MEASUREMENT MODEL FOR COMPETITIVE ADVANTAGE OF PRODUCT

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PREFACE

Praise the presence of Allah SWT for its abundance of grace and grace so that the monograph of COMPETITIVE ADVANTAGE MEASUREMENT has been completed. This monograph is the result of research on measuring the competitive advantage of products both in small and medium enterprises and manufacturing in order to increase product competitiveness in the global market. Thank you to all parties who have helped in the completion of this monograph. We realize that there are still deficiencies in this monograph that criticism and suggestions for the improvement of this book are desirable. Hopefully this book can provide benefits for further research and for all those who need it.

Sidoarjo, September 2019

Author,

TABLE OF CONTENTS

CHAPTER I
SMALL MEDIUM ENTERPRISES

The intense business competition in all business sectors is inevitable, both from the manufacturing and service industries in small and large scale. In a business environment with an increasingly competitive level of competition, every company is required to retain management customers. Companies are required to always be creative and innovate in order to survive, so in developing products, producers must determine the quality that will place the product's position in the market. The quality of the products offered is expected to be superior and have more added value than competing products [1]. Thus the product will always have an appeal for consumers.

Indonesia has experienced an economic crisis that caused the collapse of the national economy. Many large-scale businesses in various sectors including industry, trade and services stagnated and even stopped their activities in 1998. However, Small and Medium Enterprises (SMEs) can survive and recover the economy amid the slump due to the monetary crisis in various sectors the economy. UKM activity is one of the business fields that can develop and is consistent in the national economy. UKM is a good place for productive employment creation. SMEs are labor-intensive businesses, do not require certain requirements such as the level of education, expertise (skills) of workers, and the use of relatively little business capital and the technology used tends to be simple. SMEs still play an important role in improving the Indonesian economy, both in terms of the number of businesses, in terms of job creation, and in terms of national economic growth as measured by gross domestic product [2]. SMEs are an important part of a country's or regional economy.

Small and Medium Enterprises (SMEs) have a large role in national economic development. Besides playing a role in the growth of the national economy and also in absorbing labor, SMEs also play a role in the distribution of development results and are a supporting factor for the growing growth of the national economy. Attention to the development of the Small and Medium Enterprises (SME) sector gives its own meaning to efforts to reduce a country's poverty rate. The growth and development of the SME sector is often interpreted as one indicator of the success of development, especially for countries that have low per capita income.

Various efforts to develop SMEs have been carried out, one of them is by raising and multiplying new people or entrepreneurs in the field of SMEs, so that the village community is given skills in the hope that these skills will become a creative endeavor that will benefit the family and village community economy. In addition, the creative effort can also open up new opportunities and employment for the community. Creative industries are industries that rely on talent, skills and creativity which are the basic elements of each individual. The main elements of the creative industry are creativity, expertise, and talent that have the potential to improve prosperity through offering intellectual creations. In this case the creative economic development model is thought to be very appropriate to be applied in SMEs in Indonesia, especially in big cities. Creative industries in their development in the field shape creative industries in accordance with their sectors. The government began to look at the creative industries as an alternative cogwheel of the economy that will continue to spin. Creative industries include 14 sub-sectors, namely advertising, architecture, art, craft, design, fashion, video, film and photography markets, interactive games, music, performing arts, publishing and printing, computer and software services, television and radio , and research and development. One of the reasons for the development of SMEs based on the creative economy creative industry is the positive impact that will affect social life, business growth, economic improvement, and also have an impact on the image of the region, in the context of developing creative economies in Indonesian cities, creative industries more potential to develop in big cities or cities that are "known". This is also related to the availability of reliable human resources and also the availability of better marketing networks [3]. One of the strategies for developing a creative economy can be done by utilizing city landmarks or social activities such as festivals as venues to introduce regional special products.

The role of SMEs that is so large and significant must continue to be maintained and developed to be able to compete in the era of global competition. Therefore, SMEs need to be developed with the aim of increasing the income of entrepreneurs and overcoming unemployment. The tight competition faced by Indonesian export products including SME products requires strategic steps, both long term and short term. These long-term strategic steps are aimed at developing human resources, technology and business networks globally, while short-term strategic steps include diversifying products, establishing cooperation with governments and large companies, production, strengthening access to information sources and quality improvement [4]. One of the steps that SMEs must take to improve competitiveness and

win competition in trade is to maintain product quality consistently. The quality of a product or service is one of the strategic aspects that need to be considered in developing SMEs in Indonesia. One way that can be done to maintain and improve product quality is by applying product quality standards. The application of standards in SMEs is able to provide substantial benefits both financially and non-financially. The benefits include increasing productivity, decreasing the percentage of production defects, inventory levels, decreasing employee behavior and moral costs, and increasing consumer confidence. The application of standards that are able to provide benefits for consumers is easier for consumers to choose products. Based on these benefits, SMEs are encouraged to apply quality standards in their activities. However, various kinds of obstacles faced by SMEs in applying standards are lack of knowledge, lack of resources, low awareness of entrepreneurs, the burden of certification testing costs that are too expensive, as well as the lack of awareness and concern of the public regarding health, safety and environmental aspects of a product problem [5].

According to its development perspective, SMEs can be classified into 4 (four) groups, namely:

a. Livelihood activities, which are SMEs that are used as employment opportunities to earn a living, are more commonly known as the informal sector. For example street vendors.
b. Micro enterprise, is a SME that has the nature of craftsmen but does not yet have an entrepreneurial nature.
c. Small dynamic enterprise, which is an SME that has an entrepreneurial spirit and is able to accept subcontracting and export jobs
d. Fast moving enterprise, is a UKM that has an entrepreneurial spirit and will transform into a big business.

Implementation of Standardization Standards is the process of planning, formulating, establishing, implementing, enforcing, maintaining, and supervising standards implemented in an orderly manner and in collaboration with all stakeholders. Implementation of standards is done by applying the requirements to goods, services, systems, processes, or personal. The application of standards is carried out voluntarily or can be enforced compulsorily. The application of standards in SMEs has a positive contribution, namely:

a. Help improve the quality of goods and services.
b. Help growth, reduce costs and increase business profits.
c. Make a business have a competitive advantage.

d. Open export markets for products and services.

e. Open doors for new customers and strengthen ongoing business.

f. Helping to compete with large companies.

g. Increase credibility and maintain customer trust.

h. Sharpen business processes and improve efficiency.

i. Strengthen the marketing area.

j. Helps obey the rules

Consumers have many alternatives to meet their needs. Companies are required to be able to formulate and create an appropriate competitive strategy to defeat their rivals in competition. Only companies that have sustainable strategic competitiveness will win in the competition. High product quality is one of the five competitive advantages that can be used to excel in business competition. High product quality can be used as a powerful weapon to win the competition [6]. The product is said to be of quality if it can meet the needs and exceed consumer expectations, as well as meet the quality dimensions in terms of performance, features, reliability, conformance, durability, service ability , aesthetics (aesthetics), and perceived quality. The quality dimension for services can be measured from direct evidence (tangibles), empathy (empathy), reliability (reliability), responsiveness (responsiveness), and guarantee (assurance). The impact caused by high product quality is that the product remains in demand by consumers so that it still exists in the market. If the quality of the product it produces is poor, there will be open or closed reactions from consumers. Consumers will immediately know that the company that produces it is not good too.

CHAPTER II
QUALITY OF PRODUCTS

At present the business world is experiencing very rapid development, this is due to the existence of creative and innovative ideas that are always created by entrepreneurs along with the development of the idea of the concept of exponential development. The role of marketing today is very important as supporting the ability of a business that is cultivated so that the right to continue to grow. Basically, every effort is aimed at making a profit, where the goal is inseparable from marketing activities. Marketing itself must be thought of in advance so that it is appropriate to determine the right strategy and in attracting customers to be targeted as sales targets.

Consumers will provide a separate assessment of the product to be selected before making or deciding on a purchase, therefore producers now need to pay attention to the quality of the products offered to support product sales. "Quality is the overall characteristics and nature of a product or service that depends on its ability to satisfy the needs that are expected by customers" [7]. Quality can be fulfilled when the company can deliver products in accordance with customer expectations and even exceed customer expectations. Companies that offer quality will create good relationships with customers. A good relationship that has been created in the long run will make the company understand the needs that are expected by customers. Things like this that will provide positive benefits for the company. Product quality is the overall characteristic of a product that can meet customer needs in accordance with customer expectations. An explanation of the quality of the products that have been stated above can be stated that if the company can provide or offer quality food products, the company will be able to create customer satisfaction. A customer will feel satisfied usually because of the experience of making a purchase of a product that is consumed or used. Product quality has an important role in influencing customer satisfaction and forming customers to be loyal to the products offered by the company. Customer satisfaction is an expression of a customer's feelings illustrated after comparing what is expected with what is offered by the company. Customer loyalty will arise when customers are satisfied with the quality of the products offered by the company. Loyalty is the loyalty of customers to make repeated purchases of products offered

by the company. Customer loyalty is one important factor in the continuity of the company's development and increase company sales [8].

The meaning of quality is so comprehensive and extensive in the management system Toff l / Quality Contro line, in the concept and operationalisation is described in Quality (Q), Cost (C), Delivery (D), Safety (S) and Morale (M) and known as QCDSM [9].

1. Quality: is defined as the quality of the products and activities of the work. Quality is measured by: (a). The quality of the design, which includes the form, shape and other things that are part of and integrated into the product visible to the eye. The quality of the design is influenced by materials, technology, workers and all other forms of input. (b). Quality DisplayCPez / orce), which includes product reliability, ease of maintenance, ease and repair facilities, as well as sufficient spare parts available and easily available. (c). Quality of Conformity, which is in accordance with what is desired and expected by producers and consumers. For producers, the quality of conformity is defined and explained in the form of conformity with specified specifications and avoids the occurrence of deviations from its specifications. And the quality of conformity is in accordance with its use. Suitability for consumers does not mean products that must be the best, highest level of cover, but in accordance with the usefulness and the state of the consumer. For example, there is a consumer who wants textiles that are used on certain parts of the body and only disposable and then discarded, because he wants ease of use, then products that have properties that are considered quality for consumers, rather than durable and can be used several times.
2. Cost, i.e. quality, which is calculated and related to product costs. These costs can easily be measured, namely in units of value for money, such as for example. The concept of cost in quality includes the costs of production, administration, marketing, service and all costs related to and accumulated in the product for sale and can be consumed by consumers. The quality that is championed in this concept is the attainment of the lowest cost to be paid by a customer by not reducing its specifications.
3. Delivery, i.e. related to the speed and accuracy of the products arriving and being consumed by consumers. This concerns aspects of providing adequate marketing facilities, such as the number, system and availability of warehouses in their markets. Delivery quality will bring producers and consumers closer together.

