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Designing a Vendor Performance Assessment Model to Develop a Vendor Management System

Rahmad Budi Warman[1], Mokh. Suef[2]
[1,2]Dapartemen Teknik Sistem Industri, Fakultas Teknologi Industri dan Rekayasa Sistem,
Institut Teknologi Sepuluh Nopember
rahmadbudiwarman1@gmail.com

Abstract

The procurement of goods/services has an important role in providing profits for the company and avoiding losses. PLN UP3 Bontang is currently facing challenges in assessing vendor performance that has not been effective, including its follow-up, as well as the absence of rules related to vendor selection which causes the procurement process to take longer. This research aims to design a vendor performance appraisal model to develop an effective and efficient vendor management system. The research method used Focus Group Discussion (FGD) with experts to identify assessment criteria, then applied the Analytic Hierarchy Process (AHP) method to determine the weight of the criteria and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) for vendor ranking. The results showed six main criteria: sanctions (25.5%), quality & quantity (22.8%), time (14.9%), service (14.1%), K3 management (12.2%), and financial vendor (10.4%). Evaluation of five jaskonhar vendors showed that PT SE obtained the highest rating with a preference value of 0.903, while PT PM was in the lowest position with a value of 0.051. This model provides an objective basis for strategic decision-making in vendor management and strengthens long-term cooperative relationships between companies and vendors.
Keywords: AHP, Assessment, Evaluation, TOPSIS, Vendor Management, Vendor

1. INTRODUCTION

In an era of globalization and increasingly fierce business competition, supply chain management has become a key element that determines the success of a company’s operations (Becerra et al., 2022; Boonsthonsatit S., 2015; Choi, 2020; Gurtu & Johny, 2021; Itang et al., 2022). One of the critical aspects of supply chain management is the management of relationships with vendors or providers of goods and services, known as *Vendor Relationship Management* (VRM) (Agndal et al., 2023; Chatterjee et al., 2023; Lam et al., 2021; Mutegi & Karani, 2024). According to Christopher , VRM is a strategic approach that focuses on establishing, maintaining, and managing relationships between companies and vendors to create mutually beneficial relationships through improved communication, efficiency, trust, and collaboration.

The global challenges in vendor management are increasingly complex as the demands for quality, timeliness, and cost efficiency grow. A study conducted by Cousins et al. shows that improper vendor performance evaluation can result in significant losses for companies, including project delays, increased operational costs, and decreased product or service quality. Pujawan and Mahendrawathi emphasized that the wrong selection of vendors will have an impact on the *lead time*, price, and quality that have been agreed upon, thus affecting the overall performance of the organization.

This phenomenon does not only occur in the private sector, but is also a serious concern in the public sector and *State-Owned Enterprises* (SOEs). A company’s operations will be disrupted if there is inaccuracy in the selection of vendors . This shows that the process of evaluating and selecting vendors requires a systematic and data-driven approach to ensure optimal decisions in the long run.

PT Perusahaan Listrik Negara (PLN), as a company engaged in the field of electricity, has a strategic role in supporting the development of

Indonesia's electricity infrastructure. PLN was founded on October 27, 1945 and has grown into a company that comprises various *Sub Holdings*, including *Indonesia Power*, *Nusantara Power*, *Energi Primer Indonesia*, and others. In its operations, PLN relies on cooperation with various providers of goods and services (*vendors*) to ensure smooth operations and the achievement of business targets.

Based on *PLN Board of Directors Regulation Number 0022.P/DIR/2020*, the procurement of goods/services within PLN aims for the right quality, the right quantity, the right location, the right time, the right socio-economic goals, and the right price. The procurement principle must be efficient, effective, competitive, fair, reasonable, open, and accountable to provide great benefits to the company.

PLN UP3 Bontang, which oversees Bontang City, East Kutai Regency, and parts of Kutai Kartanegara Regency, faces special challenges in managing vendors. Based on internal data, PLN UP3 Bontang has 134 vendors involved in various kinds of procurement, of which 26 are vendors handling the procurement of construction and maintenance services. Of these, 20 vendors have a good assessment predicate and 6 others have a bad predicate.

