

**COMPETITIVENESS STRATEGIES FOR INDONESIAN HALAL-CERTIFIED  
SOYBEAN DERIVATIVES IN INTERNATIONAL MARKETS:  
AN EXPERT-BASED SWOT-TOWS ANALYSIS**

Muhammad Yusuf Ibrahim<sup>1</sup> Ruben Chandra Winata<sup>2</sup> Mohmed Firdaus Bin Masruhen<sup>3</sup>  
Universitas Satya Terra Bhinneka, Medan, Indonesia<sup>1,2</sup>  
Sultan Abdul Halim Mu'adzam Shah International Islamic University, Kedah, Malaysia<sup>3</sup>  
Correspondence Author: [yusufibrahim@satyaterrabhinneka.ac.id](mailto:yusufibrahim@satyaterrabhinneka.ac.id)

**Abstract:** Global demand for halal-certified plant-based foods is increasing rapidly, driven by growing consumer interest in ethical, clean-label, and high-protein diets. Despite Indonesia's strong cultural heritage in soy-based products such as tempeh and tofu, its international competitiveness remains limited. This study aims to formulate strategic priorities to enhance the global competitiveness of Indonesian halal-certified soybean derivative products. Using a qualitative expert-based approach, data were collected through in-depth interviews with key stakeholders, including halal regulators, industry practitioners, and academics, and analyzed using thematic analysis. The identified internal and external factors were structured through a SWOT framework and further translated into strategic options using the TOWS approach. The findings indicate that Indonesia's main strengths lie in its institutionalized halal certification system, cultural expertise in fermented soybean processing, and extensive MSME base. However, competitiveness is constrained by high dependence on imported soybeans, low domestic productivity, and limited technological adoption. Externally, expanding halal and plant-based food markets offer significant opportunities, while global price volatility, intense competition, and stringent non-tariff trade standards pose key threats. The study concludes that halal certification alone is insufficient for global competitiveness, highlighting the need for integrated strategies focusing on domestic supply strengthening, MSME upgrading, and value-added product differentiation.

**Keywords:** Halal; Soybean; International Market; SWOT.

**Abstrak:** *Permintaan global untuk makanan nabati bersertifikasi halal meningkat pesat, didorong oleh meningkatnya minat konsumen terhadap diet etis, berlabel bersih, dan tinggi protein. Meskipun Indonesia memiliki warisan budaya yang kuat dalam produk berbasis kedelai seperti tempe dan tahu, daya saing internasionalnya masih terbatas. Studi ini bertujuan untuk merumuskan prioritas strategis guna meningkatkan daya saing global produk turunan kedelai bersertifikasi halal Indonesia. Dengan menggunakan pendekatan kualitatif berbasis ahli, data dikumpulkan melalui wawancara mendalam dengan pemangku kepentingan utama, termasuk regulator halal, praktisi industri, dan akademisi, dan dianalisis menggunakan analisis tematik. Faktor internal dan eksternal yang diidentifikasi disusun melalui kerangka kerja SWOT dan selanjutnya diterjemahkan ke dalam opsi strategis menggunakan pendekatan TOWS. Temuan menunjukkan bahwa kekuatan utama Indonesia terletak pada sistem sertifikasi halal yang terinstitusionalisasi, keahlian budaya dalam pengolahan kedelai fermentasi, dan basis UMKM yang luas. Namun, daya saing dibatasi oleh ketergantungan yang tinggi pada kedelai impor, produktivitas domestik yang rendah, dan adopsi teknologi yang terbatas. Secara eksternal, perluasan pasar makanan halal dan nabati menawarkan peluang signifikan, sementara volatilitas harga global, persaingan ketat, dan standar perdagangan non-tarif yang ketat menimbulkan ancaman utama. Studi ini menyimpulkan bahwa sertifikasi halal saja tidak cukup untuk daya saing global, menyoroti perlunya strategi terintegrasi yang berfokus pada penguatan pasokan domestik, peningkatan UMKM, dan diferensiasi produk bernilai tambah.*

**Kata Kunci:** Halal; Kedelai; Pasar Internasional; SWOT.

## INTRODUCTION

Soybean (*Glycine max* L. Merr.) is globally recognized as a major source of plant-based protein and a key raw material in modern food industries (Vollmann et al., 2023). In Indonesia, soybean ranks as the third most important food crop after rice and maize, serving as a primary protein source in products such as tempeh, tofu, soy beverages, and other fermented foods (Harsono et al., 2021). According to BPS (2024), soybean consumption reached 11–12 kg/capita/year in 2020 and, despite slight fluctuations, is projected to remain high at around 10.7–11 kg/capita/year by 2024, driven by population growth, demand for affordable protein, and the rising popularity of plant-based diets.

