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# Identification of activities in the planning, conduct, and control stages of the procurement process based on PMBOK 6th edition (case study: PT X)

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**ABSTRACT**

The procurement of goods and services is a crucial stage before the commencement of construction, and any delays in the procurement process may significantly impact project implementation. PT X is a state-owned enterprise (SOE) in the construction sector, particularly in toll road construction. Based on data from repeated tenders over the past three years, it is evident that the phenomenon of retendering frequently occurs at PT X. This has led to several issues, with the most prominent being delays in contract execution. Therefore, the procurement process currently implemented at PT X needs to be reviewed. The Project Management Body of Knowledge (PMBOK) 6th edition approach is employed to assess whether there are discrepancies between the procurement activities carried out at PT X and those recommended by PMBOK 6th edition that could potentially lead to retendering. This study aims to identify the planning, conduct, and control stages of the procurement process using the PMBOK 6th edition framework. The research method used includes a literature study and questionnaire, which are analyzed qualitatively. The questionnaire was distributed to five experts, comprising academics and practitioners. Based on the data analysis, 16 procurement planning activities, 13 procurement conduct activities, and 12 procurement control activities were identified according to PMBOK 6th edition.

**KEYWORDS**

*Procurement activity, PMBOK 6th, plan procurement, conduct procurement, control procurement*

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## 1. INTRODUCTION

According to Presidential Regulation of the Republic of Indonesia Number 12 of 2021, the procurement of goods and/or services is defined as a series of processes carried out to obtain the most appropriate goods or services for the funds expended, assessed in terms of quality, quantity, time, cost, location, and supplier criteria. The procurement process deals with identifying, defining, and implementing certain steps to ensure the proper acquisition of goods and services to attain expected objectives (Nyamah, Feng, Nyamah, Opoku, & Ewusi, 2022). The tendering stage for proposal construction projects is an important phase for all project stakeholders (Whang, Donyavi, Flanagan, & Kim, 2022). Therefore, with tight regulations and procurement ethics, the tendering process should run smoothly based on expected principles and objectives (Adeshola, et al., 2022).

PT X is a state-owned enterprise (SOE) operating in the construction sector, particularly in toll road construction. The government has mandated PT X to develop toll roads, resulting in an increasing demand for procurement each year. According to LKPP (2021), the procurement of goods and services consists of the procurement of goods, construction services, consultancy services, and other services. Tender is one of the methods used to select a supplier that best meets the project's needs at a competitive price. The types of procurement carried out at PT X are in accordance with LKPP, including construction services, consultancy services, goods, and other services. Based on retendering data at PT X over the past three years, it is noted that in 2022, out of a total of 31 procurement packages, 16 packages underwent re-tendering or re-selection, representing 51.61%. In 2023, out of a total of 41 procurement packages implemented, 16 packages underwent re-tendering/re-selection, accounting for 39.02%. Similarly, in 2024, out of a total of 41 procurement packages implemented, 16 packages also underwent re-tendering or re-selection, with a percentage of 39.02%.in 2022, the frequency of retendering reached 51.61%, while in 2023 and 2024, the percentage was the same at 39.02%. Table 1 presents more detailed information on re-tender data according to the type of procurement. From this data and based on the analysis, it is evident that the frequency of retendering or reselection is relatively high. Lædre, Austeng, Haugen, & Klakegg (2006) stated that inability to select a proper procurement method causes overruns on cost and time and lowers the quality of projects. From the research conducted by Tobechi, Victor & Chidozie (2021), cost overrun or cost escalation and schedule overrun are the greatest effect of tender action process. Problems within the procurement process at PT X have led to longer procurement durations than initially planned, which in turn affects contract execution. Therefore, this issue must be addressed. As a result, the procurement process currently implemented at PT X needs to be reviewed. In carrying out the procurement of goods and services, PT X's Procurement Unit has followed the existing procurement procedures. However, the frequent occurrence of retendering over the past three years may indicate that there are incomplete or flawed steps within the current procurement procedure.

