

Business Internationalization in the Wood Pellet Industry: Increasing Competitiveness in the Global Market

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Abstract: This study aims to analyze business internationalization strategies in the sustainable wood pellet industry, specifically in facing challenges and taking advantage of opportunities in the global market. Business internationalization in this sector has become relevant given the increasing global demand for renewable energy. The study used the strengths, weaknesses, opportunities, and threats (SWOT) analysis method to identify the main factors affecting the company's competitiveness in international expansion. The results of the analysis show that high product quality and sustainable raw materials are the company's competitive advantages, but limited production capacity and dependence on certain markets can be obstacles in the internationalization process. In addition, global competition and fluctuating raw material prices emerge as threats that need to be anticipated with risk mitigation strategies and operational efficiency. The practical implications of this study include recommendations for capacity building and market diversification, while its theoretical contributions enrich the literature related to MSME internationalization in the renewable energy sector. The study offers strategic perspectives to guide firms in developing sustainable global competitiveness in the wood pellet market.

Keywords: internalization; business; networking; wood pellet; competitiveness

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INTRODUCTION

The internationalization of micro, small, and medium enterprises (MSMEs) is an important step in expanding their market and increasing their competitiveness in the global arena. In this era of globalization, international markets offer greater profit opportunities and allow MSMEs to enrich their resources and technology. However, while there are many potential Indonesian MSMEs, only a small number can penetrate the international market (Reim et al., 2022). One MSME that has managed to do so is PT Aharu Cakra Indonesia, a company engaged in the production of wood pellets in Malang, East Java.

PT Aharu Cakra Indonesia is one example of an MSME that focuses on renewable energy products, namely wood pellets. This product has more value in the global market because it can be used as an environmentally friendly alternative fuel (Aharu. id, 2024). With high product quality and international standards, PT Aharu Cakra Indonesia has successfully exported its wood pellets to several countries, including South Korea and

Japan. This success shows that local Indonesian products have strong competitiveness and can meet global needs, especially in the energy sector. On the other hand, support from the government through export facilitation programs and pro-SME policies are opportunities that can be utilized to strengthen PT Aharu Cakra Indonesia's position in the international market. Programs such as training, certification, and access to financing and marketing are very helpful for MSMEs in building global competitiveness (Zahoor et al., 2020). This is also a motivation for PT Aharu Cakra Indonesia to continue to innovate in improving the quality of its products and production processes.

PT Aharu Cakra Indonesia's success in entering the international market did not happen instantly. There are various factors and strategies underlying its achievement, one of which is focusing on the challenges and opportunities faced by companies in the sustainable wood pellet industry to internationalize the business. Amidst the increasing global demand for renewable energy sources, the wood pellet industry faces the need to compete in an increasingly tight international market, especially in terms of product quality, raw material sustainability, and distribution efficiency (Aguilar et al., 2020). However, the internationalization process of MSMEs is also not free from challenges. As an MSME, PT Aharu Cakra Indonesia has limitations in terms of production capacity and reliable resources. Competition with wood pellet producers from other countries that have a larger production scale and lower operational costs is one of the major challenges (Kittler et al., 2020). In addition, fluctuations in raw material prices and export regulations in destination countries are also external factors that need to be anticipated.

In addition, international trade regulations, raw material price fluctuations, and global economic uncertainty are also important aspects that need to be considered in the company's expansion strategy (Vitale et al., 2022). These issues drive the need for a proper approach in selecting target markets, improving operational efficiency, and developing a strategy that balances the opportunities with the risks of internationalization (Abusaq et al., 2022). Therefore, this introduction emphasizes the importance of a comprehensive strategy to help companies face these challenges and capitalize on internal strengths and external opportunities to achieve global competitiveness in the sustainable wood pellet market. With these opportunities and challenges, the case study of PT Aharu Cakra Indonesia in terms of MSME internationalization is interesting to examine further. Through SWOT analysis, this article will delve deeper into the strategies implemented by

PT Aharu Cakra Indonesia in facing the international market, as well as how this company utilizes its existing potential to overcome its limitations.

