

## **Analysis of the System and procedures Procurement of Goods and Services at PT X TBK in the Perspective of Effectiveness, Efficiency, and Transparency**

**Aisha Inggitha Putri Haryoso\* , Murti Widyaningsih**

Universitas Pancasila, Indonesia

Email: aishainggithaa@gmail.com\*, murtiwidyaningsih@univpancasila.ac.id

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### **ABSTRACT**

This research aims to analyze the system and procedures for the procurement of goods and services implemented at PT X Tbk using a quantitative approach. The background of this research is the strategic role of procurement in corporate governance and the existence of several indications of problems in the procurement process at the company. The research method used is quantitative descriptive, with data obtained from internal company documents, structured procurement records, and questionnaires distributed to 17 respondents involved in the procurement process. Data analysis was carried out to assess the levels of effectiveness, efficiency, and transparency in the procurement process, encompassing validity and reliability tests, classical assumption tests, and hypothesis testing using multiple linear regression. The findings indicate that the procurement procedure at PT X Tbk is carried out through systematic stages, from the submission of procurement requests to the contract finalisation stage. The transparency variable was rated very highly by respondents and was the only variable that satisfied the reliability test. However, the effectiveness and efficiency variables showed reliability values below the acceptable threshold, indicating inconsistencies in respondents' perceptions. The regression analysis revealed that efficiency has a positive and significant effect on the procurement system and procedures, while effectiveness and transparency do not show a significant effect. The implication of this research is the need for PT X Tbk to focus on improving efficiency in the procurement process and to re-evaluate the measurement instruments for effectiveness and transparency to ensure more consistent and reliable results in the future.

**Keywords:** Procurement, goods and services, effectiveness, efficiency, transparency

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### **INTRODUCTION**

In the era of globalization and increasingly fierce business competition, the corporate sector is required to be not only profit-oriented but also committed to good corporate governance. One of the main pillars in realizing good corporate governance is the management of the procurement of goods and services that is effective, efficient, and transparent. Procurement is no longer just an operational function, but a strategic function that directly affects the company's financial, operational, and reputational performance (Adda, 2024; Kakwezi & Nyeko, 2019; Song et al., 2017; Villena, 2019).

At the global level, good procurement practices have become a mandatory standard for world-class companies. The concept of e-procurement and electronic tender systems has been massively adopted to minimize inefficiency, human error, and fraud loopholes. The Government of Indonesia itself, through Presidential Regulation Number 12 of 2021 concerning the Procurement of Government Goods/Services, has encouraged the implementation of the electronic procurement system (SPSE) nationally to increase accountability and transparency. This is a benchmark that must also be followed by the Company in managing the company's resources and spending.

PT X Tbk, as a company with a large and complex operational scale, bears strategic responsibility in ensuring the sustainability of the company's operations. With a business

network spread across various regions of Indonesia, procurement activities are one of the main functions that support operational activities while absorbing a significant portion of the budget. Any failure or inefficiency in the procurement process has the potential to have serious impacts, ranging from budget waste and operational delays to a decrease in service quality and overall company performance (Dzuke & Naude, 2017; Gunduz & Al-Naimi, 2022; Phuangjan & Ruanghoengchum, 2024; Udeh, 2024; Wibowo, 2019).

Based on initial observations and internal reports, there are several indications of problems in the procurement system and procedures at PT X Tbk. These indications include: a procurement process that has not fully utilized the e-procurement system, causing lengthy procurement timelines; limitations in understanding and using applications for sending documents as well as for the approval process by both users and vendors, resulting in the continued use of media such as Google Drive; incompatibility between the specifications of the goods ordered and the goods received; users who do not have a clear understanding of their specifications of needs; changes in the specifications of goods or services in the middle of the procurement process; the existence of price gaps for the same goods from different vendors; and the limitation of the maximum procurement budget capacity. In addition, despite the use of e-procurement platforms, the level of transparency and competition in the auction process is still often questioned by a number of vendors, thus raising perceptions of potential collusion and inefficiency (Achieng et al., 2024; Ahmed, 2024; Fang, 2025; Funuguru, 2023; Success & Maiyaki, 2025).

This research is important to conduct for several reasons. First, from a financial perspective, evaluation of procurement efficiency can have a direct impact in the form of significant cost savings for companies. Second, from an operational perspective, an effective procurement system can ensure the availability of goods and services on time and in accordance with specifications, thus supporting the smooth running of the company's operational activities. Third, from a corporate governance perspective, transparency in the procurement process is key in fulfilling the principles of accountability and the prevention of fraudulent practices that have the potential to damage the company's reputation. Therefore, this research not only has academic value but also high practical value for improving the performance of PT X Tbk.

