Canvas Business Model and Blue Ocean Strategy for the Development of Rengginang Lorjuk Based on Quality Function Deployment

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Abstract

Rengginang Lorjuk is a Madura snack product that has been around for several years and has a role in the economy, especially in Sumenep Regency. So far, rengginang lorjuk has been sold in raw form, with simple packaging, so it is necessary to develop products to increase their superiority and competitiveness, considering the increasing number of similar products outside Madura that have turned rengginang into ready-to-consume products with various forms and attractive packaging. Therefore this study designed a business strategy to increase business competitiveness, especially in the field of product development. The analysis used in product development is Quality Function Deployment (QFD), which will then be integrated with the ERRC Grid (Eliminate-Reduce-Raise-Create). The data collected in this study used two techniques, namely interviews to validate several factors that influence consumer decisions and satisfaction with rengginang lorjuk food products in general and specifically. The second technique is to use a questionnaire technique to 150 respondents. There are 17 indicators used to measure consumer satisfaction, and 8 of them are considered to have exceeded consumer expectations and the rest have not met them. In this study the contribution value is used to describe indicators that should be a concern and priority for SMEs so that improvement efforts can be made. Based on the ranking results on priority indicators, IKM can determine a strategy using the ERRC Grid approach, in order to increase the competitive advantage of the products it produces.

Keywords: SMEs, QFD, contribution value, ERRC Grid

1. Introduction

Product uniqueness by optimizing resources will increase product value and the most important part of implementing SMEs innovation. Innovation itself is a strategy for dealing with challenges and problems in order to survive in the midst of increasingly fierce and complex business

competition (Prasetyowati, 2013). Apart from being based on the capabilities and resources owned by SMEs, customer satisfaction is also a factor that must be considered in designing an innovation. The basic nature of consumers is the need to get products with good quality but at low prices (Prasetyowati, 2020). Increasing consumer profits is ultimately expected to increase the profits of these SMEs.

So far, Rengginang Lorjuk SMEs lack the ability to innovate, so the products produced are not varied and have not reached all market segments that should be optimized. Rengginang lorjuk is generally still sold raw, so it is not ready for consumption. By converting rengginang lorjuk products into ready-to-consume processed foods with shapes and designs that follow existing product trends, it is hoped that the added value of rengginang lorjuk will increase and be in line with consumer desires, in order to reach all market segments and add the number of new consumers to this business.

Increasing competitiveness can be started by referring to consumer needs and satisfaction with similar products. The level of consumer needs and satisfaction for planning and developing highly competitive products can be analyzed using the Quality Function Deployment (QFD) method (Wu et al., 2021). QFD is a tool that can identify the voice of consumers and serves as a requirement for businesses that are owned (Lam and Dai, 2015). In addition, QFD is known to be effective in identifying consumer needs, expanding market share, and developing strategies to achieve consumer satisfaction according to these consumer needs (Yeh et al, 2013; Shen et al., 2022; Fazeli et al., 2022). With QFD, several things that must be done by a business are identified to increase market share (Vinodh, et al., 2011; Babar et al., 2021).

Thus QFD is useful for alleviating some of the obstacles encountered in developing products for various functions, product time cycles can be reduced, changing and improving the culture in business, and playing an important role in increasing business productivity. According to Garver (2012), the purpose of QFD is to identify consumer needs, prioritize these consumer needs, design optimal quality through adding product value based on the level of customer satisfaction, develop strategies, and create product competitive advantage by involving all aspects of the product or service optimally.

Blue Ocean Strategy (BOS) is one of the tools of strategic management that assists management in determining the steps in carrying out its business processes. The occupied market space is described as a blue ocean, where the company becomes a single business actor without competitors having the same product or service attributes. Therefore, the alternative proposed in the BOS concept is an approach based on differences from competitors. and use it to achieve market success. One of the BOS tools, namely the 4-step framework (Four Action Framework), namely the ERRC Grid (Eliminate-Reduce-Raise-Create), defines BOS into four main principles in creating blue ocean space, including removing factors that do not create value for consumers, reducing factors that are below industry standards, increasing factors that are above industry standards so that competitors do not have to compromise, and creating factors that are a new source of value that the industry has never offered (Tu, 2014).

