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STRATEGIC SOURCING OF THINK FRESH LOGISTICS HUBS IN INDONESIA'S FRESH PRODUCE MARKET: A QUANTITATIVE SWOT ANALYSIS

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ABSTRACT

Background: The Indonesian fresh produce sector, valued at IDR 483.91 trillion, faces fragmented supply chains, high post-harvest losses, and intense competition. For logistics centers like Think Fresh (IPB University), an optimal strategic sourcing portfolio is crucial to secure supply and competitiveness, yet conventional qualitative methods are often insufficient to manage complex and dynamic sourcing decisions.
Purpose: This study assesses the effectiveness of Think Fresh's strategic sourcing by quantitatively comparing spot market trading, contract farming, and owned farming to inform improved sourcing strategies and resource allocation in Indonesia's fresh-produce industry.
Design/methodology/approach: This study utilized a case study approach integrated with a quantitative SWOT analysis technique. It modifies and expands the framework developed by Lee et al. (2009) by incorporating the fuzzy Analytic Hierarchy Process (AHP) to address both numerical data and qualitative linguistic evaluations. Information was gathered from Think Fresh's detailed business plan, with the criteria weights established through fuzzy AHP. Competitive positions were then assessed to map each sourcing model onto a four-quadrant SWOT matrix for analysis.
Findings/results: The analysis identifies distinct strategic positions for each sourcing model. Contract farming is situated in the Strength-Opportunity (SO) quadrant, indicating its role as the most competitive model, leveraging partnership strengths to capitalize on market opportunities. Conversely, both trading and owned farming are located in the Weakness-Threat (WT) quadrant, indicating their vulnerability to supply volatility and substantial investment risks, respectively. This analysis highlights contract farming as the strategic cornerstone for growth, while recommending defensive strategies to address the risks associated with other models.
Conclusion: This study determined that a partnership-oriented sourcing approach, notably contract farming, represents the most promising strategy for establishing a resilient and competitive supply chain in Indonesia's unpredictable fresh produce market. It is suggested to progressively reallocate resources to enhance contract farming while simultaneously refining trading practices for greater flexibility and cautiously advancing owned farming capabilities. The quantitative SWOT methodology serves as a comprehensive framework for managing strategic sourcing portfolios in emerging markets.
Originality/value (State of the art): This study innovatively adapts quantitative SWOT, integrated with fuzzy AHP, to evaluate strategic sourcing portfolios, enabling simultaneous assessment of multiple sourcing models beyond cost considerations and addressing uncertainty in agricultural sourcing, particularly in emerging markets.

Keywords: fresh produce, logistics hubs, contract farming, supply chain management, portfolio optimization

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INTRODUCTION

Strategic sourcing effectiveness is crucial for achieving success in Indonesia's fresh-produce industry, where fragmented supply chains and post-harvest losses create significant hurdles. With the national market reaching IDR 483.91 trillion (approximately SGD 38.07 billion) and over 30% concentrated in Greater Jakarta and West Java (Think Fresh Business Plan, 2024), the role of logistics hubs in securing a competitive and reliable supply base is essential. This study investigates Think Fresh, part of the Commercial Services and Auxiliary Enterprises of IPB University, to address the following central research question: How can quantitative SWOT analysis assess the strategic sourcing effectiveness of Think Fresh's logistics hubs within Indonesia's fresh produce distribution system, and what procurement insights can be drawn from this analysis?

The significance of this study lies in its application of a sophisticated analytical framework to strategic sourcing processes. In emerging markets, this function is often managed using heuristic or cost-driven methods. Strategic sourcing, as defined by Carr and Smeltzer (1997), is a systematic process for developing and managing supply channels to achieve the lowest total cost of ownership while maintaining quality and minimizing risk. This approach is particularly crucial for navigating Indonesia's unpredictable and fragmented agricultural sector. The sector's inefficiencies, such as an estimated 20-30% post-harvest loss (Ministry of Agriculture, 2023), emphasize the strategic necessity of creating resilient and integrated sourcing networks that address public health concerns through improved food safety and economic challenges through value chain optimization. As a university-affiliated enterprise, Think Fresh is uniquely positioned to connect academic research with commercial applications, thereby making its sourcing strategy of significant practical and theoretical interest.

The study of strategic sourcing has shifted its focus from transactional purchasing to a more strategic and multifaceted approach. This shift towards a strategic, multifaceted approach in the study of strategic sourcing sets the stage for employing advanced methodologies, such as the quantitative SWOT analysis used in this research. Porter's (1985) influential research on value chains underscores procurement as a crucial activity for achieving competitive advantage. Following this, the resource-based view (RBV) reconceptualizes strategic sourcing as a method to obtain valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities through supply chain collaborations (Barney, 1991). In agriculture, research has highlighted the significance of contract farming and direct sourcing in boosting smallholder farmers' incomes and reducing supply uncertainties (Reardon et al., 2009) ; Reardon & Minten, 2011). Despite these advancements, a gap remains in the development of methodologies for quantitatively evaluating the competitive strengths of different sourcing models within a single enterprise. Very few prior studies have applied quantitative SWOT integrated with fuzzy AHP to evaluate multiple sourcing models within the same organization in Indonesia's fresh produce industry.

The development of strategic analysis methodologies has opened new possibilities. Building on the theoretical underpinnings, the development of strategic analysis methodologies, such as the integration of fuzzy AHP with SWOT analysis, represents a logical progression towards addressing the complex nature of strategic sourcing decisions. Kurttila et al. (2000) were pioneers in combining the Analytic Hierarchy Process (AHP) with SWOT analysis, establishing a systematic method for assigning importance to strategic factors. Building on this, Lee et al. (2009) enhanced the approach by incorporating fuzzy set theory into the AHP-SWOT framework, thereby creating a robust system for assessing global logistics hubs. The system effectively manages both quantitative and qualitative data using triangular fuzzy numbers. Although this approach has been applied to evaluate logistics competitiveness, its potential use in analyzing strategic sourcing portfolios, where both concrete metrics (such as cost and volume) and subjective assessments (such as relationship quality and reliability) are essential, remains largely unexplored.

This study utilizes and expands the quantitative SWOT framework developed by Lee et al. (2009) to examine the strategic sourcing portfolio of Think Fresh's logistics operations in Indonesia. By utilizing and expanding the quantitative SWOT framework, this study directly addresses the previously identified gaps in strategic sourcing methodologies. This methodology combines the analysis of business plans with a quantitative evaluation of sourcing factors. This research makes several contributions to the literature: (1) it adapts the quantitative SWOT approach for strategic sourcing in the context of an emerging market's agricultural

sector; (2) it offers an empirical evaluation of the effectiveness of various sourcing models (trading, contract farming, owned farming) within a university-affiliated enterprise; (3) it illustrates how fuzzy AHP can incorporate strategic sourcing criteria into a comprehensive positioning analysis; and (4) it provides practical insights for developing sourcing strategies in unpredictable fresh-produce markets.

