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Parachute Fabric Supplier Selection for a Fashion Brand Using Weighted Sum Model: A Case Study of Chute Up

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Abstract - *Indonesia's fashion industry is rapidly growing, with an estimated value of USD 8.75 billion in 2025. With this rapid growth comes the pressure for fashion companies to adopt efficient strategies, including optimizing their supplier selection process. For Chute Up, a fashion brand producing a 3-in-1 convertible parachute jacket, selecting the right parachute fabric supplier is crucial for quality, cost efficiency, and timely production. This research applies the Weighted Sum Model (WSM) to assist structured decision-making in supplier selection. The criteria used includes quality, cost, delivery, reliability, sustainability, and capacity that were obtained from a literature review and validated through interviews with Chute Up's C-Level executives. Each criterion was then weighted based on the expert judgment, with quality (0.316) and cost (0.300) being the most prioritized. Three shortlisted suppliers (BLT, AMZ, and BRL) were evaluated using WSM. BRL scored the highest (85.91), followed by AMZ (69.41) and BLT (66.77), making BRL the recommended supplier.*

Keywords - *Supplier Selection, Weighted Sum Model, Small Fashion Business*

I. INTRODUCTION

The global fashion industry is an evolving, competitive industry that places greater importance on sustainability and innovation. Indonesia's economy has shown considerable growth in the fashion market, predicted to generate USD 8.75 billion in revenue by 2025, with a 2.09% annual growth rate [4]. This creates opportunities and challenges for fashion brands such as Chute Up, which is committed to offering innovative, practical, and sustainable products.

One of the most crucial factors for Chute Up is the careful selection of parachute fabric suppliers. The quality, cost, and shorter lead times directly affect brand excellence and competitiveness [1]. Nevertheless, the fashion industry has a complex supplier selection process with multiple criteria to evaluate [2]. To navigate this, we need a structured, objective decision-making framework.

As consumer preferences evolve, there is a clear demand for clothes that are multifunctional and sustainable. Consumers, especially travelers and urban explorers, seek stylish, practical, and eco-conscious clothing. In response, Chute Up developed an innovative 3-in-1 convertible jacket that transforms into a full-length jacket, a cropped jacket, and a tote bag, providing long-lasting fashion solutions.

This research aims to guide Chute Up in selecting a parachute fabric supplier and contribute to the knowledge base of supplier selection in the fashion industry, which emphasizes innovation and sustainability. It will also support other emerging fashion brands facing similar supplier selection challenges.

Focusing on Chute Up's operations, this study will analyze and compare three parachute fabric suppliers around Bandung using qualitative and quantitative approaches, including fabric evaluations and interviews with Chute Up's C-level executives as expert judgments. The results are expected to provide insights to help improve Chute Up's supplier selection process.

Chute Up's production process involves multiple stages: product research and development, fabric sourcing, manufacturing, packing, and delivery. One of the most important aspects is choosing the right parachute fabric for its 3-in-1 convertible jackets. Currently, Chute Up faces issues in selecting a parachute fabric supplier, directly affecting the production process.

Chute Up struggles to find the right supplier due to the number of suppliers in Bandung, each offering various types and qualities. Its initial prototype used fabric from Supplier A, which was waterproof, very stiff, and weighed ±140 gsm. Through market validation with around 30 people, feedback revealed that although the jacket was durable and waterproof, it was too heavy and stiff for daily wear. Some also mentioned the lack of breathability, causing discomfort in Indonesia's warm climate.

Based on these findings, Chute Up switched to Supplier B, offering a water-repellent, less stiff fabric at ±80 gsm. Due to time constraints, it was used for the first production batch without validation. After launch, out of 24 customers, nearly half noted that while the jacket was lightweight and comfortable, it couldn't

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withstand heavy rain, compromising its all-weather functionality. These issues highlight the absence of a supplier that balances technical performance and user comfort.

Chute Up also experienced cost inefficiencies. Due to small-batch production, fabric was purchased by the yard, increasing costs. Additionally, promised lead time of 2 - 3 days became one week, delaying production and revealing poor inventory readiness.

