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Lean Service Analysis to Identify and Minimize Waste in PT XYZ Non-Production and Investment Procurement Process Using Value Stream Mapping

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Abstract

The non-production and investment procurement process plays a crucial role in supporting the smooth operation of a company. However, this process often faces problems in the form of waste that causes lengthy processing times. This study aims to identify the dominant types of waste and develop proposals for improving the non-production and investment procurement process at PT XYZ using a lean service approach. The methods used include Value Stream Mapping to map the current process conditions, a questionnaire to determine critical waste, a Fishbone Diagram to analyze the root causes of waste, and the 5S method to formulate improvement proposals. The results show that the dominant critical wastes in the procurement process are waiting, transportation, and inappropriate processing. The Process Cycle Efficiency (PCE) value in the current state is 39.0% and increases to 49.39% in the proposed state (future state), indicating potential for increasing process efficiency. The formulated improvement proposals are expected to minimize waste and increase the effectiveness of the non-production and investment procurement process at PT XYZ.

Keywords: *Fishbone Diagram, Lean Service, Value Stream Mapping, Waste*

1. Introduction

Procurement is an activity and effort to fulfill the need for goods and services by complying with existing regulations to create something that previously did not exist [1]. Procurement of goods and services is an important process that has a strategic function that is needed to ensure the operational success and business objectives of a company [2]. In this increasingly competitive era of globalization, every company strives to maximize product delivery in order to achieve cost effectiveness, good quality, and timely delivery. Companies can ensure the availability of the necessary resources such as time, cost, and the right quality by implementing an effective and efficient procurement process. Non-production and investment procurement, which is usually related to the development of company needs, facilities, and operational infrastructure, is one type of procurement with significant implications. Administrative and service-related tasks dominate this aspect of procurement, thus requiring companies to manage and implement systematic and effective procedures.

The applied approach carried out by Ashari et al. [3] shows the application of lean service to reduce waste in the service sector using value stream mapping, which can be a reference for this research. This approach emphasizes the importance of mapping the process flow comprehensively to identify value-added and non-value-added activities. Through the application of value stream mapping, Ashari et al. [3] shows that dominant waste in the service sector generally comes from waiting activities and inefficient processes, and can be minimized through proposed improvements that focus on process simplification and continuous improvement.

Effectiveness in procurement is crucial in achieving business objectives, such as ensuring the availability of high-quality goods and services, efficiency in spending, and integrity and transparency in the procurement process [1]. However, in reality, a procurement process such as at PT XYZ often faces problems, including long document processing times, administrative delays, and various approval stages. This situation indicates that several actions, such as long waiting times, repetitive work, and irregular workflows, are activities that do not provide added value or waste that occurs during the procurement process. This waste also has a negative impact on lead times and can disrupt overall business operational performance.

To overcome these problems, a process improvement strategy is needed that prioritizes reducing waste and increasing added value at every level of activity. Value stream mapping is one of the effective techniques of the lean concept to identify and reduce waiting time and waste in a business process. Although the lean concept in previous research was applied to fields with a manufacturing focus, this concept was later developed and applied to the service sector through the lean service concept which focuses more on service [4]. Value stream mapping

is an effective method for implementing lean service in the service sector because it can show value-added and non-value-added activities, thus allowing for a more systematic analysis of system improvements.

Therefore, procurement process improvement needs to be carried out systematically in order to create a more organized, efficient, and easily controlled workflow. Based on this background, this study focuses on the non-production and investment procurement process of PT XYZ in the analysis of administrative processes by emphasizing the identification and minimization of waste in the procurement service flow through a value stream mapping approach and process activity analysis. In addition, this study also aims to analyze the types of waste that occur along with the root causes of waste and compile improvement proposals that can be implemented by the company to minimize waste to increase the efficiency and effectiveness of the procurement process. The results of this study are expected to provide academic and practical contributions in efforts to improve the performance of the procurement process based on continuous improvement.

2. Theoretical Basis

2.1. Supply Chain Management

Every industry needs supply chain management because it can help in future growth. The process of selecting suppliers, organizing or planning logistics, and delivering supplies to the end consumer is known as supply chain management. A company's ability to select its suppliers is crucial to its success. Timely supply of goods and services, especially raw materials, is ensured by the prompt and appropriate selection of suppliers, which also controls the continuity of the production process [5]. Supply chain management provides a sense to directly recognize the strategic nature of the system between business partners and to describe the dual purpose of supply chain management, namely, to improve the performance of a company organization, as well as to optimize overall performance [6].

In reality, procurement of goods and services covers a number of sectors, such as construction projects, consulting services, and other services. Consequently, a procurement system is needed that can guarantee the quality of work while considering implementation time and budget efficiency [7]. Non-production and investment procurement refers to the process of purchasing goods or services that are not directly used in production activities but serve to support business operations and development. This type of procurement usually includes general services, operations, assets, and investments. The non-production procurement process is characterized by a dominance of administration and services, with many approvals and document management stages, which can lead to waste if not carried out efficiently. Therefore, it is necessary to implement a systematic and structured procurement process to reduce non-value-added activities and improve procurement performance sequentially.

2.2. Lean Service

Lean is a management approach, methodology, philosophy, and way of thinking that improves manufacturing or production line efficiency. The Toyota Production System (TPS) serves as a model for this approach. The main goal of lean is to reduce non-value-added activities (waste) to maximize customer value and increase business profitability. The implementation of lean services (methods and tools) is carried out continuously to create process improvements and innovations in the company, so that the company carries out what is called continuous improvement (CI) to achieve operational excellence and customer intimacy [8].