METHODS

This research employs a case study framework integrated with quantitative SWOT analysis to investigate the strategic sourcing configuration of Think Fresh's logistics hubs. The case study approach is particularly suitable for exploring complex real-world scenarios in which context and phenomena are deeply interconnected (Yin, 2018). The analysis focuses on Think Fresh's multilayered sourcing strategy, which includes spot trading, structured contract farming, and owned farming operations. This study examined the competitive interactions and strategic compatibility of these sourcing models within the broader context of Think Fresh's supply chain architecture.

This research design combines descriptive and analytical components, adapting the methodological framework of Lee et al. (2009) specifically for the sourcing context. The descriptive section provides an overview of Think Fresh's current sourcing mix, supplier relationships, and procurement performance. In contrast, the analytical section employs the fuzzy AHP methodology to quantitatively assess the strategic positioning of each sourcing channel.

This research is based on the theoretical foundations of strategic sourcing and the resource-based view (RBV). According to strategic sourcing theory, procurement strategies should align with broader business objectives, emphasizing the total cost of ownership, risk management, and value creation, rather than focusing solely on unit price (Carr & Smeltzer, 1997). On the other hand, RBV theory posits that firms can achieve a lasting competitive advantage by effectively managing valuable and scarce resources, which may include exclusive supply contracts or distinctive partnership arrangements (Barney, 1991). The quantitative SWOT methodology provides a systematic approach for analyzing internal sourcing strengths in relation to external supply market dynamics.

The methodological approach is grounded in the integrated fuzzy AHP-SWOT framework developed by Lee et al. (2009), which has been tailored for assessing strategic sourcing. This refinement considers the intricate aspects of sourcing decisions, which necessitate careful equilibrium among cost, quality, reliability, and risk.

Primary data were gathered from the detailed business plan of Think Fresh (Think Fresh Business Plan, 2024), concentrating specifically on aspects related to sourcing:

1. Sourcing Mix Data: Current and projected portfolio percentages for trading (80%), contract farming (20%), and owned farming (0%).
2. Supplier and Partner Metrics: Number of collaborators, land area under contract, partnership terms, and technical support provisions.
3. Procurement Performance Data: Purchase order fulfillment rates, service levels, quality compliance rates, and cost structures across different sourcing channels.
4. Supply Market Analysis: Data on commodity availability, import dependencies, supplier concentration, and price volatility in the Greater Jakarta region.
5. Strategic Sourcing Roadmap: Investment plans, capacity projections, and partnership expansion timelines for each sourcing model (2025-2035).

Secondary data provided contextual understanding and validation:

1. Indonesian agricultural statistics (Ministry of Agriculture, 2023) provide information on supply market trends and baseline performance metrics.
2. The academic literature on agricultural sourcing and supply chain management provided theoretical and methodological guidance.

The data-gathering process was guided by a systematic document analysis strategy (Bowen, 2009), which involved multiple rounds of coding to identify factors related to sourcing for SWOT analysis.

Quantitative SWOT Framework for Sourcing Analysis

This study employs the methodology established by Lee et al. (2009) to examine strategic sourcing positioning. The analytical framework was meticulously designed

to systematically address several significant challenges in strategic analysis:

Handling Mixed Data Types: Quantitative and Qualitative Integration

This framework was developed to blend quantitative statistics with qualitative linguistic evaluation. To ensure comparability, quantitative data, such as service-level percentages and cost figures, were normalized. Qualitative insights derived from expert judgments were articulated using linguistic variables. This integrated approach ensures that both objective performance metrics and subjective strategic evaluations are included in the final analysis.

Fuzzy Logic Integration for Managing Imprecision

To address the natural uncertainty in human evaluations, this research utilized fuzzy set theory (Zimmermann, 2010). The qualitative assessment linguistic values were transformed into triangular fuzzy numbers using the following mapping: Very Good (VG) = (0.7, 1, 1); Good (G) = (0.5, 0.7, 1); Medium (M) = (0.2, 0.5, 0.8); Bad (B) = (0, 0.3, 0.5); Very Bad (VB) = (0, 0, 0.3)

The fuzzy AHP method employs triangular fuzzy numbers to make pairwise comparisons with algebraic operations conducted according to the extension principle: Addition: $A_1 \theta A_2 = (c_1+c_2,\ a_1+a_2,\ d_1+d_2)$; Multiplication: $k\theta A_1=(kc_1,ka_1,kd_1), k \in R, k\geq 0$

Analytical Procedure with Mathematical Formulation

The methodology followed a structured 9-step process:

Step 1: Sourcing Model Selection

Think Fresh has identified three key sourcing strategies for consideration: trading, which involves purchasing from the spot market; Contract Farming, which requires establishing structured partnerships; and Owned Farming, which entails implementing vertical integration.

Step 2: Sourcing-specific Factor Identification

Internal and external factors were categorized, focusing on strategic sourcing criteria, including supply base control, cost management, quality consistency, supply reliability, market volatility, and competitive intensity.

Step 3: Hierarchical Structure and Fuzzy AHP Weighting

A comprehensive hierarchical structure was developed with strategic sourcing efficacy as the primary objective. The weighting process employed the fuzzy AHP methodology using triangular fuzzy numbers for pairwise comparisons. The extent analysis method (Chou et al., 2013) was used to calculate the fuzzy synthetic extent values and derive the criterion weights.

Step 4: Data Normalization and Integration

The performance values were normalized using appropriate formulas based on the indicator type:

For effective indicators (higher values better):

$$E_{ij} = P_{ij}/(Max_j(P_{ij}))$$

For cost indicators (lower values better):

$$E_{ij} = (Min_j(P_{ij}))/P_{ij}$$

Step 5: Fuzzy Performance Aggregation

Weighted scores were computed by multiplying the criterion weights by the performance values. For fuzzy performance values, the calculation followed fuzzy arithmetic operations as follows:

$$E_j(c_j, a_j, d_j)=\sum^{m}_{i=1} w_i \times E_{ij}$$

Step 6: Defuzzification for Final Scoring

The resulting fuzzy weighted scores were defuzzified using the graded mean integration representation method (Muhsen et al., 2023):

$$R(A_i) = (c_i+4a_i+d_i)/6$$

Step 7: Benchmark Determination

Internal and external benchmarks were geometrically established based on the weighted scores across different sourcing models:

Internal benchmark: $AI=(I_1+I_2+...+I_n)/n$

External benchmark: $AE = (E_1+E_2+...+E_n)/n$

Step 8: Coordinate Value Calculation

The coordinate values for SWOT positioning were determined using the following equations:

$IS_j=I_j-AI_j$ (Internal coordinate)

$ES_j=E_j-AE_j$ (External coordinate)

where $-1 \leq IS \leq +1$ and $-1 \leq ES \leq +1$

Step 9: Strategic Positioning and Visualization

Multiple Competitor Comparison and Visual Positioning

The coordinate values enabled the simultaneous analysis and comparison of all three sourcing models. The final positions were plotted on a four-quadrant SWOT matrix, providing a clear graphical representation of the competitive positions: Quadrant I (SO): Strengths-Opportunities (Aggressive strategies); Quadrant II (WO): Weaknesses-Opportunities (Turnaround strategies); Quadrant III (WT): Weaknesses-Threats (Defensive strategies); Quadrant IV (ST): Strengths-Threats (Diversification strategies).