4. Safety, which is related to security in the use of the product for a consumer. Quality in the sense of safety is described in terms of safety or absence. very little danger or accident caused by the use of products »such as various equipment that is married to a passenger vehicle that is a safety belt, an air bubble system on the dash board so that if a collision occurs the air bubbles come out and will protect the driver so as not to get an accident and so on. Then also on some children's toy products that are made not harmful to children.
5. Morale, which is quality related to morale or enthusiasm for all people in separation. The translation of quality in the sense of morale is to maintain the company's image to outside parties of the company which can be reflected in the form of lack of intent to deceive or cause dependence on consumers using its products, then also good management and organization within the company. The concept of quality in Integrated Quality Control is QCDSM which means that it is easily understood, the variables are quite clear, have the tools and can be practically operationalized. Tools or means to apply in the concept of quality in Integrated Miitu Control are also available, namely the existence of groups of clusters in the company, namely the quality control clusters (Quality Control Circles).

CHAPTER III
MEASURING THE COMPETITIVE ADVANTAGE

Framework for measuring the competitive advantage criteria for MSME products based on Quality Cost Delivery Safety Morale (QCDSM) is urgently needed by MSME entrepreneurs to be able to compete in the creative industry. QCDSM criteria are factors that influence customer satisfaction needed by various industries in winning market competition. At first the company only paid attention to the quality aspects of its products, but because the services of the company needed to be further studied. As time goes by and the demands of global business competition, industries need other criteria to support their competitive advantage. Consumer awareness regarding safety and green manufacturing aspects requires the industry to change the paradigm of competitive advantage by adding safety and morale aspects that are closely related to the company's obligations in protecting and preserving the environment in each of its business processes. The stages in this measurement are particularly in the processing of questionnaire data and its interpretation by compiling the Importance Performance Analysis (IPA) and building a House of Quality (HOQ) [10]. Measurements are made through surveys and interviews with respondents who meet the required criteria. Criteria for respondents are large customers of the MSME industry and MSME owners. There are several indicators measuring the QCDSM-based competitive advantage criteria developed and adjusted based on the results of customer interviews covering what are the needs of customers for MSME products marketed. In this framework, testing has been carried out in the manufacturing industry and SMEs in the Surabaya and Sidoarjo regions, which can later be implemented in other regions.

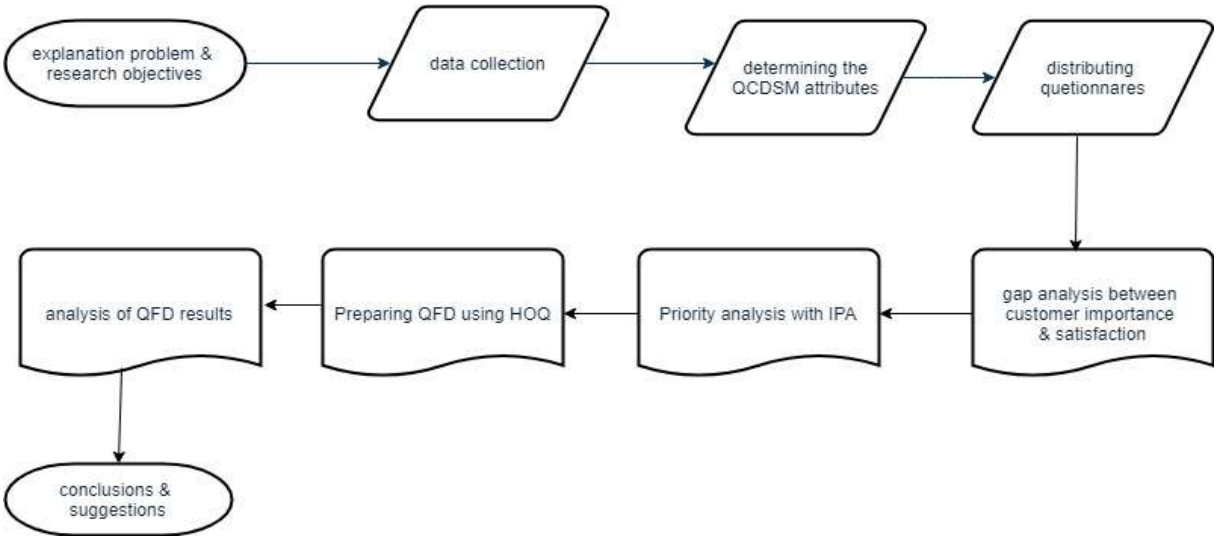

Figure 1. QCDSM based Competitive Excellence Measurement Criteria Framework for QCDSM based Competitiveness

The Framework explanation above is divided into 4 stages:

1. Preparation Stage

Literature Study Phase is the initial stage in the preparation of this research. At this stage a search for sources of literature or references needed in the preparation of research with the aim of enriching the study and strengthening the theoretical basis of research. This research requires literature on MSME concepts, conditions regarding MSMEs, the concept of Quality Function Deployment (QFD), QCDSM concepts and prior literature review. In the preparation stage the observation is carried out directly or indirectly about the condition of the object of observation from research.

2. Data Collection Stage

The first step in the data collection stage is determining the attributes of market competition to be used (Table 1). Factors that are considered to influence the quality of woven products are used to determine the research attributes. Attributes in this study are weaving attributes that are important by consumers to determine the quality characteristics of woven products. These attributes are obtained from several literatures, direct interviews with consumers, and distributors.

A. Determination of the quality attributes of woven products refers to several existing theoretical frameworks. The attributes chosen are based on the criteria of quality (q),

cost (c), delivery (d), safety (s), and morale (m) in accordance with the paradigm suitability and business market environment of MSME products.

B. The next step is determining the number of samples to be used in the study. Statistical analysis requires data, therefore data needs to be collected to find out about population characteristics, which are generally done based on sample data taken from the population concerned. In this study the target population taken is large customers of MSME products.

C. The next step is the preparation of the questionnaire. Questionnaires are used for data collection tools to be analyzed, the consumer satisfaction level questionnaire is prepared using a consumer satisfaction level questionnaire on the attributes that underlie the selection of the marketed product. Data collection is a stage to explore various information from sources that are part of the research. Data collection was obtained from the results of the distribution of questionnaires to users of woven fabrics and consumers of woven fabrics and entrepreneurs weaving to get a technical response for QFD. Then the data is collected and processed in accordance with the steps specified.

D. After the questionnaire data is obtained, the next step is the validity test. The main instrument that will be used in this study is a questionnaire or list of questions to respondents. The research questionnaire was made referring to the predetermined research attributes. Validity test is done to find out how far a measuring device is able to measure what you want to measure.

E. Reliability can be defined as an index that shows the extent to which a measuring instrument (questionnaire) can be trusted or reliable. Reliability testing is intended to determine the reliability of data collection instruments, in this reliability test several times the questions or attributes asked to respondents who are different results will not deviate too far from the average.

3. Data Processing and Interpretation Phase

Data is processed using Microsoft Excel and SPSS software. Data processing is carried out in this research, namely processing qualitative data. Processing. Qualitative data obtained from the results of preliminary questionnaires in the form of attributes needed and desired by respondents.

a. Next is the preparation of Importance-Performance Analysis (IPA). Science is a procedure to show the relative importance of various attributes to the performance of an organization or company.
b. The next step in data processing is building the House of Quality. In the construction of quality houses needed data in the form of customer needs, technical response, planning matrix, technical correlation, relationship matrix, and technical matrix.
c. The next stage is the stage of data interpretation, interpretation will be carried out based on the results that have been achieved in the study. Interpretation is a translator of each value obtained in data processing as well as a description of the QFD visualization in the form of quality homes. Analysis is done so that quality home yields can be more valuable and useful to explain the observed phenomenon. The results of the analysis are used as a reference in making recommendations and as a result of this research is in the form of a proposed improvement in the description of the technical response.

4. Conclusion and Suggestion Phase

The last stage in the research is to draw conclusions based on the results of the analysis and suggestions in the proposed improvement of the quality of the products of the SMEs in the future as well as suggestions for further research [10].

CHAPTER IV
COMPETITIVE ADVANTAGE FOR MSME

The development of a dynamic industrial environment in the global era nowadays has become a trigger for many companies to explore their potential [11], and identify the key success factors to excel in increasingly competitive competition, including MSMEs. Rapid technology is also in line with competitive climate. The efforts carried out in the end are directed to provide the best products to consumers [12]. The product context offered by the company to consumers in terms of production and operations management is a combination of goods and services [13]. MSMEs will not be able to compete if the products offered are purely goods and the service company cannot compete if the product offered does not care about the service factor [14]. The success of MSMEs in providing the best products to consumers includes a combination of goods and services in each ideal portion according to the company [15]. The presentation of products in a broad sense is a challenge as well as an opportunity for operating production systems that must be carried out by MSMEs [16]. It is starting from identifying consumer tastes to seeking all input requirements from suppliers to produce and distribute these products according to the expectation of targeted consumers [17]. Basically, consumers expect to be able to obtain products that have benefits at an acceptable price. To realize the desires of these consumers, each company strives optimally to use all its assets and capabilities to provide added value to consumer expectations. The implementation of this effort certainly has different cost consequences for each MSME, including its competitors.

Approximately, about 20 woven industry homes at Bandar Kidul Kediri are done by the three family generations. The woven fabrics produced are starting from gombyor sarongs, misris (ordinary) fabrics, semi silk to silk. The fabric is made colourful with Kediren motifs such as ceplok to lung. Kediri's unique woven fabric can be found easily in the Bandar Kidul woven industry center, Kediri City. The community worked together to produce and market the woven fabric. The motifs used are salur, kuncup and Brantas River.

Another woven competitor is the woven from Bojonegoro which is so popular with its batik. The motif of was adopted from Jonegoroan batik, it is batik with a distinctive Bojonegoro motif. There are also motifs used for typical Bojonegoro woven fabrics involving Sekarjati and Oxen Sekar Rinambat. One of the Jonegoroan woven centers is in Kedungrejo, Sumberejo District. There is also Lamongan ikat woven fabric produced in Parengan Village. The colour is brighter

and firmer with distinctive features called Milkfish and Catfish. This woven is also combined with songket and batik to enhance its appearance.

The weaving process uses fine threads through two processing stages with 15 steps. The process of making warp or keteng through four stages called dyeing, spinning, skeer or rolling threads in the boom and graying process or connecting threads. The second process is spinning white yarn, re-arranging threads at bidangan, designing, binding, dyeing, plugging, releasing straps, breaking threads, spinning in pallets and finally the weaving process.