LITERATURE REVIEW

Internationalization Process

The process of internationalization refers to the steps taken by companies, particularly MSMEs, to enter global markets and expand their operations beyond the borders of their home countries (Igwe et al., 2021). Internationalization often does not happen instantly, but rather goes through a series of stages that reflect a company's increasing commitment in foreign markets. One popular theory is the Uppsala Model, which explains that firms generally begin this process with modest exports and then increase their commitment with larger investments as they accumulate knowledge and experience in the new market (Hult et al., 2020). This process also highlights the importance of market knowledge gained gradually through direct experience and network contacts in the foreign country (Nuruzzaman et al., 2020). This process tends to be influenced by internal factors such as company resources and external factors such as global market dynamics and international regulations (Purnama, 2024).

Internationalization Model

Internationalization models provide a framework for companies to understand how they can enter and thrive in foreign markets. One of the most well-known models is the Uppsala Model developed by Johanson and Vahlne in 1977 (Hult et al., 2020). This model emphasizes knowledge accumulation and gradual engagement, where companies avoid large upfront investments and choose to increase commitment over time. In addition to the Uppsala Model, there is also Dunning's eclectic paradigm, which includes three main advantages: ownership advantage, internalization advantage, and location advantage (Pahrizal et al., 2025). This paradigm helps explain how firms assess internationalization decisions based on ownership factors and the attractiveness of foreign market locations (Bastomi et al., 2024). The Born Global model is also evolving as an alternative for MSMEs that directly enter the global market without going through a gradual stage, usually supported by digital capabilities and extensive networks.

Internationalization Network

Internationalization networks are important in supporting firms' success in entering global markets. These networks consist of business and social relationships that help

firms, especially MSMEs, to access resources, knowledge, and opportunities in international markets (Cordeiro & Sindhøj, 2024). Through networks, firms can obtain information about foreign markets, build trust with local partners, and reduce risks associated with uncertainty in global operations (Salsabillah et al., 2023). According to the network theory of internationalization, a firm's success in the global market is often influenced by its ability to develop close business relationships with local partners such as distributors, agents, or even competitors (Rahayu et al., 2020). These relationships allow for the exchange of knowledge and resources that are invaluable to companies just beginning international expansion. In this context, the network serves as an "intermediary" that can accelerate the company's adaptation process to the new environment and help the company understand local consumer preferences and regulations. With digitalization, internationalization networks are increasingly easy to form through online platforms and social media, allowing MSMEs to interact with global partners and customers without the need to be physically present in the same location (Rahmi et al., 2023).

Internationalization Strategy

Internationalization strategies refer to the approaches and methods adopted by companies to achieve and maintain their presence in the global market. Some internationalization strategies include export strategies, where companies export their products or services to other countries, licensing and franchising strategies that involve utilizing local partners for product distribution, as well as foreign direct investment (FDI) that allows for more control in operations in foreign markets (Feliciano-cestero et al., 2023). Export strategies tend to be used as a first step involving low risk, while FDI is used by companies with large resources and readiness to face local regulatory and cultural challenges (Lamperti et al., 2023). On the other hand, digitalization strategies are also increasingly important in supporting the internationalization of MSMEs as they allow access to global markets at lower costs and less risk (Jiang et al., 2023). This strategy involves utilizing e-commerce platforms and digital media to expand reach internationally without a physical presence in the destination country.

METHODS

This research uses a descriptive qualitative approach to explore the phenomenon in depth through informants' perceptions and experiences, using SWOT analysis as the main

analytical tool. SWOT analysis was chosen because it allows a thorough mapping of the company's internal and external conditions, to formulate effective strategies for business development (Taherdoost & Madanchian, 2021). Primary data was obtained through interviews with company management, while secondary data was collected from company reports, related literature, as well as relevant external sources, such as market trends and industry regulations. This descriptive qualitative research aims to provide a comprehensive picture of the strengths, weaknesses, opportunities, and threats related to the object of research (Benzaghta, 2021). The research stages began with initial planning, where the researcher formulated the problem and set the research objectives, as well as identified criteria for selecting informants relevant to the topic.

