

CHAPTER I INTRODUCTION

This chapter describes the background, problem statement, and research scopes that are the subject matter that will be carried out in the research. This chapter also explains the research objectives and benefits of the issues raised and the writing systematics used in this research.

I.1 Background

Aquaculture is one activity in the fishery sector to increase aquaculture productivity, specifically for cultivating fish in freshwater ponds or other places. Fish cultivation includes maintenance activities to reproduce, grow, and increase aquatic biota. The most widely cultivated fish are freshwater fish species because the cultivation process is relatively easy.

The state is responsible for promoting the general welfare of all Indonesian people. Thus, Indonesian citizens are entitled and obliged to participate in the development of their business in accordance with their ability to improve welfare, especially in the field of fishery in cultivating fish. Therefore, there is a legal basis that aims to direct development in fisheries to improve fish cultivators' welfare, namely Law no. 7 of 2016. The legal basis of Law no. 7 of 2016 concerning the Protection and Empowerment of Fishermen, Fish Cultivators, and Salt Farmers are article 20, article 21, article 28H section (1), section (2), and section (3), as well as article 33 section (3) of the Law 1945 Constitution of the Republic of Indonesia.

Table I. 1 Total freshwater fish production in Indonesia

Type of Fish	2019	2020	Decrease
Gurame	187.950,73 t	59.924,4 t	68%
Lele	981.623,4 t	347.511,48 t	65%
Mas	535.932,92 t	127.772,13 t	76%
Nila	1.337.831,69 t	364.747,1 t	73%
Patin	384.310,48 t	124.412,55 t	68%
Total			70%

In Table I.1, based on data from the Kementrian Kelautan dan Perikanan (KKP) in 2019-2020, there was a buildup of fish stocks so that national fish production decreased by 70%. It resulted in low purchasing power during the covid-19 period and falling prices, plus a reduction in demand from importing countries.

The strategy that can be done to increase national fish production is to digitize fish cultivator business activities. Technology plays an important role in marketing and distributing fishery products to support fishery economic growth. The information and communication technology used and currently growing rapidly is the marketplace. The marketplace is one of the most recent E-Commerce inventions, in which the marketplace acts as an intermediary between sellers and buyers (Wahana, 2018). Marketplaces allow customers to find various goods and services offered by different sellers.

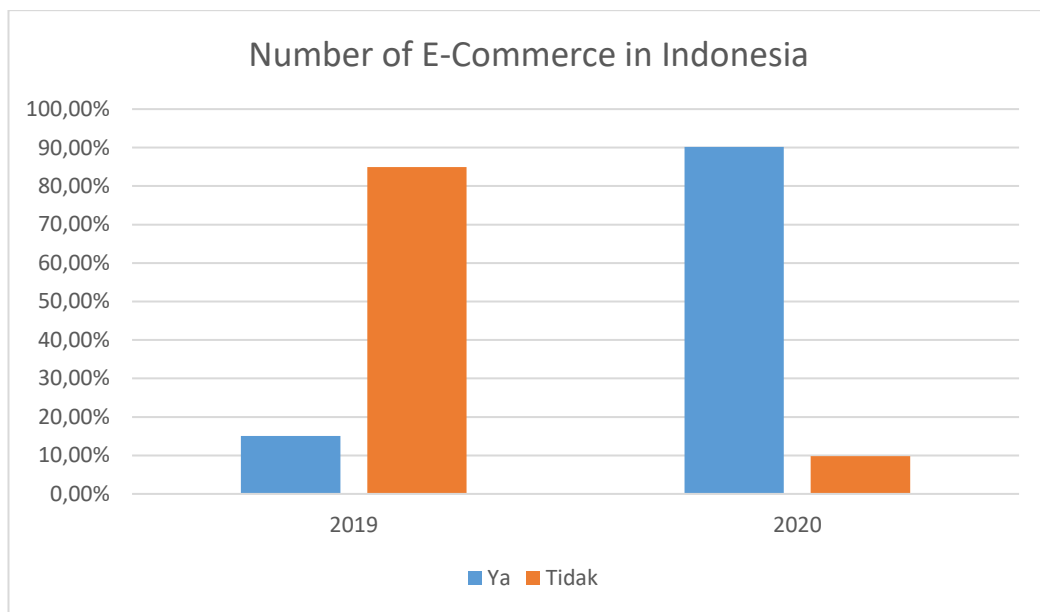


Figure I. 1 Diagram of the number of E-Commerce businesses in Indonesia

In Figure I.1, based on data from the Badan Pusat Statistik, it is explained that in 2019 there were 15,08%, and in 2020 there were 90,18% of E-Commerce business actors in Indonesia. There was an increase of 75,1%, which shows that business actors have switched to doing business activities from traditional to digitalized ways. This is an opportunity to increase sales and distribution by utilizing E-Commerce, fish cultivators who will sell their products are very helpful because they can reach consumers widely.

