

Research Article

A Strategic Model for Supplier Evaluation and Selection in Textile SMEs

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Abstract: Supplier selection is a crucial element in enhancing the operational performance of SMEs, especially in the textile industry. XYZ SME, as a company engaged in fabric production, faces challenges in determining suppliers that meet key criteria such as product quality, cost, flexibility, and responsiveness to market demand. This study aims to analyze and determine the best fabric suppliers for XYZ SME using the Analytical Hierarchy Process (AHP) method. AHP allows for the determination of priority weights based on relevant criteria and sub-criteria, and provides priority scores for each supplier being evaluated. The research findings reveal that Supplier nirwana tekstil occupies the top position with the highest priority score of 0.433882, followed by Supplier toko kain pasar baru (0.259807), while Suppliers tiga saudara tekstil, jayatekstil, and kharisma have lower priorities. Product quality and cost were found to be the primary factors in supplier selection, with quality (0.305031) being the most dominant criterion, followed by cost (0.200456). A novel finding in this research is the significant importance of accuracy or adherence to product specifications, which was found to be a key sub-criterion influencing supplier selection. Adherence to specifications ranked the highest in the accuracy category, indicating that consistency in meeting agreed-upon quality standards greatly impacts the final product quality and company reputation. This finding provides valuable insights for SMEs in selecting the right suppliers and opens avenues for future research that considers external factors and non-technical relationships in supplier selection.

Keywords: Supplier Selection, AHP, Quality, Cost, Accuracy.

I. INTRODUCTION

Small and Medium Enterprises (SMEs) play a strategic role in Indonesia's economy. In 2024, the sector contributed 60.51% to the Gross Domestic Product (GDP) and absorbed up to 97% of the national workforce [1]. Additionally, SMEs accounted for 15.7% of total domestic exports. Among various SME sectors, the textile and textile product industry is one of the key contributors, employing approximately 20% of the total workforce [2], [3].

The sustainability of textile SMEs, particularly in the fashion sector, heavily depends on the production of competitive products. Competitiveness is influenced by the quality of materials, design, and competitive pricing [4], [5]. [6] found that design and materials contribute 40% to consumers' purchasing decisions, with price having an equal influence. Therefore, selecting the right raw materials is crucial for operational success and sales performance.

In practice, textile SMEs often rely on multiple suppliers for raw materials. Supplier selection is frequently based solely on material availability, without thoroughly considering factors such as quality, price, delivery time, flexibility, and responsiveness. This can lead to issues such as production delays, increased costs, and reduced customer satisfaction [7], [8].

XYZ, a newly established SME in men's fashion that began operations in mid-2024, faces similar challenges. The company collaborates with several local garment manufacturers under a contract manufacturing scheme and relies heavily on five key suppliers located in Jakarta and Bandung. However, XYZ frequently experiences problems such as mismatched materials, delayed deliveries, and inconsistent stock availability. These issues have led to increased production lead time, missed production targets, and compromised product quality. In fact, the company's initial product launch received negative feedback from customers due to fabric discomfort, with complaints about heat and lack of breathability.

These problems highlight the importance of a comprehensive supplier evaluation process. Currently, XYZ's supplier selection approach lacks a strategic, objective, and measurable framework. Previous studies have recommended the use of decision-making tools such as the Analytical Hierarchy Process (AHP) for supplier selection [9], [10]. AHP is an effective method for addressing multi-criteria decision-making by systematically comparing alternatives based on predefined criteria.

Therefore, this study aims to formulate a strategic supplier selection model that is systematically structured and objectively measured. The model is intended to assist business owners, especially those in textile SMEs within the fashion



sector, in evaluating and selecting the most appropriate suppliers based on relevant criteria and measurable priorities. By applying the Analytical Hierarchy Process (AHP), this research not only seeks to generate a supplier ranking but also provides a decision-making structure that can serve as a strategic reference for supply chain management.