To strengthen the strategy development carried out, this research explores the ERRC Grid. The EERC Grid or called The Four Action Framework, is used to reconstruct the elements of buyer

value in order to construct a new value curve (Kim and Mauborgne, 2005; Lohtander et al., 2017) and is one of the Blue Ocean Strategy (BOS) tools. ERRC Grid provides a new alternative for businesses to get out of red ocean competition through several approaches that prioritize fundamental differences in products or services with competitors who have products or services of the same type, so that businesses are able to create new market space for achieve market success.

Based on this, this study uses the basis of several main priorities of rengginang lorjuk SMEs from QFD analysis through calculating the value of the contribution of indicators that affect customer satisfaction, in an effort to meet consumer needs, which then integrates them in the ERRC Grid framework. The purpose of this study is to integrate QFD with ERRC Grid analysis to determine critical paths that are expected to produce a comprehensive business strategy where similar research has never been done before. It is hoped that the strategic path that has been prepared will be able to increase the competitiveness and performance of SMEs, especially those engaged in the food processing sector.

2. Method

2.1 Data

There are nine indicators that influence product quality (Nasution, 2015), including market, money, management, human, motivation, materials, machine and mechanization, modern information methods, and mounting product requirements. Several factors affect the quality of food including color, appearance, portion, shape, temperature, texture, aroma, maturity level and taste (Jones, 2000). While the factors that influence food business competition (Prasetyowati, 2013) are product prices, product variety, brand image, product quality, attractive service programs, speed of service, friendliness, comfort, and strategic location.

Based on the identification and interviews with UKM players on the factors that influence the quality and the factors that affect the competition in the rengginang lorjuk business, the quality indicators and the level of importance of the product are determined as the delicious taste of the product produced, the variety of flavors offered, the texture of the product (crispness of the product), the shape attractive product, does not use chemicals, price conformity with taste, variance in product content weight (package size), packaging materials used, packaging design used, information on product composition, information on product expiration, information on product distribution permits, presence halal labels, competitive pricing, affordable price offerings, ease of obtaining products, as well as response and service to customers.

This study used three questionnaires, namely the first questionnaire to determine the level of customer satisfaction with the new rengginang product ready for consumption, the second questionnaire was used to measure the level of customer expectations obtained from the level of customer satisfaction with the rengginang product as a comparison product. The third questionnaire is used to determine the level of customer interest as a respondent for rengginang lorjuk products.

2.2 Relationship Matrix

The results of the questionnaire are used to calculate the value of the contribution of each indicator that affects the level of customer interest, with the first step is to determine the value of the relationship between technical specifications and technical requirements in a relationship matrix. Technical requirements are a structured list of indicators of customer satisfaction (requirements) for the product being assessed. Technical specifications are a structured list of product technical responses that meet customer requirements.

2.3 Planning Matrix

Planning Matrix is determined by taking into account several aspects, namely the level of customer interest obtained from the results of the questionnaire on respondents. The next aspect that is part of the planning matrix is customer satisfaction performance, where the value of customer satisfaction performance is obtained by calculating the average value of each customer satisfaction indicator from the results of the first satisfaction questionnaire. The next part is the goal value which shows the size of the final goal to be achieved by the company to improve the quality of its products by fulfilling customer satisfaction. Goals can be measured with a scale of 1 (very unsatisfactory), 2 (unsatisfactory), 3 (more satisfying), and 4 (very satisfying). Then the improvement ratio is calculated by dividing the goal value by the value of customer satisfaction with the product. The improvement ratio value is used to determine the company's needs in improving and enhancing its business performance in the product development process.