The strength of the woven handicraft industry in Bandar Kidul is that the business activity has been going on for generations, has its own uniqueness in the patterns and motifs displayed and most of them have gained the trust of banking capital. The production capacity of 139 ATBM units operating in Bandar Kidul Kediri neighborhood is approximately 278 meters of woven fabric per day, equivalent to 8,340 meters per month, or 100,080 meters a year. The woven production capacity is 300 meters a month, equivalent to 3,600 meters a year. Whereas, the market opportunities are still open to absorb the production up to 12,520 meters of woven fabric per month or 150,20 meters a year.

The current marketing range of ikat woven fabric has reached cities throughout the country such as Jakarta, Palembang, Jambi, Toraja, Makassar, Denpasar, Malang, Surabaya and others. The results of the analysis show that the opportunities for developing the woven handicraft industry are still opened considering the number of requests tends to increase. While the optimum production capacity is still 2 (two) meters of fabric per machine per day so that to meet the high market demand, it is necessary to increase the number of machines, the number of labor and capital.

Customers tend to choose MSMEs that offer the most competitive prices with quality standards that meet customer needs [18]. The mechanism of market competition and competitive advantage can be explained in five key words namely Quality (Q), Cost (C), Delivery (D), Safety (S) and Morale (M) aspects. In the beginning, the company only paid attention to the quality aspects of its products, but due to the development of the era and the tight competition of the business aspects of costs, delivery accuracy, and service from the company needed to be further studied [19]. The success of company in long term depend on strategy developing product [20]. These criteria are factors that influence customer satisfaction and support in winning market competition. Initially the company only paid attention to the quality aspects of its products, but due to the development of the era and the tight competition of business aspects

of cost, accuracy of delivery, and service from the company needed to be further studied [21]. Therefor the criteria of Quality, Cost, Delivery, and Services are known or commonly called QCDS [22]. As time goes on and the demands of global business competition, companies need other criteria to support their competitive advantage [23]. Consumer awareness regarding aspects of safety and green manufacturing requires companies to change the paradigm of competitive advantage criteria by adding aspects of safety and morale that are closely related to the company's obligation to maintain the environment in every business process [24]. Because of these demands, the competitive advantage criteria that are relevant to be used are QCDSM.

In the scope of business competition, every company must pay attention to aspects of the main concern of the competition itself such as quality, features, functions, product reliability, services provided, product stock availability, image and company reputation, mastery of the marketing team's knowledge of its products and technology, and competitive prices [25].

Competitive advantage basically grows from the value or benefits of the company to its buyers, where the value is more than the costs that the company must incur to create it [26]. It is this value or benefit that the buyer is willing to pay, and the superior value comes from offering a lower price than the competitor's price with equal benefits or unique benefits that exceed the price offer [27]. Competitive advantage is the superiority of competitors that is obtained by offering lower value or by providing greater benefits because the price is higher [28].

Based on the problems faced by these MSMEs, this study will try to solve the problem of how a product development is made using the QCDSM concept in an effort to maintain the suitable competitive advantage for the survival of the *Ikat* Woven Fabric MSME in Bandar, Kediri. Research on measuring customer needs in MSMEs in Indonesia, especially the level of quality and customer loyalty has not been carried out much. However, research related to the development of new products that meet the market expectations of the MSME industry in Indonesia, especially for textile MSMEs, has never been done. This study aimed to develop the products of Ikat Woven Fabric MSME in Kediri to survive in the era of global industrialization in Indonesia. By using QCDSM attributes as the basis for forming competitive advantage criteria which later become input for QFD, it is expected that this research would be able to provide a positive contribution to textile MSMEs, especially for Weft *Ikat* Industry in Bandar Kidul, Kediri.

METHODS

The first step of the data collection stage was determining the attributes of market competition that would be used. Attributes are all of the object in research observation. Factors that are considered to affect the quality of woven products were used to determine the attributes of the research. The attributes in this study were woven attributes that are important to consumers to determine the quality characteristics of woven products. These attributes were obtained from several literatures, direct interviews with customers and distributors. First Step, Determination of weaving product quality attributes refers to several existing theoretical frameworks, namely the theoretical framework presented by Kotler [29] and Wijaya [30]. The selected attributes are based on the criteria of quality (q), cost (c), delivery (d), safety (s), and morale (m). In determining these indicators, the basic quality criteria that Kotler [29] has conveyed were combined with the suitability of the paradigm and business market environment of the Ikat Woven Fabric Bandar Kidul in Kediri. Determination of product quality attributes is explained as follows.

Table 1 Competitive Advantage Attributes of Weft *Ikat*

Indicator	Criteria	Explanation
(1)Price Conformity	C+Q	The price is offered according with the quality of the product
(2)Endurance	Q	The durability of the product
(3)Product Packaging	Q+D	The product packaging attractive to consumers
(4)Trademark	D	The symbols and writing of SME's trademarks
(5)Product Size	Q	The size of the product
(6)Dyes	S	The dye harmful to consumers
(7)Product Color	Q	The color of the product attractive to consumers
(8)Packaging Material	M	The packaging material environmentally friendly plastic
(9)Product availability	D	The products always available at outlets
(10)Product Safety	S	The products safe to use for consumers
(11)Product Delivery	D	The product delivery always on time
(12)Dangerous waste	M	The production system produce dangerous waste
(13)Environmentally friendly	M	The business system of SME's friendly to the environment

The next step was determining the number of samples that would be used in the study. In this study the target population was the users of the ikat woven fabric in Bandar Kidul Kediri. The

average number of MSME customers per month is 50 people, so minimum sampling could be set.

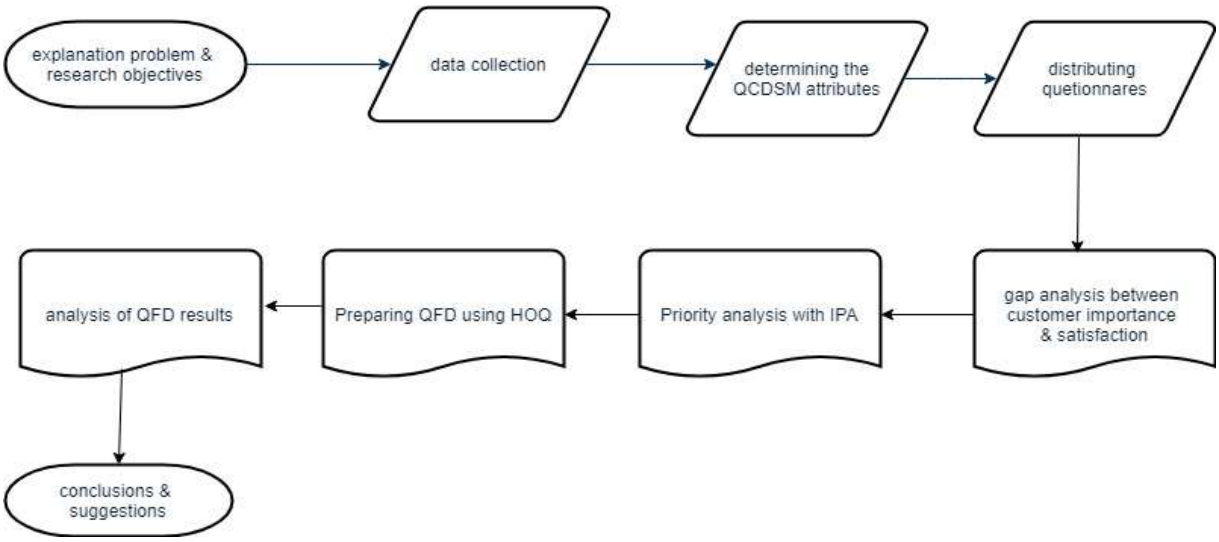

Figure 1. Research Flowchart

The next step was the questionnaire preparation. Questionnaires were used for data collection tools to be analyzed, questionnaires on consumer satisfaction levels were prepared using questionnaires on the level of customer satisfaction on the attributes underlying the selection of woven fabric products using IPA. The population target taken in this study is the Ikat woven fabric customers of Bandar Kidul Kediri, with an average number of customers 40 people per month. The customers have used Bojonegoro Woven and Lamongan Woven. Data collection was obtained from the results of questionnaires distributed to consumers of the weft *ikat* and weaving entrepreneurs to get a technical response for QFD. The Center of MSME Ikat Woven Fabric Bandar Kidul Kediri, there are 20 woven entrepreneurs who employ 270 residents around Bandar Kidul, all of whom are respondents in the technical response data collection used to compile the House of Quality. Then the data was collected and processed in accordance with the steps that had been set.

After the questionnaire data was obtained, the next step was to test the validity. The main instruments would be used in this study were questionnaires to respondents. The research questionnaire was made referring to the research attributes that had been predetermined. Validity test was performed to determine the extent to which a measuring device was able to

measure what you want to measure. Validity test can be defined as the size of a measuring device to do its measuring function.

Validity is defined as an accurate measure of a test function performing its size function. If the validity obtained is getting higher, then the test would be more accurate and increasingly shows what should be shown. This validity test was determined by internal validity, where the criteria used come from within the tool itself and each item for each variable is correlated with the total value obtained from the product moment correlation coefficient. If the correlation coefficient value is low and not significant, then the item in question isn't valid.

Validity analysis was performed with the aim to know whether the data or each question obtained is in accordance with the conditions of the population. The steps in preparing the validity instrument are:

Determination of correlation value (r), Reliability can be defined as an index that shows the extent to which a measuring instrument (questionnaire) can be reliable. Reliability test is intended to determine the reliability of the instrument for collecting data. Where several times the questions or attributes asked to different respondents the results will not deviate too far from the average.

Data was processed using Microsoft Excel and SPSS software. Data processing carried out in this study was a qualitative data processing. Qualitative data processing was obtained from the results of preliminary questionnaires in the form of attributes needed and desired by respondents.

Next was the preparation of the Importance-Performance Analysis (IPA). IPA is a procedure to show the relative importance of various attributes to the performance of an organization or company.

The next step in data processing is to build a House of Quality. In building a house of quality, the data needed are customer needs, technical response, planning matrix, technical correlation, relationship matrix, and technical matrix.

The next stage was the stage of data interpretation. The interpretation would be carried out based on the results achieved in the study. Interpretation was a translation of each value obtained in processing data and a description of QFD visualization in the form of a quality house. Analysis was performed so that house of quality results can be more valuable and useful to explain observed phenomena. The results of the analysis were used as references in making

recommendations and as a result of this research was in the form of a proposal to improve the description of the technical response [30].

The last stage in the research was to draw conclusions based on the results of the analysis and recommendation in the proposed improvement of product quality of Weft Ikat MSME in Bandar Kidul, Kediri, as well as recommendation for further research.

