



# The Influence of e-Procurement Effectiveness, Regulatory Compliance and Supervision on Transportation Subcontract Performance at PT Pos Indonesia

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**Abstract.** Transportation subcontracting plays a crucial role in supporting PT Pos Indonesia's logistics distribution. In its implementation, the effectiveness of e-Procurement, regulatory compliance, and oversight of subcontractor partners are crucial factors determining the success of procurement performance. However, various challenges remain, such as inconsistencies in subcontracting procedures, lack of information transparency, and a weak monitoring system. This study aims to analyze the influence of e-Procurement effectiveness, regulatory compliance, and oversight on transportation subcontracting performance. Using a causal associative quantitative approach, data were collected through questionnaires from 221 respondents involved in the transportation procurement process. The analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the SmartPLS 4.0 application. The results show that e-Procurement effectiveness and oversight have a positive and significant effect on subcontracting performance, while regulatory compliance does not show a significant effect. These findings underscore the importance of strengthening the oversight system and optimizing e-Procurement implementation to improve PT Pos Indonesia's logistics performance. This study provides practical and academic contributions to the development of digital-based procurement management in the state-owned enterprise logistics sector.

**Keywords:** e-Procurement, regulatory compliance, oversight, subcontract performance, logistics, PT Pos Indonesia

## 1. Introduction

In today's era of digitalization and globalization, digital transformation in procurement systems for goods and services has become a strategic necessity for companies, particularly in the logistics and transportation sectors. One key instrument of this transformation is the e-Procurement system, or electronic procurement. It aims not only to improve procurement process efficiency but also to promote transparency, accountability, and integrity in supply chain management. The Government Goods/Services Procurement Policy Institute (LKPP) states that implementing e-Procurement can save up to 20% of the budget and reduce collusion and corruption in the procurement process (LKPP, 2022). (Basheka, 2018; OECD, 2021).

PT Pos Indonesia (Persero), a state-owned enterprise engaged in logistics, courier, and financial services, has also adopted an e-Procurement system as part of its commitment to modernization and good governance. However, in practice, the implementation of e-Procurement, particularly in the management of transportation

subcontracts, still faces various challenges, such as late deliveries, Service Level Agreement (SLA) violations, and low compliance with operational standards (Performance Report of PT Pos Indonesia, 2023). This indicates that the e-Procurement system's effectiveness has not yet been fully realized in supporting transportation subcontract performance.

In addition to system effectiveness, compliance with procurement regulations is a critical factor influencing the success of transportation subcontracts. According to Thai (2021), in his theory on the Public Procurement Framework, regulatory compliance is a key pillar in ensuring an efficient and accountable procurement process. Non-compliance with regulations, both by subcontractors and internal company parties, risks reducing service quality, creating the potential for fraud, and hindering smooth distribution (Gelderman et al., 2017; Raymond, 2018).

Equally important is the role of oversight in the transportation subcontracting process. Based on the results of a 2023 internal audit at PT Pos Indonesia, it was found that of 100 transportation cooperation contracts audited, approximately 35% failed to meet administrative requirements, and 27% failed to meet delivery performance indicators such as punctuality and security of goods. This situation indicates weak internal oversight of the implementation of transportation subcontracts. Effective oversight is a crucial control mechanism to ensure that the procurement process runs according to regulations and objectives (Walker & Brammer, 2019; World Bank, 2020).

Specifically, in several operational branches, such as those in West Java and Sumatra, cases of late deliveries still reach 12%-18% of total monthly deliveries, largely due to the suboptimal performance of third-party transportation providers (subcontractors) (PT Pos Indonesia Logistics Distribution Report, 2024). This directly impacts customer satisfaction and the company's overall operational performance.