Several previous studies have examined similar topics. Saputra and Dewi (2021) in their research entitled "Analysis of the Effectiveness of E-Procurement in the Procurement of Goods and Services in Regional Drinking Water Companies" found that the implementation of e-procurement can increase effectiveness and time efficiency, although there are still obstacles related to the competence of human resources. Another study by Sari and Pratama (2020) entitled "The Effect of Transparency and Accountability in the Procurement of Goods/Services on the Quality of Financial Statements" concluded that transparency has a positive effect on the prevention of budget irregularities.

However, the previous studies focused more on government agencies or SOEs in certain service sectors. Research that specifically examines large-scale, high-complexity companies using a three-pillar approach — namely effectiveness, efficiency, and transparency — simultaneously is still relatively limited (de Pinto, 2023; Ekardt, 2024; George et al., 2025; Ibrahim et al., 2026; Nasir et al., 2025). This gap will be addressed by the present research through a more comprehensive and contextual analysis of PT X Tbk.

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This research is supported by several main theoretical foundations. Systems Theory is used to analyze procurement as a system consisting of inputs, processes, outputs, and feedback, as well as the relationships between its components. The theory of Good Corporate Governance (GCG), especially the principles of transparency and accountability, is used as a basis for evaluating information disclosure and fairness in the procurement process. Furthermore, procurement performance measurement is carried out using the indicators of Effectiveness (achievement of goals: right quality, right quantity, right time), Efficiency (achievement of results with the use of minimum resources: right cost), and Transparency (information disclosure and a fair and accountable procurement process). Based on the background that has been described, the main purpose of this study is to analyze the procurement system and procedures of goods and services at PT X Tbk from the perspective of effectiveness, efficiency, and transparency.

## **METHODS**

This study employed a quantitative research method. This approach was used to obtain a more comprehensive and in-depth analysis of the procurement of goods and services systems and procedures at PT X Tbk, particularly from the perspective of effectiveness, efficiency, and transparency. The data used in this study consisted of quantitative data, which was numerically processed and statistically analyzed. Quantitative data was obtained from the results of questionnaires filled out by parties involved in the procurement process, such as procurement staff, users, and other related parties, and was used to measure the level of effectiveness, efficiency, and transparency of the system implemented.

In this study, data sources were divided into two categories: primary data and secondary data. Primary data was obtained directly from first-hand sources through direct observation of procurement activities and procedures within PT X Tbk, interviews conducted with key informants such as Procurement Unit staff and the needs planning team (user), and questionnaires used to collect quantitative data describing the level of effectiveness, efficiency, and transparency in the implementation of the procurement system.

Secondary data was obtained from various relevant sources, including internal company documents such as Standard Operating Procedures (SOP) for procurement, project implementation reports, vendor data, and negotiation or clarification result reports, as well as literature, journals, books, and other scientific sources related to the themes of this study. Supporting data was also drawn from the results of the researcher's internship at PT X Tbk, which provided an empirical overview of the procurement system as implemented in the field.

The two types of data sources were analyzed in an integrated manner to produce a comprehensive understanding of how the procurement systems and procedures at PT X Tbk were carried out, as well as the extent to which the principles of effectiveness, efficiency, and transparency had been applied.

This research grouped its variables into two types: independent variables (X) and dependent variables (Y), with the following explanation:

**Table 1 Variable Operationalization**

No	Variabel	Indicator	Scale	Number Questionnaire
1	Effectiveness (X1)	a) Achievement of Objectives	Likert	1-3
		b) Time Compatibility		4-6
		c) Punctuality		7-10
2	Efficiency (X2)	a) Time	Likert	1-3
		b) Cost		4-7
		c) Resource Usage		8-10
3	Transparency (X3)	a) Information Disclosure	Likert	1-5
		a) Communication Clarity		6-10
		b) Data and Information Access		<b>11-15</b>
		c) Process Coordination and Openness		16-20
		d) Reporting and Accountability		21-25
4	Procurement systems and procedures (Y)	e) Approval Process	Likert	26-30
		a) Clarity of Procurement System and SOP		1-5
		b) Compliance with Procedures		6-10
		c) Procurement Process Effectiveness and Efficiency		
d) Transparency and Accountability of Procedures	11-15			
				16-20

In this study, data collection was carried out through two methods, namely literature research and field research. Literature research was carried out by collecting data and information through the study of various relevant written sources, such as textbooks, theses, scientific journals, and other references related to the research topic.

The validity test was used to measure whether each questionnaire item was valid. A questionnaire item was considered valid if the significance value exceeded 0.05 (Sugiyono, 2021:175).

The reliability test was conducted using the Cronbach Alpha ( $\alpha$ ) method. A variable was considered reliable if the Cronbach Alpha value exceeded 0.70 (Ghozali, 2018:45).

The classical assumption test was conducted to ensure that the regression results obtained were accountable and free from unusual results. As part of this test, the normality test was performed to determine whether the data distribution followed a normal distribution, using the Kolmogorov-Smirnov non-parametric statistical test. The regression model's data distribution was considered normal if the significance value exceeded 0.05 (Ghozali, 2018:30).

