

Product Development In “Monity Jaya Bersama” Smes Using Quality Function Development (QFD) Method

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Abstract

South Sulawesi Province has a relatively large number of SMEs, one of which is the Monity Jaya Bersama UKM engaged in Beverage products which have the potential to develop their products. The method used in this study is the Quality Function Development (QFD) method. The purpose of this research is to get the voice of the customer, find out the attributes that need to be improved in order to increase sales and get priority on technical response actions. By using the QFD method, the next process is a House of Quality (HOQ) to describe the relationship between consumer needs and technical response. For the overall analysis using the HOQ, 5 priority technical responses were obtained, namely ensuring the taste of drinks according to standards, increasing package sizes, determining packaging designs, quality and safety of raw materials and product innovation. So the attribute that has the highest value and needs to be improved is "guarantees the taste of the drink according to the standard." With a value of "56.22" with this result, the UKM monity jaya together to make this attribute even more enhanced.

Keyword: ahp, sarabba ,ukm, QFD.

INTRODUCTION

Indonesia is a country that has abundant human resources and natural resources, many government and community groups in building a business can help improve the economy including small and medium enterprises. To support the economy of SME countries is one of the supporting factors. Where according to Hapsari et al., 2014 "In economic development in Indonesia, small and medium enterprises are always described as a sector that has an important

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role, because most of the population has low education and lives in small and medium business activities in both the traditional and modern sectors". SMEs are one sector that has only been slightly affected by the global crisis. (Praptiwi and Senda, 2010) It is proven that SMEs can increase market competitiveness and stability of the economic system in Indonesia.

The development of SMEs in Indonesia is one of the priorities in national economic development (Wulansari et al., 2017). At this time, SMEs have a very important role in the progress of the economy in Indonesia where SMEs have quite good capabilities. The existence of competition in the business world makes every company required to be able to analyze and be able to understand what consumers want that is happening in the market. In SMEs, creativity and innovation are needed in its development, therefore the right strategy is needed.

UKM Monity Jaya Bersama is one of the SMEs in the city of Makassar which produces a type of drink "instant ginger". Where at this time, ginger Sukma has been circulating in various cities in Sumatra, Java, Kalimantan, and Sulawesi. In this study, it will examine product development from SMEs with a quality function development approach, to determine the specifications of consumer needs and desires. The main benefits when companies use QFD are to reduce costs, increase revenue and reduce production time. The QFD process starts from listening to a customer and then continues through 4 main activities, namely (Gaspersz, 2001).

1. Product planning
2. Product design (product design)
3. Process planning
4. Planning process control (process planning control)

The application of QFD in product development has carried out a number of studies including bottled water (Tutuhatunewa, 2010). QFD was introduced by Yoki Akao, Professor of Management Engineering from Tagawa University, who developed the practice and experience of industries in Japan, in 1992 by the Mitsubishi company and developed in various ways by Toyota and other companies (Ulrich, 2001).

METHOD

The QFD method completion algorithm is as follows:

a) Customer requirements analysis

Customer needs or customer requirements are customer opinions about the characteristics required or needed by customers in a product. This analysis contains the requirements or needs of customers regarding the desires or things that customers pay attention to in assessing a product. In preparing the WHATs matrix list, a number of customer



needs were selected by taking into account the service satisfaction gap (GAP). If there is a negative value GAP on the characteristic attribute of the product in question then the attribute is included in the customer needs. If the service attribute has a positive or zero value GAP, then there are no problems with the shape of the product characteristics then arranged using a Likert scale with 5 categories (Buchari, A. 2007)

b) Importance level analysis

This analysis is a follow-up of Customer Requirements which aims to determine the level of customer interest in the service of a product. From the results of the questionnaire given to the respondents, then the data is processed with the SPSS program to take the mean regarding the level of importance of these attributes (Kotler, at al., 2007).

c) Analysis of Technical Requirements

This analysis aims to find out what SMEs will do, to customer requests through interviews.

d) Technical Requirements Score analysis

This analysis aims to find out the most important Technical Requirements and require more attention to be followed up. the technical requirements score is obtained by giving a score of 9 = strong, 3 = moderate, and 1 = weak in the relationship column between Customer Requirements and technical (Aziz, N.F. at al, 2016.).

