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## Revolutionizing Aquaculture Strategy: The Journey of eFishery from Startup to Unicorn with Non-App-Based Technology

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### Abstract

The emergence of the fishery, founded by Gibran, has revolutionized the aquaculture landscape through its innovative technology-driven solutions. Beginning with the development of an automated fish-feeding device in 2012, eFishery's journey from startup to unicorn status has been marked by transformative advancements in fish farming practices. This abstract explores eFishery's trajectory, encompassing its strategic evolution, technological innovations, and significant milestones. From securing series D financing in 2023 to pioneering non-app-based technology, the fishery has reshaped the aquaculture industry, empowering fish farmers worldwide with efficient, cost-effective solutions. Moreover, eFishery's expansion into shrimp farming technology and the launch of eFarm and eFisheryFresh demonstrate the company's commitment to continual product innovation. Through a blend of trial and error, technological prowess, and strategic foresight, fishery has cemented its position as a leader in aquaculture technology, driving sustainable growth and profitability in the sector.

**Keywords:** *Aquaculture; startup strategy; unicorn; non-app based technology*

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## INTRODUCTION

fishery is a company founded by Gibran, who was inspired to start the business after a college assignment where he was tasked with cultivating catfish in a pond with a size of 5 x 10 square meters (Zott & Amit, 2010) (Akbar, 2018) (Maghfirah, 2023). To pursue the idea, Gibran rented a pond for 400,000 rupiah. During his business activities, Gibran faced many challenges, including the difficulty in controlling the use of fish feed (DaSilva & Trkman, 2014; Magretta, 2002; Ries, 2011). Spreading the fish feed evenly and regularly is demanding and requires a lot of time and effort. Additionally, the high cost of fish feed made it a significant operational expense. To address this issue, Gibran came up with the idea to develop a fish-feeding device. He named this technology fishery, and the company was established in 2012. The fishery device is an automated feeding system that monitors the fish's feeding behavior and dispenses the food accordingly. This technology has revolutionized the aquaculture industry, making it easier for fish farmers to manage fish-feeding activities and reduce operational costs. In 2023, eFishery announced they had secured series D financing, officially becoming a unicorn (Rajput et al., 2023); (Pandey et al., 2024). This success resulted from eFishery's innovative approach to fish farming, which has transformed the industry and helped fish farmers worldwide improve their operations (Zott et al., 2011) ; (Teece, 2018) (Tripsas & Gavetti, 2017).

### Food Technology to Solve Aquaculture Problems

eFishery's journey began with the development of its initial prototype, which received a positive response from various parties. Their innovative idea was recognized with several awards such as the Mandiri Young Technopreneur Award 2012 and Best of

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the Best Young Entrepreneur from the Ministry of Cooperatives and SMEs 2013. These achievements provided the necessary motivation and resources to establish eFishery's business in 2013 using the capital obtained from various competitions (Shane & Venkataraman, 2000). The following year, the fishery concentrated on product development, conducting in-depth research to maximize internet use in freshwater fish farming. This product development process was carried out by three initial engineers from eFishery and was conducted in the garage of a rented house. In 2014, eFishery participated in several competitions to test the quality of its products, and Ghibran, the founder, won the Global Winner of Get in The Ring 2014 at the Olympiad for Startups in Rotterdam and Slush Global Winner 2014 in Helsinki.

In 2015, eFishery secured pre-series A funding from Dutch investment fund AquaSpark and Indonesian venture capital Ideasource. This funding led to eFishery's first office and warehouse, which marked a significant milestone in its growth trajectory. The next year, the fishery started commercializing by mass-producing its products and making significant sales to fish farmers in Indonesia. After more than four years of development, the fishery started commercializing its products in 2016. The user base of this feed technology has increased year over year, reaching over 25,000 users in 2021. This figure is characterized by a significant increase since 2019, when the pandemic occurred and provided technological awareness for businesses (Johnson et al., 2008; McGrath, 2010, 2013). This condition is interesting because the fishery has shown its capacity and resilience during a pandemic, which speaks to the quality of its products and services. The success of fishery is a testament to their commitment to innovation, research, and development.