Service is an important factor in every company because it will affect the company itself. Whether or not consumers are satisfied depends on the service provided by the company, if the service provided is able to make consumers feel satisfied, it means the company has provided good service. Lean Manufacturing and Lean Service are synonymous, but they differ in their application. While lean manufacturing focuses on products, lean service is more related to services, administration, and office productivity. To save operational costs, development time, transactions, and licensing, as well as to increase flexibility and enable faster adaptation to consumer demand, the service industry must use lean principles [9].

The types of waste that commonly occur in the implementation of lean service, namely waste of waiting, which is the delay of the process due to waiting for documents or approval; waste of transportation/movement due to unnecessary movement of physical or digital documents; waste of overprocessing in the form of repeated work stages and checks that do not increase value; waste of defects/rework due to administrative errors that require re-correction; waste of inventory in the form of accumulation of documents or work that has not been processed; waste of overproduction due to the creation of documents or reports that exceed requirements; waste of unnecessary motion due to inefficient document search activities or system access; and waste of inappropriate processing due to the use of work methods or procedures that do not match the process requirements [10].

2.3. Value Stream Mapping

The process of mapping a product's production path, including materials and data from each workstation in the service production process, is known as value stream mapping. Creating a value stream map involves three steps: selecting a specific product or product category to study, creating a state map depicting current procedures, and creating a future state map showing how the production process should proceed after waste has been eliminated [9]. The three types of activities in value stream mapping are as follows [11]:

1. Value-added activities: activities that, in the eyes of customers, create a more valuable product or service.
2. Non-value-added activities: activities that do not create a more valuable product or service and are unnecessary.
3. Necessary non-value-added activities: activities that, in the eyes of customers, do not create a more valuable product or service but are necessary in the process flow.

Wastes / Structure	Mapping Tools						
	Process Activity Mapping	Supply Chain Response Matrix	Production Variety Funnel	Quality Filter Mapping	Demand Amplification Mapping	Decision Point Analysis	Physical Structure (a) Volume (b) Value
Overproduction	L	M		L	M	M	
Time Waiting	H	H	L		M	M	
Transport	H						L
Inappropriate Processing	H		M	L		L	
Unnecessary Inventory	M	H	M		H	M	L
Unnecessary Motion	H	L					
Product Defects	L			H			
Overall Structure	**L**	**L**	**M**	**L**	**H**	**M**	**H**
Origin of Tool	Industrial Engineering	Time compression/ Logistics	Operations Management	New Tool	Systems Dynamics	Efficient Consumer Response / Logistics	New Tool

Notes: H = High correlation and usefulness
M = Medium correlation and usefulness
L = Low correlation and usefulness

Fig. 1: The Seven Stream Mapping Tools

In the application of Value Stream Mapping (VSM), several indicators are used to measure process performance. Value Stream Analysis Tools (VALSAT) consists of 7 types of tools used for further analysis in Value Stream Mapping (VSM), including Process Activity Mapping, Supply Chain Response Matrix, Production Variety Funnel, Quality Filter Mapping, Demand Amplification Mapping, Decision Point Analysis, and Physical Structure [12]. In the application of value stream mapping, takt time shows the rate of time required to meet customer needs and is calculated based on the comparison between available working time and customer demand. Takt time can be calculated using the formula:

$$Takt\ time = \frac{available\ working\ time}{customer\ demand} \quad (1)$$

Furthermore, lead time describes the total time required for a process from start to finish, including both processing time and waiting time. Lead time is influenced by cycle time, which is the average time required to complete one unit of the process, which can be calculated using the formula:

$$Lead\ time = cycle\ time \times unit\ WIP \times jumlah\ operasi + delay\ antara\ proses \quad (2)$$

$$Cycle\ time = \frac{total\ waktu\ yang\ diperlukan\ selama\ satu\ siklus}{jumlah\ unit\ yang\ dihasilkan\ dalam\ satu\ siklus} \quad (3)$$

To assess the overall efficiency of a process, Process Cycle Efficiency (PCE) is used, which is the ratio of value-added time to total lead time. PCE can be calculated using the formula:

$$PCE = \frac{value\ added}{total\ lead\ time} \times 100\% \quad (4)$$

2.4. Fishbone Diagram and 5S Method

A low PCE value indicates a high level of non-value-added activities that have the potential to cause waste. To understand the main sources of this waste more deeply, an analytical tool is needed that can identify the root causes of inefficiency, one of which is through a fishbone diagram. The Ishikawa diagram, also known as a fishbone diagram or cause-and-effect diagram, illustrates the root causes of a problem. The "head" of this fishbone-like diagram represents the challenge that needs to be addressed. The elements that contribute to the problem are represented as fishbones with branches that taper from larger to smaller [13].

As a lean concept, the 5S method aims to create a standardized, neat, and orderly workplace. The application of the 5S method to the procurement process is expected to reduce errors and duplication of work while simplifying the workflow, especially in document management and administrative flow. Document search time can be reduced, the rate of administrative errors can be reduced, and the consistency of the procurement process can be improved with a more structured workplace and well-defined work standards. In addition, the implementation of 5S encourages the development of a culture of discipline and continuous improvement that helps the procurement process become more effective and efficient overall. The analysis was conducted by assessing the implementation conditions of the five main elements of 5S, namely, Seiri, Seiton, Seiso, Seiketsu, and Shitsuke [14].

3. Implementation Method

A This research was conducted in the non-production procurement and investment department of the supply chain division of PT XYZ. The data collection period was four months, starting from September 1 to December 31, 2025. This department has a primary role in supporting the company's operational needs through the provision of non-production goods and services as well as investment needs that are not directly related to the production process. In addition, this department's duties also include formulating procurement policy

implementation strategies, implementing work programs, coordinating and controlling resources used in the procurement process, as well as monitoring and evaluating procurement implementation based on the RKAP budget.