The main problem faced is the ineffective performance assessment of vendors, including their follow-up, and the lack of rules related to vendor selection, which causes the procurement process to take longer. The existing vendor performance appraisal system still uses three main criteria, namely managerial, technical, and administrative and financial, based on the *Decree of the Board of Directors of PT PLN (Persero) Number* work as well as efficient and integrated vendor management. According to Gordon , companies cannot manage what is not measured, so evaluating vendor performance is a crucial step to manage and improve their relationships and performance.

Several previous studies have examined the evaluation and selection of vendors using various *Multi-Criteria Decision Making* (MCDM) methods. Önüt et al. conducted a study on long-term supplier selection using the *Fuzzy ANP* and *Fuzzy TOPSIS* approaches in the telecommunications industry. The study showed that the combination of fuzzy methods can improve the accuracy of vendor selection under conditions of uncertainty.

Rouyendegh developed an integrated model of ANP and *Intuitionistic Fuzzy TOPSIS* for vendor selection, which is able to handle the relationships between criteria and provide accurate results. Meanwhile, Rouyendegh and Erkan used

271.K/DIR/2013. However, these criteria are still subjective because they are not entirely supported by quantitatively measurable parameters and do not refer to a clear weighting system.

Data shows that PLN has imposed blacklist sanctions on several vendors, with 19 vendors included in the blacklist in 2022, increasing to 20 in 2023, and decreasing to 13 in the third quarter of 2024. This condition indicates the need for a more effective evaluation system to prevent losses due to poor vendor performance.

The urgency of this study is based on several critical factors that require immediate attention. First, the results of vendor performance assessments that are still subjective can cause inconsistencies in the evaluation process and open up space for assessment bias that depends on the evaluator's perception. This has the potential to harm the company in the long run because decisions are not based on objective data.

Second, the unavailability of a link between vendor performance evaluation and the procurement process of goods and services represents a strategic problem that needs to be addressed. Ideally, the evaluation of the vendor's performance should have an effect on the next procurement process that the vendor undertakes. The current condition, wherein a single vendor can have several different performance assessments depending on the unit they are working with, indicates inconsistencies in the existing system.

Third, with the geographical complexity of the PLN UP3 Bontang work area, which covers several districts/cities, an assessment system is needed that can accommodate variations in the implementation of

the *Analytic Hierarchy Process* (AHP) method to select the best suppliers by considering the criteria of cost, quality, payment flexibility, delivery, and variety.

Zolfani et al. applied an MCDM hybrid model that combines AHP and COPRAS-G for vendor selection in Iran, while Orji and Wei integrated fuzzy logic and systems dynamics in sustainable vendor selection in the manufacturing industry. Liu et al. used a three-stage fuzzy approach based on *Multi-Attribute Decision-Making* (MADM) with the *Triple Bottom Line* (TBL) concept for continuous vendor evaluation.

Other studies, such as those conducted by Alkahtani et al. , compared various MCDM methods including AHP, Fuzzy AHP, and Fuzzy TOPSIS for vendor selection, showing the advantages and disadvantages of each method. Kumari et al. used the IF-COPRAS (*Intuitionistic*

Fuzzy Complex Proportional Assessment) method for the selection of green vendors.

The novelty of this research lies in several aspects that distinguish it from previous studies. First, this study develops a vendor performance assessment model that is specific to the electricity sector, especially within Indonesian SOEs, which have unique characteristics and challenges compared to other industrial sectors.

Second, this study integrates the *Vendor Relationship Management* (VRM) approach with the AHP-TOPSIS method in the context of procurement of goods and services in electric utility companies. In contrast to previous research that focused on vendor selection, this study designs a continuous evaluation system that can support the development of long-term relationships between companies and vendors.

Third, this study develops six main criteria tailored to PLN's specific needs, namely quality & quantity, sanctions, time, service, *K3* management, and financial vendors. This set of criteria is different from the QCDFR (*Quality, Cost, Delivery, Flexibility, Responsiveness*) framework that is commonly used in the literature, as it is adjusted to the operational and regulatory characteristics within PLN.

Fourth, this study not only provides an evaluation model, but also designs a detailed scoring system with a scale of 0–100 and specific descriptions for each level of assessment, so it can be implemented practically in the field. This model also integrates compliance and regulatory aspects, which are crucial in the public utility sector.

The main purpose of this research is to design a vendor performance assessment model to develop an effective and efficient vendor management system at *PT PLN (Persero) UP3 Bontang*. Specifically, this study aims to: (1) identify the main performance indicators of the company's vendor management system; (2) identify vendor performance assessment criteria that are relevant to PLN's needs; (3) establish a scoring system for objective and measurable vendor performance assessment criteria; and (4) design a vendor performance assessment scheme that can be implemented practically.

