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Integration of MOST and AHP Methods for Determining Strategic Priorities in Business Development for the Steel Pipe Industry at PT. Spindo Tbk.

Rachmat Yustiawan Hadi[1], Mohamad Ferdaus Noor Aulady [2]*

Master Of Industrial Engineering, Institut Teknologi Adhi Tama Surabaya[12]

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ABSTRACT

PT. Spindo Tbk., one of the leading steel pipe manufacturers in Indonesia, faces increasingly complex challenges due to global competition, fluctuations in raw material prices, regulatory changes, and rapid technological developments. This study aims to formulate strategic recommendations for business development in the steel pipe manufacturing industry by integrating the MOST framework and PEST analysis, as well as designing strategic alternatives derived from these frameworks. The study further determines the weighting of strategic criteria through expert questionnaires, which were processed using the Super Decision software with the Analytic Hierarchy Process (AHP) to establish strategic priorities. Data was collected through interviews, focus group discussions (FGD), and stakeholder questionnaires. Expert assessments were obtained using pairwise comparisons and analyzed through SuperDecision software. The results show a consistency ratio (CR) of 0.053, indicating high reliability in the expert judgments. The highest priority was found in Strategy 1—*Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality*—with a weight of 20.1%. Meanwhile, the lowest priority was Strategy 7—*Green Manufacturing, Environmental ISO Certification, and ESG Compliance*—with a weight of 10.6%. The findings reveal that technological advancement, human resource capability, and market dynamics are the most influential factors in determining the company's strategic priorities. Overall, the integration of MOST, PEST, and AHP provides a structured, comprehensive, and analytically robust approach to strategic planning.

Keywords: *MOST; PEST; AHP; Strategic Management; Steel Pipe Industry.*

E-MAIL

rachmatyustiawan@gmail.com
mohamadaulady@itats.ac.id

*Corresponding author:
Rachmat Yustiawan Hadi
rachmatyustiawan@gmail.com

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Address:
Jl. Arief Rachman Hakim No. 100, Surabaya 60117, Tel/Fax: 031-5997244

ABSTRACT

PT. Spindo Tbk. merupakan salah satu produsen pipa baja terkemuka di Indonesia, menghadapi tantangan yang semakin kompleks akibat persaingan global, fluktuasi harga bahan baku, perubahan regulasi, serta perkembangan teknologi yang cepat. Penelitian ini bertujuan untuk merumuskan rekomendasi strategi pengembangan bisnis pada industri manufaktur pipa baja melalui integrasi kerangka MOST, analisis PEST, serta Merancang alternatif strategi menggunakan MOST dan PEST, dan menentukan bobot kriteria melalui pengisian kuesioner oleh para ahli dan di olah menggunakan software Super Decision dengan metode AHP untuk menentukan prioritas strategi. Pada penelitian ini data dikumpulkan melalui wawancara, FGD dan kuesioner pemangku kepentingan. Penilaian para ahli dikumpulkan melalui kuesioner dengan *pairwise comparison* dan diolah menggunakan perangkat lunak SuperDecision. Didapatkan Nilai rasio konsistensi (CR = 0.053), bobot tertinggi terdapat pada strategi 1 (Optimatisasi dan Ekspansi Berbasis Teknologi Produksi Untuk Efisiensi Biaya dan Kualitas) dengan bobot 20.1 %. Dan bobot terendah pada kriteria strategi 7 yaitu (*Green Manufacturing* atau Sertifikasi ISO Lingkungan serta Kepatuhan Pada ESG) dengan bobot 10.6 %. Hasil penelitian mengungkapkan bahwa kemajuan teknologi, kapabilitas sumber daya manusia, dan dinamika pasar merupakan faktor yang paling berpengaruh dalam pembentukan prioritas strategi perusahaan. Secara keseluruhan, integrasi MOST, PEST, dan AHP memberikan pendekatan perencanaan strategis yang terstruktur, komprehensif, dan analitis.

