E-Commerce Based Marketing Strategy of Seaweed Processed Products of Aulia Sari Bandung, West Java

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Authors' contributions

This work was carried out in collaboration among all authors. Author SF designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AN and AR managed the analyses of the study. Author AAHS managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJFAR/2021/v11i30204
Editor(s):
(1) Dr. Pınar Ogužhan Yıldız, Ataturk University, Turkey.
Reviewers:
(1) Lucas Gonçalves de Oliveira Ferreira, Federal University of Latin American Integration, Brazil.
(2) Chien Nguyen, Thu Dau Mot University, Vietnam.
Complete Peer review History: http://www.sdiarticle4.com/review-history/65109

Original Research Article

Received 28 November 2020
Accepted 30 January 2021
Published 24 February 2021

ABSTRACT

This study aims to analyze the efficiency and marketing strategy of e-commerce seaweed processed products at Aulia Sari Bandung. The research was conducted with a survey method with a snowball sampling technique to 45 respondents consisting of producers and consumers of the products. The survey results were analyzed descriptively qualitatively. The research was conducted at Aulia Sari Bandung on Jl. Inspeksi Pengairan No. 3 Cipamokolan Bandung City, West Java from July to November 2020. The data sources used are primary and secondary data. Primary data obtained by interviewing informants. Secondary data were obtained from regular consumers or second informants and literature studies related to this research. Data analysis was performed using analysis of SWOT (Strength, Weakness, Opportunity, Threat) and QSPM (Quantitative Strategic Planning Matrix). The results showed that the coordinates of Aulia Sari Bandung are at position X, Y = 0.37; 0.10, which means that it is in quadrant I position by supporting aggressive strategies which means having opportunities and strengths than can be utilized maximally. Some alternative strategies that can be done are maintaining the quality of...
production, improving and facilitating services using Whatsapp and Go-Food, increasing promotion and sales via Instagram and Facebook, maintaining marketing from Whatsapp and Go-Food to obtain maximum benefits, and improving product promotion and marketing through online marketing media to make it look attractive.

Keywords: Seaweed; marketing strategy; e-commerce; SWOT; QSPM.

1. INTRODUCTION

Seaweed is one of the marine cultivation commodities that is easy to cultivate, has good market prospects, and can be being economic empowerment. Seaweed has great potential to be developed as an ingredient for other products when indicated by existing cultivation results. The availability of large enough potential for the production of seaweed utilization in West Java has its characteristics considering that the production location is in an area that has not made much use of seaweed products [1]. The development of agro-industry in the utilization of seaweed is carried out to increase the added value [2]. Marketing strategy is management formulated to accelerate the solving of marketing problems and make strategic decisions. Marketing is a function that has the greatest contact with the external environment, even though the company has only limited control over the external environment. Therefore marketing plays an important role in strategy development [3].

Marketing of a product can be done directly or by using the internet or what is known as e-commerce. E-commerce marketing is a way of selling products online by utilizing the internet to provide sales and purchasing services. The use of e-commerce can save time and costs in marketing and product promotion [4]. Aulia Sari Bandung is one of the businesses that sell its products by e-commerce. Aulia Sari Bandung is a small business in Bandung with superior products of various kinds of seaweed processing products, such as ice cream, crackers, drinks, dumplings, and brownies.

Online marketing is expected to provide wider business opportunities so that the owner of Aulia Sari Bandung can get bigger profits. However, the lack of widespread information and less even marketing of e-commerce-based products makes online marketing still have several obstacles in its implementation. These have resulted in not achieving the goals to be obtained from the online marketing of Aulia Sari Bandung seaweed products. Based on this, a strategy is needed relating to the e-commerce-based marketing aspects of the processed seaweed products of Aulia Sari Bandung, West Java, to produce several alternative marketing strategies that are appropriate to overcome the marketing problems faced by Aulia Sari Bandung.

2. METHODOLOGY

The research was conducted at the SME business location of Aulia Sari Bandung on Jl. Inspeksi Pengairan No. 3 Cipamokolan Bandung City, West Java from July to November 2020 by surveying the business location using snowball sampling technique to 45 respondents consisting of producers and 40 consumers. The survey results were analyzed descriptively qualitatively. The data sources used are primary and secondary data. Primary data were obtained by direct or online interviews with informants. Secondary data were obtained from regular consumers or second informants, then from literature studies related to this research. Data and information are presented descriptively as qualitative and quantitative analysis. The analysis begins with a prospective analysis to determine the benefits obtained by e-commerce marketing of Aulia Sari Bandung.