In this study, hypothesis testing was conducted to analyze the procurement system and procedures of goods and services at PT X Tbk from the perspective of effectiveness, efficiency, and transparency using the following tests:

Multiple linear regression analysis was used to predict the extent to which the independent variables — effectiveness, efficiency, and transparency — affected the dependent variable, namely procurement systems and procedures, using the following equation:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$$

Description:

Y : Procurement Systems and Procedures

X1: Effects

X2 : Efficiency

X3 : Transparency

$\beta_0$  : Constanta

$\beta_1, \beta_2, \beta_3$  : Regression coefficient

E: Error

The coefficient of determination ( $R^2$ ) test is used to determine the extent to which the dependent variable can be explained by the independent variables. If the value of the coefficient of determination ( $R^2$ ) is close to 1, the dependent variable can be strongly explained by the independent variables. Conversely, if the value of  $R^2$  is small or not close to 1, the dependent variable cannot be strongly explained by the independent variables.

The partial test, or t-test, is used to determine how far the influence of each independent variable is on the dependent variable (Ghozali, 2018:179). The t-test was conducted at a significance level of 0.05 ( $\alpha = 5\%$ ). The test was carried out by comparing t-count with t-table, or alternatively by examining the significance column for each t-calculated value, as follows:

- 1) If t-count > t-table, then  $H_0$  is rejected (sig < 0.05). This means that the independent variable had a partial effect on the dependent variable.
- 2) If t-count < t-table, then  $H_0$  is accepted (sig > 0.05). This means that the independent variable had no partial effect on the dependent variable.

The F-test was carried out to determine whether the analyzed model had a sufficient level of feasibility — that is, whether the variables used in the model could explain the phenomenon being analyzed. The F-test was conducted by comparing F-calculated with F-table as follows: if F-calculated > F-table (sig < 0.05), the model was considered feasible; if F-calculated < F-table (sig > 0.05), the model was considered not feasible.

## **RESULTS AND DISCUSSION**

### ***Descriptive Statistical Analysis***

In this study, the presentation of descriptive statistical analysis was carried out for each variable statement including minimum and maximum values, mean values, and standard deviations. The results of the descriptive statistical analysis are presented as follows:

**Table 2 Results of Descriptive Statistical Analysis of Effectiveness**

Item	Statement	Minimum	Maximum	Mean	Hours Deviation
X1.1	The procurement process produces goods/services according to user needs.	5	5	5	0
X1.2	The specifications of the goods/services obtained are in accordance with the initial request.	3	5	4.47	0.62
X1.3	The procurement process supports the achievement of the work unit's goals.	4	5	4.71	0.47
X1.4	The procurement of goods/services is completed according to the set schedule.	3	4	3.82	0.39
X1.5	The procurement system helps minimize procurement delays.	4	5	4.29	0.47
X1.6	The vendor evaluation process results in the right vendor.	4	5	4.88	0.33
X1.7	Procurement procedures support the quality of procurement results.	4	5	4.29	0.47
X1.8	The results of the procurement provide optimal benefits for users.	3	5	4.59	0.71
X1.9	The procurement process runs according to the procurement plan.	4	4	4	0
X1.10	Procurement systems and procedures support the achievement of expected results.	4	5	4.76	0.44

Source: SPSS data processing results ver. 30, 2025.

Based on the results of the descriptive statistical analysis of the procurement effectiveness variables in Table 2, it is known that the minimum value of the respondents' answers is 3 and the maximum value is 5. This shows that in general, respondents gave a positive assessment of the implementation of the procurement process. A statement with a maximum value of 5 is found in the indicator "The procurement process produces goods/services according to the user's needs", which indicates that the procurement process has been able to meet the needs of users optimally.

Overall, the average score of respondents' answers ranged from agree to strongly agree, reflecting that effectiveness was rated well by respondents. The highest average score reached 5.00, while the lowest average score was 3.82, which was contained in the statement "Procurement of goods/services completed according to the set schedule". These findings indicate that although the overall effectiveness is good, there are still weaknesses in the timeliness aspect of procurement completion. This can indicate that there are obstacles in internal time management or coordination of work processes that are not optimal.

In addition, the standard deviation value on the entire statement was below 1, which indicates that the variation rate of respondents' answers was relatively low. Thus, it can be concluded that respondents' perceptions of effectiveness tend to be homogeneous and consistent. In general, effectiveness has gone well, but improvements are still needed, especially in the aspect of time management so that the procurement process can run more efficiently and on schedule.