**Table 1.** Re-tendering data at PT X based on the type of procurement

| Type of Procurement | 2022 | 2023 | 2024 |
|---|---|---|---|
| Construction services | - | 2 | - |
| Consultancy services | 10 | 14 | 10 |
| Goods | 2 | - | 2 |
| Other services | 4 | - | 4 |
| Total | 16 | 16 | 16 |

*Source: Primary data processed, 2025*

In Indonesia, various organizations use PMBOK as a reference for executing their projects (Chou, Irawan, & Pham, 2013). The Project Management Body of Knowledge (PMBOK) outlines a series of procurement processes that should be carried out within a project. According to the PMI (2017),

the procurement management process consists of plan, conduct, and control processes. By analyzing the alignment between PT X's current procurement practices and the processes defined in PMBOK, it is possible to identify any inconsistencies or omissions that may be contributing to procurement failures, allowing such issues to be anticipated and mitigated. Therefore, this study aims to identify the planning, conduct, and control stages of the procurement process using the PMBOK 6th edition framework.

According to the research conducted by Sobhiyah, Vali, Ershadi, & Akrami (2020), a framework based on the 5th edition of PMBOK was developed to improve project procurement management. They stated that PMBOK framework is basically process oriented and it expresses all the measures that should take place in a procurement project. They also mentioned procurement management activities based on PMBOK in general but with a greater focus on the characteristics and requirements. Another research conducted by Muhammed, Muhammed, Yakubu, Suleiman, & Adam (2022) also explores the activities undertaken during the tender process; however, these are not grounded in the PMBOK framework and tend to be discussed in a more general context. Furthermore, no research has focused on identifying procurement activities based on PMBOK 6th edition.

## 2. LITERATURE REVIEW

### 2.1 The importance of procurement activity

The primary objective of procurement is to acquire the appropriate goods and services (in terms of specifications, quality, and quantity), at the right time, and at the most advantageous price from qualified and capable suppliers, thereby optimally supporting organizational goals. A study conducted by Changalima, Ismail, & Mchopa (2024) concluded that supplier selection and supplier monitoring play a significant role in cost reduction as an indicator of procurement efficiency in Tanzania. The literature further suggests that an efficient procurement process can enhance the quality of services delivered to the public, underscoring the importance of ensuring that procurement activities are properly executed in compliance with applicable regulations.

Building on this perspective, the UN Practitioner's Handbook (2006) emphasizes that procurement efficiency is not only a matter of cost savings but also involves managing key risks that are inherent to the process. These risks, which are closely tied to the quality of procurement practices implemented across all activities, include total cost, delivery schedule, quality of the goods and services delivered, organizational performance, buyer's professional standing, and political consequences. Thus, procurement effectiveness depends not only on achieving organizational objectives but also on mitigating these potential risks to ensure sustainable and accountable outcomes.

In addition to efficiency and risk management, procurement performance is also an important dimension of organizational success. According to Chepng'etich & Achuora (2019), procurement performance is a process in which procurement establishes criteria, based on strategic planning objectives, to determine the outcomes and quality of its activities. This process involves creating a simple and effective system to assess whether procurement meets its objectives (Nyamah, Feng, Nyamah, Opoku, & Ewusi, 2022). Effective procurement performance reflects the extent to which the process is executed in a timely manner, within budgetary limits, and in compliance with project quality requirements.