Several previous studies have utilized AHP based on five primary criteria: quality, price, delivery, flexibility, and responsiveness. However, in the context of XYZ, an additional criterion, accuracy, is highly relevant. Accuracy includes conformity to specifications, agreed quantity, and delivery timing. Research by [11], [12] emphasized that accuracy significantly affects production efficiency and customer satisfaction. This criterion introduces a novelty in this study and differentiates it from prior research.

By integrating accuracy into the decision-making structure, the AHP model can help XYZ identify the most suitable suppliers based on prioritized, relevant criteria. This approach shifts supplier selection from being subjective to rational and consistent. The outcomes of this study are expected to contribute not only to the supplier selection strategy of XYZ but also serve as a reference for other fashion SMEs facing similar supply chain challenges.

II. LITERATURE REVIEW

A) Multi-Criteria Framework for Fabric Supplier Selection in Textile SMEs

Supplier selection for textiles is a strategic decision that directly impacts the success of the supply chain, operational efficiency, and product competitiveness of textile SMEs, particularly in the fashion sector. Based on the QCDFR model (Quality, Cost, Delivery, Flexibility, Responsiveness), expanded with the addition of the Accuracy variable, this study develops a more comprehensive supplier selection framework. Figure 1 shows the model development. Each criterion is explored further as follows:

B) Quality

Quality is a primary criterion in selecting raw materials, especially in the textile and fashion industry, which heavily relies on consumer perceptions of product quality [13], [14]. According to [14], fabric quality can be assessed based on technical specifications such as texture, weight (grammage), colorfastness, and defect rates. The sub-criteria include:

- **Q1: Suitability** Measures the extent to which the fabric meets technical and aesthetic standards, such as thickness, comfort, and compatibility with product design.
- **Q2: Consistency** refers to the supplier's ability to maintain consistent quality over time. Consistency is crucial to avoid fluctuations in the quality of the final product.

C) Cost

Cost is a critical economic consideration, particularly for SMEs with limited working capital [15]. In the context of supplier selection, cost encompasses not only the unit price of the fabric but also potential discounts and ease of transactions. The sub-criteria are:

- **C1: Price** assesses whether the offered price aligns with the budget and the added value of the resulting product.
- **C2: Discount** reflects the supplier's flexibility in providing financial incentives, such as discounts for bulk purchases.

D) Delivery

Reliable delivery is a key factor in ensuring smooth production processes. Timely delivery affects lead times and production capacity [16]. The sub-criteria include:

- **D1: Time Delivery:** The supplier's ability to meet delivery deadlines as agreed.
- **D2: Distribution Ability** evaluates the effectiveness and efficiency of the supplier's logistics system in delivering products to the production site.

E) Flexibility

Flexibility is crucial in a dynamic business environment. A supplier's ability to adapt to changing production needs determines the operational resilience of SMEs [17], [18]. The sub-criteria are:

- **F1: Change of Quantity Order Assesses** the supplier's capacity to adjust order quantities when demand changes suddenly.
- **F2: Ease of Ordering Measures** the simplicity of the ordering process, including communication flow, information systems, and payment ease.

F) Responsive

Responsiveness reflects the speed and effectiveness of a supplier in addressing requests and resolving issues [8]. For SMEs, responsive suppliers can prevent losses due to delays or product errors. The sub-criteria include:

- **R1: Response to Complaints** Measures the speed and quality of responses to complaints regarding quality or delivery

issues.

- **R2: Response to Sudden Orders:** The supplier's ability to handle urgent requests or additional order volumes.

G) Accuracy

Accuracy is an additional criterion that has not been widely explored in previous studies but is highly relevant in production contexts relying on just-in-time delivery. This criterion focuses on precision in meeting quantity and quality as agreed [12], [19]. The sub-criteria are:

- **A1: Adherence** evaluates the supplier's compliance with all aspects of the agreement, including product specifications, order quantities, and delivery timelines.
- **A2: Order Processing Speed:** The speed of processing and fulfilling orders from the time of placement to delivery.

