

# Digital Transformation and Competitive Strategies of Nutmeg-Processing MSMEs: A SWOT–QSPM Analysis

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## Abstract

**Purpose:** This study identifies key factors affecting the marketing competitiveness of nutmeg-processing MSMEs in Tanggamus Regency and formulates prioritized strategies using an extended SWOT–QSPM framework incorporating digital and institutional perspectives.

**Methodology:** A descriptive quantitative approach was used, with data from semi-structured interviews with nine purposively selected experts in two nutmeg-producing sub-districts. IFAS–EFAS, SWOT, and QSPM were applied to determine and prioritize the strategies.

**Results:** The IFAS (3.76) and EFAS (3.14) scores indicate a strong strategic position. Strengths in product quality, customer relationships, and skilled labor are constrained by limited capital, weak financial management, and a narrow marketing reach, whereas government support, digital expansion, and rising demand present key opportunities. The QSPM ranks digital market development (TAS = 13.64), product quality and innovation (TAS = 12.76), and distribution network expansion (TAS = 11.82) as priority strategies.

**Conclusions:** Nutmeg-processing MSMEs can enhance their competitiveness by aligning their internal strengths with digital and institutional opportunities. Digital capability is a key driver, supported by strategies for digital adoption, innovation, collaboration, and managerial capacity building.

**Limitations:** Limited to two sub-districts and subjective QSPM scoring, these findings lack generalizability. Future research should expand the sample size and utilize Fuzzy-AHP to enhance validity.

**Contributions:** This study proposes a quantitative model that integrates strategy, digital transformation, and ecosystems, identifying digital expansion as a critical capability for rural MSMEs in agro-processing.

**Keywords:** *Competitive Strategy, Marketing Strategy, MSME, Nutmeg Processing, SWOT Analysis, QSPM*

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## 1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in Indonesia's economic structure, contributing significantly to employment and GDP (Tambunan, 2019b). In Lampung Province, the MSME sector is dominated by the agrarian sector, with 150,999 registered MSMEs as of 2023, of which 98% are micro-enterprises (Badan Pusat Statistik, 2023). This underscores the need for capacity building and competitiveness enhancement, particularly for agro-based MSMEs. Lampung Province, specifically Tanggamus Regency, has considerable potential for agro-industrial development. Among

its key commodities is nutmeg (*Myristica fragrans* Houtt), an indigenous Indonesian spice that was historically grown in the eastern regions but is now cultivated across the archipelago.

Tanggamus Regency ranks third nationally in nutmeg production, with 1,353 hectares of cultivation area yielding 493 tons, concentrated in the Kota Agung Timur, Gisting, Semaka, and Air Naningan sub-districts ([BPS Tanggamus, 2023](#)). Nutmeg fruit possesses high economic value. While seeds and mace (fuli) are the primary traded commodities, advances in food science have enabled the processing of previously discarded nutmeg flesh into value-added products such as candied nutmeg, dodol, wajik, candy, enteng-enteng, cake, and syrup ([Dwi Apriliansyah, Ismono, & Novi, 2013](#); [Kamelia & Silalahi, 2018](#)). This diversification creates significant opportunities for MSMEs in Tanggamus.

Despite this potential, nutmeg-processing MSMEs in Tanggamus Regency face considerable competitive challenges in the market. Competitive priorities encompass five dimensions: cost, quality, flexibility, delivery, and innovation ([Russell & Millar, 2014](#)). Production remains predominantly order-driven, with market reach largely confined to local areas and government-organized exhibitions in the region. The lack of a systematic marketing strategy constrains the growth potential. Previous studies on MSME competitiveness in Indonesia have identified key success factors, including managerial capability, raw material availability, technical skills, and access to information ([Apriyani, 2012](#); [Apriyani, Saty, & Asliana, 2019](#)).

Research by [Hubeis, Purwanto, and Dewi \(2015\)](#), emphasized that increasing MSME competitiveness requires inter-regional raw material cooperation, industrial clustering, and collaborative roles among government, private sector, and academia. [Bismala \(2014\)](#), demonstrated that systematic marketing strategy formulation using SWOT analysis can substantially improve MSME performance in competitive markets. The competitive landscape for MSMEs is further complicated by limited digital marketing capabilities, constrained capital access, and weak managerial systems [Kurdi and Firmansyah \(2020\)](#); [Mubarak and Rusdi \(2024\)](#); [Septiani, Hubeis, and Beik \(2013\)](#); [Susilo \(2010\)](#) found that entrepreneurial marketing significantly influences competitiveness, while government policy plays a mediating role. These findings highlight the multidimensional nature of MSME competitiveness and the need for contextualized strategies.

Although SWOT and QSPM frameworks have been widely applied in MSME strategic planning studies in Indonesia, most prior research remains descriptive and focuses primarily on internal–external factor identification without integrating digital transformation readiness, institutional facilitation, and agro-based value chain differentiation within a rural context. Furthermore, existing studies tend to treat digital marketing adoption as a tactical promotional tool rather than as a strategic competitiveness driver embedded within broader capability development. Recent international literature emphasizes the importance of entrepreneurial marketing orientation [Sarma, Marsden, and Hasan \(2022\)](#) and institutional digital ecosystems [OECD \(2021\)](#) in strengthening SME competitiveness. However, empirical evidence connecting these macro-level digital transformation frameworks with micro-level agro-processing MSMEs in rural Indonesia is limited.

Despite the increasing number of MSME competitiveness studies, limited research integrates Quantitative Strategic Prioritization Tools (QSPM) with digital transformation readiness in rural agro-processing sectors. Most studies are either qualitative or focus solely on marketing promotion without linking internal resource configuration, institutional support, and measurable strategic ranking. From a theoretical standpoint, MSME competitiveness can be understood through the Resource-Based View (RBV), which emphasizes the strategic value of unique internal resources [Barney \(2007\)](#), and dynamic capability theory, which highlights firms' ability to reconfigure resources in response to environmental changes ([Teece, 2018](#)). In rural agro- processing contexts, digital capability may function as a dynamic capability that transforms traditional product advantages into scalable, competitive assets.

Addressing the limited integration of digital transformation readiness and institutional support within the SWOT–QSPM framework for rural agro-processing MSMEs, this study contributes to the literature in three ways. First, it integrates SWOT–QSPM strategic analysis with digital transformation and

institutional support perspectives in the context of rural spice processing. Second, it provides empirical validation of growth-oriented competitiveness positioning using quantified QSPM prioritization, rather than relying solely on qualitative strategic mapping. Third, it develops a contextualized competitiveness model linking internal capabilities, digital opportunity exploitation, and stakeholder collaboration in agro-based MSMEs. Given the rich potential and existing challenges, this study aims to: (1) analyze the internal and external factors hindering the marketing strategy of nutmeg-processing MSMEs; (2) identify efforts to overcome these marketing barriers; and (3) formulate marketing strategies to enhance the competitiveness of nutmeg-processing MSMEs in Tanggamus Regency. This study contributes to the literature on agro-based MSME development and provides actionable guidance for practitioners and policymakers.

