

1

2 **SURVEY ON THE EFFECTS OF INTERNET**

3 **TECHNOLOGY IN THE MARKETING**

4 **DEVELOPMENT OF BETTA FISH (*Betta***

5 ***splendens* Regan 1910) IN THE MUARA FISH**

6 **MARKET, BANDUNG CITY**

7

8

---

10

11

12 **ABSTRACT**

13

This fisheries sector can be used as a mainstay in overcoming the existing economic crisis. Aquaculture is part of fisheries and has quite potential in Bandung, especially ornamental fish cultivation. Ornamental fish in Indonesia has different types and commodities and also has high economic value in the fishery sector. This is due to the increase in ornamental fish enthusiasts, both domestic and foreign has increased a bit, especially during the COVID-19 pandemic. Ornamental fish commodities from Indonesia have been able to compete to enter various existing markets. One of the ornamental fish favored by the public is the ornamental betta fish (*Betta splendens*). However, many traders are still confused about how to market their ornamental betta fish products, especially during the COVID-19 pandemic. The use of social media can be used as a marketing communication tool so that consumer awareness of ornamental fish can increase in both improving product image and ending in increasing of sales in ornamental fish.

14

15 *Keywords: Betta Fish, Fisheries, Social Media*

16

17 **1. INTRODUCTION**

18

19 Bandung City is one of the ornamental fish producers in West Java. Geographically, demographically, and climatologically, the city of Bandung has considerable suitability in developing the fisheries sector, including in the ornamental fish cultivation and distribution sector. The city of Bandung is also one of the tourism cities visited by many tourists, both local and foreign [1]. Ornamental betta fish have quite promising economic potential in Indonesia, especially in the city of Bandung [2]. However, so far the cultivation of ornamental betta fish has been mostly carried out by small farmers who sell conventionally at the fishery market and do not have access to sales via the internet. Some ornamental betta fish breeders also have a relatively low level of education so they have not been able to empower their potential to improve their welfare [3].

29 The use of social media can be used as a marketing communication tool so that consumer awareness of ornamental fish can increase both in improving product image and ending in increasing sales of these ornamental fish. Marketing through social media is one way to expand the market because consumers in the region and outside the region can directly buy and get the desired ornamental betta fish without having to go directly to the area or city of the ornamental betta fish breeder. Seeing that the COVID-19 pandemic is still not over

30

31

32

33

34

35 because the increase in COVID-19 sufferers is still happening, the need for interest in  
36 ornamental betta fish is also increasing and ornamental betta fish breeders need to develop  
37 every insight as well as their ability to market their ornamental betta fish.

38 Online marketing is the use of networks to reach customers. Bringing together a network of  
39 users and resources has resulted in more capabilities for new activities. Separators in each  
40 activity and change appear very quickly and link users and computers that have been given  
41 a transformation into new business and industrial opportunities in a form of communication  
42 tools [4].

43 Digital marketing is at the core of ongoing e-business [5]. Betta fish marketing through social  
44 media is something that is currently being carried out because marketing through social  
45 media is more practical, easy to access, could reach consumers wider, and promotion on  
46 social media can be used in the form of several things, both audio and visual, where most  
47 consumers already have accounts personally in the social media that traders also have [6].  
48 The use of the internet has various advantages that are obtained by both companies and  
49 producers of goods and services [7]. One of them is making website and marketplace pages  
50 that explain the goods and services. E-commerce can be interpreted as transactions in  
51 electronic networks such as the internet in existing businesses. Everyone can participate in  
52 e-commerce activities if they have an internet network [8]. One of the advantages of  
53 marketing using the internet is that sending data and information to consumers can be done  
54 more quickly and easily [9].

55

## 56 **2. METHODOLOGY**

57

### 58 **2.1 Place and Time**

59

60 This research was carried out on Betta fish traders (*Betta splendens*) at The Muara Fish  
61 Markets in Bandung City, West Java Province. The research was conducted from  
62 September 2022 to February 2023. This research is carried out in several stages of  
63 implementation, the preparation of questions, data collection, data processing, and  
64 preparation of reports.

65

### 66 **2.2 Research Methods**

67

68 The research method that will be used in this study is the survey method. A survey method  
69 is a form of research method or technique in which research this method collects several  
70 information from samples in the form of people through questions that have been prepared  
71 beforehand [10]. The data collected in this study are primary and secondary. Primary data  
72 will be obtained through direct observation and recording in the field or survey site by  
73 observing. Primary data will also be obtained through direct interviews with selected  
74 respondents and using the media in the form of questionnaires or lists of questions that have  
75 been prepared beforehand. Respondents consisted of several groups of ornamental betta  
76 fish cultivators who carried out digital (online) marketing through social media at The Muara  
77 Fish Markets in the city of Bandung. While secondary data will be obtained through  
78 government or private agencies, libraries, related literature, and through the results of  
79 research that has been done before.