The UN Practitioner's Handbook (2006) explains the measurement of procurement performance as follows:

**Table 2**. The measurement of procurement performance

| Performance measures | Including |
|---|---|
| Efficiency of the competitive process | - Number of compliant bids and proposals<br>- Number of suppliers involved in the competition.<br>- Suppliers feedback on process. |
| Cost reduction / containment | - Level/amount of savings/cost reductions achieved<br>- Reduction of stockholdings<br>- Reduction in demand<br>- Number of "stock-outs"<br>- Number of goods rejected<br>- Increased use of alternatives |
| Supplier management | - Number of "new" suppliers involved in competition<br>- Number of late/damaged/inadequate deliveries.<br>- Level of quality achieved |
| Efficiency of internal systems and processes | - Volume of low value transactions<br>- Usage of aggregated arrangements or long-term agreements<br>- Reduction in transaction cost<br>- Internal customer satisfaction. |
| Procurement management | - % of procurement officers certified<br>- Number of staff days for training. |

*Source: UN Practitioner's Handbook (2006)*

Since this research employs a case study of a re-tender at PT X, performance measurement related to the procurement implementation stage represents the most significant level of influence. Referring to the table above, it can be observed that one of the procurement performance measurements is the efficiency of the competition process, which encompasses the number of compliant bids and the number of suppliers participating in the tender process. In line with Presidential Regulation No. 12 of 2021, as previously explained, one of the criteria for a failed tender/selection relates to the insufficient number of participants and the compliance of bidders' proposals. Thus, it can be concluded that if the tender/selection process does not undergo repetition, it will positively influence procurement performance. Furthermore, USAID (2013) also outlines procurement performance measurement criteria, as presented in Table 2.

**Table 2**. The measurement of procurement performance

| Performance indicator | Performance category |
|---|---|
| Product Price Variance | Cost |
| Effective Contract Utilization | Cost |
| Expiration Management | Quality |
| Supplier Performance | Quality and timeliness |
| Procurement Cycle Time | Timeliness |
| Payment Processing Time | Timeliness |
| Emergency Procurement | Systems Productivity |
| Procurement Cost | Systems Productivity |
| Staff Training | Integrity |
| Transparent Price Information | Integrity |

*Source: USAID (2013)*

Based on the table above, it can be observed that one of the indicators of procurement performance is the procurement cycle time, whereby the absence of delays in the implementation

of procurement can enhance procurement performance. The occurrence of a re-tender may cause delays in the procurement process; therefore, when procurement undergoes a re-tender, it has an impact on procurement performance. According to the study conducted by Ejekwu Tobechi B, Ohamma Victor O, and Duruji Chidozie E (2021)cost overrun/cost escalation and time/schedule overrun represent the most significant impacts of the tender action process on public project delivery in Nigeria. Moreover, it was identified that the improper selection of contractors and inadequate pre-qualification, combined with biased tender assessments, constitute the most critical challenges of the tender action process that affect the successful delivery of public projects in Nigeria. Therefore, it is essential to ensure that all procurement activities are carried out in accordance with the prevailing regulations to minimize delays, cost overruns, and other challenges that may hinder project performance.

2.2 Procurement management on PMBOK 6th

The PMBOK guide defines terms, guidelines, and knowledge areas within project management (Davidov, Ainbinder, Ayoubi, Avivi, & Eliyahu, 2023). Effective use of PMBOK can increase the probability of project success (Chou, Irawan, & Pham, 2013). Procurement management is only covered in the PMBOK (Karaman & Kurt, 2015). The PMBOK outlines a series of procurement processes that must be carried out within a project. These processes help ensure that procurement is conducted in a planned, structured manner and aligned with project needs. According to the PMBOK 6th edition, the procurement management process consists of three phases: planning, conducting, and controlling.

Plan procurement management is the process of documenting project procurement decisions, specifying the approach and identifying potential sellers (PMI, 2017). In exploring the plan procurement activities from the PMBOK, it is stated that typical activities may include preparing the procurement Statement of Work (SOW), preparing cost estimates, identifying a list of qualified sellers, and preparing and issuing bid documents. Another research conducted by Ruparathna & Hewage (2015) is using document analysis as a qualitative research method to identify construction procurement processes. The study shows that in the pre-contractual phase of procurement, the activities consist of defining requirements, planning the procurement process, pre-tender survey, obtaining the necessary approvals, and bid solicitation. Sobhiyah, Vali, Ershadi, & Akrami (2020) state in their research that In the planning phase, the project manager or the project procurement manager need to collect documentations, receive and seize lessons learnt from the past, design and assign procurement team and select the procurement team's approach. The planning stage should clearly define the rationale for procurement, product specifications and limitations, delivery schedule and procedures, key decision-makers, and the baseline procedures for assessing progress.