To solve these problems, Chute Up needs a structured supplier selection process, not only considering cost and quality, but also delivery, responsiveness, flexibility, and capacity. These criteria are essential for product consistency, budgeting, and timely production. This research aims to help Chute Up select the right supplier to continue offering functional, comfortable, and innovative jackets.

Research Question:

- What are the criteria that influence the parachute fabric supplier selection?
- What is the most important criterion for selecting a parachute fabric supplier?
- What is the final decision in parachute fabric supplier selection?

II. LITERATURE REVIEW

A. Supplier Selection

Supplier selection is one of the key steps in the sourcing process, especially when a company outsources production. It involves activities such as evaluation, contract negotiation, production, and strategic sourcing analysis. This process plays a vital role in maintaining product quality and achieving competitiveness [3]. Companies must evaluate suppliers based on cost, quality, delivery performance, and production capabilities to meet both company and customer expectations.

Several tools and models support this complex decision-making. The Weighted Sum Model (WSM) is among the most used, allowing users to compare and rank suppliers by assigning different weights to each criterion. WSM evaluates suppliers based on multiple criteria, making it suitable for the textile and fashion industry [2]. Factors such as cost, quality, delivery time, and service are key in supplier selection and can be assessed using the WSM method [3].

B. Supplier Selection Candidates

In selecting supplier candidates, Chute Up must first choose suppliers that meet its minimum criteria before proceeding to further evaluation. These criteria were internally determined based on the company's current operational and production needs, and include:

1. Ability to supply waterproof parachute fabric.
2. Minimum Order Quantity (MOQ) of 48 yards.
3. Ability to provide a sample before agreement.

The following table summarizes the evaluation of supplier candidates:

Table I Supplier Selection Candidate

No	Supplier Initial	Supply Waterproof Parachute Fabric	MOQ Level in 48 yards	Sample Before Deal Agreement	Candidate Approval
1	BLT	✓	✓	✓	Approved
2	DPN	✓	✓	×	Not Approved
3	PLT	×	✓	✓	Not Approved
4	JTS	✓	×	✓	Not Approved
5	AMZ	✓	✓	✓	Approved
6	BRL	✓	✓	✓	Approved
7	CTR	×	✓	×	Not Approved

From the seven suppliers contacted, three met the criteria: BLT, AMZ, and BRL. These will be evaluated further as potential production suppliers using the methods outlined in this research.

C. Weighted Sum Model (WSM)

The Weighted Sum Model is one of the simplest and most common methods for multi-criteria decision-making (MCDM). It uses the linear additive utility model, often applied in decision problems with conflicting criteria [5]. WSM assigns weights to each criterion based on its importance and computes a weighted sum of alternative scores. It is widely used in supplier selection as it converts multiple objectives into a single score, allowing decision makers to reflect their priorities [6].

WSM has been applied across various fields, especially in business decision-making. It offers a transparent and systematic approach, where each weight is documented and justified [7], and has also been used in long-term forecasting [8]. Microsoft Excel can facilitate WSM calculations by automating weight adjustments, summations, and sensitivity analysis [9]. With its efficiency and ease of use, WSM remains a preferred decision-making method that ensures objectivity and rationality.

D. Steps to Calculate the Weighted Sum Model

The decision-making process begins by defining the problem and identifying the objective, followed by determining the criteria to assess alternatives. These criteria contribute to the selection process. Chute Up's C-level, as the expert judgment, then organizes the decision problem into a decision tree model, with the main objective at the top, followed by criteria and alternatives below.

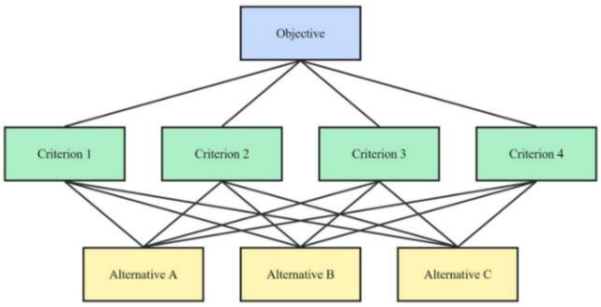

Figure 1 Sample Decision Tree Model

The second step is assigning numerical weights to each criterion to reflect its importance in decision-making. The total weights must equal 1.00 and are determined based on expert judgment and company preferences. Once weights are assigned, a decision matrix is prepared, with alternatives in columns and criteria in rows. Each cell reflects the performance of alternatives against the criteria, scored from 0 – 100.