80

### 81 **2.3 Observed Parameters**

82

83 Primary and secondary data through the results of this study will be processed and  
84 presented in tabular form, percentage ratios, and average values. Identification tools used to  
85 identify research data are:

86

### 87 **2.3.1 Identification of Qualitative Data**

88

89 Identification in this study was carried out to obtain several things, including:

90 1) Marketing Function

91 2) Market Structure

92 3) Market Behavior

93 4) Obstacles faced by traders who promote their fish through social media

### 94 **2.3.2 Analysis of Business Income**

95 Analysis of business income is carried out to find out how much results are obtained for each  
96 marketing channel. Business income analysis is carried out using the following concepts:

$$\pi = TR - TC$$

97 Description:  $\pi$  = profit

98 TR = Total Revenue

99 TC = Total Cost

100 **The business criteria are determined** as follows:

101 If  $TR > TC$ , then the business will be said to be profitable

102 If  $TR = TC$ , then the business will be considered neither profitable nor loss (balanced)

103 If  $TR < TC$ , then the business will be considered a loss [6]

### 104 **2.3.3 Net Present Value (NPV)**

105 Net Present Value is the net benefit that has been reduced by the social opportunity cost of  
106 capital (SOCC) as a discount factor. In other words, **more simply**, the net present value is  
107 the difference between the cost of income and expenses that **take** into account the time  
108 value of money. **The time** value of money at the present value has a formula that is used to  
109 determine the current cost value. The NPV calculation is carried out by considering the  
110 incremental costs and incremental benefits with the formula:

$$NPV = \frac{B - C}{(1 + r)^t}$$

111 Description: B = Benefits

112 C = Cost

113 r = Discount Factor

114 t = time

115 With the following criteria:

116  $NPV > 0$ , the business plan is feasible.

117  $NPV < 0$ , then the business plan is not feasible.

118  $NPV = 0$ , then the business plan is in a Break Even Point (BEP) state where  $TR + TC$  is in  
119 the form of present value. [11]

120

## 121 **3. RESULTS AND DISCUSSION**

122

123 Data analysis in this study was carried out in a quantitative descriptive manner. The analysis  
124 will be carried out based on the characteristic data of the various existing respondents.  
125 Quantitative descriptive analysis was carried out to identify quantitative data using multiple  
126 linear regression analysis which will be analyzed through Microsoft Excel and Statistical  
127 Products and Service Solutions.

128

### 129 **3.1 Characteristics of Respondents**

130

#### 131 **3.1.1 Characteristics of Respondent's Age**

132  
 133 Respondents consisted of ornamental betta fish retailers who only marketed their fish  
 134 digitally and conventionally as a comparison. The total number of ornamental betta fish  
 135 retailers who were respondents was 39 traders. Through the existing questionnaire data, it  
 136 can be seen that almost all ornamental betta fish retailers in Bandung are of a productive  
 137 age because 37 out of 39 ornamental betta fish retailers are in the age range of 25-55 years.  
 138 There are ornamental betta fish retailers who are at an unproductive age, it is 22 and 57  
 139 years old. The diversity of characteristics of the age of ornamental betta fish retailers can be  
 140 seen in **Table 1**.

141  
 142 **Table 1.** Overall Age of Ornamental Betta Fish Retailers

Age (Years)	Number (Person)	Percentage (%)
<25	1	2,6
25 – 50	34	87,2
>50	4	10,2
Total	39	100

143  
 144 **3.1.2 Respondent's Education Level**

145  
 146 Education can be one of the factors in the process of forming a mindset that is owned by  
 147 someone in responding to a change that occurs. The higher the education of the  
 148 respondents, the more efficient the business processes in marketing and financial  
 149 management are. The level of formal education held by ornamental betta fish retailers at the  
 150 Muara Ornamental Fish Market in the city of Bandung as a whole is generally at the high  
 151 school level/equivalent.  
 152 The diversity of formal education levels of ornamental betta fish retailers can be seen in  
 153 **Table 2**.

154 **Table 2.** Education of Ornamental Betta Fish Retailers Overall way

Final Education	Number (Person)	Percentage (%)
SD	0	0
SMP	5	16,13
SMA	17	54,84
Perguruan Tinggi	9	29,03
Total	31	100

155  
 156 **3.1.3 Use of Social Media**

157  
 158 Ornamental betta fish retailers who carry out digital marketing promote their products  
 159 through e-commerce or a marketplace that exists. Some diverse e-commerce or  
 160 marketplace which are used by ornamental betta fish retailers can be seen in **Table 3**.