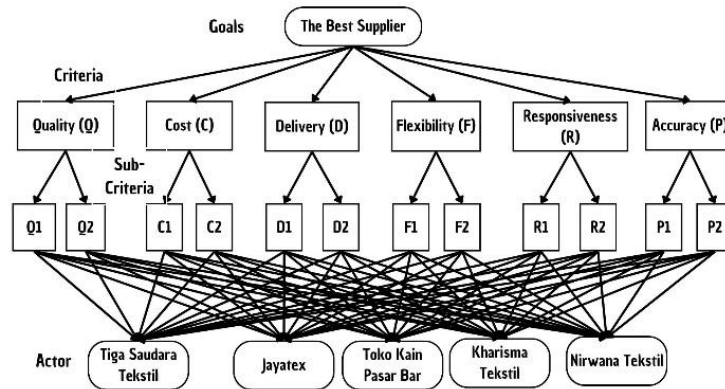


Figure 1. Model Development AHP

III. RESULTS AND DISCUSSION

This study collected data from three main respondents, consisting of two internal respondents, namely, the management of UMKM XYZ, and one respondent from the garment sector. Tables 1, 2, and 3 present the data collected from each respondent, while Table 4 displays the geometric mean of their responses for the pairwise comparison at the first-level criteria.

A) Pairwise Comparison

a. Pairwise Comparison Level 1 (Criteria)

This study collected data from three main respondents, consisting of two internal respondents, namely, the management of UMKM XYZ, and one respondent from the garment sector. Tables 1 present the data collected from each respondent and finally the measurement of the geometric mean for the pairwise comparison at the first-level criteria.

Table 1. The result of the geometric mean

Kriteria	Quality	Cost	Flexibility	Responsive	Delivery	Accuracy
Quality	1	3	3	3	3	3
Cost	0.333333	1	3	3	3	3
Flexibility	0.333333	0.333333	1	3	1.44224957	1.44225
Responsive	0.333333	0.333333	0.333333333	1	3	0.693361
Delivery	0.333333	0.333333	0.333333333	0.693361274	1	0.333333
Accuracy	0.333333	0.333333	0.693361274	1.44224957	3	1
Total	2.666667	5.333333	8.360027941	12.13561084	14.44224957	9.468944

After obtaining the geometric mean, the next step is to calculate the priorities based on the weights assigned by the respondents. The determination of priorities begins with calculating the eigenvector through the quadratic matrix, followed by matrix normalization to obtain the normalized eigenvector (NEV). The results of the eigenvector calculation are presented in Tables 2 and 3.

Table 2: Result of the calculation priority and the eigen vector in the criteria

Criteria	Priority	Eigne Value (EVN)	Rangking	Eigen vektor normalisasi (EVN)
Quality	0.305031	0.813416403	1	0.123245
Cost	0.200456	1.069098602	2	0.161985
Flexibility	0.137559	1.14999795	3	0.174242

Responsive	0.098776	1.198705038	5	0.181622
Delivery	0.091175	1.316771226	6	0.199511
Accuracy	0.111996	1.060484555	4	0.160679
Total	0.944993	6.608473775	-	1.000515

In this study, the priority weight calculations indicate that Quality is the most important criterion, with the highest priority weight of 0.305031. This highlights that the quality of products or services provided by suppliers is the primary consideration in decision-making. This finding aligns with fundamental procurement principles, where quality is often viewed as a key indicator of long-term success in business relationships. Previous research, such as that by [20], emphasizes that product quality is a critical factor in maintaining long-term partnerships with suppliers, as consistent quality fosters trust and reduces costs associated with repairs or product returns, thereby directly enhancing operational efficiency. Thus, selecting suppliers with superior quality contributes significantly to the sustainability and growth of companies in competitive markets.

Following quality, cost holds a priority weight of 0.200456, indicating that cost is also a highly important factor, though not as dominant as quality. This suggests that while cost efficiency remains a major consideration, companies are generally unwilling to compromise on quality for the sake of short-term savings. This is consistent with the findings of [21], who found that although cost-saving is essential, many companies prefer to invest more in quality to ensure long-term sustainability and to minimize risks associated with substandard goods or services. Therefore, while cost remains important, quality continues to be the top priority that companies are not willing to sacrifice.