However, Indonesia faces a persistent production deficit. In 2020, domestic production was only 0.63 million tons compared to 3.28 million tons of consumption, resulting in approximately 81% import dependency. Productivity has stagnated at 1.50–1.54 t/ha due to limited harvested areas, competition with more profitable crops such as maize, pest and disease vulnerability, and relatively low farmer profitability (Harsono et al., 2021). The declining R/C ratio (from 1.73 to 1.54) and industry preference for more uniform imported soybeans have further weakened domestic production (Purnamasari et al., 2023). Consequently, Indonesia's soybean sector lacks international competitiveness, reflected by an RCA value of <1 (Purnamasari et al., 2023).

Despite these challenges, the development potential of soybean derivative industries remains substantial. Demand continues to grow for both traditional products (tempeh, tofu) and value-added products such as soy protein isolate, soy beverages, soy sauce, and premium fermented products (Niha et al., 2025; Paksi et al., 2024; Zainuri et al., 2018). Moreover, the global shift toward plant-based diets and the expansion of the halal market present strategic opportunities. With technological advancement, strengthened halal value chains, and appropriate competitive strategies, Indonesia's soybean derivative industry has strong potential to become a key driver of halal food exports.

The Indonesian government has strengthened the halal regulatory and certification system through Law No. 33 of 2014 on Halal Product Assurance (M. Y. Ibrahim et al., 2023). Halal certification not only guarantees compliance for consumers but also enhances competitiveness, particularly for agricultural products entering global value chains. It increases international consumer trust, expands export market access, and improves the reputation of Indonesian agribusiness products (Budiyoko et al., 2022).

In agribusiness, halal certification functions as a value enhancer for value-added products by: (1) expanding access to Muslim-majority markets and Muslim communities in Europe, America, and East Asia; (2) enabling entry into niche segments such as halal-organic, halal-functional foods, and halal plant-based proteins; and (3) strengthening consumer perception of product hygiene, safety, and quality (Hussin et al., 2025). Amid the dominance of non-Muslim countries such as China, India, Brazil, and the United States in global halal production (Anish, 2022; Mohd Nawawi et al., 2020), Indonesia has strong opportunities to accelerate exports by reinforcing halal certification for strategic commodities, including tempeh, tofu, soy protein isolate, soy sauce, and other fermented products. Moreover, the halal market has shifted from a niche to a mainstream segment. In Europe, rapid growth is driven by rising demand for halal assurance and food quality, supported by halal tourism, urbanization, and the increasing Muslim population, which is projected to exceed 10% of the total population in many countries by 2030 (Aniqoh & Hanastiana, 2020).

Global demand for halal products is reinforced by consumer behavior studies. Fatmi et al. (2020) find that halal awareness, certification, perceived quality, and trust significantly influence purchase intention in China, India, and Europe. Even in non-Muslim majority countries such as the Philippines, non-Muslim consumers associate halal products with hygiene, safety, and premium quality, making preference driven not only by religion but also by functional and health considerations (A. M. Ibrahim et al., 2023). Jannat & Islam (2019) further confirm that halal certification plays a central role in building international consumer trust, as the halal logo signals clean, safe, and officially verified production processes.

At the same time, the global plant-based market is expanding rapidly due to health, environmental, and ethical concerns regarding animal protein. Shanti et al. (2023) report significant growth in the global tempeh market, driven by rising vegetarian and vegan demand and tempeh's reputation as a high-protein, fiber-rich, probiotic, and environmentally friendly food. Its market share in Asia-Pacific continues to grow, supported by health benefits such as cholesterol and diabetes risk reduction, positioning tempeh as a premium plant-based protein.

Indonesia holds a strategic advantage as the world's largest tempeh producer, with around 50% of national soybean consumption allocated to tempeh and annual production exceeding 2.4 million tons across approximately 81,000 MSMEs, generating around IDR 37 trillion annually (Agus et al., 2024). Given its traditional fermentation methods that enhance flavor, texture, and bioactive content, Indonesian tempeh has strong export potential. Moreover, increasing global demand for non-GMO soy-based products, particularly in Europe and North America creates additional opportunities (Shanti et al., 2023).

