

STRATEGIC DEVELOPMENT OF BETTA FISH AQUACULTURE AT RANR FARM, TASIKMALAYA CITY

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Abstract, Betta fish (*Betta splendens*) aquaculture has emerged as a high-potential business within the ornamental fish industry. However, its growth is hindered by various internal and external challenges, including limited digital marketing strategies and increasing market competition. This study was conducted at RANR Farm in Tasikmalaya City and aimed to develop effective strategies using SWOT analysis and the Quantitative Strategic Planning Matrix (QSPM). By evaluating strengths, weaknesses, opportunities, and threats, digital promotion was identified as the top priority strategy, scoring the highest in QSPM (TAS = 2.80). This approach enhances product visibility and market reach significantly. Complementary strategies such as e-commerce training and the formation of local aquaculture communities are also proposed to support business competitiveness. The study emphasizes the urgency of integrating digital marketing tools and fostering collaboration among stakeholders to ensure sustainability and competitiveness in ornamental fish farming.

Keywords: Betta fish, Business strategy, SWOT, QSPM, Digital promotion, RANR Farm, Ornamental Aquaculture

1 Introduction

Betta fish (*Betta splendens*) aquaculture is a promising sector in Indonesia's fisheries industry, driven by its economic potential in both domestic and international markets [1]. The popularity of betta fish as ornamental and fighting fish has spurred demand; however, challenges such as price volatility, market competition, and inefficiencies in production and marketing management impede its development [2]. Therefore, systematic and data-driven strategies are essential for sustainable growth in betta fish aquaculture.

SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) is an effective method for identifying internal and external factors influencing business development [3]. This approach enables stakeholders to understand their strengths and weaknesses while recognizing market opportunities and threats, allowing for tailored strategic planning [4].

Additionally, the Quantitative Strategic Planning Matrix (QSPM) prioritizes strategies by assigning quantitative scores to each option, ensuring data-driven decision-making [5]. QSPM helps in determining strategic decisions by providing a quantitative value for each available strategic alternative. With this approach, business actors can choose strategies that have the most positive impact on the sustainability of the betta fish farming business [6].

This study aims to formulate development strategies for betta fish aquaculture using SWOT and QSPM analyses. By identifying key internal and external factors and prioritizing effective strategies, this research seeks to optimize the growth of betta fish aquaculture and enhance its economic benefits for stakeholders [7].

2 Research method

This study employed SWOT analysis and QSPM to formulate and prioritize development strategies for betta fish aquaculture. These methods were selected for their ability to systematically evaluate internal and external factors and identify optimal strategies based on real-world conditions.

2.1 SWOT ANALYSIS

SWOT analysis was used to assess internal (strengths and weaknesses) and external (opportunities and threats) factors affecting betta fish aquaculture. The process involved:

- Collecting primary data through interviews and observations with aquaculture stakeholders.
- Developing a SWOT matrix to map strategic factors.
- Formulating alternative strategies based on SWOT quadrants (SO, WO, ST, WT).

For example [8] applied SWOT analysis to develop strategies for ornamental betta fish aquaculture in Jambi, concluding that the SO (Strength-Opportunity) strategy was most effective for leveraging local potential.

2.2 QSPM (Quantitative Strategic Planning Matrix)

QSPM was applied to prioritize strategies derived from SWOT analysis. The process included:

- Assigning weights to each strategic factor based on its influence.
- Scoring the attractiveness of each strategy for each factor.
- Calculating the Total Attractiveness Score (TAS) to determine the most effective strategy.

Previous studies, such as [9] used QSPM to prioritize strategies like optimizing information technology and expanding market access for betta fish products. Similarly, QSPM has been applied to prioritize partnerships and collaborations with educational institutions and government agencies in the fisheries sector [10].

The combined SWOT-QSPM approach is systematic and adaptable, suitable for various aquaculture contexts, including digital market development, as demonstrated in studies on betta fish SMEs during the COVID-19 pandemic [11].