Determination of sales points that are used to determine product indicators that must be repaired to increase the competitiveness of these products. The sales point values include: 1 (no sales point); 1.2 (sales point is); 1.5 (strong sales point). To find out how much the company takes corrective action on the product, the calculation of the raw weight value is used. Raw weight calculation is by multiplying importance to customer, improvement ratio and sales point.

Meanwhile, the normalized raw weight is calculated by the formula:

$$Normalized\ raw\ weight = \frac{Raw\ weight}{Total\ raw\ weight} \tag{1}$$

The next stage is determining the contribution, namely the priority value for all efforts to fulfill customer decisions that will be given by the company. The value of the contribution is obtained from the multiplication of the relationship between the technical characteristics and the normalized raw weight in one technical characteristic variable. In addition, a ranking of technical characteristics will be carried out based on the contribution normalization value.

2.4 Identify the ERRC Grid

This section integrates the results of the QFD analysis using contribution values into the BOS ERRC Grid sheet based on the importance value of the attribute customer needs on the product satisfaction indicators obtained earlier. Several competitive factors that are still stuck with red ocean competition are identified. The results of the ERRC Grid sheet then become the basis for running the Rengginang Lorjuk business.

3. Results and Discussion

3.1 Product Development Indicators

In the development of Rengginang Lorjuk products, the indicators that influence the desires and interests of consumers are as follows:

1. product attribute are: 1.1) delicious taste; 1.2) variety of flavors; 1.3) product texture; 1.4) product shape; and 1.5) no chemicals
2. packaging attributes are: 2.1) product weight variance; 2.2) packaging material; 2.3) packaging design; 2.4) composition information; 2.5) product expiration information; 2.6) product distribution permit information; and 2.7) halal label
3. product price are: 3.1) price match with taste; 3.2) competitive price; and 3.3) an affordable price
4. marketing quality are: 4.1) ease of getting products; and 4.2) response to customers.

3.2 Validity and Reliability Test

To measure the legitimacy or validity of a questionnaire, a validity test is needed. If the Corrected Item Total Corrected column (r-count) shows a number greater than the r table, then a questionnaire is declared valid. Conversely, if the calculated r value for each question item has a negative value or is smaller than the r-table value, it can be said to be invalid. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. The following are the results of the validity test process using SPSS software. In table 1, it can be seen that the value shown in the Corrected Item Total Correlation column for each variable is above the r-table value, with a total n of 180, with a significant level of 0.05, which is equal to 0.146.

Furthermore, reliability testing was carried out, namely a tool to measure the consistency of the respondents. A questionnaire is said to be reliable if the respondents' answers are consistent from time to time. It can be said that reliability if the value of cronbach's alpha > 0.6, the higher the value, the higher the reliability of a respondent's answer. The reliability test on the results of the questionnaire was carried out on each group of product attributes, namely 45 respondents. Reliability testing resulted that the four attributes were declared reliable or consistent in answering each given question item.

Table 1. Validity Test Results

Indicator		Code	r-count	r-table	Status
Product attribute	delicious taste	1.1	0,435	0,138	valid
	variety of flavors	1.2	0,307	0,138	valid
	product texture	1.3	0,358	0,138	valid
	product shape	1.4	0,271	0,138	valid
	no chemicals	1.5	0,350	0,138	valid
Packaging attributes	product weight variance	2.1	0,316	0,138	valid
	packaging material	2.2	0,279	0,138	valid
	packaging design	2.3	0,567	0,138	valid
	composition information	2.4	0,171	0,138	valid
	product expiration information	2.5	0,334	0,138	valid
	product distribution permit information	2.6	0,232	0,138	valid
	halal label	2.7	0,454	0,138	valid
Product price	price match with taste	3.1	0,301	0,138	valid
	competitive price	3.2	0,268	0,138	valid
	an affordable price	3.3	0,297	0,138	valid
Marketing quality	ease of getting products	4.1	0,301	0,138	valid
	response to customers	4.2	0,268	0,138	valid

3.3 Quality Function Deployment (QFD)
In the QFD method, the first step is to determine the planning matrix by taking into account several aspects, namely the level of importance to the customer obtained from the results of the questionnaire to the respondents, as explained in the previous section. The results of determining the planning matrix can be seen in Table 2.

