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# Multi-Criteria Decision Making in Enhancing the Revitalization to Increase MSME Income

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## Abstract

**Background:** Indonesian instant food Micro, Small, and Medium Enterprises (MSMEs) have considerable potential to contribute to economic growth and export expansion. However, structural constraints, including limited human resources, weak digital marketing, inconsistent institutional support, and inadequate product standardization, hinder their international competitiveness. **Objective:** This study aims to identify and prioritize the strategic factors influencing the competitiveness of Tidesa, an Indonesian instant food MSME, to formulate appropriate interventions for sustainable export development. **Methods:** A mixed-method approach was employed, integrating policy analysis, document analysis, and in-depth interviews. The study applied Cross-Impact Matrix Multiplication Applied to Classification (MICMAC) analysis to classify variables by driving and dependence power and identify strategic priorities for MSME development. **Results:** The findings indicate that product sorting, export readiness, branding, and digital marketing are determinant variables with high driving power and low dependence. Product taste, supply chain management, sustainability, and halal certification function as linkage variables requiring integrated management. Adaptive capacity and price competitiveness are dependent variables, while business stability and product visualization are autonomous variables with relatively limited systemic influence. **Conclusions:** Strengthening determinant variables through capacity building, digital transformation, product standardization, and export preparation should be prioritized before enhancing linkage variables. This integrated strategy can improve MSME competitiveness, expand international market access, and support Indonesia's economic development and food diplomacy.

**Keywords:** MSMEs; MICMAC; Export Competitiveness; Tidesa; Halal; Digital Marketing; Branding

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## INTRODUCTION

Indonesian micro, small, and medium enterprises (MSMEs) play a strategic role in supporting national economic development through employment creation, value-added production, and regional income generation. Among these, instant food MSMEs possess substantial potential because they utilize abundant local agricultural resources while producing value-added traditional snack products with growing domestic and international demand [1]. Despite this potential, Indonesian instant food MSMEs continue to face several structural constraints, including inadequate infrastructure, limited production capacity, high operational and logistics costs, and increasing competition from imported products. These challenges reduce their competitiveness and hinder their ability to expand into international markets without adequate institutional and government support [2]. The economic significance of this sector highlights the urgency of addressing these barriers. Indonesian MSMEs contribute approximately 60–61% of the national GDP, accounting for almost 99.99% of all business entities, and absorbing around 97% of the national workforce [3]. Furthermore, MSME exports are projected to increase by approximately 9–15% annually over the medium term, while continued digital transformation is expected to strengthen MSMEs' competitiveness and participation in international markets [4]. These projections demonstrate that strengthening the competitiveness of instant food MSMEs is essential not only for business sustainability but also for broader national economic development.

Strong domestic demand provides a favorable foundation for the international expansion of Indonesia's instant food industry. Instant noodles remain the country's most widely consumed processed food product, followed by processed rice products, seasonings and flavorings, coffee and powdered beverages, and packaged bread and pastries. Approximately 60.7% of Indonesians consume instant food between one and six times per week, while Indonesia became the world's second-largest consumer of instant noodles after China, with consumption reaching approximately 14.68 billion servings in 2024 [5]. Consumption is particularly high among Generation Z, with 49% consuming instant food one to two times per week and 12% consuming it daily [6]. Building on this strong domestic market, Indonesian snack products have increasingly penetrated international markets. Banana chips, salak chips, and other processed fruit snacks have gained popularity in Europe and Asia, with approximately 20% of Indonesia's banana chip production exported to Germany, the United Kingdom, the Netherlands, the Philippines, Thailand, and South Korea. In 2021, Indonesian chip exports reached approximately 20 tons, valued at around IDR 850 million, while these products also became popular souvenirs among international tourists, further strengthening Indonesia's culinary identity abroad [7]. Nevertheless, transforming this market momentum into sustainable export growth requires MSMEs to develop competitive advantages that extend beyond production capacity alone.

Previous studies have primarily emphasized production efficiency, government support, and market access as determinants of MSME export performance. However, limited attention has been given to how product-related marketing attributes collectively influence the international competitiveness of Indonesian instant food MSMEs. For export-oriented brands such as Tidesa, sustainable competitiveness depends on consumers' perceptions of halal integrity, price competitiveness, brand awareness, packaging quality, and product taste. Halal certification has become increasingly important not only in Muslim-majority markets but also among global consumers who associate halal products with food safety, hygiene, and ethical production practices [8]. Likewise, competitive pricing, strong brand awareness,

attractive packaging, and superior product taste are recognized as critical determinants of consumer purchasing decisions in international markets [9]. However, empirical evidence examining the combined influence of these factors on the export competitiveness of Indonesian instant snack products remains limited. Therefore, This study aims to identify and prioritize the strategic factors influencing the competitiveness of Tidesa, an Indonesian instant food MSME, in order to formulate appropriate interventions for sustainable export development

## METHODS

### *Study design and setting*

This study employed a mixed-method research design integrating qualitative policy analysis with quantitative structural analysis to identify the strategic factors influencing the competitiveness of Tidesa, an Indonesian instant food Micro, Small, and Medium Enterprise (MSME). The qualitative component consisted of policy and document analyses to examine institutional support, export development policies, and MSME competitiveness strategies. The quantitative component applied Cross-Impact Matrix Multiplication Applied to Classification (MICMAC) analysis to classify the relationships among strategic variables based on their driving and dependence power. This approach was selected because it enables a comprehensive understanding of the interactions among organizational, operational, and market-related factors affecting MSME competitiveness while identifying priority areas for intervention.

### *Population, samples, and sampling*

The study involved purposive sampling of key stakeholders with direct knowledge and experience related to MSME development and export competitiveness. Participants included MSME owners and managers of Tidesa, there are 25 participants from Tidessa employment and 50 persons as participant in forum group discussion. Government representatives involved in MSME development, academics, and practitioners with expertise in marketing, product development, and export promotion. Secondary data were obtained from government reports, policy documents, academic literature, and institutional publications related to Indonesian MSMEs and export development.