161 **Table 3.** Diversity *E-Commerce/Marketplace* used by Ornamental Betta Fish Retailers

<i>E-commerce/ Marketplace</i>	Number (Person)	Percentage (%)
Shopee	9	50
Tokopedia	9	50

Total	18	100
-------	----	-----

162  
163  
164  
165  
166  
167  
168  
169

In addition to using e-commerce or marketplaces to market their fish products, ornamental betta fish retailers are now utilizing new technology via the internet by using social media to market ornamental betta fish products for sale, in line with the increasing trend of using online-based social media as a sales medium. The diversity of social media used by retailers via digital can be seen in **Table 4**.

**Table 4.** The Diversity of Social Media Used by the Retailers via Digital

Social Media	Number (Person)	Percentage (%)
Facebook	28	42,43
Whatsapp	23	34,85
Instagram	14	21,21
Tiktok	1	1,51
Total	66	100

170  
171

### 3.2 Market Function

172  
173  
174  
175  
176  
177  
178  
179

In the distribution activities of marketing commodities to be passed on to consumers, it has a marketing function. Digital marketing is involved in the processes of exchange functions, physical functions, and facilitating functions. The exchange function involves buying as well as selling functions. The physical function involves the function of transporting and storing products including *grading* and the sorting process of the fish to be traded. Meanwhile, the facilitating function involves the function of capital, existing risk sharing, and market information.

180  
181

#### 3.2.1 **Implementation** of the Marketing Function through Social Media

182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199

Ornamental betta fish retailers through social media or e-commerce or marketplace usually market their ornamental betta fish products through various existing e-commerce or marketplaces such as Shopee and Tokopedia, as well as marketing also through several social media that exist and are often used by the community such as Facebook, Instagram, Whatsapp, and Tiktok. Consumers who want to purchase ornamental betta fish online through marketplaces or e-commerce, as well as existing social media, can immediately make purchases after they have considered which ornamental betta fish they like and want to buy through product descriptions, photos, and video recordings that may have been included by traders in e-commerce or marketplaces as well as the social media of the traders. If consumers have questions about ornamental betta fish products that they like or want to buy, consumers can directly contact the seller contact listed or through the message facility available directly through the e-commerce or marketplace as well as the social media they use. The payment process in the purchase transaction can be via transfer to the seller's account or through the e-commerce platform or marketplace used. After the consumer makes a payment, the ornamental betta fish products they buy will be prepared and shipped by the ornamental betta fish retailer.

200

The implementation of marketing functions by traders can be seen **in Table 5**.

201  
202

**Table 5.** Marketing Function of Ornamental Betta Fish Traders at the Muara Ornamental Fish Market, Bandung City Marketing Function

Institute	Exchange		Physic				Facility		
	Buy	Sell	Transport	Process	Save	Sorting	Costs	Risk	Market Information
Traders	√	√	√	-	√	√	√	√	√

203 Information: √ = Perform marketing functions  
 204 - = Does not perform marketing functions

205  
 206  
 207

### **3.2.2 Marketing Consumers on Social Media**

208 Consumers generally carry out a price bargaining process in the process of buying these  
 209 ornamental betta fish so that in the end they get the best price according to the agreement  
 210 that has been made with existing traders. Marketing consumers through social media and e-  
 211 commerce or marketplaces generally take advantage of several existing services. If  
 212 consumers come from areas around West Java or the city of Bandung, they usually choose  
 213 to use Cash on Delivery (COD) services that have been provided by merchants. However,  
 214 ornamental betta fish retailers who are outside the area of the city of Bandung generally  
 215 choose delivery via several services provided, such as Gojek, Grab, and other services that  
 216 have been listed on e-commerce or marketplaces.

### **3.3 Market Structure**

217  
 218

219 Market structure is a market condition that can provide various clues regarding what aspects  
 220 have an important influence on every business behavior up to the performance of the  
 221 market. One of these important aspects is the number of sellers and buyers, barriers to entry  
 222 and exit of traders in the market, and so on [6]. The market structure is grouped into four  
 223 types, including perfect competition market, monopoly market, monopolistic competition  
 224 market, and oligopoly market. The market structure that occurs in the marketing of  
 225 ornamental betta fish in the city of Bandung through social media is an oligopoly market  
 226 structure. The oligopoly market structure that occurs in the marketing of ornamental betta  
 227 fish in the city of Bandung is marked by the number of existing sellers and then each existing  
 228 seller tends to apply a common market price in that market. The existing market structure  
 229 can be divided into four determining factors, including the number of marketing agencies,  
 230 product nature, ease of entry and exit of the market, and market information [7].

231

#### **3.3.1 Number of Marketing Agencies**

232

233 The marketing agencies involved in marketing activities for ornamental betta fish in the city  
 234 of Bandung are ornamental betta fish retailers. The number of retail traders who became  
 235 respondents was 39 people, of which 31 people were conventional betta fish traders who  
 236 marketed their products digitally as well and 8 traders who marketed their products only  
 237 conventionally at The Muara Fish Market, Bandung City. The characteristics of retailers are  
 238 traders who sell their ornamental betta fish products individually or piecemeal directly to the  
 239 end consumer. Ornamental betta fish retailers generally buy ornamental betta fish from  
 240 farmers/cultivators and wholesalers of ornamental betta fish.

