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Catfish Budikdamber Business Development Strategy Using QSPM and MAUT Model in Bandar Kidul District, Kediri City

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ABSTRACT

The aquaculture industry in Indonesia faces challenges concerning land availability, especially in areas with limited land resources. The approach involves cultivating fish in buckets (budikdamber) via the aquaponic technology. This study seeks to devise business development strategies and identify priority methods for the advancement of the catfish budikdamber enterprise in Bandar Kidul Village, Kediri City. This research utilizes a descriptive methodology that applies a quantitative approach, integrating both qualitative and quantitative data concurrently (mixed method). This study was executed from July to August 2024 employing a saturation sampling technique. Data were examined utilizing SWOT analysis, QSPM, and the MAUT model. A total of eight methods were successfully designed, encompassing SO, ST, WO, and WT tactics. The outcomes of the QSPM and MAUT Model indicate two priority strategies for the advancement of catfish budikdamber enterprises: enhancing product value through the introduction of processed catfish innovations (ST2) and augmenting sales by incorporating buckets as cultivation containers.

INTRODUCTION

Aquaculture has emerged as an essential industry in global fisheries, significantly enhancing food security worldwide. In Indonesia, the world's largest marine nation, aquaculture is crucial in meeting animal protein requirements and bolstering the economy. Indonesia's aquaculture output will attain 18.44 million tonnes, representing 58% of the overall national fisheries production (Wasik et al., 2025). The advancement of aquaculture in Indonesia is essential for tackling concerns related to food safety, sustainable fisheries, international trade, and market competitiveness (Sutaman et al., 2023). Community-based small-scale aquaculture is a prevalent technique in Indonesia, particularly in rural regions,

significantly contributing to livelihood enhancement and food security (Nagel et al., 2024).

The aquaculture business in Indonesia has issues related to land availability, particularly in regions with constrained land resources. The rise of aquaculture in Southeast Asia is associated with mangrove destruction, underscoring the necessity for sustainable land use practices (Richards & Friess, 2016). In regions like Java Island, where land parcels are comparatively small, averaging under 0.25 hectares. it is essential to enhance land utilization for aquaculture (Anandya et al., 2023). To address the issue of limited land availability for aquaculture in Indonesia, the implementation of sustainable land use practices, technological advancements, and an emphasis on environmental protection are essential for the enduring viability of the aquaculture industry.

Catfish farming may serve as an alternative for enhancing community welfare by utilizing yard land (Suryaman et al., 2019). Catfish is a prominent freshwater fish species and a valuable commodity in Indonesia. Catfish contains a protein level ranging from 17.7% to 26.7% and fat content between 0.95% and 11.5%. categorizing it as a low-fat, protein-rich diet. Moreover, catfish is rich in vitamin A, phosphorus, vitamin B1, calcium, vitamin B6, carotene, vitamin B12, iron, and elevated concentrations of amino acids (Ratulangi et al., 2022).

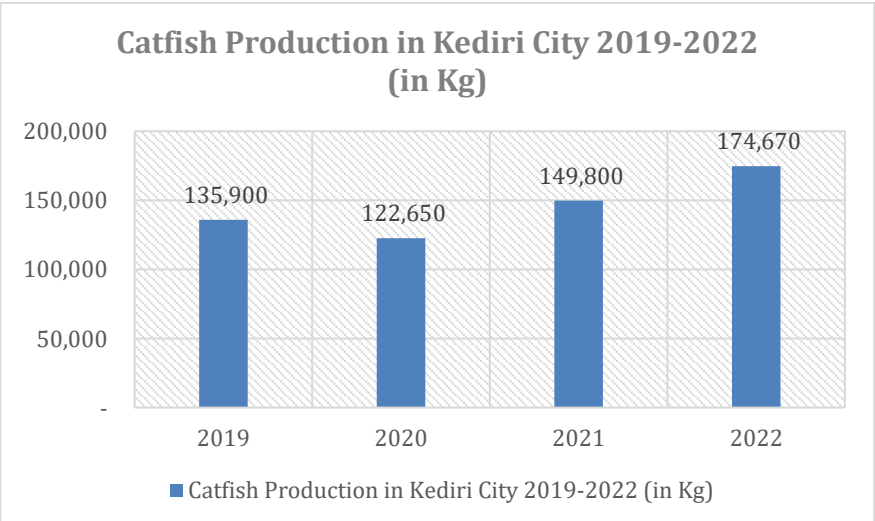

Figure 1. Catfish Production in East Java 2017-2021 (in Kg)

The prospects of catfish farming in Kediri City are evidenced by the rise in catfish production from 2020 to 2022, as seen in Figure 1. Enhanced fish farming production can be achieved through the implementation of aquaponic technology, which synergistically integrates hydroponics and aquaculture, utilizing fish waste or residual feed as a nutrient source for plants, thereby preserving water quality in the maintenance medium (Yonarta et al., 2020).