The study examined twelve strategic variables affecting MSME competitiveness: export readiness, brand, digitalization, storytelling, product taste, sustainability, supply chain management, certification, price competitiveness, adaptive capacity, visual appeal, and product stability.

### *Instruments and criteria*

Primary data were collected using semi-structured interview guidelines and expert assessment forms developed based on an extensive review of the literature on MSME competitiveness and export readiness. The twelve research variables and their operational definitions were established from previous studies and subsequently evaluated by experts using the MICMAC influence matrix. Experts assessed the direct influence of each variable on every other variable using a five-level ordinal scale: 0 = no influence, 1 = weak influence, 2 = moderate influence, 3 = strong influence, and P = potential influence. The final scores used in the analysis were based on expert consensus to ensure representativeness and consistency.

### *Procedure and data collection*

The research was conducted in four stages. First, a literature review and policy analysis were undertaken to identify strategic issues affecting Indonesian instant food MSMEs. Second, primary data were collected through in-depth interviews with key stakeholders and expert assessments of the relationships among the twelve variables. Third, the influence scores were compiled into a Matrix of Direct Influence (MDI). Finally, the MDI was processed using MICMAC software to generate the Matrix of Indirect Influence (MII), Matrix of Potential Direct Influence (MPDI), influence–dependence maps, and variable rankings. The resulting maps classified variables into four categories: determinant, linkage, dependent, and autonomous variables.

### *Statistical analysis*

Data analysis was performed using MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) software. MICMAC applies matrix multiplication to evaluate both direct and indirect relationships among variables and classifies them according to their driving power and dependence power. The analysis consisted of constructing the Matrix of Direct Influence (MDI), estimating indirect influences through iterative calculations, and generating influence–dependence maps. Variables were subsequently classified into four quadrants: determinant variables, linkage variables, dependent variables, and autonomous variables. Descriptive qualitative analysis was used to interpret the MICMAC results and formulate strategic recommendations for strengthening MSME competitiveness.

### *Ethical considerations*

This study was conducted in accordance with the principles of the Declaration of Helsinki. Prior to participation, all respondents were informed about the objectives of the study, and their participation was voluntary. Written or verbal informed consent was obtained from all participants, and the confidentiality and anonymity of the information collected were maintained throughout the research process. Ethical approval should be inserted here if the study has been reviewed and approved by an institutional ethics committee. If ethical approval was not required because the study involved expert judgment and policy analysis without human subject experimentation, this should be stated according to the requirements of the target journal.

## RESULTS

The development of Indonesian Micro, Small, and Medium Enterprises (MSMEs) increasingly depends not only on production capacity but also on the ability to strengthen product competitiveness through digital transformation, branding, product quality, and market expansion. Previous studies have shown that MSMEs frequently encounter structural constraints, including limited managerial capability, inadequate digital marketing skills, weak product differentiation, and restricted access to broader markets, all of which reduce business competitiveness and long-term sustainability [10,11]. These challenges are particularly evident among food-processing MSMEs, where product quality alone is insufficient to penetrate increasingly competitive domestic and international markets.

The rapid expansion of digital commerce has fundamentally changed consumer purchasing behavior, making digital marketing capability one of the most critical determinants of MSME performance. Enterprises with strong digital literacy are more capable of reaching wider customer segments, building customer engagement, and

increasing sales performance through social media and e-commerce platforms. Conversely, MSMEs with limited digital capabilities often struggle to communicate product value and compete with larger enterprises that have already adopted digital business strategies [10,12]. Therefore, digital capability is increasingly recognized as a strategic resource for enhancing MSME competitiveness.

In addition to digital transformation, product branding and export readiness have become equally important drivers of MSME. Strong branding creates consumer trust, differentiates products from competitors, and increases perceived value, while export orientation encourages enterprises to improve product quality, packaging standards, and production consistency [13]. Several studies have demonstrated that branding and international market orientation significantly influence MSME competitiveness because they encourage firms to adopt innovation and comply with international quality standards [14]. Consequently, branding and export readiness should not be viewed merely as marketing activities but as strategic capabilities that influence the entire business ecosystem.

Product competitiveness is also determined by internal operational factors, including product taste consistency, halal certification, sustainable production, and supply chain management. Consumers increasingly evaluate food products not only based on taste but also on food safety, product authenticity, environmental responsibility, and certification compliance. Halal certification, for instance, has evolved into an important quality assurance mechanism that enhances consumer confidence and facilitates market access, particularly in Muslim-majority countries and international halal markets[15]. Likewise, efficient supply chain management contributes to production continuity, cost efficiency, and customer satisfaction, thereby strengthening business resilience[16].

Despite these opportunities, MSMEs continue to experience difficulties in adapting to rapidly changing market conditions. Limited managerial capability, inadequate human resources, and inefficient pricing strategies frequently reduce the ability of MSMEs to respond to technological and market changes. Adaptive capacity has therefore become an important organizational capability that enables enterprises to respond effectively to external uncertainty while maintaining business continuity [17]. Price competitiveness also depends on improvements in operational efficiency, product quality, and supply chain performance rather than functioning as an independent strategic variable.

Because these factors interact with one another rather than operating independently, identifying their relative influence and dependence becomes essential for designing an effective community empowerment program. The MICMAC method provides a systematic approach to classify variables according to their driving power and dependence, thereby identifying strategic priorities that should receive primary intervention [18]. Through MICMAC analysis, variables can be grouped into four categories: driving variables, linkage variables, dependent variables, and autonomous variables. This classification enables practitioners to determine which aspects should be prioritized to maximize the effectiveness and sustainability of MSME development programs. Therefore, the MICMAC analysis in this study was employed to identify the strategic variables that most strongly influence the revitalization and competitiveness of Tidesa MSMEs before formulating the appropriate intervention strategy.

