality criterion is 0.164, and the weight of the operational criterion is 0.100. In the simulation of the sensitivity analysis on the cost criterion, the results obtained when the cost weight changes to less than 0.174 will cause a change in the order of the alternatives, namely the second alternative from second to first, and the third alternative from first to second. Figure 4.1 shows the results of the simulation on the cost criterion.

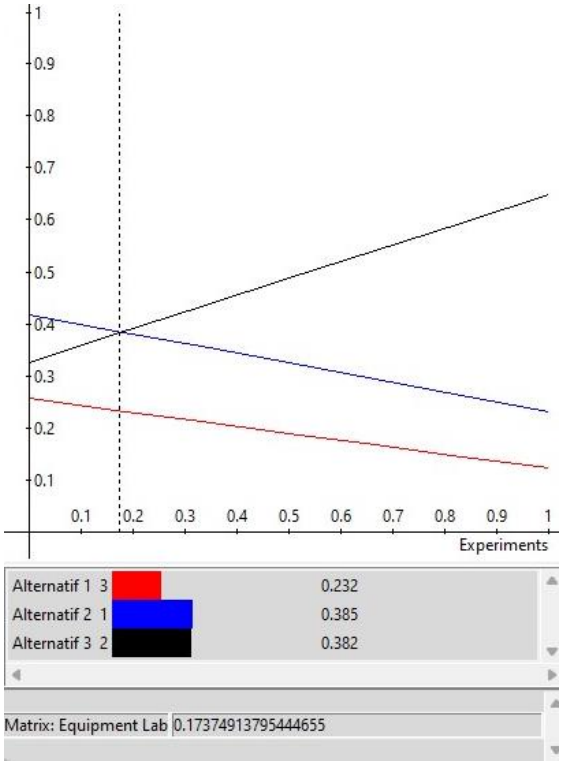

Figure 1. Sensitivity Analysis Simulation on Cost Criteria

In the simulation of sensitivity analysis on time criteria, the results obtained when there is a change in the time weight to be greater than 0.576, there will be a change in the order of alternatives, namely the second alternative from second to first, and the third alternative from first to second. When the time weight changes to less than 0.013, there will also be a change in the order of alternatives, namely the first alternative from third to second, and the second alternative from second to third. Figure 4.2 shows the results of the simulation on time criteria.

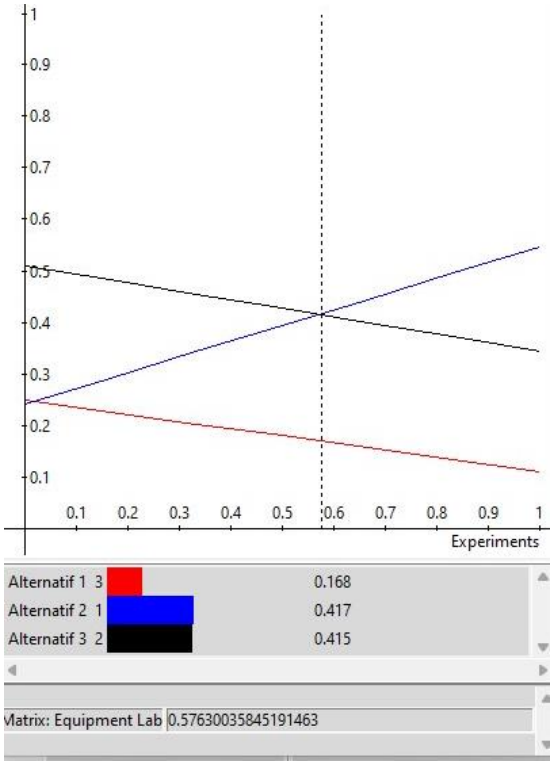

Figure 2. Sensitivity Analysis Simulation on Time Criteria

In the simulation of sensitivity analysis on quality criteria, the results obtained when there is a change in the quality weight to be greater than 0.463, there will be a change in the order of alternatives, namely the first alternative from second to first, and the third alternative from first to second. When the quality weight changes to be smaller than 0.392, there will also be a change in the order of alternatives, namely the first alternative from second to third, and the second alternative from third to second. When the quality weight changes to be greater than 0.613, there will be a change in the order of alternatives, namely the third alternative from second to third, and the second alternative from third to second. Figure 4.3 shows the results of the simulation on quality criteria.