Furthermore, the data collection stage was carried out using in-depth interviews and observation methods, to obtain detailed information related to the aspects to be analyzed through SWOT (Phadermrod et al., 2016). Informants were selected purposively, i.e. chosen based on suitability with the specified criteria so that the information obtained is relevant and in-depth. After the data was collected, researchers conducted a data analysis stage, which identified and categorized information according to the SWOT categories: strengths, weaknesses, opportunities, and threats. The analysis process was carried out by coding the data to find themes that reflect internal factors (strengths and weaknesses) and external factors (opportunities and threats) that affect the object of research (Puyt et al., 2023). The last stage is data interpretation, the results of the SWOT analysis are synthesized to produce strategies that can strengthen PT Aharu Cakra Indonesia's position in the market, overcome weaknesses, take advantage of opportunities, and mitigate potential threats. This analysis also provides a foundation for the company to formulate policies more responsive to internal and external dynamics.

RESULTS AND DISCUSSION

PT Aharu Cakra Indonesia is a leading wood pellet manufacturer in Indonesia that utilizes wood waste from the sawmill and furniture manufacturing industries as the main raw material. Their wood pellet products are of high quality with significant heating value, making them an efficient source of renewable energy. The company has been operating for more than five years in the wood pellet industry, showing solid commitment and experience in the field.

In its internationalization efforts, Aharu Cakra Indonesia has successfully penetrated the global market by exporting wood pellet products to various countries, including Korea and Japan. This success is supported by the company's ability to maintain product quality through the use of natural raw materials and efficient production processes. In addition, Aharu Cakra Indonesia ensures safe and international standard product packaging, both in the form of large sacks and bulk shipments, to meet the needs of overseas customers.

PT Aharu Cakra Indonesia's internationalization strategy involves leveraging its extensive business network and implementing best practices in the renewable energy industry. With a focus on sustainability and innovation, the company continues to expand its market reach and increase its contribution to providing environmentally friendly energy sources on a global level.

The following is a detailed SWOT analysis for PT Aharu Cakra Indonesia in the context of business internationalization:

Strengths:

1. **High Product Quality:** PT Aharu Cakra Indonesia produces high-quality wood pellets with significant heating value, meeting international standards and in demand in the global market.
2. **Experience and Reputation:** With more than five years of experience in the wood pellet industry, the company has built a solid reputation in both domestic and international markets.
3. **Sustainable Raw Material Sourcing:** The company utilizes wood waste from the sawmill and furniture manufacturing industries, ensuring a sustainable and environmentally friendly supply of raw materials.
4. **Efficient Packaging and Shipping:** PT Aharu Cakra Indonesia provides safe and internationally standardized packaging, both in the form of large sacks and bulk shipments, ensuring products arrive with maintained quality.

Weaknesses:

1. **Limited Production Capacity:** If international demand increases rapidly, companies may face challenges in meeting the demand without additional investment in production capacity.

2. **Dependence on Specific Markets:** A focus on exports to countries such as Korea and Japan can be a risk if there is a change in policy or demand in those countries.
3. **Adaptation to International Regulations:** Companies need to ensure compliance with various regulations and standards in each export destination country, which may require adjustments to processes and documentation.

Opportunities:

1. **Growth in Demand for Renewable Energy:** Growing global awareness towards green energy opens up opportunities for expansion into new markets seeking renewable energy sources such as wood pellets.
2. **Diversify Export Markets:** Entering new markets in Europe or North America can reduce dependence on Asian markets and increase revenue stability.
3. **Strategic Partnerships:** Working with international energy companies or local distributors can expand market reach and improve distribution efficiency.
4. **Product Innovation:** The development of wood pellet product variants with special specifications can meet the needs of a wider market and increase competitiveness.

Threats:

1. **Global Competition:** The emergence of new wood pellet producers from other countries may increase competition and depress prices in the international market.
2. **Raw Material Price Fluctuations:** Changes in the price of wood waste or other production costs may affect profit margins and price competitiveness.
3. **Trade Policy Changes:** Stricter tariffs, quotas, or environmental regulations in export destination countries may hinder market access and increase operating costs.
4. **Global Economic Uncertainty:** Economic crises or changes in global macroeconomic conditions can affect export market demand and stability.