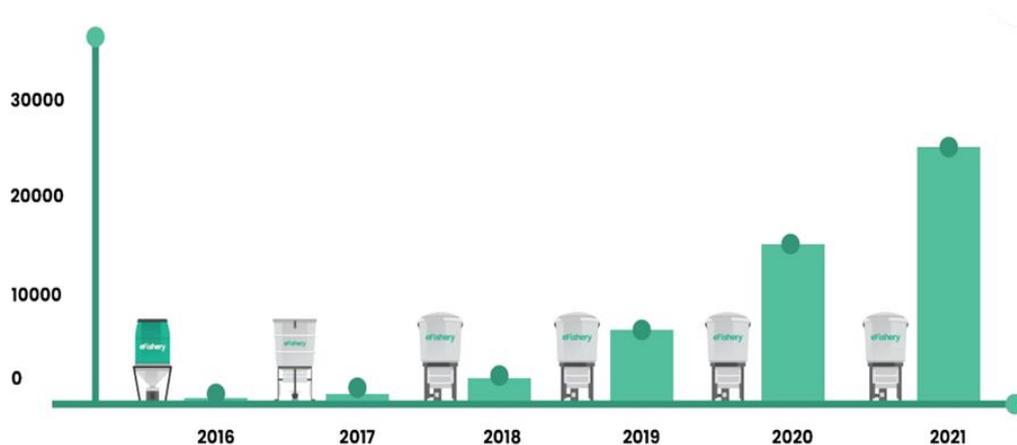


Figure 1. eFishery User Growth from year to year  
Source: eFishery.com (2023)

Ghibran has provided insight into the company's technological advancements. Initially, eFishery's fish feed technology relied on short message services (SMS) to activate the feeder. However, the technology has since evolved and can now be connected to the internet, allowing it to be used on any device. This advancement has allowed for greater flexibility and ease of use. Furthermore, fishery claims that their technology has resulted in substantial benefits for fish farmers. These include feed cost savings of up to 25%, a 16% reduction in production costs per kg, and an increase in average daily growth by 15% per kg. These benefits demonstrate the potential of eFishery's technology to improve production efficiency and increase profits for fish farmers.

### Product Innovation Through Trial and Error

eFishery has expanded its product offerings after achieving commercial success. In 2017, the company started developing technology for shrimp products, which was previously only available for freshwater fish. One of the products developed was a shrimp feed dispersal tool, which was later named eFarm. The technology behind eFarm is designed to optimize feeding, monitor water quality, and automate fish and shrimp feeding. eFishery claims that eFarm has been widely adopted in Indonesia, with over 30,000 users, and accessed by more than 1,400 farmers daily. The application has been used in 34 provinces across the country, and it has helped bring together 1,300 farmers through eFishery's farming activities. In 2018, eFishery launched a new product line called eFisheryFresh or eFresh. The online marketplace offers a wide range of farmed fish products distributed throughout Indonesia. The platform provides a direct link between fish farmers and buyers, encouraging increased sales, and ensuring the highest quality products.

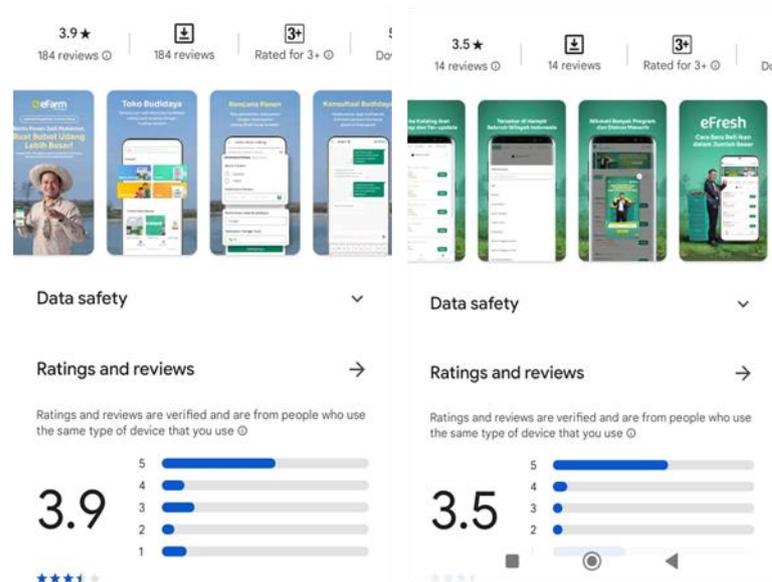


Figure 2. Consumer Response to eFishery Application  
Source: Google Play store (2023)

eFishery has received mixed reviews about its eFarm and eFresh products on the Google Play store application page. Many users have reported experiencing issues with the eFarm application, which has an assessment score of 3.9. According to reviews, the application has several bugs, which makes it challenging to use. Although some users have reported using it for promotional offers, this is not the case for others who have found it difficult to access the app's features. Similarly, the eFresh application has a lower score of 3.5, with several negative reviews concerning product availability. Users have reported that the products are frequently out of stock, making it challenging for them to purchase what they need. These reviews suggest that eFishery's products may have some technical issues, and the company may need to address these concerns to improve its services.