RESULT AND DISCUSSION

Based on the results of data collection and processing of the level of importance to customer, the data used was the result of processing IPA from the value of customer satisfaction and the value of the interests of the customer [31]. The use of the results of the Importance-Performance Analysis (IPA) aimed to find out what things are influential and become the main expectations of customers in obtaining products or services from Weft Ikat MSME in Bandar Kidul Kediri. Based on the results of the questionnaire that had been disseminated, the level of customer satisfaction and the level of importance of customers were obtained. The results of IPA processing from the value of satisfaction and customer interests can be seen in Figure 2.

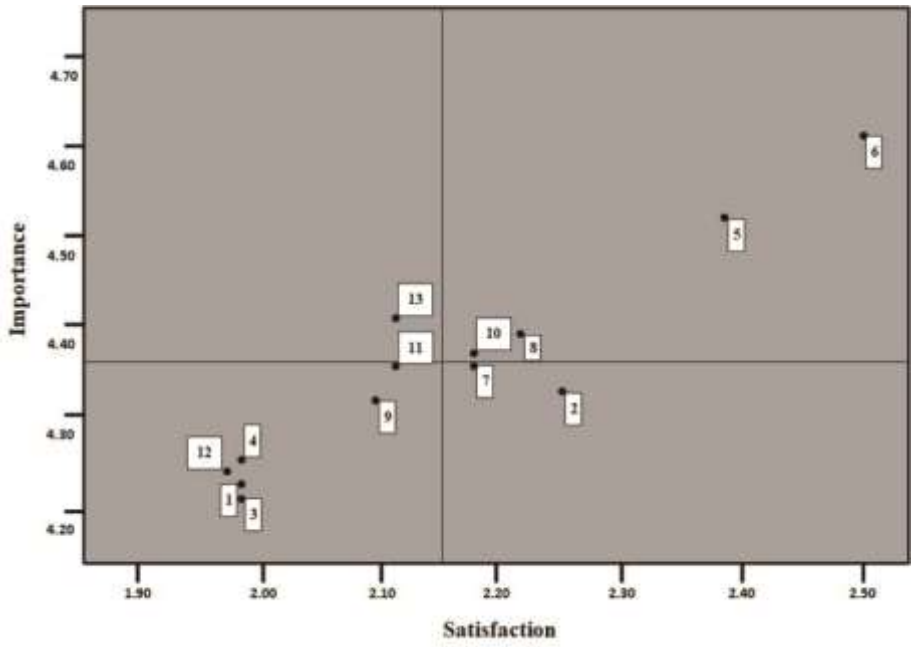

Figure 2 Diagram of classifying interests with the IPA concept

After the average value of each attribute was obtained, the next step was to create a Cartesian diagram of the position of data placement based on the Importance-Performance Analysis (IPA). The plot results from the values of each attribute in the Cartesian diagram can be seen in Figure 2. The explanation for each quadrant of the Cartesian diagram is explained as follows. Quadrant A, a region that contains attributes that are considered important by the customer but in reality these attributes are not in accordance with what is expected (the level of customer satisfaction is still low). In this region the company makes continuous improvements so that performance in this quadrant increases. Attributes included in this quadrant are environmentally friendly attributes (13). Quadrant B, the area that contains the attributes that are considered important by the customer and the attributes that are considered in accordance with the customer perception so that the relative level of satisfaction is higher. Attributes included in this quadrant are attributes of product size (5), coloring agents (6), packaging materials (8), and product safety (10). Quadrant C, a region that contains attributes that are considered less important by customers and in fact the performance is not good. Included in this quadrant are attributes of price suitability (1), product packaging (3), trademarks (4), product availability (9), product delivery (11) and B3 waste (12). Quadrant D, a region that contains attributes that are considered less important by customers and are felt to be excessive. Included in this attribute are endurance attributes (2) and product color (7).

The results of the IPA analysis of consumer satisfaction to be mapped into house of quality were attributes that were in Quadrant A and Quadrant C. The quadrant C was attributes that were considered less important by the customer and in fact the performance was not good enough. Quadrant C was chosen because if an improvement was made on these attributes, it was expected that it would increase consumer satisfaction from the Weft Ikat MSMEs in Kediri. Quadrant A would be able to increase the number of consumers if fulfilled, and vice versa. The IPA that would be mapped into the house of quality was in Quadrant A and C because it had a high priority in increasing customer satisfaction so that it could provide a positive impact on the competitive advantage of the Weft Ikat MSMEs in Kediri.

Customer Satisfaction is the perception of the quality of Weft Ikat products according to consumers as they perceive. This relates to consumer ratings of each of the Kediri Weft Ikat attributes based on the level of customer satisfaction. The assessment of the level of customer satisfaction was performed on the Weft Ikat Kediri and its competitors, namely Bojonegoro

Weft and Lamongan Weft. The values of the level of satisfaction on each brand can be seen in table 2.

Table 2 Determination of the value of a goal or target

No.	Atribut	Customer Satisfaction Performance			Goal
		T.I. Kediri	T. Bojonegoro	T. Lamongan	
1.	Product Delivery	3.27	3.32	3.52	3.52
2.	Product Availability	3.28	3.38	3.42	3.42
3.	Trademark	3.77	4.08	3.82	4.08
4.	Dangerous Waste	3.55	4.05	4.23	4.23
5.	Price Conformity	3.83	4.03	3.85	4.03
6.	Product Pacakaging	3.63	3.58	3.80	3.80
7	Environmental Friendly	4.12	3.85	4.10	4.12
	Mean	3.54	3.77	3.77	

Based on table 2, it shows that the three weft providers, the highest goal value was on the B3 Waste attribute with a value of 4.23. This value can be interpreted that consumers consider B3 waste produced by the MSME Ikat Woven Fabric Kediri to be less than their competitors. Next was the eco-friendly attribute with a satisfaction level of 4.12. This value can be interpreted that consumers consider the business process of MSME Ikat Woven Fabric Kediri more environmentally friendly than their competitors. The attribute with the next highest goal value was a trademark that was 4.08. This value means that the way of creating and forming a trademark of MSME Ikat Woven Fabric Kediri was still less than its competitors. And the next attribute was the suitability of product prices by the goal value of 4.03. Most of the product attributes do not have a higher level of satisfaction than competitors. The average level of consumer satisfaction on Ikat woven fabric products was also lower than the two competing brands. This is a problem that must be sought for a solution. MSME Ikat Woven Fabric Kediri has the average satisfaction level of 3.54, while in Bojonegoro Woven had an average level of consumer satisfaction of 3.77, while Lamongan Woven had the same level of customer satisfaction of 3.77.

The improvement ratio shows whether a determined goal can be achieved or needs improvements so that the goals set can be achieved [32]. To find out whether the goal has been achieved is to look at the value of the improvement ratio. If the value of the improvement ratio is equal to 1 then the goal can be achieved and must or need to be maintained. But if the value of the improvement ratio is greater than 1, then the necessary improvements must be made to improve the quality of Kediri Ikat Woven products. The greater value of the improvement ratio, the greater the effort that must be made to achieve the

determined goal. The results of the improvement in the ratio of Ikat Woven Fabric at Kediri can be seen in table 3.

Based the results of data collection and processing, it can be found that almost all attributes of Kediri Ikat Woven products have not been able to meet the set goals. Of the 7 attributes of the selected woven products, there are 6 attributes of Kediri Ikat Woven products that have not yet fulfilled the goal because they have an improvement ratio of more than 1. Therefore a step is needed to be able to improve the competitiveness of Kediri Weft Ikat.

Table 3 Calculation of *improvement ratio*

No.	Attribute	Customer Satisfaction Performance	Goal	Improvement Ratio
1	Product Delivery	3.27	3.52	1.08
2	Product Availability	3.28	3.42	1.04
3	Trademark	3.77	4.08	1.08
4	Dangerous Waste	3.55	4.23	1.19
5	Conformity Product	3.83	4.03	1.05
6	Packaging	3.63	3.80	1.05
7	Environmental Friendly	4.12	4.12	1.00

Technical response is a solution to consumers need in a company [33]. This solution describes the system that will be created by the company while demonstrating the management capabilities of the MSME Ikat woven fabric in overcoming the problems of meeting consumer needs with each attribute of competitive advantage of Kediri Ikat woven fabric MSMEs. Technical response is the answer to the problems in each attribute that illustrates the competitive advantage of Ikat woven products. At the House of Quality, the technical response is placed on the roof [34]. The solution to the problems in Ikat Woven fabric attributes was obtained from the results of interviews with the owner of MSME Ikat Woven fabric in Kediri. The interview results that gave rise to technical responses can be seen in table 4.

Table 4 Technical Response of Kediri Ikat Woven Fabric

No.	Attribute	Technical Response
1.	Price Conformity	- utilize cheap domestic raw materials. - arrangement of looms and sewing. - suitability of paint raw material composition.
2.	Endurance	- arrangement of looms and sewing. - employee training
3.	Product Packaging	replace the form of plastic packaging into environmental friendly materials

4.		-arrangement of looms and sewing.
	Trademark	-Redesign trademark
5.	Product Size	*Employee training
6.	Dyes	*choose natural raw materials & do not contain B3
7.	Product Color	*suitability of paint raw material composition.
8.	Packaging Material	*replace plastic wrap with recyclable natural ingredients
9.	Product availability	*Increase in production
10.	Product Safety	*choose natural raw materials & do not contain B3
11.	Product Delivery	*partnering with third parties to ship goods
12.	Dangerous waste	*choose natural raw materials & do not contain B3
13.	Environmental Friendly	-choose natural raw materials & do not contain B3 -replace plastic wrap with recyclable natural ingredients

The following is an explanation of each technical response from the Kediri Ikat Woven Fabric MSME. Utilizing domestic raw materials so that prices are more competitive. In an effort to cut production costs, the selection of raw materials must be carried out by the MSME of Ikat Woven fabric in Kediri. The raw materials used by the Ikat Woven fabric MSME in Kediri are still imported from other countries such as yarns imported from India and dyes imported from China. If the imported raw material can be found in Indonesia, it will cut shipping costs and cut the time for shipping raw materials which will have a positive impact on the competitive advantage of the MSME Ikat Woven Fabric in Kediri.

Next is the settting of loom and sewing tool. The looms used in the production process of MSME Ikat Woven Fabric are still very conventional, therefore we need a method to standardize the settings of the loom. But what needs to be considered is the unique aspects of handmade products that are characteristic of cultural products such as Ikat Woven Fabric.

The weighing of dye materials is according to their composition and measure. Dye materials are not properly used, excessive or insufficient use of dye will affect production and make the production process ineffective and inefficient [35]. Therefore we need a weighing of the dye needs according to the right measurement so that the quality of the Ikat Woven Fabric products will be better and the colors will last longer and will not easily wear off.

Employee Training. Employees or weavers in MSME need to be equipped with production capabilities and an understanding of the good, effective and efficient production process [36]. With this understanding, it is expected to increase the sense of awareness of the employees towards the business processes of MSMEs [37]. It will later have a positive impact on the Kediri Weft Ikat MSMEs.