Requirements so that the most important Technicak Requirements are known and need attention to be followed up. For each element in the customer needs matrix a solution or technical engineering will be sought. But it is necessary to know how far the technical descriptor is in handling and controlling consumer needs

e) Analysis of Customer Requirements Score

This analysis aims to determine the attributes that are considered important for product planning and change. The higher the customer requirements score, the more important the attribute is and the more priority it needs for further improvement. Customer Requirements Score can be calculated by looking at the total score from the Technical Requirements Score x the level of importance on each attribute.





Data collection

The data collection technique used in this study is as follows: Field Research, including:

a. Interview

Obtain information by asking directly to the respondent. Go straight to employees in this case the data obtained by conducting interviews with the leadership, head of department, and several employees to get the desired information.

b. Surveys

The method of collecting primary data by asking questions to individual respondents. The required survey and interview data are: The Voice of Customer is used to symbolize the process of finding out what's real what consumers want or expect about a product (Griffin, A. & J.R Hauser et al. 1993).

c. Brainstorming

Brainstorming is a very useful technique for developing deep creative solutions encounter a problem (Suprijanto. 2009).

d. Group discussions

It is a form of research to discuss certain topics in depth (Sutopo, HB. 2006).

Data processing

a. Quality Function Deployment (QFD)

Uses a matrix format to capture a number of issues that are critical to the process planning in developing a quality design with the aim of meeting and satisfy consumer desires.

b. House of Quality (HoQ)

House of Quality or House of Quality Matrix which is the most well known and widely used in the form of this method. Contains the form of customer needs, based on marketing research and benchmarking data, in the exact amount of engineering objectives that must be met by the design new product in an effort to convert voice of customer directly to technical characteristics or technical specifications of a product (goods or services) produced. Inside the House of Quality:

RESULTS AND DISCUSSION

1. Valid and Reliable Product Satisfaction Attributes

a) Validity Test

Validity test is carried out by measuring the correlation between items with a variable total score. The way to measure construct validity is by looking for a correlation between each



question and the total score, in testing the data invalid ones were omitted because they do not represent the relative desires of customers.

Tabel 1. Uji Validitas

No	Service Attributes	r count	r table	Information
1	Product Texture	0,205	0,3673	invalid
2	Ease of Getting Products	0,052	0,3673	invalid
3	Selected from herbal ingredients	0,148	0,3673	invalid
4	Selected from herbal ingredients	0,448	0,3673	valid
5	Easy packaging below	0,260	0,3673	invalid
6	Packaging durability is not easy	0,474	0,3673	valid
7	contaminated with chemicals	0,253	0,3673	invalid
8	Ease of buying online	0,684	0,3673	valid
9	Ease of buying online because it is already available on the Shopee and Tokopedia platforms	0,258	0,3673	invalid
10	The price of the product is relatively cheap	0,232	0,3673	invalid

b) Reliability Test

Reliability is a measuring tool for measuring a questionnaire which is an indicator of the variable. A questionnaire is said to be reliable or reliable if one's answers to statements are consistent or stable from time to time. A variable is declared reliable if it gives a Cronbach Alpha value > 0.60 which according to the criteria of Irin Ramdhani and Nurul (Kumalasari ,2010) in the final project Integration of the Servqual and Kano Model into QFD as an effort to increase customer satisfaction can be said to be reliable. From the results of calculations using SPSS software at a valid value, the Cronbach's alpha value produced is 0.643. the value

2. HOQ Matrix Customer Requirements to Technical Requirements

a) Degree of Relative Importance of Product Attribute Items



The degree of importance is used to position each customer's desire or need in the form of quantitative data with the aim of prioritizing customer desires. The weighting starts from a very important attribute with a value of 5 to a very unimportant attribute with a value of 1.

b) Product Satisfaction Attribute Performance

The performance attribute of SME Monity Jaya Bersama product satisfaction in terms of the customer is to determine the size of the target value by the management. Product satisfaction attributes that are considered very unimportant are given a value of 1 and very important attributes are given a value of 5.

c) Competitive Satisfaction

Contains a comparison of the product under study with its competitors according to the value of the degree of satisfaction obtained from the results of distributing questionnaires to 27 respondents to competitors. In this study, the original Sukma ginger product from UKM Monity Jaya Bersama was compared to the Sarabba Cika product.

