

Exploring the Determinants of Sustainability in Ornamental Fisheries Startups: a Case Study on PT. Neptune Aquatic Marine

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ABSTRACT

This study explores the resilience and sustainability of the ornamental fisheries industry, particularly focusing on PT. Neptune Aquatic Marine. Despite the challenges posed by the COVID-19 pandemic, this sector has shown remarkable adaptability and growth. The research utilizes qualitative methods, including case studies and literature reviews, to analyze the economic impact and strategies employed by the company. Data were collected through interviews and secondary sources, allowing for a comprehensive examination of internal and external factors influencing the industry. The findings indicate that improving human resource quality and innovation in products and services are critical for overcoming threats and leveraging opportunities in the market. The study emphasizes the importance of sustainability practices to ensure the long-term viability of ornamental fisheries.

KEYWORDS Ornamental fisheries, sustainability, resilience, economic impact.



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INTRODUCTION

The ornamental fisheries industry is a global sector that trades a variety of freshwater and marine organisms such as fish, invertebrates, and plants. The ornamental fishing industry began gaining popularity in the early 1990s, starting with the United States market and spreading to various other parts of the world, including Europe and Asia (Biondo, 2020; Monticini, 2016). During this period, several phenomena caused uncertainty in the business world, such as the 1998 monetary crisis in Southeast Asia (FAO, 1996–2005), the 2007–2009 subprime mortgage crisis in the United States (Gusty et al., 2022), and the Covid-19 pandemic (Iksan Burhanuddin & Nur Abdi, 2020), which occurred globally between 2020 and 2022 (Marlianingrum et al., 2022; Hayakawa, 2022).

The province of Bali, known as a world-renowned tourist destination, felt the severe impact of the Covid-19 pandemic; its economic growth was negative for two consecutive years: minus 9.33% in 2020 and minus 2.47% in 2021. The tourism

industry, the backbone of Bali's economy, was significantly affected (Mahendra, 2024; Pawalluri, 2023; Ruiz Palacios et al., 2023; Sarmiento, 2020; Zhang, 2021). Learning from this experience, Bali Governor I Wayan Koster launched an economic transformation known as the Bali kherti economy (Koster & Ramantha, 2022). In the journal he authored, he emphasized Bali's economic development based on local wisdom, with one of the pillars being marine and fisheries. The development of Bali's economic growth, according to data from BPS, is shown in Figure 1 below.



Figure 1. Development of Bali's Economic Growth

Source : https://bali.bps.go.id/backend/materi_ind/materiBrsInd-20230807121709.pdf

One of the studies by Syamsari et al. (2022) shows that MSMEs in the fisheries sector with seaweed commodities were able to survive during the pandemic. This sector made a positive contribution amid the impact of the pandemic on a national scale in Indonesia. To complement how the ornamental fisheries sector can survive and continue to contribute to the Indonesian economy during the pandemic, this study will explore the determinants of the resilience and sustainability of the ornamental fisheries industry so that it can withstand various crises (Syamsari et al., 2022; Wahyudi et al., 2021; Sukwika, 2023; Mubarak et al., 2023; Tjahjadi et al., 2024; Marlianingrum & Suprpta, 2022; Tarihoran et al., 2024).

The novelty of this study lies in its comprehensive integration of the marketing mix strategy with the moderating role of digital marketing to enhance brand awareness in the competitive food and beverage industry of Denpasar. Unlike previous research that primarily focuses on individual aspects of the marketing mix or digital marketing, this study uniquely examines their synergistic effects and explores how digital marketing amplifies the impact of traditional marketing components on consumer behavior. By applying Structural Equation Modeling (SEM) to assess direct and moderated relationships, this research provides a novel analytical framework for understanding and optimizing marketing strategies in the digital era, offering actionable insights for businesses seeking sustainable growth in a dynamic market environment.

RESEARCH METHOD

This scientific article used a qualitative approach through case studies and literature reviews to address the research objectives. The qualitative method

involved descriptions provided by resource persons and information drawn from relevant secondary literature. This approach allowed for a comprehensive understanding through the verification of information from reliable scientific sources.