From the chronology of these problems, it appears that e-Procurement ineffectiveness, weak oversight, and low regulatory compliance are the main factors affecting transportation subcontract performance. In the context of transportation subcontract management at PT Pos Indonesia, e-Procurement effectiveness, regulatory compliance, and internal oversight are three key elements that are interrelated in determining performance quality. Although the e-Procurement system is expected to increase transparency and efficiency, weaknesses in oversight and regulatory compliance are often rooted in operational issues in the field, particularly in the workforce component. Research by Maniah, Mulyati, and Hamidin (2023) shows that operational risks in the workforce component (drivers) in the PT Pos Logistik Indonesia postal network range from high to very high, encompassing discipline, responsibility, integrity, and competency standards. These findings confirm that the successful implementation of e-Procurement cannot be separated from strict regulatory compliance and consistent oversight, because without these two aspects, weaknesses in the field have the potential to reduce the overall system's effectiveness and degrade transportation subcontract performance. However, research that simultaneously examines these three factors on transportation subcontracting performance, particularly in the context of state-owned logistics companies like PT Pos Indonesia, is still very limited. Most previous studies have focused on the effectiveness of e-Procurement on general procurement efficiency (Misra & Anantatmula, 2020) or on regulatory compliance in the government sector (Ameyaw et al., 2022), without examining the interaction of these three factors in an integrated manner.

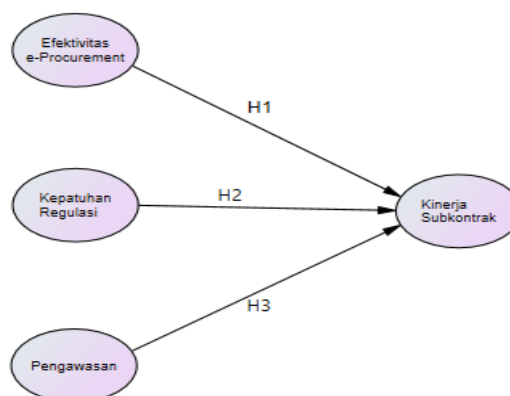
This is the research gap in this study. By combining the variables of e-Procurement effectiveness, regulatory compliance, and oversight into a single analytical model for transportation subcontracting performance, this study offers a novel perspective on how integrated procurement governance can improve logistics performance in subcontracting schemes.

As a solution, this study offers a conceptual framework based on Agency and Control Theory, explaining that the effectiveness of the relationship between the principal (PT Pos Indonesia) and the agent (the subcontractor) can be improved through a transparent system (e-Procurement), strict regulations (compliance), and consistent oversight. The results of this study are expected to inform strategic policymaking by PT Pos Indonesia's management to strengthen its procurement system and logistics performance, as well as contribute to the development of digital-based supply chain management.

## 2. Methods

To analyze this study, a causal associative quantitative method was used to examine the influence of e-Procurement effectiveness, regulatory compliance, and oversight on transportation subcontract performance at PT Pos Indonesia (Persero). Data were collected through questionnaires distributed to 221 respondents, consisting of procurement staff and subcontractor partners directly involved in the transportation procurement process. A purposive sampling technique was used to select respondents, with the criteria being that they had at least one year of experience in subcontract management and were active in e-Procurement system implementation, supervision, or regulatory monitoring in the context of logistics transportation services (Creswell & Creswell, 2018).