The criteria of Flexibility, Accuracy, and Responsiveness follow with lower priority weights of 0.137559, 0.111996, and 0.098776, respectively. These results indicate that although these factors are relevant and contribute to decision-making, their influence in supplier selection is not as significant as quality and cost. Research by [22] shows that although flexibility and responsiveness are essential to adapt to changing market demands, firms tend to prioritize more tangible and measurable criteria such as quality and cost, which directly affect operational success and customer satisfaction. Accuracy also plays a role in ensuring product consistency and timely delivery, yet it holds less weight compared to quality and cost in final decision-making.

Finally, delivery ranks the lowest, with a priority weight of 0.091175, indicating that delivery time and distribution capability are considered the least influential factors in the supplier selection process within this research context. Prior studies, such as [18], support this finding, showing that while timely delivery is important, many companies prioritize quality and cost due to their direct impact on customer satisfaction and long-term profitability. On-time delivery is often viewed as a supporting rather than a determining factor, especially when compared to core criteria such as product quality and cost.

Overall, these findings suggest that companies prioritize quality and cost above all, with other factors such as flexibility and responsiveness seen as complementary rather than primary decision-making criteria. This aligns with existing literature, which emphasizes that optimal supplier selection requires a balance between quality, cost, and supporting factors, with quality and cost being the dominant determinants in long-term strategic decisions.

b. Praise Comparison Level 2 (Sub-Criteria)

The subsequent step involves evaluating the priority of each sub-criterion under the previously selected main criteria through a systematic pairwise comparison process. This method enables decision-makers to assess the relative importance of each sub-criterion by directly comparing them in pairs. Through these comparisons, a more nuanced understanding of the internal structure and hierarchy of decision factors is achieved.

Each sub-criterion is evaluated in terms of how much more important it is compared to another within the same criterion group, based on expert judgment or respondent input. These comparative judgments are then quantified and used to calculate the local priority weights of each sub-criterion using mathematical techniques such as eigenvector derivation and matrix normalization.

This stage is essential in multi-criteria decision-making (MCDM), particularly within the Analytic Hierarchy Process (AHP) framework, as it ensures that not only the main criteria but also the contributing sub-elements are properly weighted in accordance with their perceived relevance. As a result, the decision-making model becomes more robust, transparent, and reflective of real-world priorities in complex scenarios such as supplier selection or strategic planning. Table 3 shows the result of the calculation priority and the eigen vector in each sub-criterion.

Table 3. The result of the calculation of the priority and the eigen vector in each sub-criteria.

Criteria	Score	Priority	Eigen Vektor (EV)	Norm (EV)	Rangking
Quality					
Suitability	1.182802	0.591401	1.001455	0.500728	1
Consistency	0.820109	0.410055	1.001455	0.500728	2
Total	2.002911	1.001455	2.002911	1.001455	-
Cost					
Price	1.535092	0.767546	1	0.5	1
Discount	0.464908	0.232454	1	0.5	2
Total	2	3	2	1	-
Flexibility					
Change of Quantity Order	1.000105	0.49994	2.150707	0.49994	2
Ease Ordering	1.000344	0.50006	2.15122	0.50006	1
Total	2.00045	1	4.301927	1	-
Responsive					
Response to complaints	1.50188	0.75019	1.000253	0.5	1
Respond to sudden orders	0.500627	0.250063	1.000253	0.5	2
Total	2.002506	1.000253	2.000506	1	-
Delivery					
Time Delivery	1.501879699	0.75	1	0.5	1
Distribution Ability	0.500626566	0.25	1	0.5	2
Total	2.002506266	1	2	1	-
Accuracy					
Adherence	1.182802	0.591401	1.001455	0.500728	1
Speed of Processing Order	0.820109	0.410055	1.001455	0.500728	2
Total	2.002911	1.001455	2.002911	1.001455	-

In supplier selection, analyzing sub-criteria allows for a more granular understanding of decision-making priorities. Under the Quality criterion, both Suitability and Consistency received equal priority weights of 0.500728. This indicates that firms place equal importance on how well a product meets their specific operational needs and on the supplier's ability to consistently maintain product standards. Suitability ensures that products are not only technically compliant but also aligned with business objectives [19], while consistency strengthens long-term supplier relationships and enhances process stability [17].