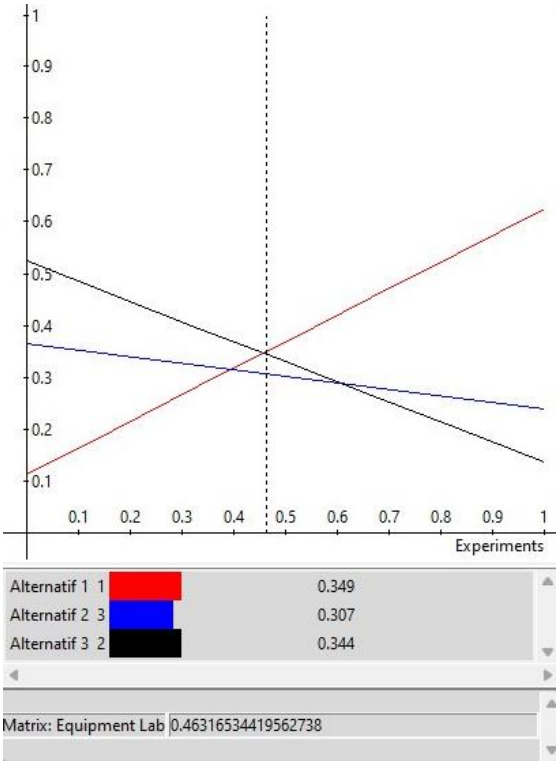

Figure 3. Sensitivity Analysis Simulation on Quality Criteria

In the sensitivity analysis simulation for operational criteria, there was no change in the order of alternatives due to weight changes. Figure 4.4 shows the results of the simulation for operational criteria.

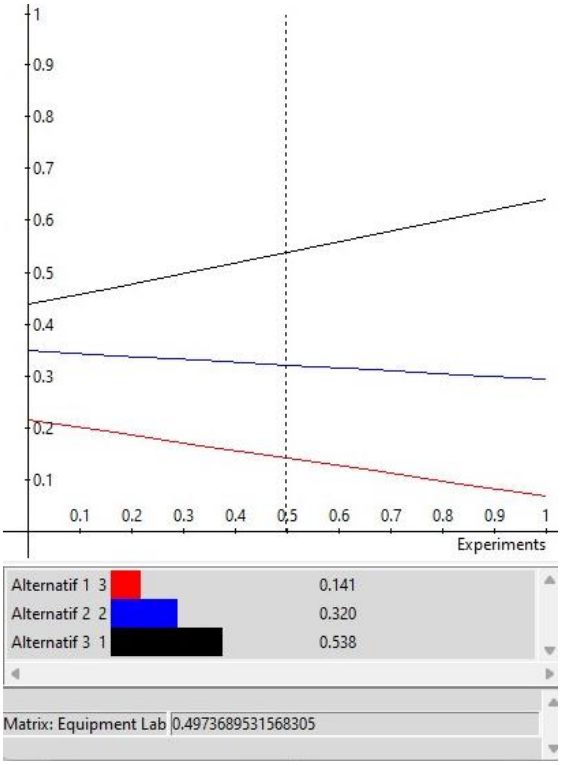

Figure 4. Sensitivity Analysis Simulation on Operational Criteria

Based on the questionnaire data completed by respondents, which was then analyzed using the Delphi analysis method, four criteria and twelve sub-criteria were identified as

important considerations in selecting alternative procurement options for equipment labeling facilities at PT XYZ. These four criteria are cost, time, quality, and operational costs. The twelve sub-criteria are additional procurement costs, additional overhead costs, ease of payment, duration of the contract process, duration of procurement, rework, material quality, ease of installation, ease of identification, ease of format customization, ease of replacement, and ease of coordination between departments.

Subsequent processing was performed using the Analytical Hierarchy Process method for each criterion and sub-criterion. The criteria analysis resulted in priority selection of cost (0.404), time (0.332), quality (0.164), and operational (0.100). Cost was the highest priority in selecting alternatives because cost is a key factor in project implementation, considered by both the management and implementation teams. Excessive costs can be a key factor in determining whether or not an activity is approved. The time variable is also a crucial consideration. This relates to the series of schedules within a project that must be met. Delays in any phase can cause the overall project duration to be delayed. Delays in project duration caused by a lack of effectiveness in each phase will ultimately lead to increased project costs and even project failure.