241

#### **3.3.2 Nature of the Product**

242

243 Ornamental betta fish products sold in the city of Bandung are homogeneous (uniform),  
 244 **whereas** ornamental betta fish retailers at The Muara Fish Market in Bandung City only sell  
 245 ornamental betta fish, not combined with other types of fish. However, the ornamental betta  
 246 fish that are sold have heterogeneous characteristics (various types) such as Halfmoon,  
 247 Serit, Plakat, and others. The size of ornamental betta fish sold by ornamental betta fish

248 retailers has various prices sold by traders starting from IDR 8,000 to hundreds of thousands  
249 sold by traders at the Muara Ornamental Fish Market, Bandung City.

250  
251

### **3.3.3 In and Out of the Fish Market**

252 At the retailer level of ornamental betta fish through social media, there were no significant  
253 barriers to entering the market. It's just that the majority of traders find it easier to obtain a  
254 business license if they live around The Muara Fish Market, Bandung City. Ornamental betta  
255 fish retailers also find it easy to get ornamental betta fish products. The biggest obstacle for  
256 traders is the relatively small amount of capital because the purchase of ornamental betta  
257 fish is also done on a small scale.

258  
259

### **3.3.4 Market Information**

260 Market information is needed, especially for marketing agencies if they want a level of  
261 efficiency in the market mechanism being implemented. Ornamental betta fish retailers need  
262 a variety of information about what things need to be prepared and prevent unwanted things  
263 from happening in the selling process. As one example, the application of prices for  
264 ornamental betta fish at The Muara Fish Market in Bandung City depends on market prices  
265 and consumer demand. If the demand goes up, the price of ornamental betta fish will go up  
266 and vice versa if the demand goes down, the price of ornamental betta fish will also go  
267 down. Market information for retailers is entirely obtained from fellow traders who also sell  
268 ornamental betta fish. Obtaining information from ornamental betta fish retailers from  
269 marketing agencies above can also come from existing local collectors. Sources of  
270 information for ornamental betta fish retailers are obtained through the prices paid by local  
271 collectors to ornamental betta fish farmers or cultivators which will then be used as a  
272 benchmark in determining the selling price of ornamental betta fish later.

273  
274

## **3.4 Market Behavior**

275

276 The process of forming or determining the price of ornamental betta fish for retailers to end  
277 consumers is generally determined based on the grade, color, or pattern, as well as the type  
278 of the ornamental betta fish. The practice of paying prices used in the purchase process  
279 from consumers to retailers can be done in several ways, namely using the cash system if  
280 the shipment is Cash on Delivery (COD) or can be transferred via a bank account. The  
281 cooperative relationship that exists between retailers and marketing agencies is generally a  
282 relationship that has the nature of partners or between sellers and buyers to expedite and  
283 facilitate existing sales and purchases.

284 The percentage comparison of respondents in choosing a payment method can be seen in  
285 Table 6.

286

287 **Table 6.** Percentage comparison way payment of respondents

Payment Type	Number of respondents	Percentage (%)
Cash on Delivery (COD)	16	51,6
Transfer	15	48,4
Total	31	100

288

### **3.4.1 The Practice of Buying and Selling Activities**

289

290 Retailers at The Muara Fish Market in Bandung City generally buy these ornamental betta  
291 fish through local collectors, cultivators, and farmers by ordering ornamental betta fish which  
292 is usually done once to two weeks depending on supplies of pre-owned ornamental betta  
293 fish. Retailers generally make payments in cash directly to local collectors, cultivators, and

294 farmers. Ornamental betta fish cultivators will usually sell their products to collectors or  
295 retailers within one to two months after harvest. This bond is established because there is a  
296 sense of trust that is owned both through the level of pricing and payment of existing crops.  
297

### 298 **3.4.2 Price Determination Practices**

299 Price determination by ornamental betta fish retailers to end consumers is generally  
300 determined based on several aspects such as the grade, type, color, and pattern of the  
301 ornamental betta fish. Pricing usually depends on supply where an increase in the price of  
302 ornamental betta fish products sold will cause a decreased level of demand and vice versa,  
303 as well as demand where the number of goods offered will have a value comparable or  
304 directly proportional to the price so that if there is a price increase, the demand for betta fish  
305 ornamental will rise anyway and vice versa. In general, cooperation between retailers will not  
306 be carried out in the process of determining prices. The prices offered by retailers are still  
307 and usually will always be a process of bargaining to reach the best price through an  
308 agreement between consumers and traders. However, there are also consumers or  
309 ornamental betta fish hobbyists who do not carry out the bargaining process at all in the  
310 process of purchasing the ornamental betta fish they like from retailers.  
311