## 2. Literature Review

### 2.1 *Nutmeg (*Myristica fragrans* Houtt) as an Agro-Industrial Commodity*

Nutmeg is one of Indonesia's original spice commodities, recognized globally for its distinctive aroma and high oil yield ([Balitka, 2010](#)). The plant is classified under the Myristicaceae family and is commercially traded primarily as seeds and maces ([Bustaman, 2007](#)). Nutmeg flesh, comprising 77.8% of total fruit weight, is nutritionally rich-containing 42 kcal/100 g, 10.90 g carbohydrates, 22 mg vitamin C, and 29.50 IU vitamin A ([Arief, Firdausil, & Asnawi, 2015](#)). Product diversification from nutmeg flesh represents a significant opportunity for value chain development. [Bulan \(2017\)](#) defines product diversification as a strategy to broaden product categories, thereby increasing market penetration. Industries in Sukadamai Village and Tanggamus Regency have pioneered home-based nutmeg processing ([Indriaty & Assah, 2015](#); [Sumantri, Fariyanti, & Winandi, 2013](#)), reflecting the potential for agro-industrial MSMEs growth in the region. In agri-food MSMEs, innovation- and sustainability-oriented differentiation have been shown to significantly enhances competitiveness and market positioning ([Triguero, Fernández, & Sáez-Martínez, 2020](#)).

### 2.2 *MSME Competitiveness Frameworks*

MSMEs are acknowledged as pivotal actors in economic development in both developing and developed nations ([Tambunan, 2019a](#)). Under Indonesian Law No. 20 of 2008, MSMEs are categorized into micro, small, and medium enterprises based on asset value and annual revenue. Despite their significance, MSMEs face systemic challenges, including marketing difficulties, financial constraints, human resource limitations, raw material access issues, technological limitations, managerial deficiencies, and weak inter-enterprise partnerships ([Hubeis, 2009](#)). Competitive advantage, as articulated by [Barney \(2007\)](#), is achieved when a firm creates greater economic value than its rivals. [Russell and Millar \(2014\)](#) proposed five competitive priority dimensions: cost, quality, flexibility, delivery, and innovation, which collectively determine an enterprise's market position.

### 2.3 *Marketing Strategy*

A marketing strategy encompasses a comprehensive plan to promote products or services to consumers in pursuit of organizational objectives such as revenue growth, brand awareness, and customer loyalty ([Kotler & Keller, 2016](#)). The marketing mix product, price, place, and promotion (4P) forms the operational foundation of the marketing strategy. In the MSMEs context, [Bismala \(2014\)](#) demonstrated that systematic marketing management incorporating product innovation, digital channels, and geographical branding significantly enhances competitiveness. Digital marketing channels, including social media marketing, content marketing, email marketing, Search Engine Optimization (SEO), and marketplace platforms, have opened new opportunities for MSMEs to reach broader markets at lower costs ([Kurdi & Firmansyah, 2020](#)).

Word-of-mouth marketing remains relevant, particularly for locally embedded products such as processed nutmeg that rely on cultural authenticity and community trust. Digital capability can also be conceptualized as a dynamic capability enabling strategic renewal and long-term competitiveness in turbulent environments ([Warner & Wäger, 2018](#)). Recent international studies have increasingly emphasized the strategic role of digital capabilities and entrepreneurial marketing in strengthening SME competitiveness. Empirical evidence shows that entrepreneurial marketing orientation particularly innovation-driven promotion, opportunity exploitation, and adaptive customer engagement

significantly enhances SME competitive positioning in emerging economies ([Audina, Achyani, & Trisnawati, 2026](#); [Sarma et al., 2022](#)). This finding suggests that digital storytelling, social media engagement, and marketplace optimization are not merely promotional tools but strategic instruments for differentiation and value creation. Recent systematic reviews highlight that digital transformation in SMEs requires organizational readiness, leadership commitment, and ecosystem alignment to translate technology adoption into competitive performance ([Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2021](#)).

Furthermore, digital marketing capability combined with access to digital finance has been proven to improve SME marketing performance and operational resilience ([Daud et al., 2021](#)). Agro-based SMEs, in particular, benefit from financial literacy and digital financial inclusion, which mediate the relationship between resource capability and sustainable competitive performance ([Akhtar, Khan, & Rahman, 2024](#)). These findings reinforce the importance of strengthening financial management skills and integrating digital platforms into MSME strategic development. From a policy perspective, international institutions highlight that SME digital transformation requires structured institutional support, including regulatory simplification, digital infrastructure, and incubation ecosystems ([OECD, 2021](#)). [International Trade Centre \(2021\)](#) further emphasizes that long-term competitiveness depends on integrating digital adoption with sustainable value chain development. However, systematic reviews reveal persistent barriers, such as low digital literacy, limited infrastructure, and regulatory complexity in SME digitalization processes ([Nazaruddin, 2024](#)). These global insights provide a strong theoretical foundation for contextualizing growth-oriented strategies in rural agro-processing MSMEs.

## **2.4 SWOT Analysis as a Strategic Planning Tool**

SWOT analysis evaluates internal Strengths and Weaknesses alongside external Opportunities and Threats to formulate effective organizational strategies ([Rangkuti, 2019](#)). The methodology generates four strategic orientations: SO strategies that leverage strengths to exploit opportunities; WO strategies that minimize weaknesses to capture opportunities; ST strategies that apply strengths to counter threats; and WT strategies that minimize weaknesses while avoiding threats. The Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) matrices quantify these factors through weighted scoring, enabling SWOT quadrant positioning that guides the strategic direction ([David, 2010](#)). The QSPM represents the third and final stage of the strategic management framework ([David, 2010](#)).

Building upon SWOT-generated strategic alternatives, the QSPM objectively ranks each alternative by calculating Total Attractiveness Scores (TAS), derived from multiplying each factor's weight by its Attractiveness Score (AS, rated on a 1–4 scale). The strategy with the highest cumulative TAS was regarded as the most viable for implementation. QSPM eliminates the subjectivity inherent in qualitative SWOT comparisons and enables practitioners and policymakers to allocate resources to quantitatively prioritized strategies. Quadrant I positioning (positive S-W differential and positive O-T differential) indicates a growth-oriented strategy, recommending aggressive expansion. This framework has been widely applied in Indonesian MSME contexts, including agro-industrial processing ([Apriyani et al., 2019](#); [Delmayuni, Hubeis, & Cahyadi, 2017](#)), consistently demonstrating its utility in resource-constrained settings.