The SWOT analysis for PT Aharu Cakra Indonesia in the context of business internationalization shows several important points. In terms of strengths, PT Aharu Cakra Indonesia has advantages in the quality of wood pellet products that meet international standards, a solid reputation with more than five years of experience in the industry, and the use of sustainable raw materials from wood waste. The company's ability to safely package and ship products according to international standards adds to its appeal in the global market (Kittler et al., 2020). However, the company also faces several disadvantages, such as limited production capacity in case of a sharp increase in

demand, dependence on certain markets such as Korea and Japan, and the challenge of meeting the varying regulations in each export destination country.

In terms of opportunities, PT Aharu Cakra Indonesia has bright prospects with increasing global demand for renewable energy. This provides opportunities for expansion into new and broader markets, especially in Europe and North America, which could reduce dependence on Asian markets. Strategic partnerships with international distributors or local energy companies can help strengthen global presence and more efficient product distribution (Zahoor et al., 2020). In addition, the development of new products with customized specifications for various markets can enhance the company's competitiveness.

However, the threats facing the company are also significant, particularly from intensifying global competition with the emergence of new wood pellet producers. In addition, fluctuations in raw material prices and changing international trade policies, such as tariffs or environmental regulations, may increase operating costs and affect market access (Ogunjobi et al., 2023). Global economic uncertainty is also a risk factor that could disrupt export market demand and stability. Through this SWOT analysis, PT Aharu Cakra Indonesia is expected to formulate a strategy that optimizes its strengths and opportunities, while overcoming weaknesses and anticipating existing threats.

IFE (*Internal Factor Evaluation*) Analysis

The IFE analysis evaluates the internal factors consisting of the company's strengths and weaknesses. The weighting scale ranges from 0 (not important) to 1 (very important), with the total weight of all factors being 1. The rating score ranges from 1 (major weakness) to 4 (major strength). The final score is obtained by multiplying the weight and rating of each factor.

Table 1. IFE

No.	Internal Factors	Weight	Rating	Score
Strength				
1	High product quality	0,20	4	0,80
2	Experience and reputation in the industry	0,15	4	0,60
3	Sustainable source of raw materials	0,15	4	0,60
4	Efficient packaging and shipping	0,10	3	0,30
Weakness				
6	Limited production capacity	0,15	2	0,30
7	Dependence on specific markets	0,15	2	0,30
8	Adaptation to international regulations	0,10	2	0,20
Total		1,00		3,10

From the results of the IFE (Internal Factor Evaluation) analysis, PT Aharu Cakra Indonesia shows a strong internal position with a total score of 3.10. The company's main strengths, namely high product quality, good reputation, and sustainable sources of raw materials, are an important foundation in supporting internationalization efforts. Product quality that meets international standards gives the company a competitive advantage, enabling products to be well-received in the global market (Ogunjobi et al., 2023). In addition, the reputation that has been built over more than five years demonstrates the company's credibility in the wood pellet industry, which is attractive to overseas partners and customers.

On the other hand, the analysis also shows some weaknesses that need to be addressed to improve competitiveness. Limited production capacity is a particular concern, as if international demand increases, companies may find it difficult to meet market needs without increased capacity. Dependence on certain markets, such as Korea and Japan, is also a potential risk in case of changes in demand or policies in these countries. Therefore, to strengthen its internal position, the company may consider additional investment in production capacity and market diversification to reduce dependency (Soniya & Sumaryanto, 2024).

EFE (*External Factor Evaluation*) Analysis

The EFE analysis evaluates external factors, namely the opportunities and threats facing the company. The weighting scale ranges from 0 to 1, with the total weight of all factors being 1. The rating score ranges from 1 (ineffective response) to 4 (highly effective response).

Table 2. EFE

No.	Internal Factors	Weight	Rating	Score
Opportunities				
1	Growth in demand for renewable energy	0,25	4	1,00
2	Export market diversification	0,20	4	0,80
3	Strategic partnerships	0,15	3	0,45
4	Product innovation	0,15	3	0,45
Threats				
6	Global competition	0,10	2	0,20
7	Raw material price fluctuations	0,005	2	0,10
8	Trade policy changes	0,005	2	0,10
9	Global economic uncertainty	0,005	2	0,10
Total		1,00		3,20

The results of the EFE (*External Factor Evaluation*) analysis show that PT Aharu Cakra Indonesia has an effective response to external opportunities and threats, with a total score of 3.20. The biggest opportunity identified is the growing demand for renewable energy in the global market, as awareness of the environment and green energy increases. Diversification of export markets is also considered an important opportunity, especially as it can reduce dependence on certain markets and open up access to new markets that have high demand potential. The ability to strategically partner with international companies will expand the company's distribution reach and strengthen its presence in the global market (Igwe et al., 2021).