**Figure 1.** Direct Influence Variable

Figure 1 presents the Direct Influence/Dependence Map, which classifies the strategic variables according to their driving power and dependence within the MSME development system. The MICMAC analysis categorizes the variables into four quadrants, allowing the identification of priority intervention areas for strengthening the competitiveness of Tidesa MSMEs. In Quadrant I (Driving Variables/Independent Variables), the variables sorting (Sortel), export orientation (Exportstd), branding (Brand), and digital marketing (Digital) exhibit high driving power and low dependence on other variables. These variables function as the primary drivers of the system because improvements in these areas are capable of generating substantial impacts on other aspects of MSME development while remaining relatively independent of changes occurring elsewhere in the system. This finding indicates that strengthening product sorting to ensure consistent quality, expanding export readiness, building a strong brand identity, and enhancing digital marketing capabilities should become the main priorities of the community empowerment program.

Quadrant II (Linkage Variables) consists of product taste (Taste), sustainability (Sustain), supply chain management (Supply), and halal certification (Sertif). These variables are characterized by high driving power and high dependence, indicating that they are highly interconnected with the rest of the system. Improvements in one variable will significantly influence the others, while their performance also depends on the successful implementation of related variables. For example, maintaining consistent product taste requires a reliable supply chain and sustainable production practices, whereas obtaining halal certification depends on compliance with standardized production processes and raw material management. Consequently, these variables require integrated and continuous management to ensure the long-term sustainability of MSME development.

In Quadrant III (Dependent Variables), adaptive capacity (Adaptive) and price competitiveness (Price) demonstrate low driving power but high dependence. These

variables are primarily considered outcomes of improvements in the more influential variables. The adaptive capacity of MSME managers is expected to increase after improvements in digital marketing skills, branding, export readiness, and production standardization. Likewise, competitive pricing can only be achieved through greater production efficiency, stronger supply chain performance, consistent product quality, and broader market access. Therefore, interventions targeting these variables should follow the strengthening of the key driving variables.

Finally, Quadrant IV (Autonomous Variables) includes business stability (Stability) and product visualization or packaging appearance (Visual), both of which exhibit low driving power and low dependence. These variables are relatively isolated from the overall system and have limited influence on the interactions among other strategic variables. Although they remain important for supporting business performance and enhancing product attractiveness, improvements in these variables alone are unlikely to produce significant changes in the competitiveness of Tidesa MSMEs. Instead, they are expected to improve gradually as the more influential variables become stronger.

Overall, the Direct Influence/Dependence Map identifies sorting as one of the most influential driving variables within the system. Effective product sorting ensures that only products meeting predefined quality standards enter the market, thereby improving product consistency, reducing quality variation, and increasing consumer confidence. A well-implemented sorting process also facilitates compliance with export requirements and strengthens brand reputation by ensuring that consumers consistently receive products of reliable quality. As product quality improves, digital marketing activities become more effective because customer satisfaction and positive online reviews contribute to stronger brand credibility and wider market reach. Consequently, improvements in product sorting generate cascading effects that enhance export readiness, brand value, and overall business competitiveness.

Besides sorting, the analysis also demonstrates that digital marketing, branding, and export orientation represent strategic leverage factors for the development of Tidesa MSMEs. Strengthening these variables enables enterprises to expand market access, increase customer engagement, and improve competitiveness in both domestic and international markets. Therefore, community service activities should prioritize training and mentoring programs focused on digital marketing, brand development, product quality standardization, and export preparation. Once these driving variables have been strengthened, the linkage variables including halal certification, product quality, sustainable production practices, and supply chain management can be improved more effectively, ultimately enhancing the adaptive capacity, pricing competitiveness, and long-term sustainability of Tidesa MSMEs.

## DISCUSSION

Driving Variables (Quadrant I) The Direct Influence–Dependence Map identifies product storytelling (Storytel), export standards (Export), brand image (Brand), and digital marketing (Digital) as driving variables, indicating that these variables possess strong influence while maintaining relatively low dependence on other variables (Figure 1). From a strategic perspective, driving variables represent the fundamental capabilities that stimulate systemic transformation because improvements in these variables subsequently influence operational performance, market expansion, customer trust, and long-term business sustainability. This finding suggests that the development strategy for Tidesa MSMEs should move beyond increasing production capacity alone and instead prioritize strengthening market-oriented capabilities.

Community service interventions that emphasize digital transformation, brand development, storytelling, and export readiness are therefore expected to produce broader impacts than interventions focused solely on operational improvements. Similar conclusions have been reported in previous studies demonstrating that strategic marketing capabilities constitute one of the strongest determinants of SME competitiveness in increasingly digital and globalized markets [12,13]

1. Driving Variables (Quadrant I)

   The Direct Influence–Dependence Map identifies product storytelling (Storytel), export standards (Export), brand image (Brand), and digital marketing (Digital) as driving variables, indicating that these variables possess strong influence while maintaining relatively low dependence on other variables (Figure X). From a strategic perspective, driving variables represent the fundamental capabilities that stimulate systemic transformation because improvements in these variables subsequently influence operational performance, market expansion, customer trust, and long-term business sustainability. This finding suggests that the development strategy for Tidesa MSMEs should move beyond increasing production capacity alone and instead prioritize strengthening market-oriented capabilities. Community service interventions that emphasize digital transformation, brand development, storytelling, and export readiness are therefore expected to produce broader impacts than interventions focused solely on operational improvements. Similar conclusions have been reported in previous studies demonstrating that strategic marketing capabilities constitute one of the strongest determinants of SME competitiveness in increasingly digital and globalized markets [12,13].

### a. Product Storytelling

Among the driving variables, product storytelling emerges as one of the most influential strategic assets because it enhances product differentiation through emotional and cultural value creation. Contemporary consumers increasingly evaluate products not only according to functional quality but also based on authenticity, heritage, sustainability, and social impact. Storytelling enables SMEs to communicate these intangible values by presenting narratives regarding local traditions, production processes, community empowerment, and product origins. For Tidesa, storytelling provides an opportunity to transform locally processed products such as banana chips, cassava chips, jackfruit chips, and salak chips into products carrying distinctive Indonesian cultural identities. Rather than competing solely through price, storytelling enables these products to compete through uniqueness and perceived authenticity. Such narratives strengthen emotional attachment between consumers and products, thereby increasing perceived value and purchase intention. The strategic importance of storytelling has been extensively recognized within branding literature. Brand stories significantly improve consumer engagement, emotional connection, and brand experience [19]. Furthermore, storytelling enables organizations to communicate their values in a compelling and authentic manner, transforming products from mere functional offerings into meaningful experiences that consumers can emotionally relate to, thereby fostering stronger and more enduring relationships with the brand [20]. For SMEs operating in international markets, storytelling also contributes to destination branding and country-of-origin effects, thereby increasing consumers' willingness to pay premium prices for authentic local products. Consequently, integrating storytelling into Tidesa's

marketing strategy represents more than a promotional activity; it becomes a strategic mechanism for creating sustainable competitive advantage that is difficult for competitors to imitate.