In aquaponics, the interaction between fish and plants fosters a more productive ecosystem than traditional approaches. The aquaponic system generates

high-quality organic fish and vegetables without the application of artificial fertilizers or pesticides, while achieving substantial production levels. The implementation of aquaponic systems, characterized by minimal water usage, stable water quality conducive to fish survival, and the utilization of wastewater and fish excrement as organic fertilizer, can enhance economic value and benefit business stakeholders (Taufikurrahman et al., 2022). One aquaponic cultivation approach is bucket-based fish farming (budikdamber).

Pokmas Bankid Lestari encounters several internal and external challenges in operating the catfish budikdamber business that must be addressed to ensure effective development and operation. Consequently, a suitable company development strategy is essential for the catfish budikdamber enterprise to achieve optimal profitability. Approaches for formulating business development plans encompass the Strength Weakness Opportunity Threat (SWOT) analysis. Quantitative Strategic Planning Matrix (QSPM) and Multi Attribute Utility Theory (MAUT) models (Adha et al., 2024). Furthermore, it is essential to prioritize strategies according to important success characteristics and employ utility functions via the MAUT model to enhance the selection of the appropriate strategy.

LITERATURE REVIEW

Each business needs to determine internal and external issues to build a plan that maximizes profit. Effendi et al. (2017) conducted research on chocolate business development strategies utilizing QSPM and MAUT in Kampung Coklat, Blitar. The findings indicated that the most significant internal factors include the provision of diverse processed chocolate (strengths) and insufficient market expansion (weaknesses), whereas the most impactful external factors comprise shifts in consumer lifestyles (opportunities) and the rise of competing businesses with analogous products (threats). The primary strategies to be implemented include enhancing product marketing through advertisements, engaging in specific event, establishing new galleries, and augmenting sales by diversifying chocolate product varieties and optimizing supporting infrastructure.

Freshwater aquaculture possesses significant economic value and substantial potential for development. Research by Wiranata et al. (2023) on the development strategy of the ornamental fish farming enterprise at Maresh Farm ID in Purbalingga identified the primary strength as the presence of cooperative partners, the principal weakness as reliance on a single water well, the foremost opportunity as the monetization of expertise through training and workshops, and the major threat as the potential disruption of partnerships due to inadequate relations. Consequently, the primary tactics to be implemented include augmenting production capacity to satisfy market demands and optimizing the utilization of raw materials effectively and efficiently.

The success of a firm is intrinsically linked to the effectiveness of its marketing operations conducted by its stakeholders. Research conducted by Pramono et al. (2019) on the Siamese catfish seed industry utilizing a network system at the West Java Marine and Fisheries Service Branch of the Northern Region (CDKPWU) identified the primary internal determinant as the compliance of fish seed cultivation products with SNI (ISO 901: 2008). Conversely, the principal external determinants include elevated market demand for catfish seeds as an opportunity and volatile raw material prices (natural feed artemia) as a threat. The primary alternative technique is to broaden the production partnership network to enhance output and elevate community income by including additional crop partners and establishing more seed production ponds.

METHOD

The research was carried out at Bandar Kidul Village, Mojoroto District, Kediri City. The research will take place from July 2024 to August 2024. In Bandar Kidul Village, there exists a community fish farming group (Pokmas) named Bankid Lestari, comprised entirely of individuals engaged in catfish aquaculture. This research employs a descriptive method using a quantitative approach that integrates both qualitative and quantitative data simultaneously (mixed method), wherein data from both categories are collected simultaneously and analyzed to enhance one another. The qualitative method aims to identify the internal and external elements influencing the business through a questionnaire. Simultaneously, the quantitative method aims to establish the SWOT matrix and SWOT quadrant to assess the corporate situation and formulate the competitive strategy. In the analysis, qualitative data will be converted into quantitative data via SWOT analysis and QSPM, with the findings then reported through a description of the qualitative analysis outcomes.

The analysis results facilitate the identification of business actors' positions and the formulation of suitable strategies for business development. Moreover, it was created by synthesizing internal strengths and weaknesses with external possibilities and dangers, leading to the development of different company strategies. Strategy prioritization was executed via two methodologies: the identification of critical success variables related to internal and external business actors utilizing QSPM analysis, and the use of the utility function (U(x)) through the MAUT method. The outcomes of the two methodologies were thereafter compared to enhance the selection of the appropriate strategy.

Identification of Variables

The variables considered encompass internal and external elements by examining the present circumstances of the Budikdamber catfish enterprise in Bandar Kidul. Internal factors evaluated in ascertaining variables encompass management. production. finance. and marketing. External considerations taken

into account encompass the industrial environment and the remote environment. Table 1 displays the variables for internal and external factors.