Conduct procurement is the process of obtaining seller responses, selecting a seller, and awarding a contract (PMI, 2017). This phase is a critical aspect of project procurement management, because the key benefit of this process is selecting the seller that best meets the established criteria and also signing a contract with the selected seller. Based on International Organization for Standardization (ISO) (2008), principal activity of procurement process consists of establishing what is to be procured, deciding on procurement strategies, soliciting tender offers, awarding contracts, and administering contract and confirming compliance with requirements. Another research conducted by Tobechi, Victor & Chidozie (2021) stated that tendering process consists of inviting contractors to offer to supply goods or undertake the service or works required, issuing tender documents, receipting of the tender, opening bid documents, evaluating tender, and awarding a contract.

For the control procurement phase, it is the process of managing procurement relationships, monitoring contract performance, and making changes as appropriate, and also closing out

contracts. According to the research conducted by Ruparathna & Hewage (Ruparathna & Hewage, 2015), activities involved in the contract administration phase and the post-contractual phase consists of monitoring progress, issuing contract amendments, administering progress payments, and ensuring completeness and accuracy of file documentation.

Currently, PT X has established procedures for carrying out the procurement of goods and services. These procedures outline the activities involved in the procurement process; however, the focus is primarily on the execution phase of the process. In general, the procedure outlines the execution process starting from the completion of the required procurement documents to the contract signing. Additionally, there is also a vendor performance evaluation procedure, which can serve as a basis for assessing vendors during the procurement control process.

## 3. METHODOLOGY

This study employed a two-pronged methodological approach, consisting of a literature review and questionnaire to the experts who have experience, knowledge, and expertise in the related field.

### 3.1 Literature review

The literature review was conducted by referencing the PMBOK 6$^{th}$ edition along with relevant previous studies, to identify procurement activities across the planning, conduct, and control phases. To derive the list of procurement activities, a hierarchy of factors was first established by identifying indicators within the processes of procurement planning, conduct, and control, as outlined in the PMBOK 6th Edition as shown in Table xxx below. These indicators subsequently served as the basis for formulating the corresponding activities, which are illustrated in Figure 1.

**Table 3** Indicators as outlined in the PMBOK 6th Edition

| Phase | Indicator |
|---|---|
| Plan Procurement | - The process of documenting project procurement decisions, specifying the Approach and identifying potential sellers<br>- Determines whether to acquire Goods and services from outside the project<br>- Defining roles and responsibilities related to procurement |
| Conduct Procurement | - Procurement documentation and preparation<br>- Obtaining seller responses<br>- Selects a qualified seller<br>- Implements the legal agreement for delivery |
| Control Procurement | - Managing procurement relationships<br>- Monitoring contract performance<br>- Making changes and corrections as appropriate<br>- Closing out contracts |