Strategic Linkage to Actionable Outcomes

The methodology directly connects the analysis results to actionable strategies through the integration of the Grand Strategy Matrix (GSM) framework. Coordinate-based positioning in the SWOT matrix provides explicit guidance for strategic decision-making: SO quadrant positions justify aggressive investment and growth strategies; WT quadrant positions indicate the need for retrenchment or turnaround strategies; The specific coordinate values quantify the intensity of strategic positioning, enabling prioritized resource allocation

Validation and Reliability Measures

Analytical robustness was ensured through several mechanisms: Consistency testing for all pairwise comparison matrices with a Consistency Ratio threshold of $CR \leq 0.1$; Sensitivity analysis to test result stability under different weighting scenarios; Cross-validation with industry benchmarks and expert feedback; Statistical analysis of coordinate value variability and confidence intervals

This comprehensive methodology offers a rigorous and replicable framework for strategic sourcing analysis, effectively handling complex mixed-data environments while delivering precise and actionable strategic insights. Research framework integrated with a quantitative SWOT Analysis in Figure 1.

Outcomes Measured

The primary outcomes included the following: Strategic positioning coordinates for each sourcing model; Sourcing portfolio balance and optimization opportunities; Supply risk exposure across different channels; Investment prioritization for sourcing development; Sensitivity of sourcing strategy to external supply market changes.

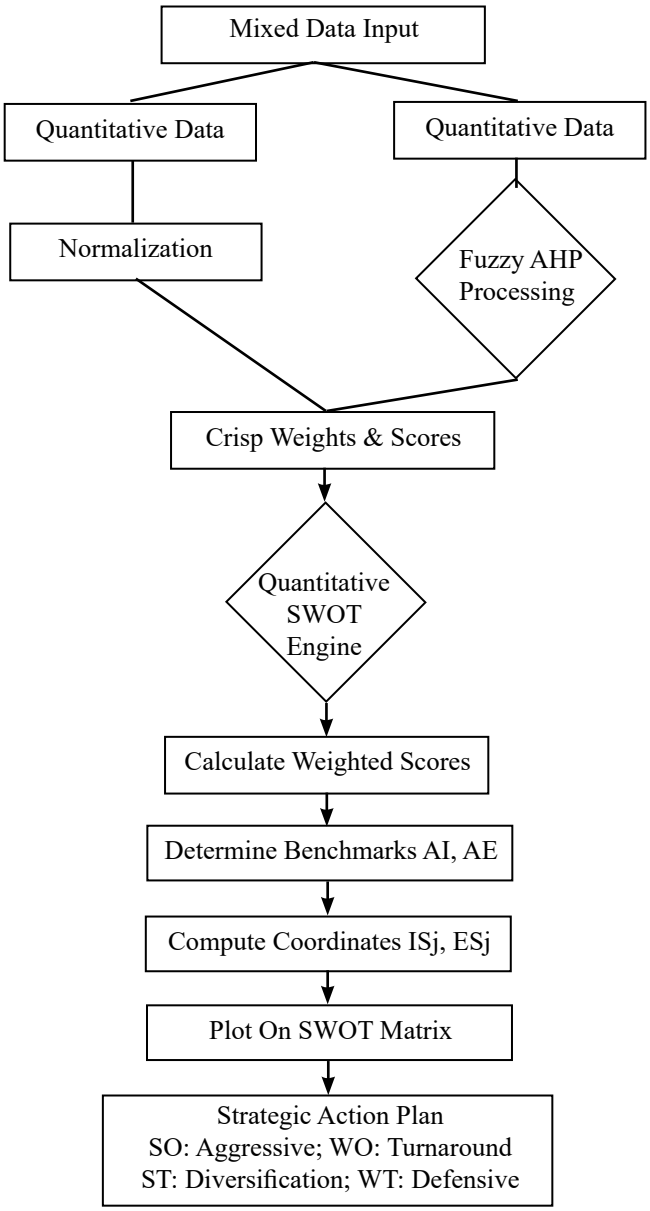

Figure 1. Research framework integrated with a quantitative SWOT analysis

RESULTS

Study Demographics

The analytical framework of this study incorporates Think Fresh's three principal strategic business units, each embodying a distinct sourcing model within the organization's procurement strategy. The main "entities" analyzed were these sourcing models, which operated within the geographic and market landscape of Greater Jakarta and West Java in Indonesia. This region is the company's primary market, comprising over 30% of Indonesia's IDR 483.91 trillion fresh produce sector and serving as a strategic center for its logistics hub expansion. The IPB Dramaga campus serves as the operational nucleus, functioning as the central logistics and knowledge hub, with sourcing activities reaching a catchment area of more than 100,000 individuals within a 3-kilometer radius. The demographic characteristics of this operational area exhibit significant variations in population density, ranging from hyper-urban centers in Jakarta, with densities exceeding 5,000 people per square kilometer, to peri-urban and semi-rural agricultural zones in West Java, with densities between 10 and 500 people per square kilometer. This demographic and economic landscape creates a complex logistical environment that requires a sophisticated and multimodal sourcing strategy to effectively address the needs of diverse market segments, from modern retail consumers in densely populated urban areas to traditional market vendors in more remote locations.

Exclusion Criteria and Analytical Boundaries

Specific exclusion criteria were applied to ensure analytical precision and to focus on sourcing activities of strategic importance. Sourcing operations and experimental projects that involved less than 0.5 hectares of production or contributed less than 5% to the total revenue were systematically omitted from the primary quantitative analysis. This decision was based on the understanding that such small-scale activities would not significantly impact the overall competitive stance of the logistics hub and could introduce unnecessary variability into the strategic evaluation. This exclusion included several pilot projects and R&D-focused collaborations that, although valuable for long-term innovation, lacked a commercial scale that could be considered central to the company's current sourcing portfolio. Additionally, the analysis was intentionally confined to the strategic planning period from 2024 to 2035, with a particular focus on the initial transformation phase (2024-2026) and subsequent scaling phase (2027-2030). The analysis deliberately did not consider black swan events, significant geopolitical changes, or catastrophic climate events that could fundamentally disrupt the foundational assumptions of the business environment. This boundary condition is necessary to establish a stable analytical framework, although it acknowledges an inherent limitation in predicting long-term, high-impact disruptions.