Table 1. Variable internal and external factors of business actors

No	Internal Factors	Indicator	No	External Factors	Indicator
1	Management	Planning Organizing Actuating Controlling	1	Industry environment	Risk of new competitors Supplier power
2	Production	Labor Quality	2	Remote environment	Economic Ecology Technology Social Politic
3	Finance	Financial record-keeping Investment prospects			
4	Marketing	Product Facilities Price Promotion Market segment Location			

Identification of Respondents

The participants in this study are expert respondents qualified to evaluate company growth plans in the Budikdamber catfish industry, as they possess knowledge of the challenges encountered by business operators. Participants additionally furnish internal and external analyses of the Budikdamber catfish enterprise. The sampling method employed was saturated sampling. wherein all members of Pokmas Bankid Lestari were chosen as respondents, totalling to 30 participants.

Development of Questionnaires

This research solicits responses from individuals engaged in the Budikdamber catfish enterprise to delineate the internal and external elements influencing the business. This study employed both open-ended and closed-ended questions. Four types of questionnaires are provided. namely: 1. A questionnaire to assess the significance of strategic factors; 2. A questionnaire to evaluate internal and external

factors; 3. A questionnaire to ascertain the QSPM value; and 4. A questionnaire to finalize the decision utilizing the MAUT model.

The questionnaire employed in this research will undergo a validation test to ascertain its feasibility and appropriateness as a measuring instrument, ensuring that each variable is comprehensible to the respondent and capable of eliciting accurate responses. The questionnaire's validation is based on face validity. Effendi et al. (2017) define face validity as a form of validation that pertains to the alignment between the outward characteristics of a measuring instrument and the features of the variable intended for measurement.

SWOT Analysis

The components of a SWOT analysis encompass:

1) Evaluating and scoring the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) Matrices

   The evaluation of the internal and external environment is conducted by assigning weights to each characteristic according to its significance, utilizing a Likert scale. Each factor is rated subsequent to the determination of its variable weight. The evaluation scale employed ranges from 1 to 4, determined by these elements concerning the company's status. The weighting results and rating values are subsequently multiplied to create the overall weighted value of the IFE and EFE matrices.

2) Establishment of the IE Matrix

   The IE matrix is utilized to ascertain a business's status. The IE matrix is derived from the cumulative value of the IFE Matrix, weighted along the X axis, and the cumulative value of the EFE Matrix, weighted along the Y axis (Effendi. 2017). Organizations are positioned on the IE matrix according to the cumulative weighting score. Companies in areas I, II, or IV are in the growth and development phase, while those in areas III, V, or VII are in the retention and maintenance phase. Conversely, companies in areas VI, VIII, or IX are in the harvesting or divestment phase.

3) SWOT Matrix

   The SWOT matrix is a tool utilized to aggregate a company's strategic determinants by explicitly delineating the alignment of external opportunities and threats with its strengths and weaknesses. The SWOT matrix will generate four strategic option cells: SO. WO. ST. and WT strategies.

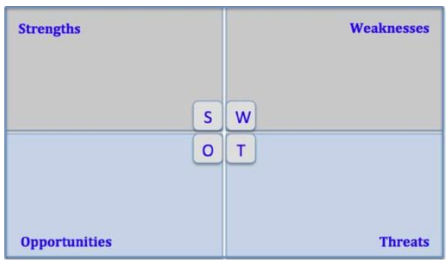

Figure 2. SWOT Matrix (Wilton, 2021)

QSPM Analysis

The Quantitative Strategic Planning Matrix (QSPM) is an advisable instrument for the objective assessment of various strategic options. grounded in previously established internal and external critical success criteria. Alternative tactics organized in a SWOT analysis will be evaluated using an attractiveness score (AS). The procedures for executing QSPM analysis encompass:

1. Create a comprehensive list of strengths, weaknesses, opportunities, and threats pertaining to the Budikdamber catfish enterprise, following the SWOT matrix framework;
2. Assign weights to each aspect. consistent with the IFE and EFE matrix methodology;
3. Assemble alternate strategies for evaluation;
4. Evaluate attractiveness on a scale from 1 (not appealing) to 4 (very attractive). The assessment of AS is conducted by analyzing each significant internal and external element. If the factor does not influence the alternative strategy being evaluated. then no AS value is assigned;
5. Determining Total AS by multiplying the weight by the AS of each factor within each method;
6. Determining the overall True Airspeed (TAS). The approach with the highest TAS is the optimal alternative strategy.

MAUT Model

The MAUT analysis encompasses the following functions:

MAUT additive

$$U(x_1) = \Sigma_{i=1}^{n} W_i U_i(x_i) \quad (1)$$

MAUT *non-additive*

$$U(x_1) = \Sigma_{i=1}^{n} W_i U_i(x_i) + \Sigma_{i=1}^{n} \Sigma_{j>1} W_{ij} U_i(x_i) U_j(x_j) \quad (2)$$

Specification:

$U(x_1)$: Aggregate utility of the first alternative
W_i : Attribute weight ($\Sigma w = 1$)
$U_i(x_i)$: Function of the i-th attribute
I : Attributes 1. 2. 3. .... n
X : The i-th criterion

The procedures employed in the MAUT approach are concisely outlined as follows:

1) Decomposing a decision into various dimensions;
2) Assessing the significance of alternatives across each criterion;
3) Enumerating all choices; and
4) Determining the utility for each alternative based on its qualities with the subsequent formula:

$$Ui_{(xi)} = \frac{x - x_i^-}{x_i^+ - x_i^-} \quad (3)$$

5) Calculate the value of each choice by multiplying the utility by the weight. as per formula (1).