**Table 3 Results of Descriptive Statistical Analysis of Efficiency**

Item	Statement	Minimum	Maximum	Mean	Hours Deviation
X2.1	The procurement process is carried out with efficient use of time.	3	5	3.88	0.86
X2.2	The procurement system helps control procurement costs.	3	5	4.47	0.62
X2.3	Procurement procedures minimize waste of resources.	3	5	4.06	0.66
X2.4	The evaluation and negotiation process is carried out efficiently.	4	5	4.41	0.51
X2.5	The procurement system reduces unnecessary administrative	4	5	4.29	0.47

	processes.				
<b>X2.6</b>	The procurement process makes optimal use of resources.	4	5	4.88	0.33
<b>X2.7</b>	The procurement procedure helps to obtain competitive prices.	4	5	4.59	0.51
<b>X2.8</b>	The procurement process reduces procurement operational costs.	3	5	4.59	0.71
<b>X2.9</b>	The procurement system supports the overall efficiency of the procurement process.	4	5	4.41	0.51
<b>X2.10</b>	Procurement procedures help maximize procurement value.	3	5	4.35	0.79

Source: SPSS data processing results ver. 30, 2025.

Based on the results of the descriptive statistical analysis of the procurement efficiency variable in Table 3, it is known that the minimum answer value of the respondents is 3 and the maximum value is 5. This shows that respondents' perception of the efficiency of procurement implementation in general is in the category of quite good to very good. Overall, the average value of respondents' answers ranged from agree to strongly agree, indicating that procurement systems and procedures have supported the achievement of efficiency in the procurement process.

The highest average score of 4.88 is found in the statement "The procurement process utilizes resources optimally". These findings show that the utilization of resources, both in terms of labor, systems, and budgets, has run optimally and effectively in supporting procurement activities. This is the main indicator that the efficiency of resource use in the procurement process has been achieved well.

Meanwhile, the lowest average value of 3.88 is found in the statement "The procurement process is carried out with efficient use of time". These findings indicate that although procurement efficiency is generally considered good, there are still obstacles in the aspect of managing procurement implementation time. These conditions can reflect the existence of a process that takes longer than planned or the arrangement of workflows and coordination between related parties is not optimal.

In addition, the standard deviation value of the entire statement was below the figure 1, which indicates that the variation in respondents' answers was relatively low. This indicates the uniformity of respondents' perception of the efficiency applied. Thus, it can be concluded that overall efficiency has gone well, especially in resource utilization and cost control, but it still needs improvements in the aspect of time efficiency so that the procurement process can run faster and more structured.

**Table 4 Results of Descriptive Statistical Analysis of Transparency**

Item	Statement	Minimum	Maximum	Mean	Hours Deviation
<b>X3.1</b>	Information about the stages of the procurement process is publicly conveyed to vendors.	3	5	4.41	0.62
<b>X3.2</b>	The administrative and technical requirements of procurement are clearly informed from the outset.	3	5	4.29	0.69
<b>X3.3</b>	Changes in the provisions or procurement schedule are communicated to the vendor openly.	2	5	4.29	0.77
<b>X3.4</b>	Information on the scope of work is available in full to the vendor.	3	5	4.29	0.69
<b>X3.5</b>	Vendors obtain the same information without any special treatment.	3	5	4.29	0.77
<b>X3.6</b>	Communication between the Indirect Procurement Unit and the vendor takes place clearly and professionally.	3	5	4.47	0.62
<b>X3.7</b>	The clarification mechanism for vendors runs well during the	3	5	4.18	0.64

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	procurement process.				
<b>X3.8</b>	Questions or requests for clarification from vendors are responded to in a timely manner.	2	5	4.12	0.86
<b>X3.9</b>	The information conveyed to vendors is easy to understand and does not cause multiple interpretations.	3	5	4.18	0.73
<b>X3.10</b>	The negotiation process is carried out openly and documented.	3	5	4.41	0.80
<b>X3.11</b>	Vendors have adequate access to relevant procurement documents.	2	5	4.06	1.03
<b>X3.12</b>	Vendors can easily trace the status of the procurement process.	2	5	3.94	1.09
<b>X3.13</b>	The information from the evaluation results is clearly conveyed to the vendor.	3	5	4.35	0.61
<b>X3.14</b>	Documentation of procurement results is available and can be accessed according to the provisions.	2	5	4.18	1.01
<b>X3.15</b>	Media or procurement information systems make it easier for vendors to obtain information.	2	5	3.88	0.86
<b>X3.16</b>	Coordination between the Indirect Procurement Unit and internal users runs openly.	3	5	4.41	0.80
<b>X3.17</b>	Information on procurement needs from users is conveyed clearly and documented.	3	5	4.18	0.53
<b>X3.18</b>	Each stage of the procurement process is informed to internal users.	3	5	4.24	0.75
<b>X3.19</b>	Changes in the procurement process are communicated to users publicly.	2	5	4.18	0.81
<b>X3.20</b>	There is no important information hidden from internal users.	3	5	4.41	0.80
<b>X3.21</b>	The progress of the procurement implementation is reported to the user periodically.	3	5	4.53	0.62
<b>X3.22</b>	The information on the results of the vendor selection is conveyed to the user clearly.	3	5	4.24	0.56
<b>X3.23</b>	The basis for procurement decision-making can be explained to the user.	3	5	4.35	0.70
<b>X3.24</b>	Procurement documents can be traced back by the internal authorities.	2	5	4.29	1.05
<b>X3.25</b>	The procurement process can be accounted for administratively.	3	5	4.29	0.85
<b>X3.26</b>	The procurement approval process is carried out according to applicable procedures.	3	5	4.59	0.62
<b>X3.27</b>	The procurement approval flow is clearly communicated to the user.	3	5	4.47	0.72
<b>X3.28</b>	There is no approval process carried out outside the official mechanism.	3	5	4.35	0.70
<b>X3.29</b>	The procurement approval time can be monitored transparently.	2	5	4.35	0.86
<b>X3.30</b>	Every approval decision is well documented.	3	5	4.35	0.61