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3 Results and discussion

3.1 Internal Factor Evaluation (IFE)

The IFE matrix evaluates internal strengths and weaknesses, assigning weights and ratings to each factor to assess the organization's ability to leverage strengths and address weaknesses. For instance, [12] shows that IFE can be used quantitatively to direct appropriate marketing strategies in food SMEs

Table 1. IFE Matrix

| No | Factor | Weight | Rating | Score |
|--------------|---|-------------|--------|-------------|
| 1 | Superior and diverse betta fish quality | 0.15 | 4 | 0.60 |
| 2 | Over 5 years of aquaculture experience | 0.10 | 3 | 0.30 |
| 3 | Limited digital promotion | 0.10 | 2 | 0.20 |
| 4 | Limited land availability | 0.10 | 2 | 0.20 |
| 5 | Trained human resources | 0.10 | 3 | 0.30 |
| Total | | 0.55 | | 1.60 |

3.2 External Factor Evaluation (EFE)

The EFE matrix assesses external opportunities and threats, measuring the organization's ability to capitalize on opportunities and mitigate risks. [13] illustrated the use of EFE to determine a fruit shop's market position based on external strengths.

Table 2. IFE Matrix

| No | Factor | Weight | Rating | Score |
|--------------|--|-------------|--------|-------------|
| 1 | Increasing demand for betta fish in online markets | 0.15 | 4 | 0.60 |
| 2 | Government support for fisheries SMEs | 0.10 | 3 | 0.30 |
| 3 | Competition from other breeders on digital platforms | 0.10 | 2 | 0.20 |
| 4 | Fluctuating fish feed prices | 0.10 | 2 | 0.20 |
| 5 | Easy access to marketplaces and social media | 0.10 | 3 | 0.30 |
| Total | | 0.55 | | 1.60 |

3.3 Internal-External (IE) Matrix

The IE matrix integrates IFE and EFE scores to position the business within nine strategic cells, guiding strategies such as growth, stabilization, or divestment. [14] used the IE matrix to develop digital transformation strategies for SMEs.

- Total IFE Score: 1.60
- Total EFE Score: 1.60

The business is positioned in Quadrant V (Grow and Maintain), recommending strategies focused on market penetration and product development.

Strategy Recommendations Via QSPM

After formulating several alternative strategies through SWOT analysis, the next step is to conduct a strategy selection using the Quantitative Strategic Planning Matrix (QSPM) method. The QSPM method allows researchers to measure the relative attractiveness of each alternative strategy based on internal and external factors that have been previously analyzed through the IFE and EFE matrices.

QSPM is considered an objective tool in strategic decision making because it combines qualitative and quantitative aspects. This method has been widely used in small and medium business development research to determine the most appropriate strategy for current business conditions [15] [16]

a. Recommended Strategies

- 1) Strategy A (SO: Strength-Opportunity):
 - Optimize superior fish quality for online markets.
 - Enhance digital marketing and branding on social media.
- 2) Strategy B (WO: Weakness-Opportunity):
 - Participate in e-commerce or digital marketing training provided by government agencies.
 - Utilize marketplace platforms to expand reach.
- 3) Strategy C (ST: Strength-Threat):
 - Form local aquaculture communities to address feed price fluctuations through collective purchasing.
 - Highlight unique betta fish varieties to differentiate from competitors.

b. QSPM Assessment

The QSPM assigns weights to strategic factors and evaluates each strategy's attractiveness (AS, scored 1–4). The Total Attractiveness Score (TAS) is calculated by multiplying AS by the factor weight.