In terms of cost, the Price sub-criterion holds the highest weight at 0.767546, highlighting the importance of base product cost in managing operational expenses and profitability. This is supported by [23], who emphasize that competitive pricing directly affects profit margins and market competitiveness. In contrast, Discount received a lower weight of 0.232454, suggesting that while supplier discounts are appreciated, they are not prioritized over stable and reasonable pricing [24].

For the Responsiveness criterion, Response to Complaints dominates with a priority of 0.75019, illustrating that the ability to resolve issues effectively has a greater impact than handling sudden orders. This aligns with [25], who found that responsiveness to complaints enhances customer satisfaction and supplier credibility. Meanwhile, responding to Sudden Orders is rated lower (0.250063), indicating it is valued but secondary in supplier evaluation [24].

Under flexibility, the sub-criteria Ease of Ordering and Change of Quantity Order scored nearly equally, with weights of 0.50006 and 0.49994, respectively. This balance reflects a slight preference for streamlined ordering processes that improve procurement efficiency [26], while still acknowledging the usefulness of adjusting order volumes under changing conditions[27].

In the Delivery category, *Time Delivery* is strongly favored (0.75), suggesting that timely delivery is crucial in maintaining production flow and customer satisfaction [26]. Distribution Ability (0.25), though important, is considered supportive and less critical unless it directly affects timeliness (Hazza et al., 2022)

Lastly, for Accuracy, *Adherence* to order specifications was prioritized higher (0.591401) than *Speed of Processing Orders* (0.410055). This indicates that ensuring order compliance is more valued than fast processing, as accuracy reduces risks and enhances trust in supplier relationships[27]. While processing speed contributes to efficiency, it is considered secondary to fulfillment accuracy.

c. Pairwise Comparison Level 3 (Alternative) The Best Supplier Selection

The results of the questionnaire completed by the respondents who serve as key decision-makers in this study reflect their pairwise comparisons of the supplier alternatives involved. These respondents were selected based on their in-depth knowledge of the company's needs and priorities relevant to supplier selection decisions. This process enables a more accurate and contextually appropriate evaluation of alternatives based on the predetermined criteria. The results of these pairwise comparisons are presented in Table 4.

Table 4. Result of pairwise comparisons in the alternative (selecting the best supplier)

Criteria	Score	Priority	Eigen Vektor (EV)	Norm (EV)	Rangking
Tiga Saudara	0.444013	0.088779	1.183724	0.215795	4
Jaya Tekstil	0.276353	0.055256	0.884099	0.161173	5
Toko kain pasar baru	1.299373	0.259807	1.255732	0.228923	2
Kharisma	0.763756	0.152711	1.170787	0.213437	3
Nirwana tekstil	2.169978	0.433882	0.89669	0.163468	1
Total	4.953473	0.990436	5.391031	0.982796	-

The priority calculation results indicate that Supplier Nirwana Tekstil ranks highest, with a priority score of 0.433882. This suggests that Nirwana Tekstil is the most suitable supplier based on the predefined selection criteria. The high score reflects the supplier's strong performance across various dimensions such as product quality, pricing, flexibility, and responsiveness to market demands. This finding is consistent with the study by [7], which revealed that quality and cost were the most influential criteria in supplier selection, with respective weights of 0.316 and 0.298.

Supplier Toko Kain Pasar Baru ranks second with a priority score of 0.259807. Although lower than Nirwana Tekstil, this supplier still demonstrates a considerable level of alignment with the selection criteria. However, its performance is comparatively weaker in several key aspects, particularly in quality and pricing. This supports findings from [28], who also emphasized the primacy of quality, followed by flexibility and delivery, in supplier selection processes.

Supplier Kharisma and Supplier Tiga Saudara Tekstil follow in third and fourth place, with scores of 0.152711 and 0.088779, respectively. While Kharisma shows slightly better alignment than Tiga Saudara Tekstil, both are significantly less suitable compared to the top two suppliers. These results highlight their limitations in meeting the core selection criteria. As noted in previous research [29], suppliers with lower scores in quality and cost tend to be less favored in strategic procurement decisions.