RESULT AND DISCUSSION

Research Location Overview

This study is situated in the Bandar Kidul District of Kediri City, where all bucket catfish farmers are members of the Bankid Lestari Community Group (Pokmas). Pokmas Bankid Lestari is a business unit of the Bandar Kidul Ikat Weaving Village Tourism Village, dedicated to the processing and sale of catfish goods. Catfish cultivation employs the budikdamber technique, which involves using a bucket as a container in conjunction with vegetable plants like kale. The cultivated fish is processed by Poklahsar Bankid Sejahtera into shredded catfish, which is thereafter marketed in the Kediri City region through individual orders, visiting tourists, or during the group's participation in bazaars and seminars.

The presence of the fish farming group. Pokmas Bankid Lestari, and the fish processing and marketing organization. Poklahsar Bankid Sejahtera. demonstrates the autonomy of the Bandar Kidul community in the fisheries sector from upstream to downstream. The residents of Bandar Kidul can enhance their local potential, augment household income, and diminish unemployment in the Bandar Kidul region. The community's autonomy must be perpetually enhanced in the sustainable management of regional resources.

The Input Stage

IFE Matrix

The IFE Matrix. or Internal Factor Evaluation Matrix, is an analytical tool utilized to assess the impact of internal factors possessed by fish farmers in buckets located in Bandar Kidul Village, Mojoroto District, Kediri City. The IFE Matrix's strengths and shortcomings are illustrated in Table 2.

Table 2. IFE Matrix

Internal Factors	Weight	Rating	Weigthed Value
Strengths			
1. Harvest continuity	0.12	3.73	0.45
2. Does not require extensive land area	0.13	4	0.52
3. Sufficient facilities and infrastructure	0.13	3.9	0.49
4. Forge collaboration with additional entities	0.11	3.53	0.40
5. Production is independent of the season	0.12	3.83	0.47

Internal Factors	Weight	Rating	Weigthed Value
6. Simultaneously cultivating kale using the aquaponic system	0.12	3.77	0.46
Total	0.74		2.80
Weaknesses			
1. Restricted quantity of fish maintained in a single bucket	0.06	2	0.13
2. Seeds remain reliant on external entities	0.05	1.67	0.09
3. Inadequate financial management	0.07	2.17	0.15
4. Unpredictable water quality	0.08	2.33	0.18
Total	0.26		0.55
Σ Total	1.00		3.34

Source: Processed Data (2024)

Internal factors categorized as strengths with the highest weighted value are identified as primary strengths, whereas internal components classified as weaknesses with the highest weighted value are recognized as primary weaknesses. Table 8 indicates that the IFE Matrix possesses a value of 3.34. The primary advantage of the budikdamber enterprise in Bandar Kidul Village, Mojoroto District, Kediri City, is its little land requirement, rated at 0.52. The catfish budikdamber enterprise necessitates minimal land area and can be situated adjacent to or within residential yards, hence optimizing limited space in urban environments (Setiyaningsih et al., 2020). The land space needed is solely for positioning an 80-liter or 150-liter bucket.

The primary weakness in this catfish aquaculture enterprise is the reliance on external sources for seeds, which holds a value of 0.09. Pokmas Bankid Lestari exclusively engages in catfish enlargement via bucket media, without implementing a fish hatchery procedure. Consequently, business operators are required to procure catfish seeds from breeders in the vicinity of Kediri City, including Pare and Wates, for stocking in the buckets. If the supplier of catfish seeds is out of stock, the business entity must explore alternative sources that may provide varying buying prices.

EFE Matrix

The EFE Matrix, or External Factor Evaluation Matrix, is an analytical tool employed to assess the impact of external factors on the budikdamber enterprise in Bandar Kidul Village, Mojoroto District, Kediri City. The EFE Matrix outlines the opportunities and challenges encountered by farmers. The EFE Matrix details are presented in Table 3.

Table 3. EFE Matrix

External Factors	Weight	Rating	Weighted Value
Opportunities			
1. Utilization of catfish as a primary resource for various processed fish businesses	0.15	3.73	0.55
2. The demand for catfish persists in its upward trajectory	0.14	3.67	0.53
3. Accessibility of seed procurement	0.14	3.43	0.46
4. Advancement in agriculture technology	0.13	3.2	0.40
5. Advancement in marketing technology	0.13	3.27	0.42
Total	0.68		2.37
Threats			
1. Competition among similar or other products	0.10	2.5	0.25
2. Catfish disease	0.07	1.73	0.12
3. Feed price increase	0.09	2.17	0.19
4. Cannibalism of catfish	0.07	1.67	0.11
Total	0.32		0.66
Σ Total	1		3.03

Source: Processed Data (2024)

External influences encompass possibilities and hazards. The external factor opportunity with the greatest weighted value represents the primary opportunity available to fish growers utilizing buckets in Bandar Kidul Village. The possibility with the highest weighted value is the utilization of catfish as a raw material for various processed fish industries, valued at 0.55. This aligns with the presence of other business entities owned by the residents of Bandar Kidul Village, specifically processed shredded catfish operated by the Bankid Sejahtera Marketers and Processors Group (Poklahsar). The catfish collected by Pokmas Bankid Lestari is sold to Poklahsar Bankid Sejahtera for processing and is also marketed to end consumers in the vicinity of the cultivation location.