c) Technical Response

Technical response is a form of translation of customer wishes into technical language that can be measured to determine targets to be achieved and to determine whether these targets will be increased or decreased. Technical response was obtained by interviewing the SMEs.

d) The interaction between product satisfaction and technical response

This stage is intended to determine the closeness of the relationship between each component of the Technical parameters in fulfilling customer desires, in this case product satisfaction, the three types of relationships used.

d) The interaction between product satisfaction and technical response

This stage is intended to determine the closeness of the relationship between each component of the Technical parameters in fulfilling customer desires, in this case product satisfaction, the three types of relationships used are: strong relationship level with a value of 9, moderate relationship level with a value of 3, the level of weak relationship with a value of 1.

e) Product Satisfaction Attribute Interaction Matrix Value with Technical Response Interaction matrix is connecting between product satisfaction attributes

which are considered important by the customer with the technical parameters that have been compiled. Weak and strong interactions that occur are influenced by the level of closeness between service attributes and technical parameters. The interactions that occur are then expressed in numbers and symbols.



Table 2. Interaction of Process Requirements with Quality procedures in the form of Numbers

Table 3. Interaction of Process Requirements and Quality procedures in the form of symbols

9 = Strong relationship level 3 = currently relationship level 1 = Weak relationship level	Guarantee the taste of drinks according to standards	Addition of packaging sizes	Determination of packaging design	Quality and safety of raw materials	Product innovation
Selected from herbal ingredients	9			1	
Attractive packaging design		3	9		1
Ready to drink product	3		1	3	9

○ = Strong relationship level ⊙ = currently relationship level △ = Weak relationship level	Guarantee the taste of drinks according to standards	Addition of packaging sizes	Determination of packaging design	Quality and safety of raw materials	Product innovation
Selected from herbal ingredients	○			△	
Attractive packaging design		⊙	○		△
Ready to drink product	⊙		△	⊙	○

The complete technical parameter absolute values can be seen in the following table 3:

Table 4. Absolute Value of Engineering Parameters

No	Product Satisfaction Attributes	Value
1	Guarantee the Taste of Beverages According to Standards	56,22
2	Increase in package size	13,56
3	Packaging Design Determination	45,2
4	Quality And Safety Of Raw Materials	18,28
5	Product innovation	45,2
	Amount	178,46

The interaction between technical parameters can determine which technical parameters are the priority to be developed first. The development priorities of the Technical parameters can be seen in the following table 5.

Table 5. Priority for Developing Technical Parameters

No	Product Satisfaction Attributes	Value	Priorities
1	Guarantee the taste of drinks according to standards	56,22	1
2	Increase in package size	13,56	5
3	Packaging Design Determination	45,2	3
4	Quality And Safety Of Raw Materials	18,28	4
5	Product innovation	45,2	2
	Total	178,46	

This House of Quality matrix explains what the customer's needs or expectations are and how to fulfill them. This matrix is made based on combining data processing from determining degrees the importance of product satisfaction attributes to the determination of priority development of technical parameters. The input matrix is 12 attributes that are desired by the customer and the output matrix is 6 technical parameters.

In order for the results of the QFD method to be perfect and more specific, the results of this HOQ matrix will be processed again at the next stage of the HOQ matrix to produce output that is truly specific, operational, technical and clear. The output of this HOQ (technical



parameter) will be the input for the next HOQ matrix and the absolute value of the technical parameter on the product satisfaction attribute will be the weight of the technical parameter.

CONCLUSION

From the results of research that has been done on the AHP method followed by the QFD method, it can be concluded that: QFD The priority of technical development on product satisfaction is the result of guaranteeing the taste of the drink according to standards with a weight value of 56.22. The procedure for improving the quality of the HOQ matrix is based on priority, as follows:

- a. Guarantee the taste of drinks according to standards
- b. Product innovation
- c. Packaging design decisions
- d. Quality and safety of raw materials
- e. Increase in package size

From the results of a comparison with competing products, namely sarabba cika, UKM Monity Jaya Bersama on the Sukma Jahe Original product, it is superior to the three selected attributes. Where the weight of the three competitor attributes is below the value of the original sarabba product.

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