## **2.5 Conceptual Framework**

This study adopts an integrated strategic competitiveness framework grounded in the Resource-Based View ([Barney, 2007](#)) and dynamic capability theory ([Teece, 2018](#)). Internal factors (resources, skills, quality consistency, and customer relationships) represent firm-specific capabilities, whereas external factors (digital technology, government support, market demand, and competition) represent environmental contingencies. These factors are systematically evaluated through IFAS–EFAS matrices, leading to SWOT quadrant positioning, which determines strategic orientation. Subsequently, the QSPM quantifies strategic attractiveness and prioritizes implementation pathways. The framework assumes that competitiveness enhancement is achieved when internal strengths are strategically aligned with external opportunities and are supported by dynamic adaptation mechanisms. The conceptual flow of this study can be summarized as follows: Internal Capabilities and External Environment: (a)



Strategic Positioning (SWOT Quadrant), (b) Strategic Alternatives (SO, WO, ST, WT), (c) Quantitative Prioritization (QSPM), and (d) Competitive Advantage Enhancement. This framework bridges strategic management theory and practical agro-industrial MSME development.

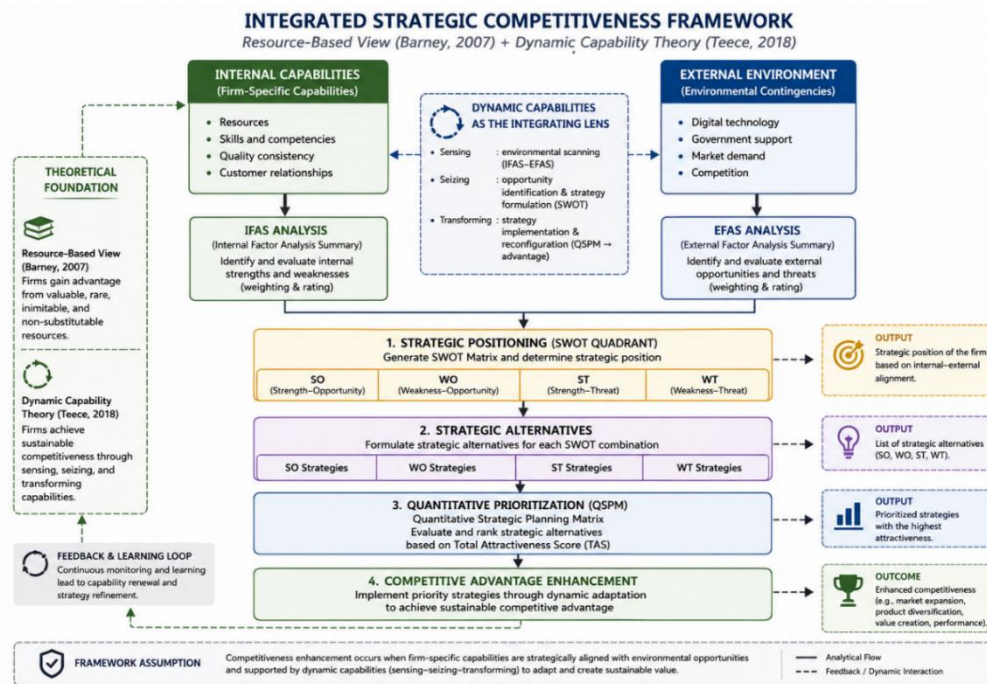


Figure 1. Conceptual Framework

### 3. Methodology

#### 3.1 Research Design and Location

This study adopted a mixed-methods approach. The research was conducted in the Kota Agung Timur and Gisting sub-districts of the Tanggamus Regency, Lampung Province, Indonesia, between May and October 2024. The study sites were selected using purposive sampling based on the high concentration of nutmeg-processing MSMEs within the regency. Given the limited number of expert respondents, this study is exploratory and context-specific. Therefore, the findings are not intended to be generalized to the entire Tanggamus Regency or other regions.

Kota Agung serves as the administrative capital of Tanggamus Regency, covering an area of 76.93 km<sup>2</sup> with a population of approximately 47,147 (BPS Tanggamus, 2023). Its strategic location, spanning coastal and highland areas, supports infrastructure accessibility and market connectivity in the region. The Gisting sub-district, established in 2005, is situated at an altitude of approximately 700 meters above sea level, with average temperatures ranging from 18–28°C. It covers an area of 33 km<sup>2</sup> and has a population of approximately 43,421. Both sub-districts exhibit agro-ecological conditions conducive to nutmeg cultivation and agro-industrial development in Indonesia.

In addition, the characteristics of the expert respondents are described to provide context for sampling design. Among the nine expert respondents, three were nutmeg-processing MSME practitioners, all of whom were women. This finding is consistent with Sumantri et al. (2013) who reported that home-based food industries in Indonesia are predominantly managed by women because of their flexibility and compatibility with domestic responsibilities. This pattern suggests that nutmeg processing contributes not only to economic activity but also to women's socioeconomic empowerment in the study area.

Most MSME practitioners were aged between 40 and 50 years, indicating a mature and experienced workforce in the sector. Their educational background was predominantly at the senior high school level, highlighting the need for targeted capacity-building programs, particularly in digital marketing

and financial management fields. This observation aligns with Hubeis et al. (2015), who emphasized the role of human resource competency in determining MSME performance. Tambunan (2019b) further underscores the importance of intergenerational succession in sustaining MSME development.

### **3.2 Data Collection**

Primary data were collected through semi-structured, in-depth interviews (Sugiyono, 2010) with nine purposively selected respondents. These comprised three nutmeg-processing MSME practitioners, one official from the Cooperative and MSME Office of Tanggamus Regency, two academics specializing in economics and management, one retail trader, and one consumer representative. Semi-structured interviews were employed to allow respondents to articulate their perspectives while maintaining a thematic consistency. The use of nine expert respondents aligns with purposive expert sampling practices commonly applied in strategic analysis studies utilizing SWOT and QSPM frameworks (David, 2010; Rangkuti, 2019), where the depth and relevance of expert judgment are prioritized over the sample size.

### **3.3 Data Analysis**

Data analysis was conducted in three stages. First, internal and external strategic factors were identified and quantified using IFAS and EFAS matrices. Each factor was rated on a scale of 1–4, and weighted scores were calculated. The total IFAS and EFAS scores were then used to determine a firm's position within the SWOT matrix. Second, the SWOT matrix was employed to generate strategic alternatives across the SO, WO, ST and WT quadrants. Third, the Quantitative Strategic Planning Matrix (QSPM) was applied to prioritize the strategies. The QSPM assigns Attractiveness Scores (AS) on a scale of 1–4 for each strategy relative to each key factor. Each expert independently assigned Attractiveness Scores (AS) on a scale of 1–4 for every factor–strategy combination. The final AS value for each cell was determined using the median score across all respondents to minimize the influence of extreme judgment.