According to Rahardjo & Si, an important consideration in selecting a case is the researcher's confidence that the case will yield further in-depth scientific knowledge. In this study, the case study was classified as an Instrumental Case Study. Additionally, case studies may be chosen to satisfy personal interest in a particular issue. The following is the schematic design of this study:

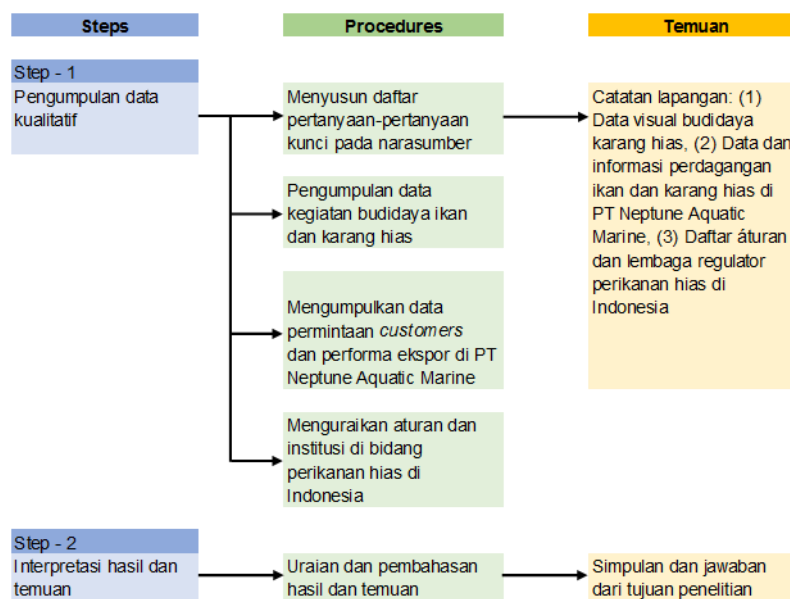


Figure 2. Research Design

This study uses primary and secondary data. Primary data were collected through structured interviews with key informants. Meanwhile, secondary data was collected from internal data of PT. Neptune Aquatic Marine to obtain a quantitative interpretation of this study.

Data analysis techniques used were:

1. Economic Analysis

The economic analysis carried out is by looking at the economic value of ornamental fishery export activities at PT. Neptune Aquatic Marine. The data collected includes export data for the last five (5) years owned by PT. Neptune Aquatic Marine. From this data, it can be seen that changes and developments in export activities are carried out.

2. Analisis S.W.O.T

The data analysis used in this study uses SWOT (Strength, Weakness, Opportunity, and Threat) analysis obtained from the results of interviews with key informants (resource persons). SWOT analysis is a planning method used to evaluate the strengths, weaknesses, opportunities, and threats that exist in a business. SWOT analysis compares internal and external factors (Choiril Anwar et

al., n.d.). The SWOT analysis diagram consists of 4 (four) quadrants which can be seen in Figure 3.



Figure 3 SWOT analysis diagram
Source: Anwar & Utami, 2012

Quadrant I describes a very favorable situation where the company has opportunities and strengths so that it can take advantage of the existing opportunities. Quadrant II describes a situation where a company faces various threats, but still has internal strength. Strategies that can be carried out are by diversifying products and/or services. Quadrant III describes a condition where the company faces a huge opportunity, but on the other hand also experiences internal constraints. In this quadrant III position, the company will focus on minimizing problems that occur within the company. Quadrant IV describes a very unfavorable situation, where companies experience various kinds of internal threats and weaknesses.

SWOT is the identity of various factors that systematically formulate service strategies. SWOT analysis is an analysis based on logic that can maximize opportunities but at the same time can minimize shortcomings and threats. According to, in the formulation of strategies using SWOT analysis, there are strategic factors that affect it, namely internal and external factors. According to (Sasoko & Mahrudi, 2023), strategic factors in SWOT analysis can be done by compiling an Internal Strategic Factor Analysis System or IFAS (Internal Factor Analysis System) and an External Strategic Factor Analysis System or EFAS (External Factor Analysis System). Internal factors consist of strengths and weaknesses, while external factors include opportunities and threats. In more detail, internal and external factors according to (Sasoko & Mahrudi, 2023) are described as follows:

Internal factors :

1. Experience whether it works or fails;
2. Budget;
3. Resources owned; and
4. Weaknesses and Strengths

External factors :

1. Milieu;
2. Regulation;
3. Trend;
4. Culture, ideology, socio-political, economic;
5. Events that are happening;
6. Budget or capital sources; and
7. Technological developments

RESULT AND DISCUSSION

1. Economic Analysis

Economic analysis was carried out to see the movement of ornamental fisheries trade activities in the last five (5) years, including their contribution to the economy during the Covid-19 pandemic. The results of the economic analysis conducted at PT. Neptune Aquatic Marine, the value of ornamental fisheries exports over the last five (5) years is obtained as shown in Figure 4 below:

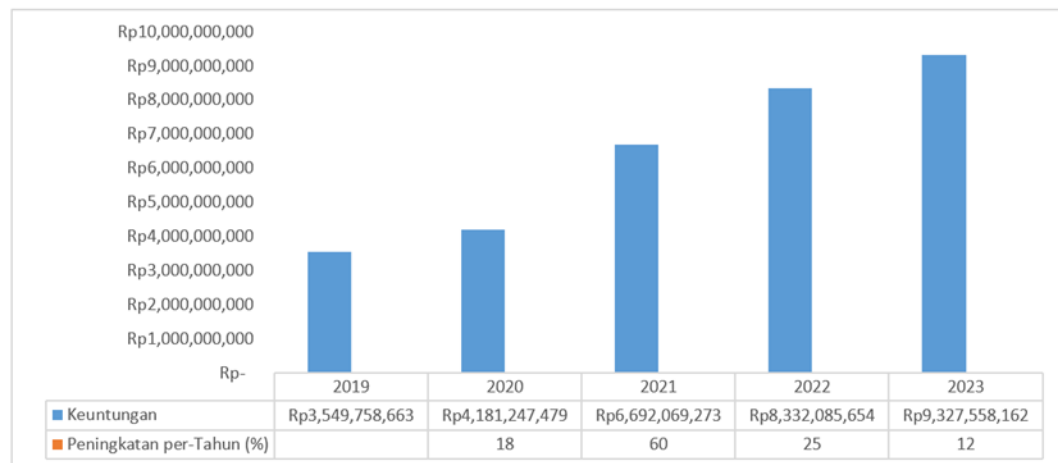


Figure 4. The Export Value of Ornamental Fisheries of PT. Neptune Aquatic Marine

The results of the export value analysis conducted at PT. Neptune Aquatic Marine has seen an increase from 2019 to 2023. The highest percentage increase occurred in 2021. The covid-19 pandemic which caused lockdowns in various regions caused people to look for new activities that suit their hobbies. One of the activities or hobbies that can be done at home is by raising fish and plants (aquascape). Lockdown policies in various regions and the world during the covid-19 pandemic have caused the emergence of ornamental fish hobbyists. Fish and ornamental fisheries products have become one of the leading products during the pandemic. These fish and ornamental plants can be an object of entertainment for the wider community during the lockdown.

2. Analisis S.W.O.T

The SWOT analysis was carried out to explore the factors that shape the resilience and sustainability of the ornamental fisheries industry in order to survive various crises that occur. Analysis of Internal Strategic Factors (IFAS) and External (EFAS) compiled at PT. Neptune Aquatic Marine can be seen in Table 4.1 as follows:

Table 1. Analysis of Internal Strategy Factors (IFAS) and External (EFAS) at PT. Neptune Aquatic Marine

Types of Analysis	SWOT	Description
IFAS	Strength	1. The Company's brand is well known 2. Adequate work equipment 3. The workplace is spacious enough 4. Comfortable working atmosphere 5. Professional HR (Human Resources) 6. Product handling 7. Product selling price 8. Sales service 9. Have a workspace for a specific job 10. 24/7 Service 11. Product promotion
	Weakness	1. Working hours 8 hours/day 2. HR often resigns 3. Company location away from the airport 4. Some HR does not come to work on time 5. Not having their own shelter 6. Export shipments are often late
EFAS	Peluang (Opportunity)	1. Strategic farm location 2. Farm location not far from the airport and BKSDA office 3. Have good cooperation and relationships with related agencies
	Threat	1. The same product as other competitors 2. Competitors offer cheaper prices 3. HR who resigned and then worked at a competitor company 4. Competitor companies have better product innovation 5. Uncertainty of business licensing 6. Sufficient completeness of licensing documents

Based on the results of interviews with respondents and observations at PT. Neptune Aquatic Marine, then a SWOT analysis was formed that describes the business situation and strategies that can be applied. The results of the assessment of the scores of internal factors (Appendix 2) and external factors (Appendix 3) and the position of the quadrant coordinates on these two factors can be seen in Table 2 and Figure 5 below:

Table 2 IFAS & EFAS Assessment Score Results

IFAS		EFAS	
Category	Total Score	Category	Total Score
Power (S)	1.88	Chance (O)	1.03
Weakness (W)	-0.54	Threat (T)	-1.78
Total (S-W)	1.34	Total (O-T)	-0.75