There are several significant obstacles that can trigger this situation. The primary challenge is the difficulty in finding farmers who are willing to sell their products in small units. In marketplaces such as eFresh, the sales process depends heavily on the supply and demand of the product, making the quantity of sales uncertain at a certain nominal or

package. Additionally, these sales require a fast distribution mechanism and a large capacity, which makes the ordering mechanism challenging to implement. Under these conditions, eFresh itself remains accessible, with the expectation of realization when suppliers and consumers are adequately prepared.

### Collaboration with Other Startups for New Business Lines

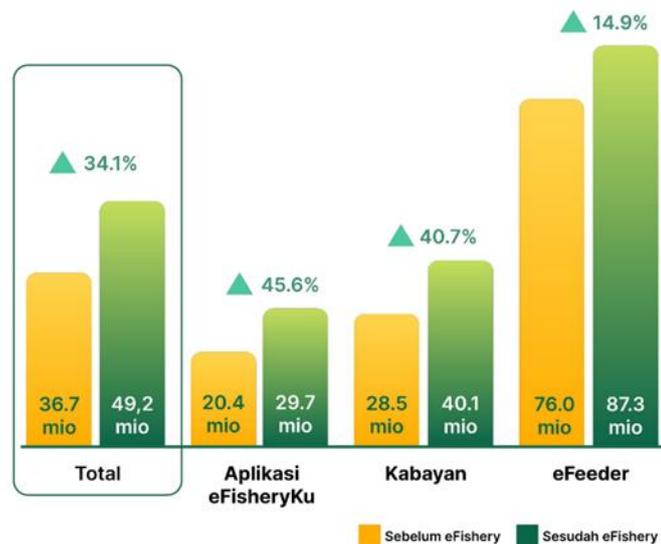
fishery, in 2019, launched a program called "Kabayan", which has been instrumental in facilitating financing for farmers looking to purchase animal feed without any initial expenditure. Unlike some of their previous products, eFishery partnered with established online financing startups such as Amarta, iGrow, Kredivo, and others for this program. This collaboration has helped fishery become a mediator and connect financial institutions with freshwater fish farmers, enabling the financing institutions to gain insight into the business patterns of the farmers (Amit & Zott, 2001). One of the loan requirements for this program is pond ownership. It is worth noting that not all fishery products faced poor review conditions. The Kabayan program has been successful in bridging the gap between the financial and real sectors by connecting the financial institutions with the farmers. Kabayan products are designed to cater to the diverse needs of fish farmers. These products are divided into two categories, namely Kabayan Regular and Kabayan Kilat. Kabayan Regular is an ideal financing option for fish farmers who require funds for their business activities in the near future. However, the application process for this category can take up to 1 month and requires a nominal submission ranging from 20 to 200 million rupiah (Chesbrough, 2010; Cohen & Levinthal, 1990).

On the other hand, Kabayan Kilat is a quicker financing option that allows fish farmers to submit and get approval for loans within 2 to 3 days. However, the nominal financing in this category is limited to only 3 to 20 million rupiahs. This differentiation in financing options is designed to cater to the unique needs of fish farmers while also taking into account their respective risk profiles.



**Figure 3. Kabayan User Growth Rate**  
Source: Lembaga Demografi FEB UI (2023)

The Kabayan program has been successful in attracting more users due to the availability of various financing options. The number of beneficiaries has increased significantly, surpassing 15,000 farmers by 2022. The total loan value provided by the program since 2020 is 692.4 billion rupiahs. When analyzed using the CAGR method, this figure has shown a consistent increase of up to 250% every year. CAGR is a measure that reflects the rate of return required for an investment to grow from the initial balance to the final balance, assuming that all profits are reinvested at the end of each period over the life of the investment. When looking at the financing recipients, most of them prefer Kabayan Kilat as their financing option.