To strengthen global competitiveness, Indonesian soybean-derived products such as tempeh and tofu can increase added value through halal certification and product innovation. Halal certification enhances global consumer trust by signaling hygiene, safety, and quality assurance beyond religious compliance. Meanwhile, innovations such as tempeh chips, ready-to-eat meals, tempeh patties, meat analogues, and premium tofu enable entry into high-value segments, including halal-organic, halal plant-based, and functional food markets.

LCA research on tofu production in Switzerland indicates that soy-based products have a significantly lower environmental footprint than animal protein, suggesting that tempeh and tofu can be positioned as low-carbon foods to enhance competitiveness in sustainability-oriented import markets (Colimoro et al., 2023). Supported by cultural strengths, traditional fermentation expertise, growing global demand for plant-based protein, and strong halal certification, Indonesian soy-derived products hold strategic potential within the global food value chain.

Given expanding export opportunities for tempeh, tofu, and other soy-based products amid rising global demand for halal, healthy, and sustainable food, a strategic assessment is essential. This study aims to identify strengths, weaknesses, opportunities, and threats (SWOT) in developing halal-certified soybean products for global markets and to formulate competitiveness strategies based on expert insights. Using an expert-based SWOT approach, the research seeks to generate context-specific strategic recommendations aligned with Indonesia's soybean industry conditions and evolving global halal market dynamics.

This study addresses a critical gap: despite Indonesia's cultural advantage and status as the world's largest tempeh producer, its international competitiveness remains limited due to low productivity, import dependence, and weak value-added innovation. By integrating halal certification, soy-based product development, and a competitiveness framework, this research contributes to policy formulation, industrial capacity strengthening, and the reinforcement of

Indonesia's position as a leading global producer of halal soybean products.

### **Research Objectives**

This research aims to develop strategic recommendations to enhance the global competitiveness of Indonesian halal-certified soybean derivative products. Using a qualitative expert-based approach combined with SWOT and TOWS frameworks, the study seeks to: (1) identify internal strengths and weaknesses of the industry; (2) analyze external opportunities and threats in global markets; (3) construct a SWOT matrix based on expert insights to assess Indonesia's competitive position in the global halal soybean value chain; and (4) formulate SO, WO, ST, and WT strategies through a TOWS analysis. Overall, the study is designed to produce evidence-based and actionable strategies for policymakers, industry actors, and halal certification institutions to strengthen Indonesia's role in the global halal agrifood sector.

## **METHOD**

### **Research Data**

This study adopted a qualitative expert-based approach, with purposive selection of participants to ensure representation across key stakeholders in the halal soybean derivative value chain. Four core experts were interviewed, representing regulatory authorities, halal certification institutions, industry practitioners, and academia. The sample size is considered adequate for qualitative expert analysis, as the focus is on depth of insight rather than statistical generalization.

The informants included: (1) a representative from BPJPH, providing insights on halal certification regulations and policy implementation; (2) a representative from LPPOM MUI, contributing technical perspectives on halal auditing and certification requirements for processed soybean products; (3) a halal-certified tempeh entrepreneur, offering practical insights on production, value addition, export readiness, and operational challenges; and (4) an academic expert and director of a halal center, providing strategic perspectives on halal value chain governance and competitiveness. Additional input from an APHI representative strengthened the analysis, particularly regarding Halal Assurance System implementation in SMEs.

Collectively, these experts represent key nodes in regulation, certification, assurance, production, research, and market development, ensuring holistic and triangulated insights into the SWOT factors affecting Indonesia's halal-certified soybean derivative industry. Despite the limited number of participants, the approach ensures analytical rigor and data credibility consistent with qualitative expert methodology.

### **In-Depth Interview Method**

In-depth interviews were used as the primary qualitative method to explore expert perspectives on the competitiveness of Indonesian halal-certified soybean derivative products in global markets. This method allows researchers to examine complex issues through flexible yet guided discussions, enabling both expected and emerging themes to appear (Brounéus, 2010; Xu et al., 2025). A semi-structured interview guide was developed following the five-step framework of Kallio et al., adapted by Xu et al. (2025), including methodological assessment, literature review, question development, pilot testing, and refinement. The open-ended questions focused on internal industry strengths and constraints, halal certification implementation, global halal and plant-based market opportunities, and strategic recommendations for competitiveness (Boyce & Neale, 2006).