Prior to conducting the IFAS/EFAS and QSPM analyses, inter-rater agreement among the nine expert respondents was assessed using Kendall's Coefficient of Concordance (Kendall's W). The results indicated strong agreement, with  $W = 0.812$  for the IFAS factor ratings and  $W = 0.784$  for the EFAS factor ratings, both statistically significant ( $\chi^2, p < 0.05$ ). These findings confirm sufficient concordance to justify the aggregation of expert judgments (Marimin & Maghfiroh, 2010). Cronbach's alpha was not employed in this study because the instrument does not constitute a psychometric scale but rather a structured assessment of strategic factors. Therefore, internal consistency reliability is more appropriately evaluated using inter-rater agreement measures such as Kendall's W.

## **4. Results and Discussions**

### **4.1 Research Area Overview**

Kota Agung serves as the administrative capital of Tanggamus Regency, covering 76.93 km<sup>2</sup> with approximately 47,147 resident ([BPS Tanggamus, 2023](#)). Its strategic coastal and highland locations provide good infrastructure access and market connectivity. The Gisting sub-district, established in 2005, lies at approximately 700 meters above sea level with an average temperature of 18–28°C, covering 33 km<sup>2</sup> with around 43,421 residents. Both sub-districts feature agro-ecological conditions conducive to nutmeg cultivation and agroindustrial development.

### **4.2 Respondent Profile**

Among the nine expert respondents, three were MSME nutmeg-processing practitioners, all of whom were female (100%), consistent with [Sumantri et al. \(2013\)](#) who noted that home-based food industries in Indonesia are predominantly managed by women due to flexibility and alignment with domestic activities. This dominance indicates that nutmeg processing serves not only economic but also social empowerment functions for women in the study area, as discussed below. Most MSME practitioner respondents were aged 40–50 years, reflecting mature productive-age practitioners with accumulated business experience. Educational attainment was predominantly at the senior high school level, highlighting the need for targeted vocational training in digital marketing and financial management, as corroborated by [Hubeis et al. \(2015\)](#) regarding human resource competency as a determinant of

MSME performance. [Tambunan \(2019b\)](#) further emphasizes the importance of intergenerational business succession to ensure MSME sustainability.

#### 4.3 SWOT Analysis: Internal and External Factors

Table 1 presents the internal and external factors identified through the IFAS and EFAS analyses.

Table 1. Internal and external SWOT factors for Nutmeg-processing MSMEs

| No                   | Internal Factor                                | No                      | External Factor                                             |
|----------------------|------------------------------------------------|-------------------------|-------------------------------------------------------------|
| <b>A. Strengths</b>  |                                                | <b>C. Opportunities</b> |                                                             |
| 1                    | Consistent product quality                     | 1                       | Growing market demand for processed local products          |
| 2                    | Unique products compared to competitors        | 2                       | Digital technology supports marketing                       |
| 3                    | Skilled employees                              | 3                       | Government support (programs, training, capital assistance) |
| 4                    | Strong customer relationships                  | 4                       | Strategic business location                                 |
| 5                    | Attractive product packaging                   | 5                       | Resellers/agents to expand distribution                     |
| 6                    | Price aligned with quality                     |                         |                                                             |
| <b>B. Weaknesses</b> |                                                | <b>D. Threats</b>       |                                                             |
| 1                    | Limited business capital                       | 1                       | Increasingly competitive market                             |
| 2                    | Simple financial management and record-keeping | 2                       | Fluctuating raw material prices                             |
| 3                    | Difficulty in continuous product innovation    | 3                       | Declining consumer purchasing power                         |
| 4                    | Limited marketing reach                        | 4                       | Government regulations affecting business                   |

The total IFAS score of 6.89 reflects a robustly strong internal position, substantially exceeding the threshold of 2.5 recommended by ([Rangkuti, 2019](#)). The strengths sub-total (3.76) outpaces the weaknesses sub-total (3.14) by 0.62 points, confirming that MSMEs' internal capabilities represent a net competitive asset. Among the strength factors, S4 strong customer relationship management yields the highest weighted score (0.67), followed by S1, S2, and S3 (each 0.63). These scores reflect the respondents' consistently high ratings for product quality, uniqueness, employee skill, and customer engagement, suggesting that MSMEs have cultivated meaningful relational capital and brand differentiation. S5 (attractive packaging) and S6 (price-quality alignment) also scored competitively (0.60 each), indicating that the value proposition communicated to consumers was well regarded.

Among the weakness factors, W1 (limited capital) and W4 (limited marketing reach) record the highest weighted scores (0.97 each), driven primarily by their relatively high weights (0.28), reflecting respondents' judgment that these are the most industry-critical internal deficiencies. W2 (simple management systems) follows at 0.79, while W3 (difficulty sustaining product innovation) records the lowest weakness score (0.40), indicating that innovation constraints, though present, are assessed as comparatively less severe. Taken together, the weakness profile reveals that the principal internal constraints are financial and commercial in nature, a pattern consistent with the broader MSME literature ([Tambunan, 2019b](#)). The total EFAS score of 6.61 confirms that the external environment is broadly favorable, exceeding the 2.5 threshold and indicating that MSMEs are effectively leveraging opportunities and managing threats ([Pearce & Robinson, 2013](#)). The opportunities sub-total (3.48) exceeds the threats sub-total (3.13), reflecting a net-positive external balance.

Among the opportunity factors, O3 government support programs and subsidies record the highest weighted score (0.89), reflecting both its high weight (0.26) and a near-ceiling average rating (3.89). This finding underscores the strategic significance of institutional support in the MSME development ecosystem ([Suci, 2017](#)). O2 (digital technology facilitates marketing) follows at 0.78, consistent with the growing evidence of digital platforms as growth enablers for resource-constrained enterprises (Kurniawan et al., 2021). O4 (strategic location) and O5 (reseller network) scored 0.69 and 0.65, respectively, indicating meaningful distribution advantages. O1 (growing market demand) records the

lowest opportunity score (0.48), partly attributable to its lower average rating (2.89), suggesting that respondents perceive market demand growth as real but not uniformly captured by their enterprises.