Finally, Supplier Jaya Tekstil holds the lowest position, with a priority score of 0.055256, indicating the least alignment with the established criteria. This suggests that Jaya Tekstil falls short in fulfilling many of the critical factors required and plays only a limited role in the supplier selection process. Although responsiveness and flexibility are important, their lower relative weight compared to quality and cost, as observed by [30], further explains this ranking.

B) Consistency Ratio (Validity)

To ensure the validity of the priority rankings established for the criteria, sub-criteria, and alternatives, the next step is to perform a Consistency Ratio (CR) test. This test aims to evaluate the degree of consistency in the pairwise comparisons made by the respondents. A low consistency ratio indicates that the comparisons are logically consistent and therefore reliable for use in decision-making. The results of the consistency ratio calculations are presented in Table 5.

Table 5. Result of the calculation of the consistency ratio

Criteria		Sub-Criteria						Alternative	
		Quality	Cost	Responsive	Flexibility	Delivery	Accuracy		
CI	0.12169	CI	0.002	CI	3.87	CI	5.05	CI	2.30
						CI	2.65x	CI	0.002
								CI	0.097757868

	475				$\times 10^{-7}$		$\times 10^{-5}$		$\times 10^{-5}$		10^{-7}				
RI (n = 6)	1.24	RA	0.00	RA	0.00	RA	0.00	RA	0.00	RA	0.00	RA	0.00	RI (n = 6)	1.12
CR	0.09814093	CR	0.00	CR	0.00	CR	0.00	CR	0.00	CR	0.00	CR	0.00	CR	0.087283811

To ensure the reliability of the priority rankings at all levels of the AHP hierarchy, consistency ratio (CR) validation was performed for criteria, sub-criteria, and alternatives. The CR for the main criteria was 0.098 (9.8%), which is below the acceptable threshold of 0.10, indicating consistent judgments. Further validation at the sub-criteria level showed CR values of 0.00 across all categories, demonstrating a very high level of consistency in respondent assessments. Similarly, the CR for the alternative level was 0.0873 (8.73%), also below the threshold. These results confirm that all pairwise comparisons were consistent and logically sound, validating the reliability of the decision-making model used in this study.

IV. CONCLUSION

The AHP analysis identified *Supplier Nirwana Tekstil* as the most optimal alternative, with the highest priority score of 0.433882, indicating a strong alignment with key supplier selection criteria, including quality, cost, flexibility, and responsiveness. *Supplier Toko Kain Pasar Baru* ranked second (0.259807), while other suppliers demonstrated lower priority scores, reflecting limited alignment with the primary criteria. At the main criteria level, *Quality* (0.305031) and *Cost* (0.200456) emerged as the most influential factors, underscoring the strategic importance of product reliability and cost efficiency in supplier decision-making. At the sub-criteria level, *Suitability* and *Consistency* under quality (0.500728), *Price* under cost (0.767546), and *Adherence* under accuracy (0.591401) were the most significant contributors. These findings emphasize the critical role of technical specification conformity and stable product performance in fostering sustainable supplier relationships. The results align with previous studies that highlight quality and cost as the primary drivers of supplier selection in the textile supply chain.

Interest Conflicts

The authors declare that there is no conflict of interest concerning the publishing of this paper.