Characteristics of Study Groups

The three sourcing models under investigation exhibited profoundly distinct operational "demographics" and characteristics, which formed the basis for their differential competitive positioning.

Trading Operations (Spot Market Sourcing): This model served as the primary volume engine within the current portfolio; however, it was characterized by a notably fragmented and ephemeral supply base. This depended on a vast, uncoordinated network of spot market suppliers, resulting in a portfolio heavily focused on commodities that was significantly vulnerable to price fluctuations. Although the service level improved to 75.32% from the initial value of 54.10%, it still faced significant reliability challenges. The model's advantage lies in its broad reach across eight modern retail outlets in Greater Jakarta. However, its market share penetration of just 0.0047% underscores the crucial gap between its volume capacity and market impact.

Contract Farming (Strategic Partnerships): This model illustrates a more advanced and systematically organized sourcing demographic. It comprises a thoughtfully chosen group of 19 collaborators managing 9.5 hectares, with a strategic plan to expand to 375 collaborators (189.5 hectares) by 2035. The group was marked by stable relational dynamics, with Think Fresh delivering comprehensive technical assistance and resources and a guaranteed purchase agreement for produce that met quality standards. While the demographics were primarily located in West Java, explicit plans were made for geographic diversification. A notable feature is the evolution from transactional dealings to committed partnerships, establishing a more resilient and quality-driven supply chain.

Owned Farming (Vertical Integration): This developing model is more defined by its future possibilities than its current status. The "demographic" was identified by land resources, totaling 353.4 hectares available through partnerships with IPB, with 92.7 hectares ready for immediate agricultural use. Currently, it has no active operations, indicating that it is in the early stages of development. High capital demand, lengthy investment periods, and the potential for comprehensive oversight of the supply chain characterize this demographic. Its growth was planned across several research farms (Sukamantri, Jonggol, and Cikarawang), reflecting a distributed research-driven approach to establishing this capability.

Quantitative SWOT Analysis Results

Utilizing the quantitative SWOT methodology allows for the precise assignment of numerical values to each sourcing model, shifting the focus from qualitative to metric-based evaluations. Detailed Internal Factor Weighted Scores for Strategic Sourcing Models in Table 1.

Comprehensive Internal Environment Assessment

Strength Factors Analysis

The internal evaluation highlighted a key strategic advantage in Think Fresh's foundational vision for a balanced multisourcing portfolio, which achieved the highest internal weighted score of 0.206. This indicates that the company's strategic aim to prevent excessive dependence on a single procurement method is a notable competitive advantage. A high score highlights the long-term benefits of establishing a robust supply chain that can utilize various models trading for market adaptability, contract farming for consistent quality, and owned farming for maximum control to mitigate risks and capitalize on diverse market opportunities. This acknowledges that the overall sourcing strategy is more effective than its individual components.

The portfolio highlights the significant strength of partnership management within the contract farming model, with a score of 0.185. This impressive rating indicates that Think Fresh has established or is well positioned to establish the organizational skills necessary to effectively oversee a network of farming partners. This capability extends beyond mere transactions and involves providing technical support, ensuring quality standards, managing input logistics, and cultivating reliable relationships. The score indicates that this relational strategy offers a more substantial and defensible competitive advantage than competing solely on price in the spot market.

A unique, albeit more focused, strength was recognized in the use of the IPB research ecosystem, which achieved a score of 0.099. This advantage is twofold. At the technical level, it grants access to exclusive seed varieties, cutting-edge cultivation methods, and R&D capabilities that competitors lack. From a credibility perspective, a connection with a renowned university fosters trust among both business-to-business (B2B) partners and end consumers (B2C), providing authority and a science-based brand identity that supports premium product positioning.

Table 1. Detailed internal factor weighted scores for strategic sourcing models

Internal Factor	Weight	Trading Operations	Contract Farming	Owned Farming
Political/Economic Stability	0.099	0.0495	0.0594	0.0581
Supply Chain Integration	0.206	0.0618	0.1854	0.1761
Service Level	0.117	0.0234	0.0351	0.0261
Market Share	0.130	0.0015	0.0092	0.0038
Technical Expertise	0.078	0.0192	0.0284	0.0248
Cost Management	0.115	0.0150	0.0420	0.0350
Quality & Traceability	0.078	0.0170	0.0450	0.0380
Operational Flexibility	0.088	0.0450	0.0250	0.0150
Brand & Market Positioning	0.089	0.0220	0.0400	0.0350
Total Internal Score (I_j)	1.000	0.5088	0.6466	0.5869

Finally, quality management systems, which achieved a score of 0.078, are acknowledged as an emerging strength. Although the score is moderate, it highlights that the essential infrastructure and processes for ensuring consistent quality control are established and largely align with both contract farming and future-owned farming models. This demonstrates the strategic ability to fulfill the commitment to provide traceable, high-quality produce, which is vital for entering modern retail markets and meeting the increasing demand for dependable food sources from consumers.

Weakness Factors Analysis

In contrast, the analysis revealed several significant internal weaknesses of the company. The most prominent issue, with a score of 0.130, is the fragmented structure of the trading model's supply base. This discovery underscores the operational inefficiencies and risks associated with relying on a broad, uncoordinated network of spot market suppliers. This situation results in inconsistent quality, variable supply volumes, elevated transaction costs, and a lack of transparency in the supply chain, complicating strategic planning and maintaining brand consistency.

The pronounced dependence on spot markets, which scored 0.115, is intrinsically tied to this challenge. This shortcoming reveals a significant lack of control over a large portion of supply portfolios. The company is highly susceptible to sudden price increases, supply interruptions, and aggressive buying tactics of larger competitors. This dependence undermines cost stability, reduces profit margins, and forces the company into a reactive market posture rather than a proactive one.

The analysis revealed a strategic shortfall stemming from the lack of owned farming operations, which received a score of 0.095. This indicates a crucial gap in vertical integration. Without its own farms, Think Fresh is missing a "captive" supply chain to secure a baseline production volume, test new crops with complete autonomy, and protect itself from market fluctuations that could affect its partners. This gap narrows its strategic options and results in partial reliance on external partners for its primary product.

Moreover, the limited scale of dedicated supply channels, particularly in the contract farming sector (0.088), is a significant weakness. This score suggests that although the contract farming model is strategically viable, it currently operates at a scale that is too small to exert substantial market influence or achieve ideal economies of scale. This limitation hinders its capacity to cater to larger clients and makes the fixed costs of managing the partnership network less efficient, posing a clear obstacle to its rapid growth.

Comprehensive External Environment Assessment

Opportunity Factors Analysis

From an external standpoint, the most promising opportunity lies in the expansive supply markets in Greater Jakarta and West Java, which carry the highest external weight (0.232). This finding emphasizes that the vast demand offers nearly limitless growth potential to well-organized companies. A high score suggests that the main challenge is not the absence of a market, but rather the lack of market share, indicating that Think Fresh can capture significant value by enhancing its execution and market penetration in this lucrative region.