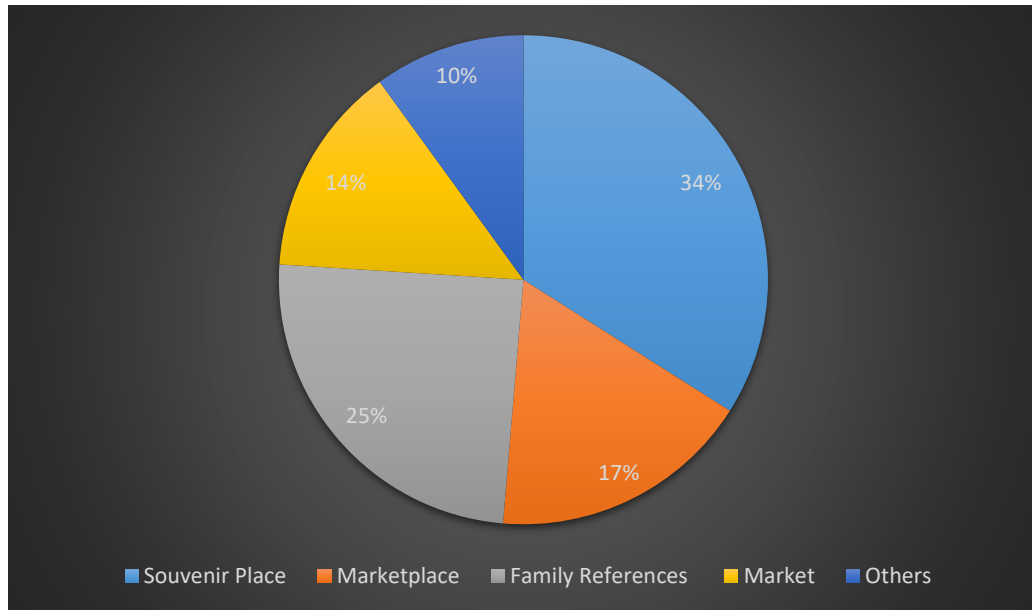


Figure I. 2 Diagram of how customers buy fishery products

Based on the survey results in Figure I.2, many consumers still buy fresh fish and processed fish products conventionally through fish markets and supermarkets, so small MSMEs and local fish farmers still market their products in nearby locations. This shows that the potential for marketing fishery products online is huge. Digitalization is one of the best strategies to expand the fisheries sector.

In addition, as a result of the studies that have been conducted, customers experience various problems when buying fresh fish and fish products online, as shown in Table I.2 below.

Table I. 2 Customer problems in buying fish products online

No	Problems	Problem Description
1.	Inability to select fresh fish or fish products.	Customers are unable to choose products since they cannot view them directly.
2.	Bad Quality of fish products.	Customers feel some fish products are not as described in the product description.
3.	Delivery too long.	Customers complain that delivery times are excessive, fearful of fish decaying in the street.
4.	The product that comes is not appropriate.	Customers feel the product does not live up to its description.
5.	Non-diverse payment methods.	Users perceive a lack of variety in payment options.

The various problems experienced by fish farmers and MSMEs, as shown in Table I.3 below.

Table I. 3 Problems for fish cultivators and MSMEs

No	Problems	Problem Description
1.	Fish water market rates fluctuate significantly.	Due to a complete lack of information amongst the intermediaries, the market rates fluctuate significantly.
2.	MSMEs is not operating properly.	Processing has not developed because it still relies on orders only and marketing that is done only using WhatsApp stories.
3.	When the harvest, the fish is not sold out.	This causes losses to fish farmers because fish that are already too large do not sell in the market.
4.	Fish farmers who want quick money	Fish farmers are unfamiliar with digitization and want a down payment once the fish are sold.
5.	Lack of channels to sell directly to customers	Because marketing is still conventional, it is still challenging to reach the target market.