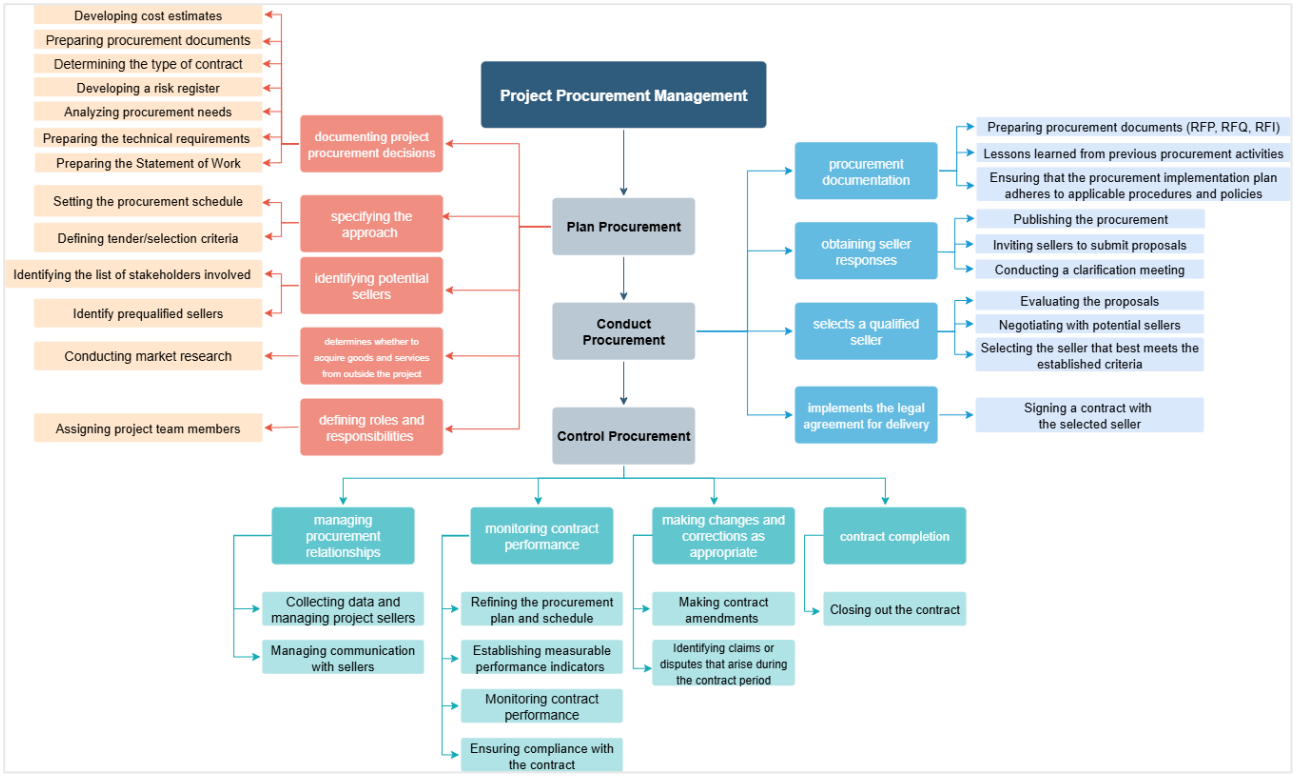


**Figure 1**. Processes to derive the list of procurement activities

As a result, 13 planning activities, 10 conduct activities, and 10 control activities aligned with the PMBOK 6th edition framework were identified as shown in Table 4.

**Table 4.** Procurement activities based on PMBOK 6th Edition

| Phase | No | Activity |
|---|---|---|
| Plan Procurement | 1 | Analyzing procurement needs (make or buy analysis) |
| | 2 | Preparing the technical requirements that must be fulfilled by the seller |
| | 3 | Developing a risk register along with risk analysis and response plans |
| | 4 | Assigning project team members to support procurement activities |
| | 5 | Identifying the list of stakeholders involved in the project |
| | 6 | Conducting market research, including industry review and vendor capabilities |
| | 7 | Identify prequalified sellers |
| | 8 | Preparing procurement documents |
| | 9 | Determining the type of contract |
| | 10 | Defining tender/selection criteria |
| | 11 | Setting the procurement schedule |
| | 12 | Preparing the Statement of Work (SOW) or requirement documents for sellers |
| | 13 | Developing cost estimates |
| Conduct Procurement | 1 | Preparing procurement documents (RFP, RFQ, RFI) |
| | 2 | Studying lessons learned from previous procurement activities |
| | 3 | Ensuring that the procurement implementation plan adheres to applicable procedures and policies |
| | 4 | Announcing or publishing the procurement |

