



Strategic Management Using SWOT and QSPM to Increase Crude Palm Oil Sales

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Abstract

Purpose: This study examines how PT Windu Nabatindo Lestari (PT WNL), a Crude Palm Oil (CPO) producer located in Pundu, Central Kalimantan, can strengthen its strategic management practices to raise CPO production and sales through a structured internal and external diagnosis.

Methodology: A qualitative case study design was applied, combining semi structured interviews and questionnaires distributed to the marketing, finance, and production departments with document analysis of company records. Internal Factor Evaluation and External Factor Evaluation matrices were constructed, positioned on the Internal External matrix, mapped onto a Strengths, Weaknesses, Opportunities, and Threats matrix, and ranked using the Quantitative Strategic Planning Matrix.

Results: The Internal Factor Evaluation score reached 3.6 and the External Factor Evaluation score reached 3.3, placing PT WNL in quadrant one of the Internal External matrix, a position associated with growth oriented strategy. The Quantitative Strategic Planning Matrix identified market penetration through improved oil extraction rate as the priority strategy, achieved by educating fresh fruit bunch harvesters and applying enzyme technology.

Conclusions: PT WNL should shift from conventional, fragmented planning toward an integrated growth strategy anchored on harvest quality and processing efficiency.

Limitations: The single case design and cross-sectional data restrict generalization to other palm oil producers.

Contributions: The study offers palm oil managers and policy makers an empirically grounded, replicable strategic planning framework linking agronomic practice with corporate strategy formulation.

Keywords: *Crude Palm Oil, Internal External Matrix, Quantitative Strategic Planning Matrix, Strategic Management, SWOT Analysis*

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1. Introduction

Crude Palm Oil (CPO) has grown into one of the most consequential agro-industrial commodities in the global vegetable oil market, and Indonesia occupies a central position in that market as the world's largest producer and exporter of the commodity. Palm oil now accounts for roughly forty percent of global vegetable oil consumption, and its derivatives permeate everyday life through cooking oil, margarine, soap, cosmetics, and a widening array of oleochemical products [\(Adwiyah et al., 2023\)](#). The scale of this industry has made strategic management inside individual plantation companies a

matter of both firm level competitiveness and broader national economic significance, because inefficiencies at the plantation and mill level ripple outward into export earnings, rural employment, and regional development.

Within this landscape, PT Bumitama Gunajaya Agro Group operates as one of the larger private palm oil conglomerates in Indonesia, cultivating close to two hundred thousand hectares across Central Kalimantan, West Kalimantan, and Riau. PT Windu Nabatindo Lestari (PT WNL), one of its subsidiary business units, is based in Pundu, Central Kalimantan, and manages a plantation area of approximately fourty four thousand hectares divided into fifteen estates averaging around three thousand hectares each. Despite this considerable operational footprint, PT WNL has historically relied on conventional, fragmented strategic decisions rather than an integrated analytical process, so proposals for improving harvest quality, processing efficiency, or market positioning have tended to be generated separately rather than derived from a coherent internal and external diagnosis.

This absence of structured strategic planning is a common pattern among Indonesian agribusiness firms, where day to day operational pressure often crowds out systematic environmental scanning [\(Ben-Abdallah et al., 2022\)](#). Yet the resource-based view of the firm suggests that sustained competitive advantage depends on how deliberately an organization identifies, protects, and deploys valuable, rare, and difficult to imitate internal resources, while simultaneously monitoring external conditions that could erode or amplify those resources [\(Helfat & Peteraf, 2023\)](#). For a palm oil producer such as PT WNL, internal resources include agronomic practices such as fertilization regimes, harvest intervals, and mechanization, while external conditions include labor cost pressure, input price volatility, and shifting sustainability certification requirements. A firm that fails to translate its internal strengths into an explicit strategic architecture risks under exploiting resources it already possesses.

The Strengths, Weaknesses, Opportunities, and Threats (SWOT) framework and the Quantitative Strategic Planning Matrix have become widely used instruments for closing this gap because they force managers to enumerate internal and external factors explicitly, weight and rate them, and then translate the resulting profile into ranked strategic alternatives [\(Wahmil et al., 2025\)](#). Related instruments such as the Internal Factor Evaluation and External Factor Evaluation matrices, together with the Internal External positioning matrix, provide the quantitative backbone that supports the qualitative SWOT synthesis, allowing a company's competitive posture to be located within a nine cell grid that indicates whether growth, stability, or retrenchment strategies are most appropriate [\(Ben-Abdallah et al., 2022\)](#). Numerous studies across sectors ranging from hospital waste management to watershed governance have confirmed the practical value of combining these tools, since the SWOT matrix alone tends to generate a long list of qualitative strategy options without indicating which option deserves priority, whereas the Quantitative Strategic Planning Matrix supplies an objective ranking mechanism grounded in the attractiveness of each alternative relative to the identified factors [\(Mosaffaie et al., 2025; Askari et al., 2022\)](#).