2.1 Prospective Analysis

2.1.1 Net income analysis

This analysis shows that a business is profitable if it has a higher income than the issued capital (TR> TC). Analysis of net income can be calculated with the following formulation [5]:

\[(\pi) = TR - TC\]

Information:

\(\pi\) = Profit
TR = Total Revenue
TC = Total Cost

2.1.2 R/C ratio

The revenue and cost ratio analysis aims to determine the extent to which the results obtained from the business can be profitable in a
certain period [6]. The R/C Ratio shows that a business is profitable if it has an R / C ratio of more than 1 (R / C > 1). The mathematical formulation of the R / C ratio calculation can be written as follows [7]:

\[
\frac{R}{C} = \frac{TR}{TC} 
\]

Information:
- R = Revenue
- C = Cost
- TR = Total Revenue
- TC = Total Cost

2.2 Marketing Efficiency Analysis

Marketing efficiency is based on the relationship between marketing costs and the volume of commodities cultivated. Marketing efficiency is carried out by several analyzes below:

2.2.1 Marketing margin

Marketing margin can be calculated using the following formula [8]:

\[
MP = Pr - Pf 
\]

Information:
- MP = Marketing Margin
- Pr = Price to consumers
- Pf = Price at the producer

2.2.2 Market share

The market share value can be calculated mathematically with the following formulation [9]:

\[
Ms = \frac{Hp}{Ht} \times 100\% 
\]

Information:
- Ms = Market Share
- Hp = Total sales of the company
- Ht = Total sales of the market

2.2.3 Payback period

The mathematical calculation of the Payback Period can be formulated as follows:

\[
Payback\ Period = \frac{Total\ Cost}{Yearly\ Cash\ Flow} 
\]

Efficient or not a marketing channel can be determined by the marketing margin and market share. Marketing will be said to be efficient if the market share is greater than the marketing margin (MS > MP) [10].

The e-commerce based marketing strategy of Aulia Sari Bandung is carried out using SWOT and QSPM analysis. SWOT analysis is used to identify factors systematically, both internal factors including strengths and weaknesses and external factors in the form of opportunities and threats that are being faced [11]. QSPM (Quantitative Strategic Planning Matrix) analysis is the final stage, using to choose the most appropriate strategy for used by the company. QSPM matrix is used to summarize and evaluate various alternative strategies objectively based on the company's internal and external factors that have been identified.

The change in the relationship between producers and consumers from people-mediated to technology-mediated causes changes to the interface design that must be done [12]. Research at Aulia Sari Bandung was conducted on several similar studies that had been conducted previously in several different locations. One of them is the research which states that online marketing is classified as e-commerce which can expand the market area. The new concept of marketing can be done more quickly and accurately and traders can reach marketing areas throughout the world. E-commerce in marketing is very influential on an efficient marketing system [13].

3. RESULTS AND DISCUSSION

3.1 Overview of Aulia Sari Bandung

UMKM Aulia Sari Bandung is located at Jl. Inspeksi Pengairan BBWS No. 3C Cipamokolan Kec. Rancasari, Bandung, West Java. Located in the residence of the business owner, Mr. Entis Sutisna, as a place for production and sales of e-commerce based seaweed processed products. The business of Aulia Sari Bandung continues to innovate by making various kinds of processed seaweed products and has done it for 10 years. The organizational structure of Aulia Sari Bandung is managed and led directly by the owner and is assisted by the secretary, treasurer, and production department to facilitate the technical implementation and online marketing of products from planning to production. Organizational structure needs to be evaluated periodically to ensure consistency in effective and efficient operations [14].
Aulia Sari Bandung produces various kinds of processed seaweed products which are very varied. There are a total of 10 types of processed seaweed products that are produced, consisting of cendol ice, dodol, brownies, ice cream, crackers, dumplings, meatball, nuggets, and cheese sticks. The manufacture of each type of processed seaweed product is done by adding dry seaweed flour as an additional ingredient in it. Then each product is made according to its type with different procedures. The marketing of Aulia Sari Bandung products is based on e-commerce so that it can reach a wide market. Online marketing carried out by Aulia Sari Bandung uses four types of media, Whatsapp, Facebook, Go-Food, and Instagram. Whatsapp and Go-Food applications are the two types of media most often used for e-commerce based product marketing.