The cost criterion has three sub-criteria. Based on the weighting results using the AHP method, the sub-criteria ranked in priority are additional procurement costs (0.572), additional overhead costs (0.223), and ease of payment (0.206). Procurement costs have the highest priority in the cost criterion because they will be the largest expenditure item in the alternative selection process. Ease of payment, on the other hand, has the lowest priority because each alternative has a Work Procedure System (STK) that can be used as a reference for payment.

The time criterion has three sub-criteria. Based on the weighting results using the AHP method, the sub-criteria ranked in priority are contract duration (0.424), procurement duration (0.407), and rework (0.168). Contract duration and procurement duration are the two main priorities in the time criterion. This is because the two factors combine to form the total time required to procure equipment labeling facilities until they are ready for use in the project. Time is a critical variable during a project because it impacts the accuracy of the completion schedule for each phase. During the construction and commissioning phase, improving the effectiveness of equipment identification will reduce potential project delays.

The quality criterion consists of three sub-criteria. Based on the weighting results using the AHP method, the sub-criteria are ranked in priority as material quality (0.586), ease of installation (0.201), and ease of identification (0.213). Material quality is the primary variable in selecting this criterion. With the large number of equipment and its placement in outdoor plants, label quality is paramount. Labels that meet quality standards and comply with oil and gas industry standards are required before being applied to the plant.

The operational criteria have three sub-criteria. Based on the weighting results using the AHP method, the priority order of the sub-criteria is ease of format customization (0.329), ease of replacement (0.333), and ease of inter-departmental coordination (0.338). Although ease of inter-departmental coordination is the highest-priority sub-criterion, it is not as significant compared to the other two sub-criteria. This is because ease of format customization must also be considered, considering the variety of equipment and field conditions. The ease of replacement sub-criterion is also considered during the construction phase, as sub-optimal equipment conditions and placement can cause label damage, necessitating replacement.

The next step is selecting alternatives based on the criteria and sub-criteria. Based on the weighting results using the AHP method, the priority order for selecting alternatives is independent facility procurement by the relevant department (0.454), implementing the label procurement framework contract (0.320), and implementing change orders in the project contract (0.226). Independent facility procurement by the relevant department is the primary

alternative because it requires relatively low costs compared to implementing change orders in the contract. Operational convenience, such as format customization and interdepartmental coordination, also contributed to the selection of this alternative over the label procurement framework contract. There were no significant differences in time and quality criteria for the three alternatives, so they were not the primary reason for choosing one.

E. CONCLUSION

Based on the results of this study, several important points can be concluded regarding the process of selecting the best alternative in the procurement of equipment labeling facilities. In the identification stage of criteria and subcriteria conducted using the Delphi analysis method, four main criteria were obtained as the basis for evaluation: cost, time, quality, and operational criteria. These four criteria were then broken down into twelve subcriteria arranged based on priority weights. Subcriteria in the cost criterion include additional procurement costs, additional overhead costs, and ease of payment. Meanwhile, subcriteria in the time criterion consist of the duration of the contract process, the duration of the procurement process, and rework. In the quality criterion, the subcriteria identified were material quality, ease of installation, and ease of identification. Finally, for the operational criterion, the subcriteria considered included ease of format customization, ease of replacement, and ease of coordination between departments. Furthermore, from the results of data processing using the Analytical Hierarchy Process (AHP) method based on questionnaires completed by respondents, the priority order of alternatives in the procurement of equipment labeling facilities was obtained. The best alternative for procurement of equipment labeling facilities at PT XYZ with the highest weight is independent facility procurement by the relevant department with a value of 0.454, followed by the implementation of the label procurement framework contract with a value of 0.320, and the implementation of change orders on project contracts with a value of 0.226. In terms of criteria priority, the weighting results show that cost is the most dominant criterion with a weight value of 0.404, followed by time with a value of 0.332, quality with a value of 0.164, and operational with a value of 0.100. Among all sub-criteria, the ones with the highest weight are additional procurement costs with a value of 0.231, the duration of the contract process with a value of 0.141, and the duration of the procurement with a value of 0.135. These results indicate that cost efficiency and speed of implementation time are the most determining factors in selecting alternatives for procuring equipment labeling facilities.

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