Applying this combined framework to the palm oil sector carries particular relevance given the industry's persistent tension between production growth and the sustainability obligations imposed by both domestic and international certification regimes. Palm oil producers operating in Indonesia must simultaneously satisfy Indonesian Sustainable Palm Oil requirements, respond to international Roundtable on Sustainable Palm Oil standards, manage volatile input costs such as fertilizer, and cope with rising minimum regional wages, all while contending with new competitors that purchase fresh fruit bunches without owning plantation land [\(Wardhani & Rahadian, 2021\)](#). These pressures make it essential for a company such as PT WNL to formulate strategy analytically rather than intuitively, since intuitive decisions are more likely to overlook interdependencies between agronomic practice, cost structure, and regulatory compliance.

Building on this background, this study aims to determine and formulate the strategic management alternatives most suitable for increasing the production and sales of crude palm oil at PT WNL through an integrated internal and external environmental analysis. The specific objectives are to identify the internal strengths and weaknesses and external opportunities and threats confronting PT

WNL, to establish the company's competitive position using the Internal Factor Evaluation, External Factor Evaluation, and Internal External matrices, to formulate alternative strategies through the SWOT matrix, and to determine the priority strategy through the Quantitative Strategic Planning Matrix. The remainder of this article proceeds as follows. The literature review section develops the theoretical foundation and articulates the propositions guiding the analysis. The methodology section explains the case study design, data collection procedures, and analytical steps. The results and discussion section presents the internal and external factor evaluations, the SWOT matrix, and the Quantitative Strategic Planning Matrix findings, and interprets them against the literature. The conclusion section summarizes the contribution, acknowledges the limitations of the study, and proposes directions for future research.

2. Literature Review

Strategic management is generally understood as the ongoing set of managerial decisions and actions that determine the long run performance of an organization, encompassing environmental scanning, strategy formulation, strategy implementation, and evaluation and control [\(Ben-Abdallah, Shamout, & Alshurideh, 2022\)](#). Formulating strategy well requires managers to look both inward, at the resources and capabilities the firm controls, and outward, at the industry structure and macro environmental forces the firm cannot directly control. The resource-based view supplies the theoretical anchor for the inward looking half of this process, arguing that a firm's sustained competitive advantage arises from resources that are valuable, rare, imperfectly imitable, and non substitutable [\(Aldhaferi & Ahmad, 2023\)](#). Renewed treatments of the resource-based view extend this reasoning to contemporary settings such as digitalization, distributed organizational forms, and stakeholder driven sustainability, showing that firms which systematically redeploy existing resources into new configurations tend to outperform firms that treat resources as static [\(Helfat & Peteraf, 2023\)](#). Applied to an agribusiness setting, this perspective implies that agronomic knowledge, mechanized harvesting equipment, cooperative relationships, and mill processing capacity should be treated as strategic assets whose value depends on how deliberately they are combined rather than simply on their physical existence.

Complementing the resource-based view, the positioning school associated with industry structure analysis emphasizes that firm performance is also shaped by external forces such as buyer power, supplier power, the threat of substitutes, and the intensity of rivalry [\(Lubis, 2022\)](#). For a crude palm oil producer, external forces manifest concretely in the form of fertilizer suppliers whose prices fluctuate with global markets, competing mills that purchase fresh fruit bunches without owning plantation land, regulatory bodies that set minimum wage levels and environmental compliance requirements, and cooperative smallholders whose loyalty affects the steady supply of raw material. Firms that fail to monitor these external forces risk being blindsided by cost shocks or competitive entry even when their internal operations remain efficient. Contemporary research therefore increasingly frames strategy formulation as an integration exercise that reconciles internal capability assessment with external environmental scanning rather than treating the two as separate exercises [\(Jafari-Sadeghi, Alam, & Mazzoleni, 2023\)](#).

The SWOT framework operationalizes this integration by requiring analysts to classify internal factors into strengths and weaknesses and external factors into opportunities and threats, and then to cross tabulate these categories into four families of strategic alternatives: strength opportunity strategies that use strengths to capture opportunities, weakness opportunity strategies that overcome weaknesses by exploiting opportunities, strength threat strategies that use strengths to avoid or reduce threats, and weakness threat strategies that are essentially defensive, aiming to minimize weaknesses and avoid threats simultaneously. Because the SWOT matrix by itself does not indicate which of the resulting alternatives should be pursued first, most contemporary strategy studies pair it with quantitative weighting instruments. The Internal Factor Evaluation and External Factor Evaluation matrices assign weights and ratings to each internal and external factor, producing a composite score that indicates whether the firm's internal position is strong or weak and whether the firm is responding effectively or poorly to external conditions [\(Ben-Abdallah et al., 2022\)](#). These composite scores are then plotted onto the Internal External matrix, a nine cell grid whose axes represent the total weighted internal and

external scores; firms falling into the upper left three cells are generally advised to pursue growth and build strategies, firms in the middle band are advised to hold and maintain their position, and firms in the lower right cells are advised to pursue harvest or divest strategies.