Replacing mica plastic packaging into a purse.

Packaging is an outward display so that consumers are interested in being able to see the contents of the product, currently the packaging of the MSME Ikat Woven Fabric product in Kediri is only made of mica plastic. By changing the packaging of woven products that were originally from mica plastic and transformed into a purse shape, it is hoped that it will increase consumer interest in the Kediri Ikat Woven Fabric Product.

Redesigning of trademark's style. The trademarks listed on each product packaging as well as every element of the MSME Ikat Woven Fabric in Kediri will become an icon for the MSME itself. By changing the design and style of a trademark into a more attractive form of consumers, it is hoped that it will bring a positive impact on the Ikat Woven Fabric MSMEs in Kediri.

Choosing coloring agents that do not contain B3 agents. Safe coloring agent for consumers is a dye that does not contain hazardous ingredients that can have side effects when the product is used [33]. It is important for the Kediri Ikat Woven Fabric MSMEs to be able to know and sort raw materials for textile dyes that are safe for consumers so that it will increase consumer's trust in the Kediri Ikat Weaving MSMEs.

Replacing plastic materials into recyclable ones. Plastic waste is a global problem for every country. Each element of life contributes to the amount of plastic waste circulating in the environment [35]. Therefore, replacing plastic materials into recyclable plastic will provide a competitive advantage for the MSME Ikat Woven Fabric in Kediri because they lack of awareness on plastic problems while the consumers' awareness have begun to raise. Therefore, this becomes an opportunity for MSMEs to be able to increase their competitiveness by using recyclable plastic materials.

Creating a production plan. Production planning is very important to create an effective and efficient production system [38]. By creating a good and systematic plan. it will have an impact on the availability of products in each outlet and it can meet lots of consumers' need. Currently, there is no qualified production plan for the MSME Ikat Woven Fabric in Kediri. Therefore, by creating a production plan from MSMEs, it is expected that it will increase the competitiveness of the company.

Ensuring that the raw materials do not contain B3 agents. It is important for the Kediri Ikat Woven Fabric MSMEs to be able to know and sort raw materials that are safe for consumers and safe for the environment, so that it will increase consumer credibility on the Ikat Woven Fabric MSMEs. In addition, the impact that will be caused is an increase in public trust in the

presence of the Ikat Woven Fabric MSME because the waste produced will be more environmentally friendly and will not pollute the surrounding environment.

Choose a third party to ship the product. Product delivery is an important attribute in maintaining competitive advantage for Kediri Ikat Woven Fabric MSMEs. Creating a good partnership with third parties to be able to deliver products on time will increase the competitiveness of the Ikat Woven Fabric MSME in Kediri.

One of the effort to improve the product quality is to understand the relationship between the technical response that the company has with the wants and needs of consumers. This relationship is very important and needs consideration to find out how strong the correlation is. The value of the relationship can be seen in the contribution value and the contribution normalized value. The contribution value shows the contribution of the existing technical response to the fulfillment of consumer desires. While the normalized contribution value shows the percentage of technical response contributions obtained previously. The contribution calculation results and normalized contribution values can be seen in table 5.

The relationship between the technical response and the highest value customer need is the technical response to the setting of the loom, the loom used in the production process of weaving looms is still very conventional, therefore a method is needed to standardize the settings of the loom. But what needs to be considered is the unique aspects of handmade products that are characteristic of cultural products such as Ikat Woven Fabric.

Next is the weighing of dye materials according to their composition and needs. Dye materials are not properly used, excessive or insufficient amount of dye will affect production output and make the production process ineffective and inefficient. Therefore, we need a weighing of the needs of the dye according to the measuring needs so that the quality of Ikat Woven Fabric products will be better and the colors will last longer and will not wear off easily. Third is the replacement of plastic with purse. By changing the packaging of woven products that were originally from mica plastic and transformed into a purse shape, it is hoped that it will increase consumer interest in the product of MSME Ikat Woven Fabric in Kediri.

Table 1 Calculation result of Contribution dan Normalized Contribution Value

No.	Technical Response	Contrbution	Normalized Contribution
1.	utilize cheap domestic raw materials	2.12	0.07

2.	arrangement of looms and sewing.	4.12	0.13
3.	suitability of paint raw material composition.	3.81	0.12
4.	employee training	1.91	0.06
5.	replace the plastic packaging into environmental friendly materials	3.65	0.12
6.	redesign trademark	2.45	0.08

The forth is to choose a safe soloring agent for consumers is a dye that does not contain hazardous ingredients that can have side effects when the product is used. It is important for Ikat Woven Fabric MSMEs in Kediri to be able to know and sort raw materials for textile dyes that are safe for consumers so that it will increase consumer's trust in Kediri Ikat Woven MSMEs. And the fifth is to replace plastic materials into recyclable plastic. It will provide a competitive advantage for the Kediri Ikat Woven Fabric MSME because they lack of awareness on plastic problems while the consumers' awareness have begun to raise. Therefore, this becomes an opportunity for MSMEs to be able to increase their competitiveness by using recyclable plastic materials.

After analyzing the planning matrix, prioritizing technical responses along with the correlation between technical response and customer need, and the correlation between technical responses, a quality improvement proposal of Kediri Ikat Woven Fabric MSMEs products can be proposed. To determine the priority of improvement proposals, the result difference was obtained from the Kediri Ikat Woven Fabric performance with the performance of Bojonegoro Woven and Lamongan Woven or it can be said to be the difference between the target and own performance. However, if own performance is better than the two other weaving producers, the target is the same as own performance, no improvement is needed. The results of own performance, competitive benchmarking, and target calculations can be seen in table 6.

Table 6 Own Performance of Kediri *Ikat Woven Fabric Competitive Benchmarking and* Target

No.	**Technical Response**	**Performance**			**Goal**
		TI. Kediri	**T. Bojo negoro**	**T. Lamo ngan**	
1.	utilize cheap domestic raw materials	3.75	3.98	3.92	3.98
2.	arrangement of looms and sewing.	3.87	4.02	4.04	4.04
3.	suitability of paint raw material composition.	3.83	3.98	4.06	4.06

4.	employee training	3.62	3.73	3.75	3.75
5.	replace the plastic packaging into environmental friendly materials	3.64	3.79	3.82	3.82
6.	redesign trademark	3.71	3.84	3.81	3.84
7.	choose natural raw materials & do not contain B3	3.82	3.95	4.09	4.09
8.	replace plastic wrap with recyclable natural ingredients	3.82	3.94	4.11	4.11
9.	Increase in planning production	3.51	3.49	3.68	3.68
10.	using raw materials that do not contain B3 ingredients	3.82	3.94	4.11	4.11
11.	choose a third party to deliver the product	3.27	3.32	3.52	3.52

Based on the difference between the target and own performance, the priority for improvement recommendations can be made by the Kediri Ikat Woven Fabric MSMEs to maintain their competitive advantage. The priority recommendations are explained as follows: replacing plastic materials into recyclable ones, ensuring raw materials that do not contain B3 agents, choosing coloring agents that do not contain B3 agents, choose a third party to ship the product, weighing the dye materials according to their composition and appropriate measure, utilizing domestic raw materials so that the prices are more competitive

The environmentally friendly paradigm today is an important factor in business processes in every company [39]. This can be proven by the emergence of priorities for plastic materials and the emergence of consumer awareness to look for producers that are more environmentally friendly [40]. Therefore, replacing plastic materials as packaging into recyclable plastic will provide a competitive advantage for the Kediri Ikat Woven Fabric MSME because they lack of awareness on plastic problems while the consumers awareness have begun to raise. Therefore, this becomes an opportunity for MSMEs to be able to increase their competitiveness by using recyclable plastic materials.

In addition, the selection of safe dyes for consumers is an important priority to be recommended for the Kediri Ikat Woven Fabric MSMEs. It is important for the Kediri Ikat Woven Fabric MSMEs to be able to know and sort raw materials for textile dyes that are safe for consumers so that it will increase consumer's trust in the Kediri Ikat Woven Fabric MSMEs.

It is important for the Kediri Ikat Woven Fabric MSMEs to be able to know and sort raw materials that are safe for consumers and safe for the environment, so that it will increase consumer credibility. In addition, the impact that will be caused is an increase in public trust in

the presence of the Kediri Ikat Woven Fabric MSME because the waste produced will be more environmentally friendly and will not pollute the surrounding environment.

This paradigm shifts are things that need to be considered by MSMEs to be able to stay ahead in market competition. Things like price and quality that used to be the main keys in winning market competition, have now turned to the concept of green manufacturing that is more environmentally friendly. In other words, consumers have begun to be sensitive to environmental issues and the safety of the products used. This is closely related to the competitive advantage criteria raised, namely Quality, Cost, Delivery, Safety, and Morale. If a company wants to win market competition, then the criteria of the QCDSM must really be a top priority to improve its business processes and become a reference in maintaining its competitive advantage.

After all the information about the required quality house has been obtained, then the next step is to create or compile a house of quality based on the available data. The results of the compilation of quality houses for Kediri Ikat Woven Fabric are explained as follows.