Table 2. Planning Matrix of Rengginang Lorjuk product

Indikator	Customer Satisfaction Performance	Importance to customer	Goal	Improvement Ratio	Sales Point	Raw Weight	Normalized Raw Weight
1.1	4,32	4,64	4	0,92	1,5	6,40	0,08
1.2	3,78	3,96	4	1,06	1,2	5,04	0,06
1.3	4,41	4,50	4	0,91	1,2	4,91	0,06
1.4	3,95	3,47	3	0,76	1	2,64	0,03
1.5	3,49	4,08	4	1,13	1	4,61	0,06
2.1	3,94	4,16	4	1,15	1,2	5,74	0,07
2.2	4,01	3,98	3	0,75	1,2	3,58	0,04
2.3	3,94	4,16	4	1,01	1,5	6,30	0,08
2.4	2,92	3,37	2	0,68	1,2	2,75	0,03
2.5	4,48	4,27	4	0,92	1,2	4,71	0,06
2.6	3,52	3,84	3	0,89	1,2	4,10	0,05
2.7	4,16	4,28	4	0,96	1,2	4,93	0,06
3.1	4,48	4,59	4	0,89	1,5	6,13	0,08
3.2	4,64	4,72	3	0,65	1,5	4,60	0,06
3.3	4,34	4,48	4	0,92	1,2	4,95	0,06
4.1	4,05	4,13	4	0,99	1,5	6,13	0,08
4.2	3,90	4,04	3	0,77	1,2	3,73	0,05

3.4 Technical Character

Technical requirements are identified according to the wishes and needs of the customer. This technical character is obtained by describing the components that make up the product and other things related to the product that can be measured. These technical characteristics, are directly related to customer perceptions. From each characteristic, the best target or improvement that can be achieved by SMEs is determined for the product of each technical characteristic, which includes: 1) quality of raw material; 2) quality of supporting material; 3) content of supporting material; 4) quality of packaging material; 5) packaging design; 6) production equipment; 7) distribution reach; 8) customer service; 9) price.

3.5 Technical Importance

Value This assessment uses an ordinal scale, which is a level of data measurement in the form of a ranking sequence of data which gives the data meaning that one object has more, the same, less, or unequal number of attributes compared to several other objects. The values used to describe the four relationships are as follows: for a value of 9 means a strong relationship; for a value of 3 means a moderate relationship; for a value of 1 means a weak relationship; and for a value of 0 means there is no relationship. The next stage is to determine the value of technical importance, namely the priority value for all efforts to fulfill customer decisions that will be

given by the company. The value of technical importance is obtained from the multiplication of the relationship between technical characteristics and normalized raw weight in one technical characteristic variable. In addition, a ranking of technical characteristics will be carried out based on the contribution normalization value.

Tabel 3. Contribution Value

Karakter Teknis	Technical interests	Normalization of technical interests	Rank
Quality of raw material	1,44	0,10	5
Quality of supporting material	1,70	0,11	4
Content of supporting material	0,54	0,04	8
Quality of packaging material	0,44	0,03	9
Packaging design	2,59	0,17	2
Production equipment	0,72	0,05	7
Distribution reach	0,72	0,05	6
Customer service	4,95	0,33	1
Price	1,80	0,12	3

Based on Table 3, it can be seen that customer service is the main factor that has the highest contribution value compared to the other 8 indicators. This shows that SMEs must prioritize the interests of customers, so that customers like product services and have no desire to try other similar products. In addition, packaging design is also a factor that attracts the desire of customers to buy products. Product packaging design is an important consideration in buying a product besides the price that must be competitive with existing competitors.