Source: SPSS data processing results ver. 30, 2025.

Based on the results of the descriptive statistical analysis of transparency variables in Table 4, it is known that the minimum value of respondents' answers is 2 and the maximum value is 5. This shows that in general, respondents have a positive perception of the level of transparency in the implementation of the procurement process. The average value of respondents' answers as a whole was in the category of agree to strongly agree, which indicates that transparency has been well implemented, both in relation to vendors and internal users.

The highest average score of 4.59 is found in the statement "The procurement approval process is carried out according to applicable procedures". These findings show that respondents consider that the procurement approval mechanism has been implemented transparently and in accordance with applicable regulations, so as to increase accountability and trust in the procurement process. In addition, a relatively high average value is also seen

in the indicators of reporting procurement progress to users and the disclosure of information on the results of vendor selection, which reflects good communication between the Indirect Procurement Unit and related parties.

Meanwhile, the lowest average value of 3.88 is found in the statement "Media or procurement information system makes it easier for vendors to obtain information". This indicates that although transparency in general has been doing well, there are still limitations in the aspect of the means or information systems used to convey procurement information to vendors. These findings show the need to improve information systems or media so that access to procurement information can be done more easily, quickly, and evenly.

In terms of data dissemination, the standard deviation value on most statements was below 1, indicating that the variation in respondents' answers was relatively low. This indicates that there is uniformity in respondents' perception of the level of transparency applied. Thus, it can be concluded that transparency has been implemented properly and consistently, both in the delivery of information, approval mechanisms, and documentation of the procurement process. However, improvements in the aspects of information systems and ease of access to information are still needed to support more optimal transparency.

**Table 5 Results of Descriptive Statistical Analysis of Procurement Systems & Procedures**

Item	Statement	Minimum	Maximum	Mean	Hours Deviation
Y.1	The company opens opportunities for all employees who want to give suggestions or criticism.	3	5	4.41	0.62
Y.2	The systems and procedures for the procurement of goods and services have been clearly documented.	3	5	4.29	0.69
Y.3	Procurement guidelines or SOPs are easy to understand by the parties involved.	2	5	4.29	0.77
Y.4	The procurement process flow is structured in a systematic and structured manner.	3	5	4.29	0.69
Y.5	Each stage of procurement has clear provisions.	3	5	4.29	0.77
Y.6	The procurement system used supports the smooth procurement process.	3	5	4.47	0.62
Y.7	The implementation of procurement is carried out in accordance with the applicable SOPs.	3	5	4.18	0.64
Y.8	Each procurement process is carried out based on the provisions that have been set.	2	5	4.12	0.86
Y.9	Deviations from procurement procedures can be minimized.	3	5	4.18	0.73
Y.10	The procurement process is supervised to ensure compliance with procedures.	3	5	4.41	0.80
Y.11	Each stage of procurement can be accounted for administratively.	2	5	4.06	1.03
Y.12	The procurement system supports the timely completion of procurement.	2	5	3.94	1.09
Y.13	Procurement procedures help speed up decision-making.	3	5	4.35	0.61
Y.14	The procurement process runs according to the needs of the user.	2	5	4.18	1.01
Y.15	The procurement system can minimize obstacles in the procurement process.	2	5	3.88	0.86
Y.16	The procurement procedure improves the overall efficiency of the procurement process.	3	5	4.41	0.80
Y.17	Each stage of procurement is carried out transparently.	3	5	4.18	0.53
Y.18	Information related to the procurement process can be accessed by the authorities.	3	5	4.24	0.75
Y.19	The procurement decision-making process is carried out openly.	2	5	4.18	0.81

Y.20	Documentation of the procurement process is available and can be traced back.	3	5	4.41	0.80
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Source: SPSS data processing results ver. 30, 2025.

Based on the results of the descriptive statistical analysis of the variables of the procurement system and procedure in Table 5, it is known that the minimum value of the respondents' answers is 2 and the maximum value is 5. This shows that respondents' perception of the implementation of procurement systems and procedures in general is in the category of quite good to very good. Overall, the average value of respondents' answers tends to be in the range of agree to strongly agree, which indicates that procurement systems and procedures have been well implemented in supporting the procurement process.