3.2 Respondents Characteristics

Respondents of this study consisted of producers and consumers from Aulia Sari Bandung. The owner of this business is Entis Sutisna who is 63 years old, graduated from high school, and is a native of Bandung. Aulia Sari Bandung also continues producing the products and until now the marketing is done online to make it easier to reach a wider range of consumers. Aulia Sari Bandung consumers are taken from consumers who buy Aulia Sari Bandung processed seaweed products online using the Whatsapp media application, Go-Food features on Go-Jek, Facebook, and Instagram. Consumers who became respondents in this study amounted to 40 people. Determination of consumers is carried out based on manufacturer recommendations by looking at data on consumers who buy products online which are still stored in the business owner’s product sales history.

3.3 Prospective Analysis

3.3.1 Net income

Net income is the result of a business's work that has been carried out within a certain period of time [15]. The net income of Aulia Sari Bandung is the difference between total revenue and total costs incurred in the e-commerce based seaweed processing business. The average net income from this business can be seen in Table 1.

The net income analysis result from the e-commerce-based sale of processed seaweed products of Aulia Sari Bandung obtained for one year amounted to Rp. 29,650,000. This profit can be said to be not too large if it is calculated in terms of time per year. The amount of profit obtained is influenced by the business scale of Aulia Sari Bandung. The number of products produced is dominated by products with low prices to produce the scale of production and profits that are not too large.

Table 1. Net income of aulia sari bandung

| No. | Component     | Amount (Rp) |
|-----|---------------|-------------|
| 1.  | Total Revenue (TR) | 32,480,000  |
| 2.  | Total Cost (TC)  | 2,829,500   |
|     | Net Income (π)  | 29,650,500  |

3.3.2 R/C ratio

Revenue Cost Ratio (R / C Ratio) is a comparison of the amount of total revenue and total costs incurred during the business. The R / C value is shown in Table 2.

Table 2. R/C ratio of aulia sari bandung

| No. | Component     | Amount (Rp) |
|-----|---------------|-------------|
| 1.  | Total Revenue (TR) | 32,480,000  |
| 2.  | Total Cost (TC)  | 2,829,500   |
|     | Revenue Cost Ratio (R/C) | 11         |

Based on the calculations in Table 2, it is known that the R / C value of Aulia Sari Bandung's business is 11. The R / C value is more than one (R / C > 1) so that Aulia Sari Bandung business can be run because it will generate profits.

3.4 Marketing Efficiency of Aulia Sari Bandung

The principle of efficiency in marketing activities is to minimize the cost per unit of the commodity for a certain period of time. So that efforts must be made to reduce costs and margins of the marketing. These efforts are made to achieve marketing efficiency to increase the satisfaction of all parties involved in the marketing process [8].

3.4.1 Marketing margin

Marketing margin is the value of services in the implementation of marketing activities from the producer level to the end consumer level [16]. Marketing margin is the price difference between the marketing agencies involved. The existence
of differences in the activities of each institution will cause differences in selling prices from one institution to another [17]. The marketing margin for e-commerce-based Aulia Sari Bandung seaweed can be seen in Table 3.

Table 3. Marketing margin of aulia sari bandung

| Marketing Institute | Units | Chain I |
|---------------------|-------|---------|
| Producer            |       |         |
| a. Selling Price    | Rp    | 10,000  |
| b. Market share     | %     | 100     |
| Konsumen            |       |         |
| a. Selling Price    | Rp    | 10,000  |
| b. Price            |       |         |
| Marketing Margin    |       |         |

Based on the research results, it is known that in product marketing there is only one marketing channel, from producers directly to consumers. The selling price of the product varies depending on the type of product being sold, but in general, many consumers buy seaweed cendol ice products for at Rp. 10,000. The owner does not distribute their products through agents or other distributors so that consumers can buy their products online directly from business owners, namely Aulia Sari Bandung.

