Integration of Quality Function Deployment and Kano Model in Service Business

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Abstract: The purpose of this study is to determine the priority of customer requirements and technical responses for restaurants using the Quality Function Deployment (QFD) with the integration of the Kano Model. The data is collected through direct observations, interviews, and surveying of 150 respondents who are customers of restaurant B in Bandung. The data is analyzed by combining Kano Model with QFD in helping to build the first matrix in the House of Quality, namely the customer input matrix. This matrix together with other matrices forms a complete building of House of Quality. The findings show that there are six service attributes in a 'must-be' category. The two technical responses that should be prioritized for improvement because their importance level is above average are improvement of the facilities and maintenance of the facilities for the consumers. The two most highlighted facilities include a place of worship that is comfortable and clean, and a larger parking area.

Keywords: Quality function deployment, Kano model, service quality.

INTRODUCTION

Quality is extremely important for a product or service produced by a company. Quality is the company's answer to the consumer needs (Heo, 2016; Maier, 2016; Nguyen, Nisar, Knox and Prabhakar, 2018; Shin *et al.,* 2019), by increasing competitiveness and positioning their products superior in market share. Although important, quality is often forgotten and not the main focus of the company itself. For example, companies focus more on the marketing side such as the brand image or aesthetics of the product to attract more consumers (Mun and Jang, 2018). Meanwhile, the quality development is important to be done by the company as a beginning for the improvement of the business itself, because if the quality continues to improve, it will affect performance and profitability (Llach *et al.,* 2016; Menicucci, 2018; Mun and Jang, 2018).

One form of quality from service industry is service quality. Two factors influence service quality, namely the expected service and perceived service, or in other words the expected service quality and quality of services received (Chang, 2018). Whether or not a quality service depends on the ability of the service provider to meet customer expectations. In the service industry, especially restaurants, there are service quality standards that must be in accordance with the expected and perceived service of customers, such as fast and responsive waiter service, high-taste food menus, and facilities

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that meet consumer expectations (Cho *et all.,* 2016; Sweeney *et all.,* 2016). If a restaurant can realize this, then there will be no gap or gap between what is expected and what is obtained by consumers.

One form of quality from service industry is service quality. Two factors influence service quality, the expected service, and perceived service, or in other words the expected service quality and quality of services received (Chang, 2018). Service quality is good or not depends on the ability of the service provider to meet customer expectations. In the service industry, especially restaurants, there are service quality standards that must be in accordance with the expected and perceived service of customers, such as fast and responsive waiter service, high-taste food menus, and facilities that meet consumer expectations (Cho *et al.,* 2016; Sweeney *et al.,* 2016). If a restaurant can realize this, then there will be no gap or gap between what is expected and what is obtained by consumers.

In Indonesia, being a consumer of a restaurant is commonly done by most people. Seeing this every potential opportunity, the restaurant business is growing from time to time. Along with the level of community welfare, the restaurant business is increasingly differentiated, ranging from traditional food stalls, coffee shops, fast food outlets that are franchises from foreign restaurants, to restaurants that offer classy concepts as well as a clear atmosphere with luxury. Bandung, as one of the capital city West Java province in Indonesia, is a city famous for its attractive tourism destinations with easy access so that it becomes a pleasure for the people. The city of Bandung was also chosen as one of the favorite tourist destinations in the Asian region, occupying the 4th position after Bangkok, Seoul, and Mumbai (Wahyuni, 2015). Seeing this phenomenon, the development of the tourism business, including culinary and restaurants in the city of Bandung is very rapid and increasingly mushrooming to produce creative and interesting culinary destinations for local people and tourists alike.

One of the pioneers of culinary destinations in Bandung is restaurant B. Before becoming a restaurant, it first formed as a cooperative body that became the association of milk collectors and cattle breeders in the city of Bandung in the early 20th century. Restaurant B is famous for its processed foods and drinks made from milk. The atmosphere that is thick with old-fashioned nuances is owned by restaurant B so it is perfect to be enjoyed with family and old friends to liven up memories of the past.

Integration with the Kano model discussed in the study by (Beheshtinia and Farzaneh, 2017); (Chen *et al.,* 2018); (Kuo *et al.,* 2016) are also very helpful in finding attributes that restaurant B must prioritize in improving its services. By looking at the problems faced by restaurant B, it can be shown that the QFD method is suitable to be implemented to evaluate and improve the quality of services to produce improvements for restaurant B in the eyes of consumers. Based on the subject matter faced by Restaurant B in Bandung, several problems are identified in the form of research questions as follows: 1) What are the main needs and desires (customer requirements) of Restaurant B consumers? 2) Technical characteristics and what service attributes should be Restaurant B's priority so that they are ready to improve the quality of their services? 3) How is the implementation of Quality Function Deployment integrated with Kano's Model in setting new service quality standards for Restaurant B?

THEORETICAL REVIEW

Quality is something that is very closely related to meeting consumer needs of (Heo, 2016); (Ilyasa *et al.,* 2016); (Nguyen *et al.,* 2018); (Shin *et al.,* 2019). According to (Heizer and Render, 2014) quality is the product's ability to meet consumer needs. Service quality according to (Zeithaml *et al.,* 2009) is the main element in consumer perception because it is a given evaluation and focuses on service dimensions. Consumers also assess certain things as a component of service quality, such as the outcome technique given, the process of how the outcome is delivered, and the quality of the surrounding conditions and physical appearance where the service is delivered, and are concluded into three main aspects, there are Outcome, Interaction, and Physical Environment Quality. Two main factors have a large influence on service quality, expected service and perceived service (Chang, 2018). Expected service is a service that is expected to be obtained by consumers while the perceived service is a service that is perceived and received tangible and concretely by the consumer. If the perceived service provided by the company exceeds the expected service of consumers, it is concluded that the quality of service is good and satisfying. Whereas if the perceived service provided by the company does not exceed or even less than the expectations of consumers, it means that the quality of the service will be perceived poorly and disappoint consumers so that it can be concluded that these two factors are related to customer satisfaction.