The highest average score of 4.47 is found in the statement "The procurement system used supports the smooth procurement process". These findings show that the system used by the company is considered to be able to support the smooth implementation of procurement, both in terms of workflow, process control, and coordination between parties involved. In addition, a relatively high average value is also seen in indicators related to documentation, supervision, and process accountability, which reflects that procurement procedures have been carried out in a structured and accountable manner.

Meanwhile, the lowest average value of 3.88 is found in the statement "The procurement system is able to minimize obstacles in the procurement process". This indicates that although the procurement system and procedures in general have been running well, there are still certain obstacles that cannot be fully minimized by the existing system. These findings can show the need to evaluate and improve systems and procedures to be more adaptive to operational problems that arise during the procurement process.

In terms of data dissemination, the standard deviation value on most statements was below 1, indicating that the variation in respondents' answers was relatively low. This indicates the uniformity of respondents' perception of the procurement system and procedures applied. Thus, it can be concluded that procurement systems and procedures have been implemented in a well, structured, and transparent manner, but still need improvements, especially in minimizing operational constraints so that the procurement process can run more effectively and optimally.

### **Validity Test**

The validity test is carried out to test the feasibility of the statement items. A statement is said to be valid if it has a rcalculated value of  $> r_{table}$  in each statement item, with a significance level of 5%, which is 0.482. The results of the validity test are presented as follows.

The effectivity variable consists of 10 statements with the number of respondents (n=17), so the results of the validity test of effectivity are as follows:

**Table 6 Validity Test Results**

Item	Variable	r-count	r-table	Remarks
X1.1		0	0,482	Invalid
X1.2		0,096	0,482	Invalid
X1.3		0,736	0,482	Valid
X1.4		0,701	0,482	Valid
X1.5		0,352	0,482	Invalid
X1.6		0,596	0,482	Valid

<b>X1.7</b>	0,080	0,482	Invalid
<b>X1.8</b>	0,524	0,482	Valid
<b>X1.9</b>	0	0,482	Invalid
<b>X1.10</b>	0,029	0,482	Invalid

Source: SPSS data processing results ver. 22, 2025.

Based on the results of the validity test in Table 6 above with  $n = 17$ , the effectivity variable shows that not all statement items are declared valid, because there are some items that have a value of  $r\text{-count} < r\text{-table}$  (0.482). The statement items that are declared valid are X1.3, X1.4, X1.6, and X1.8 because they have a value of  $r\text{-count}$  greater than the  $r\text{-table}$ . Meanwhile, items X1.1, X1.2, X1.5, X1.7, X1.9, and X1.10 are declared invalid because the  $r\text{-count}$  value is smaller than the  $r\text{-table}$ .

The efficiency variable consists of 10 statements with the number of respondents ( $n=17$ ), so the results of the efficiency validity test are as follows:

**Table 7 Efficiency Validity Test Results**

<b>Item Variabler</b>	<b>r-count</b>	<b>r-table</b>	<b>Remarks</b>
<b>X2.1</b>	0,717	0,482	Valid
<b>X2.2</b>	0,191	0,482	Invalid
<b>X2.3</b>	0,577	0,482	Valid
<b>X2.4</b>	-0,108	0,482	Invalid
<b>X2.5</b>	0,241	0,482	Invalid
<b>X2.6</b>	0,195	0,482	Invalid
<b>X2.7</b>	-0,299	0,482	Invalid
<b>X2.8</b>	0,366	0,482	Invalid
<b>X2.9</b>	0,299	0,482	Invalid
<b>X2.10</b>	0,409	0,482	Invalid

Source: SPSS data processing results ver. 22, 2025.

The transparency variable consists of 30 statements with the number of respondents ( $n=17$ ), so the results of the transparency validity test are as follows:

**Table 8 Results of the Transparency Validity Test**

<b>Item Variabler</b>	<b>r-count</b>	<b>r-table</b>	<b>Remarks</b>
<b>X3.1</b>	0,681	0,482	Valid
<b>X3.2</b>	0,115	0,482	Invalid
<b>X3.3</b>	0,858	0,482	Valid
<b>X3.4</b>	0,615	0,482	Valid
<b>X3.5</b>	0,261	0,482	Invalid
<b>X3.6</b>	0,638	0,482	Valid
<b>X3.7</b>	0,572	0,482	Valid
<b>X3.8</b>	0,765	0,482	Valid
<b>X3.9</b>	0,493	0,482	Valid
<b>X3.10</b>	0,406	0,482	Invalid
<b>X3.11</b>	0,450	0,482	Invalid
<b>X3.12</b>	0,670	0,482	Valid
<b>X3.13</b>	0,626	0,482	Valid
<b>X3.14</b>	0,407	0,482	Invalid
<b>X3.15</b>	0,578	0,482	Valid
<b>X3.16</b>	0,665	0,482	Valid
<b>X3.17</b>	0,633	0,482	Valid
<b>X3.18</b>	0,656	0,482	Valid