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V. REFERENCES

- [1] H. Limanseto, "Menko Airlangga: Pemerintah Dukung Bentuk Kolaborasi Baru agar UMKM Indonesia Jadi Bagian Rantai Pasok Industri Global," <https://www.ekon.go.id/>.
- [2] Akbarokah, "Industri Tekstil dan Produk Tekstil (TPT) Optimis Capai Target Pertumbuhan 5 Persen di 2024," ekonomipedia.com.
- [3] BPKP, "Sengkarut Industri Tekstil, Tenaga Kerja Menciut," Jakarta, 2024.
- [4] H. Ding, Y. Fu, L. Zheng, and Z. Yan, "Determinants of the competitive advantage of dairy supply chains: Evidence from the Chinese dairy industry," *Int J Prod Econ*, vol. 209, pp. 360–373, Mar. 2019, doi: 10.1016/j.jipe.2018.02.013.
- [5] G. Soebroto, "The Role of Competitive Advantage as Mediating the Effect of Strategic Planning on Company Performance," *International Journal of Entrepreneurship and Business Development*, vol. 4, no. 2, 2021.
- [6] N. Singh, N. Chakrabarti, and R. Tripathi, "Factors determining fashion clothing interest and purchase intention: A study of Generation Z consumers in India," *Fashion, Style & Popular Culture*, Jun. 2023, doi: 10.1386/fspc_00197_1.
- [7] K. Gwarda, "Using the Analytic Hierarchy Process Method to Select the Best Supplies: A Case Study of a Production Company," 2022.
- [8] T. S. Mahendra, "pemilihan supplier kayu mebel menggunakan metode ahp (analytical hierarchy process)," *JurnalValtech*, no. 1, 2018.
- [9] S. Hartati and A. Nugroho, "sistem pendukung keputusan berbasis ahp (analytical hierarchy process) untuk penentuan kesesuaian penggunaan lahan (studi kasus: kabupaten semarang)," 2012.
- [10] S. R. Rahmi and F. Firman, "Analysis of Supplier Selection by Using the AHP and PROMETHEE Methods in Regional Public Hospital Padang (RSUD Padang)," *Advances in Economic Business and Management Reserach*, vol. 97, no. 1, 2019.
- [11] I. Siregar, "Supplier Selection by Using Analytical Hierarchy Process (AHP) and Techniques for Order Preference Methods with Similarities to Ideal Solutions (TOPSIS)," in *Journal of Physics: Conference Series*, Institute of Physics Publishing, Dec. 2019, doi: 10.1088/1742-6596/1339/1/012023.
- [12] Harys W. Ramadhan and M. Tutuk Safirin, "Analisis Pengendalian Persediaan Bahan Baku Pada PT XYZ Dengan Metode Economic Order Quantity Menggunakan Software POM-QM," *Venus: Jurnal Publikasi Rumpun Ilmu Teknik*, vol. 2, no. 1, pp. 209–223, Jan. 2024, doi: 10.61132/venus.v2i1.115.
- [13] F. Mustikasari, "Product Quality, Service Quality, Price, and Location Influence Towards Coffee Shop Customer's Satisfaction," 2024. [Online]. Available: <http://journal.yrpipku.com/index.php/msej>
- [14] L. Samura, M. Danil Pratama, V. Galih Vidia Putra, F. Achmad, Y. Yusuf, and F. Abdullah, "A new mathematical model for optimizing laser cutting parameters to improve fabric quality," *Mathematical Models in Engineering*, Jul. 2024, doi: 10.21595/mme.2024.24204.
- [15] I. Primiana, Y. A. Juanim, A. Yunani, and A. Herwany, "Improvement Strategy for Supply Chain Performance of the Garment Industry to Decrease