### 312 **3.4.3 Price Payment Practices**

313 As previously mentioned, the process of paying for ornamental betta fish prices at The  
314 Muara Fish Market in Bandung City to consumers can be done through:

#### 315 1. Cash Payment System

316 The cash payment system means that ornamental betta fish will be paid directly either to  
317 couriers or to delivery services that are already available in the e-commerce or marketplace  
318 used. However, this payment can also be applied if there has been an agreement between  
319 the parties from both the consumer and the retailer that the payment will be made using the  
320 Cash on a Delivery (COD) system if the consumer is around the city of Bandung, West Java.

#### 321 2. Payment System by Transfer to a Bank Account

322 This payment system by transfer to a bank account means that consumers will make  
323 payments by transferring an amount of money agreed by both parties to the seller's account  
324 or the e-commerce or marketplace used. Consumers will process payments by transferring  
325 an amount of money whose nominal value has been agreed upon between the two parties  
326 and added to the cost of packaging and shipping fish where the rates given will be calculated  
327 automatically by the application system according to the area of each customer. After that,  
328 the retailer will carry out the packaging which will then be given to the courier or delivery  
329 service that has been chosen by the consumer until it finally arrives at the consumer's place  
330 properly.  
331

### 332 **3.4.4 Cooperation between Market Institutions**

333 The relationship or collaboration between retailers and marketing agencies above them is  
334 generally only a relationship as partners or between sellers and buyers which is used to  
335 provide smoothness and convenience in the selling and purchasing process. Collector  
336 traders are the first to determine the price of ornamental betta fish to be sold later, followed  
337 by marketing agencies below. Retailers in general already understand the policy system so  
338 there is no bargaining process for the marketing agencies above it.  
339

## 340 **3.5 Problems Faced**

341

342 The problem experienced by retailers, in general, is regarding the mortality rate of  
343 ornamental betta fish during delivery. Another problem experienced by ornamental betta fish

344 retailers through social media is limited internet access where the internet network is often  
345 unstable and the lack of mastery of information technology for retailers. The packaging  
346 process is also a problem for this digital marketing because it requires very safe packaging  
347 so that the fish does not experience stress, die, and so on that might occur during the  
348 shipping process. Weather is also a problem for ornamental betta fish traders because it  
349 affects the process of delivering these products to consumers. Next, the declining and  
350 unstable demand and interest rates are also a problem in the marketing process for  
351 ornamental betta fish retailers.

352 Difficulties in the supply of ornamental betta fish when the fish die while being sent to  
353 consumer locations experienced by ornamental betta fish retailers through social media is a  
354 major problem because consumers may provide complaints or unfavorable comments due to  
355 this problem due to perceived disappointment or incompatibility of betta fish decoration that  
356 is received with the results of a physical description in the form of photos and even video  
357 recordings provided by the seller and makes the sales level decrease. High technology  
358 sometimes makes photos of fish displayed by retailers through social media look better than  
359 the original. In general, comments or complaints will be handled by giving discounts or price  
360 reductions from those previously paid by consumers to retailers or by providing replacement  
361 fish to these consumers. In e-commerce or a marketplace, the delivery system will be carried  
362 out first by the retailer and will be paid later when the product reaches the consumer. This is  
363 a particular difficulty for ornamental betta fish retailers through social media because the  
364 process of receiving the funds takes quite a long time for traders to receive.

### 366 **3.6 Analysis of Business Income**

#### 367 **3.6.1 Business Cost Structure of Ornamental Betta Fish Marketing at Estuary Market, Bandung City**

370 The business cost structure is **the** number of costs incurred in carrying out the main  
371 **operating** activities of the trader. The structure of business costs in marketing ornamental  
372 betta fish through social media includes labor costs, fish feed costs, internet costs, fish  
373 packaging costs, and other costs. The following is an example of recapitulating the structure  
374 of business costs per month for marketing ornamental betta fish through social media in the  
375 city of Bandung which can be seen in **Table 7**.

376  
377 **Table 7.** Cost Structure of Marketing Ornamental Betta Fish through Social Media in the City  
378 of Bandung per Month

No.	Cost Components	Cost (IDR)
1.	Labor	2.000.000
2.	Fish Feeding	500.000
3.	Fish Packaging	450.000
4.	Internet Bills	100.000
	Total	3.050.000

379

#### 380 **3.6.2 Calculation of Business Income Marketing of Ornamental Betta Fish at Estuary Market, Bandung City**

381

382 Revenue is a nominal amount of money obtained through the proceeds of sales made  
383 through the results of ornamental betta fish products. **The** determination of the amount of  
384 income obtained is the result of subtracting the total income per month **from** the total  
385 operating costs per month so that the results obtained are the total net profit per month  
386 obtained from each marketing system for ornamental betta fish that is carried out. **The**

387 calculation of business income analysis of ornamental betta fish marketing at The Muara  
 388 Fish Market, Bandung City is shown in **Table 8**.