Table II Sample Weight Sum Model Decision Matrix

Criteria (1)	Weight (2)	Alternative A (3)	Alternative B (4)	Alternative C (5)
Criteria 1	0.25	70	90	60
Criteria 2	0.2	60	70	80
Criteria 3	0.15	80	60	70
Criteria 4	0.25	50	80	90
Criteria 5	0.15	90	70	60
TOTAL	1			

Once the decision matrix is constructed, each score is multiplied by its corresponding criterion weight. The results are summed to produce a final weighted score for each alternative. The best alternative is the one with the highest weighted sum.

Table III Completed Version of Sample Weighted Sum Model Decision Matrix

Criteria (1)	Weight (2)	Alternative A (3)	Alternative B (4)	Alternative C (5)	(2) x (3)	(2) x (4)	(2) x (5)
Criteria 1	0.25	70	90	60	17.5	22.5	15
Criteria 2	0.2	60	70	80	12	14	16
Criteria 3	0.15	80	60	70	12	9	10.5
Criteria 4	0.25	50	80	90	12.5	20	22.5
Criteria 5	0.15	90	70	60	13.5	10.5	9
TOTAL	1				67.5	76	73
Ranking = Alternative B > Alternative C > Alternative A							
Thus, we will choose Alternative B as the most suitable supplier.							

After calculating the weighted scores, alternatives are ranked, and the best option is selected. The Weighted Sum Model offers a structured and objective approach, making it an effective tool for supplier selection.

D. Previous Studies on Supplier Selection

A literature review was conducted to explore supplier selection using the Weighted Sum Model (WSM), focusing on studies within the fabric and fashion industries. Five relevant studies provided insights, particularly through the use of Multi-Criteria Decision-Making (MCDM) methods such as AHP, TOPSIS, and hybrid models, which evaluated suppliers using both qualitative and quantitative factors.

However, these methods are often complex and less practical for small businesses with limited resources. Additionally, many of the criteria used were generic and did not align with the operational constraints of small fashion brands with small-batch production.

To address these gaps, this research adopts WSM for its simplicity and practicality, while enhancing contextual relevance by incorporating expert judgments from Chute Up's firsthand supplier visits and operational experience. This ensures the final decision framework reflects both academic rigor and real-world needs. The most appropriate literature studies were used to support this research, which are summarized in the following table:

Table IV Previous Research Study

Journal Title/Books	Writer	Publish Year	Findings
Multi-Criteria Decision Model for the Selection of Suppliers in the Textile Industry	Chia-Nan Wang, Van Tran Hoang Viet, Thanh Phong Ho, Van Thanh Nguyen, Viet Tinh Nguyen	2020	Reliability, Cost, Responsiveness, Flexibility, Asset
Multi-Criteria Decision-Making Using Hybrid Methods for Supplier Selection in the Clothing Industry. Fibres & Textiles in Eastern Europe	Mourad Lahdhiri, Amel Babay, Mohamed Jmali	2022	Cost, Quality, Lead Time, Capacity
Multicriteria Approach for Supplier Selection: Evidence from a Case Study in the Fashion Industry	Giuseppe Caristi, Raffaele Boffardi, Cristina Ciliberto, Roberta Arbolino, Giuseppe Ioppolo	2022	Reliability, Cost, Responsiveness, Flexibility, Lead Time, Asset
Sustainable Supplier Selection in the Textile Dyeing Industry: An Integrated Multi-Criteria Decision Analytics Approach	Md Mahfujur Rahman, A. B. M. Mainul Bari, Syed Mithun Ali, Amirhossein Taghipour	2022	Cost, Delivery, Quality, Capacity, Sustainability
Application of Multi-Criteria Decision-Making Technique to Evaluation of Suppliers in Supply Chain Management	M. Saeed Zaeri, Amir Sadeghi, Amir Naderi, Abolfazl Kalanaki, Reza Fasihy, S. M. H. Shorshani, Arezou Poyan	2011	Delivery, Reliability, Flexibility, Capacity

The table below is a summary of findings from previous research studies. These 10 findings will be used as considerations for the parachute fabric supplier selection criteria. In this case, the Weighted Sum Model (WSM) can be useful by providing a systematic framework for assessing supplier capabilities and setting the basis for choosing the most suitable supplier for Chute Up.