Once the SWOT matrix has generated a set of qualitative strategic alternatives, the Quantitative Strategic Planning Matrix provides the mechanism for prioritizing among them. Developed as an extension of earlier strategy formulation frameworks, the Quantitative Strategic Planning Matrix requires analysts to assign an attractiveness score to each strategic alternative in relation to every key internal and external factor, multiply that score by the factor's weight, and sum the resulting products into a total attractiveness score for each alternative, so that the alternative with the highest score becomes the recommended priority ([Haekal, 2022](#)). This technique has been validated across a wide range of empirical settings, including hospital and municipal waste management business strategy reformulation in food processing firms watershed governance and industrial waste circularity in the palm oil sector itself ([Askari, Pourkosari, Koupal, & Mokhtari, 2022](#); [Khosravani, Abbasi, Choobchian, & Jalili, 2025](#); [Mosaffaie & Tabatabaei, 2025](#)); ([Wahmil, Pramono, & Ulkhaq, 2025](#)). [Suprihatin, Indrasti, Prasetya, Agustina, and Yulistika \(2024\)](#) consistently demonstrating that combining SWOT with the Quantitative Strategic Planning Matrix yields more defensible strategic recommendations than either tool used alone.

Sector specific literature on palm oil sustainability and competitiveness reinforces the relevance of this combined approach. [Wardhani and Rahadian \(2021\)](#) analyzed how leading Indonesian and Malaysian palm oil producers integrate stakeholder engagement, governance, and environmental and social strategy into their sustainability disclosures, finding considerable variation in how systematically firms translate sustainability commitments into operational practice. [Adwiyah, Syaikat, Indrawan, and Mulyati \(2023\)](#) examined sustainable supply chain management performance in the palm oil sector through a triple bottom line lens, showing that firms which align economic, environmental, and social objectives within their supply chains tend to report stronger overall performance outcomes. [Suprihatin et al. \(2024\)](#) demonstrated that circular strategies applied across the full palm oil production chain, from nursery to milling, can generate simultaneous economic, environmental, and social benefits, underscoring those production efficiency and sustainability compliance are not competing objectives but complementary dimensions of a well formulated strategy. These findings collectively suggest that a palm oil producer's internal strengths, such as efficient harvesting and fertilization practices, gain their full strategic value only when paired with attentive management of external sustainability and regulatory pressures.

Beyond the palm oil sector, evidence from market penetration research indicates that firms which combine internal capability strengthening with disciplined external opportunity capture consistently outperform firms pursuing either strategy in isolation. [Yuniarti, Pratama, Yuninata, and Prihandoko \(2023\)](#) show that market penetration strategies grounded in an accurate reading of both internal readiness and external market conditions produce more durable expansion outcomes than opportunistic entry decisions. Similarly, work on organizational change readiness suggests that a positive change orientation, cultivated deliberately by management rather than left to emerge organically, strengthens a firm's capacity to respond to external uncertainty ([Katsaros & Tsirikas, 2022](#)). Applied to PT WNL, this body of evidence suggests that a strategy prioritizing improvements to oil extraction rate, harvest quality, and enzyme application, provided it is pursued alongside continued attention to environmental compliance and cooperative relationships, is likely to yield more sustainable sales growth than a narrower focus on production volume alone.

Based on this theoretical and empirical foundation, the study advances the following hypotheses. The first hypothesis proposes that PT WNL's internal factor profile, when properly weighted and rated, reflects an above average internal strength position, driven primarily by established agronomic practices, mechanization, and cooperative relationships, despite persistent weaknesses in environmental compliance and certification maintenance. The second hypothesis proposes that PT WNL's external factor profile reflects a moderately strong ability to capitalize on external opportunities such as steady CPO demand growth and the absence of substitute products, while remaining exposed to identifiable threats from rising input costs, wage inflation, and non integrated competitor mills. The third

hypothesis proposes that the combined internal and external positioning places PT WNL in the growth and build quadrant of the Internal External matrix, implying that intensive strategies such as market penetration and product development are more appropriate than defensive or divestment strategies. The fourth hypothesis proposes that among the strategic alternatives generated by the SWOT matrix, a strategy centered on improving oil extraction rate through harvester education and enzyme application will achieve the highest total attractiveness score in the Quantitative Strategic Planning Matrix, reflecting its close alignment with the company's most salient internal strengths and external opportunities.