The external threat element with the lowest weighted value, which requires anticipation by bucket fish producers in Bandar Kidul Village, is catfish cannibalism, with a value of 0.11. Afiza & Pangestuti, 2018 states that cannibalism among catfish may occur when their appetite during the growth phase is significantly heightened while feed is insufficient. This can be mitigated through regular feeding and consistent monitoring of water quality.

The Matching Stage

IE Matrix

The IE matrix is derived from the formation of the IFE and EFE matrix values, which illustrate the current situation of the budikdamber business in Bandar Kidul Village, Mojoroto District, Kediri City. The cumulative weighted value in the IFE matrix serves as the X-axis, whilst the cumulative weighted value in the EFE matrix functions as the Y-axis. The placement of this budikdamber enterprise within the IE matrix is illustrated in Figure 2.

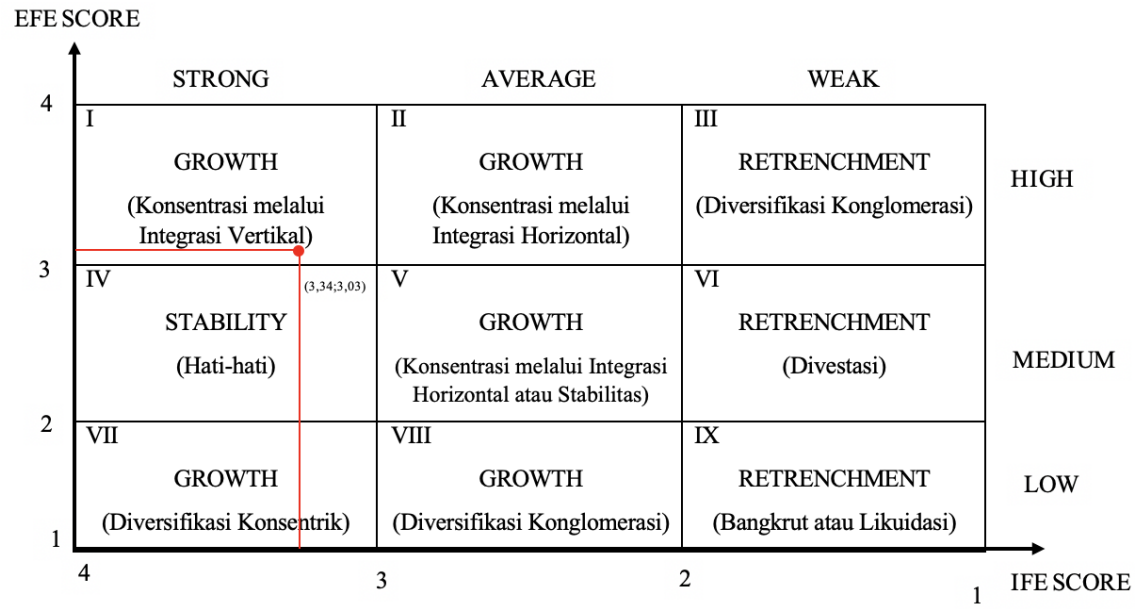

Figure 3. Internal-External Matrix

Figure 3 indicates that the budikdamber enterprise in Bandar Kidul Village is positioned in cell I, with an Internal Factor Evaluation (IFE) value of 3.34 and an External Factor Evaluation (EFE) value of 3.03. The average value of IFE and EFE is derived from the total of the scores for each factor, with each score calculated by multiplying the average rating by the average weight of that factor. This result indicates the location of quadrant I, signifying that the company now need a growth and development strategy. The growth and development strategy indicates that the organization requires a plan to enhance its growth and improve overall performance. This signifies that enterprises in this situation require a growth and development plan centered on concentration via vertical integration, encompassing product creation, market penetration, and market expansion (Maulida et al., 2021).

SWOT Matrix

The SWOT matrix can be employed to build a plan for the advancement of the budikdamber business in Bandar Kidul Village, Mojoroto District, Kediri City, subsequent to identifying the business position within the IE matrix. Strategies established through the SWOT matrix are a synthesis of the internal and external aspects encountered by the budikdamber firm. Eight techniques have been developed, including the SO (Strength-Opportunity), WO (Weakness-Opportunity),

ST (Strength-Threat), and WT (Weakness-Threat) strategies. The strategies outlined in the SWOT matrix are presented in Table 4.