In Table 1.3, based on the results of interviews that have been conducted in Nganjat village, Klaten district, Central Java. Fish farmers in the marketing and distribution of their post-harvest products are still carried out in the old or traditional way. Therefore, it is necessary to develop a marketplace platform in the field of fisheries in the hope that it can be a solution to overcome the problems of selling and distributing fish products. NuFish is designed with a marketplace module that has the functionality as a place for fish farmers to distribute their fish products. There are several companies or startups that have built marketplace applications in the food sector, be it agriculture or fisheries. Table 1.4 compares the features of companies or startups engaged in the same field as NuFish.

Table I. 4 Comparison of company or startup features with NuFish

No	Feature Comparison	Aruna	eFishery	TaniHub	NuFish
1.	Registration	√	√	√	√
2.	Chat	-	-	-	√
3.	Loyalty	-	-	-	√
4.	Cart	-	-	√	√

5.	Payment gateway	-	-	√	√
6.	Packaging	-	-	√	√
7.	Product transaction report	-	-	-	√
8.	Product specification and catalog	√	√	√	√
9.	Tracking systems	-	-	√	√
10.	Rating review	-	-	√	√
11.	Manage product	-	-	√	√

Based on Table 1.4 above, it can be concluded that NuFish provides several additional features that differentiate and outperform other competitors, namely the chat feature to provide direct information, the loyalty feature to provide convenience for users, and the product transaction report feature to monitor all sales transaction data. The information system technology that will be built on NuFish uses an agile approach. The agile approach itself has advantages in several principles, namely focusing on user satisfaction, flexibility of needs, maintaining fast and inexpensive changes, emphasizing individual collaboration, and concentrating on functional manufacturing (Aslam & Ijaz, 2018). The agile method can also be interpreted as a group of software development methodologies based on the same principles or short-term system development that requires rapid adaptation of developers to changes in any form (Chandra, 2016). So, it is hoped that the existence of "NuFish" as a fish product distribution marketplace can help fish cultivators in marketing their products which are usually done in the traditional way to become digitized.

I.2 Problem Statement

Based on the background that has been presented to assist the activities of fish farmers in order to market their products and reach consumers widely with new innovations through technological developments. Thus, the application can be formulated based on the following problems:

1. What applications can help fish farmers in facilitating the sale of fishery products?

2. What features need to be made in order to help fish farmers?
3. What are the results of testing applications using black-box testing, user acceptance testing, and load testing?

I.3 Research Objectives

The objectives to be achieved from this writing are as follows:

1. To design and build a website-based marketplace to assist fish farmers in buying and selling activities and distributing them to consumers.
2. To design the features of the E-Marketplace application on the seller's and buyer's side
3. Evaluating the results of application design using black-box testing, user acceptance testing, and load testing.

I.4 Research Scopes

Based on the scope of the research in this study are as follows:

1. Web-based applications can only be accessed using the internet.
2. Application development in this study focuses on the features needed by fish farmers, MSMEs, and customers.
3. The application development method in this study uses Extreme Programming.

I.5 Research Benefits

The benefits provided from this research are as follows:

1. Theoretical Benefits
This research is expected to be useful for readers and other researchers as a reference source in designing a website-based marketplace application.
2. Practical Benefits
The existence of the NuFish marketplace application is expected to bring several benefits to users, namely:
 - a. Helping fish farmers and MSMEs in marketing their products widely.
 - b. Helping customers in ordering fish products online.
 - c. Provide complete information about fish products.

I.6 Systematic Writing

To make it easier to know the discussion in this research as a whole, it is necessary to put forward a systematic framework and guidelines in research writing. This research is described by systematic writing as follows:

- **CHAPTER I INTRODUCTION**

This chapter discusses the background of the problem, problem statement, research objectives, research scopes, research benefits, and systematic writing in research.

- **CHAPTER II LITERATURE REVIEW**

This chapter discusses the literature that is relevant to the problems, frameworks, and methods on the research topic and discusses the relationship between the concepts that are the research study.

- **CHAPTER III METHODS**

This chapter discusses the stages and descriptions of the plans that will be carried out in the research and the research methods used to answer the problem statement that have been prepared previously.

- **CHAPTER IV ANALYSIS AND DESIGN**

This chapter discusses the analysis and design of research problems based on related methods.

- **CHAPTER V IMPLEMENTATION AND TESTING**

This chapter discusses the development and testing results to ensure all system functionality runs appropriately.

- **CHAPTER VI CONCLUSIONS AND SUGGESTIONS**

This chapter discusses the conclusions from the overall work on the research and suggestions obtained from this research for development in further research.