| Phase | No | Activity |
|---|---|---|
| | 5 | Inviting sellers to submit proposals |
| | 6 | Conducting a clarification meeting |
| | 7 | Evaluating the proposals from potential sellers |
| | 8 | Negotiating with potential sellers |
| | 9 | Selecting the seller that best meets the established criteria |
| | 10 | Signing a contract with the selected seller |
| Control Procurement | 1 | Refining the procurement plan and schedule |
| | 2 | Establishing measurable performance indicators for sellers |
| | 3 | Monitoring seller performance |
| | 4 | Making contract amendments (if applicable) |
| | 5 | Managing communication with sellers |
| | 6 | Collecting data and managing project sellers |
| | 7 | Ensuring compliance with the contract |
| | 8 | Monitoring contract performance |
| | 9 | Identifying claims or disputes that arise during the contract period |
| | 10 | Closing out the contract |

*Source: Primary data processed, 2025*

## 3.2 Expert questionnaire

Following the development of the initial activity list, a structured questionnaire was designed and disseminated to five subject matter experts. These experts, comprising both academics and practitioners, possess a comprehensive understanding of the PMBOK 6th Edition and have substantial experience in the procurement of goods and services. The profile of the experts can be seen in Table 5.

**Table 5.** Experts' profile

| Expert | Code | Position | Education | Experience |
|---|---|---|---|---|
| 1 | E1 | Lecturer | Master's degree | >20 years |
| 2 | E2 | Practitioner | Doctoral degree | 15 – 20 years |
| 3 | E3 | Lecturer & Researcher | Doctoral degree | 15 years |
| 4 | E4 | Lecturer & Practioner | Doctoral degree | >20 years |
| 5 | E5 | Practitioner | Master's degree | 15 – 20 years |

*Source: Primary data processed, 2025*

The following are the data collection results from the five experts:

**Table 6.** Data collection results

| Variable | Activity | E1 | E2 | E3 | E4 | E5 |
|---|---|---|---|---|---|---|
| X1. Plan Procurement Phase | | | | | | |
| X1.1 | Analyzing procurement needs (make or buy analysis) | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.2 | Preparing the technical requirements that must be fulfilled by the seller | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.3 | Developing a risk register along with risk analysis and response plans | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.4 | Assigning project team members to support procurement activities | ✓ | ✓ | ✓ | x | ✓ |
| X1.5 | Identifying the list of stakeholders involved in the project | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.6 | Conducting market research, including industry review and vendor capabilities | ✓ | ✓ | ✓ | ✓ | ✓ |

| Variable | Activity | E1 | E2 | E3 | E4 | E5 |
|---|---|---|---|---|---|---|
| X1.7 | Identify prequalified sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.8 | Preparing procurement documents | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.9 | Determining the type of contract | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.10 | Defining tender/selection criteria | ✓ | ✓ | ✓ | x | ✓ |
| X1.11 | Setting the procurement schedule | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.12 | Preparing the Statement of Work (SOW) or requirement documents for sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X1.13 | Developing cost estimates | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2. Conduct Procurement Phase | | | | | | |
| X2.1 | Preparing procurement documents (RFP, RFQ, RFI) | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.2 | Studying lessons learned from previous procurement activities | ✓ | ✓ | x | ✓ | ✓ |
| X2.3 | Ensuring that the procurement implementation plan adheres to applicable procedures and policies | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.4 | Announcing or publishing the procurement | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.5 | Inviting sellers to submit proposals | ✓ | ✓ | ✓ | x | ✓ |
| X2.6 | Conducting a clarification meeting | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.7 | Evaluating the proposals from potential sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.8 | Negotiating with potential sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.9 | Selecting the seller that best meets the established criteria | ✓ | ✓ | ✓ | ✓ | ✓ |
| X2.10 | Signing a contract with the selected seller | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3. Control Procurement Phase | | | | | | |
| X3.1 | Refining the procurement plan and schedule | x | ✓ | x | ✓ | x |
| X3.2 | Establishing measurable performance indicators for sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.3 | Monitoring seller performance | ✓ | ✓ | x | ✓ | ✓ |
| X3.4 | Making contract amendments (if applicable) | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.5 | Managing communication with sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.6 | Collecting data and managing project sellers | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.7 | Ensuring compliance with the contract | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.8 | Monitoring contract performance | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.9 | Identifying claims or disputes that arise during the contract period | ✓ | ✓ | ✓ | ✓ | ✓ |
| X3.10 | Closing out the contract | ✓ | ✓ | ✓ | x | ✓ |