### b. Export Standards

The analysis also positions export standards as one of the strongest driving variables. Compliance with international export standards extends beyond satisfying regulatory requirements; it signals product reliability, consistency, and organizational capability. International buyers increasingly require compliance with food safety standards, product traceability, nutritional labeling, quality assurance systems, and standardized production processes before establishing long-term partnerships. For food-processing MSMEs such as Tidesa, meeting export standards encourages improvements throughout the production system, including quality management, process standardization, documentation, and operational efficiency. Consequently, export readiness stimulates improvements across multiple organizational functions rather than serving merely as an administrative requirement. Previous studies have shown that compliance with international standards significantly enhances export performance by reducing information asymmetry between producers and international buyers while strengthening market credibility [12]. Furthermore, firms adopting internationally recognized quality standards demonstrate higher productivity, stronger innovation capabilities, and greater resilience within global value chains [21]. Therefore, export standardization should be considered a strategic investment rather than a compliance cost.

### c. Brand Image

Brand image represents another fundamental driving variable influencing MSME competitiveness. Strong brands reduce consumers' perceived purchasing risk, facilitate customer loyalty, and increase firms' bargaining power within distribution networks. In increasingly saturated food markets, branding has evolved from visual identity toward a strategic asset encompassing trust, quality perception, authenticity, and emotional attachment. For Tidesa, brand development should communicate not only product quality but also Indonesian culinary heritage, local community empowerment, natural ingredients, and sustainable production practices. Such positioning enables the enterprise to differentiate itself from competing snack products originating from other countries. Strong brand equity enhances customer loyalty, customers' willingness to pay premium prices, and long-term organizational performance [22]. In the era of Marketing 5.0, brands also function as relationship-building platforms by integrating technology, storytelling, and customer experience [13]. Consequently, strengthening brand image creates multiplier effects extending beyond sales growth toward stronger market positioning and customer trust.

### d. Digital Marketing

Digital marketing is identified as another principal driving variable because it significantly expands market accessibility while improving communication efficiency. Digital platforms enable SMEs to overcome geographical limitations, interact directly with customers, collect market intelligence, and promote products at relatively low cost. For Tidesa, digitalization enables the enterprise to introduce local products to both domestic and international consumers through social media, online marketplaces, and

cross-border e-commerce platforms. Furthermore, digital marketing strengthens storytelling and branding by providing interactive communication channels that facilitate customer engagement and rapid feedback. Recent studies consistently identify digital transformation as one of the most influential determinants of SME competitiveness. Digital technologies fundamentally reshape marketing practices by improving customer experience, organizational agility, and business innovation [10]. Consistent with this perspective, SMEs that adopt digital technologies tend to achieve higher productivity, stronger export performance, and greater resilience in the face of economic uncertainty [12]. Overall, the findings indicate that storytelling, export standards, brand image, and digital marketing collectively constitute the strategic foundation of Tidesa's competitive development. These variables possess the highest driving power because improvements in these areas stimulate positive changes throughout the entire business system. Therefore, community service programs should prioritize strengthening these four capabilities through training, mentoring, digital transformation initiatives, branding assistance, and export preparation. Such interventions are expected to produce substantial multiplier effects that subsequently improve operational quality, market access, organizational adaptability, and long-term business sustainability.

## 2. Linkage Variables (Quadrant II)

The Direct Influence–Dependence Map reveals that product taste (Taste), sustainability (Sustainability), supply chain management (Supply Chain), and certification (Certification) are positioned in Quadrant II, indicating that these variables possess both high driving power and high dependence (Figure 1). Variables occupying this quadrant are commonly referred to as linkage variables, as they represent the dynamic core of the system. Unlike independent variables, linkage variables simultaneously influence numerous components while being highly sensitive to changes occurring in other strategic variables [18]. Consequently, inadequate management of these variables may trigger cascading negative effects throughout the MSME development system, whereas coordinated improvements can substantially enhance organizational competitiveness and sustainability. The presence of these variables in Quadrant II suggests that improving Tidesa's competitiveness requires more than strengthening market-oriented capabilities alone. Instead, long-term competitiveness depends on integrating product quality, operational excellence, sustainability practices, and regulatory compliance into a coherent business strategy. This finding is consistent with the Resource-Based View (RBV), which argues that sustainable competitive advantage is achieved through valuable, rare, inimitable, and organizationally embedded capabilities rather than isolated operational improvements [23].

### 1) Product Taste

Among food-processing MSMEs, **product taste** represents one of the most fundamental determinants of customer satisfaction and repeat purchasing behavior. Although consumers are initially attracted by packaging, branding, or digital promotion, their long-term purchasing decisions ultimately depend on the consistency of product quality and sensory experience. Previous studies have consistently demonstrated that taste remains the strongest predictor of customer loyalty within the food industry because it directly shapes perceived quality and overall customer satisfaction [24].

For Tidesa, the distinctive flavors of banana chips, cassava chips, jackfruit chips, and salak chips constitute an important competitive advantage rooted in local agricultural resources and traditional processing methods. However, maintaining consistent taste is considerably more complex than developing attractive marketing campaigns. Taste consistency depends on multiple interconnected factors, including raw material quality, standardized production processes, quality control systems, storage conditions, and supplier reliability. Consequently, the MICMAC analysis appropriately positions product taste as a linkage variable because its performance reflects interactions among several operational components rather than a single managerial decision. Furthermore, as international consumers become increasingly concerned with food quality and authenticity, maintaining product consistency becomes essential for building long-term relationships with importers and distributors. Consistent sensory quality reduces uncertainty among buyers and contributes to stronger brand credibility in export markets [25].