Interviews were conducted with purposively selected experts from regulatory bodies (BPJPH), certification institutions (LPPOM MUI), associations (APHI), industry practitioners (Tempe Multazam), and academic or research institutions, following credibility-based sampling principles (Brounéus, 2010). Each interview lasted 45–90 minutes and was conducted either face-to-face or online. Ethical procedures including informed consent and confidentiality were observed (Boyce & Neale, 2006). Interviews were audio-recorded with permission and supported by field notes to capture contextual details (Xu et al., 2025). Reflective listening and adaptive probing were applied during discussions, and data collection continued until thematic saturation was reached. All recordings were transcribed verbatim for subsequent thematic analysis.

### **SWOT-TOWS Analysis Method**

SWOT analysis was applied as a strategic framework to systematically identify and interpret internal and external factors affecting the competitiveness of Indonesian halal-certified soybean derivative products in global markets. This approach transforms qualitative findings into structured strategic insights by classifying strengths, weaknesses, opportunities, and threats in a decision-oriented manner (Karadzov, 2025). The SWOT factors were derived from thematic analysis of in-depth interviews with experts from regulatory bodies, certification institutions, industry practitioners, academics, and research institutions. Following Karadzov (2025), interview transcripts were coded and categorized into the four SWOT dimensions, ensuring that the analysis was empirically grounded and consistent with stakeholder-inclusive practices (Devi et al., 2022). Internal strengths such as halal certification credibility and cultural expertise in tempe–tofu production were contrasted with weaknesses including import dependence, limited technology adoption, and fragmented industry structure.

The SWOT matrix was further expanded using the TOWS framework to generate strategic recommendations by linking internal and external factors. This process produced four types of strategies: SO, WO, ST, and WT (Karadzov, 2025; Kurnia, 2020), transforming SWOT from a diagnostic tool into a dynamic strategic planning instrument aligned with strategic management principles (Gurel & Tet, 2017). TOWS analysis also helps determine whether the sector is positioned for aggressive development or requires more defensive strategies (Fitriani, 2022). Consistent with Naukowe et al. (2017), this framework enables the integration of internal capabilities with external market dynamics, producing practical and evidence-based recommendations for strengthening the global competitiveness of Indonesian halal-certified soybean derivative products.

### **Research Framework and Stages**

This study employs a qualitative expert-based framework to identify internal and external factors influencing the competitiveness of Indonesian halal-certified soybean derivative products and to formulate strategies to strengthen their position in international markets. The research begins by examining the problem context, including challenges in soybean supply, halal certification readiness, global market trends, and increasing demand for plant-based halal foods. In-depth interviews with experts from regulatory bodies, certification institutions, industry practitioners, and academia were conducted to gather multidisciplinary insights. The interview data were then analyzed using thematic analysis to identify recurring patterns and classify them into internal and external strategic factors.

These factors were subsequently organized into a SWOT matrix to assess Indonesia's competitive position in the global halal soybean derivative market. The SWOT results were

further developed using a TOWS matrix to generate four strategic alternatives by linking internal and external factors. This approach transforms qualitative findings into structured strategic recommendations aimed at improving product quality, strengthening halal assurance systems, enhancing supply chain integration, and increasing the export potential of halal, plant-based soybean products such as tempeh, tofu, and other fermented derivatives.

## **RESULT AND DISCUSSION**

### **Synthesis of Expert Interview Findings**

This synthesis integrates expert perspectives from halal regulators, certification bodies, academics, and industry practitioners to identify key themes related to the competitiveness of Indonesian halal-certified soybean derivative products in international markets. Overall, experts agree that Indonesian soy derivatives possess strong competitive potential due to their cultural heritage, nutritional value, and widespread domestic acceptance. The long tradition of soybean fermentation, particularly in products such as tempeh, creates distinctive flavor, texture, and nutritional qualities that are difficult for other countries to replicate, making it a strategic cultural asset in global markets that increasingly value authenticity and sustainability.

From regulatory and certification perspectives, halal certification is viewed as essential for building international consumer trust, as it now represents not only religious compliance but also guarantees of hygiene, food safety, and production quality. However, experts emphasize that halal certification alone is insufficient as a competitive advantage; it must be supported by consistent product quality, raw material traceability, and compliance with international food safety and export regulations.

Industry practitioners and academics highlight structural challenges within the value chain, particularly Indonesia's heavy reliance on imported soybeans, which affects supply stability, production costs, and raw material consistency. In addition, limited adoption of modern production technology among small and medium enterprises constrains product innovation, standardization, and scalability for export markets.