The expected benefits of this research are: (1) obtaining information related to the state of vendors, building commitment on both sides, and building long-term relationships; (2) gaining a more comprehensive and corporately integrated vendor performance value; (3) building a common spirit to generate value and strive for negotiations leading to a win-win agreement; and (4) shortening the time required for vendor selection during the goods/services procurement process.

This research has significant theoretical and practical implications. From a theoretical perspective, it contributes to the development of literature on vendor management and supply chain management, especially in the context of the public utility sector in developing countries. The developed model can serve as a reference for similar research in other infrastructure sectors.

From a practical perspective, the implementation of this model is expected to increase procurement process efficiency, reduce operational risks, and strengthen the cooperative relationship between PLN and its vendors. The model can also be adopted by other PLN units with adjustments according to the local characteristics of each unit.

In addition, this research contributes to the development of good corporate governance within SOEs, especially regarding procurement transparency and accountability. With an objective and standardized assessment system, it is expected to increase stakeholder trust and support the achievement of company performance targets in a sustainable manner.

The long-term implication of this research is the creation of a more professional and competitive procurement ecosystem, where vendors will compete to improve the quality of services to maintain cooperation with PLN. Ultimately, this will contribute to improved electricity service quality for the people of Indonesia.

2. RESEARCH METHOD

Research Design

This study uses a quantitative approach with a case study method at *PT PLN (Persero) UP3 Bontang*. The research process began with a *Focus Group Discussion* (FGD) to identify vendor assessment criteria, followed by the application of the AHP method for determining the weight of criteria and TOPSIS for vendor ranking.

Research Subjects

The research subjects consisted of 13 experts, including Unit Managers, Assistant Managers from various fields (*Finance & General*, *Commerce & Marketing*, *Planning*, *Energy Transactions*, *Network & Construction*), Procurement Implementation Officers, *K3L* Implementing Officers, and Logistics Team Leaders. The experts were selected based on their experience and competence in managing and evaluating vendors.

Data Collection

Data is collected through several methods:

1. FGD with Experts: To identify vendor performance assessment criteria and sub-criteria

2. AHP Questionnaire: Survey of 13 experts using the Saaty paired comparison scale (1-9)
3. Vendor Performance Data: Evaluation of 5 Construction and Maintenance Service Vendors (jaskonhar)
4. Documentation Study: Analysis of PLN's internal regulations and policies related to procurement

Analytic Hierarchy Process (AHP) Method

AHP is used to determine the weights of criteria and sub-criteria through paired comparisons. The stages of AHP include:

1. Creation of a hierarchy of criteria
2. Formation of paired comparison matrix
3. Eigenvalue and eigenvector calculation
4. Consistency test with Consistency Ratio (CR < 0.1)
5. Determination of the final weight of the criteria

TOPSIS Method

TOPSIS is used for vendor rankings based on proximity to the ideal solution. The stages of TOPSIS include:

1. Normalization of the decision matrix
2. Establishment of a weighted decision matrix
3. Determination of positive and negative ideal solutions
4. Euclidean distance calculation
5. Determination of relative preference values

RESULTS AND DISCUSSION

Existing Vendor Performance Appraisal System

The vendor performance assessment system within PT PLN (Persero) has been formally regulated through the Decree of the Board of Directors Number 271.K/DIR/2013 dated March 27, 2013 concerning Guidelines for Performance Assessment of Goods/Services Providers. The existing system uses three main criteria, namely managerial ability, technical ability, and administrative and financial ability. The results of the assessment are classified by three value ranges: good (800-1000), fair (500-799), and poor (50-499).

However, this system poses challenges when applied to complex organizations such as PLN UP3 Bontang which oversees a large and diverse area. Geographical complexity leads to variations in the execution of work as well as vendor management, resulting in a fragmented scoring system becoming less efficient. Assessments are carried out subjectively and contextually in each work directory, resulting in inconsistent and accountable evaluations.