3. Research Methodology

This study adopts a qualitative case study design, selected because the research question concerns an in depth, contextually embedded understanding of a single organization's strategic position rather than statistical generalization across a population of firms [\(Rashid et al., 2019\)](#). The case study strategy is well suited to strategy as practice research, since it allows the analyst to trace how internal and external factors interact within the specific operational context of one company, capturing nuances that a purely quantitative cross sectional survey would miss [\(Lavarda & Bellucci, 2022\)](#). Consistent with established guidance on qualitative case study methodology, the research design combines multiple data sources, applies a structured analytical framework, and documents each stage of the analysis transparently to support credibility and dependability [\(Miller et al., 2023\)](#).

The unit of analysis is PT Windu Nabatindo Lestari, a subsidiary of PT Bumitama Gunajaya Agro Group located in Pundu, Central Kalimantan, operating a plantation area of approximately fourty four thousand hectares across fifteen estates. The company was selected because it exhibits both the operational scale and the conventional, non integrated strategic planning approach that make it a representative and information rich case for examining how structured strategic analysis can be introduced into an established palm oil producer.

Data collection proceeded in two complementary stages. In the first stage, semi structured interviews were conducted with company personnel to surface qualitative perceptions of internal strengths and weaknesses and external opportunities and threats. In the second stage, structured questionnaires were distributed to respondents drawn from three functional sections within the company: marketing, finance, and production, because these three sections collectively possess the clearest working knowledge of the company's internal operations and its external competitive and regulatory environment. Respondents rated the identified internal and external factors on standardized weight and rating scales following the conventions established for Internal Factor Evaluation and External Factor Evaluation matrix construction, and secondary data were drawn from internal company records covering production volume, cost structure, and certification status to triangulate the interview and questionnaire responses.

The analytical procedure followed four sequential stages. The first stage involved identifying the problem and framing the research objective, namely determining the strategic alternative most appropriate for increasing PT WNL's crude palm oil production and sales. The second stage involved data collection through interviews and questionnaires as described above. The third stage involved data processing, beginning with construction of the Internal Factor Evaluation and External Factor Evaluation matrices. In this step, internal conditions were classified as strengths or weaknesses and external conditions were classified as opportunities or threats; each factor was then assigned a weight reflecting its relative importance to total company performance, with weights within each matrix summing to one, and a rating from one to four reflecting how effectively the company was responding to that factor, where scores closer to four for strengths and opportunities indicate stronger performance and scores closer to one for weaknesses and threats indicate a more serious deficiency. Multiplying each factor's weight by its rating and summing the products yielded a total weighted score for the internal and external matrices respectively.

The total Internal Factor Evaluation and External Factor Evaluation scores were then plotted onto the Internal External matrix, a nine cell diagnostic grid used to classify the company's overall strategic position and to indicate whether growth, stability, or retrenchment oriented strategies are most appropriate given the combination of internal strength and external responsiveness. Building on this positioning, a SWOT matrix was constructed by cross tabulating the identified strengths, weaknesses, opportunities, and threats into four strategy families, namely strength opportunity strategies, weakness opportunity strategies, strength threat strategies, and weakness threat strategies, generating a comprehensive list of candidate strategic alternatives grounded directly in the company's internal and external factor profile.

4. Results and Discussions

The fourth and final analytical stage applied the Quantitative Strategic Planning Matrix to rank the candidate strategies generated by the SWOT matrix. For each strategic alternative, an attractiveness score was assigned in relation to every key internal and external factor identified in the Internal Factor Evaluation and External Factor Evaluation matrices, reflecting how relevant that alternative is to capitalizing on or addressing the given factor. Each attractiveness score was multiplied by the corresponding factor weight to produce a weighted attractiveness score, and the weighted scores for each alternative were summed across all factors to yield a total attractiveness score, with the alternative achieving the highest total attractiveness score identified as the priority strategy. This four stage procedure, moving from problem identification through data collection, factor evaluation, and quantitative prioritization, ensured that the final strategic recommendation for PT WNL was derived transparently from the company's documented internal and external condition rather than from managerial intuition alone.

Table 1. Key internal factors (internal factor evaluation matrix)

Key Internal Factor	Weight	Rating (1-4)	Weight X Rating
Strength			
100% fertilization realization	0.09	4	0.36
Harvest exploitation with excellent quality	0.07	4	0.28
Conducting Forsima (community forum)	0.1	4	0.4
CSR (Corporate Social Responsibility) programs	0.09	4	0.36
Conducting regular meetings with cooperatives, community leaders, and NGOs	0.09	4	0.36
Using mechanized harvesting and fertilization methods	0.07	4	0.28
Applying FMS (Fleet Management System) for driver behavior monitoring	0.06	4	0.24
Ensuring 36-48 day harvest rotation intervals per year	0.1	4	0.4
Implementing the FIFO system at the mill (PKS)	0.07	4	0.28
Applying zero backlog policy in the plantation	0.06	4	0.24
Weakness			
Compliance with environmental regulations	0.1	2	0.2
Obtaining and maintaining RSPO & ISPO certification	0.1	2	0.2
TOTAL	1.00		3.6