X3.19	0,771	0,482	Valid
X3.20	0,517	0,482	Valid
X3.21	0,665	0,482	Valid
X3.22	0,660	0,482	Valid
X3.23	0,464	0,482	Invalid
X3.24	0,314	0,482	Invalid
X3.25	0,064	0,482	Invalid
X3.26	0,770	0,482	Valid
X3.27	0,658	0,482	Valid
X3.28	0,590	0,482	Valid
X3.29	0,816	0,482	Valid
X3.30	0,707	0,482	Valid

Source: SPSS data processing results ver. 22, 2025.

The variables of the procurement system and procedure consisted of 20 statements with the number of respondents (n=17), so the results of the validity test of the procurement system and procedure were as follows:

**Table 9 Results of Validity Test of Procurement Systems and Procedures**

Item	Variable	count	table	Remarks
Y1	0,361	0,482	Invalid	
Y2	0	0,482	Invalid	
Y3	0	0,482	Invalid	
Y4	0,347	0,482	Invalid	
Y5	0,157	0,482	Invalid	
Y6	-0,204	0,482	Invalid	
Y7	0,546	0,482	Valid	
Y8	0	0,482	Invalid	
Y9	0,017	0,482	Invalid	
Y10	0	0,482	Invalid	
Y11	0,439	0,482	Invalid	
Y12	0	0,482	Invalid	
Y13	0,359	0,482	Invalid	
Y14	0,137	0,482	Invalid	
Y15	0,589	0,482	Valid	
Y16	0,581	0,482	Valid	
Y17	0	0,482	Invalid	
Y18	0,640	0,482	Valid	
Y19	0	0,482	Invalid	
Y20	0	0,482	Invalid	

Source: SPSS data processing results ver. 22, 2025.

The reliability test was carried out to test the consistency of the answers from the respondents through the statements given. The variable is said to be reliable if the Cronbach alpha value > 0.70. The results of the reliability test are presented as follows:

**Table 10 Reliability Test Results**

Variable	Cronbach's Alpha	Remarks
Effectivity (X1)	0,577	Unreliable ( $\alpha < 0.70$ )
Efficiency (X2)	0,500	Unreliable ( $\alpha < 0.70$ )
Transparency (X3)	0,936	Reliabel ( $\alpha > 0.70$ )
System & Procedure Procurement (Y)	0,611	Unreliable ( $\alpha < 0.70$ )

Source: SPSS data processing results ver. 22, 2025.

### **Classic Assumption Test**

The classical assumption test is carried out to obtain the results of the assumptions in the analysis. This test must meet several assumptions, namely:

The normality test is performed to test whether the variables are distributed normally. This normality test was carried out using the Kolmogorov-Smirnov test with a significance value of  $> 0.05$ . The results of the normality test are presented as follows:

**Table 11 Normality Test Results**

<b>Unstandardized Residual</b>	
<b>N</b>	<b>17</b>
<b>Test Statistic</b>	<b>0,103</b>
<b>Asymp. Sig. (2-tailed)</b>	<b>0,200</b>

Source: SPSS data processing results ver. 30, 2026.

Multicollinearity tests are performed to find out if there is a correlation between independent variables, because a good regression model should not have such a correlation. Multicollinearity testing was carried out by looking at the tolerance value and the value of the Variance Inflation Factor (VIF). The results of the multicollinearity test are presented as follows:

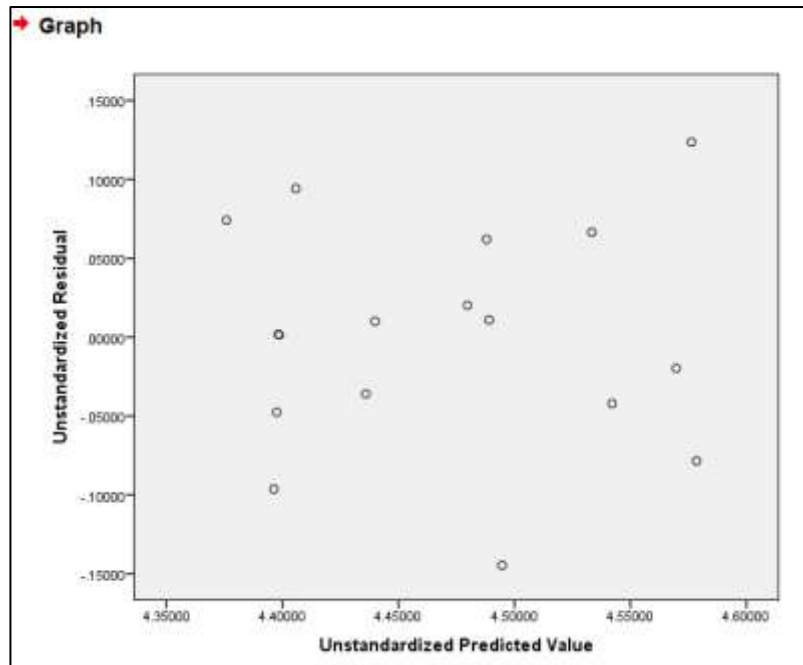
**Table 12 Multicollinearity Test Results**