Table V Summary of Findings from Previous Studies

1	Quality	6	Reliability
2	Cost	7	Sustainability
3	Delivery	8	Asset
4	Flexibility	9	Lead Time
5	Responsiveness	10	Capacity

III. METHODOLOGY

A. Research Methodology

This study will use mixed methods to collect and analyze qualitative and quantitative data. The Weighted Sum Model (WSM) will serve as the decision-making framework. Criteria for WSM will be selected based on literature reviews and qualitative data from interviews with Chute Up's C-levels. Once the criteria are finalized, their weights will be obtained from the interviews. Supplier alternatives will then be scored based on the agreed criteria. These scores will be multiplied by the respective weights for the WSM calculation. To support data gathering and analysis, this research will apply the following methods:

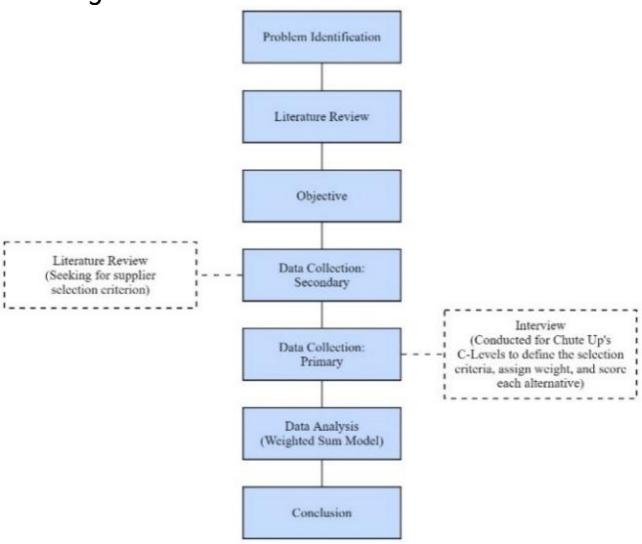

Figure 2 Research Design

B. Data Collection

Data collection is the process of gathering information from different sources for analysis. This research combines two methodological approaches: quantitative and qualitative. The qualitative approach identifies the criteria for supplier selection, while the quantitative approach obtains scoring data to calculate each supplier's total score using the Weighted Sum Model (WSM). To fulfill the research objectives, this study uses two types of data: primary and secondary, which will be explained below.

Secondary Data

This research utilized secondary data from previous studies on supplier selection, particularly in the textile and fashion industries. The reviewed literature outlines methods and criteria for supplier decision-making, providing commonly used factors in the selection stage.

Primary Data

The primary data will be obtained from interviews with three of Chute Up's C-Level executives: Anselma Adyuta Adilaksita (CEO), Syafina Putri Dinanti (CMO), and Nirwana Jingga Astira (CFO), who will serve as expert judgment. These executives oversee daily operations, understand the company's needs and supplier capabilities, and align with its vision. With their experience, they are the most appropriate respondents and are capable of making decisions for the company.

After the interview, several criteria will be identified based on the company's needs in selecting parachute fabric suppliers. Then, weight scoring will be conducted, with total weights summing to 1.00. Expert judgments will score each supplier alternative on a scale of 0 to 100 for each criterion. This data will be processed using the Weighted Sum Model to determine the best alternative supplier.

Data Analysis

Once all necessary data has been collected, the researcher will analyze it using Microsoft Excel or similar software under the Weighted Sum Model (WSM). Each criterion will be evaluated based on company-agreed standards for selecting the parachute fabric supplier. Chute Up's C-level executives, as expert judgments, will explain and evaluate each criterion, which will then be weighted using WSM calculations.

After determining the weights, each alternative supplier will be evaluated based on their capabilities for each criterion to generate a score. The evaluation, based on the expert judgment of Chute Up's C-level executives, reflects their understanding of supplier capabilities. Using the WSM method, the most suitable supplier will be identified by the highest total score.