- Logistics Costs and Enhance Competitiveness,” *Journal of Industrial and Intelligent Information*, 2016, doi: 10.18178/jiii.4.2.121-124.
- [16] S. H. Putri, F. Abdullah, N. Rahmawati, C. C. Dayani, and A. Kusumadewi, “A Novel Mathematical Model for Quality Optimization of Textile Products During Shipment ARTICLE INFORMATION ABSTRACT,” *Jurnal INTECH Teknik Industri Universitas Serang Raya*, vol. 10, no. 199, pp. 89–96, 2024, doi: 10.30656/intech.v9i2.8695.
- [17] H. L. Napatupulu, “Determining the priority level of suppliers by using AHP and TOPSIS,” in *IOP Conference Series: Materials Science and Engineering*, Institute of Physics Publishing, Jul. 2019. doi: 10.1088/1757-899X/505/1/012154.
- [18] R. I. Handayanir, “Selection of Suppliers of Building Materials Using the Analytical Hierarchy Process (AHP) Method at PT. Cipta Nuansa Prima Tangerang,” *International Journal of Informatics and Information Systems*, vol. 5, no. 4, pp. 156–166, 2022.
- [19] D. I. Siregar, A. T. Astuti, W. L. Hardilawati, Ahmadi, Z. M. E. Siregar, and R. Hamdani, “Linking Dynamic Capability, Supply Chain and Raw Material Uncertainty to Indonesian SMEs Manufacturing Operational Performance,” *Quality - Access to Success*, vol. 24, no. 193, pp. 39–45, Mar. 2023, doi: 10.47750/QAS/24.193.05.
- [20] A. Tahar, H. A. Riyadh, H. Sofyani, and W. E. Purnomo, “Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness,” *Journal of Asian Finance, Economics and Business*, vol. 7, no. 9, pp. 537–547, 2020, doi: 10.13106/JAFEB.2020.VOL7.NO9.537.
- [21] H. Huang, H. Liu, and B. Yang, “Economic policy uncertainty and executive turnover,” *China Journal of Accounting Research*, vol. 14, no. 1, pp. 83–100, Mar. 2021, doi: 10.1016/j.cjar.2020.11.003.
- [22] M. Afzali, G. Çolak, and M. Fu, “Economic uncertainty and corruption: Evidence from public and private firms,” *Journal of Financial Stability*, vol. 57, Dec. 2021, doi: 10.1016/j.jfs.2021.100936.
- [23] P. P. Dhisasmitho and S. Kumar, “Understanding customer loyalty in the coffee shop industry (A survey in Jakarta, Indonesia),” *British Food Journal*, vol. 122, no. 7, pp. 2253–2271, Jun. 2020, doi: 10.1108/BFJ-10-2019-0763.
- [24] G.-H. Lin, C.-A. Chuang, C. L. Tan, S. F. Yeo, and F.-Y. Wu, “Supplier selection criteria using analytical hierarchy process (AHP)-based approach: a study in refractory materials manufacturers,” *Industrial Management & Data Systems*, vol. 123, no. 6, pp. 1814–1839, Jan. 2023, doi: 10.1108/IMDS-06-2022-0370.
- [25] A. Riyanto, B. A. Kurniawan, G. Sianturi, and D. Oktafiani, “Supplier performance analysis using the Analytical Hierarchy Process (AHP) method,” *Matrix : Jurnal Manajemen Teknologi dan Informatika*, vol. 12, no. 1, pp. 1–6, Mar. 2022, doi: 10.31940/matrix.v12i1.1-6.
- [26] M. H. Al Hazza, A. Abdelwahed, M. Y. Ali, and A. B. A. Sidek, “An Integrated Approach for Supplier Evaluation and Selection using the Delphi Method and Analytic Hierarchy Process (AHP): A New Framework,” *International Journal of Technology*, vol. 13, no. 1, pp. 16–25, 2022, doi: 10.14716/ijtech.v13i1.4700.
- [27] T. W. Adi and D. N. Heitasari, “Selecting Supplier with Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)_ A Case Study at PT. Perta Daya Gas Semarang,” *The East asouth Management and Business*, vol. 1, no. 2, 2023.
- [28] B. F. Yanti, D. Hartani, D. Nuraeni, G. A. Lumbanbatu, and Kristina, “Analisis Dampak Penurunan Ekspor Tekstil Terhadap Tenaga Kerja di Sektor Industri Tekstil dan Produk Tekstil Selama Pandemi COVID-19,” *Jurnal Riset Ekonomi*, vol. 2, 2023.
- [29] J. Susetyo, C. I. Parwati, and C. N. Asmi, “usulan pemilihan supplier bahan baku dengan metode ahp (analytical hierarchy process) dan topsis (technique for order preference by similarity to ideal solution) pada industri konveksi,” in *Simposium RAPI XVIII*, Surakarta: Universitas Muhamadiyah Surakarta, 2019.
- [30] Anggi, S. Abdusysyhid, H. Pagoray, A. N. Asikin, Fitriyana, and M. S. R, “Optimization of Service Factors in PPI Tanjung Limau Bontang in Supporting Fishing Activites,” *Torani*, vol. 7, no. 1, pp. 106–122, 2023.