Among the threat factors, T3 declining consumer purchasing power yields the highest weighted score (1.12), driven by a high weight (0.31), and a near-ceiling average rating (3.67). This factor represents the most critical external risk faced by the MSMEs studied, as consumer spending sensitivity directly constrains the revenue potential. T4 (government regulatory constraints) follows at 0.93, reflecting the respondents' perception of a moderately burdensome regulatory environment. T1 (intensifying market competition) scores 0.75, confirming the competitive pressures documented in MSME literature (Hunger & Wheelen, 2011). T2 (raw material price volatility) recorded the lowest threat score (0.33), with an average rating of only 2.00, suggesting that while price volatility is acknowledged, its impact is assessed as manageable.

Table 2. IFAS/EFAS rating, weight, and score analysis

| Description                           | Responden |   |   |   |   |   |   |   |   | Amount | Avg Rating | Weight | Score |
|---------------------------------------|-----------|---|---|---|---|---|---|---|---|--------|------------|--------|-------|
|                                       | 1         | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |        |            |        |       |
| STRENGTHS                             |           |   |   |   |   |   |   |   |   |        |            |        |       |
| Consistent product quality            | 4         | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 34     | 3.78       | 0.17   | 0.63  |
| Product uniqueness vs competitors     | 3         | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 34     | 3.78       | 0.17   | 0.63  |
| Skilled employees                     | 4         | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 34     | 3.78       | 0.17   | 0.63  |
| Strong customer relationships         | 4         | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 35     | 3.89       | 0.17   | 0.67  |
| Attractive packaging                  | 4         | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 33     | 3.67       | 0.16   | 0.60  |
| Price aligned with quality            | 4         | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 33     | 3.67       | 0.16   | 0.60  |
| Total Strengths                       |           |   |   |   |   |   |   |   |   | 203    | 22.56      | 1.00   | 3.76  |
| WEAKNESSES                            |           |   |   |   |   |   |   |   |   |        |            |        |       |
| Limited capital                       | 4         | 4 | 3 | 4 | 4 | 3 | 3 | 2 | 4 | 31     | 3.44       | 0.28   | 0.97  |
| Simple financial management           | 4         | 2 | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 28     | 3.11       | 0.25   | 0.79  |
| Difficulty in product innovation      | 2         | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 20     | 2.22       | 0.18   | 0.40  |
| Limited marketing reach               | 4         | 4 | 3 | 4 | 4 | 4 | 3 | 1 | 4 | 31     | 3.44       | 0.28   | 0.97  |
| Total Weaknesses                      |           |   |   |   |   |   |   |   |   | 110    | 12.22      | 1.00   | 3.14  |
| TOTAL IFAS                            |           |   |   |   |   |   |   |   |   | 313    | 3.48       |        | 6.89  |
| OPPORTUNITIES                         |           |   |   |   |   |   |   |   |   |        |            |        |       |
| Growing market demand                 | 2         | 2 | 4 | 3 | 4 | 2 | 3 | 4 | 2 | 26     | 2.89       | 0.17   | 0.48  |
| Digital technology supports marketing | 4         | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 33     | 3.67       | 0.21   | 0.78  |
| Government support                    | 4         | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 35     | 3.89       | 0.23   | 0.88  |
| Strategic location                    | 4         | 2 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 31     | 3.44       | 0.20   | 0.69  |
| Reseller/agent network                | 4         | 4 | 4 | 4 | 2 | 4 | 3 | 3 | 2 | 30     | 3.33       | 0.19   | 0.65  |
| Total Opportunities                   |           |   |   |   |   |   |   |   |   | 155    | 17.22      | 1.00   | 3.48  |
| THREATS                               |           |   |   |   |   |   |   |   |   |        |            |        |       |
| Increasingly competitive market       | 4         | 3 | 4 | 4 | 3 | 2 | 2 | 2 | 3 | 27     | 3.00       | 0.25   | 0.75  |
| Raw material price fluctuation        | 1         | 3 | 2 | 1 | 2 | 3 | 2 | 2 | 2 | 18     | 2.00       | 0.17   | 0.33  |
| Declining consumer purchasing power   | 4         | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 2 | 33     | 3.67       | 0.31   | 1.12  |
| Government regulatory influence       | 2         | 4 | 4 | 3 | 4 | 4 | 3 | 3 | 3 | 30     | 3.33       | 0.28   | 0.93  |



|               |  |  |  |  |  |  |  |  |  |     |           |      |      |
|---------------|--|--|--|--|--|--|--|--|--|-----|-----------|------|------|
| Total Threats |  |  |  |  |  |  |  |  |  | 108 | 12.0<br>0 | 1.00 | 3.13 |
| TOTAL EFAS    |  |  |  |  |  |  |  |  |  | 263 | 3.25      |      | 6.61 |

Table 3 consolidates the IFAS and EFAS results and identifies the strategic position of MSMEs within the IE Matrix framework.

Table 3. IFAS–EFAS comparative summary and strategic position

| Matrix | Component           | Weighted Score | Interpretation                                                     |
|--------|---------------------|----------------|--------------------------------------------------------------------|
| IFAS   | Total Strengths     | 3.76           | Strong internal strengths                                          |
|        | Total Weaknesses    | 3.14           | Significant weaknesses — intervention required                     |
|        | <b>TOTAL IFAS</b>   | <b>6.89</b>    | <b>Strong overall internal position (Quadrant I)</b>               |
| EFAS   | Total Opportunities | 3.48           | Favorable opportunities available to leverage                      |
|        | Total Threats       | 3.13           | Threats present but manageable                                     |
|        | <b>TOTAL EFAS</b>   | <b>6.61</b>    | <b>Favorable external environment — Opportunities &gt; Threats</b> |

Table 4 summarizes the key strategic positioning indicators and their implications.

Table 4. Strategic Position Indicators (IE Matrix Analysis)

| Indicator                             | Value             | Threshold               | Interpretation                         |
|---------------------------------------|-------------------|-------------------------|----------------------------------------|
| IFAS (Internal Score)                 | <b>6.89</b>       | > 2.5 = Strong          | Strong internal capability             |
| EFAS (External Score)                 | <b>6.61</b>       | > 2.5 = Favorable       | Favorable external environment         |
| Strengths Score vs. Weaknesses Score  | 3.76 vs. 3.14     | S > W = Advantaged      | Strengths outweigh weaknesses          |
| Opportunities Score vs. Threats Score | 3.48 vs. 3.13     | O > T = Favorable       | Opportunities exceed threats           |
| <b>SWOT / IE Matrix Position</b>      | <b>Quadrant I</b> | <b>Grow &amp; Build</b> | <b>Aggressive strategy recommended</b> |

The combined IFAS score (6.90) and EFAS score (6.61) position the MSMEs in Cell I of the IE Matrix the "Grow and Build" quadrant ([David, 2010](#)). This quadrant recommends intensive and integrative strategies, including market penetration, market and product development, and forward, backward, and horizontal integration. A strong internal profile provides a platform for aggressive opportunity exploitation, whereas a favorable external environment validates a growth-oriented strategic posture. The SWOT analysis corresponding to this position generates three candidate strategies for the QSPM evaluation: an SO (offensive) strategy exploiting strengths and opportunities, an ST (defensive) strategy using strengths to counter threats, and a WO (improvement) strategy addressing weaknesses through available opportunities. This growth-oriented strategy position indicates that internal strengths and external opportunities outweigh weaknesses and threats, making aggressive expansion strategies the most appropriate ([David, 2010](#)). Table 3 presents the SWOT strategic matrix derived from the analysis.