C. Conceptual Framework

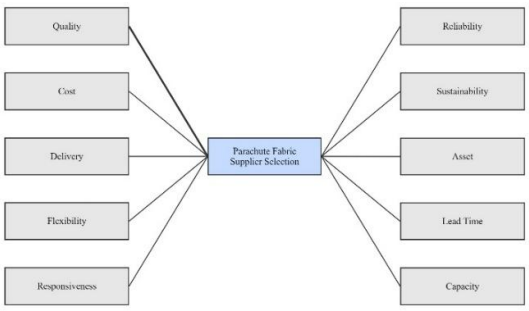

Figure 3 Conceptual Framework

The conceptual framework of this research places parachute fabric supplier selection as the dependent variable and focal point. Several independent variables, or selection criteria, influence this decision. Based on a comprehensive literature review, 10 criteria are considered: quality, cost, delivery, flexibility, responsiveness, reliability, sustainability, asset, lead time, and capacity. These will be used to evaluate supplier alternatives through the Weighted Sum Model (WSM).

Table VI Interview Design

Introducing: In the first production batch, Chute Up struggled to get the right parachute fabric performance, leading to product quality and customer satisfaction issues. The parachute fabric sourced from the suppliers did not meet the company's expectations in terms of quality, cost, and delivery. The interviewer will inquire about selected criteria, which were found in the literature review. In this interview, each respondent plays the role of determining the best criteria for choosing Chute Up's supplier, based on the company's vision, mission, and targets. Based on the literature review, the key criteria to be validated by the C-level of Chute Up Company include: quality, cost, delivery, flexibility, responsiveness, reliability, sustainability, asset, lead time, and capacity. From the several criteria above: 1. What criteria best suit the needs of the company? 2. Which criteria are irrelevant to the company's needs? 3. Are there any overlapping criteria that can be combined or redefined? To be evaluated as follows:		
1	Quality	Does the "Quality" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
2	Cost	Does the "Cost" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
3	Delivery	Does the "Delivery" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
4	Flexibility	Does the "Flexibility" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
5	Responsiveness	Does the "Responsiveness" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
6	Reliability	Does the "Reliability" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
7	Sustainability	Does the "Sustainability" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
8	Asset	Does the "Asset" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
9	Lead Time	Does the "Lead Time" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?
10	Capacity	Does the "Capacity" criterion meet the company's needs? Should the criterion be removed, combined, or added to the other criterion?

IV. FINDINGS AND DISCUSSION

A. Criteria Validation

To support the parachute fabric supplier selection process, primary data was collected through interviews with Chute Up's three C-Level executives: Anselma Adyuta Adilaksita (CEO) as Expert 1, Syafina Putri Dinanti (CMO) as Expert 2, and Nirwana Jingga Astira (CFO) as Expert 3. The discussion focused on reviewing the 10 initial supplier selection criteria from previous studies and literature, to evaluate which should be maintained, eliminated, or combined based on Chute Up's needs. Based on the interview results, several essential criteria related to Chute Up's needs in selecting a parachute fabric supplier are listed in the following table:

Table VII Expert Judgement Predetermined Criteria

No	Selected Criteria	Previous Research	Explanation from Expert Judgement
1	Quality	Lahdhiri et al. (2022), Rahman et al. (2022)	Quality assesses the supplier's parachute fabric standards and performance, including texture, durability, waterproofness, defect rate standards, and production consistency for Chute Up's 3-in-1 convertible jacket.
2	Cost	Wang et al. (2020), Lahdhiri et al. (2022), Caristi et al. (2022), Rahman et al. (2022)	Cost is the total price structure that includes sample prices, batch prices of production, small quantity surcharges, and overall consistency of prototype and mass production costs.
3	Delivery	Rahman et al. (2022), Zaeri et al. (2011)	Delivery refers to the parachute fabric supplier's ability to make scheduled shipment promises consistently, including lead time, on-time delivery, and avoiding delays that disrupt the production schedules.
4	Reliability	Wang et al. (2020), Caristi et al. (2022), Zaeri et al. (2011)	Reliability addresses the supplier's overall dependability in responding to urgent needs, managing last-minute changes, maintaining communication, and consistently meeting expectations. It also reflects flexibility and responsiveness, as combined by the expert judgment.
5	Sustainability	Rahman et al. (2022)	Sustainability assesses the commitment of the parachute fabric supplier to ethical sourcing, environmentally friendly material use, responsible manufacturing practices, and alignment with Chute Up's brand principles.
6	Capacity	Lahdhiri et al. (2022), Rahman et al. (2022), Zaeri et al. (2011)	Capacity reviews the ability of the supplier to deliver for Chute Up's low-volume production without delay, regardless of small-batch orders and minimum order quantities (MOQ).