Table 3. QSPM Matrix

| Strategic Factor | Weight | Strategy A | | Strategy B | | Strategy C | |
|---------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | | AS | TAS | AS | TAS | AS | TAS |
| Superior fish quality | 0.15 | 4 | 0.60 | 3 | 0.45 | 3 | 0.45 |
| Trained human resources | 0.10 | 3 | 0.30 | 2 | 0.20 | 3 | 0.30 |
| Limited promotion | 0.10 | 4 | 0.40 | 3 | 0.30 | 2 | 0.20 |
| Limited land availability | 0.10 | 2 | 0.20 | 2 | 0.20 | 3 | 0.30 |
| Broad online market | 0.15 | 4 | 0.60 | 3 | 0.45 | 2 | 0.30 |
| Government support | 0.10 | 2 | 0.20 | 4 | 0.40 | 3 | 0.30 |
| Fluctuating feed prices | 0.10 | 2 | 0.20 | 2 | 0.20 | 4 | 0.40 |
| Digital competition | 0.10 | 3 | 0.30 | 3 | 0.30 | 5 | 0.20 |
| Total | 1.99 | | 2.80 | | 2.50 | | 2.45 |

c. Interpretation of Result

The QSPM result indicate:

- **Strategy A (Digital Promotion):** Highest score (TAS = 2.80), leveraging superior product quality and vast online market potential to address limited promotion and digital competition.
- **Strategy B (Digital Marketing Training):** Score of 2.50, effective for enhancing human resource capabilities but requiring longer implementation time to produce a direct impact on increasing sales.
- **Strategy C (Aquaculture Community):** Score of 2.45, focusing on cost efficiency and knowledge sharing but less effective in overcoming the challenges of increasingly tight digital promotion and competition.

These findings align with prior research highlighting the efficacy of digital promotion and e-commerce for SMEs in enhancing market reach and competitiveness in the Industry 4.0 era [17].

d. Strategic Implications

Prioritizing digital promotion requires investment in content management, SEO optimization on marketplace platforms, and high-quality product visuals. Collaborations with local influencers and digital marketing training can further strengthen this strategy.

Similar approaches have led to significant sales increases in comparable SMEs adopting social media and e-commerce strategies [18].

4 Conclusion and recommendation

Based on the strategic analysis conducted for RANR Farm, four key conclusions were drawn. First, the analysis of internal and external environments indicates that RANR Farm possesses significant strengths, including superior fish quality and adequately trained human resources, alongside substantial opportunities presented by the expanding online market. However, the business also faces weaknesses such as limited digital promotion and constrained land availability, as well as threats from fluctuating feed prices and intense digital competition. Second, the total scores of the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices, both at 1.60, position RANR Farm in Quadrant V of the Internal-External (IE) matrix, classified as "Grow and Maintain." This position recommends strategies focused on product development and market penetration as the primary strategic direction. Third, three alternative strategies were formulated from the SWOT analysis: Strategy A involves implementing digital promotion through social media and marketplaces; Strategy B focuses on conducting digital marketing and e-commerce training; and Strategy C entails forming local aquaculture communities. Fourth, the Quantitative Strategic Planning Matrix (QSPM) results identify Strategy A as the top-priority strategy, with the highest Total Attractiveness Score (TAS) of 2.80, compared to Strategy B (2.50) and Strategy C (2.45). Strategy A is deemed the most effective in leveraging the company's strengths and opportunities while addressing its primary weaknesses. The adoption of digital promotion is expected to enhance product visibility, expand market reach, and strengthen RANR Farm's competitive position in the digital marketing era.

Based on these findings, several recommendations are proposed. First, the immediate implementation of digital promotion strategies should involve concrete actions, such as professional management of social media accounts, utilization of popular marketplace platforms (e.g., Shopee, Tokopedia), and training in visual content management to enhance product appeal. Second, collaboration with external stakeholders, such as fisheries agencies, digital marketing trainers, or aquaculture communities, can accelerate digital transformation and provide access to support programs or funding opportunities. Third, regular monitoring and evaluation of the implemented strategies are essential to assess their effectiveness, with evaluation indicators including sales growth, new customer acquisition, and social media audience engagement. Finally, the development of medium- and long-term strategies should be considered, such as product diversification (e.g., new fish varieties, specialized feed, or starter aquaculture kits) and improvements in customer service quality (e.g., online customer care, automated ordering systems). By consistently and strategically implementing digital promotion, RANR Farm has significant potential to become a leading and highly competitive player in the national and international ornamental fish aquaculture market.

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