Keywords: *MOST; PEST; AHP; Managemen Strategi; Industri Pipa Baja.*

INTRODUCTION

The steel pipe industry is one of the strategic sectors that plays a crucial role in supporting national infrastructure development, construction, oil and gas, automotive, and various other manufacturing industries. PT. Spindo Tbk., as one of the largest steel pipe manufacturers in Indonesia, faces increasingly complex business dynamics due to intense global competition, raw material price volatility, rapidly evolving technological demands, changing government regulations, and shifting market needs. These conditions require the company to formulate business development strategies that are more measurable, adaptive, and grounded in comprehensive environmental analysis. In this context, a strategic approach is needed—one that not only uncovers the company's vision and direction but also evaluates external challenges and prioritizes strategic factors objectively. The MOST method serves to help organizations explore four essential aspects—Mission, Objectives, Strategy, and Tactics. The MOST framework is used to re-examine the mission and goals of PT. Spindo Tbk. and develop strategies aligned with the company's strategic direction [1]. Meanwhile, the PEST analysis (Political, Economic, Social, and Technological) is applied to identify and assess external environmental factors that influence business sustainability, including global economic fluctuations, advancements in manufacturing technology, shifts in industrial policies, and social expectations regarding quality and service.

To ensure that strategic priorities are determined objectively, this study employs the Analytic Hierarchy Process (AHP) developed by [2] as a method for weighting strategic criteria based on expert and managerial assessments. Through the integration of MOST, PEST, and AHP, this study provides a systematic and comprehensive approach to support PT. Spindo Tbk. in formulating business development strategies that are more adaptive, competitive, and aligned with market challenges as well as the company's long-term objectives. The application of the MOST and AHP methods is expected to serve as an effective solution for supporting strategic business development planning at PT. Spindo Tbk. This approach ensures that the strategies formulated are not only aligned with the company's vision and mission but also reinforced by data-driven analysis, enabling more accurate and optimal decision-making. The findings of this study are expected to contribute to enhancing the effectiveness of the company's business strategies and to serve as a reference for other steel pipe industries in developing scientifically grounded business strategies that strengthen competitiveness and improve business sustainability in an increasingly competitive steel pipe market.

LITERATURE REVIEW

Strategic Management

Strategic management consists of two key concepts: *management* and *strategy*. Management can be defined as the science or art related to coordinated activities aimed at synergizing an organization's resources—such as human resources, natural resources, and technology—to achieve corporate objectives. Strategy refers to a plan developed by company executives that focuses on long-term goals designed to enhance the company's overall operations [3].

Business Strategy

According to [4] business strategy is an effective tool for helping organizations achieve business goals. It is a structured plan that aids in making various decisions to improve organizational performance. [5] also states that business strategy, often referred to as competitive strategy, is typically developed at the divisional level and focuses on strengthening the competitive position of a company's products—either goods or services—within the industry or specific market segments served by the division.

MOST Method (Mission, Objectives, Strategy, Tactics)

The MOST method is a systematic framework that helps organizations align their vision and mission with more specific business objectives. It assists in formulating long-term strategies that can be implemented gradually through measurable operational tactics. In strategy formulation, both qualitative and quantitative factors must be considered to ensure that decision-making becomes more optimal and objective. The MOST method aims to explore four essential organizational aspects: Mission, Objectives,

Strategy, and Tactics. MOST analysis supports the alignment of day-to-day activities with the organization's long-term vision, ensuring that strategic efforts remain on course. By reviewing each component—mission, objectives, strategy, and tactics—MOST analysis provides managers with a clearer understanding of organizational progress toward intended goals.

PEST Analysis (Political, Economic, Social, Technological)

PEST analysis is a strategic tool used to evaluate macro-external factors that may influence the performance and direction of an organization. It helps companies understand external environmental dynamics that could affect their strategies and operational activities. The purpose of PEST analysis is to identify and comprehend external factors that influence organizational performance, allowing companies to anticipate changes in the business environment, identify external opportunities and threats, and formulate adaptive and responsive strategies [6]

Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is a widely used method for solving multi-criteria decision-making problems through a hierarchical structure that allows weighting and prioritization. This decision-making technique was developed by Thomas L. Saaty using pairwise comparisons of criteria assessed by experts or individuals with relevant expertise to determine priority scales. The hierarchical measurement structure is arranged according to the overall decision goal and the pairwise relationships between decision elements. In practice, AHP can be applied to multi-criteria decision-making across various fields, such as economics, politics, and engineering. AHP is commonly used for complex decision-making involving many criteria, including planning, resource allocation, and determining strategic priorities in competitive scenarios. The general steps for applying the AHP method, as described [7], include the establishment of a hierarchy, pairwise comparison, calculation of priority weights, and consistency assessment.