Despite these challenges, experts recognize significant external opportunities driven by the expansion of the global halal market and the growing demand for plant-based foods. Tempeh and other soy derivatives are increasingly viewed as healthy and environmentally friendly protein sources. Nevertheless, these opportunities are accompanied by intensified global competition and stricter international standards related to food safety, sustainability, and certification requirements. The competitiveness of Indonesian halal soybean products is shaped by the interaction between cultural and halal-based strengths, structural value chain constraints, and evolving global market dynamics, which form the basis for the subsequent SWOT and TOWS analyses.

### **Result of Thematic Analysis**

Thematic analysis was used to identify key patterns from expert interviews and contextualize them with empirical literature on soybean agribusiness, import dependence, food security, and the halal industry within global value chains. This approach integrates practical insights from experts with scientific evidence, strengthening the analysis of the competitiveness of Indonesian halal-certified soybean derivative products.

A major internal strength identified is the value-added potential derived from processing and the cultural heritage of fermented soybean products such as tempeh and tofu. These products possess cultural, nutritional, and sustainability value, aligning with studies emphasizing

processing, diversification, and local innovation as sources of agricultural competitiveness (Suryaningrum et al., 2025). Another strength lies in the institutionalized halal certification system, which enhances consumer trust, ensures production quality and safety, and expands access to international markets (Budiyoko et al., 2022; Mutmainah et al., 2023).

However, the analysis also reveals structural weaknesses, particularly Indonesia's heavy dependence on soybean imports, over 80–90% of national demand, which exposes the industry to global price fluctuations and supply instability. This problem is compounded by low domestic productivity, limited technological adoption, weak quality standardization, and low production scalability among MSMEs. These factors contribute to Indonesia's weak global competitiveness in soybean trade (Kementan RI, 2024).

Externally, significant opportunities arise from the rapid growth of the global halal market and increasing demand for plant-based foods. Soy-based products offer affordable, healthy, and halal-compliant plant protein and can benefit from integration into the global halal value chain (Mutmainah & Romadhon, 2023). In addition, halal is increasingly perceived as a symbol of quality, hygiene, and safety, attracting both Muslim and non-Muslim consumers.

Nevertheless, these opportunities are accompanied by major threats, including intense global competition from major soybean-exporting countries, continued reliance on imports that threatens national food security (Supadi, 2009), and stricter international non-tariff standards such as food safety, sustainability, and supply chain traceability (Kementan RI, 2024). Literature also highlights that high import dependence has broader implications for industrial resilience and national stability (DPR RI, 2022; Supadi, 2009).

The findings indicate that the competitiveness of Indonesian halal-certified soybean derivatives depends on the interaction between internal strengths (value-added processing, halal certification, and cultural heritage) and structural weaknesses in domestic production, alongside evolving global market dynamics. Therefore, improving competitiveness requires not only halal certification but also strengthening domestic soybean production, enhancing MSME technological capacity, and improving value chain integration. These findings provide the empirical basis for constructing the SWOT matrix and formulating TOWS strategies in the following section.

**SWOT–TOWS Analysis and Strategy Formulation**

To systematically assess the competitive position of Indonesia's halal-certified soybean derivative industry, a SWOT analysis was employed to identify key internal strengths and weaknesses as well as external opportunities and threats. This analysis synthesizes insights derived from expert interviews and thematic analysis, supported by relevant empirical and policy-oriented literature. The resulting SWOT matrix provides a structured overview of the strategic factors shaping the industry's competitiveness and serves as the analytical foundation for subsequent strategy formulation using the TOWS framework.

Table 1: SWOT Analysis Matrix

<b>Faktor Internal</b>	<b>Faktor Eksternal</b>
<i>Strengths</i>	<i>Opportunities</i>
<ul style="list-style-type: none"> <li>Indonesia's halal assurance and certification system is well institutionalized and increasingly recognized internationally.</li> <li>A long-standing tradition of soybean fermentation (tempeh and tofu) creates distinctive flavor and nutritional advantages.</li> <li>Soybean derivatives serve as affordable</li> </ul>	<ul style="list-style-type: none"> <li>The rapid growth of the global halal market, both in Muslim and non-Muslim countries.</li> <li>Increasing global demand for healthy and sustainable plant-based foods.</li> <li>Shifting perceptions of halal as a symbol of quality, food safety, and hygiene in production processes.</li> </ul>