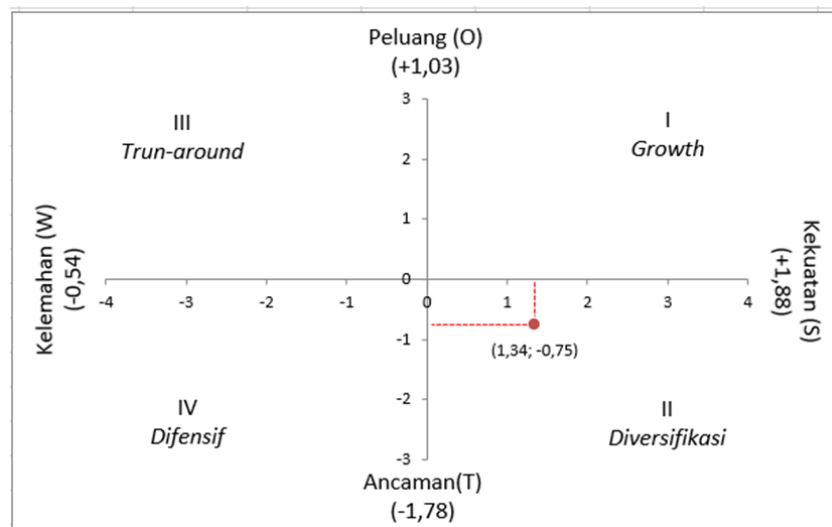


Figure 5. Quadrant coordinate position

From the results of the analysis, it can be concluded that the strength factor is greater than the weakness factor, but while the influence of the opportunity factor is smaller than the threat factor, therefore the position of the Starts Up Ornamental Fisheries Resilience strategy is in quadrant II. The SWOT coordinates are at point $x = 1.34$ and point $y = -0.75$. From the results of the score calculation and the determination of the coordinate position, a strategy analysis was obtained in quadrant II, where the S-T strategy could be applied. S-T strategies that can be applied include:

1. Improving the quality of human resources
2. Innovating the goods and services offered
3. Analyze potential threats

Indonesia is an archipelagic country that has great potential in the fisheries sector, in this case in the ornamental fisheries sector. The potential of fisheries can continue to be developed and become an opportunity in business activities so that it can improve the welfare of the fishing community, regional income and increase the country's foreign exchange (Siti Ainun et al., 2024).

The remaining market demand is the reason for the implementation of ornamental fisheries trade activities. Although at the beginning of the covid-19 pandemic there were obstacles in delivery. The existence of a lockdown policy has caused restrictions on the number and destination of flights. It is known that flights abroad can only be carried out from Soekarno Hatta Airport (Tangerang - Banten) and I Gusti Ngurah Rai Airport (Denpasar - Bali) with limited country destinations. According to (Ummung et al., 2022), during the Covid-19 pandemic, almost all economic sectors experienced a decline, including the marine and fisheries sectors,

but there were also business sectors that experienced an increase, including the ornamental fish business. The increase in the export value of ornamental fish is due to the adjustment of selling prices. The increase in market demand for ornamental fish is an opportunity to meet market needs (Siti Ainun et al., 2024).

The business activity of exporting ornamental marine biota is inseparable from the value of the profits obtained. Whether it is the benefits obtained by companies, employees or the state. The export of marine ornamental biota is a potential source of foreign exchange for the country (Akmal Abdullah et al., 2020). In contrast to marine ornamental corals that can be produced by transplantation, marine ornamental fish still use fishing techniques in the sea. Ornamental fishing in the sea uses caution techniques to maintain the quality of the catch. Innovative marine ornamental biota management strategies are needed as an effort to protect marine biodiversity.

The increasing demand for the availability of marine ornamental fish requires controlled and sustainable handling and maintenance (Akmal Abdullah et al., 2020). Sustainable handling and maintenance can be overcome by maintaining and maintaining the quality of the marine environment and natural resources. Maintaining the quality of marine ornamental biota resources can be done in simple ways such as not throwing garbage or waste into the sea and not using fishing gear that can damage nature and biota. The maintenance efforts carried out aim to maintain the sustainability of the ecosystem and the sustainability of ornamental fisheries business activities.

The role of Scientific Authority (SA) and Management Authority (MA) in this business activity is no less important. There is a regulation of the maximum amount or limit of production from each exporter. This is done with the aim of maintaining natural resources so that they remain sustainable. The restocking activities carried out are efforts made to maintain the quality of the environment and marine resources.

Recommended business strategies for Resilience of Starts Up Ornamental Fisheries at PT. Neptune Aquatic Marine according to the results of the SWOT analysis carried out is the diversification of forces and threats. According to Choiril Anwar, quadrant II illustrates that even though a company or business faces various threats, the company still has strength from an internal perspective. The strategy carried out is by using strength to take advantage of long-term opportunities by means of a diversification strategy for the goods or services produced.

The results of the SWOT analysis produced several important notes that can be used as a strategy for the resilience of ornamental fisheries starts, especially in PT. Neptune Aquatic Marine. The strength of internal factors is important to face threats in the development of the ornamental fisheries business. Improving the quality of

human resources and innovation in goods and services are important in the process of developing ornamental fisheries business strategies.

CONCLUSION

This study identified that the resilience and sustainability of ornamental fisheries are primarily determined by a strength-threat (S-T) strategy, which involves enhancing human resource quality and innovating products and services. Challenges such as delays in government business license issuance were found to hinder the sector's effectiveness, impacting profits, employment, and foreign exchange earnings. Sustainability is achieved when natural resources generate both social and economic benefits. Future research could explore the impact of regulatory reforms and technological advancements on improving operational efficiency and sustainability in ornamental fisheries.

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