The research used is descriptive research with a case study approach. The data used in this study is primary data obtained through a field approach. Primary data were collected using questionnaires, direct observation, and interviews. This method aims to obtain quantitative data that can be analyzed systematically using the value stream mapping method. This will then be developed to find the root causes of critical waste using a fishbone diagram and propose improvements using the 5S method. The data processing stages are shown in the figure below.

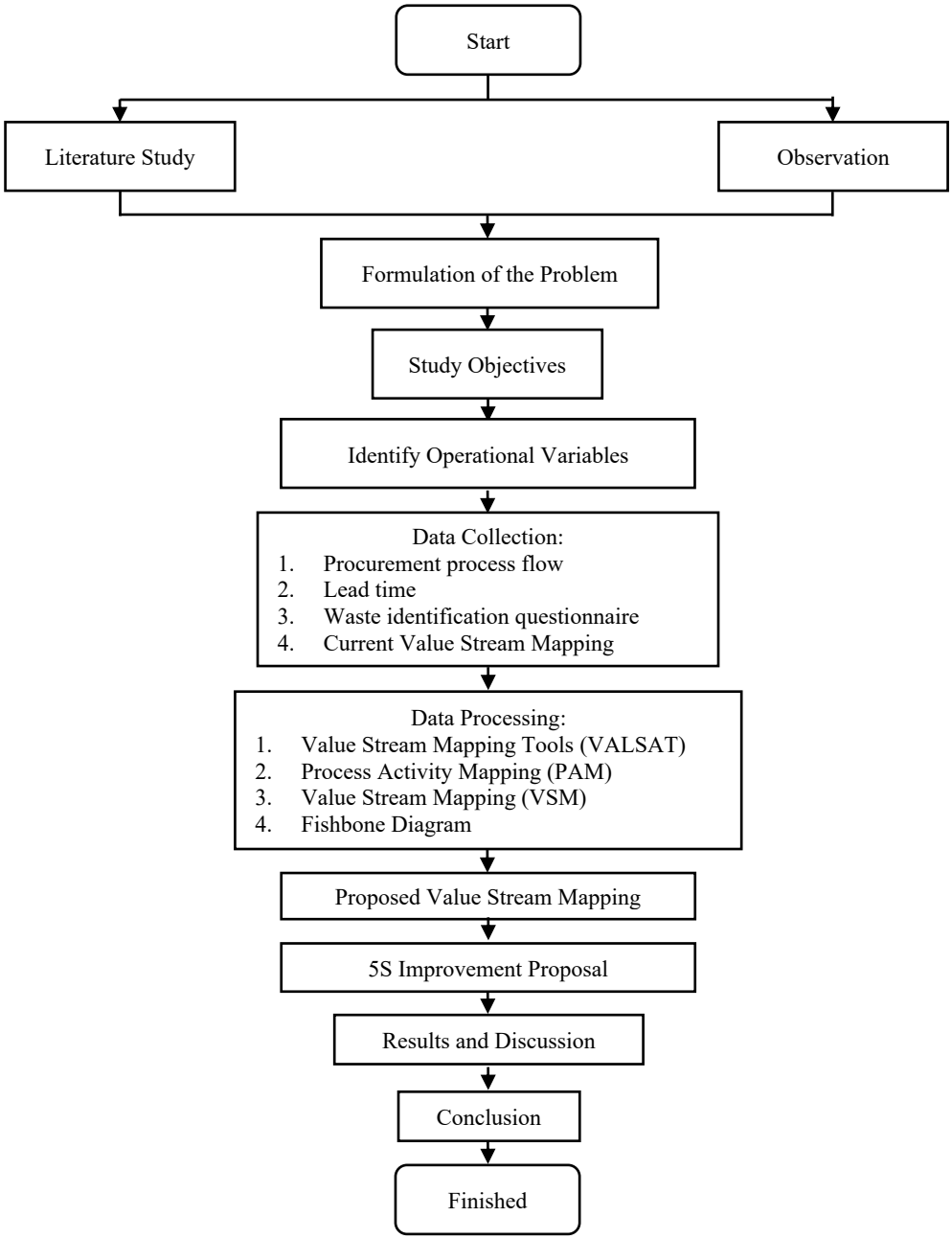

Fig. 2: Flowchart

4. Result and Discussion

4.1. Identify the procurement process flow

The first step in this research was to determine the procurement process flow at PT XYZ. The following is a four-stage process, tailored to field conditions. These stages can be seen in Table 1 below:

Table 1. Procurement Process Flow and Time

Stages	No	Activity	Time (minutes)
Pre-procurement	1	The Purchaser receives the Purchase Requirement from the user.	-