Table 1 summarizes the internal environmental scan conducted at PT WNL, separating the identified factors into two columns corresponding to company strengths and company weaknesses. The strengths column lists the agronomic, logistical, and relational capabilities described above, while the weaknesses column lists the two compliance related deficiencies. This classification formed the direct input for the subsequent Internal Factor Evaluation matrix, in which each factor was weighted and rated by respondents from the marketing, finance, and production sections. Building on the factor list in

Table 1, the Internal Factor Evaluation matrix assigned a weight and a rating to each strength and weakness, producing a weighted score for every factor.

Table 2. Key success factors and key internal factors

Key Success Factors (KSF)	Key Internal Factors
1. Increasing yield per hectare of Fresh Fruit Bunches (FFB)	1. Ensuring 100% realization of the inorganic and organic fertilization program with excellent quality 2. Harvest exploitation with excellent quality
2. Compliance with regulations and certification	1. Complying with environmental regulations 2. Obtaining and maintaining RSPO and ISPO certification
3. Building continuous, positive relationships with cooperatives, community leaders, and NGOs	1. Conducting Forsima (community forum) 2. CSR (Corporate Social Responsibility) programs 3. Conducting regular meetings with cooperatives, community leaders, and NGOs
4. Innovating and applying new technology	1. Using mechanized harvesting and fertilization methods 2. Applying a Fleet Management System for driver behavior monitoring
5. Improving CPO quality	1. Ensuring 36-48 day harvest rotation intervals per year 2. Implementing the FIFO system at the mill 3. Applying zero backlog policy in the plantation

As shown in Table 2, the strength factors carry consistently higher ratings than the weakness factors, reflecting respondents' assessment that PT WNL's operational strengths substantially outweigh its compliance related deficiencies. Summing the weighted scores across all internal factors produced a total Internal Factor Evaluation score of 3.6, a result comfortably above the neutral midpoint of 2.5 that typically distinguishes internally strong firms from internally weak ones. This finding provides clear support for the first hypothesis, confirming that PT WNL's internal factor profile reflects an above average internal strength position anchored in established agronomic practice, mechanization, and cooperative relationships, even as environmental compliance and certification maintenance remain areas requiring continued managerial attention.

Table 3. External factor evaluation matrix

Key External Factors	Weight	Rating (1-4)	Weight X Rating
Opportunities			
1. Support from cooperatives and community leaders	0.11	3	0.33
2. Use of mechanization systems in harvesting and fertilization	0.10	3	0.30
3. RSPO and ISPO certification standards	0.11	3	0.33
4. Absence of a substitute product equivalent to CPO	0.12	4	0.36
5. Continuously increasing demand for CPO	0.13	4	0.52
Threats			
1. Policy allowing establishment of mills without accompanying plantations	0.10	2	0.20
2. Continuously rising regional minimum wage	0.08	2	0.16
3. Rising fertilizer prices	0.11	2	0.22
4. Competitors purchasing external FFB from mills owned by other companies	0.11	2	0.22
5. Regulations related to environmental rules	0.09	2	0.18

Key External Factors	Weight	Rating (1-4)	Weight X Rating
TOTAL	1.00		3.3

Turning to the external environment, the analysis identified four opportunity factors and four threat factors relevant to PT WNL's competitive position. The opportunities include sustained support from cooperatives and community leaders in the surrounding area, continuing mechanization in harvesting and fertilization activity, the absence of any viable substitute product for crude palm oil, and steadily increasing global demand for CPO. The threats include a government policy environment that permits the establishment of processing mills without accompanying plantation land, continually rising regional minimum wages, increasing fertilizer prices, and competition from external fresh fruit bunch buyers that do not bear the fixed costs associated with plantation ownership. These external conditions were then weighted and rated to construct the External Factor Evaluation matrix presented in Table 3.