**Figure 4. Impact of kabayan's Increased Profits**  
Source: Lembaga Demografi FEB UI (2023)

Launched recently, Kabayan has quickly become eFishery's most prominent product, outshining the company's previously developed feed technology. With the introduction of the new fishery application, Kabayan has had a significant impact on the profitability of aquaculture businesses, resulting in an impressive 45.6% increase. This rise in profits is significantly higher than the average of aquaculture support products owned by fishery, which stands at 34.1%. The notable contribution of Kabayan highlights the crucial role that business financing products can play in boosting the success of aquaculture businesses (Baden-Fuller & Mangematin, 2013; Ericsson, 2006; Foss & Saebi, 2017; Teece, 2010).

## RESEARCH METHODS

This research will use a qualitative case study approach to explore eFishery's journey from the beginning to becoming a unicorn. The case study method was chosen because of its ability to provide an in-depth understanding of the complex dynamics, strategies, and challenges faced by fishery. The data collection method uses primary data and secondary data. Primary data was collected in semi-structured interviews with key stakeholders, including the founder (Gibran), early employees, investors, fish farmers using fishery technology, and other relevant personnel. The interviews will focus on

understanding the development phases, challenges, and strategic decisions taken by eFishery and disseminate the survey to a broader group of eFishery users, including fish farmers and investors, to collect quantitative data on user satisfaction, perceived benefits, and areas for improvement in eFishery's products and services. Secondary data in this study is the analysis of documents reviewing existing documentation related to the fishery, including business reports, product development records, financial statements, and awards received. In addition, it analyzes media articles, press releases, and industry reports to contextualize eFishery's market position and growth and collects and analyzes user reviews from platforms such as the Google Play store to understand the strengths and weaknesses of eFishery products, especially eFarm and eFresh.

The data analysis method uses thematic analysis to identify patterns and themes from qualitative data collected through interviews and document analysis. This method will help understand the key factors that contribute to the success and challenges of eFishery and use purposive sampling to select interview interviewees who have significant insights into the development of eFishery, including founders, key employees, investors, and fish farmers. By following the methodology of this research, this study aims to provide a comprehensive understanding of the journey of eFishery, its technological innovations, and its impact on the aquaculture industry.

## **RESULTS AND DISCUSSION**

The journey of the fishery from a startup to a unicorn status exemplifies resilience, innovation, and strategic foresight in navigating dynamic market landscapes. Despite the challenges posed by the COVID-19 pandemic, eFishery's trajectory underscores the transformative potential of technology-driven solutions in revolutionizing the aquaculture industry. By pioneering the development of an automated fish-feeding device in 2012, eFishery addressed critical pain points faced by fish farmers, such as feed management and operational costs. The strategic evolution of eFishery, marked by milestones like securing series D financing in 2023 and expanding into shrimp farming technology, reflects a commitment to continual product innovation and market expansion. The launch of eFarm and eFisheryFresh further demonstrates eFishery's adaptability and responsiveness to evolving consumer needs, thereby solidifying its position as a leader in aquaculture technology (Chesbrough, 2006; Christensen, 2013; Eisenhardt & Martin, 2000).

While eFishery's technological advancements have garnered acclaim and recognition, challenges persist in product development and market penetration. Feedback from users on platforms like Google Playstore highlights technical issues and concerns regarding product availability, underscoring the importance of ongoing refinement and customer-centric innovation. However, eFishery's collaboration with other startups for new business lines, such as the Kabayan program, presents promising opportunities for bridging financial gaps and empowering fish farmers (Blank, 2018). The success of Kabayan in attracting users and driving profitability underscores the potential of business financing products in enhancing the sustainability and growth of aquaculture businesses. Looking ahead, eFishery's journey underscores the imperative of strategic agility, customer-centric innovation, and collaborative partnerships in navigating complex market dynamics. As fishery continues to scale and diversify its product offerings, addressing user feedback, enhancing product reliability, and optimizing distribution channels will be critical to sustaining competitive advantage and driving long-term profitability.

Furthermore, fostering strategic alliances with financial institutions, leveraging emerging technologies, and tapping into new market segments will be essential for fishery

to maintain its leadership position and drive sustainable growth in the increasingly competitive aquaculture landscape (Sarasvathy, 2001).

## CONCLUSION

In conclusion, eFishery's journey from startup to unicorn status embodies the transformative power of innovation, resilience, and strategic vision in reshaping traditional industries. By harnessing technology-driven solutions, fostering strategic partnerships, and prioritizing customer-centricity, eFishery is poised to continue driving positive impact and revolutionizing the aquaculture industry for years to come.

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