However, the company also has to face some significant external threats. Global competition in the wood pellet industry is intensifying, with producers from other countries offering similar products, which may depress prices and reduce profit margins. In addition, fluctuations in raw material prices and global economic uncertainty are risks that need to be anticipated, as they may affect operational stability and product demand. The Company may consider mitigation strategies, such as establishing long-term contracts with raw material suppliers and observing global economic trends, to maintain competitiveness in the face of these external threats (Nuruzzaman et al., 2020).

Based on the table above, the X axis which is an internal factor has a score value of 3.10 and the Y axis which is an external factor has a score value of 3.20. After being added to the SWOT diagram, it is known that two scores are located in quadrant I and support aggressive strategies. Therefore, the right strategy for the internationalization of PT Aharu Cakra Indonesia is aggressive. Below is an overview of the SWOT diagram of the core values of internal factors and external factors:

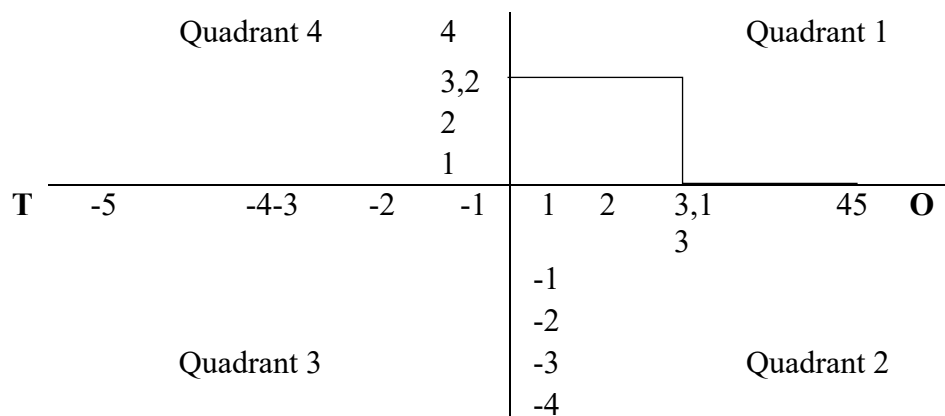


Figure 1. SWOT Quadrant

The aggressive strategy in the internationalization of PT Aharu Cakra Indonesia's business means that the company makes full use of its internal strengths to optimize the opportunities that exist in the global market. By being in quadrant I of the SWOT analysis, PT Aharu Cakra Indonesia is in a strategic position that allows them to take significant and proactive expansive steps. This strategy could include a variety of approaches, such as expanding market penetration into new regions with high demand for renewable energy, for example in Europe and North America, which increasingly support the use of clean and environmentally friendly energy.

The first step a company can take is to increase its production capacity to meet the greater potential demand from international markets. Investing in more efficient production technologies and upgrading production facilities allows the company to optimize economies of scale, which not only lowers production costs but also increases price competitiveness in the global market. In addition, PT Aharu Cakra Indonesia can develop new products or customize its products to specifications that comply with local regulations and preferences in export destination countries. This includes relevant international certifications, making their products more easily accepted in the global market.

In addition to production expansion and product customization, PT Aharu Cakra Indonesia may pursue a strategy of strategic partnerships with local distributors or international energy companies. These partnerships not only expand the company's access to a wider distribution network but also provide opportunities to better understand the needs and regulations in each market. By doing so, the company can respond to market dynamics quickly and efficiently, strengthen its position in foreign markets, and enhance its reputation as a reliable renewable energy producer. Through this aggressive approach, PT Aharu Cakra Indonesia can maximize its international growth potential and strengthen its presence in the global renewable energy industry.