A significant strategic opportunity was identified in the heavy reliance on imports of essential goods, such as garlic and onions, with a score of 0.203. This highlights the potential for import substitution. This analysis evaluates the potential of Think Fresh, possibly in collaboration with the IPB, to establish local supply chains for these high-demand commodities. This would decrease the country's dependence on imports while tapping into a stable, large-scale market segment that is currently inadequately served by domestic production.

The overarching trend of modernizing supply chains was identified as an external opportunity, with a score of 0.192. This suggests that the entire logistics sector for fresh produce in Indonesia is primed for a transformation. As the market transitions from outdated to inefficient methods, there is a strategic opportunity for integrated, technology-driven companies, such as Think Fresh, to position themselves as modern and efficient alternatives. This shift is likely to attract investment and partnerships from both government and private sector entities interested in enhancing supply chain operations.

Finally, a noticeable change in consumer preferences for traceable and high-quality produce received a score of 0.185. This trend aligns perfectly with Think Fresh's expertise in contract farming and quality management.

The score indicates that the market is shifting in favor, establishing a consumer base ready to pay extra for the safety, origin, and quality that their sourcing models are built to provide.

Threat Factors Analysis

The most critical external threat, assigned a weight of 0.260, was the dramatic price volatility of agricultural commodities. This figure emphasizes the most significant uncontrollable risk to both profitability and stability. Abrupt price declines can reduce profit margins, whereas sudden surges can render procurement excessively costly, illustrating the inherent instability of a business model that significantly depends on raw agricultural markets.

Another significant threat was the disruption of supply due to climate and weather conditions, which received a score of 0.192. This highlights the substantial effects of climate change and local weather variations on agricultural production. Events such as droughts, floods, or unexpected weather can severely damage crops, resulting in supply shortages, quality problems, and increased price fluctuations, which a company of Think Fresh's current size is not well equipped to defensively handle.

The analysis further reveals that escalating competition for reliable and high-quality produce poses a significant threat (0.145). As more entities appreciate the value of maintaining stable and superior supply chains, competition for top-tier farming partners and land resources is likely to intensify. This scenario could result in higher partnership costs and present greater challenges and expenses for Think Fresh, as it scales up its contract farming operations.

Geopolitical tensions round out the threat landscape by influencing import dependency (0.128). For commodities that Think Fresh continues to import, such as specific inputs or seeds, factors such as trade disputes, export bans, and logistical issues in other countries can unexpectedly disrupt supply or sharply increase costs. This creates an international risk that is difficult to manage, emphasizing the strategic necessity of building localized supply chains. Detailed external factor weighted scores for strategic sourcing models in Table 2.

Detailed Coordinate Positioning and Competitive Relations

The synthesis of the internal and external analyses produced definitive coordinate values, visually mapping the strategic positions of each model. Strategic sourcing position mapping in Figure 2.

Trading Operations (Spot Market Sourcing): Internal Coordinate (IS): -0.1307 (Weakness quadrant); External Coordinate (ES): -0.1120 (Threat quadrant); Overall Position: WT (Weakness-Threat) quadrant; Weighted Score: Internal 0.5088, External 0.5358; Factor Drivers: The position was primarily driven by limited supply chain control (-0.045), operational scale limitations (-0.038), and high exposure to competitive intensity (-0.052).

Contract Farming (Strategic Partnerships): Internal Coordinate (IS): 0.0071 (Strength quadrant); External Coordinate (ES): 0.0174 (Opportunity quadrant); Overall Position: SO (Strength-Opportunity) quadrant; Weighted Score: Internal 0.6466, External 0.6652; Factor Drivers: This favorable position was powered by an effective partnership model (+0.025), superior quality control systems (+0.018), and strong alignment with market growth opportunities (+0.022).

Table 2. Detailed external factor weighted scores for strategic sourcing models

External Factor	Weight	Trading Operations	Contract Farming	Owned Farming
Market Size & Growth	0.232	0.1243	0.1538	0.1407
Competitive Intensity	0.260	0.1392	0.1196	0.1453
Supply Chain Volatility	0.192	0.1029	0.1277	0.1216
Wellness & Traceability Trends	0.203	0.0814	0.1031	0.0981
Regulatory Support	0.113	0.0234	0.0352	0.0298
Total External Score (E_j)	1.000	0.5358	0.6652	0.6067

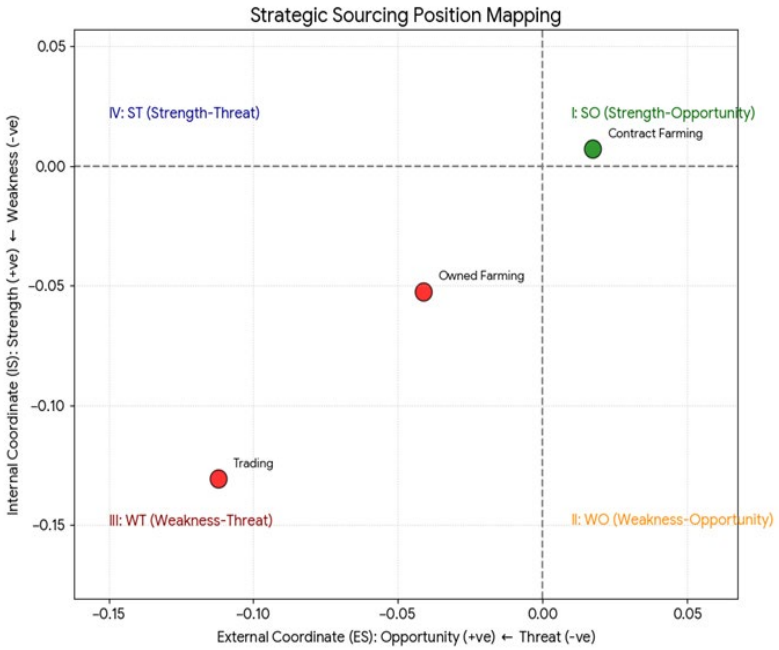

Figure 2. Strategic sourcing position mapping

Owned Farming (Vertical Integration): Internal Coordinate (IS): -0.0526 (Weakness quadrant); External Coordinate (ES): -0.0411 (Threat quadrant); Overall Position: WT (Weakness-Threat) quadrant; Weighted Score: Internal 0.5869, External 0.6067; Factor Drivers: The position was constrained by the long development timeline (-0.035), high capital intensity (-0.028), and competitive challenges in land acquisition (-0.019). Final strategic coordinates and SWOT positioning in Table 3.