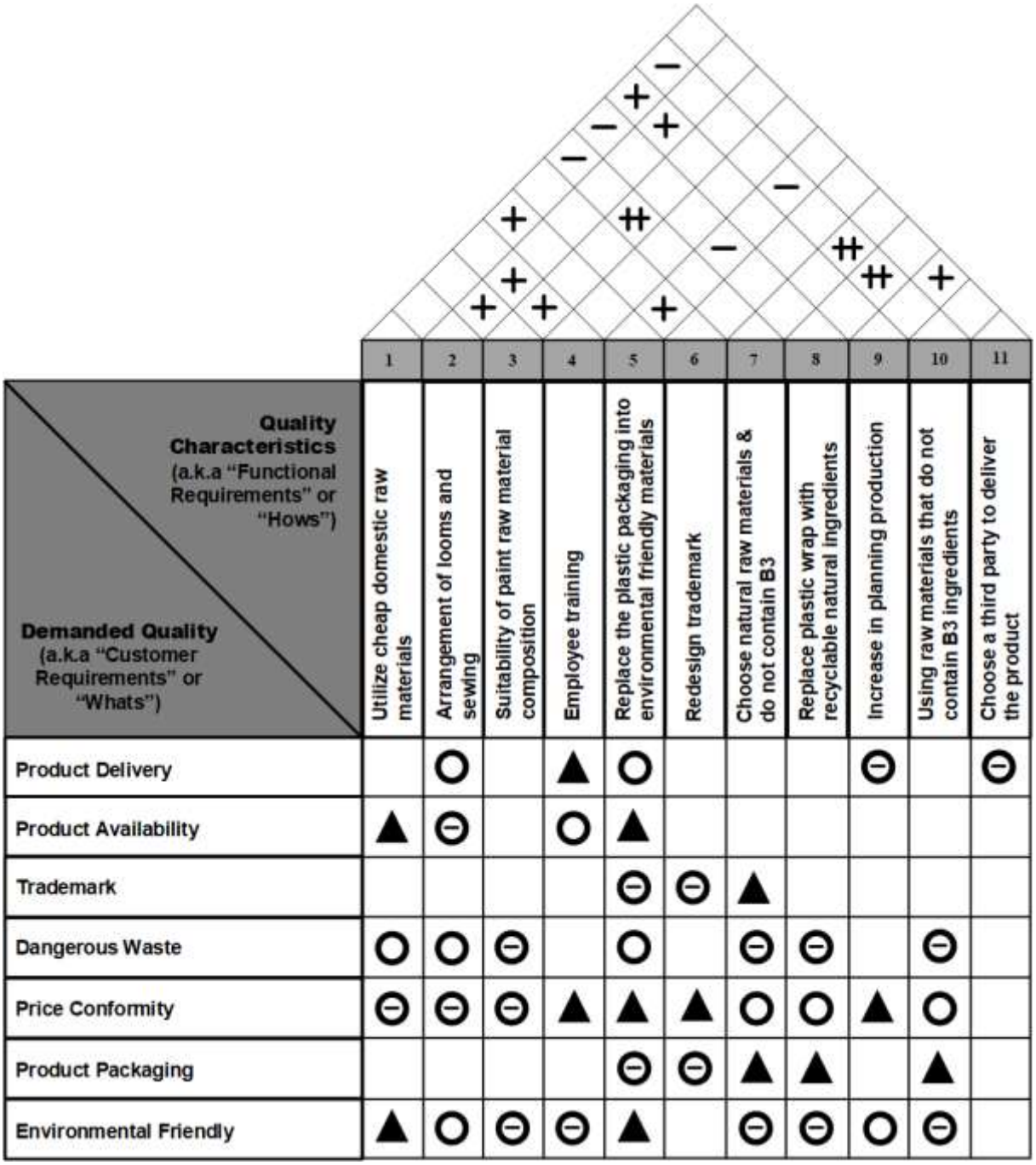

Figure 3 House of Quality of Kediri Weft Ikat MSME

HOQ preparation is performed by compiling customer needs, planning matrix, technical response, relationship matrix, technical correlation, and technical matrix.

This study uses the customers' voice in determining measurement criteria based on quality, cost, delivery, safety and morale, whereas previous studies only used criteria based on quality, cost, delivery, service in manufacturing industries (Ambarwati, 2018). These criteria can be used for developing product and are also factors of measuring the competitive advantage of a product. In addition, many previous studies only used QFD (Quality Function Deployment) in building House of Quality, while in research using a combination of two methods of data analysis, IPA and QFD such as Ionica and Leba [41], Cardoso et al. [35] and Zaim et al. [42]. IPA is needed in determining the level of satisfaction and level of interest according to customer perceptions based on established criteria.

This research was carried out in the ikat woven fabric industry that uses safety product criteria both in the processing of raw materials without using hazardous raw materials and packaging of products without using plastic. The other focus of research is product development that focuses solely on the processing & packaging of products that are effective and efficient without paying attention to hazardous waste caused, (Ambarwati, 2018).

CHAPTER V
COMPETITIVE ADVANTAVE FOR MANUFACTURING

Energy is the most important thing in human life. Parallel with increasing the human population and social economical increment, people's needs of electricity continues to increase year to year, including the need for transformers. This condition is in line with the government's policy to upgrade Indonesia's Electricity Supply to be 35000 MW in the next five years [43]. Relating to today's business competition, each company should pay attention to competition factors, such as quality, product features, functionality and reliability of products, services, the availability of stock, the company's reputation, knowledge of sales people to their product, and competitive prices [44]. The above background explains that transformer market competition concentrated on four main keywords there are quality, cost, delivery, and services. Therefore this study can answer the five competitive forces (rival competition, newcomer threats, product substitution threats, supplier bargaining power, customer bargaining power), there are three generic successful strategic approaches to outperform the competitors: Cost Leadership, Differentiation, and Focus on specific target markets [3]. Therefore company should able to define the right strategy to be implemented.

Several studies related to the strategy of market competition and customer satisfaction based on AHP methods are among others by Lanndon A. Ocampo and Eppie E. Clark dalam An AHP-MOLP Approach on Prioritizing Competitive Strategies Toward Sustainable Business [45] and research conducted by oleh Minghe Wang, Peide Liu, serta Guoli Ou dengan judul The Evaluation Study of Customer Satisfaction Based on Gray –AHP Method for B2C Electronic-Commerce Enterprise [46]. Ocampo and Clark research on the selection of strategies in their correlation competition with the triple bottom line where the business not only focus on the benefits alone, but rather need to pay attention to environmental aspects and human support of the business itself. The AHP and Multi Objective Linear Programing methods are used to find the optimal correlation value of the above three focuses (Profit, People, and Planet).In conclusion Ocampo's research finds an alternative choice of business priority on a competitive basis in terms of economic, social and environmental dimensions. While Wang, Liu, and Ou's research focused more on mathematical calculations by incorporating Gray's evaluation and hierarchy evaluation to evaluate the level of

customer satisfaction with B2C (Business to Consumer) electronic commerce companies. The use of Gray-AHP to evaluate mathematical models and build a customer satisfaction evaluation system in general through conditioning the evaluation indicator system. In his research, Wang, Liu, and Ou used 3 level criteria with each of the 4 indicator levels.

This research problem is limited as follows: 1) The study focuses on twenty indicators offered by Fahey, as mentioned above [44]; 2) The type of transformer product is limited to the distribution transformer. Referring to the research problem formulation, the research objectives are formulated as follows: understand the customer needs and choose the right strategy in facing transformer market competition in Indonesia. The results of this study are expected to be useful for the development of strategic management science. Also, to be an input to improve company's competition strategy, make continuous improvement in order to improve the company's competitive advantage.

I. Literature Review

Product Review

A transformer is a device that transfers power between two or more electrical circuits through electromagnetic induction. An alternating voltage (V_p) applied to the PRIMARY creates an alternating current (I_p) through the primary. This current produces an alternating magnetic flux in the magnetic core. This alternating magnetic flux induces a voltage in each turn of the primary and in each turn of the SECONDARY. Generally, the transformer production process is divided into three steps, there are:

1) Mechanical Process: The process of making a tank that uses as a transformer's body.
2) Electrical Process: we call or inner transformer or active part, the inside sub assembly parts is the active source of the generation power or voltage drop, and
3) Final Assembly Process: The process of combining the active part into the tank, and finally is installation procees of all transformer accessories.

Since these 3 steps finished, whole units of the produced transformer must follow quality test phase. Once it passed, therefore transformer can be delivered, otherwise reworked. In addition,

several service processes that also a concern of the company are *technical training* and *technical services* in accordance with customer needs and demands.

Management Strategy Concept

Strategy Management is a series of managerial decisions that determine the success of the company in the long term. It consists of three stages: strategy formulation, strategy implementation, and strategy evaluation. Strategy formulation includes developing vision and mission, identifying external opportunities and threats, determining internal strengths and weaknesses, establishing long-term goals, formulating alternatives, and selecting strategies to be implemented [1]. In strategic management, corporate management activities are closely involved in the planning of multiple business units as an operational sequence [47]. Implementation strategies require companies to set an annual goals, create policies, motivate employees, and allocate resources so that a formulated strategy can be run [40]. Strategy evaluation is the final stage in strategic management. Market competition will dynamically follow the businesses and industry grows. There are five forces of competition to be considered: *Competition rival*, *Competition among similar industries*; *The threat of newcomers*, it can be a serious threat to old players, including in the transformer industry; *The threat of replacement products*, technological changes enable significant threats, such as the experienced by Kodak and Nokia; *Supplier bargaining power*, supplier relationship with customer should be a balanced partner, and *Bargaining power of customers*, customers of course have its own bargaining power for suppliers and can suppress them. Answering this competitive challenge, there are three alternative competitive strategies, ***Cost Leadership***, ***Differentiation***, and ***Focus*** [3].

Cost Leadership, this strategy guides companies to aggressively perform efficiency, tightening controls in cost reduction process, the principle is to avoid costs that are not the main post of business process, with consistenly keep the product quality, services, and proximity to customers.

Diferentition, the second strategy is provides a distinctive value of products and services offered, creates something unique to customers, and is a competitive advantage over the competitors.

Focus, This strategy is focused on a particular market group. The goal is to serve a certain target very well, and every functional policy within the organization is focused on this strategy. The key of this strategy is the belief that companies are able to reach their strategic targets more effectively

or efficiently than competitors who are playing in the broader segment. The following table is the competitive indicators in this study, referring to Dr. Liam Fahey:

Tabel 1: The Competitive Indicators of Transformer

Kriteria	Indikator	QC DS	Penjelasan
Quality	Q_1 *Visual of transformer*	*Q*	The visual quality of the transformer match with customer approved design.
	Q_2 *Electrical test result*	*Q*	Electrical testing result.
Features	F_1 *Packaging*	*QD*	Packanging of the transformer.
	F_2 *Coloring*	*Q*	The Color of tank
Functionality	U_1 *Performance*	*Q*	The transformer can work properly
	U_2 *Reliability*	*Q*	Life time of transformer in a normal work.
Services	S_1 *Commissioning*	*Q S*	The installation process in customer sites.
	S_2 *Help desk service*	*S*	Have a contact person clearly and care.
	S_3 *Technical training*	*Q S*	Company provide the knowledge sharing.
	S_4 *Technical service*	*Q S*	Ability of company to do refurbishment.
	S_5 *Response time*	*Q S*	How quick the response delivered.
Availability	A_1 *Remote warehouse & stock readiness*	*D*	Availability of out factory warehouse in ourder to provide available stock.
	A_2 *Delivery time*	*QD*	Ability to deliver on time as per contract.
Image and reputation	I_1 *Brand image*	*Q S*	Image of customer perception
	I_2 *Quick response reputation*	*Q S*	Reputation as per customer perception
Relationships and sales knowledge	R_1 *Relationship with customer*	*Q S*	The ability of the sales team to establish good relationships with customers.
	R_2 *Sales product knowledge*	*Q S*	Sales team knowledge on the product, such as technical, quality, specification, etc.
Price	P_1 *Quotation*	*C S Q*	Speed of the quotation offer according to customer expectations
	P_2 *Value*	*C S*	The price paid for the products and services the customer receives is worth.
	P_3 *Price performance*	*CQ S*	A price offering compared to competitors (cheaper, more expensive, equivalent)

Source: [44]

II. Research Methodology

A. Problem Identification

Problem identification is important part of the research process, the steps undertaken in this phase including:

1) Formulation of Problems and Research Objectives
2) Literature review
3) Field Study

4) Determination of Research Criteria
5) Determination of Population and Sample Taking

B. Questionaire and Data Processing

The customer satisfaction questionnaire is organized according to Fahey's attributes. While the data collection getting by distribution of questionnaires through BCD's sales team directly visit to customer get discussion over there. Validity and reliability test begins the data processing steps, if valid and reliable then the research continued.