Stages	No	Activity	Time (minutes)
	2	Waiting for the publication of the Cost Budget Plan (RAB) or Self-Estimated Price (HPS)	1440
	3	Conduct initial identification and selection of relevant vendors	480
	4	Drafting a Request for Price Quotation Letter (SPPH)	15
Administrative	5	Sending SPPH to designated vendors	15
Process	6	Drafting the Minutes of Explanation (BAPP)	15
	7	Carry out aanwijzing activities with vendors	60
	8	Drafting the Minutes of Opening of Bidding Documents (BAPDP)	30
	9	Carrying out the Opening of Bidding Documents (BAPDP)	40
Evaluation &	10	Conduct administrative evaluation of vendor tender documents	480
Negotiation	11	Announcing the results of the administrative evaluation to participants	15
	12	Carry out technical evaluation of bids that pass the administration stage	960
	13	Announcing the results of the technical evaluation to participants	15
	14	Drafting the Minutes of Clarification of Bidding Documents (BAKDP)	30
	15	Carrying out Bidding Document Clarification (BAKDP) activities	60
	16	Drafting the Price Negotiation Minutes (BANH)	15
	17	Carry out the negotiation process with vendors	30
Approvals &	18	Prepare a memorandum reporting the results of the procurement process	15
Contracts	19	Making announcements and determining tender winners	15
	20	Distribute announcements and determination of tender winners to relevant parties	15
	21	Drafting procurement contracts	60
	22	Submit a memorandum requesting a contract review to the legal, treasury, and vendor divisions.	15
	23	Carry out the contract review process by all related parties	2400
	24	Submit a memorandum of application initialed by the legal and treasury divisions	15
	25	Submit a memorandum requesting contract validation to the Division Head	15
	26	Carrying out the signing of the contract by the related parties	480

Based on the data in Table 1, it can be seen that each activity in the procurement process has a different completion time. This serves as the basis for identifying potential waste in the procurement process flow at PT XYZ. Data to identify waste levels was collected through interviews and questionnaires. The questionnaires were systematically designed to gather relevant information related to implementation variables, such as performance, discipline, job satisfaction, and work systematics. The distributed questionnaires were summarized, scored, and ranked based on the waste identified through respondent responses.

Table 2. Questionnaire Statement Data

Type of Waste	Statement
Waiting	1. The document approval process often requires a long time. 2. I often have to wait for documents to be processed by other departments. 3. Bottlenecks occur at certain stages, causing delays in the procurement process.
Transportation	1. The transfer of documents between departments is still carried out manually (physical documents). 2. Inter-department document transfers often cause delays. 3. I frequently move locations to use procurement documents or data.
Overprocessing	1. There are repetitive or duplicated administrative activities. 2. I often revise document formats to meet the requirements of other parties. 3. Some processes appear too lengthy and can be simplified.
Defect / Rework	1. Documents often need to be revised due to data or format errors. 2. Rework occurs due to inconsistencies in documents. 3. Document errors frequently delay the procurement process.
Inventory	1. Document accumulation often occurs in one work area. 2. Document queues cause delays in the procurement process. 3. Uneven workload distribution among employees leads to document backlog.
Overproduction	1. I often prepare documents or reports that are rarely used by other parties. 2. Some tasks are processed earlier than required (not yet needed). 3. Certain documents or data are created repeatedly even though they serve the same purpose.
Unnecessary Motion	1. I often search for documents or archives due to suboptimal layout or arrangement. 2. Document storage is not yet effectively organized. 3. I frequently move back and forth to coordinate with other parties because procurement process information is not clearly conveyed from the beginning.
Inappropriate Processing	1. Some procurement processes still use inefficient methods. 2. I feel that some stages are performed in a more complicated way than necessary. 3. Manual methods are still dominant even though they can be replaced by digital systems.

1. Validity Test

   The validity of the research instrument in this study was conducted conceptually or qualitatively using descriptive methods (content validity). Before distributing the questionnaire to respondents, the questionnaire was consulted and reviewed by the Bureau Head, who has direct understanding and experience with non-production procurement and investment processes. This process aimed to ensure that each question reflected actual field conditions, was relevant to the research objectives, and adequately represented the types of waste being studied. After revisions and approval from the internship mentor, the questionnaire was declared suitable for use as a data collection instrument.

2. Reliability Test

The instrument reliability test in this study was conducted qualitatively and descriptively by reviewing the consistency of respondents' responses to each questionnaire item. Observations showed that comparisons of responses between respondents on each question did not reveal significant or extreme differences, thus concluding that the questionnaire instrument had a good level of consistency and was able to provide relatively stable measurement results.

Based on the results of the validity and reliability tests, the questionnaire instrument was deemed suitable for use in this study. Conceptual validity tests demonstrated that each question was appropriate to the field conditions and research objectives, while descriptive reliability tests demonstrated good consistency in respondents' responses. Therefore, the questionnaire data can be used as a basis for further analysis.

Table 3. Questionnaire Score Data Calculation Results

No	Type Waste	Responden											Mean	Rank
		1	2	3	4	5	6	7	8	9	10	11		
1	Waiting	10	13	8	12	14	9	11	10	13	15	11	11,45	1
2	Transportation	8	11	12	12	11	10	11	10	12	13	10	10,91	2
3	Overprocessing	10	10	12	8	10	10	9	10	11	10	9	9,91	5
4	Defect / Rework	11	11	10	12	13	8	11	10	9	8	8	10,09	4
5	Inventory	10	11	8	12	7	8	9	7	7	6	6	8,27	7
6	Overproduction	5	5	6	6	9	9	6	4	5	5	6	6,00	8
7	Unnecessary Motion	6	8	10	8	15	8	10	10	11	8	10	9,45	6
8	Inappropriate Processing	9	11	8	11	15	8	10	5	15	13	12	10,64	3

Table 3 shows the results of the calculation of the waste questionnaire scores based on respondents' assessments, which are then used to determine the priority of waste that needs to be addressed. The determination of critical waste is carried out based on the level of occurrence of respondents' assessments, which are then averaged and given a score for each type of waste, so that the priority of waste that needs to be addressed first is obtained. From the calculation results, the most critical waste based on the actual conditions experienced by employees is waste waiting with an average value of 11.45; waste transportation with an average value of 10.91; and waste inappropriate processing with an average value of 10.64.

4.2. Current State Mapping

Next, process mapping is carried out using value stream mapping to clearly describe the actual conditions based on observations made to obtain the cycle time of each activity (Table 1).