389  
 390

**Table 8.** Business Income of Ornamental Betta Fish Marketing

Marketing System	Total Average Revenue (IDR)	Total Average Operating Costs (IDR)	Total Average Net Profits (IDR)
Internet	4.700.000	1.150.000	3.550.000
Conventional	1.718.000	318.000	1.400.000

391

392 Based on (Table 8), it is shown that the net profit per month obtained from the ornamental  
 393 betta fish marketing system via the internet is of greater value than the conventional betta  
 394 fish marketing system. This is because marketing via the internet is considered more  
 395 efficient. **After all**, it can reach a wider range of consumers outside the area where traders  
 396 are located.

397

### 398 **3.7 Calculation of Net Present Value (NPV)**

399

400 To calculate the Net Present Value (NPV) of a sale, an interest rate is required which is used  
 401 as a discount rate or discount factor. The interest rate is a macro variable that always shows  
 402 a change from time to time or does not have a constant or stable nature. Therefore it can be  
 403 concluded that the interest rate is the price for using money expressed in percent (%) for a  
 404 certain period or **period of time**. The following presents the results of the calculation of the  
 405 Net Present Value (NPV) of ornamental betta fish marketing through social media in **Tables**  
 406 **9 and 10**.

407

408 **Table 9.** Calculation Results Net Present Value (NPV) of Ornamental Betta Fish Marketing  
 409 through Social Media

Average profit/year (B - C)	r (Interest Rate) 2022 (%)
IDR 42.600.000	6

$$NPV = \frac{42.600.000}{(1 + 6\%)^{10}} = \frac{42.600.000}{1,7908} = \text{Rp } 23.788.251$$

410

411 **Table 10.** Calculation Results Net Present Value (NPV) of Ornamental Betta Fish Marketing  
 412 through Conventional

Average profit/year (B - C)	r (Interest Rate) 2022 (%)
IDR 16.800.000	6

$$NPV = \frac{16.800.000}{(1 + 6\%)^{10}} = \frac{16.800.000}{1,7908} = \text{Rp } 9.381.282$$

413

414

415 Based on the use of the formula of Net Present Value (NPV) where profit is the result of  
 416 deducting income (benefit) with total cost (cost) divided by 1 plus r (interest rate) then raised  
 417 to the power of t (time). The interest rate (r) in 2022 (currently) is 6%. The interest rate used  
 418 is reviewed based on data obtained from the BI rate (rate), which is the percentage of  
 419 reference interest issued by the Indonesian monetary authority, which later this monetary  
 420 authority will be followed by corporations of various banks in Indonesia, which will later be

421 used to raise or lower interest rates respectively. Therefore, the real next 10 years according  
 422 to r (interest rate) on the marketing of ornamental betta fish in the city of Bandung is shown  
 423 in **Table 11**.

424  
 425

**Table 11.** Real Profit Data for 10 Years to Come with r (Interest Rate)

Marketing System	Current profit (IDR)	Profit 10 years to come (IDR)
Internet	42.600.000	23.788.251
Conventional	16.800.000	9.381.282

426

427 Based on the table above, it can be seen that the average constant profit of marketing  
 428 ornamental betta fish through social media at this time or in 2022 is IDR 42,600,000 and will  
 429 change to IDR 23,788,251 in the next ten years or 2032. Therefore it can be seen that the  
 430 advantages of marketing ornamental betta fish via the internet or social media are in the  
 431 profitable category because Benefit (B) – Cost (C) has a positive value. Likewise with the  
 432 conventional marketing of ornamental betta fish which this year or 2022 has an average  
 433 profit of IDR 16,800,000 and will change to IDR 9,381,282 in the next ten years, namely in  
 434 2032. However, based on real profit data In the next 10 years, it can be seen that the profits  
 435 from marketing ornamental betta fish via the internet or social media have a greater value  
 436 compared to conventional marketing of ornamental betta fish.

437 In addition, it is assumed that the marketing of ornamental betta fish via the internet or social  
 438 media in the city of Bandung will experience an increase in profit returns of 10% annually  
 439 because, at this time, the growth of marketing via the internet or social media in Indonesia  
 440 has the potential to experience rapid development compared to several years earlier as the  
 441 development of existing technology. The results of calculating the Net Present Value (NPV)  
 442 of ornamental betta fish marketing via the internet or social media and real next 10 years  
 443 using the assumption of a profit increase of 10% each year are presented in **Tables 12** and  
 444 **13**.