### 2) Sustainability

The analysis also identifies sustainability as a linkage variable, reflecting its strategic importance in modern food markets. Sustainability has evolved from an optional corporate initiative into a fundamental requirement for maintaining market competitiveness, particularly within international supply chains. Consumers increasingly evaluate food products according to environmental responsibility, ethical sourcing, waste reduction, and community empowerment rather than considering product quality alone [26]. For MSMEs such as Tidesa, sustainability encompasses responsible sourcing of agricultural raw materials, environmentally friendly packaging, efficient resource utilization, waste minimization, and community participation in production activities. These practices not only improve environmental performance but also strengthen organizational legitimacy and consumer trust.

Nevertheless, implementing sustainability practices requires substantial organizational readiness. Financial resources, managerial commitment, supplier collaboration, employee awareness, and technological capability collectively determine the success of sustainability initiatives. Consequently, sustainability demonstrates both high influence and high dependence, making it particularly sensitive to improvements in digital capability, branding, certification, and supply chain integration. This finding aligns with the Triple Bottom Line framework, which emphasizes that sustainable business performance is achieved through the simultaneous integration of economic, environmental, and social dimensions [26]. Recent studies further indicate that sustainability practices positively influence brand reputation, customer loyalty, and export competitiveness among SMEs operating within global value chains [27].

### 3) Supply Chain Management

Supply chain management represents another strategic linkage variable because it directly influences production continuity, operational efficiency, and customer satisfaction. Efficient supply chain systems ensure the availability of raw materials, maintain consistent product quality, reduce operational costs, and improve delivery reliability. The dependence of Tidesa on locally sourced agricultural commodities makes supply chain management particularly

important. Seasonal production, climate variability, fluctuating agricultural yields, and transportation constraints may interrupt production schedules and affect product consistency. Consequently, disruptions occurring upstream rapidly influence downstream activities, including processing, marketing, and export fulfillment.

Conversely, integrated supply chain management enhances coordination among farmers, processors, distributors, and retailers, enabling MSMEs to respond more effectively to changing market demand. Competitive advantage increasingly derives from supply chain capabilities rather than individual organizational performance [28]. Consistent with this view, supply chain integration has been shown to enhance operational performance, organizational flexibility, and customer satisfaction, thereby strengthening firms' overall competitive advantage [29]. The MICMAC results therefore indicate that strengthening supply chain collaboration should become a strategic priority within community empowerment programs. Establishing stronger partnerships with local farmers, improving inventory management, and adopting digital supply chain monitoring systems would substantially increase production resilience while supporting export expansion.

### 4) Certification

Among all linkage variables, certification emerges as one of the most strategically important factors because it connects internal organizational quality with external market acceptance. Certification including halal certification, food safety certification, and quality management certification serves as formal evidence that products comply with nationally and internationally recognized standards. For food processing MSMEs, certification extends beyond regulatory compliance. Instead, it functions as a strategic marketing instrument that reduces information asymmetry between producers and consumers by signaling product reliability, safety, and quality. Consumers increasingly perceive certified products as more trustworthy, particularly within international markets where buyers have limited direct knowledge regarding producers. In the context of Tidesa, halal certification represents a particularly significant competitive advantage. Indonesia is recognized as one of the world's largest halal producers, while global demand for halal food products continues to expand rapidly across both Muslim-majority and non-Muslim countries. Previous studies have demonstrated that halal certification positively influences consumer trust, purchase intention, export opportunities, and international market penetration [15,30].

However, obtaining certification requires substantial organizational preparedness. Enterprises must implement standardized operating procedures, maintain comprehensive documentation, ensure traceability of raw materials, establish quality assurance mechanisms, and continuously monitor production hygiene. These requirements explain why certification demonstrates high dependence despite simultaneously exerting strong influence on overall competitiveness. Importantly, the MICMAC ranking further identifies certification as the variable with the highest combined direct and indirect influence within the system. This finding suggests that certification not only directly enhances product credibility but also indirectly strengthens branding, digital marketing effectiveness, export readiness, customer confidence, and long-term organizational sustainability. Certification therefore

functions as a strategic bridge connecting internal operational excellence with external market competitiveness.

## 3. Dependent Variables (Quadrant III)

The Direct Influence–Dependence Map positions adaptive capacity (Adaptive) and price competitiveness (Price) within Quadrant III, indicating that these variables exhibit low driving power but high dependence (Figure 1). Variables located in this quadrant are classified as dependent variables, meaning that they primarily represent the consequences of interactions among other strategic variables rather than serving as independent drivers of system change (Godet & Durance, 2011). Their performance is therefore largely determined by the successful implementation of the driving variables (Quadrant I) and linkage variables (Quadrant II). This finding suggests that improving adaptive capacity and pricing competitiveness should not be considered the starting point of MSME development strategies. Instead, these variables emerge naturally once organizations have strengthened their marketing capabilities, product quality, operational systems, and regulatory compliance. In the context of Tidesa MSMEs, adaptive capacity and competitive pricing reflect the overall maturity of the enterprise rather than isolated managerial interventions.

### a. Adaptive Capacity

Adaptive capacity refers to the ability of an organization to anticipate, respond to, and capitalize on changes occurring in its internal and external environments. For MSMEs operating in the food-processing industry, adaptive capacity has become increasingly important due to rapid technological advancements, changing consumer preferences, evolving food safety regulations, and growing international competition. Enterprises with strong adaptive capacity are better equipped to modify production systems, introduce product innovations, adopt digital technologies, and respond effectively to fluctuations in market demand [17].