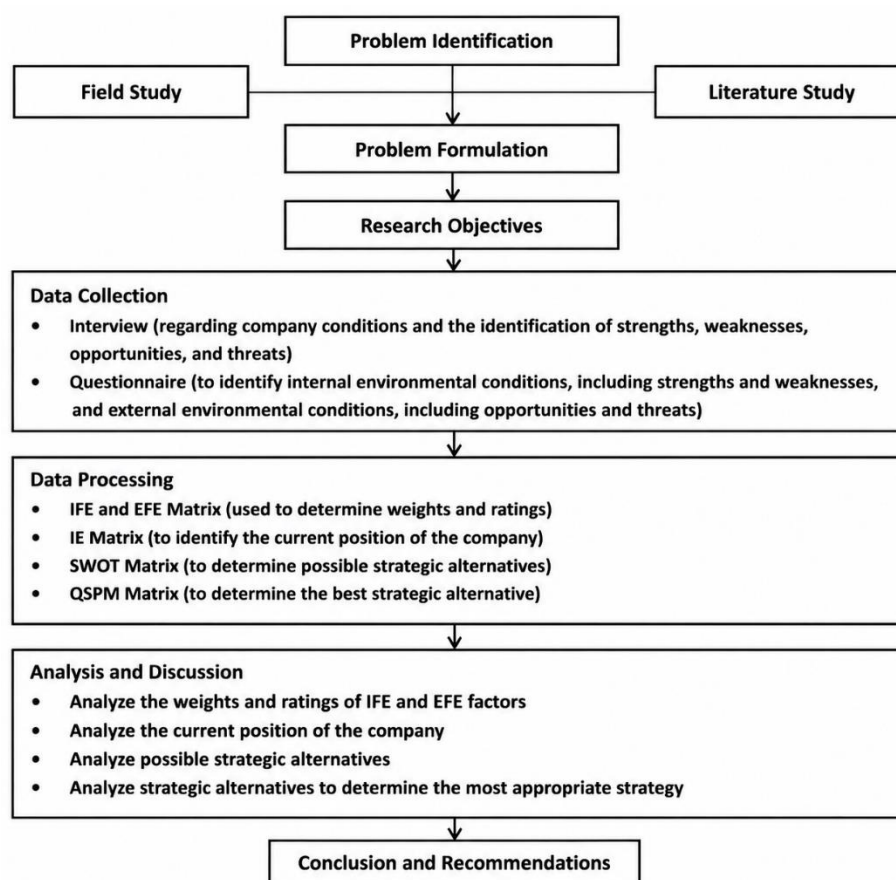


Figure 1. Research methodology framework

Combining the Internal Factor Evaluation score of 3.6 with the External Factor Evaluation score of 3.3 allows PT WNL's overall strategic position to be located on the Internal External matrix, illustrated Figure 1.

The intersection of the two scores places PT WNL within quadrant one of the Internal External matrix, the cell associated with both strong internal capability and effective external responsiveness. Firms occupying this quadrant are conventionally advised to pursue growth and build strategies, implemented through intensive approaches such as market penetration, market development, and product development, or through integrative approaches such as backward, forward, or horizontal integration. This finding directly supports the third hypothesis, confirming that PT WNL's combined internal and external positioning favors intensive growth strategies over defensive or divestment oriented alternatives, consistent with prior applications of the Internal Factor Evaluation, External Factor Evaluation, and Internal External framework in other manufacturing and agribusiness settings [\(Ben-Abdallah et al., 2022\)](#).

With the company's strategic position established, the strengths, weaknesses, opportunities, and threats identified above were cross tabulated into the SWOT matrix presented in Table 4, generating a comprehensive set of candidate strategic alternatives across the four established strategy families.

The SWOT matrix in Table 4 generated ten candidate strategies spanning all four strategy families. Among the strength opportunity strategies, the matrix proposes increasing oil extraction rate by educating the surrounding community on proper fresh fruit bunch harvesting quality, and applying enzyme technology to further raise oil extraction rate. Among the weakness opportunity strategies, the matrix proposes improving water management practices and carrying out repairs to critical machine units alongside strengthened preventive maintenance. Among the additional weakness opportunity considerations, the matrix also proposes managing fresh fruit bunch receipt processes through greater automation and digitalization. Among the strength threat strategies, the matrix proposes conducting regular coordination meetings with community leaders and organizing structured community forums to sustain social license to operate. Among the weakness threat strategies, the matrix proposes pursuing continued Roundtable on Sustainable Palm Oil and Indonesian Sustainable Palm Oil certification processes, offering incentive schemes for external fresh fruit bunch drivers, maintaining constructive relationships with local security forces, and conducting routine patrols together with the construction of access control checkpoints. This range of alternatives illustrates that the SWOT matrix, while analytically comprehensive, does not by itself indicate which alternative should receive priority, which motivated the subsequent application of the Quantitative Strategic Planning Matrix.

The Quantitative Strategic Planning Matrix, presented in Table 5, evaluated each candidate strategy against the full set of internal and external factors identified earlier, producing a total attractiveness score for every alternative.