Table 4. Development Strategies for Alternative Budikdamber Business

Internal External	*Strength* 1. Harvest continuity 2. Does not require extensive land area 3. Sufficient facilites and infrastructure 4. Forge collaboration with additional entities 5. Production is independent of the season 6. Simultaneously cultivating kale using the aquaponic system	*Weakness* 1. Restricted quantity of fish maintained in a single bucket 2. Seeds remain reliant on external entities 3. Inedequate financial management 4. Unpredictable water quality
Opportunity 1. Utilization of catfish as a primary resource for various processed fish business 2. The demand for catfish persists in its upward trajectory 3. Accessibility of seed procurement 4. Advancement in agriculture technology 5. Advancement in marketing technology	SO strategies 1. Utilizing social media to publicize the presence of budikdamber company sites (SO1): (S3, O1, O2, O5) 2. Collaborate with stakeholders in the processed seafood industry (SO2): (S1, S3, S4, S5, O1, O2) 3. Enhance sales by incorporating buckets as cultivation vessels (SO3): (S2, S3, S6, O3, O4)	WO strategies 1. Enhance staff performance via management system training (WO1): (W1, W2, W3, O4, O5) 2. Develop a Standard Operating Procedure for the periodic assessment of water quality (WO2): (W4, O1, O2, O3, O4)
Threat 1. Competition among similar or other products 2. Catfish disease 3. Feed price increase 4. Cannibalism of catfish	ST strategies 1. Develop alternate feed formulas using readily accessible materials (ST1): (S2, S3, T2, T3, T4) 2. Developing improvements in processed catfish to enhance product value (ST2): (S1, S3, S4, S5, S6, T1)	WT strategies 1. Enhance the proficiency of human resources to advance agriculture technologies (WT1): (W1, W2, W3, W4, T1, T2, T3, T4)

Source: Processed Data (2024)

a. SO (Strengths-Opportunities) Strategies

SO strategy is a tactic that leverages the company's strengths to capitalize on available opportunities. The development of the SO strategy encompasses:

i. Utilizing social media to publicize the presence of budikdamber company sites;

ii. Collaborate with stakeholders in the processed seafood industry; and

iii. Enhance sales by incorporating buckets as cultivation vessels.

b. ST (Strength-Threat) Strategies

The ST strategy optimizes the company's strengths to mitigate dangers. The development of the ST approach encompasses:

i. Develop alternate feed formulas using readily accessible materials; and
ii. Implementing advances in processed catfish to enhance product value.

c. WO (Weakness-Opportunity) Strategies

The WO strategy is to mitigate the company's vulnerabilities to capitalize on available possibilities. The formulation of the WO strategy encompasses:

i. Enhance employee performance via management system training; and
ii. Establish standard operating procedures for the regular assessment of water quality.

d. WT (Weakness-Threat) Strategies

The WT method is designed to mitigate current vulnerabilities while circumventing potential dangers encountered by business entities. The WT strategy development encompasses:

i. Enhancing the proficiency of human resources to advance agricultural technologies.

The Decision Stage

QSPM Method

The Quantitative Strategic Planning Matrix (QSPM) is an analytical instrument utilized to ascertain the prioritization of strategy implementation based on the appeal of the formulated strategic alternatives. Fish farmers, in this instance respondents, assign an Attractive Score (AS) to each alternative method and subsequently compute the Total Attractive Score (TAS) value. The alternative strategy with the highest TAS is prioritized for execution, but the alternative strategy with the lowest TAS is ultimately selected for implementation. Table 5 displays the AS and TAS scores derived from the QSPM.

Table 5. QSPM result

No	Strategy alternatives	TAS	Ranking
1	Utilizing social media to publicize the presence of budikdamber company sites (SO1)	5.37	VII
2	Collaborate with stakeholders in the processed seafood industry (SO2)	6.51	IV
3	Enhance sales by incorporating buckets as cultivation vessels (SO3)	7.03	I
4	Develop alternate feed formulas using readily accessible materials (ST1)	6.69	III
5	Developing improvements in processed catfish to enhance product value (ST2)	6.76	II

No	Strategy alternatives	TAS	Ranking
	Enhance staff performance via management system training (WO1)	5.89	VI
7	Develop a Standard Operating Procedure for the periodic assessment of water quality (WO2)	6.23	V
8	Enhance the proficiency of human resources to advance agriculture technologies (WT1)	4.87	VIII

Source: Processed Data (2024)

According to Table 5, the alternative priority approach yielding the highest TAS is the third strategy, which involves enhancing sales by including buckets as cultivation containers, achieving a value of 7.03. The subsequent alternative method, which possesses the second greatest TAS, involves innovating processed catfish to enhance product value, with a valuation of 6.76. Additionally, the alternative technique with the third highest TAS involves creating alternate feed formulas by leveraging readily accessible resources.