445  
 446  
 447

**Table 12.** Calculation Results Net Present Value (NPV) of Ornamental Betta Fish Marketing via the Internet with Assumption of a 10% Profit Increase per Year

Average profit/year (B – C)	r (Interest Rate) 2022 (%)
IDR 46.860.000	6

$$NPV = \frac{46.860.000}{(1 + 6\%)^{10}} = \frac{46.860.000}{1,7908} = Rp 26.167.076$$

448 **Table 13.** Real Profit Data for the Next 10 Years with an Assumption of 10% Profit Increase  
 449 per Year

Marketing System	Current Profit (IDR)	Profit 10 Years to Come (IDR)
Internet	42.600.000	26.167.076

450

451 Based on Table 13 which has been presented above, it can be seen that the average profit  
 452 of marketing ornamental betta fish via the internet or social media at this time or in 2022 is  
 453 IDR 42,600,000 which will change to IDR 26,167,076 the next ten years or in 2032 assuming  
 454 an increase in profit on sales of 10% per year. It can be seen that the advantages of  
 455 marketing ornamental betta fish via the internet or social media are experiencing profits  
 456 because the results of Benefit (B) – Cost (C) have positive results.

457

### 458 3.7 Multiple Linear Regression Analysis

459

460 To find out whether or not there is an influence between the results or the number of sales,  
461 prices, and costs on the NPV value of ornamental betta fish marketing respondents via the  
462 internet or social media, a multiple linear regression analysis methods will be used which  
463 has the objective of estimating the relationship between the values of the dependent variable  
464 and the existing independent variables.

465

466 **Table 14.** ANOVA Testing (F test) The Effect of the Number of Sales, Prices, and Costs on  
467 Net Present Value (NPV)

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37694.700	3	1256.890	46.285	.000 <sup>b</sup>
	Residual	7329.120	27	271.486		
	Total	4502.800	30			

a. Dependent Variable: NPV (Y)

b. Predictors: (Constant), Biaya (X<sub>3</sub>), Harga (X<sub>2</sub>), Jumlah Penjualan (X<sub>1</sub>)

468 H<sub>0</sub> : ρ<sub>1</sub> = ρ<sub>2</sub> = ... ρ<sub>1</sub> = 0

469 H<sub>1</sub> : minimal ada satu nilai yang ≠ 0

470 α : 0,05

471

472 **Following** the results of the F test in Table 11 above, the P-value is very small, namely 0.000  
473 and this value is smaller than the value α = 0.05. Therefore, it can be concluded that H<sub>0</sub> **was**  
474 rejected so it can be concluded that through the three existing independent variables, there  
475 is at least 1 variable that has a **significance** influence on the Net Present Value (NPV). Then  
476 the first regression model can be formed which contains only variables that have significant  
477 as follows:

478 
$$Y = 9.527 \times 10^5 + 3.192 X_1 - 13.951 X_2 + 0.169 X_3$$

479 Information: Y = Net Present Value (NPV)

480 X<sub>1</sub> = Sales Amount (tail)

481 X<sub>2</sub> = Price (Rp)

482 X<sub>3</sub> = Cost (Rp)

483 Then to find out how **well** the regression model will be formed, it will be seen through the R  
484 square value shown in **Table 15**.

485

486 **Table 15.** Value of R Square

Model Summary				
Model	R	R Square	Adjusted R Square	Std. an error in the Estimate
1	.915 <sup>a</sup>	.837	.819	16476.35036

a. Predictors: (Constant), Biaya (X<sub>3</sub>), Harga (X<sub>2</sub>), Jumlah Penjualan (X<sub>1</sub>)

487

488 In Table 15 above it can be seen that the R square value for the first regression model has a  
489 value of 0.837. This indicates that 83.7% of the diversity of values in Net Present Value  
490 (NPV) can be explained through the regression model that has been formed, while the  
491 remaining value of 16.3% is caused by various other factors that cannot yet be included in  
492 the regression model that has been formed. The interpretation of this is:

493 a. The coefficient value on the variable number of sales ( $X_1$ ) has a positive value indicating  
494 that when the variable has high number of sales, the variable value on the Net Present  
495 Value (NPV) will also increase, and vice versa if the number of sales decreases, the value  
496 variables in the Net Present Value (NPV) will decrease. This is also a marker or determinant  
497 that when the number of sales has a high value, the Net Present Value (NPV) will also have  
498 a high value. However, if the lower the value of the number of existing sales, the lower the  
499 value of the Net Present Value (NPV) will also be.

500 b. The coefficient value on the price variable ( $X_2$ ) has a negative value. This means that  
501 when the value of the price variable has a high value, the Net Present Value (NPV) variable  
502 value will have a low value, and vice versa if the price variable value has a low value, the  
503 Net Present Value (NPV) will have a high value. This indicates that the higher the price  
504 value, the lower the Net Present Value (NPV), or the lower the price value, the higher the  
505 Net Present Value (NPV).