B. Weighted Sum Model Method Analysis

1. Decision Tree Model

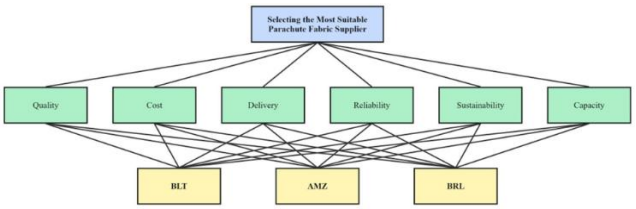

Figure 4.1 Decision Tree Model

The decision tree model for Chute Up's parachute fabric supplier selection has been established, resulting in the Weighted Sum Model (WSM) hierarchy illustrated above. It is a three-level model consisting of the objective (level 1), selection criteria (level 2), and supplier alternatives (level 3).

2. Criteria Weighting Calculation

To evaluate the importance of each criterion for parachute fabric supplier selection, a weighting process was conducted through interviews with Chute Up's three C-Level executives. Each expert individually assigned weight values to the six predetermined criteria based on their importance to the supplier selection process.

Using a direct weighting method, each expert distributed a total of 1.00 across the criteria, aligning with the Weighted Sum Model (WSM). This method reflects the relative importance of each criterion measurably. Experts completed the evaluation individually to ensure objectivity and minimize group bias. The table below shows the combined expert judgment weighting.

Table VIII Weighting of Criteria

Criteria	Weight (Expert 1)	Weight (Expert 2)	Weight (Expert 3)	Average Weight
Quality	0.3	0.35	0.3	0.3166666667
Cost	0.3	0.25	0.35	0.3
Delivery	0.15	0.1	0.15	0.1333333333
Reliability	0.1	0.15	0.1	0.1166666667
Sustainability	0.05	0.1	0.05	0.06666666667
Capacity	0.1	0.05	0.05	0.06666666667
TOTAL	**1**	**1**	**1**	**1**

After collecting all expert weightings, the values were averaged using the arithmetic mean to produce a final weight per criterion. As shown in the table above, Quality (0.316) and Cost (0.3) were the most critical, reflecting Chute Up's focus on quality and cost-effectiveness in small-batch production. Delivery (0.133) and Reliability (0.116) were moderately weighted, while Sustainability and Capacity (each 0.066) were lower priorities under current conditions.

3. Alternative Scoring Calculation

The supplier alternatives were evaluated and scored by Chute Up's three C-Level executives based on expert judgment. Each expert individually scored the three supplier alternatives (BLT, AMZ, and BRL) across the six predetermined criteria. The scoring used a direct scoring approach aligned with the Weighted Sum Model, on a scale of 1 - 100, with higher scores reflecting better performance.

Before scoring, the executives conducted actual visits to each supplier. They directly observed and interacted with the suppliers to evaluate criteria such as fabric quality, cost, delivery, reliability, sustainability, and capacity. They also examined fabric samples, discussed production capabilities, and asked relevant follow-up questions. Thus, the scoring was based on tangible experience and evidence. The following table presents each expert's individual scoring of the three alternatives.

Table IX Individual Expert Scoring of Alternative

Expert 1 (CEO):

Criteria	BLT Score	AMZ Score	BRL Score
Quality	70	40	95
Cost	50	75	85
Delivery	80	85	90
Reliability	80	70	85
Sustainability	60	85	60
Capacity	60	70	85

Expert 2 (CFO):

Criteria	BLT Score	AMZ Score	BRL Score
Quality	80	60	85
Cost	50	80	85
Delivery	85	60	80
Reliability	85	85	90
Sustainability	70	90	70
Capacity	50	70	90

Expert 3 (CFO):

Criteria	BLT Score	AMZ Score	BRL Score
Quality	80	55	95
Cost	40	85	90
Delivery	75	70	70
Reliability	85	75	85
Sustainability	65	80	65
Capacity	60	80	85

This research utilized individual expert scores to gain independent judgment and avoid group bias. These scores were then averaged using the arithmetic mean for each criterion of each alternative. The resulting average scores were used as the final performance scores in the WSM calculation.