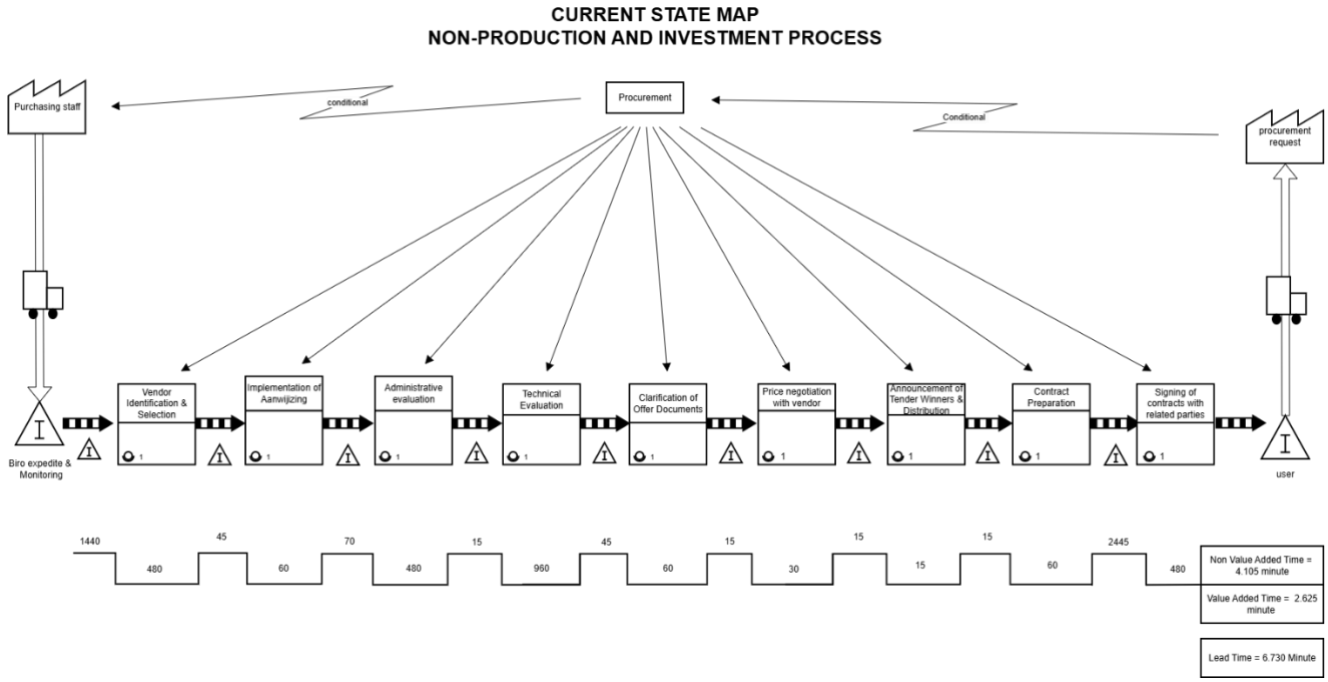

Fig. 3: Current State Map

Based on the results of the current state map mapping in Figure 3, the lead time for activities in the non-production and investment procurement process of PT XYZ is known to reach 6,730 minutes for one procurement process. In the current state map mapping, non-value added activities consist of pure NVA and NNVA. The analysis results show that the total non-value added time is dominated by pure NVA activities, namely, relatively long waiting times. Process efficiency measured using Process Cycle Efficiency (PCE) only reached 39%, which is still relatively low. This indicates that the main problem in the procurement process is the long waiting time between processes. Therefore, proposed improvements will focus on reducing waiting times (pure NVA) and administrative activity efficiency (NNVA) in order to improve the effectiveness and efficiency of the procurement process as a whole.

4.3. Value Stream Analysis Tools Calculation

Based on the critical waste that has been determined through the questionnaire results, the analysis is then continued using the Value Stream Analysis Tools (VALSAT) approach to determine the analysis tool that best suits the characteristics of the problem.

Table 4. Value Stream Analysis Tools (VALSAT)

Waste Type	PAM	SCRM	PVF	QFM	DAM	DPA	PSM
Waiting	H	H	L	-	M	M	L
Transportation / Movement	H	-	-	-	-	-	-
Overprocessing	L	L	M	L	H	M	H
Defects / Rework	L	-	-	H	-	-	-
Inventory	M	H	M	-	H	M	-
Overproduction	L	M	-	L	M	M	-
Unnecessary Motion	H	L	-	-	-	-	-
Inappropriate Processing	H	-	M	L	-	L	L

Notes:
H = High Correlation and Usefulness (9)
M = Medium Correlation and Usefulness (3)
L = Low Correlation and Usefulness (1)

Table 5. VALSAT Score Calculation

Waste Type	Weight (%)	PAM	SCRM	PVF	QFM	DAM	DPA	PSM
Waiting	14,92	134,28	134,28	14,92	0	44,76	44,76	14,92
Transportation	14,22	127,98	0	0	0	0	0	0
Overprocessing	12,92	12,92	12,92	38,76	12,92	116,28	38,76	116,28
Defects / Rework	13,15	13,15	0	0	118,35	0	0	0
Inventory	10,78	32,34	97,02	32,34	0	97,02	32,34	0
Overproduction	7,82	7,82	23,46	0	7,82	23,46	23,46	0
Unnecessary Motion	12,32	110,88	12,32	0	0	0	0	0
Inappropriate Processing	13,87	124,83	0	41,61	13,87	0	41,61	13,87
TOTAL SCOR	**100%**	**564,20**	**280,00**	**127,63**	**152,96**	**281,52**	**180,93**	**145,07**

Based on Table 5, the calculation results of Value Stream Analysis Tools (VALSAT) using a 9–3–1 weighting, obtained that Process Activity Mapping (PAM) has the highest score of 564.20 compared to other tools. This shows that PAM is the most relevant analysis tool for identifying waste in administrative and service procurement processes, and is able to describe process activities in detail by classifying them into VA, NVA, and NNVA. This is very crucial in the procurement process, where waste is often hidden in bureaucratic flows or documents. By recording all key activities according to the actual workflow in the company, PAM provides a transparent visual overview of inefficiency points, making it easier for management to make targeted process improvements.