<p>plant-based protein sources with strong domestic market acceptance.</p> <ul style="list-style-type: none"> <li>• A large base of MSMEs supports the production and development of soybean-derived products.</li> <li>• Government policy support promotes the development of the halal industry and strengthens the national halal value chain.</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities for developing value-added soy derivative products (ready-to-eat, functional foods, fermented foods).</li> <li>• Potential integration of soy derivative products into the global halal value chain to increase exports.</li> </ul>
<i>Weaknesses</i>	<i>Threats</i>
<ul style="list-style-type: none"> <li>• High dependence on soybean imports as the primary raw material for the tofu and tempeh industry.</li> <li>• Low levels of domestic soybean self-sufficiency and productivity.</li> <li>• Limited adoption of production technology and quality standardization among MSMEs.</li> <li>• Weak upstream-to-downstream supply chain integration, including raw material traceability.</li> <li>• The competitiveness of Indonesian fresh soybeans in the international market remains low (negative ISP and RCA indicators).</li> </ul>	<ul style="list-style-type: none"> <li>• Volatility in soybean prices and supply in the international market directly impacts domestic production costs.</li> <li>• High levels of import dependence potentially threaten national food security.</li> <li>• Fierce global competition from major soybean and processed soybean product producing countries.</li> <li>• Increasingly stringent implementation of non-tariff trade standards (food safety, sustainability, and traceability).</li> <li>• The risk of the domestic industry falling behind in meeting global export market standards and scale.</li> </ul>

Sources: Interview of Experts

The TOWS approach enables strategy development by combining the internal strengths and weaknesses of the Indonesian halal-certified soy derivatives industry with the opportunities and threats emanating from the external environment. Thus, the resulting strategy is not only descriptive but also applicable in supporting increased competitiveness in the international market.

Table 2. SWOT–TOWS Matrix and Strategy Formulation

Strategy Combination	Strategic Direction	Brief Explanation
<i>SO (Strength–Opportunity)</i>	<i>Halal-based differentiation of fermented soybean products</i>	Leveraging the credibility of Indonesia’s halal certification system and the cultural uniqueness of tempeh and tofu to position soybean derivatives as premium halal and plant-based products in global markets.
	<i>Market-oriented innovation of value-added soybean products</i>	Encouraging the development of ready-to-eat, functional, and modern fermented products while maintaining halal integrity and traditional characteristics.
<i>WO (Weakness–Opportunity)</i>	<i>Strengthening domestic soybean production and upstream–downstream integration</i>	Reducing import dependence by improving local soybean productivity through farmer incentives, improved varieties, and stronger linkages with processing industries.
	<i>Technological upgrading and standardization of MSMEs</i>	Utilizing global halal and plant-based market opportunities to accelerate technology adoption, quality standardization, and compliance with international food safety requirements.
<i>ST (Strength–Threat)</i>	<i>Cultural and halal integrity-based product differentiation</i>	Using authentic fermentation processes, cultural narratives, and halal assurance as strategic differentiation tools to counter global competition and non-tariff trade barriers.
	<i>Institutional</i>	Enhancing collaboration among halal

	<i>coordination to anticipate regulatory changes</i>	regulators, certification bodies, academic institutions, and industry actors to improve adaptability to evolving international standards.
WT (Weakness–Threat)	<i>Import risk mitigation and industrial resilience strengthening</i>	Minimizing vulnerability to global price volatility through domestic supply reinforcement and strategic soybean stock management.
	<i>Capacity building of MSMEs for export compliance</i>	Protecting domestic industries from market exclusion by providing technical assistance, financial access, and support for advanced certification and export readiness.

Sources: Author

### CONCLUSION

1. This study analyzes the competitiveness of Indonesia’s halal-certified soybean derivative industry using an expert-based qualitative approach combined with SWOT–TOWS analysis. The findings indicate that Indonesia possesses strong strategic assets, including an established halal certification system, cultural expertise in fermented soybean processing, and a large base of MSMEs supporting production. These strengths create opportunities to position products such as tempeh and tofu within the expanding global halal and plant-based food markets. However, the industry still faces structural challenges, particularly high dependence on imported soybeans, low domestic productivity, limited technological adoption, and weak supply chain integration.
2. The analysis also shows that halal certification alone is not sufficient to ensure international competitiveness. Although global demand for halal and plant-based foods continues to grow, the industry must address threats such as global price volatility, intense competition, and stricter trade standards. Therefore, strategies should focus on strengthening domestic soybean production, improving MSME technological capacity, enhancing quality standardization and export readiness, and promoting innovation in value-added halal soybean products aligned with global consumer preferences for health, sustainability, and authenticity.

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