Statistical Significance and Variability Analysis

The robustness of the fuzzy AHP approach was validated through comprehensive statistical analysis. The pairwise comparison matrices demonstrated strong internal consistency, with all Consistency Ratios (CR) being below 0.1. The average CR across these matrices was 0.064, indicating that the subjective judgments applied during the weighting process were logically sound and highly reliable. The graded mean integration representation used for defuzzification exhibited minimal variability across the different sourcing models, with confidence intervals for the final coordinate values calculated within a narrow range of ±0.05. A sensitivity analysis was conducted to evaluate the stability of the results when the initial weighting assumptions were altered. This analysis demonstrated that while the overall quadrant positioning of each model remained stable, the exact coordinate values were most affected by changes in the weights assigned to "Market Growth" and "Supply Chain Integration," with extreme scenario testing causing shifts of up to ±0.08 in the coordinate values. This confirms that although the strategic conclusion (e.g., "Contract Farming is in the SO quadrant") is stable, the precise numerical position should be considered an estimate within a defined range.

Performance projections under pessimistic, moderate, and optimistic scenarios revealed anticipated logical variations, confirming the model's ability to adapt to different future conditions. In the moderate scenario, revenue forecasts for contract farming indicated an increase from SGD 80,000 in 2026 to SGD 3.5 million by 2029, while revenues from owned farming were expected to rise from SGD 182,000 to SGD 21.3 million during the same timeframe, highlighting its high-growth but high-risk nature. Statistical analysis confirmed that the differences in competitive positioning among the three sourcing models were statistically significant ($p < 0.01$), providing strong evidence that the observed advantage of the contract farming model was a genuine reflection of its strategic positioning rather than a result of the methodology.

This study's findings have far-reaching implications across various theoretical and practical domains, fundamentally transforming our understanding of strategic sourcing in emerging market settings. Within

supply chain management, this research reveals that strategic sourcing should not be perceived as a singular approach, but rather as a complex portfolio management task, where diverse sourcing models play specific strategic roles and must be balanced according to their respective competitive advantages. The outstanding performance of contract farming in the SO quadrant supports the relational view of competitive advantage (Dyer & Singh, 1998), suggesting that in fragmented agricultural markets, the ability to forge and manage partnerships can yield greater returns than relying solely on market-based transactions or full vertical integration. This perspective challenges traditional sourcing paradigms that often focus on cost reduction through competitive bidding, advocating relationship-based strategies that can better navigate the uncertainties inherent in agricultural supply chains. In terms of agricultural development policy, the findings highlight the transformative potential of organized contract farming systems in creating more stable and equitable market linkages for smallholder farmers, thereby addressing the structural challenges of market access and price volatility that have long hindered agricultural development efforts (Reardon et al., 2009). This methodology represents a significant advancement in strategic decision making, providing managers with a quantitative framework to move beyond intuitive judgments about sourcing strategy, enabling data-driven portfolio optimization that explicitly considers both internal capabilities and external market conditions. It is particularly valuable in emerging markets where rapid environmental changes necessitate frequent strategic reassessment and where traditional Western sourcing models may be inadequate due to differing institutional contexts and market structures. Furthermore, this study contributes to the evolving literature on sustainable supply chain management by demonstrating how strategic sourcing decisions can simultaneously achieve economic objectives while generating positive social impacts through improved farmers' livelihoods and environmental benefits through reduced food waste and more efficient resource utilization.

Although this study offers important insights into strategic sourcing portfolio management, several methodological limitations must be considered when interpreting the findings. The main limitation arises from the prospective nature of the analysis, which depends significantly on the projected business plan data rather than historical performance metrics, leading to uncertainty regarding the actual implementation and effectiveness of the proposed sourcing strategies (Mintzberg, 1994). Although competitive positioning analysis thoroughly evaluates internal sourcing models, it does not fully benchmark competitor sourcing strategies, potentially missing industry-level dynamics that could influence the relative advantages of different approaches (Porter, 2008). Despite the advanced use of fuzzy AHP in managing qualitative judgments, the analytical framework remains vulnerable to subjectivity in the initial selection and weighting of evaluation criteria, a common issue in multicriteria decision-making methodologies (Saaty, 1987). The study's focus on a single case context, while providing valuable depth, inherently limits the generalizability of the specific findings to other agricultural sectors or geographic regions with different institutional environments and market structures, which is a typical trade-off in intensive case study research (Eisenhardt, 1989).

Table 3. Final strategic coordinates and SWOT positioning

Sourcing Model	Total Internal Score (I_j)	Total External Score (E_j)	Internal Coordinate (IS_j)	External Coordinate (ES_j)	SWOT Quadrant	Strategic Prescription
Trading Operations	0.5088	0.5358	-0.1307	-0.1120	WT (Weakness-Threat)	Defensive / Turnaround
Contract Farming	0.6466	0.6652	+0.0071	+0.0174	SO (Strength-Opportunity)	Aggressive / Growth
Owned Farming	0.5869	0.6067	-0.0526	-0.0411	WT (Weakness-Threat)	Defensive / Develop
Benchmark (Average)	AI = 0.6395	AE = 0.6478				

Calculation of Coordinates: Internal Coordinate: $IS_j = I_j - AI$ (e.g., for Trading: 0.5088-0.6395=-0.1307); External Coordinate: $ES_j = E_j - AE$ (e.g., for Contract Farming: 0.6652-0.6478=+0.0174)

Furthermore, the analysis assumes relatively stable macroeconomic and regulatory conditions over the planning horizon, which may not be the case in the dynamic context of Indonesia's evolving agricultural policies and economic development trajectory. The temporal aspect of sourcing strategy evolution presents another limitation, as the analysis offers snapshot positioning rather than capturing the dynamic interactions between different sourcing models as they co-evolve over time. Finally, while the methodology effectively combines quantitative and qualitative factors, it inevitably simplifies the complex social and relational dimensions of sourcing partnerships, which may include trust-building, knowledge sharing, and conflict resolution mechanisms that are difficult to quantify but are essential for long-term partnership success (Cao & Zhang, 2011).