4.4. Process Activity Mapping

Process activity mapping is performed by recording all key activities that occur within a procurement process cycle, in accordance with the company's applicable process flow.

Table 6. Process Activity Mapping (PAM) Classification

Activity	Number of Activity	Percentage (%)	Total Time (minutes)	% of *Lead Time*
Value Added (VA)	9	34,6 %	2.625	39%
Pure Non-Value Added (NVA)	1	3,8%	1.440	21,4%
Necessary Non-Value Added (NNVA)	16	61,6%	2.665	39,6%
Total	26	100%	6.730	100%

Based on the classification results presented in Table 6, it is known that NNVA activities dominate the process flow with 16 activities or 61.6% of the total activities and contribute the largest time to the total lead time. This condition indicates the potential for improvement through simplification of activities that are still necessary but do not provide direct added value. The results of this PAM classification will be used as a basis for identifying the main factors causing critical waste in the procurement process using a fishbone diagram.

4.5. Fishbone Diagram

Based on the data processing results shown in Table 3, three most dominant critical wastes were obtained, namely waste of waiting, waste of transportation, and waste of inappropriate processing. These three wastes were then analyzed further to identify the root causes of waste from various aspects, such as work methods, systems and procedures, people, and document management, which were then outlined in a fishbone diagram as shown in the following figure:

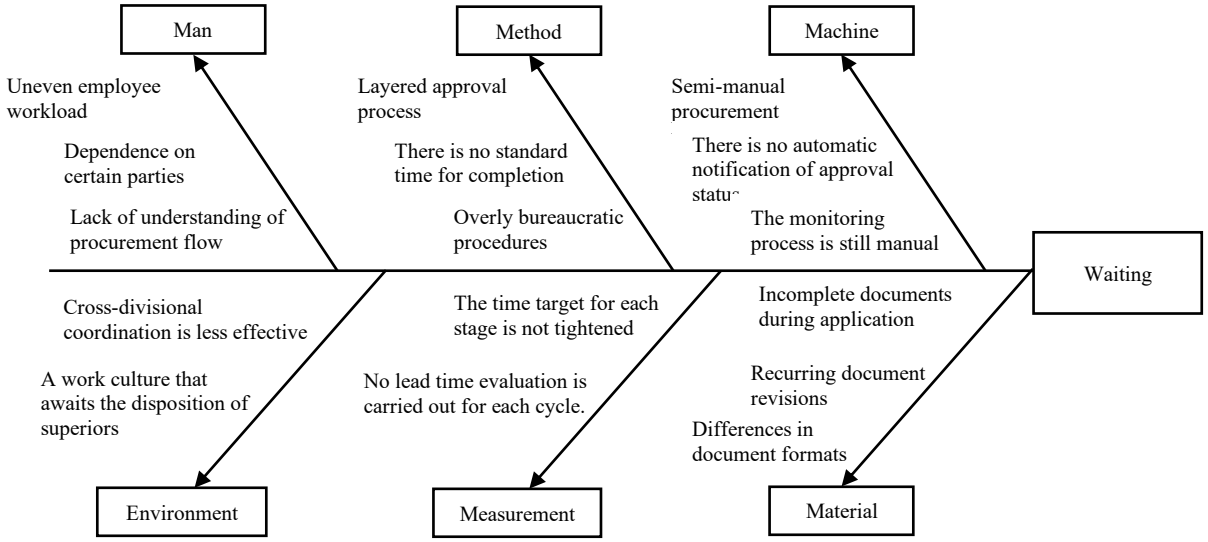

Fig. 4: Fishbone Diagram Waste of Waiting

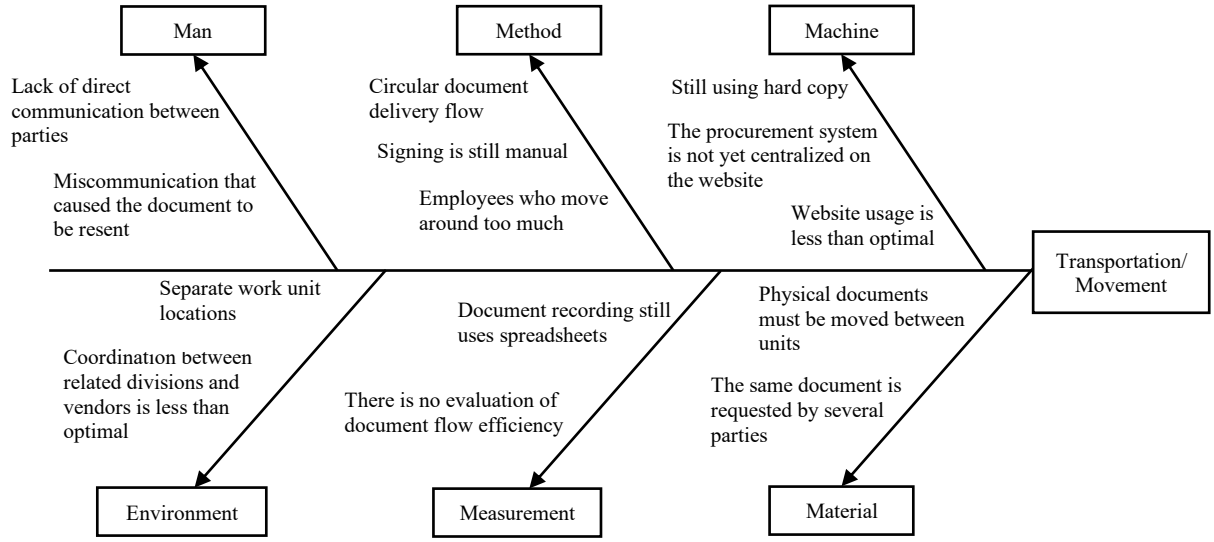

Fig. 5: Fishbone Diagram Waste of Transportation

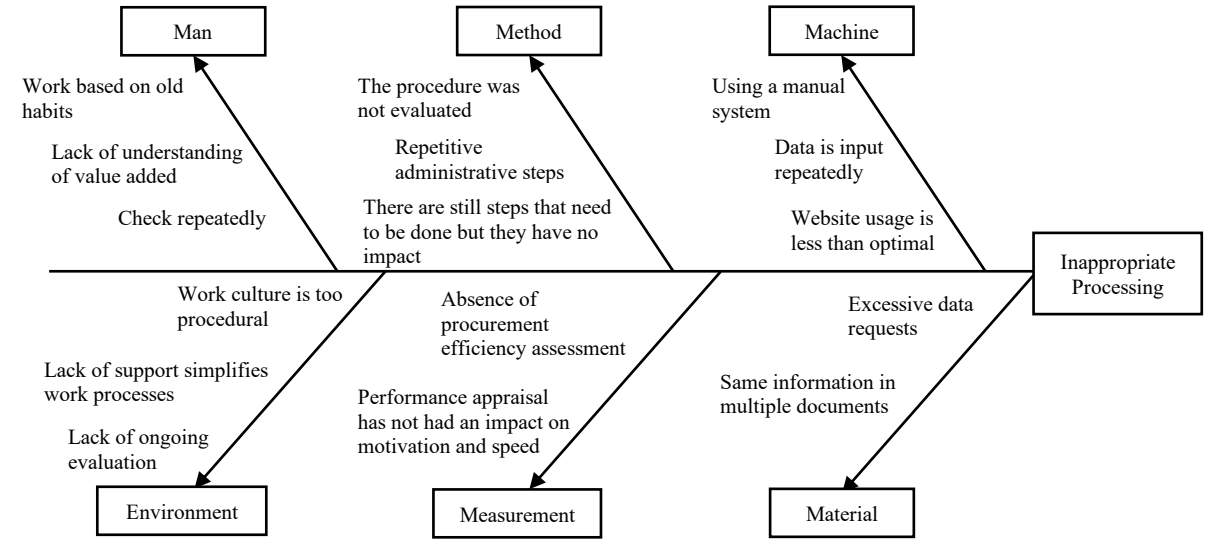

Fig. 6: Fishbone Diagram Waste of Inappropriate Processing

Based on the fishbone diagram analysis in Figures 4, 5, and 6, wasteful waiting, transportation, and inappropriate processing in non-production and investment procurement procedures are caused by a combination of personnel, method, system, and organizational issues. Layered approval procedures, inter-unit dependencies, and a lack of regular turnaround times are the main causes of wasted waiting time. Repeated document transfers and the lack of an integrated procurement system lead to wasteful transportation. On the other hand, complex procedures, frequent checking activities, and a lack of regular process effectiveness evaluation are the causes of wasteful inappropriate processing.

4.6. Future State Mapping Design

Based on the identification of critical waste and root cause analysis, improvement efforts are needed to reduce the waste that occurs, namely by designing a future state map that can describe a more efficient procurement process flow.