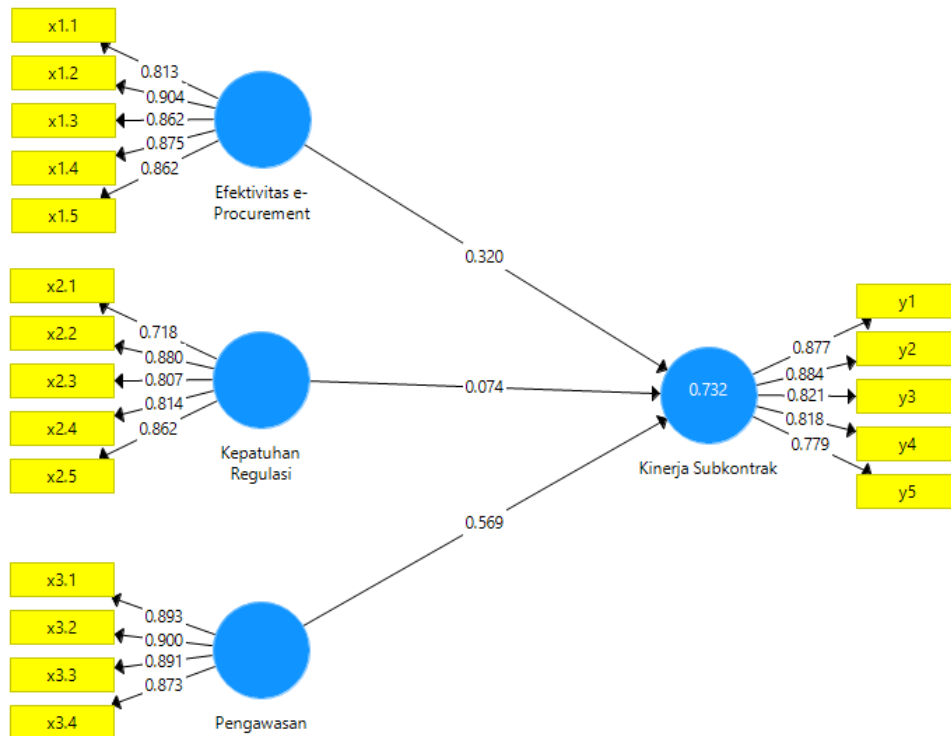
To analyze the relationships between variables, the Partial Least Squares Structural Equation Modeling (PLS-SEM) method was used, processed with the help of SMARTPLS 4.0 software. This method was chosen because it is capable of testing causal relationships between the independent variables (e-Procurement effectiveness, regulatory compliance, and oversight) and the dependent variable (transportation subcontract performance), and can handle model complexity with a relatively small sample size. The research instrument was a questionnaire with a Likert scale of 1–5 that measured a total of sixteen indicators from four research variables. Prior to the structural analysis, instrument validity and reliability tests were conducted to ensure data quality, with criteria of outer loading > 0.7, Average Variance Extracted (AVE) > 0.5, and composite reliability > 0.7.



**Figure 1.** Experiment set-up and apparatus

### 3. Results and Discussion

The data are suitable for additional analysis, based on the results of validity and reliability tests. To ensure the research instrument can measure the desired variables reliably and accurately, validity and reliability tests were conducted. The questionnaire has a strong level of internal consistency, based on the validity and reliability tests conducted with the criteria of external loading > 0.7, AVE > 0.5, and composite reliability > 0.7.



**Figure 2. Model PLS**

Figure 2 shows the measurement model for the validity and reliability tests, as well as the coefficient of determination and path of the equation model.

#### 3.1. Validity Test

Based on the data, the external loading value for each indicator is higher than 0.7. This indicates that each variable meets the convergent validity criteria and its indications can be explained. The findings of the convergent validity test can also be confirmed using the average variance extracted (AVE) value in addition to the external loading value. A successful measurement model is indicated by an AVE value better than 0.5 for each latent concept.

**Table 1. AVE and Reliability Test**

|                                | <i>Cronbach's Alpha</i> | <i>rho_A</i> | <i>Composite Reliability</i> | <i>Average Variance Extracted (AVE)</i> |
|--------------------------------|-------------------------|--------------|------------------------------|-----------------------------------------|
| Effectiveness of e-Procurement | 0.915                   | 0.922        | 0.936                        | 0.746                                   |
| Regulatory Compliance          | 0.876                   | 0.892        | 0.910                        | 0.669                                   |
| Subcontract Performance        | 0.892                   | 0.894        | 0.921                        | 0.700                                   |

|             |       |       |       |       |
|-------------|-------|-------|-------|-------|
| Supervision | 0.912 | 0.913 | 0.938 | 0.791 |
|-------------|-------|-------|-------|-------|

Source: SmartPLS results, 2025

### 3.2. Reliability Test

All constructs were considered reliable because they had composite reliability values between 0.6 and 0.7 and Cronbach's alpha values of more than 0.7 (Sarstedt et al., 2011).

### 3.3. Model Fit Test

Table 2 below displays the R<sup>2</sup> values.

| Table 2. Model Fit Test |                 |                          |
|-------------------------|-----------------|--------------------------|
|                         | <i>R Square</i> | <i>R Square Adjusted</i> |
| Subcontract Performance | 0.732           | 0.728                    |

Source: SmartPLS results, 2025

According to Table 2, the long R-Square value of the endogenous variable Subcontract Performance is 0.732, which indicates the strength of the variables e-Procurement effectiveness, regulatory compliance, and supervision in predicting Subcontract Performance is 73.2%.