However, the MICMAC analysis indicates that adaptive capacity is not an independent capability. Instead, it develops through the cumulative improvement of several strategic variables identified in Quadrants I and II. For instance, digital marketing enables MSMEs to access real-time market information and consumer feedback, allowing firms to identify emerging trends more rapidly. Likewise, strong branding enhances customer relationships and market intelligence, while export readiness exposes enterprises to international quality requirements and changing consumer expectations. Product certification, sustainable production practices, and integrated supply chain management further strengthen organizational learning by encouraging continuous improvement and standardized operational procedures.

Consequently, adaptive capacity should be viewed as an organizational outcome that reflects the successful integration of strategic marketing capabilities and operational excellence. This interpretation is consistent with the Dynamic Capabilities Theory, which argues that organizational competitiveness depends not only on existing resources but also on the firm's ability to continuously integrate, build, and reconfigure resources in response to environmental change [17].

For Tidesa, adaptive capacity is particularly important because the global snack food industry continues to evolve toward healthier products, environmentally friendly packaging, digital retailing, and stricter food safety regulations. MSMEs capable of adapting to these trends will be better positioned to maintain competitiveness in both domestic and international markets. Conversely, enterprises that fail to adapt risk losing market share despite possessing high-quality products. The MICMAC results therefore imply that community service interventions should focus on strengthening adaptive capacity indirectly by improving digital competencies, export knowledge, branding capability, and quality management systems. Such interventions are expected to create organizational learning processes that enable Tidesa to remain resilient under changing business conditions.

### b. Price Competitiveness

Price competitiveness represents another dependent variable identified by the MICMAC analysis. Although price remains one of the most influential determinants of purchasing decisions, the results indicate that pricing itself does not drive organizational transformation. Rather, competitive pricing reflects the effectiveness of production management, operational efficiency, and value creation strategies implemented throughout the organization.

In food processing MSMEs, competitive prices cannot be achieved simply by lowering selling prices. Instead, sustainable pricing depends on efficient production processes, stable raw material supplies, reduced operational costs, effective inventory management, and consistent product quality. Improvements in these operational capabilities allow enterprises to reduce production costs while maintaining profitability and product quality. Furthermore, international markets increasingly emphasize value-based competition rather than price-based competition. Consumers purchasing premium ethnic food products often evaluate authenticity, safety, sustainability, certification, and brand reputation alongside price considerations. Consequently, enterprises capable of delivering superior value may successfully charge premium prices without reducing customer demand [13].

This finding supports Porter's Competitive Advantage Theory, which distinguishes between cost leadership and differentiation strategies. For MSMEs such as Tidesa, competing exclusively on low prices would be difficult because production volumes and economies of scale remain limited. Instead, differentiation through storytelling, branding, product quality, certification, and sustainability provides greater opportunities for establishing long-term competitive advantage while maintaining profitable pricing strategies [21]. The dependent position of price within the MICMAC map therefore indicates that pricing competitiveness is primarily the outcome of successful improvements in product quality, operational efficiency, and market positioning. Strong digital marketing increases customer awareness, effective storytelling enhances perceived product value, certification strengthens consumer confidence, and supply chain efficiency reduces production costs. Together, these improvements provide greater flexibility in pricing decisions while maintaining profitability.

## 4. Autonomous Variables (Quadrant IV)

The Direct Influence–Dependence Map positions business stability (Stability) and product visualization (Visualization) in Quadrant IV, indicating that these variables exhibit both low driving power and low dependence (Figure 1). Within the MICMAC framework, variables occupying this quadrant are referred to as autonomous variables because they have relatively weak interactions with the overall system [18]. They neither exert substantial influence on other strategic variables nor are they significantly influenced by changes occurring elsewhere in the system. Consequently, these variables are not considered primary leverage points for organizational transformation but instead function as complementary capabilities that support long-term business performance. The autonomous position of these variables does not imply that they are unimportant. Rather, it indicates that improvements in business stability and product visualization alone are unlikely to generate significant systemic changes unless accompanied by broader improvements in marketing capabilities, operational excellence, and organizational readiness. From a strategic management perspective, these variables contribute to sustaining competitiveness after the core strategic capabilities have been successfully developed [23].

### a. Business Stability

Business stability refers to the ability of an enterprise to maintain consistent operational performance, production continuity, financial sustainability, and customer satisfaction over time despite fluctuations in market conditions. Stable business performance is particularly important for food-processing MSMEs because retailers, distributors, and export partners require suppliers capable of delivering products consistently in terms of quantity, quality, and delivery schedules. However, the MICMAC analysis indicates that business stability is not a primary driver of organizational transformation. Instead, stability emerges as a consequence of successful organizational development across multiple strategic dimensions. Enterprises become stable after establishing reliable supply chains, implementing standardized production systems, adopting digital technologies, strengthening brand reputation, and achieving regulatory compliance. This interpretation is consistent with the Resource Based View (RBV), which argues that sustainable organizational performance results from the accumulation and effective coordination of strategic resources rather than from isolated organizational characteristics [23]. Likewise, organizational resilience depends on continuously integrating internal capabilities with changing external opportunities rather than maintaining static operational routines [17].

For Tidesa MSMEs, long-term business stability depends on the successful integration of the driving and linkage variables identified in the previous quadrants. Effective digital marketing generates stable customer demand, strong branding increases customer loyalty, certification enhances market credibility, and efficient supply chain management ensures uninterrupted production. Therefore, stability should be viewed as the outcome of a mature organizational system rather than an independent strategic objective. This finding also has practical implications for community empowerment programs. Rather than focusing directly on improving business stability through financial or administrative interventions alone, greater emphasis should be placed on strengthening the strategic capabilities that

collectively generate stable organizational performance. Once these capabilities become institutionalized, business stability is expected to develop naturally as organizational performance becomes more consistent and resilient.

### b. Product Visualization

Product visualization encompasses packaging design, visual identity, labeling, product presentation, and other aesthetic elements that influence consumers' first impressions during the purchasing process. Attractive product visualization has become increasingly important in competitive food markets because consumers often evaluate visual appearance before experiencing product quality [31]. Despite its recognized importance in marketing practice, the MICMAC analysis positions product visualization within the autonomous quadrant. This result suggests that packaging appearance alone is insufficient to substantially improve MSME competitiveness. Instead, visualization functions primarily as a supporting marketing instrument whose effectiveness depends on the existence of strong product quality, brand credibility, certification, and customer trust.