Table 4. Quantitative Strategic Planning Matrix (QSPM)

IFE & EFE	Weight	Strategy I		Strategy II		Strategy III		Strategy IV	
		AS	TAS	AS	TAS	AS	TAS	AS	TAS
Strength									
1. 100% fertilization	0.09	3	0.27	2	0.18	4	0.36	3	0.27
2. Harvest exploitation with excellent quality	0.07	4	0.28	3	0.21	4	0.28	3	0.21
3. Conducting Forsima	0.1	3	0.3	2	0.2	3	0.3	1	0.1
4. CSR programs	0.09	3	0.27	1	0.09	3	0.27	4	0.36
5. Conducting regular meetings with cooperatives, community leaders, and NGOs	0.09	3	0.27	4	0.36	3	0.27	2	0.18
6. Using mechanized harvesting and fertilization methods	0.07	4	0.28	2	0.14	2	0.14	2	0.14
7. Applying FMS for driver behavior monitoring	0.06	2	0.12	2	0.12	2	0.12	2	0.12
8. Ensuring 36-48 day harvest rotation intervals per year	0.1	3	0.3	2	0.2	2	0.2	1	0.1
9. Implementing the FIFO system at the mill	0.07	3	0.21	2	0.14	1	0.07	1	0.07
10. Applying zero backlog policy in the plantation	0.06	3	0.18	2	0.12	1	0.06	1	0.06
Weakness									
1. Compliance with environmental regulations	0.1	3	0.3	1	0.1	1	0.1	1	0.1
2. Obtaining and maintaining RSPO certification	0.1	1	0.1	3	0.3	4	0.4	4	0.4
	1.0								

IFE & EFE	Weight	Strategy I		Strategy II		Strategy III		Strategy IV	
Opportunity									
1. Support from cooperatives and community leaders	0.1	4	0.4	3	0.3	2	0.2	2	0.2
2. Use of mechanization systems in harvesting and fertilization	0.11	3	0.33	3	0.33	2	0.22	4	0.44
3. RSPO and ISPO certification standards	0.1	2	0.2	2	0.2	4	0.4	3	0.3
4. Absence of a substitute product equivalent to CPO	0.11	2	0.22	3	0.33	1	0.11	2	0.22
5. Continuously increasing demand for CPO	0.1	1	0.1	3	0.3	2	0.2	3	0.3
Threat									
1. Policy allowing establishment of mills without plantations	0.1	3	0.3	3	0.3	3	0.3	4	0.4
2. Continuously rising regional minimum wage (UMR)	0.08	3	0.24	3	0.24	3	0.24	4	0.32
3. Rising fertilizer prices	0.1	4	0.4	3	0.3	3	0.3	3	0.3
4. Competitors purchasing external FFB from mills owned by other companies	0.11	2	0.22	3	0.33	3	0.33	3	0.33
5. Regulations related to environmental rules	0.09	3	0.27	3	0.27	3	0.27	3	0.27
Total	1.0		5.560		5.060		5.140		5.190

The results in Table 4 show that the strength opportunity strategy centered on market penetration through improved oil extraction rate achieved the highest total attractiveness score among all candidate alternatives, exceeding the scores obtained by the remaining strength opportunity, weakness opportunity, strength threat, and weakness threat strategies. Within this priority strategy, two specific initiatives emerged as the most attractive components: educating the surrounding community and independent fresh fruit bunch suppliers on proper harvesting quality, and applying enzyme technology within the milling process to extract additional oil from processed fruit. This finding provides strong support for the fourth hypothesis, confirming that a strategy aligned closely with PT WNL's most salient internal strengths, namely established harvest methods and mechanization, and its clearest external opportunity, namely sustained demand growth for crude palm oil, outperforms alternative strategies that address secondary weaknesses or threats.

These findings resonate with, and extend, prior applications of the combined SWOT and Quantitative Strategic Planning Matrix methodology in other agribusiness and industrial contexts. [Wahmil et al. \(2025\)](#) similarly found that strategies directly reinforcing a firm's core operational strength achieved higher attractiveness scores than strategies aimed narrowly at correcting internal weaknesses, a pattern this study replicates in the palm oil setting. The result is also consistent with sector specific evidence that production efficiency improvements, rather than volume expansion alone, drive sustainable competitiveness in the palm oil industry ([Suprihatin et al., 2024](#); [Adwiyah et al., 2023](#)), since raising oil extraction rate increases the value captured from each hectare of existing plantation rather than requiring additional land conversion. From a resource-based view perspective, the priority strategy also reflects an efficient redeployment of existing, difficult to imitate internal resources, namely the company's accumulated harvesting knowledge and its cooperative relationships with surrounding communities, into a more valuable configuration through enzyme assisted extraction, rather than an acquisition of entirely new resources ([Helfat & Peteraf, 2023](#)).

At the same time, the persistence of environmental compliance and certification maintenance as internal weaknesses, and the presence of wage inflation, rising fertilizer costs, and non integrated competitor mills as external threats, indicate that the priority strategy should not be pursued in isolation. The weakness threat strategies identified in the SWOT matrix, particularly continued pursuit

of Roundtable on Sustainable Palm Oil and Indonesian Sustainable Palm Oil certification, remain necessary complements to the market penetration strategy, since certification lapses could jeopardize access to export markets that depend on sustainability assurance (Wardhani & Rahadian, 2021). The overall pattern of results therefore suggests that PT WNL's most defensible path forward combines an intensive, efficiency oriented growth strategy with continued, disciplined attention to compliance and stakeholder relationships, rather than treating production growth and sustainability compliance as competing priorities.