Table 4. Disadvantages of Existing Vendor Rating Systems

Criterion	Disadvantages/Disadvantages	Explanation
Managerial	Does not reflect the ethical and service conduct of the vendor	Focus on organizational structure without measuring transparency and conflict of interest
Technical	Focusing only on physical results without considering K3	Not reaching occupational risk management and safety
Administration & Finance	Does not include real financial conditions	Only document verification without an evaluation of actual financial capacity

Establishment of a New Vendor Performance Appraisal System

Determination of Vendor Key Performance Indicators

Based on input from 13 experts through the Focus Group Discussion (FGD), six main indicators were determined that were considered the most relevant, flexible, and applicable to the actual conditions in the field:

Table 5. Key Performance Indicators of Vendors

Criterion	Code	Description	Criteria Type
Quality and Quantity	C1	The ability of the vendor to provide products/services according to the set quality and quantity standards	Maximizing
Penalty	C2	Vendor ability to be responsible and professionally consistent in contracts	Minimizing
Time	C3	Vendor's ability to meet delivery schedules as per the company's needs	Minimizing
Service	C4	Vendor ability to respond quickly and effectively to requests and complaints	Maximizing
K3L Management	C5	Implementation of Safety, Occupational Health and Environment systems	Maximizing
Financial Vendor	C6	Vendor financial condition to support sustainable project implementation	Maximizing

Identification of Assessment Criteria and Sub-Criteria

After the six main indicators were determined, the identification of sub-criteria was carried out through the FGD by involving various internal stakeholders of PLN. The results of the FGD generate three sub-criteria for each key indicator:

Table 6. Vendor Performance Appraisal Criteria and Sub-Criteria

Key Indicators	Sub-Criteria
Quality & Quantity	1. Conformity of technical specifications 2. Number/volume of work met 3. Defect or rework level
Penalty	1. Number of written reprimands 2. History of penalties or fines 3. Blacklisting history
Time	1. Accuracy of job completion 2. Timeliness of administrative reporting 3. Job acceleration capability
Service	1. Responsiveness to clarification requests 2. Ease of communication and coordination 3. Cooperative in the face of obstacles
K3 Management	1. Availability and use of PPE 2. Safety briefing/toolbox meeting 3. Number and rate of work accidents
Financial Vendor	1. Availability of audit 2 financial statements. Financial ratios (current, debt, profitability) 3. Working capital capability

Determination of Scoring System Assessment Criteria

The scoring system uses a scale of 25-100 with four levels of performance. Each sub-criterion has a specific description of the assessment to ensure the objectivity of the evaluation:

Table 7. Example of a Scoring System for Quality & Quantity Criteria

Sub-Criteria	Score	Description of Assessment
Conformity of technical specifications	25	Product/service does not meet specifications, causing delayed or failed work
	50	Product/service is mostly non-compliant, needs a lot of correction
	75	Product/service is generally appropriate, only minor adjustments are needed
	100	Product/service fully to specifications without correction
Number/volume of work	25	The volume of work is very far from the target (<70%)
	50	The volume of work is quite far from the target (70-89%)
	75	Work volume close to target (90-99%)
	100	Volume of work fully met (100%)

Final classification based on total assessment:

- Excellent: 76-100
- Good: 51-75
- Enough: 26-50
- Poor: 0-25

Weighting of Criteria Using the AHP Method

Expert Data Collection

The survey was conducted to 13 experts using an AHP scale of 1-9 (Saaty, 1980). Of the 13 questionnaires collected, 2 questionnaires had a Consistency Ratio value of > 0.1 and were considered inconsistent, so the data used amounted to 11 questionnaires.

Weight Calculation of the Main Criteria

The paired comparison matrix is processed through the following stages:
Formula 1. Matrix Normalization
X ̈ij=Xij∑i=1nXij\dot{X}_{ij} = \frac{X_{ij}}{\sum_{i=1}^{n}X_{ij}}X ̈ij=∑i=1n XijXij
Formula 2. Eigenvalue Calculation
Y ̈ij=∑j=1nX ̈ijn\dot{Y}_{ij} = \frac{\sum_{j=1}^{n}\dot{X}_{ij}}{n}Y ̈ij=n∑j=1 nX ̈ij

Formula 3. Consistency Index (CI)

CI=λmax−nn−1CI = \frac{\lambda_{max} - n}{n - 1}CI=n−1λmax−n

Formula 4. Consistency Ratio (CR)

CR=CIRICR = \frac{CI}{RI}CR=RICI

The results of the calculation of the weight of the main criteria:

Table 8. Weighting of the Main Criteria

Criterion	Weight	Ranking
Penalty	0,255	1
Quality & Quantity	0,228	2
Time	0,149	3
Service	0,141	4
K3 Management	0,122	5
Financial Vendor	0,104	6

Calculation of Sub-Criteria Weights

The results of the sub-criterion weight calculation for each of the main criteria:

Table 9. Weight Sub-Criteria Quality & Quantity

Sub-Criteria	Weight	Ranking
Number/volume of work met	0,430	1
Defect or rework level	0,307	2
Conformity of technical specifications	0,263	3

Table 10. Weight of Sanctions Sub-Criteria

Sub-Criteria	Weight	Ranking
Blacklisting history	0,436	1
Number of written strikes	0,287	2
Penalty/fine history	0,276	3

Table 11. Weight of Time Sub-Criteria

Sub-Criteria	Weight	Ranking
Accuracy of job completion	0,504	1
Timeliness of administrative reporting	0,259	2
Acceleration capability if needed	0,237	3

Vendor Performance Appraisal Design

Based on the results of the AHP weighting, an assessment form was designed that integrated all the criteria and sub-criteria with their respective weights:

Table 12. Vendor Performance Appraisal Form Design

Criterion	Sub-Criteria	Weighting Criteria	Weight Sub-criteria	Final Weight	Level	Value
Quality & Quantity	Conformity of technical specifications	0,228	0,263	0,060		

(22.8%)				
	Number/volume of work	0,228	0,430	0,098
	Defect/rework rate	0,228	0,307	0,070
Sanctions (25.5%)	Number of written strikes	0,255	0,287	0,073
	Penalty/fine history	0,255	0,276	0,070
	Blacklist history	0,255	0,436	0,111

Vendor Performance Evaluation with the TOPSIS Method

Vendor Data Evaluated

An evaluation was conducted on 5 construction and maintenance service vendors (jaskonhar) at PLN UP3 Bontang:

Table 13. Evaluated Vendor Profiles

Yes	Vendors	Service Type
1	PT SE	Construction and Maintenance Services
2	PT RKA	Construction and Maintenance Services
3	PT NUR	Construction and Maintenance Services
4	PT PMT	Construction and Maintenance Services
5	PT PM	Construction and Maintenance Services

Stages of TOPSIS Calculation

Step 1: Compilation of the Decision Matrix

The decision matrix is formed based on each vendor's evaluation value for each criterion:

Table 14. Preliminary Decision Matrix

Vendors	C1	C2	C3	C4	C5	C6
PT SE	85	90	88	92	87	85
PT RKA	78	82	80	75	83	80
PT NUR	75	80	78	73	80	75
PT PMT	73	78	75	70	78	73
PT PM	45	35	40	30	50	45

Step 2: Normalization of the Matrix

Formula 5. Normalization of TOPSIS

Rij=aij∑k=1makj2R_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^{m}a_{kj}^2}}Rij=∑k=1makj2aij

Table 15. Normalized Matrix

Vendors	C1	C2	C3	C4	C5	C6
PT SE	0,548	0,609	0,594	0,658	0,572	0,588
PT RKA	0,503	0,555	0,540	0,537	0,546	0,553
PT NUR	0,484	0,541	0,526	0,522	0,526	0,519
PT PMT	0,471	0,527	0,506	0,501	0,513	0,505
PT PM	0,290	0,237	0,270	0,215	0,329	0,311

Step 3: Weighted Decision Matrix

Formula 6. Matrix Weighting

Five=ωj×RijV_{ij} = \omega_j \times R_{ij}Fig=ωj×Row

Table 16. Weighted Matrix

Vendors	C1	C2	C3	C4	C5	C6
PT SE	0,125	0,155	0,088	0,093	0,070	0,061
PT RKA	0,115	0,142	0,080	0,076	0,067	0,057
PT NUR	0,110	0,138	0,078	0,074	0,064	0,054
PT PMT	0,107	0,134	0,075	0,071	0,063	0,053
PT PM	0,066	0,061	0,040	0,030	0,040	0,032

Step 4: Determining the Ideal Solution

Formula 7. Ideal Positive Solution

A+=(maxVij∣j∈Jb,minVij∣j∈Jc)A^+ = (max V_{ij}|j \in J_b, min V_{ij}|j \in J_c)A+=(maxVij∣j∈Jb,minVij∣j∈Jc)