3.6 ERRC Grid
The final step is to identify a new value curve. This section is to integrate the results of the QFD analysis on the ERRC Grid, based on the importance value of the attributes of customer needs against the product satisfaction indicators obtained previously. Several competitive factors that are still stuck with red ocean competition are identified. In addition to paying attention to the competitive position, the results of calculating the contribution value in table 3 also form the basis for determining the ERRC Grip. In terms of contribution value, it can be seen that the technical response ranking used as the basis for improvement and that must be considered by Rengginang Lorjuk SMEs in order is customer service, packaging design, price, quality of supporting materials, quality of raw materials, distribution range, production equipment, content of supporting materials, quality of packaging materials. The strategic steps that can be taken to move from red ocean conditions to blue oceans with the ERRC (Eliminate, Reduce, Raise and Create) scheme are explained in Figure 1.
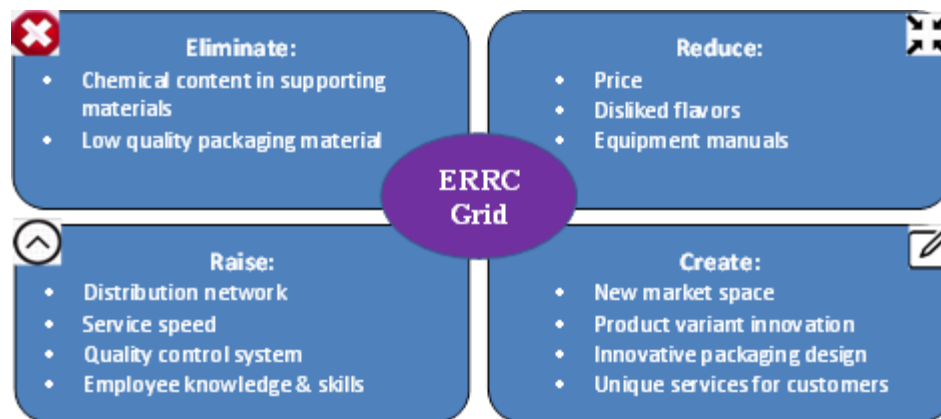
Figure 1. ERRC on SMEs business of Rengginang Lorjuk

4. Conclusion

Based on the results of data testing, it is known that of the 17 indicators of customer satisfaction, only 7 indicators exceed customer expectations, while 10 other indicators are below customer expectations. In the planning matrix, 17 satisfaction indicators as customer requirements were identified into 8 technical responses and resulted in product quality improvements that must be considered and prioritized for SMEs of Rengginang Lorjuk which were translated into contribution values. The 8 criteria are raw material quality, supporting material quality, supporting material content, packaging material quality, packaging design, production equipment, distribution reach, customer service, and price.

By calculating the contribution value, the results of BOS analysis with ERRC Grip include: Eliminate: chemical content in low-quality supporting materials and packaging materials; Reduce: product prices, unpopular flavors, and manual equipment; Raise: distribution network, speed of service, quality control system, and employee knowledge & skills; Create: new market space, innovative product variants, innovative packaging designs, and unique services for customers.

This research has implications that market reach, packaging design, quality of supporting materials, and price are the highest priorities that must be considered by SMEs in increasing customer satisfaction. In addition, this research also found that the QFD method can be used as a basis for BOS analysis which is beneficial for IKM processed food products to be able to manage an innovative and highly competitive business. The limitations of this study are that QFD analysis still involves a lot of qualitative parameters, so suggestions for further research are the use of quantitative parameters, for example with fuzzy algorithms in them. In addition, BOS strategic tools such as the business strategy canvas and other techniques can be used to determine a systematic and measurable business strategy. The influence of each technical response can be explored for further research.

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