MAUT Model

The prioritized strategic options evaluated by QSPM are subsequently established utilizing the MAUT model. The MAUT model serves a function analogous to that of QSPM, specifically aimed at identifying which alternative strategies should be favored by fish farmers in Bandar Kidul Village to enhance their economic development. The application of the MAUT model necessitates the consideration of various aspects, including cost, time, infrastructure, and the entrepreneur's perspective.

Table 6. MAUT Data Recapitulation

No	Strategy Alternatives	Attributes			
		Cost (0,24)	Time (0,25)	Infrastructure (0,29)	Entrepreneur's Opinion (0,22)
1	Utilizing social media to publicize the presence of budikdamber company sites (SO1)	3	4	4	3
2	Collaborate with stakeholders in the processed seafood industry (SO2)	4	4.5	3.5	4.5
3	Enhance sales by incorporating buckets as cultivation vessels (SO3)	5	4.5	4	4
4	Develop alternate feed formulas using readily accessible materials (ST1)	3.5	4	5	3
5	Developing improvements in processed catfish to enhance product value (ST2)	4	4	5	5

No	Strategy Alternatives	Attributes			
		Cost (0,24)	Time (0,25)	Infrastructure (0,29)	Entrepreneur's Opinion (0,22)
6	Enhance staff performance via management system training (WO1)	3	3	5	2
7	Develop a Standard Operating Procedure for the periodic assessment of water quality (WO2)	3	3	4.5	2
8	Enhance the proficiency of human resources to advance agriculture technologies (WT1)	4	3.5	4	4
	Max	5	4.5	5	5
	Min	3	3	3.5	2

Source: Processed Data (2024)

According to Table 6, the weight values for each criterion are as follows: cost attribute at 0.24, time at 0.25, infrastructure at 0.29, and entrepreneur opinion at 0.22. The value of each attribute for every alternative technique is also known. The cost attribute ranges from a minimum of 3 to a maximum of 5; the time attribute ranges from 3 to 4.5; the infrastructure attribute ranges from 3.5 to 5; and the entrepreneur's opinion attribute ranges from 2 to 5.

Table 7. MAUT Processed Data

No	Strategy Alternatives	Attributes				Preference value	Ranking
		Cost (0.28)	Time (0.25)	Infrastructure (0.26)	Entrepreneur Opinion (0.21)		
1	Utilizing social media to publicize the presence of budikdamber company sites	0.00	0.67	0.33	0.33	0.34	VI
2	Collaborate with stakeholders in the processed seafood industry	0.50	1.00	0.00	0.83	0.56	IV
3	Enhance sales by incorporating buckets as cultivation vessels	1.00	1.00	0.33	0.67	0.73	II
4	Develop alternate feed formulas using readily accessible materials	0.25	0.67	1.00	0.33	0.59	III
5	Developing improvements in processed catfish to enhance product value	0.50	0.67	1.00	1.00	0.80	I
6	Enhance staff performance via	0.00	0.00	1.00	0.00	0.29	VII

No	Strategy Alternatives	Attributes				Preference value	Ranking
		Cost (0.28)	Time (0.25)	Infrastructure (0.26)	Entrepreneur Opinion (0.21)		
7	management system training Develop a Standard Operating Procedure for the periodic assessment of water quality	0.00	0.00	0.67	0.00	0.19	VIII
8	Enhance the proficiency of human resources to advance agriculture technologies	0.50	0.33	0.67	0.67	0.45	V

Source: Processed Data (2024)

Table 7 delineates the organization of the utility value, preference value, and ranking of each technique. Three alternative strategies yield the highest preference values: (1) Developing improvements in processed catfish to enhance product value by 0.80; (2) Enhance sales by incorporating buckets as cultivation vessels by 0.72; and (3) Develop alternate feed formulas using readily accessible materials by 0.59.

The implementation of the ST2 strategy in terms of cost attributes necessitates expenditures ranging from Rp 1,000,000 to 2,500,000. These expenses will be distributed across numerous initiatives to enhance processed catfish inventions, thereby actualizing the alternative plan. The processing of shredded catfish was undertaken by a consortium of processors and marketers in Bandar Kidul Village; however, it was discontinued due to challenges with marketing media. The Poklahsar collaborates with fish farmers who provide catfish harvests as raw materials. This situation presents an opportunity for farmers to develop novel product innovations utilizing catfish. Farmers concur that this alternative method can be executed as it is deemed capable of generating cash from additional business units. Research by Oladimeji & Udosen (2019) states that product innovation and diversification in Italy and Kenya highlighted the strong correlation between these tactics and profitability. Diversified firms demonstrated superior performance compared to non-diversified firms by leveraging a broader array of products to reduce risk and exploit market possibilities. The study indicates that the efficacy of diversification, particularly during crises, is contingent upon the strategic alignment of products with market demand.