PT Aharu Cakra Indonesia's internationalization network development strategy focuses on forming strategic partnerships and diversifying markets to strengthen its global presence. The company can utilize its network of local distributors and agents in various countries, especially in regions that have a high demand for renewable energy sources such as wood pellets, for example in East Asia, Europe, and North America. By establishing strong collaborative relationships with local partners, PT Aharu Cakra

Indonesia can gain better access to markets, understand specific consumer needs in each country, and navigate different trade regulations. In addition, the company can develop digital networks through online platforms and social media to reach more potential customers efficiently, without having to always have a physical presence in the destination countries. Through the development of this strategic international network, PT Aharu Cakra Indonesia can strengthen its global competitiveness, increase export volumes, and ensure operational sustainability in meeting the demand for green energy in the international market.

The following is a SWOT matrix for PT Aharu Cakra Indonesia regarding business internationalization:

Table 3. SWOT Matrix

SWOT Matrix	Strengths	Weaknesses
Opportunities	SO (Strength-Opportunities) Strategy <ol style="list-style-type: none"> 1. Capitalize on high product quality to attract new markets in the renewable energy sector 2. Using the company's reputation and experience to expand its network of strategic partnerships with international distributors. 3. Utilize sustainable raw material sources to meet the demand for green energy in new countries. 	WO (Weaknesses-Opportunities) Strategy <ol style="list-style-type: none"> 1. Increase production capacity to accommodate growing international demand. 2. Diversify export markets to reduce dependence on specific markets such as Korea and Japan. 3. Invest in understanding international regulations in target countries to facilitate expansion.
Threats	ST (Strength-Threats) Strategy <ol style="list-style-type: none"> 1. Maintain product quality and delivery efficiency to compete with other global manufacturers. 2. Secure a sustainable supply of raw materials to reduce the impact of price fluctuations. 3. Using efficient packaging and shipping to reduce costs in the face of global economic uncertainty. 	WT (Weaknesses-Threats) Strategy <ol style="list-style-type: none"> 1. Reduce dependence on certain markets by increasing product innovation to meet the needs of other markets. 2. Establish long-term contracts with raw material suppliers to overcome the risk of price fluctuations. 3. Improve operational efficiency to reduce production costs and face global competition.

The SWOT matrix for PT Aharu Cakra Indonesia provides a strategic view of the internal and external factors that influence the internationalization potential of their business in the sustainable wood pellet industry. On the Strengths aspect, the company has high-quality products that meet international standards and can compete in the global market. This quality not only provides a competitive advantage in the renewable energy

market but also appeals to consumers seeking an environmentally friendly energy source. In addition, the company's reputation as an experienced manufacturer in the wood pellet industry increases market confidence, which is an important element in building sustainable international partnerships.

In addition to product quality, PT Aharu Cakra Indonesia also utilizes sustainable raw materials, namely wood waste from the sawmill and furniture industry. This not only supports environmental sustainability but also ensures a stable supply of raw materials at a relatively low cost. The sustainability of these raw materials is a strong plus in a global market that is increasingly concerned about the environment. This strength supports the company in meeting the demands of strict regulations often imposed by export destination countries regarding the environment and product sustainability.

However, several weaknesses need to be addressed for the internationalization strategy to be effective. One of them is limited production capacity, which can be an obstacle in meeting increasing international demand. To expand capacity, the company needs to consider investing in infrastructure or more efficient production technology. In addition, the company's dependence on a few key markets such as Korea and Japan is a weakness that needs to be considered. This dependence could increase risk in the event of policy changes or a drop in demand in these countries, making market diversification an important step.

In terms of opportunities, the growing demand for renewable energy provides a positive impetus for PT Aharu Cakra Indonesia to expand exports. Global awareness of the importance of green energy makes sustainable wood pellet products have strong market prospects. In addition, the company has the opportunity to establish strategic partnerships with international distributors or agents that can help open access to new markets. These partnerships not only enable faster expansion but also help the company understand local dynamics and regulations in the destination country, which is important in dealing with competition and adjusting product offerings.

However, the threats (Threats) faced by the company are also significant, mainly related to global competition and economic uncertainty. The emergence of wood pellet producers from other countries increases competition which can put pressure on prices and profitability. In addition, fluctuations in raw material prices and global economic uncertainty may impact production costs and market demand. The company needs to

consider mitigation strategies, such as long-term contracts with suppliers and operational efficiency, to reduce the impact of these threats. Overall, this SWOT matrix assists PT Aharu Cakra Indonesia in formulating a balanced strategy between capitalizing on strengths and opportunities and addressing weaknesses and threats, to achieve sustainable internationalization success.