*Source: Primary data processed, 2025*

As presented in the table above, variable X3.1 received disagreement from three experts regarding its categorization under the procurement control phase. Considering this feedback, and in accordance with the principles of expert judgment in qualitative validation, the variable was deemed not to meet the criteria for inclusion and was subsequently excluded from the final list of procurement activities. In addition, several opinions from experts regarding the list of activities were also obtained, including the following:

**Table 7.** Additional inputs from experts

| Phase | Expert | Inputs |
|---|---|---|
| Plan Procurement | E2 | Preparing a communication plan with sellers during the procurement process |
| | E3 | 1. Proposing standardized contract templates<br>2. Forming the procurement committee |
| Conduct Procurement | E2 | Informing relevant parties about the procurement results |
| | E3 | 1. Verifying the procurement outcomes with designated experts |

| Phase | Expert | Inputs |
|---|---|---|
| | | 2. Making improvements and updates in case of changes to the project and its preparation process |
| Control Procurement | E1 | Collect lessons learned |
| | E2 | Identifying claims or disputes that arise during the contract period |
| | E3 | Establishing all clauses in the contract during the project's duration, including liquidated damages provisions |

*Source: Primary data processed, 2025*

## 4. RESULTS & DISCUSSION

From the data analysis conducted with the experts, a list of procurement activities has been compiled and updated according to the experts' feedback as shown in Table 8. For the plan procurement stage, the experts responded that developing a communication plan with vendors during the procurement process, adding proposed contract standardization, and forming a procurement committee are activities that need to be added. For the conduct procurement stage, the experts responded that informing relevant parties of the procurement results, verifying the procurement outcomes, and making improvements and updates in the event of changes to the project and its preparation process need to be added to the list of activities. For the control procurement stage, identifying claims or disputes that arise during the contract period and enforcing all clauses contained in the contract throughout the duration of the project are activities that, according to the experts, need to be added. One activity within the procurement control process—refining the procurement plan and schedule—received dissenting responses from three experts. Based on the initial 13 planning activities identified through the literature review, an additional 3 activities were incorporated as a result of expert feedback obtained from the questionnaire. Similarly, for the 10 procurement conduct activities, 3 additional activities were identified. In the case of procurement control, 2 new activities were added and 1 existing activity was deemed unnecessary and subsequently removed.

**Table 8.** Updated procurement activities based on PMBOK 6th Edition

| Phase | No | Activity |
|---|---|---|
| **X1 Plan Procurement** | X1.1 | Analyzing procurement needs (make or buy analysis) |
| | X1.2 | Preparing the technical requirements that must be fulfilled by the seller |
| | X1.3 | Developing a risk register along with risk analysis and response plans |
| | X1.4 | Assigning project team members to support procurement activities |
| | X1.5 | Identifying the list of stakeholders involved in the project |
| | X1.6 | Preparing a communication plan with sellers during the procurement process |
| | X1.7 | Conducting market research, including industry review and vendor capabilities |
| | X1.8 | Forming the procurement committee |
| | X1.9 | Identify prequalified sellers |
| | X1.10 | Preparing procurement documents |
| | X1.11 | Determining the type of contract |
| | X1.12 | Proposing standardized contract templates |
| | X1.13 | Defining tender/selection criteria |
| | X1.14 | Setting the procurement schedule |
| | X1.15 | Preparing the Statement of Work (SOW) or requirement documents for sellers |
| | X1.16 | Developing cost estimates |
| **X2** | X2.1 | Preparing procurement documents (RFP, RFQ, RFI) |