3.4.2 Market share

Market share can be used as a measure of marketing efficiency. The higher the percentage level of the market share received by producers, the more efficient the marketing activities are carried out, and vice versa [18]. Based on the research conducted, it is known that the marketing of Aulia Sari Bandung seaweed products is marketed online from producers directly to consumers without any distributors or other agents. So that the profit obtained by producers is 100% and it is considered very efficient.

3.4.3 Payback period

Payback period (PP) analysis is used to find out how quickly the investment that is made by Aulia Sari Bandung will return online, so the calculation is expressed in units of time. The payback period calculation can be seen in Table 4. as follows.

Based on Table 4, it is known that the Payback Period (PP) of this business is 1.8 years. The length of time for the return on investment can be influenced by the various types of processed seaweed products produced by Aulia Sari Bandung so that it affects the amount of capital used in the seaweed processing product business and the net income received by the business owner for one year.

Table 4. Payback period of aulia sari bandung

| No. | Component         | Amount     |
|-----|-------------------|------------|
| 1.  | Total Cost        | 53,350,000 |
| 2.  | Yearly Cash Flow  | 29,650,500 |
|     | Payback Period    | 1.8        |

3.4.4 The Efficiency of marketing channels

Efficient or not a marketing channel can be determined by the marketing margin and market share. Marketing will be said to be efficient if the market share is greater than the marketing margin (MS > MP). Marketing efficiency will be achieved if a marketing system can provide satisfaction for the parties involved in marketing, specifically in the form of producers, distributors, to consumers [10]. Based on the calculation of the marketing margin and market share that has been done, it is known that there is only one marketing channel in the online marketing of Aulia Sari Bandung. Direct marketing does not involve intermediaries and gets 100% returns. The advantage of direct sales without an intermediary is that producers can communicate directly with consumers and can really know what consumers want so that it can also be an evaluation of the products they sell.

3.5 Aulia Sari Bandung E-Commerce Based Marketing Strategy

A business unit needs to understand its environment both internally and externally to be able to face business competition. The internal environment itself is a situation that occurs from within the business unit itself in the form of its strengths and weaknesses. Meanwhile, the external environment is a condition that is in the vicinity of the business unit, such as the presence of competitors, economic conditions, government, and others that are considered to be able to influence the operation of the business [19].

The IFE (Internal Factor Evaluation) matrix is used to evaluate the internal factors of a business in the form of the company's main strengths and weaknesses in its business functions. Meanwhile, the EFE (External Factor Evaluation) matrix is used to evaluate factors
related to the opportunities it has and the threats that a company must face on running its business. Based on the identification of internal and external factors that have been carried out, each factor is given a weight according to the questionnaire that has been given to respondents to be filled in based on their opinion. Weights are used to determine the rank of each variable. The score will show the strongest and weakest internal and external factors that a business has [20]. IFE and EFE matrices from e-commerce based marketing of Aulia Sari Bandung products can be seen in Tables 5, 6.

Based on the calculation of the IFE matrix, it is known that the value of the greatest strength factor is online marketing services, product quality, and affordable prices, with a score of 0.40. Aulia Sari Bandung always strives to produce high quality processed seaweed products at affordable prices, as well as carry out online marketing as much as possible by providing the best service to every consumer who buys its products. This makes consumers feel satisfied with the products even though for sales only through online marketing media. The lowest score on the weaknesses of this business is business management that has not been going well with a score of 0.16. Aulia Sari Bandung’s management can still be improved in a short time with proper coordination between business owners and other participants involved.

### Table 5. IFE matrix of aulia sari bandung

| Strength                                | Rating | Weight | Score |
|-----------------------------------------|--------|--------|-------|
| Comforting online services with Whatsapp and Gofood | 3.5    | 0.11   | 0.40  |
| Ease of buying products online via Whatsapp and Go-Food | 3.3    | 0.11   | 0.36  |
| Guaranteed product quality              | 3.5    | 0.11   | 0.40  |
| Affordable prices                       | 3.5    | 0.11   | 0.40  |
| Have a fixed seaweed producer           | 3.4    | 0.11   | 0.38  |

| Weakness                                | Rating | Weight | Score |
|-----------------------------------------|--------|--------|-------|
| Promotion in e-commerce media is rarely updated | 2.8    | 0.09   | 0.25  |
| Marketing on Facebook and Instagram is diminishing | 3.0    | 0.10   | 0.28  |
| Products are not always available       | 2.8    | 0.09   | 0.25  |
| Limited capital                         | 2.8    | 0.09   | 0.26  |
| Business management is not well controlled | 2.3    | 0.07   | 0.16  |
| Total                                   | 1.00   |        | 3.14  |