CONCLUSION

Based on the results of the SWOT analysis that has been conducted, PT Aharu Cakra Indonesia has a great opportunity to strengthen its position in the international market as a producer of sustainable wood pellets. By utilizing its high product quality and good reputation, the company can capitalize on opportunities from the increasing demand for green energy. However, some challenges need to be considered, such as limited production capacity and dependence on certain markets. The conclusion of PT Aharu Cakra Indonesia's SWOT analysis shows that the company has a strong foundation to thrive in the international market through the advantages of product quality, reputation, and the use of sustainable raw materials, which are highly relevant to the increasing global demand for renewable energy. However, there are weaknesses such as limited production capacity and dependence on certain markets that need to be improved to reduce operational risks and increase business flexibility. In terms of threats, intense global competition and economic uncertainty are challenges that need to be addressed with operational efficiency and raw material price risk mitigation strategies. The practical implication of this analysis is the need for investment in production capacity, market expansion, and the development of international strategic partnerships to strengthen competitiveness. Theoretically, the analysis enriches the literature on MSME internationalization in the renewable energy sector by highlighting the importance of a combination of internal strengths and adaptation to external opportunities for success in the global market. The analysis also shows that quality- and sustainability-based strategies can provide a significant competitive advantage in the face of complex internationalization challenges.

REFERENCES

- Abusaq, Z., Habib, M. S., Shehzad, A., Kanan, M., & Assaf, R. (2022). A Flexible Robust Possibilistic Programming Approach toward Wood Pellets Supply Chain Network Design. *Mathematics*, *10*(19), 3657. <https://doi.org/10.3390/math10193657>
- Aguilar, F. X., Mirzaee, A., McGarvey, R. G., Shifley, S. R., & Burtraw, D. (2020).

- Expansion of US wood pellet industry points to positive trends but the need for continued monitoring. *Scientific Reports*, 10(1), 18607. <https://doi.org/10.1038/s41598-020-75403-z>
- Aharu.id. (2024). *The Largest Wood Pellet Producers in Indonesia*. <https://Aharu.Id/>
<https://aharu.id/>
- Bastomi, M., Pratikto, H., & Wardana, L. W. (2024). Unlocking the Potential of Small Businesses: A Key Factor in Driving Business Success. *Asian Journal of Management Entrepreneurship and Social Science*, 04(02), 726–741.
- Benzaghta, M. A. (2021). SWOT analysis applications: An integrative literature review. *Journal of Global Business Insight*, 6(1), 55–73.
- Cordeiro, C. M., & Sindhøj, E. (2024). Adapting International Business Models for EU Projects: Macro- and Micro- Adapting International Business Models for EU Projects: Macro- and Micro-Foundations of the Uppsala Model in Multinational Collaborations. *Business*, 4, 509–530. <https://doi.org/10.3390/businesses4040031>
- Feliciano-cestero, M. M., Ameen, N., Kotabe, M., Paul, J., & Signoret, M. (2023). Is digital transformation threatened? A systematic literature review of the factors influencing firms' digital transformation and internationalization. *Journal of Business Research*, 157(January 2022), 113546. <https://doi.org/10.1016/j.jbusres.2022.113546>
- Hult, G. T. M., Gonzalez-Perez, M. A., & Lagerström, K. (2020). The theoretical evolution and use of the Uppsala Model of internationalization in the international business ecosystem. *Journal of International Business Studies*, 51(1), 38–49. <https://doi.org/10.1057/s41267-019-00293-x>
- Igwe, P. A., Rugara, D. G., & Rahman, M. (2021). A Triad of Uppsala Internationalization of Emerging Markets Firms and Challenges: A Systematic Review. *Administrative Sciences*, 12(1), 3. <https://doi.org/10.3390/admsci12010003>
- Jiang, H., Yang, J., & Gai, J. (2023). Technology in Society How digital platform capability affects the innovation performance of SMEs — Evidence from China. *Technology in Society*, 72.
- Kittler, B., Stupak, I., & Smith, C. T. (2020). Assessing the wood sourcing practices of the U.S. industrial wood pellet industry supplying European energy demand. *Energy, Sustainability and Society*, 10(1), 23. <https://doi.org/10.1186/s13705-020-00255-4>
- Lamperti, S., Cavallo, A., & Sassanelli, C. (2023). Digital Servitization and Business Model Innovation in SMEs: A Model to Escape From Market Disruption. *IEEE Transactions on Engineering Management*, 1–15. <https://doi.org/10.1109/TEM.2022.3233132>
- Nuruzzaman, N., Singh, D., & Gaur, A. S. (2020). Institutional support, hazards, and internationalization of emerging market firms. *Global Strategy Journal*, 10(2), 361–385. <https://doi.org/10.1002/gsj.1365>
- Ogunjobi, O. A., Eyo-Udo, N. L., Egbokhaebho, B. A., Daraojimba, C., Ikwue, U., & Bansa, A. A. (2023). ANALYZING HISTORICAL TRADE DYNAMICS AND CONTEMPORARY IMPACTS OF EMERGING MATERIALS TECHNOLOGIES ON INTERNATIONAL EXCHANGE AND. *Engineering*