C. Validity and Reliability test

Validity is defined as an accuracy of the instrument. If the higher the validity, then the measurement is on the target. Reliability is a Confidence index of the instrument. Reliability test is using Alpha Cronbach. Once $\alpha > 0.6$ then the test data declared reliable. To do test the validity and reliability of data is using the SolAnd 2.1 software [49]. Then the QFD method process is run by Microsoft Excel. Finally, the QFD output is as input for AHP data processing to determination the strategy of competition.

III. Analysis and Discussion

In this section, author will explain the data processing on this research by using QFD and AHP methods.

A. Collecting and Processing of Data

The research data was collected in two stages:

1. Questionnaires distributed to 33 companies of BCD's customers who also bought competitor's products. Questions is focuses to the level of Customer Interests of the attributes, the level of satisfaction on PT. BCD's product, as well as the level of satisfaction on competitor's product. From 33 respondents found only 30 companies are also purchase the same product from 2 companies of competitors. So 30 respondents is using as research subjects with 2 consistent competitors.
2. The second stage is discussion with the BODs and managers of the PT. BCD to discuss the alternative options of strategy through *pair-wise comparison matrix* on the AHP

method. Respondents were 10 managers and 3 directors as organizational decision maker.

B. Data Sufficiency test

For n = 33 with error rate 0.05 where Z_ (α / 2) = 1.96 and the proportion of respondents satisfied and not satisfied is 0.5. The number of respondents who meet the criteria is 30 respondents, while the minimum sample size is 28 respondents. Then the sufficiency test of the data declared has been fulfilled

C. Validity and Reliability test

Validity test of customer satisfaction data and value Customer Interests data on Fahey's attributes with the number of responded, n = 30 and α = 5%, where r table 0.3 result from SolAnd 2.1 calculation of correlation coefficient value for both data is stated valid.

The result of running SolAnd 2.1, in obtained that coefficient α Cronbach declared reliable, with value of customer satisfaction reliability, consecutively are BCD 0,920; TFD 0.918; And AST 0.909. While the reliability for value Customer Interests is 0.93.

D. Preparation of HOQ (House of Quality)

The steps of HOQ preparation are as follows:

First determine the value of customer satisfaction and competitive satisfaction performance obtained from the data of the respondent's satisfaction level of each attribute. Next, set the goals for each attribute that is determined by management. The basis of goal value, determined from the highest level of satisfaction on each product attribute even though it occurs on other brands [Wijaya, 2011]. Furthermore, the importance of customer interest on attributes can be taken directly from the questionnaire. The value of customer needs as an interpretation of the value of customer interest can be seen in the HOQ below.

Improvement ratio is the results of goals devided by today's customer satisfaction value, that is indicating whether the determined goal has been reached or not. Averages, the value of BCD's customer satisfaction has outperformed its competitors, so generally BCD's improvement ratio is 1, except the brand image.

Sales point is the ability to sell the product attributes based on management perceptions on the value added of each attribute. Sales point setting is based on: 1.0=No Sales Point, no value added to the product; 1.2=Medium Sales Point, there is value added but not significant; 1.5=Strong Sales Point, value added to the product is very high.

Raw weight is the weight of attribute, multiplication between customer needs with improvement ratio and sales point. While *normalized raw weight*, is the value of raw weight divided by total raw weight. This raw weight value will be useful for calculating the contribution value when you have determined the technical response and numerical value for each technical response. *Contributin value* is the output of the QFD analysis seen in house of quality.

E. Technical Response and Correlation of Technical Requirment

Generating Technical Response is the answer to the problems of customers on each product attribute. Technical responses can be seen in the house of quality.

F. Action Priority

In choosing the priority of technical response is calculated based on value of customer interest. First is state the contribution of each technical response. *Contribution value* of the technical response is the multiplication of raw weight with the relationship value (numeric number as a differentiation to replace the correlation code as follows: ● = 9; ○ = 3; △ = 1).

G. Own Performance and Competitive Benckmarking

Own performance is customer satisfaction value multiple with relationship value, it is forecasting the future customer satisfaction if the technical response is really done. The competitive benchmark value is similar methods, with own performance calculation by change the satisfaction value using competitor's customer satisfaction value respectively. Assuming the value of relationship is equal with BCD to easy compare of benchmarking purposes.

H. Important Action and Improvement Target

Important Action is numeric value from technical response multiple with the value of customer interest. Improvement target of the action is returned to management judgment. The important action value is seen in the house of quality image.

I. Priority of Improvement Action

Actually, the improvement project is impossible to do in one short activity, but there have to be a continuously action and do step by step, how to do? we needs to be prioritized the action. The priority is chosen based on the importance of action at HOQ. If the priority of action is organized according to its importance action, then we will find the Pareto curve as shown below:

Figure 1: Pareto Analysis of Improvement Action

	Important to customer	Welder Skill-up	Powder coat quality	Review design	Internal process contro	Testing team skill-up	Improve packaging material	Packaging system standardize	Additional powder coa facility	Improve Final Inspection	Control vacuum drying	Standardize commissioning tools	Problem identification of Commissioning	Technical presentation	Skil-up	Web-site update (Learing material)	Improve help desk & communication	Finish good stock determination	Improve Customer Relationship	Improve drafter speed of preliminary dwg	Price benchmarking	Raw weight	Contribition	BCD's Customer Satisfaction	BCD Performance	TFD Performance	AST Performance
Q1 Visual of Transformer	3.2	●	○	●	●	—	—	—	—	●	—	—	—	—	—	—	—	△	—	—	3.80	152.0	4.100	164.00	148.00	129.33
Q2 Electrical test result	4.4	—	—	○	●	●	—	—	—	—	●	—	—	—	—	—	—	△	—	—	6.60	204.6	4.367	135.37	125.03	108.50
F1 Packaging	3.3	—	—	△	○	—	●	●	—	—	—	—	—	—	—	—	—	—	—	—	3.92	86.2	3.967	87.27	83.60	74.07
F2 Coloring	3.3	—	△	●	○	—	—	—	○	●	—	—	—	—	—	—	—	—	—	—	3.33	83.3	3.933	98.33	92.50	81.67
U1 Performance	3.3	—	—	○	●	○	—	—	—	○	●	—	—	—	—	—	—	—	—	—	4.90	132.3	4.233	114.30	102.60	95.40
U2 Reliability	4.1	—	△	○	○	○	—	—	—	△	●	—	—	—	—	—	—	—	—	—	6.15	123.0	4.033	80.67	72.67	65.33
S1 Commissioning	4.4	—	△	—	○	●	—	△	—	●	△	●	●	—	—	—	—	●	—	—	6.55	334.1	4.033	205.70	183.60	168.30
S2 Help desk service	4.1	—	—	—	—	—	—	—	—	—	—	—	○	△	●	●	—	●	—	—	4.92	152.5	4.233	131.23	104.37	99.20
S3 Technical training	4.0	—	—	—	—	—	—	—	—	—	—	—	●	●	●	○	—	○	—	—	4.84	159.7	3.733	123.20	103.40	104.50
S4 Technical service	4.3	○	—	—	△	△	—	—	—	—	—	●	●	—	△	△	—	○	—	—	6.50	182.0	3.933	110.13	93.33	93.33
S5 Response time	4.1	—	—	—	—	—	—	—	—	—	—	△	○	—	—	○	●	●	—	—	6.15	153.8	3.767	94.17	84.17	78.33
A1 Remote warehouse & stock readiness	3.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	4.48	40.3	3.967	35.70	32.70	28.20
A2 Delivery time	4.0	—	—	—	●	○	—	△	—	○	—	—	—	—	—	—	△	△	—	○	6.05	127.1	3.900	81.90	76.30	67.20
I1 Brand image	3.7	●	●	—	○	—	○	△	—	●	—	△	—	●	—	●	△	●	—	—	4.55	286.6	3.933	247.80	256.20	197.40
I2 Quick response reputation	4.1	—	—	—	—	—	—	—	—	—	—	—	△	—	—	●	●	●	●	—	6.15	227.6	4.000	148.00	131.97	115.93
R1 Relationship with customer	3.9	—	—	—	—	—	—	—	—	—	—	—	—	●	—	●	○	●	○	—	5.90	194.7	4.200	138.60	113.30	106.70
R2 Sales product knowledge	4.1	—	—	—	—	—	—	—	—	—	—	—	—	●	●	○	—	—	—	—	6.10	128.1	4.000	84.00	73.50	65.80
P1 Speed of Quotation	4.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	●	△	6.00	114.0	4.133	78.53	65.87	59.53
P2 Price Value	3.9	—	○	—	○	—	△	—	—	—	●	—	—	—	—	—	○	—	—	○	4.64	102.1	4.100	90.20	81.40	73.33
P3 Price performance	4.0	—	△	△	●	—	○	—	—	—	●	—	—	—	—	—	●	—	—	●	4.76	195.2	4.000	164.00	154.43	136.67
Important Action for Improvement		75	70	101	242	117	56	41	10	157	181	96	143	145	114	183	210	255	85	63						

J. Determine the Alternative Decission Making

The first objective of this study has been answered with the results of QFD analysis and the above quality house. To answer the purpose of the second objective, the authors will present the result of BCD Management's discussion with AHP method. The output of QFD (the contribution value) becomes an input on AHP calculation to find out the alternative strategy.

K. Fair-wise comparison matrix, Eigen Vector, Normalized Eigen Vector, and Weight

The pair-wise comparison matrix is generated by tabulating the data into the square matrix in the columns and rows to the right of the diagonal. Eigen vector, calculate by completing the pair-wise compariseon matrix on the left side of the diagonal with the reciprocal value of the pair comparison matrix. Weight calculation determined by normalizing the eigen vector (by summing each column and then dividing each cell with the sum of each column), weight is the right-hand columnd which is the average of the sum of each line in the normalized eigen vector [Saaty, 1993].

To be prove the consistency of assessment, by sum the weight, if equal to 1, then we can declared that the matrix is consistent.

L. Management Decision Making

Sort the weight of each alternative strategy on the matrix, the greatest value is the best alternative value. To determine the best competition strategy is through discussion among managers and top management in FGD forum by utilize the QFD output becomes AHP input.