### Table 6. EFE matrix of aulia sari bandung

| Opportunity                                | Rating | Weight | Score |
|--------------------------------------------|--------|--------|-------|
| Consumers like processed seaweed products  | 3.1    | 0.11   | 0.35  |
| Public awareness of the nutritional value of seaweed | 2.7    | 0.10   | 0.26  |
| Consumer satisfaction of the products      | 3.5    | 0.13   | 0.44  |
| Purchases via Instagram and Facebook are still in high demand | 3.0    | 0.11   | 0.32  |
| Support and assistance from the government in physical form | 2.1    | 0.07   | 0.15  |
| Total                                     | 1.00   |        | 1.52  |

| Threat                                    | Rating | Weight | Score |
|-------------------------------------------|--------|--------|-------|
| Competitor promotions are more attractive | 2.9    | 0.10   | 0.30  |
| Competitors take better advantage of e-commerce marketing | 2.1    | 0.08   | 0.16  |
| Competitors have a broader relationship   | 3.3    | 0.12   | 0.40  |
| The development of other product innovations | 2.3    | 0.08   | 0.18  |
| The advantages of Instagram and Facebook are not over competitors | 2.8    | 0.10   | 0.28  |
| Total                                     | 1.00   |        | 1.32  |
Based on the data from the calculation of the EFE matrix analysis, it is known that the most influential opportunity by Aulia Sari Bandung is about consumer satisfaction with processed seaweed products that are marketed online with a score of 0.44. Consumer satisfaction with every purchase of processed seaweed products online using Whatsapp, Go-Food, Instagram, or Facebook is an opportunity that must be exploited by Aulia Sari Bandung to always produce their products well and sell them with better service too. Meanwhile, the smallest score of threats faced is the better use of online media from the competitors, with a score of 0.16. UMKM Aulia Sari Bandung has only utilized online media in the form of Whatsapp, Go-Food, Facebook, and Instagram in the online marketing of its products, while other businesses have used a more diverse marketplace. Based on the results obtained from the analysis of the internal and external environment of Aulia Sari Bandung, the total score of each factor was obtained with the SWOT diagram as follows.

Based on the results from the analysis of the internal and external environment of Aulia Sari Bandung, the total score of each factor was obtained with the SWOT diagram as follows.

Based on the SWOT diagram of Aulia Sari Bandung, it is known that the X-axis is an internal score with a value of 0.37, while the Y-axis is an external factor with a score of 0.1. If a straight line is drawn from the two axes, it is obtained that the coordinates of Aulia Sari Bandung are at position X, Y = 0.37; 0.10, which means that it is in quadrant I. Marketing strategy in quadrant I is an aggressive strategy, which means that Aulia Sari Bandung has opportunities and strengths so they can take advantage of existing opportunities such as consumers who like processed seaweed products, people realize the importance of the nutritional value of seaweed, consumer satisfaction with processed products, develops if its management is improved, and receives support and assistance from the government in the form of goods or in physical form. This situation is considered beneficial for Aulia Sari Bandung in e-commerce based marketing because they can take advantage of all their strengths to take full advantage of every opportunity.

Based on the analysis of internal and external factors that have been carried out, several alternative strategies can be formulated based on the SWOT matrix analysis. The results of the SWOT analysis of the e-commerce based marketing of processed seaweed products for
Aulia Sari Bandung can be seen in Table 7, as follows.

The selection of alternative strategies in this study was carried out using QSPM analysis which is a matrix used to select strategic planning by quantifying the assessment of each strategy that has been made. The most appropriate alternative strategy will be obtained based on the highest value obtained from each strategy. The results of the QSPM analysis based on the calculation of the value of the e-commerce based marketing strategy of Aulia Sari Bandung can be seen in Table 8 as follows.