<b>Variable</b>	<b>Collinearity Statistics</b>	
	<b>Tolerance</b>	<b>VIF</b>
Effectivity	0,454	2,204
Efficiency	0,662	1,510
Trasparency	0,585	1,708

Source: SPSS data processing results ver. 30, 2026.

### **Heteroscedasticity Test**

The heteroscedasticity test was performed to test whether there was an unevenness of variance from one residual observation to another in the regression model. Heteroscedasticity testing was carried out using the scatterplot method. The results of the heteroscedasticity test are presented as follows:



**Figure 3 Heteroscedasticity Test Results**

Source: SPSS data processing results ver. 30, 2026.

Based on the results of the heteroscedasticity test in Figure 4.1 above, it can be seen that the dots are randomly spreading, either above or below the number 0 on the Y axis.

A linearity test is performed to see if the specifications of the model used are correct or not. This linearity test is fulfilled if it has a significance value of < 0.05. The results of the linearity test are presented as follows:

**Table 13 Results of the Linearity Test**

Variable	Sig. Linearity
Effectivity	> 0,589
Efficiency	< 0.007
Trasparency	> 0,545

Source: SPSS data processing results ver. 30, 2025.

### **Hypothesis Test**

Multiple Linear Regression Analysis Multiple linear regression analysis tests are carried out to determine how much the relationship between independent variables affects dependent variables. The results of the multiple linear regression analysis test are presented as follows:

**Table 14 Multiple Linear Regression Analysis**

Model	Unstandardized Coefficients		Standardized Coefficients
	$\beta$	Std.Error	$\beta$
(Constant)	3,603	0,670	
Effectivity	-0,288	0,199	-0,422
Efficiency	0,458	0,133	0,833
Trasparency	0,034	0,061	0,143

Source: SPSS data processing results ver. 30, 2025.

The determination coefficient test ( $R^2$ ) was performed to find out the extent to which the dependent variable can be explained by the overall independent variable. The results of the determination coefficient ( $R^2$ ) test are presented as follows:

**Table 15 Determination Coefficient Test Results ( $R^2$ )**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,705	0,497	0,381	0,078

Source: SPSS data processing results ver. 30, 2025.

The t-test is carried out to find out how far each independent variable affects the dependent variable. The level of significance of the level used in the t-test was 0.05 ( $\alpha = 5\%$ ). The results of the partial test are presented as follows:

**Table 16 Partial Test Results (t-test)**

Variable	t	Sig.
Effectivity	-1,444	0,172
Efficiency	3,445	0,004
Trasparency	0,555	0,588

Source: SPSS data processing results ver. 30, 2025.

The F test is carried out to find out whether the analyzed model has a high level of feasibility, that is, the variables used by the model can explain the phenomenon being analyzed. If the test has  $F_{Hitung} > F_{Tabel}$  results as well as a sig value  $< 0.05$  then the model is feasible. And vice versa, if the  $F_{Hitung} < F_{Tabel}$  and the sig value  $> 0.05$  then the model is not feasible. The results of the model feasibility test are presented as follows:

**Table 17 Model Feasibility Test Results (F Test)**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0,080	3	0,027	4,279	0,026
Residual	0,081	13	0,006		
Total	0,160	16			

Source: SPSS data processing results ver. 30, 2025.

## CONCLUSION

The research on the procurement system and procedures of goods and services at PT X Tbk, reviewed from the aspects of effectiveness, efficiency, and transparency, yielded several key findings. Overall, the procurement system was found to be quite effective and highly transparent, with procurement processes generally producing goods and services in accordance with user needs, vendor evaluation and negotiation demonstrating effective performance, and information disclosure being carried out openly, objectively, and with strong administrative accountability. However, the system still faces notable challenges in achieving full efficiency, particularly in terms of timeliness, internal coordination, and the consistent application of the value for money principle, as discrepancies between cost planning and negotiation outcomes

were observed in some transactions. Furthermore, while transparency has been strongly upheld, it has not directly translated into improvements in effectiveness and efficiency, indicating that integrative efforts are required for these three aspects to operate in harmony. Future research is recommended to examine the specific organizational and systemic factors that impede procurement timeliness and cost consistency at PT X Tbk, as well as to explore the development of a more integrated procurement performance measurement framework that captures the interdependencies between effectiveness, efficiency, and transparency in large-scale private sector companies.

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