Table 5. SWOT strategy matrix

| IFAS/EFAS                | Strengths (S)                                                                                                                                                                     | Weaknesses (W)                                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Opportunities (O)</b> | SO Strategy:<br>1. Leverage product quality and employee skills with government support to expand digital market penetration.<br>2. Reseller networks are used to increase reach. | WO Strategy:<br>1. Use government training and digital technology access to improve financial management skills,<br>2. Innovative products and broadened marketing channels. |
| <b>Threats (T)</b>       | ST Strategy:                                                                                                                                                                      | WT Strategy:                                                                                                                                                                 |

|  |                                                                                                                                                                   |                                                                                                                                                                                      |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 1. Leverage strong customer relationships and product uniqueness to face competition.<br>2. Maintain price competitiveness despite fluctuations in raw materials. | 1. Address capital limitations and weak marketing through cooperative schemes, credit programs<br>2. Implement collective packaging and branding to withstand competitive pressures. |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 4.4 SWOT Quadrant Positioning and Strategic Direction

Table 6 presents the QSPM. AS values reflect the degree to which each factor influences the relative attractiveness of each strategy: 1 = Not Attractive; 2 = Somewhat Attractive; 3 = Reasonably Attractive; 4 = Highly Attractive ([David, 2016](#))

Table 6. Quantitative Strategic Planning Matrix (QSPM)

| Key Factors                                        | Weight | Strategy 1 (SO) Market Penetration |        | Strategy 2 (ST) Product Differentiation |        | Strategy 3 (WO) Digital Development ★ |        |
|----------------------------------------------------|--------|------------------------------------|--------|-----------------------------------------|--------|---------------------------------------|--------|
|                                                    |        | AS                                 | TAS    | AS                                      | TAS    | AS                                    | TAS    |
| A. STRENGTHS                                       |        |                                    |        |                                         |        |                                       |        |
| S1: Consistent and good product quality            | 0.1675 | 4                                  | 0.6700 | 3                                       | 0.5025 | 3                                     | 0.5025 |
| S2: Product uniqueness vs. competitors             | 0.1675 | 4                                  | 0.6700 | 4                                       | 0.6700 | 3                                     | 0.5025 |
| S3: Skilled and competent employees                | 0.1675 | 3                                  | 0.5025 | 3                                       | 0.5025 | 4                                     | 0.6700 |
| S4: Strong customer relationship management        | 0.1724 | 4                                  | 0.6896 | 3                                       | 0.5172 | 3                                     | 0.5172 |
| S5: Attractive and appealing product packaging     | 0.1626 | 3                                  | 0.4877 | 4                                       | 0.6503 | 3                                     | 0.4877 |
| S6: Price proportional to product quality          | 0.1626 | 4                                  | 0.6503 | 3                                       | 0.4877 | 3                                     | 0.4877 |
| Sub-Total Strengths                                |        |                                    | 3.6700 |                                         | 3.3302 |                                       | 3.1676 |
| B. WEAKNESSES                                      |        |                                    |        |                                         |        |                                       |        |
| W1: Limited business capital                       | 0.2818 | 2                                  | 0.5636 | 2                                       | 0.5636 | 4                                     | 1.1272 |
| W2: Simple financial and administrative management | 0.2545 | 2                                  | 0.5091 | 2                                       | 0.5091 | 4                                     | 1.0182 |
| W3: Difficulty in sustaining product innovation    | 0.1818 | 3                                  | 0.5455 | 4                                       | 0.7273 | 4                                     | 0.7273 |
| W4: Limited marketing and distribution reach       | 0.2818 | 4                                  | 1.1272 | 3                                       | 0.8455 | 4                                     | 1.1272 |
| Sub-Total Weaknesses                               |        |                                    | 2.7455 |                                         | 2.6455 |                                       | 4.0000 |
| C. OPPORTUNITIES                                   |        |                                    |        |                                         |        |                                       |        |
| O1: Growing market demand for products/services    | 0.1677 | 4                                  | 0.6710 | 3                                       | 0.5032 | 4                                     | 0.6710 |
| O2: Digital technology facilitates marketing       | 0.2129 | 3                                  | 0.6387 | 2                                       | 0.4258 | 4                                     | 0.8516 |
| O3: Government support programs and subsidies      | 0.2258 | 4                                  | 0.9032 | 3                                       | 0.6774 | 4                                     | 0.9032 |
| O4: Strategic business location                    | 0.2000 | 4                                  | 0.8000 | 3                                       | 0.6000 | 3                                     | 0.6000 |
| O5: Established reseller and distribution network  | 0.1935 | 4                                  | 0.7742 | 2                                       | 0.3871 | 3                                     | 0.5806 |
| Sub-Total Opportunities                            |        |                                    | 3.7871 |                                         | 2.5935 |                                       | 3.6064 |

| <b>D. THREATS</b>                       |        |   |                |   |                |   |                |
|-----------------------------------------|--------|---|----------------|---|----------------|---|----------------|
| T1: Intensifying market competition     | 0.2500 | 3 | 0.7500         | 4 | 1.0000         | 3 | 0.7500         |
| T2: Raw material price volatility       | 0.1667 | 2 | 0.3333         | 3 | 0.5000         | 2 | 0.3333         |
| T3: Declining consumer purchasing power | 0.3056 | 3 | 0.9167         | 3 | 0.9167         | 4 | 1.2222         |
| T4: Government regulatory constraints   | 0.2778 | 2 | 0.5556         | 3 | 0.8333         | 2 | 0.5556         |
| <b>Sub-Total Threats</b>                |        |   | <b>2.5556</b>  |   | <b>3.2500</b>  |   | <b>2.8611</b>  |
| <b>GRAND TOTAL STAS</b>                 |        |   | <b>12.7582</b> |   | <b>11.8192</b> |   | <b>13.6351</b> |

Note: AS = Attractiveness Score (1–4); TAS = Total Attractiveness Score (Weight × AS); STAS = Sum of TAS.