| Phase | No | Activity |
|---|---|---|
| **Conduct Procurement** | X2.2 | Studying lessons learned from previous procurement activities |
| | X2.3 | Ensuring that the procurement implementation plan adheres to applicable procedures and policies |
| | X2.4 | Announcing or publishing the procurement |
| | X2.5 | Inviting sellers to submit proposals |
| | X2.6 | Conducting a clarification meeting |
| | X2.7 | Evaluating the proposals from potential sellers |
| | X2.8 | Negotiating with potential sellers |
| | X2.9 | Selecting the seller that best meets the established criteria |
| | X2.10 | Informing relevant parties about the procurement results |
| | X2.11 | Verifying the procurement outcomes with designated experts |
| | X2.12 | Signing a contract with the selected seller |
| | X2.13 | Making improvements and updates in case of changes to the project and its preparation process |
| **X3 Control Procurement** | X3.1 | Establishing measurable performance indicators for sellers |
| | X3.2 | Monitoring seller performance |
| | X3.3 | Making contract amendments (if applicable) |
| | X3.4 | Managing communication with sellers |
| | X3.5 | Collecting data and managing project sellers |
| | X3.6 | Establishing all clauses in the contract during the project's duration, including liquidated damages provisions |
| | X3.7 | Ensuring compliance with the contract |
| | X3.8 | Monitoring contract performance |
| | X3.9 | Identifying claims or disputes that arise during the contract period |
| | X3.10 | Ensuring payments are made according to the contract agreement |
| | X3.11 | Closing out the contract |
| | X3.12 | Collect lessons learned |

*Source: Primary data processed, 2025*

Overall, the results of the validation of procurement activities based on the PMBOK by subject matter experts demonstrate a high level of alignment with findings from previous studies on procurement processes. The planning phase typically begins with the identification of needs and proceeds through the preparation of procurement documents. The execution phase encompasses preparation for procurement implementation, tender announcements, and contract signing. Meanwhile, the monitoring and control phase includes evaluating supplier performance and collecting lessons learned. However, the list of activities may expand if the questionnaire is distributed to a larger number of experts.

## 5. CONCLUSION

This study aims to identify the planning, conduct, and control stages of the procurement process using the PMBOK 6$^{th}$ edition framework. A total of 16 procurement planning activities, 13 procurement conduct activities, and 12 procurement control activities based on PMBOK 6$^{th}$ edition, which have been validated by the experts, were obtained in this study.

### 5.1 Practical Implication

The list of procurement process activities based on PMBOK 6th edition can be used in a case study of retendering at PT X by identifying the gaps between these activities and the procurement processes currently implemented at PT X. If there are discrepancies between the procurement activities carried out at PT X and those based on PMBOK 6th edition, they could potentially be one of the reasons for the high frequency of retendering at PT X and some changes might need to be made to the current procurement process. In addition, these procurement activities can be used to identify risk factors for each activity, in order to determine the dominant risk factors that may influence the occurrence of re-tendering at PT X. This allows for the development of risk responses in the form of causes, impacts, preventive actions, and corrective actions for each dominant risk factor, which can serve as a basis for improvement development.

### 5.2 Limitation and Future Research

The series of procurement activities analyzed in this study can serve as an implementation reference for other institutions, whether in the same sector or in different sectors from PT X. However, in the case study of this research, which is PT X, the procurement method used is limited to procurement through tender or selection only. Furthermore, this study does not identify the specific risk factors that lead to re-tendering at PT X. Therefore, future research may proceed by identifying risk factors that contribute to the occurrence of re-tendering or re-selection, based on the procurement activities identified in this study.

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