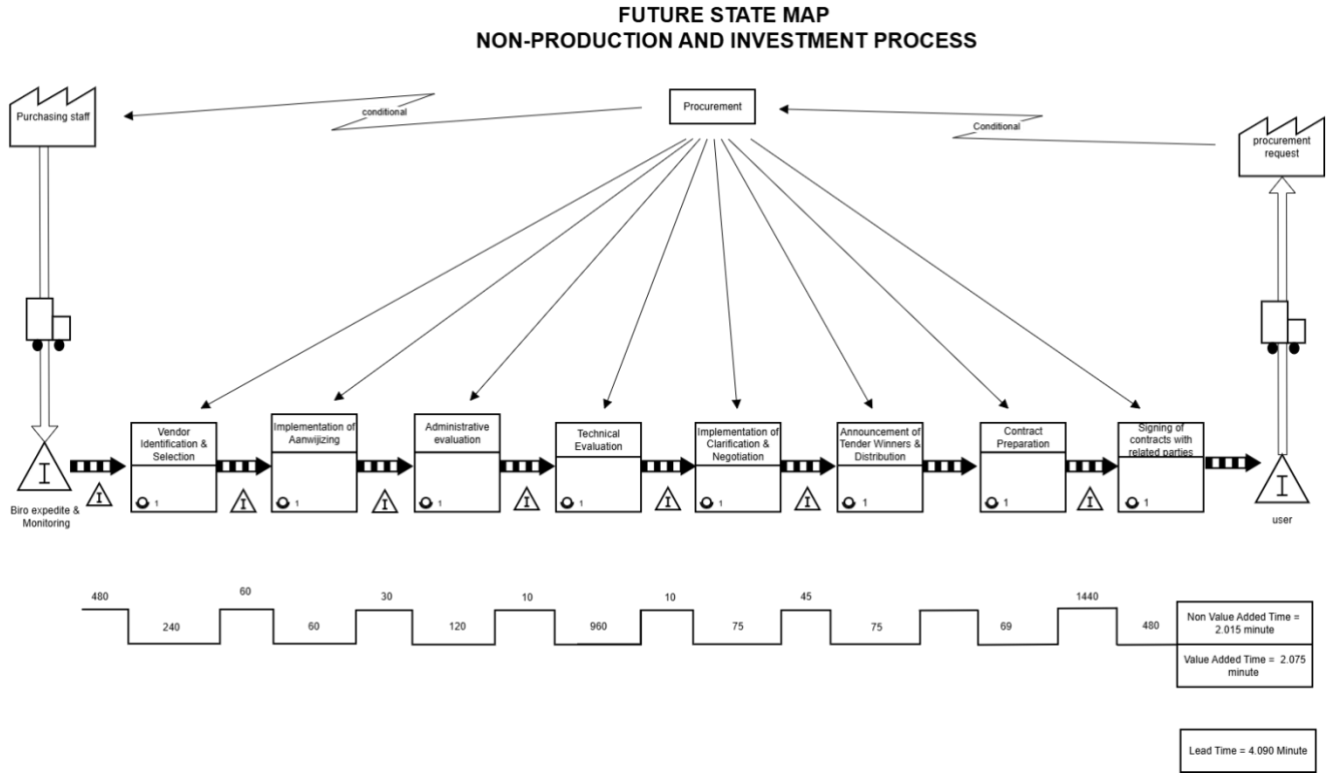

Fig. 7: Future State Map

The design of the future state map in Figure 7 was carried out by simplifying previously repetitive administrative stages, particularly in drafting procurement letters and documents, accompanied by reducing waiting time in the process of issuing RAB and contract review, as well as reducing document movement and employee movement, so that the efficiency of the procurement process time can be increased. After improvements and waste minimization, it was found that the lead time became 4,090 minutes where the Process Cycle Efficiency (PCE) value became 49.39% and had increased from the PCE value before the improvements. The results of the future state map design then became the basis for preparing more operational and sustainable improvement steps.

4.7. Improvement Recommendations

The final stage involves formulating improvement proposals to support the implementation of lean service and increase procurement process efficiency. These improvement proposals are formulated based on the 5S principles, a practical approach to structuring work processes, documents, and the work environment, which is expected to support the reduction of non-value-added activities.

Table 7. Improvement Recommendations

5S	Related Waste	Main Problems	Improvement Proposals
Seiri (Sorting)	Inappropriate Processing, Transportation	Numerous documents and administrative steps do not add value, and data duplication occurs	Eliminate documents that are not used as a basis for decision-making, merge documents with similar functions, and remove repetitive administrative steps
Seiton (Set in Order)	Waiting, Transportation	Unclear document flow and repeated document transfers	Establish a clear and one-way procurement process flow and provide a centralized document storage system
Seiso (Shine)	Waiting, Inappropriate Processing	Documents are often incomplete and require repeated revisions	Develop a document completeness checklist and simplify procurement document formats
Seiketsu (Standardize)	Waiting, Inappropriate Processing	Differences in work procedures among units and the absence of standard completion times	Develop concise procurement SOP, standardize document formats, and establish standard completion times (Service Level Agreement/SLA) for each stage

Shitsuke (Sustain)	Waiting, Transportation, Inappropriate Processing	Process improvements are inconsistently implemented and employees revert to old habits	Conduct socialization and training, regularly evaluate compliance with SOP and SLA, and link 5S implementation to performance appraisal

Based on table 7, recommendations for improvement are made using the 5S method. The proposed improvements are focused on managing administrative activities and procurement documents that have the potential to cause waste. The implementation of Seiri is carried out by sorting procurement documents that are truly necessary, such as PR, RAB/HPS, SPPH, minutes, and contracts, so that irrelevant or duplicate documents can be minimized. Seiton is directed at organizing documents and procurement administration flows in a structured manner, both physically and digitally, so that the process of searching and using documents becomes faster and more orderly. Furthermore, Seiso is implemented through maintaining the tidiness of documents and administrative work areas to reduce the risk of recording errors and duplication of work. Seiketsu is carried out by standardizing procurement document formats, drafting procedures, and approval flows, so that work processes become more uniform and easier to control. Finally, Shitsuke focuses on instilling in employees the habituation and discipline they need to adhere to established work procedures and standards. Through the implementation of 5S, it is hoped that waste in the form of waiting time, document transfers, and repetitive administrative processes can be minimized, thereby increasing the efficiency and effectiveness of non-production and investment procurement processes. Therefore, these proposed improvements can form the basis for a strategy for continuously improving procurement process performance.

5. Conclusion

Based on the analysis results using a lean service approach, the non-production and investment procurement process at PT XYZ is still dominated by pure non-value added and necessary non-value added activities, which cause long lead times. The results of waste identification indicate that waiting, transportation, and inappropriate processing are critical types of waste that have the greatest negative impact on the efficiency of the procurement process. The current process conditions show a total lead time of 6,730 minutes with a Process Cycle Efficiency (PCE) value of around 39%, which means that the proportion of activity efficiency carried out is still considered low. After going through future state map planning by reducing waste and proposing improvements using the 5S method, the process efficiency value increased to 49.39% with a total lead time of 4,090 minutes. These results indicate that the proposed improvements are potential and can be used by the company to minimize waste and increase the efficiency of the non-production and investment procurement process at PT XYZ.

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