Based on the results of calculations with QSPM analysis, it is known that the most appropriate alternative strategy that can be implemented in the e-commerce based Aulia Sari Bandung business is to maintain the quality of the products so that people are increasingly popular with them as consumers. The quality of various products that have been maintained since the first marketing of the product is expected to increase consumer interest in processed seaweed products. The increasing public interest in processed seaweed products is also expected to increase product sales so that they can get a bigger income.

Table 7. SWOT matrix of aulia sari bandung

| Strength (S) | Weakness (W) |
|--------------|-------------|
| **Internal Factors** | 1. Comfoting online services with Whatsapp and Gofood | 1. Promotion in e-commerce media is rarely updated |
| | 2. Ease of buying products online via Whatsapp and GoFood | 2. Marketing on Facebook and Instagram is diminishing |
| | 3. Guaranteed product quality | 3. Products are not always available |
| | 4. Affordable prices | 4. Limited capital |
| | 5. Have a fixed seaweed producer | 5. Business management is not well controlled |
| **External Factors** | 1. Consumers like processed seaweed products | 1. Increase promotion and sales through Instagram and Facebook |
| | 2. Public awareness of the nutritional value of seaweed | 2. Cooperate with the government to maximize the physical support obtained in overcoming limited capital |
| | 3. Consumer satisfaction of the products | 3. Prepare for better management to increase the quantity of production |
| | 4. Purchases via Instagram and Facebook are still in high demand | |
| | 5. Support and assistance from the government in physical form | |

| Opportunities (O) | SO Strategy | WO Strategy |
|-------------------|-------------|-------------|
| 1. Consumers like processed seaweed products | 1. Maintain production quality | 1. Maintain production quality |
| 2. Public awareness of the nutritional value of seaweed | 2. Improve and facilitate services using Whatsapp and Go-Food | |
| 3. Consumer satisfaction of the products | 3. Improve product quality without increasing prices by utilizing physical assistance from the government as a means of production | |
| 4. Purchases via Instagram and Facebook are still in high demand | | |
| 5. Support and assistance from the government in physical form | | |

| Threats (T) | ST Strategy | WT Strategy |
|-------------|-------------|-------------|
| 1. Competitor promotions are more attractive | 1. Maintain service and easy access to purchases via Whatsapp and Go-Food | 1. Improve business management in production activities to deal with product marketing developments |
| 2. Competitors take better advantage of e-commerce marketing | 2. Improve product quality at a fixed price so that consumers do not switch to other products | 2. Improve product promotion and marketing through online marketing media |
| 3. Competitors have a broader relationship | 3. Maintain marketing from Whatsapp and Go-Food to get maximum profit | 3. Look for a wider market |
| 4. The development of other product innovations | | |
| 5. The advantages of Instagram and Facebook are not over competitors | | |
Table 8. QSPM matrix of aulia sari bandung

| Strategy                                         | Score | Rank |
|-------------------------------------------------|-------|------|
| Maintain production quality                      | 6.28  | III  |
| Improve and facilitate services using Whatsapp and Go-Food | 6.36  | II   |
| Increase promotion and sales through Instagram and Facebook | 6.67  | I    |
| Maintain marketing from Whatsapp and Go-Food to get maximum profit | 6.27  | IV   |
| Improve product promotion and marketing through online marketing media | 6.19  | V    |

4. CONCLUSION

Based on the research that has been done, it is known that Aulia Sari Bandung has been efficient in running its e-commerce based business. The results of the analysis of alternative marketing strategies show that Aulia Sari Bandung is in quadrant I. The strategy that can be carried out in quadrant 1 is by supporting aggressive strategies, meaning that Aulia Sari Bandung can take advantage of the opportunities they have. Based on the meaning of the strategy carried out, the alternative strategy that has the greatest value and is considered the most appropriate to be implemented is by maintaining the quality of production so that people will increasingly like processed seaweed products.

CONSENT

As per international standard or university standard, Participants’ written consent has been collected and preserved by the authors.

ACKNOWLEDGEMENTS

Gratitude goes to Aulia Sari Bandung and its customers and lecturers as supervisors and reviewers from the Faculty of Fisheries and Marine Sciences, Padjadjaran University who have contributed and helped carry out this research.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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