Table 7 summarizes the STAS rankings for the three strategies.

Table 7. QSPM strategic ranking summary

| <b>Strategy</b>          | <b>Description</b>                                  | <b>STAS</b>    | <b>Rank</b> |
|--------------------------|-----------------------------------------------------|----------------|-------------|
| Strategy 1 (SO)          | Market Penetration & Expansion                      | 12.7582        | 2nd         |
| Strategy 2 (ST)          | Product Differentiation & Brand Strengthening       | 11.8192        | 3rd         |
| <b>Strategy 3 (WO) ★</b> | <b>Digital Marketing &amp; Business Development</b> | <b>13.6351</b> | <b>1st</b>  |

★ = Recommended Priority Strategy

The QSPM results unambiguously identify Strategy 3 (WO) digital marketing and business development as the most strategically attractive priority, achieving the highest STAS of 13.64. This result is based on two analytically distinct findings. First, Strategy 3 achieves the highest sub-total TAS for weakness factors (4.00), substantially exceeding Strategies 1 and 2 (2.75 and 2.65, respectively). This reflects the strategy's capacity to simultaneously address all four identified internal weaknesses: limited capital (W1: TAS = 1.1272), rudimentary management systems (W2: TAS = 1.0182), constrained product innovation (W3: TAS = 0.7273), and limited marketing reach (W4: TAS = 1.1272). No other strategy demonstrated a comparable internal remediation potential. Although Strategy 3 ranks highest, the difference with Strategy 1 is relatively small, indicating that the combined implementation of digital development and market penetration strategies may be beneficial.

Second, Strategy 3 maintains a competitive sub-total TAS for opportunities (3.61), second only to Strategy 1 (3.79). It is particularly effective at leveraging digital technology (O2: TAS = 0.8516), government support programs (O3: TAS = 0.9032), and growing market demand (O1: TAS = 0.6710), which are uniquely well-positioned to catalyze MSME digital transformation. The convergence of high internal remediation capacity and strong opportunity exploitation potential explains the strategy's overall superiority. These findings are consistent with the extant literature [Kurniawan, Santoso, and Wijaya \(2021\)](#); [Musfirah and Jumain \(2026\)](#) demonstrated that MSMEs adopting digital marketing platforms achieved average revenue growth of approximately 35% within twelve months, validating the practical attractiveness of digital-enabling strategies. [Purwanto and Haryono \(2020\)](#) found that WO-type strategies consistently ranked highest in QSPM analyses of food industry SMEs, corroborating the pattern observed here. The high attractiveness score assigned to government support (O3) across all three strategies aligns with [Suci \(2017\)](#) finding that institutional programs are among the most critical growth enablers for Indonesian MSMEs.

Strategy 1 (SO) ranked second (STAS = 12.76), driven by strong TAS contributions from opportunity (3.79) and strength (3.67) factors. This strategy is suitable as a medium-term complement to Strategy 3 and can be deployed once digital infrastructure and management capacity improvements have been established. Strategy 2 (ST) ranked third (STAS = 11.82), benefiting from a relatively strong threat-mitigation capacity (TAS = 3.25), particularly against intensifying competition (T1: TAS = 1.0000). While product differentiation remains a viable long-term positioning strategy, its lower overall STAS reflects its limited efficacy in addressing the most pressing internal capacity constraints of MSMEs.

The practical implications of these findings are evident. MSME operators and supporting institutions including government agencies, business development service providers, and microfinance institutions should align interventions toward the WO strategic priority through four concurrent action streams: (i) facilitating access to government capital assistance programs to address financial constraints (W1); (ii) delivering capacity-building training in financial record-keeping, administration, and digital business management (W2); (iii) supporting participation in innovation programs and technology transfer initiatives to enhance product development capability (W3); and (iv) enabling the adoption of digital marketing platforms social media, e-commerce marketplaces, and online payment systems to expand market reach (W4). These four actions are mutually reinforcing and collectively constitute a comprehensive digital transformation pathway for resource-constrained MSMEs.

#### **4.5 Critical Comparative Discussion**

The findings of this study reveal that digital marketing capability and government support constitute the most decisive external opportunities for nutmeg-processing MSMEs in Tanggamus Regency. This result is consistent with [Sarma et al. \(2022\)](#), who demonstrate that entrepreneurial marketing orientation particularly innovation-driven promotion and adaptive customer engagement significantly enhances SME competitiveness in emerging economies. However, while [Sarma et al. \(2022\)](#) emphasize internal entrepreneurial orientation as the primary driver of competitiveness, this study indicates that institutional facilitation plays an equally critical role in rural agro-based contexts. In Tanggamus, government training programs and policy support are not merely complementary factors but structural enablers that reduce capability gaps in digital and financial literacy. The prioritization of digital expansion may be interpreted as evidence that digital capability functions as a strategic dynamic capability, enabling MSMEs to reconfigure existing product-based advantages into broader markets. This supports the argument that rural SMEs' competitiveness increasingly depends on capability transformation rather than static resource ownership.

Moreover, the strong positioning in Quadrant I (Growth-Oriented Strategy) reflects the alignment between internal strengths and favorable external ecosystems. This aligns with [OECD \(2021\)](#), which argues that SME digital transformation requires coordinated institutional frameworks, including regulatory simplification, infrastructure access, and incubation support. However, unlike the macro-level SME digitalization frameworks proposed by [OECD \(2021\)](#), this study demonstrates that the effectiveness of digital transformation in rural agro-processing MSMEs depends heavily on prior managerial capacity consolidation. Another notable divergence is financial capability. While [OECD \(2021\)](#) highlights digital infrastructure and policy ecosystems as central to SME transformation, this study identifies limited capital and weak financial recording systems as persistent internal constraints. This suggests that digital transformation alone is insufficient without strengthening the foundational management. Therefore, the growth-oriented strategy proposed in this study adopts a phased implementation model that prioritizes internal capacity building before aggressive expansion. Unlike many MSME digitalization studies that assume that technology adoption automatically improves competitiveness, this study demonstrates that digital expansion without managerial readiness may generate operational inefficiencies. Therefore, digital strategy must be embedded within organizational capability strengthening.

In addition, the agro-based nature of nutmeg-processing MSMEs introduces contextual dynamics that have not been fully addressed in the prior entrepreneurial marketing literature. Product differentiation in this sector is closely tied to geographical identity, cultural authenticity, and value-added processing of agricultural byproducts. This dimension extends the findings of [Sarma et al. \(2022\)](#) by demonstrating that entrepreneurial marketing in rural agro-industrial settings must integrate local resource narratives and community-based branding strategies. Overall, this comparative analysis confirms that MSME competitiveness in rural agro-processing sectors is shaped by the interaction between entrepreneurial capability, institutional support and digital adoption. The contribution of this study lies in bridging macro-level digital transformation frameworks [OECD \(2021\)](#) with micro-level entrepreneurial marketing evidence [Sarma et al. \(2022\)](#), thereby offering a more contextualized and operational competitiveness model for spice-based MSMEs in developing regions.