The next prioritized plan is to enhance sales by including buckets as cultivation containers, as indicated by respondents on cost attributes, which necessitate an expenditure of Rp 2,500,000 - 4,000,000, aligning with research findings on expenses associated with catfish growing (Purwanti et al., 2024). The

expenses comprise variable expenditures, including catfish seeds, kale seeds, feed, probiotics, planting material, and plastic, as well as constant costs, encompassing depreciation of fixed capital, taxes, and maintenance. The farmers concurred with this alternate method, which received backing from a bucket grant provided by the Food Security and Agriculture Office. The study demonstrated the beneficial effect of enhanced production facilities on firm profitability (Salah et al., 2023). The findings highlighted that enhancing production capabilities and aligning them with supply chain management strategies can augment operational efficiency and profitability. Efficient management of production resources, including the addition of additional facilities or the enhancement of equipment, can optimize operations, save expenses, and ultimately enhance financial performance.

Managerial Implications

This research generated alternative strategies comprising two primary strategies derived from the analysis utilizing QSPM and MAUT models: developing processed catfish innovations to enhance product value (ST2) and augmenting sales by incorporating buckets as culture containers (SO3). This signifies that the assessment is conducted to establish strategic priorities in alignment with an objective framework that takes into account the primary success criteria from both internal and external perspectives. This evaluation employs a beauty score and prioritizes variables deemed to possess greater significance (Wheelen et al., 2015).

A study by Alhassan et al. (2020) employed QSPM in conjunction with SWOT analysis to carefully assess internal and external issues. The methodology entails recognizing essential strengths, weaknesses, opportunities, and threats (SWOT), thereafter prioritizing strategic choices through attractiveness rankings based on internal and external success determinants. This approach is employed to identify the most appropriate strategy in a fluctuating environment.

The ST2 approach pertains to the growth and development position (quadrant I in the IE matrix) and characterizes the farmer's state as expanding and evolving. By implementing innovations in processed catfish to enhance product value, it can facilitate intensive strategies, specifically market penetration via product development. This approach addresses external threats to farmers posed by competition from similar and substitute products, leveraging internal strengths such as consistent crop availability, sufficient facilities and infrastructure, collaboration with external entities, and production that is not season-dependent. Bauer et al. (2020) examine how horizontal acquisitions might facilitate market expansion and synergies through the integration of companies possessing analogous market shares and goods. They emphasize the significance of marketing integration and its influence on the success of these purchases. This study demonstrates that trade-offs in integration decisions can influence market presence and overarching strategy objectives.

Strategic Approach SO3 is a strategy that can assist farmers in the growth and expansion position in quadrant I of the resulting IE matrix, indicating that farmers can implement a market penetration strategy via market development by increasing the variety of products produced. This strategy can be implemented by leveraging the cultivator's internal strengths, such as the requirement for limited land, which facilitates the addition of cultivation buckets without issues related to land availability, sufficient facilities and infrastructure, and the simultaneous cultivation of catfish alongside other products like kangkong vegetables. Furthermore, farmers can capitalize on current prospects, including the accessibility of seeds, the incorporation of buckets as cultivation containers, and the ongoing advancements in cultivation technologies. Businesses situated in the growth and development quadrant find market penetration to be a beneficial approach (Budiono, 2017). This entails augmenting market share by enhancing the volume of current products. The study emphasizes that, in this setting, harnessing internal strengths, including the optimal utilization of space and existing resources, as well as capitalizing on input availability, can facilitate corporate growth.

The SO3 strategy has been partially executed by catfish farmers using buckets in Bandar Kidul Village, facilitated by the Food Security and Agriculture Office of Kediri City, which provided a grant of 90 buckets to all farmers in the village. Nevertheless, the donated buckets have not been completely utilized by the farmers. Concurrently, the ST2 strategy has been executed by a consortium of processors and marketers in Bandar Kidul Village through the production of shredded catfish. Nevertheless, the production was short-lived due to the members' inadequate understanding of contemporary marketing media, particularly the utilization of social media for digital marketing.

CONCLUSION

The most influential internal factor in terms of strength is that the budikdamber business does not require a large area, while the weakness is the unpredictable water quality. The most influential external factor in terms of opportunities is the use of catfish as the main raw material for various processed businesses, while from the threat is competition from similar and substitute products. Based on the IE matrix, the position of the catfish budikdamber business is in cell I, namely grow and build with a total IFE value of 3.34 and a total EFE value of 3.03. Alternative strategies formulated based on SWOT include 8 strategies, including Utilizing social media to publicize the presence of budikdamber company sites (SO1), Collaborate with stakeholders in the processed seafood industry (SO2), Enhance sales by incorporating buckets as cultivation vessels (SO3), Develop alternate feed formulas using readily accessible materials (ST1), Developing improvements in processed catfish to enhance product value (ST2), Enhance staff performance via management system training (WO1), Develop a Standard

Operating Procedure for the periodic assessment of water quality (WO2), and Enhance the proficiency of human resources to advance agriculture technologies (WT1). Based on QSPM and the MAUT Model, there are two strategies that are prioritized with the highest total score, namely ST2 and SO3.

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