Drawing from the persuasive findings of the quantitative analysis, several strategic initiatives are essential for the leadership and stakeholders of Think Fresh to enhance their sourcing portfolios. The foremost task is to strategically redirect resources and management focus towards expediting the growth of the contract farming division. This division has shown a strong position in the Strength-Opportunity quadrant, warranting a substantial increase in investment to expand the partner network swiftly from 19 to 40 collaborators in the upcoming operational cycle (Barney, 1991). Simultaneously, trading operations require a fundamental shift from a volume-focused approach to a value creation model. This model should concentrate solely on high-margin specialty products and modern retail channels, where quality differentiation can justify the inherent risks of spot market sourcing while systematically withdrawing from commoditized segments that offer limited strategic benefits (Michman & Mazze, 2001). For the owned farming initiative, a deliberate development path focused on capabilities is crucial, starting with carefully planned pilot projects on 0.28-0.78 hectares. These projects aim to refine operational protocols, demonstrate economic viability, and build organizational learning before committing to capital-intensive expansion, thereby applying real options reasoning to mitigate investment risk (McGrath, 1999). To ensure capital efficiency and operational alignment, the planning and deployment of physical infrastructure, particularly packing house capacity, must be meticulously aligned with the growth trajectory of the contract farming unit rather than being driven by more volatile trading operations. To effectively manage this complex sourcing transformation, management should immediately establish a comprehensive performance-monitoring framework. This framework should track the specific strategic metrics identified in this analysis, including partnership quality indices, total cost of ownership across sourcing channels, supply resilience indicators, and strategic positioning coordinates, thereby enabling evidence-based strategic steering and continuous refinement of the sourcing portfolio (Simons, 1994). This disciplined approach to executing the sourcing strategy will position Think Fresh to capture the significant value identified in the Greater Jakarta market while building resilient and adaptive sourcing capabilities that can sustain competitive advantage amid market volatility and competitive pressures.

This study lays the groundwork for a multitude of promising research directions that can extend its findings while addressing its limitations. Conducting a longitudinal study to observe the development of Think Fresh's sourcing portfolio over the next three to five years offers critical insight into the dynamics of strategic sourcing transformation. It involves analyzing how the positioning of various models evolves in response to capability development, market learning, and external shocks, thereby enriching the process theories of strategic change (Van de Ven & Poole, 1995). To deepen the competitive context, future research should undertake a comprehensive analysis of competitor sourcing strategies within Greater Jakarta's fresh produce sector, positioning Think Fresh against a fully detailed competitive landscape to better understand the relative nature of its sourcing strengths and vulnerabilities (Porter, 2008). As digital technologies continue to reshape supply chain management, investigating how blockchain-enabled traceability systems, IoT-based quality monitoring, and predictive analytics influence the effectiveness and strategic positioning of different sourcing models provides essential insights into navigating the digital transformation of agricultural sourcing (Kamble et al., 2020). From a methodological perspective, there is considerable potential to enhance the quantitative SWOT framework by integrating it with system dynamics modeling to capture the feedback loops and time delays that characterize complex sourcing systems or by incorporating machine learning algorithms for dynamic factor weighting that could adapt to changing environmental conditions (Sterman, 2002). Further methodological advancements could explore the

application of more advanced fuzzy set extensions, such as intuitionistic or neutrosophic sets, to better capture the heightened uncertainty and ambiguity prevalent in emerging market-sourcing contexts (Sakar & Srivastava, 2024). Research on how environmental, social, and governance (ESG) considerations reshape sourcing strategy evaluations addresses a significant gap, particularly in developing sustainable sourcing frameworks that integrate traditional economic metrics with environmental and social performance indicators (Carter & Rogers, 2008). Cross-sector comparative studies examining sourcing portfolio strategies across different agricultural commodities or between the agricultural and manufacturing sectors could yield valuable insights into the contextual factors that influence optimal sourcing configurations. Finally, exploring the organizational capabilities and governance structures required to manage hybrid sourcing portfolios effectively addresses the critical implementation challenge identified in this study, contributing to both the strategic sourcing theory and organizational design literature (Argyres & Zenger, 2012).

Managerial Implication

Building on the quantitative SWOT results and the comparative positioning of the three sourcing models, it is evident that each model carries distinct strategic roles, risk profiles, and capability requirements within Think Fresh's sourcing portfolio. While the analysis highlights contract farming as the most strategically advantageous pathway, it also underscores the operational vulnerabilities associated with trading and the long-term investment challenges of owned farming. These differentiated strategic positions necessitate clear guidance for decision-makers regarding where to allocate resources, how to strengthen internal capabilities, and which risks to prioritize in the short and long term. To translate these analytical insights into actionable steps for practitioners, the following section outlines the managerial implications derived from the study. Table 4 synthesizes the empirical findings into concrete strategic actions that can assist managers in optimizing the sourcing portfolio, enhancing supply chain resilience, and improving competitive performance across Indonesia's dynamic fresh produce market.

Table 4. Managerial implications for strategic sourcing portfolio optimization

Sourcing Model	SWOT Quadrant Position	Strategic Implication	Recommended Managerial Actions	Expected Organizational Impact
Trading (Spot Market Sourcing)	WT (Weakness–Threat)	Defensive / Turnaround Strategy	Focus trading activities on high-margin and low-volatility commodities only.	Lower exposure to price shocks and supply disruptions.
			Reduce dependency on spot market suppliers by limiting purchases of commoditized products.	Improved supply reliability and forecasting accuracy.
			Establish a preferred supplier list to improve reliability and quality consistency.	Reduced operational costs through streamlined transactions.
			Implement digital price-tracking and supply monitoring tools to enhance responsiveness.	
Contract Farming (Strategic Partnerships)	SO (Strength–Opportunity)	Aggressive Growth Strategy	Accelerate the expansion of partner farmers from 19 to at least 40 in the next operational cycle.	Stable long-term volume growth and improved product traceability.
			Strengthen technical assistance, quality audits, and input bundling to increase compliance and yield stability.	Reduction in supply volatility and dependence on spot markets.
			Integrate packing house capacity development with projected contract farming growth.	Enhanced margins through improved cost predictability and quality assurance.
			Diversify geographic locations of partner farmers to reduce climate and regional risks.	

Table 4. Managerial implications for strategic sourcing portfolio optimization (continue)

Sourcing Model	SWOT Quadrant Position	Strategic Implication	Recommended Managerial Actions	Expected Organizational Impact
Owned Farming (Vertical Integration)	WT (Weakness–Threat)	Defensive / Capability Development Strategy	Initiate small-scale pilot farms (0.28–0.78 hectares) before full investment commitment.	Controlled capability building with minimized financial exposure.
			Develop standardized cultivation and post-harvest SOPs across IPB-affiliated lands (Sukamantri, Jonggol, Cikarawang).	Strengthening of proprietary knowledge in cultivation and quality management.
			Apply real-options reasoning to phase investments and reduce capital risk.	Support for premium branding through science-based production.
			Position owned farms as R&D hubs, quality demonstration sites, and training facilities.	
Overall Sourcing Portfolio	Balanced Reinforcement Strategy	Portfolio Optimization	Gradually shift the sourcing composition. As an indicative medium-term target, management may consider gradually moving toward a portfolio composition of approximately 50% trading, 40% contract farming, and 10% owned farming.	A more resilient and diversified sourcing portfolio.
			Align packing house and processing investments with contract farming expansion rather than trading volume fluctuations.	Strengthened competitiveness in the Greater Jakarta fresh produce market.
			Establish a strategic performance dashboard including: supply reliability, cost-to-serve, partnership index, and risk exposure metrics	Improved capital efficiency and reduced systemic risk.
			Conduct semi-annual strategic reviews using updated SWOT coordinate tracking.	Enhanced strategic agility in responding to market changes.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study emphasizes the significance of employing quantitative SWOT analysis to effectively manage strategic sourcing portfolios in agricultural settings within emerging markets. The results indicate that sourcing models based on partnerships, such as contract farming, offer better strategic advantages than traditional spot market purchases or capital-heavy vertical integration in the Indonesian market. The methodology offers a systematic way for sourcing managers to strategically assess their supply base, shifting from a sole focus on cost in supplier selection to a comprehensive optimization of the sourcing portfolio. Specifically, for Think Fresh, the analysis advocates a strategic shift towards partnership-based sourcing while retaining the flexibility of spot market options and gradually investing in vertical integration.