In the food industry, consumers may initially select products because of attractive packaging, but repeat purchases are primarily driven by satisfactory product experiences. For Tidesa, improvements in product visualization remain valuable because professionally designed packaging enhances shelf appeal, strengthens brand recognition, and improves communication of product information such as halal certification, nutritional content, sustainability claims, and country of origin. Furthermore, high-quality visual presentation contributes to stronger digital marketing performance, particularly within e-commerce platforms where purchasing decisions are heavily influenced by product images and visual content. Nevertheless, investing heavily in packaging redesign without simultaneously improving product quality, certification, and branding may produce only limited improvements in competitiveness. Therefore, product visualization should be developed after the enterprise has established strong strategic capabilities in the driving and linkage variables. Such sequencing ensures that visual identity accurately represents the actual quality and value delivered by the product.

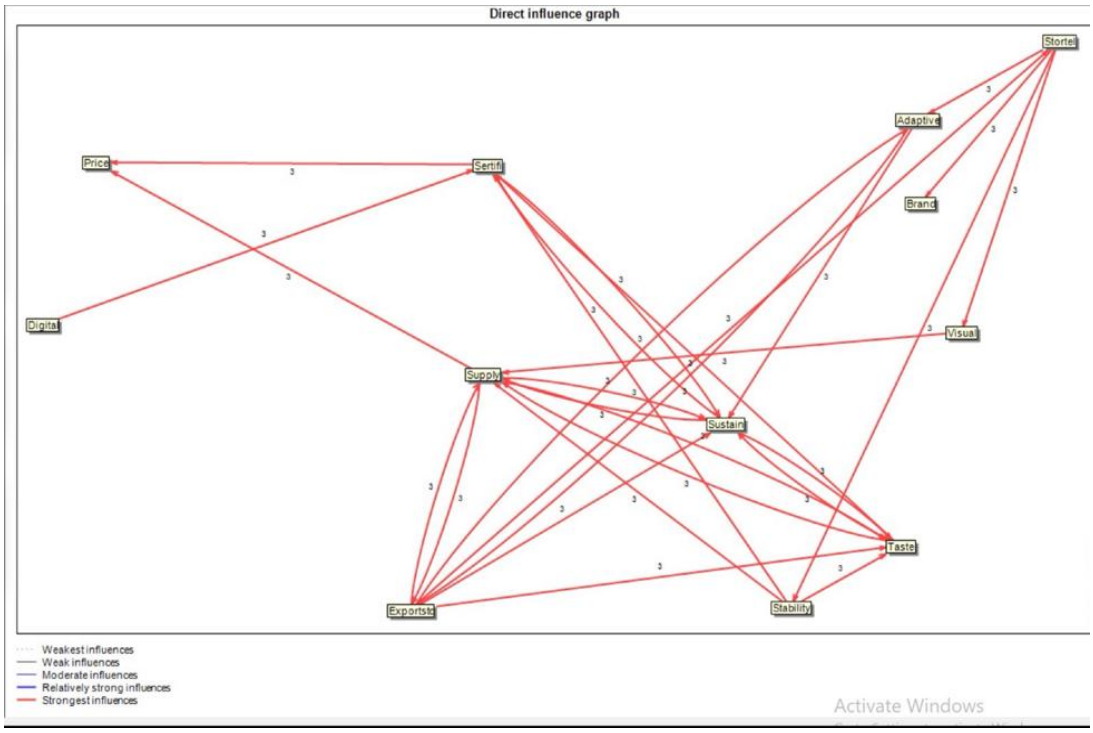


**Figure 2.** Direct Influence Graph

Figure 2 illustrates the direct influence graph generated from the MICMAC analysis. The graph describes the direct interactions among the variables influencing the competitiveness of Tidesa MSMEs. In this graph, the greater the number of arrows pointing toward a variable, the greater the number of factors that directly influence that variable. Conversely, variables with numerous outgoing arrows act as drivers that influence other variables within the system.

The analysis shows that taste is the variable receiving the highest number of direct influences from other variables. This finding indicates that product taste is not an isolated attribute but rather the final outcome of several interconnected factors, including certification, supply chain management, sustainability practices, export standards, product stability, and adaptive capacity. In other words, maintaining a consistent product taste depends on the successful improvement of upstream operational and managerial aspects [32]. Therefore, efforts to improve product taste should not focus solely on product formulation but also on strengthening quality assurance systems, ensuring the continuity of raw material supply, and complying with export and certification requirements [33,34].

The second most influenced variable is Sustainability (Sustain). The large number of direct relationships indicates that sustainable product development is shaped by multiple interconnected factors, particularly certification, supply chain reliability, export readiness, and production standards. These factors work together to ensure consistent product quality, regulatory compliance, and efficient resource management throughout the production process. This finding suggests that sustainability is not an isolated objective but the result of an integrated approach that combines effective production management, quality assurance, and institutional support to strengthen long-term competitiveness and market resilience [35,36]

Similarly, Storytelling (Stortel) receives substantial influence from other strategic variables, indicating that compelling product narratives are built upon strong

operational and production foundations rather than marketing capability alone [37]. Certification, sustainability practices, product quality, and export readiness provide credible evidence that strengthens the authenticity and reliability of the stories communicated to consumers [38]. These attributes increase consumer confidence by demonstrating that the product meets recognized quality and sustainability standards. Consequently, storytelling becomes more than a promotional activity; it serves as a strategic communication tool that translates operational excellence into brand value, enhances product differentiation, and strengthens the competitiveness of food SMEs in both domestic and international markets.

In contrast, variables such as Brand Image, Visual Appearance, and Price receive relatively fewer direct influences, suggesting that these variables are shaped by a limited number of strategic factors. In the context of food SMEs, these variables primarily enhance consumer purchasing decisions after consistent product quality and reliable production systems have been established. A strong brand image is built through sustained product quality and consumer trust, while attractive packaging and visual appearance increase perceived quality and purchase intention. Similarly, price serves as an indicator of value, where consumers assess whether the quality and taste of the product justify the price offered. Therefore, branding, packaging, and pricing strategies should complement, rather than replace, efforts to strengthen product quality and operational consistency [39,40].