Science & Technology Journal, 4(3), 101–119.
<https://doi.org/10.51594/estj.v4i3.554>

- Pahrizal, P., Sudarmiati, S., & Sumarsono, H. (2025). Business Internationalization Strategy Process Review Based on the Uppsala Model. *Golden Ratio of Marketing and Applied Psychology of Business*, 4(2), 132–139.
- Phadermrod, B., Crowder, R. M., & Wills, G. B. (2016). Importance-Performance Analysis based SWOT analysis. *International Journal of Information Management May*, 1–34.
- Purnama, C. (2024). Optimizing Training Strategies : Enhancing Effectiveness and Performance Outcomes. *Jurnal Pendidikan Dan Kewirausahaan*, 12(3), 901–913.
- Puyt, R. W., Birger, F., & Wilderom, C. P. M. (2023). The origins of SWOT analysis. *Long Range Planning*, 56(3), 102304. <https://doi.org/10.1016/j.lrp.2023.102304>
- Rahayu, Sudarmiati, & Sumarsono, H. (2020). Dynamics Of Network Utilization In Internationalization What Smes Do In Developing And Developed Countries : A Systematic Literature Review. *International Journal of Science, Technology & Management*, 4(5), 1301–1309.
- Rahmi, V. A., Sudarmiati, & Sumarsono, H. (2023). The Role of Networks in SMEs in Supporting Internationalization : Literature Study. *Asian Journal of Management Entrepreneurship and Social Science*, 3(2), 747–764.
- Reim, W., Yli-Viitala, P., Arrasvuori, J., & Parida, V. (2022). Tackling business model challenges in SME internationalization through digitalization. *Journal of Innovation & Knowledge*, 7(3), 100199. <https://doi.org/10.1016/j.jik.2022.100199>
- Salsabillah, V. A., Mardani, R. M., & Bastomi, M. (2023). Pengaruh Foreign Direct Investment, Inflasi, Stabilitas Politik Terhadap Neraca Dagang Di Indonesia Tahun 2019 – 2023. *E-Jurnal Riset Manajemen*, 13(01), 4370–4378.
- Soniya, T., & Sumaryanto. (2024). Analisis Faktor Kondisi Ekonomi dan Kemampuan Berwirausaha terhadap Keberlanjutan Usaha. *Jurnal Pendidikan Dan Kewirausahaan*, 12(2), 812–825.
- Taherdoost, H., & Madanchian, M. (2021). Determination of Business Strategies Using SWOT Analysis ; Planning and Managing the Organizational Resources to Enhance Growth and Profitability. *Macro Management & Public Policies*, 03(01), 19–22.
- Vitale, I., Dondo, R. G., González, M., & Cóccola, M. E. (2022). Modelling and optimization of material flows in the wood pellet supply chain. *Applied Energy*, 313, 118776. <https://doi.org/10.1016/j.apenergy.2022.118776>
- Zahoor, N., Al-Tabbaa, O., Khan, Z., & Wood, G. (2020). Collaboration and Internationalization of SMEs: Insights and Recommendations from a Systematic Review. *International Journal of Management Reviews*, 22(4), 427–456. <https://doi.org/10.1111/ijmr.12238>