Table X Average Score of Each Alternative

Alternative 1: BLT Score

Criteria	BLT (Expert 1)	BLT (Expert 2)	BLT (Expert 3)	Average Score
Quality	70	80	80	76.66666667
Cost	50	50	40	46.66666667
Delivery	80	85	75	80
Reliability	80	85	85	83.33333333
Sustainability	60	70	65	65
Capacity	60	50	60	56.66666667

Alternative 2: AMZ Score

Criteria	AMZ (Expert 1)	AMZ (Expert 2)	AMZ (Expert 3)	Average Score
Quality	40	60	55	51.66666667
Cost	75	80	85	80
Delivery	85	60	70	71.66666667
Reliability	70	85	75	76.66666667
Sustainability	85	90	80	85
Capacity	70	70	80	73.33333333

Alternative 3: BRL Score

Criteria	BRL (Expert 1)	BRL (Expert 2)	BRL (Expert 3)	Average Score
Quality	95	85	95	91.66666667
Cost	85	85	90	86.66666667
Delivery	90	80	70	80
Reliability	85	90	85	86.66666667
Sustainability	60	70	65	65
Capacity	85	90	85	86.66666667

Table XI Final Score of Each Alternative

Alternatives Score Combined from Expert 1, 2, and 3

Criteria	BLT Score	AMZ Score	BRL Score
Quality	76.66666667	51.66666667	91.66666667
Cost	46.66666667	80	86.66666667
Delivery	80	71.66666667	80
Reliability	83.33333333	76.66666667	86.66666667
Sustainability	65	85	65
Capacity	56.66666667	73.33333333	86.66666667

4. Weighted Sum Model Calculation Result

After weighing each criterion and scoring the alternative suppliers, the final calculation was done using the Weighted Sum Model (WSM). Each criterion's weight was multiplied by the supplier's score, then summed across all six criteria to generate each supplier's final score.

Table XII Result of the Weighted Sum Model Calculation

Criteria (1)	Weight (2)	BLT Score (3)	AMZ Score (4)	BRL Score (5)	(2) x (3)	(2) x (4)	(2) x (5)
Quality	0.3166666667	76.66666667	51.66666667	91.66666667	24.27777778	16.36111111	29.02777778
Cost	0.3	46.66666667	80	86.66666667	14	24	26
Delivery	0.1333333333	80	71.66666667	80	10.66666667	9.555555556	10.66666667
Reliability	0.1166666667	83.33333333	76.66666667	86.66666667	9.722222222	8.944444444	10.11111111
Sustainability	0.06666666667	65	85	65	4.333333333	5.666666667	4.333333333
Capacity	0.06666666667	56.66666667	73.33333333	86.66666667	3.777777778	4.888888889	5.777777778
TOTAL	1				66.77777778	69.41666667	85.91666667
					RANK 3	RANK 2	RANK 1

The WSM results are shown in the table above. BRL had the highest score of 85.91, followed by AMZ at 69.41, and BLT at 66.77. This indicates BRL as the most suitable supplier for Chute Up's current production needs, with consistently strong performance. If issues arise with BRL, AMZ may serve as a back-up due to its balanced performance and second-highest score.

V. CONCLUSION

This research addressed Chute Up's business issue of selecting the most suitable parachute fabric supplier for its 3-in-1 convertible jacket. The Weighted Sum Model (WSM) was applied using secondary data from literature and primary data from C-Level interviews, enabling structured evaluation of alternatives against six criteria: quality, cost, delivery, reliability, sustainability, and capacity. Quality (0.316) and cost (0.300) were prioritized highest. Of the three suppliers evaluated (BLT, AMZ, BRL), BRL was the most suitable with a score of 85.91, followed by AMZ (69.41) and BLT (66.77).

This study has limitations that leave room for future research. Further research may explore sub-criteria, involve more expert judgment, or apply other methods like AHP or TOPSIS. Future studies can also refine the selection criteria in line with business growth, industry trends, or changing supplier conditions.

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