Table 1. Saaty Scale for Pairwise Comparison Assessment

Intensity of Importance	Description
1	Both elements are equally important.
3	One element is slightly more important than the other.
5	One element is more important than the other.
7	One element is clearly more strongly important than the other.
9	One element is absolutely more important than the other.
2, 4, 6, 8	Intermediate values between the adjacent judgments.
Reciprocal	If activity *x* has a certain value compared to activity *y*, then *y* has the reciprocal value of *x*.

Geometric Mean

The geometric mean can be used to calculate the average value of pairwise comparison assessments while maintaining the reciprocal property of the original matrix. Taking the geometric mean of individual assessments is a method used to resolve situations where consensus is not achieved after discussion, or when not all respondents can be present during the prioritization process. According to the geometric mean theory, if there are *n*- participants performing pairwise comparisons, then there will be *n*-assessment values for each comparison pair. To obtain a representative value from all these assessments, each value must be multiplied together, and the resulting product is then raised to the power of one divided by *n*. The formula for the geometric mean is shown in Equation 1

$$G = \sqrt[n]{X_1 \times X_2 \times X_3 \ldots} \quad \ldots(1)$$

Description:

- G = Geometric mean
- X_n = The *n*-th assessment value
- n = Number of assessments

METHOD

Type of Research

Qualitative research is a study that examines the quality of relationships, activities, situations, or various materials. In other words, qualitative research emphasizes a holistic description that explains events or situations in detail rather than comparing the effects of specific treatments or describing people's attitudes or behaviors. Data collection techniques in qualitative research typically include observation, interviews, and focus group discussions (FGD). This study also employs a quantitative approach, which is a scientific method used to collect and analyze numerical data with the aim of understanding relationships between variables and testing hypotheses objectively and systematically [8].

Data Collection Stage

The data collection process in this research consists of primary and secondary data, as described below:

1. Primary Data

Primary data refers to information obtained directly by the researcher through questionnaires, FGD sessions, and interviews with company management or key stakeholders to obtain first-hand insights regarding business development strategies at PT. Spindo Tbk. The primary data in this study includes:

a. Interviews

Interviews involve discussions between two parties, where the researcher poses questions and receives responses. The interviews in this study were conducted through a structured dialogue with relevant experts to obtain information related to strategic business development in the steel pipe manufacturing industry at PT. Spindo Tbk.

b. Questionnaires

A questionnaire is a set of structured questions used by the researcher to obtain data directly from the source by gathering information and expert opinions. Before designing the questionnaire, the researcher first formulated strategic alternatives through interviews or FGDs with experts. The questionnaire used in this study is the AHP Pairwise Questionnaire for strategic alternatives.

2. Secondary Data

Secondary data refers to information obtained indirectly or from intermediary sources already available before the research is conducted. In this study, secondary data were collected by gathering information from various sources and utilizing digital media such as articles, journals, and books relevant to the research context. The secondary data required for this study include:

- Company Profile
- Company Financial Reports
- Company Annual Report

Below is the methodology used in this research

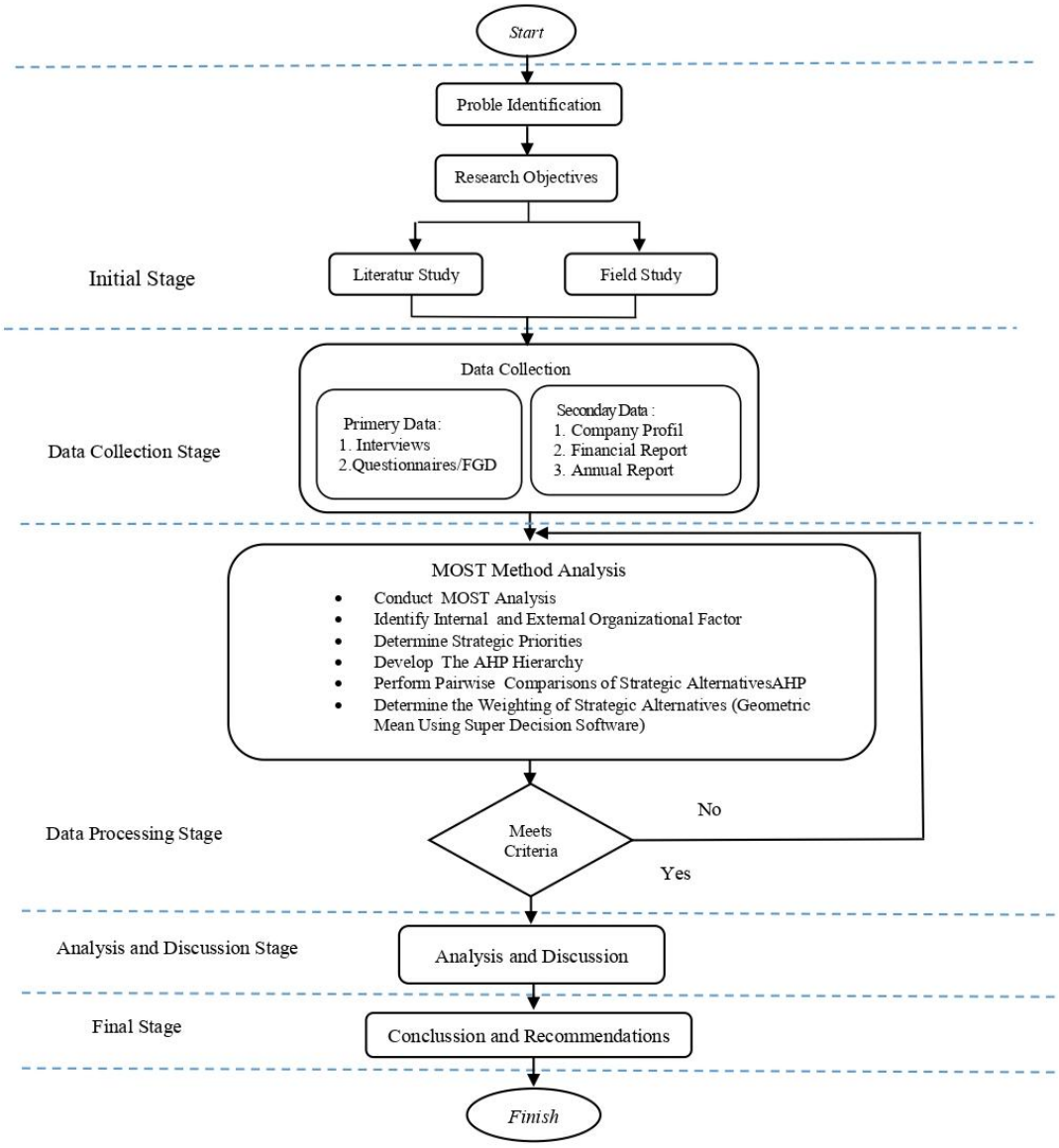


Figure 1. Research Framework

RESULTS AND DISCUSSION

Best Strategic Priorities (Strategic Alternatives)

The determination of strategic alternative criteria was conducted through discussions and interviews with experts and key stakeholders at the management level of PT. Spindo Tbk. This process was carried out through Focus Group Discussions (FGD), followed by primary data collection. The FGD sessions began identifying existing issues at PT. Spindo Tbk., particularly related to determining strategic priorities for internal and external factors. The following are the results of selecting the best strategies for business development in the steel pipe manufacturing industry at PT. Spindo Tbk.:

1. Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality
2. Product Diversification and Market Certification to Reach New Market Segments
3. Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials
4. Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure, Price, Quote), and CRM (Customer Relationship Management) Systems

5. Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration
6. Human Resource Development and Performance Culture Based on Competency Certification
7. Green Manufacturing or Environmental ISO Certification and Compliance with ESG Standards

Table 2. Questionnaire for Pairwise Comparison of Strategic Priority Alternatives

STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Product Diversification and Market Certification to Reach New Market Segments
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Human Resource Development and Performance Culture Based on Competency Certification
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality																		Green Manufacturing or Environmental ISO Certification and ESG Compliance

STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Product Diversification and Market Certification to Reach New Market Segments																		Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials

Product Diversification and Market Certification to Reach New Market Segments		Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)
Product Diversification and Market Certification to Reach New Market Segments		Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration
Product Diversification and Market Certification to Reach New Market Segments		Human Resource Development and Performance Culture Based on Competency Certification
Product Diversification and Market Certification to Reach New Market Segments		Green Manufacturing or Environmental ISO Certification and ESG Compliance

STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials																		Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)
Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials																		Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration
Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials																		Human Resource Development and Performance Culture Based on Competency Certification
Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials																		Green Manufacturing or Environmental ISO Certification and ESG Compliance