Formula 8. Negative Ideal Solutions

A−=(minVij∣j∈Jb,maxVij∣j∈Jc)A^- = (min V_{ij}|j \in J_b, max V_{ij}|j \in J_c)A−=(minVij∣j∈Jb,maxVij∣j∈Jc)

Table 17. Ideal Positive and Negative Solutions

Criterion	A+ (Ideal Positive)	A- (Negative Ideal)
C1	0,125	0,066
C2	0,061	0,155
C3	0,040	0,088
C4	0,093	0,030
C5	0,070	0,040
C6	0,061	0,032

Step 5: Euclidean Distance Calculation

Formula 9. Distance to Positive Ideal Solution

Si+=∑j=1n(Vij−Vj+)2S_i^+ = \sqrt{\sum_{j=1}^{n}(V_{ij} - V_j^+)^2}Si+=j=1∑n(Vij−Vj+)2

Formula 10. Distance to Negative Ideal Solution

Si−=∑j=1n(Vij−Vj−)2S_i^- = \sqrt{\sum_{j=1}^{n}(V_{ij} - V_j^-)^2}Si−=j=1∑n(Vij−Vj−)2

Step 6: Calculation of Preference Values

Formula 11. Relative Preference Value

Ci+=Si−Si++Si−C_i^+ = \frac{S_i^-}{S_i^+ + S_i^-}Ci+=Si++Si−Si−

Vendor Ranking Results

Table 18. Final Results of Vendor Ranking with TOPSIS

Vendors	S+	S-	Preference Value (Ψ)	Ranking	Classification
PT SE	0,012	0,111	0,903	1	Excellent
PT RKA	0,046	0,096	0,677	2	Good
PT NUR	0,053	0,094	0,641	3	Good
PT PMT	0,058	0,095	0,625	4	Good
PT PM	0,108	0,006	0,051	5	Bad

Analysis of Results and Managerial Implications

Vendor Performance Analysis

The results of the evaluation showed significant variation in performance between vendors:

1. **PT SE** with a preference value of 0.903 shows performance very close to ideal conditions on all criteria. These vendors excel mainly on the criteria of sanctions, service, and quality & quantity.
2. **PT RKA, PT NUR, and PT PMT** are in the good category with a preference value between 0.625-0.677. These vendors show stable performance but still need improvement in some aspects.
3. **PT PM** was in the lowest position with a value of 0.051, indicating significant weakness especially in the criteria of service, time, and several aspects of quality and sanctions.

Strategic Implications

Based on the results of the evaluation, the vendor management strategy was determined as follows:

Table 19. Vendor Management Strategy Based on Ranking

Category	Vendors	Management Strategy
Excellent (Ψ > 0.8)	PT SE	1. Rewarding/rewarding 2. Priority for strategic contracts 3. Long-term partnership
Good (0.5 ≤ Ψ ≤ 0.8)	PT RKA, PT NUR, PT PMT	1. Focused coaching program 2. Periodic monitoring 3. Capacity building
Poor (Ψ < 0.5)	PT PM	1. Intensive repair program 2. Evaluation of the continuation of the contract 3. Possible termination

Model Validation

The developed assessment model has been validated through:

1. Construct Validity: Criteria are established based on the literature and expert judgment
2. Internal Consistency: CR values of all comparison matrices < 0.1
3. Practical Validity: The model can be implemented in PLN's vendor management system

The validation results show that this model is able to provide an objective, transparent, and accountable assessment, in accordance with the principles of good corporate governance applied in the SOE environment.

CONCLUSION

This study succeeded in designing a systematic and measurable vendor performance assessment model for *PT PLN (Persero) UP3 Bontang*. The model identified six main criteria, with *sanctions* as the highest priority (25.5%), followed by *quality & quantity* (22.8%), *time* (14.9%), *service* (14.1%), *K 3* management (12.2%), and *financial vendor* (10.4%). The application of the AHP-TOPSIS method resulted in objective vendor rankings, with *PT SE* obtaining the highest preference score (0.903) and *PT PM* the lowest (0.051). This model not only serves as an evaluative tool, but also as a basis for strategic decision-making that supports effective *Vendor Relationship Management* (VRM). The implementation of this model is expected to improve the quality of vendor services, speed up the procurement process, and strengthen the long-term partnership between PLN and its vendors.

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