506 c. The coefficient value of the cost variable ( $X_3$ ) has a positive value indicating that when the  
507 value of the cost variable is high, the value of the Net Present Value (NPV) variable will also  
508 have a high value, and vice versa if the value of the cost variable has a low value, then the  
509 value of the variable Net Present Value (NPV) will also have a low value. This indicates that  
510 the higher the cost, the higher the Net Present Value (NPV), or the lower the cost, the lower  
511 the Net Present Value (NPV).

512

#### 513 **4. CONCLUSION**

514

515 Based on research that has been conducted regarding the impact of digital marketing on the  
516 level of sales of ornamental betta fish (*Betta splendens*) at the Muara Ornamental Fish  
517 Market, Bandung City, it can be concluded that marketing ornamental betta fish via the  
518 internet or social media can have a good impact and increase the level of income or income  
519 of ornamental fish retailers is increasing. Based on the results of business income analysis  
520 calculations on ornamental betta fish marketing via the internet or social media at the Muara  
521 Ornamental Fish Market, Bandung City, an average profit per month of IDR 4,244,355 is  
522 obtained, while conventional betta fish marketing has an average profit per month of IDR  
523 1,400,000 which proves that marketing is done digitally or via the internet has a higher level  
524 of efficiency than conventional marketing. This is also shown through the ease in carrying  
525 out the process of promoting ornamental betta fish products through e-commerce,  
526 marketplaces, or social media used by sellers or retailers of ornamental betta fish. Ease of  
527 obtaining markets, making payments, and shipping, as well as greater profits and  
528 operational costs that have a lower value than conventional marketing of ornamental betta  
529 fish is one of the advantages and proof of the efficiency of digital marketing through e-  
530 commerce or marketplaces and media compared to the conventional marketing of  
531 ornamental betta fish.

532

#### 533 **ACKNOWLEDGEMENTS**

534

535 We thank The Muara Fish Market's retailers who contributed to **answering** the  
536 **questionnaires** that prepare beforehand for this research. The ideas and opinions written in  
537 this article come from the author herself.

538

539 **COMPETING INTERESTS**

540

541 The authors have declared that no competing interests exist.

542

543 **AUTHORS' CONTRIBUTIONS**

544

545 All authors read and approved the final manuscript

546

547 **CONSENT**

548

549 As per international standards or university standards, respondent's written consent has  
550 been collected and preserved by the author(s).

551

552 **REFERENCES**

553

554 [1]Department of Agriculture and Food of Bandung City. 2016. Agriculture and Food Service  
555 Work Plan. Bandung: Information Management and Document Officer.

556 [2]Marine and Fisheries Ministry. 2020. Water Conservation as an Effort Maintaining  
557 Indonesia's Maritime and Fisheries Potential. Jakarta: Directorate General of Marine Spatial  
558 Management.

559 [3]Dewantoro, G. W. 2017. Getting to Know Betta (*Betta* spp) Ornamental Fish who Like to  
560 Fight of Warta Ichthyology, 1(1): 28-32. LIPI-20180904.

561 [4]Aaker, D. A., Kumar, V., and Day, G. S. 2010. Marketing Research 9<sup>th</sup> Edition. John Wiley  
562 and Sons, Danvers.

563 [5]Chaffey, D., & Smith, P. R. (2013). E-marketing Excellence: Planning and Optimizing Your  
564 Digital Marketing. USA: Routledge.

565 [6]Hapsoro, B. B., Palupiningdyah, P., & Slamet, A. 2019. The Role of Digital Marketing as  
566 an Effort to Increase Sales Turnover for MSME Clusters in Semarang City. Journal of  
567 Abdimas, 23(2): 117-120. <https://doi.org/10.15294/abdimas.v23i2.17880>

568 Vermaat, S. C. 2007. Discovering Computers: Exploring the World of Fundamental  
569 Computers Edition. Jakarta: Salemba Infotek

570 [7]Pradiani, T. 2017. The Influence of the Digital Marketing Marketing System on Increasing  
571 the Sales Volume of Home Industry Products. Asian Scientific Journal of Business and  
572 Economics (JIBEKA), 11(2): 46-53. <https://doi.org/10.32812/jibeka.v11i2.45>

573 [8]Soekartawi. 2003. Economic Theory of Production with the Subject Matter of Cobb-  
574 Douglas Function Analysis. Jakarta: PT. Raja Grafindo Persada

575 [9]Pracoyo, T. K. 2006. Basic Aspects of Macroeconomics. Yogyakarta: PT. Grasindo

576 [10]Groves, R. M. 2010. Survey Methodology. Op.cit. page 57.

577 [11]Case, K. E. 2008. Case Fair: Economic Principles. Jakarta: Erlangga.