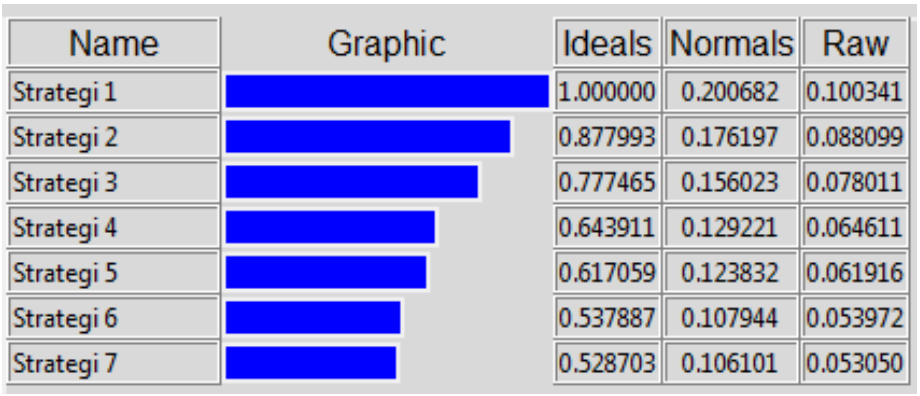
STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)																		Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration
Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)																		Human Resource Development and Performance Culture Based on Competency Certification
Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure,Price,Quote), and CRM (Customer Reletionship Management)																		Green Manufacturing or Environmental ISO Certification and ESG Compliance

STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration																		Human Resource Development and Performance Culture Based on Competency Certification
Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration																		Green Manufacturing or Environmental ISO Certification and ESG Compliance

STRATEGY A	ASSESSMENT SCALE																	STRATEGY B
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Human Resource Development and Performance Culture Based on Competency Certification																		Human Resource Development and Performance Culture Based on Competency Certification

Table 3. AHP Criteria Weighting Results

Alternatif Prioritas Strategi	Pembobotan
Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality	0.201
Product Diversification and Market Certification to Reach New Market Segments	0.176
Strengthening Supply Chain Systems and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials	0.156
Digitalization of Sales and Customer Service through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure, Price, Quote), and CRM (Customer Relationship Management)	0.129
Aggressive Export Market Penetration in Asia–Africa Regions and Distribution Network Orchestration	0.124
Human Resource Development and Performance Culture Based on Competency Certification	0.108
Green Manufacturing or Environmental ISO Certification and Compliance with ESG Standards	0.106



Name	Graphic	Ideals	Normals	Raw
Strategi 1		1.000000	0.200682	0.100341
Strategi 2		0.877993	0.176197	0.088099
Strategi 3		0.777465	0.156023	0.078011
Strategi 4		0.643911	0.129221	0.064611
Strategi 5		0.617059	0.123832	0.061916
Strategi 6		0.537887	0.107944	0.053972
Strategi 7		0.528703	0.106101	0.053050

Figure 2. Results of Strategic Alternative Analysis Using Super Decision Software

CONCLUSION

Based on the analysis conducted regarding the selection of priority strategic alternatives for business development in the steel pipe industry at PT. Spindo Tbk., the following conclusions can be drawn:

1. The criteria used in determining strategic decision-making for business development include:
    - Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality
    - Product Diversification of High-Value Steel Products and Market Certification to Reach New Market Segments
    - Strengthening the Supply Chain System and Price/Exchange Rate Risk Management to Reduce Dependence on Imported Raw Materials
    - Digitalization of Sales and Customer Service Systems through Digital Go-to-Market B2B, E-Commerce, CPQ (Configure, Price, Quote), and CRM (Customer Relationship Management)
    - Aggressive Export Market Penetration into Asia-Africa Regions Supported by Distribution Network Orchestration
    - Human Resource Development and Performance Culture Based on Competency Certification
    - Green Manufacturing, Environmental ISO Certification, and ESG Compliance

2. Among the seven established strategic criteria, the highest weight is assigned to Strategy 1. Optimization and Expansion Based on Production Technology for Cost Efficiency and Quality—with a weight of 20.1%**.** Meanwhile, the lowest weight is assigned to Strategy 7. Green Manufacturing, Environmental ISO Certification, and ESG Compliance—with a weight of 10.6%**.** The weighting results were obtained using the AHP method through SuperDecision software, and the consistency ratio was below 0.1 (CR = 0.053**),** indicating that the assessments are valid and consistent. Based on the seven alternative strategic priorities, the resulting priority scale can be presented to company management as an input for future business development strategies in the steel pipe industry at PT. Spindo Tbk..

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