By making Pareto analysis of contribution value priority, obtained 14 attributes that have more than 80% contribution. Then management selected 14 priority to mapping the alternative strategies by pair-wise comparison. From the results of AHP analysis we get weight of the alternative strategy for each attribute as follows:

Alternatif Strategi	Value of Weight for Priority Attributes														
	S1	I1	I2	Q2	P3	R1	S4	S3	S5	S2	Q1	U1	R2	A2	**Sum**
Cost Leadership	0.19	0.17	0.19	0.05	0.75	0.44	0.22	0.11	0.10	0.19	0.17	0.19	0.13	0.78	3.68
Differentiation	0.75	0.73	0.74	0.74	0.19	0.49	0.73	0.30	0.69	0.71	0.77	0.72	0.75	0.15	8.46
Focus	0.06	0.10	0.07	0.20	0.06	0.08	0.05	0.59	0.21	0.10	0.06	0.08	0.12	0.07	1.85

REFERENCE

[1] M. Porter, "From Competitive Advantage to Corporate Strategy," *Harv. Bus. Rev.*, p. 65, May 1987.

[2] C. Darcy, J. Hill, T. McCabe, and P. McGovern, "A consideration of organisational sustainability in the SME context," *Eur. J. Train. Dev.*, vol. 38, no. 5, pp. 398–414, 2014.

[3] M. Porter, "COMPETITIVE STRATEGY: Technique for Analyzing Industries and Competitors," New York: City: The Free Press, Simon Schuster Inc, 1980.

[4] H. C. Moon, Y. K. Hur, W. Yin, and C. Helm, "Extending Porter's generic strategies: from three to eight," *Eur. J Int. Manag.*, vol. 8, no. 2, p. 205, 2014.

[5] C. Darcy, J. Hill, T. McCabe, and P. McGovern, "A consideration of organisational sustainability in the SME context," *Eur. J. Train. Dev.*, vol. 38, no. 5, pp. 398–414, 2014.

[6] P. Hongal, "Strategic Management-A Tool for Growth of Micro Small and Medium Enterprises," *Int. J. Innov. Res. Eng. Manag.*, vol. 1, no. 2, 2014.

[7] P. Kotler and K. L. Keller, *Marketing Management*, 15th ed. Global Edition, 2016.

[8] R. Ambarwati, D. Z. Hadiwidjojo, A. Sudiro, and F. Fatchur Rohman, "The Role of Multichannel Marketing in Customer Retention and Loyalty," in *Study in Emerald Bank Customer in Indonesia. Asia-Pacific Management and Business*, vol. 2, 2014.

[9] R. Ambarwati, "Generating Competitive Priority Strategy," in *Transformer Industry*, 2018, pp. 28–35.

[10] T. Wijaya, *QUALITY SERVICE MANAGEMENT, Servqual Design, QFD, and Kano: Accompanied by Application Examples in Research Case*. Jakarta: PT. INDEKS, 2011.

[11] H. C. Moon, Y. K. Hur, W. Yin, and C. Helm, "Extending Porter's generic strategies: from three to eight," *Eur. J Int. Manag.*, vol. 8, no. 2, pp. 205 – 225, 2014.

[12] L. C. Hoe and S. Mansori, "The Effects of Product Quality on Customer Satisfaction and Loyalty: Evidence from Malaysian Engineering Industry," *Int. J. Ind. Mark.*, vol. 3, no. 1, pp. 20–35, 2018.

[13] D. Minar and A. Safitri, "Brand Image and Product Quality on Customer Loyalty (Survey in Cekeran Midun)," *Trikonomika*, vol. 16, no. 1, pp. 43–50, 2017.

[14] R. Sharma and M. Kharub, "Attaining competitive positioning through SPC – an experimental investigation from SME," *Meas. Bus. Excell.*, vol. 18, no. 4, pp. 86–103, 2014.

[15] A. Kaleka and N. A. Morgan, "Which Competitive Advantage(s)? Competitive Advantage–Market Performance Relationships in International Markets," *J. Int. Mark.*, 2017.

[16] H. Gupta and T. Nanda, "A quantitative analysis of the relationship between drivers of innovativeness and performance of MSMEs," *Int. J. Technol. Policy Manag.*, vol. 15, no. 2, pp. 128–157, 2015.

[17] A. Kumar Singal and A. Kumar Jain, "Emerging market firms: measuring their success with strategic positioning maps," *J. Bus. Strategy*, vol. 35, no. 1, pp. 20–28, 2014.

[18] R. K. Sharma and M. Kharub, "Qualitative and quantitative evaluation of barriers hindering the growth of MSMEs," *Int. J. Bus. Excell.*, vol. 8, no. 6, pp. 724–747, 2015.

[19] L. A. Ocampo and E. Estanislao-Clark, "Developing a framework for sustainable manufacturing strategies selection," *DLSU Bus. Econ. Rev.*, vol. 23, no. 2, pp. 115–131, 2014.
[20] Sudarmiatin and Suharto, "Sustainable Competitive Advantage on SMEs : Bringing Local Product toward Global Market," *J. Bus. Manag.*, vol. 18, no. 7, pp. 46–53, 2016.
[21] P. E. Petrakis, P. C. Kostis, and D. G. Valsamis, "Innovation and competitiveness: Culture as a long-term strategic instrument during the European Great Recession," *J. Bus. Res.*, vol. 68, no. 7, pp. 1436–1438, 2015.
[22] R. Ambarwati, "Generating Competitive Priority Strategy in Transformer Industry," 2018, pp. 28–35.
[23] E. S. Taie, "The effect of intellectual capital management on organizational competitive advantage in Egyptian hospitals," *Int. J. Bus. Soc. Sci.*, vol. 5, no. 2, pp. 160–167, 2014.
[24] X. Jie, "Research on Green Manufacturing Innovation Based on Resource Environment Protection," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 94, no. 1, pp. 1–4, 2017.
[25] M. Išoraitė, "The competitive advantages theoretical aspects," *Ecoforum*, vol. 7, no. 1, 2018.
[26] E. Asmayadi and S. Hartini, "The Impact of Service Quality and Product Quality towards Customer Loyalty through Emotional and Functional Values in Traditional Markets in Pontianak, Indonesia," *Eur. J. Bus. Manag.*, vol. 7, no. 5, pp. 128–135, 2015.
[27] M. Kharub and R. Sharma, "Comparative analyses of competitive advantage using Porter diamond model (the case of MSMEs in Himachal Pradesh)," *Compet. Rev.*, vol. 27, no. 2, pp. 132–160, 2017.
[28] L. Sołoducho-Pelc, "Competitive Advantage: The Courage in Formulating Objectives and Expansiveness of a Strategy," *Procedia - Soc. Behav. Sci.*, vol. 150, pp. 271–280, 2014.
[29] P. Kotler and K. L. Keller, *Marketing Management 15th Edition*. 2016.
[30] T. Wijaya, *Service Quality Management, Servqual Design, QFD, and Kano: Accompanied by Application Examples in the Research Case*, 2nd ed. Jakarta: Index, 2018.
[31] K. K. F. Yuen, "A hybrid fuzzy quality function deployment framework using cognitive network process and aggregative grading clustering: An application to cloud software product development," *Neurocomputing*, 2014.
[32] T. T. Sousa-Zomer and P. A. C. Miguel, "A QFD-based approach to support sustainable product-service systems conceptual design," *Int. J. Adv. Manuf. Technol.*, 2017.
[33] S. Yu, Q. Yang, J. Tao, and X. Xu, "Incorporating quality function deployment with modularity for the end-of-life of a product family," *J. Clean. Prod.*, 2015.
[34] D. Maritan, *Practical Manual of Quality Function Deployment*. 2014.
[35] J. de F. Cardoso, N. Casarotto Filho, and P. A. Cauchick Miguel, "Application of Quality Function Deployment for the development of an organic product," *Food Qual. Prefer.*, 2015.
[36] P. Hongal, "Strategic Management-A Tool for Growth of Micro Small and Medium Enterprises [MSME]," *Int. J. Innov. Res. Eng. Manag.*, vol. 1, no. 2, 2014.
[37] C. Darcy, J. Hill, T. McCabe, and P. McGovern, "A consideration of organisational sustainability in the SME context," *Eur. J. Train. Dev.*, vol. 38, no. 5, pp. 398–414, 2014.
[38] M. A. Kaviani and M. Abbasi, "Analysing the operations strategies of manufacturing firms using a hybrid Grey DEA approach - A case of Fars Cement Companies in Iran," *Int. J. Supply Oper. Manag.*, vol. 1, no. 3, pp. 371–391, 2014.

[39] R. Dubey, A. Gunasekaran, and S. Samar Ali, “Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain,” *Int. J. Prod. Econ.*, vol. 160, pp. 120–132, 2015.
[40] I. D. Paul, G. P. Bhole, and J. R. Chaudhari, “A Review on Green Manufacturing: It’s Important, Methodology and its Application,” *Procedia Mater. Sci.*, vol. 6, pp. 1644 – 1649, 2014.
[41] A. C. Ionica and M. Leba, “QFD Integrated in New Product Development - Biometric Identification System Case Study,” *Procedia Econ. Finance*, 2015.
[42] S. Zaim, M. Sevkli, H. Camgöz-Akdağ, O. F. Demirel, A. Yesim Yayla, and D. Delen, “Use of ANP weighted crisp and fuzzy QFD for product development,” *Expert Syst. Appl.*, 2014.
[43] S. Abdurrahman, *Pemerintah Menerapkan Syarat Ketat Dalam Menetapkan Investor Program 35.000 MW*. 2015.
[44] L. Fahey, *Competitor Analysis: Out Witting, Out Maneuvering, and Out Performing*. New York: City: John Wiley & Sons, Inc, 1999.
[45] L. A. Ocampo and E. Estanislao-Clark, “Developing a framework for sustainable manufacturing strategies selection,” *DLSU Bus. Econ. Rev.*, vol. 23, no. 2, pp. 115–131, 2014.
[46] S. Yu, Q. Yang, J. Tao, and X. Xu, “Incorporating quality function deployment with modularity for the end-of-life of a product family,” *J. Clean. Prod.*, 2015.
[47] M. Goold, A. Campbell, and M. Alexander, *Corporate-Level Strategy: Creating Value in the Multi business Company*. New York: John Wiley & Sons, 1994.
[48] F. David, *Strategic Management, CONCEPTS AND CASES*. New Jersey: 13th Edition, Pearson Education, Inc., Publishing as Prentice Hall, 2011.
[49] R. Solimun, A. A., and S. Handoyo, “Perencanaan dan Pengujian Kuisioner Serta Transformasi Skor Menjadi Skala Berbasis MSI, SRS, dan Rasch Model,” in *Program Studi Statistika Jurusan Matematika, FMIPA, Universitas Brawijaya*, Malang, 2017.

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