Overall, the Direct Influence Graph demonstrates that taste represents the ultimate outcome of the entire competitiveness system of Tidesa MSMEs. Improvements in certification, supply chain management, sustainability, export standards, and production stability will ultimately converge in enhancing product taste. Therefore, community empowerment programs should prioritize strengthening these upstream variables, as improvements in these areas will indirectly enhance product taste, which ultimately determines consumer satisfaction, repeat purchases, and competitiveness in international markets.

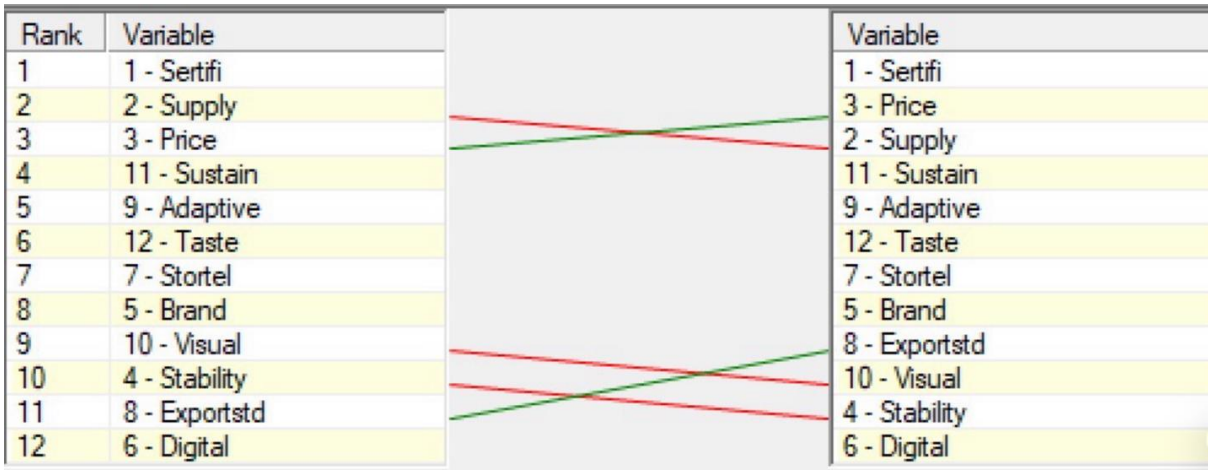


**Figure 3.** Direct Influence Ranking

Figure 3, The direct influence ranking (left panel) indicates that certification occupies the first position, demonstrating that it has the strongest immediate influence on the overall development of Tidesa MSMEs. This finding suggests that certification serves as a critical strategic capability because improvements in certification directly affect several operational and market-related variables, including product quality, consumer trust, export readiness, and business credibility. Certification, particularly halal and food safety certification, functions not only as a

regulatory requirement but also as a market signal that reduces information asymmetry between producers and consumers while enhancing buyer confidence in product quality and safety. For food-processing MSMEs seeking access to domestic and international markets, certification has become an essential mechanism for improving competitiveness, facilitating market entry, and strengthening organizational legitimacy[15,30]. Therefore, the highest direct influence score confirms that certification represents the most immediate strategic intervention capable of accelerating the competitiveness of Tidesa MSMEs. Similarly, the indirect influence ranking (right panel) also identifies certification as the most influential variable within the system, indicating that its impact extends far beyond its direct effects. Although certification directly improves compliance and consumer confidence, it simultaneously generates indirect influences on other strategic variables such as branding, digital marketing effectiveness, product differentiation, export performance, and long-term business sustainability. Certified products are generally perceived as more reliable and trustworthy, thereby strengthening brand reputation, increasing customer loyalty, and expanding opportunities to penetrate international distribution networks. Moreover, certification encourages enterprises to implement standardized production procedures, continuous quality improvement, and better supply chain coordination, which subsequently improve organizational adaptability and operational performance. This finding is consistent with systems thinking, where one strategic variable can create multiplier effects across interconnected organizational capabilities [18]. Consequently, certification can be regarded as the central leverage variable within the MSME development system because enhancing certification simultaneously reinforces multiple strategic dimensions necessary for sustainable competitiveness in global markets.

## CONCLUSIONS

This study employed MICMAC analysis to identify the strategic variables influencing the competitiveness of Tidesa, an Indonesian instant food MSME. The findings reveal that MSME competitiveness is shaped by an interconnected system of strategic, operational, and market-oriented capabilities rather than by isolated factors. Storytelling, export readiness, brand image, and digitalization emerged as the primary driving variables due to their high driving power and low dependence, making them the main priorities for strengthening market visibility, product differentiation, customer engagement, and export expansion. In contrast, product taste, sustainability, supply chain management, and certification were identified as linkage variables that require integrated and continuous management because of their strong influence and high dependence. Among all variables, certification demonstrated the greatest direct and indirect influence, emphasizing its strategic role in enhancing product credibility, consumer trust, regulatory compliance, export readiness, and long-term business sustainability. Meanwhile, adaptive capacity and price competitiveness were classified as dependent variables, whereas business stability and visual appeal were categorized as autonomous variables with relatively limited systemic influence.

These findings suggest that improving MSME competitiveness requires an integrated development strategy that prioritizes the strengthening of the key driving variables before addressing the linkage variables. Community empowerment programs and MSME development policies should therefore focus on digital transformation, brand development, storytelling, export preparation, certification, sustainable

production, and supply chain integration. Strengthening these interconnected capabilities is expected to generate multiplier effects that improve product quality, increase consumer confidence, expand market access, and enhance the long-term competitiveness of Indonesian instant food MSMEs in both domestic and international markets. Future research is recommended to validate these findings using larger samples and complementary analytical approaches, such as Structural Equation Modeling (SEM) or fsQCA, to further examine the causal relationships among the identified strategic variables.

## CONFLICT OF INTEREST

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