## 4.6 Implications

### 4.6.1 Marketing Strategy Formulation

#### 4.6.1.1 Strategy 1: Digital Market Penetration

MSMEs should intensify promotion through digital platforms, including WhatsApp Business, Instagram, and marketplace applications (Tokopedia, Shopee). Digital storytelling emphasizing local origin, traditional recipes, and the health benefits of nutmeg products can build brand differentiation. This aligns with the SO strategy, leveraging product uniqueness and government digital training programs to expand reach. [Kurdi and Firmansyah \(2020\)](#) demonstrated that e-commerce adoption significantly enhances MSME competitiveness in Indonesian regency contexts.

#### 4.6.1.2 Strategy 2: Product and Packaging Innovation

Continuous product innovation in flavor variants, packaging design, and portion size is essential for market responsiveness. Packaging redesign incorporating nutritional information, halal certification, and PIRT food safety labels will enable access to modern retail channels, including supermarkets and online marketplaces. [Kotler and Keller \(2016\)](#) emphasize that modern marketing requires long-term customer relationship building through consistent product quality and brand identity, not mere transactional promotion.

#### 4.6.1.3 Strategy 3: Strategic Partnerships

Building collaborative networks with cooperatives, community-based organizations, local governments, and financial institutions can address capital limitations and broaden distribution. The triple helix model, which involves academia, government, and industry, provides a structured framework for MSME ecosystem development ([Hubeis et al., 2015](#)). Participation in government-organized trade fairs and MSME exhibitions should be maximized to increase brand visibility beyond the Tanggamus Regency.

#### 4.6.1.4 Strategy 4: Internal Management Strengthening

Improving financial recording systems, production scheduling, and inventory management is a foundational prerequisite for sustainable growth. Training in basic financial management, cost accounting, and digital business tools is critical, particularly given the predominantly SMA-educated profile of the respondents. [Delmayuni et al. \(2017\)](#) confirmed that MSME food businesses require modern management systems to capitalize on large market opportunities.

### 4.6.2 Overcoming Marketing Barriers: Stakeholder Roles

Marketing barriers confronting nutmeg-processing MSMEs are characterized by structural interdependencies. Inadequate packaging impedes access to modern retail channels, and limited digital capability curtails promotional reach. Compounding these issues, capital constraints restrict both production scalability and marketing investments. Consequently, mitigating these barriers requires a coordinated response involving three key actor groups. MSME practitioners should adopt basic marketing plan structures (4P calendar), digitalize sales through WhatsApp Business and marketplace listings, implement simple cash-flow recording as a prerequisite for microcredit access, redesign packaging with food safety credentials, and build local reseller/consignment networks. Marketing capability mediates the relationship between entrepreneurial orientation and performance, as well as between digital literacy and performance ([Lestari, Adi, & Karlina, 2026](#)).

Academic institutions should design practical training modules on digital marketing, micro-financial management, and food safety certification; conduct applied action research in co-creation with MSME partners; develop appropriate technology prototypes for small-scale food processing; and compile periodic regional market briefings to inform MSME and government decision-making. Government and support agencies should expand microcredit programs with simplified administrative procedures, subsidize collective PIRT/halal certification and packaging services through packaging houses, provide digital marketing incubation programs and collective marketplace platforms, develop agro-industrial clusters with logistical infrastructure, and streamline MSME licensing and offer growth incentives.



## 5. Conclusions

### 5.1 Conclusion

This study confirms that nutmeg-processing MSMEs occupy a strategically favorable position (IFAS = 6.89; EFAS = 6.61), placing them in the "Grow and Build" quadrant of the IE Matrix. While internal strengths in customer relationships and product quality outweigh weaknesses, capital scarcity and a limited marketing reach remain critical constraints. External opportunities in digital adoption and institutional support are significant, although declining consumer purchasing power poses a key threat. Quantitative Strategic Planning Matrix (QSPM) analysis identifies a Weakness–Opportunity (WO) strategy centered on digital marketing and business development as the most attractive pathway (STAS score = 13.64). Its superiority stems from its dual capacity to remediate internal constraints while leveraging high-potential external enablers, suggesting that internally corrective strategies may yield greater strategic returns than purely offensive or defensive alternatives in resource-constrained agro-processing contexts. The findings advance the MSME strategic management literature by empirically validating digital transformation as a catalyst for inclusive growth. Practically, the results underscore the need for coordinated multi-stakeholder action: an integrated agenda encompassing facilitated capital access, digital management capacity building, innovation support, and omnichannel marketing adoption offers a scalable pathway to enhance the competitiveness and resilience of MSMEs in agro-processing.

### 5.2 Research Limitations

This study is geographically limited to two sub-districts within Tanggamus Regency and relies on a relatively small purposive expert sample of nine respondents. While the QSPM was applied to prioritize strategic alternatives, the Attractiveness Scores (AS) are inherently based on expert and respondent judgment and may carry subjective bias. Furthermore, the study period (May–October 2024) captures one production cycle, potentially missing seasonal variations in raw material availability and market demands. Third, the QSPM method assumes that the analyzed strategies are independent, whereas, in practice, synergies and trade-offs may occur among strategies. Fourth, this study did not conduct a sensitivity analysis to examine how changes in weights or attractiveness scores (AS) may influence the resulting strategy rankings.

### 5.3 Suggestions and Directions for Future Research

Future research should expand the geographic scope across multiple nutmeg-producing regions in Lampung to enable comparative analysis. The QSPM framework applied in this study could be further validated using a broader expert panel or integrated with Fuzzy-AHP approaches to reduce subjective bias in the Attractiveness Score determination. In addition, the Analytic Network Process (ANP) should be applied to better capture the interdependencies among strategic factors. Furthermore, longitudinal studies tracking the impact of digital marketing adoption and government intervention programs on MSME competitiveness outcomes would provide valuable evidence for policy designs. Finally, investigating value chain integration from nutmeg cultivation to end-consumer markets would offer a more comprehensive framework for assessing competitiveness.

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## Author Contributions

MA contributed to the conceptualization, data curation, formal analysis, and writing of the original draft of the manuscript. TBT was responsible for the methodology, investigation, visualization, and writing of the review and editing of the manuscript. DND contributed to supervision, funding acquisition, project administration, and writing, as well as review and editing of the manuscript. All authors have read and agreed to the published version of the manuscript.

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