5. Conclusions

5.1 Conclusion

The internal environmental analysis conducted at PT Windu Nabatindo Lestari shows that the company possesses a strong internal resource base, reflected in a total Internal Factor Evaluation score of 3.6, built primarily on disciplined fertilization practice, effective harvest exploitation, established harvest methods supported by mechanization, consistent harvest intervals, an orderly first in first out processing system, an operational Fleet Management System, and durable relationships with cooperative partners, while environmental regulation compliance and certification maintenance remain areas of continued internal weakness. The external environmental analysis shows that the company is responding effectively to its external environment, reflected in a total External Factor Evaluation score of 3.3, supported by steady cooperative and community backing, ongoing mechanization opportunities, the absence of substitute products for crude palm oil, and rising global demand, even as rising minimum wages, increasing fertilizer prices, competitor mills without plantation land, and land use policy changes continue to pose identifiable threats. Together, these scores position PT WNL in quadrant one of the Internal External matrix, indicating that a growth and build strategy is the most appropriate overall direction for the company. Within the range of strategic alternatives generated by the SWOT matrix, the Quantitative Strategic Planning Matrix identifies market penetration through improved oil extraction rate as the clear priority strategy, to be achieved specifically by educating fresh fruit bunch harvesters and suppliers on proper harvesting quality and by applying enzyme technology within the milling process. Implementing this priority strategy is expected to meaningfully increase crude palm oil sales at PT WNL, provided it is pursued alongside continued attention to environmental compliance and certification maintenance.

5.2 Research Limitations

This study is subject to several limitations that should temper the interpretation and generalization of its findings. The research relies on a single case study design centered on one palm oil producer operating in a specific regency of Central Kalimantan, which restricts the extent to which the findings can be generalized to palm oil producers operating under different agro-ecological, regulatory, or ownership conditions elsewhere in Indonesia or in other producing countries such as Malaysia. The data collection also reflects a cross sectional snapshot of the company's internal and external condition at a single point in time, so the weights, ratings, and resulting strategic priority identified here may shift as input costs, regulatory requirements, or market demand evolve in subsequent periods. In addition, the questionnaire respondents were drawn only from the marketing, finance, and production sections of the company, which, while providing broad functional coverage, may not fully capture perspectives held by field level harvesters, cooperative partners, or external regulators whose views could refine the factor identification and weighting process. Finally, the Quantitative Strategic Planning Matrix technique itself depends on subjective attractiveness scoring by informed respondents, which, despite following established weighting and rating conventions, introduces an element of managerial judgment that quantitative aggregation cannot fully eliminate.

5.3 Directions and Future Study

Building on these limitations, several directions for future research appear promising. Future studies could extend the present analysis longitudinally, tracking how PT WNL's Internal Factor Evaluation

and External Factor Evaluation scores, and the resulting Quantitative Strategic Planning Matrix rankings, evolve as the recommended market penetration strategy is implemented over successive harvest seasons. Comparative case studies involving multiple palm oil producers operating under varying ownership structures, whether smallholder cooperatives, mid sized private companies, or large vertically integrated conglomerates, would help establish whether the priority given to oil extraction rate improvement over other strategic alternatives holds consistently across firm types or is specific to companies with PT WNL's particular resource configuration. Future research could also incorporate a wider range of respondent groups, including field level harvesters and cooperative smallholders, to enrich the internal and external factor identification process, and could integrate quantitative financial performance data more directly into the attractiveness scoring process to reduce reliance on subjective managerial judgment. Finally, given the centrality of sustainability certification to the weaknesses and threats identified in this study, future work could usefully examine how certification maintenance costs and benefits interact quantitatively with production efficiency strategies within the Quantitative Strategic Planning Matrix framework, rather than treating certification as a separate qualitative consideration.

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Author Contributions

SAPW conceived the research design, conducted the data collection and interviews at PT Windu Nabatindo Lestari, and drafted the original manuscript. S supervised the overall research process, reviewed the analytical methodology, contributed to the interpretation of the Internal Factor Evaluation, External Factor Evaluation, and Quantitative Strategic Planning Matrix results, and critically revised the manuscript for intellectual content. Both authors read and approved the final version of the manuscript.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article. This research was conducted independently, and the authors have no financial, personal, or professional relationships with PT Windu Nabatindo Lestari, PT Bumitama Gunajaya Agro Group, or any other party that could have inappropriately influenced the data collection, analysis, interpretation of results, or the decision to publish this study. No funding was received from the company under study, and the findings and recommendations presented in this article reflect the authors' independent academic assessment based solely on the data obtained through interviews, questionnaires, and documented company records.

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