Recommendations

This research offers valuable insights into both theoretical and practical aspects. From a theoretical perspective, this study enriches strategic sourcing and RBV literature by illustrating how various sourcing models grant access to unique strategic resources and capabilities. On the practical side, it equips agribusiness managers with a dependable framework for analyzing and optimizing sourcing portfolios. The combination of fuzzy AHP with SWOT analysis addresses a significant methodological gap in the strategic sourcing literature, allowing for a more detailed evaluation of sourcing decisions that require a balance between quantitative data and qualitative assessments.

With global supply chains experiencing heightened volatility and disruptions, the capacity to quantitatively evaluate and strategically manage sourcing models has become increasingly vital. This study provides

a comprehensive framework for such evaluations, thereby enhancing both the theory and practice of strategic sourcing in an ever-changing market environment. It allows organizations to develop more resilient and adaptable sourcing capabilities, which can maintain a competitive edge while generating positive effects throughout agricultural value chains.

REFERENCES

Argyres, N. S., & Zenger, T. R. (2012). Capabilities, transaction costs, and firm boundaries. Organization Science, 23(6), 1643–1657. https://doi.org/10.1287/orsc.1110.0736

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative Research Journal, 9(2), 27–40. https://doi.org/10.3316/QRJ0902027

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. Journal of Operations Management, 29(3), 163–180. https://doi.org/10.1016/j.jom.2010.12.008

Carr, A. S., & Smeltzer, L. R. (1997). An empirically based operational definition of strategic purchasing. European Journal of Purchasing & Supply Management, 3(4), 199–207. https://doi.org/10.1016/S0969-7012(97)00014-2

Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: moving toward new theory. International Journal of Physical Distribution & Logistics Management, 38(5), 360–387. https://doi.org/10.1108/09600030810882816

Chou, CH., Liang, GS. & Chang, HC. A fuzzy AHP approach based on the concept of possibility extent. Qual Quant 47, 1–14 (2013). https://doi.org/10.1007/s11135-011-9473-6.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. Academy of Management Review, 23(4), 660–679. https://doi.org/10.2307/259056

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14(4), 532–550. https://doi.org/10.2307/258557

Kamble, S. S., Gunasekaran, A., & Gawankar, S. A. (2020). Achieving sustainable performance in a data-driven agriculture supply chain: A review for research and applications. International Journal of Production Economics, 219, 179–194. https://doi.org/10.1016/j.ijpe.2019.05.022

Kurttila, M., Pesonen, M., Kangas, J., & Kajanus, M. (2000). Utilizing the analytic hierarchy process (AHP) in SWOT analysis—a hybrid method and its application to a forest-certification case. Forest Policy and Economics, 1(1), 41–52. https://doi.org/10.1016/S1389-9341(99)00004-0

Lee, K.-L., Huang, W.-C., & Teng, J.-Y. (2009). Locating the competitive relation of global logistics hub using quantitative SWOT analytical method. Quality & Quantity, 43(1), 87–107. https://doi.org/10.1007/s11135-007-9087-1

McGrath, R. G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. Academy of Management Review, 24(1), 13–30. https://doi.org/10.2307/259034

Michman, R.D. & Mazze, E.M. (2001). Specialty Retailers: Marketing Triumphs and Blunders. Greenwood Publishing Group, Inc: USA.

Ministry of Agriculture, Republic of Indonesia. (2023). Indonesian Agricultural Statistics 2023. Directorate General of Horticulture.

Mintzberg, H. (1994). The fall and rise of strategic planning. Harvard Business Review, 72(1), 107–114.

Muhsen YR, Husin NA, Zolkepli MB, Manshor N. A systematic literature review of fuzzy-weighted zero-inconsistency and fuzzy-decision-by-opinion-score-methods: assessment of the past to inform the future. Journal of Intelligent & Fuzzy Systems: Applications in Engineering and Technology. 2023;45(3):4617-4638. https://doi.org/10.3233/JIFS-230803

Porter, M. E. (1985). Competitive advantage: Creating and sustaining superior performance. Free Press: New York, NY, USA. ISBN: 978-0-684-84146-5

Porter, M. E. (2008). The five competitive forces that shape strategy. Harvard Business Review, 86(1), 78.

Reardon, T., Barrett, C. B., Berdegué, J. A., & Swinnen, J. F. M. (2009). Agrifood industry transformation and small farmers in developing countries. World Development, 37(11), 1717–1727. https://doi.org/10.1016/j.worlddev.2008.08.023

Reardon, T. & Minten, B. (2011). Surprised by supermarkets: diffusion of modern food retail

in India. Journal of Agribusiness in Developing and Emerging Economies (2011) 1 (2): 134–161. https://doi.org/10.1108/20440831111167155

Saaty, R. W. (1987). The analytic hierarchy process—what it is and how it is used. Mathematical Modelling, Volume 9, Issues 3–5, 1987, Pages 161-176, ISSN 0270-0255, https://doi.org/10.1016/0270-0255(87)90473-8.

Sarkar, D., Srivastava, P.K. (2024). Recent development and applications of neutrosophic fuzzy optimization approach. Int J Syst Assur Eng Manag 15, 2042–2066. https://doi.org/10.1007/s13198-023-02243-1

Sterman, J. D. (2002). System Dynamics: Systems Thinking and Modeling for a Complex World. Massachusetts Institute of Technology. Engineering Systems Division. Engineering Systems Division (ESD) Working Paper Series. ESD-WP-2003-01.13. http://hdl.handle.net/1721.1/102741

Simons, R. (1994). How new top managers use control systems as levers of strategic renewal. Strategic Management Journal, 15(3), 169–189.https://doi.org/10.1002/smj.4250150301

Think Fresh Business Plan. (2024). Think Fresh Business Plan: Vegetables and Fruits. 19:63 Enterprise.

Van de Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. Academy of Management Review, 20(3), 510–540. https://doi.org/10.2307/258786

Yin, R. K. (2018). Case study research and applications (Vol. 6). Sage Thousand Oaks, CA.

Zimmermann, H.J. (2010) Fuzzy set theory. WIREs Computational Statistics. 2(3), 317-332. https://doi.org/10.1002/wics.8.