### 3.4. Hypothesis Testing Analysis

The following are the results of the Path Coefficient test:

**Table 3. Hypothesis Test Results using the Path Coefficient Bootstrapping Technique**

|                                                           | <i>Original Sample (O)</i> | <i>Sample Mean (M)</i> | <i>Standard Deviation (STDEV)</i> | <i>T Statistics ( O/STDEV )</i> | <i>P Values</i> |
|-----------------------------------------------------------|----------------------------|------------------------|-----------------------------------|---------------------------------|-----------------|
| Effectiveness of e-Procurement -> Subcontract Performance | 0.320                      | 0.338                  | 0.068                             | 4.679                           | 0.000           |
| Regulatory Compliance -> Subcontract Performance          | 0.074                      | 0.084                  | 0.058                             | 1.276                           | 0.203           |
| Supervision -> Subcontract Performance                    | 0.569                      | 0.547                  | 0.094                             | 6.043                           | 0.000           |

Source: SmartPLS results, 2025

#### 3.4.1 The Influence of e-Procurement Effectiveness on Transportation Subcontract Performance at PT Pos Indonesia (Persero).

Based on the results of data processing using the PLS-SEM method, it was found that the e-Procurement Effectiveness variable has a positive and significant effect on Transportation Subcontract Performance, with a path coefficient value of 0.320, a T-statistic value of 4.679, and a p-value of 0.000. This means that the higher the effectiveness of the e-Procurement system implemented, the higher the performance of

subcontractors at PT Pos Indonesia. This finding is in line with Gunasekaran and Ngai (2018) who stated that an efficient e-Procurement system can improve the quality of relationships between organizations and service providers, accelerate the procurement cycle, and increase transparency and accountability in the supply chain. Research by Setiawan and Pujawan (2021) also shows that e-Procurement can accelerate the procurement process and reduce the risk of human error, which has a positive impact on supply chain performance (Schoenherr & Tummala, 2020).

#### 3.4.2 *The Influence of Regulatory Compliance on Transportation Subcontract Performance at PT Pos Indonesia (Persero).*

Based on the results of data processing using the PLS-SEM method, it was found that the Regulatory Compliance variable showed a positive but insignificant influence on subcontract performance, with a path coefficient of only 0.074, a T-statistic of 1.276, and a p-value of 0.203. These results indicate that although regulatory aspects are followed, they have not provided a strong direct influence on improving subcontractor performance. This finding is supported by Ameyaw et al. (2012) who explained that rigid and bureaucratic regulations are often not flexible enough to adjust to the dynamics of logistics operations, so their impact on performance is not always directly significant.

#### 3.4.3 *The Influence of Supervision on Transportation Subcontract Performance at PT Pos Indonesia (Persero).*

Based on the results of data processing using the PLS-SEM method, it was found that the Supervision variable has a positive and significant influence on transportation subcontract performance, with a path coefficient of 0.569, a T-statistic of 6.043, and a p-value of 0.000. These results indicate that increased supervision of contract implementation, routine evaluations, and consistent quality control of subcontractor services contribute significantly to the achievement of operational targets and logistics effectiveness. This finding is reinforced by Simons (2015) within the Levers of Control framework, which emphasizes that strategic oversight is an important tool to ensure organizational performance runs according to targets. Kewo and Afiah (2017) also added that strong internal oversight can reduce the risk of deviations and increase efficiency in the procurement process.

## 4. Conclusions

The results of the study indicate that supervision has the strongest and most significant influence on the performance of transportation subcontracts at PT Pos Indonesia (Persero), compared to the effectiveness of e-Procurement and regulatory compliance. Effective supervision has been proven to significantly improve subcontractor performance through structured control mechanisms, regular evaluations, and enforcement of work standards, thereby encouraging contract compliance and improving the quality of distribution services. Meanwhile, the effectiveness of e-Procurement also has a significant influence on subcontract performance, particularly in increasing the efficiency of the partner selection process and procurement transparency, although the

impact is not as strong as supervision. On the other hand, regulatory compliance does not show a significant influence on performance, which is likely due to ongoing obstacles in regulatory implementation, as well as the weak translation of regulations into operational practices that are adaptive and responsive to field needs. Therefore, strengthening the supervisory system is the main key to optimizing the performance of transportation subcontracts, accompanied by improvements in the implementation of a more responsive e-Procurement and a more contextual regulatory approach in the logistics work environment of PT Pos Indonesia.

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