In service quality, there is an instrument that becomes a benchmark for aspects of service quality, namely the dimensions of service quality. The dimensions of service quality are divided into five basic dimensions (Dedeoğlu and Demirer, 2015; Parasuraman *et al.,* 1985; Rauch *et al.,* 2015) which are: Tangibles, physical appearance or tangible evidence of service representatives provided such as facilities, technology, and human resources (HR); Reliability, is the ability to deliver promised services in a reliable, consistent, accurate, alert, and timely manner; Responsiveness is the readiness and ability to provide the services needed right for consumers; Assurance, is a guarantee of friendliness and knowledge of employees and the ability to take consumer trust, there are several components such as communication, credibility, competence, security, and courtesy; Empathy, is an understanding of customer needs in the form of caring and attention aspects applied in dealing with and communicating with consumers.

Integrated quality management (Total Quality Management-TQM) is one of the quality concepts whose scope is more specific, as stated by (Goetsch and Davis, 2010) that total quality is an approach in doing business in order to try to maximize the competitive aspects of the organization, through improvements in product quality, services, human resources, processes, and environment continuously. Also, (Reid and Sanders, 2005) and (Swink *et al.,* 2013) explain that integrated quality management (TQM) is an integrated form of business to improve quality performance at every level of the organization. Total Quality Management is essentially how the company is oriented and instills awareness of the importance of quality at every level of the organization. TQM requires continuous improvement, both in terms of human resources, raw materials, and operations because TQM has the principle that improvements can be made to every aspect that is closely related to the company. Implementation of TQM within the company is very important to

support the achievement of quality standards and maintain consistency of product quality and service. According to (Swink, 2014), there are several factors that influence the success of Total Quality Management, namely: strong and charismatic leadership, trust between management and workers, the emergence of a crisis situation that encourages reasons to make changes, training with adequate resources and always an increase in projects undertaken, good and open communication, undoubted success from the hard work that has been done. Total Quality Management has tools to control the quality and processes that occur in the company, such as The Seven Basic Tools, namely 1. Check Sheet, 2. Scatter Diagram 3. Fishbone Diagram 4. Pareto Charts; 5. Flow Charts; 6. Histogram; 7. Control Charts. From several tools that have been mentioned, one method is adapted to facilitate product design for consumers, namely Quality Function Deployment.

Quality Function Deployment or QFD is a product development method to interpret consumer needs and desires as technical characteristics that can be provided by the company (Bolar *et al.,* 2017); (Cordeiro *et al.,* 2016); (Harsanto, 2009). By using QFD, the company can identify all the most important consumer needs of the product that has been given and also evaluate how well the product meets or exceeds the needs of the consumers themselves so that it will have a significant cost reduction due to irrelevant cutting processes.

According to (Heizer and Render, 2014), QFD is a process to determine the needs and desires of consumers and translate them into attributes to be produced from various aspects of the company that is responsible and acts on it. (Goetsch and Davis, 2010) suggested that QFD is a system that allows designers and planners to focus on various product attributes in terms of consumer views. This involves (1) identifying consumer needs (better known as The Voice of the Customer or VOC), (2) identifying what attributes will meet consumer or VOC needs, and (3) making product development and testing it according to targets and priorities. QFD has four matrices or devices, namely House of Quality (HOQ), Design Matrix Subsystem, Piece Part Design Matrix, and Process Design Matrix. The main matrix in QFD is the first matrix, House of Quality. So the author decided to choose the House of Quality instrument in exploring this research study.

The House of Quality matrix or quality house is the main QFD instrument and is commonly used by practitioners. According to (Heizer and Render, 2014), HOQ is part of the QFD process that utilizes the planning matrix to connect consumer desires and how the company makes it happen. HOQ is also an example of a guide template for identifying and translating consumer needs or Voice of Customer into product attributes. According to (Chase *et al.,* 2011) by building a matrix of House of Quality, the process of translating customer requirements will encourage the human resources involved in the company to work together more effectively and better know the characteristics of each individual in achieving the main goal of creating customer satisfaction.

(Anwar *et al.,* 2013) explained the application of Quality Function Deployment to a café, namely Ngodoe Cafe, which has problems in meeting customer needs. Ngodoe Cafe is fondly oriented to the market share of teenagers and students so that other people who visit the cafe are less able to enjoy the services provided. Connected to the research study conducted, this Anwar, Mulyati, and Amelia study discuss the application of Quality

Function Development in the service industry, more specific in the restaurants. This has to do with the topic of thesis research and aims similarly to improve service quality standards.

(Andronikidis *et al.,* 2009) explained the application of QFD in the service industry by using House of Quality but integrating with quantitative methods Analytic Hierarchy Process or AHP and Analytic Network Process or ANP. The use of AHP and ANP is intended to facilitate in determining the relationship of strength between consumer needs and service attributes. AHP and ANP are tools for multi-criteria decision-making methods that use hierarchy or levels to represent existing problems. Linked to this research study, (Andronikidis *et al.,* 2009) have to do with the implementation of Quality Function Deployment in the service sector. The design of QFD is well proven by how the relationship between consumer needs, service specifications, target values, and competitive performance are translated into the visual planning matrix. The addition of AHP and ANP methods is also an added value to make it easier with the Super Decisions application to calculate the Relationship Matrix with the Roof Matrix.

(Irawati *et al.,* 2016) explained the application of Quality Function Deployment and integrate it with Conjoint Analysis. The phenomenon of the problem is that the researcher explains that there are some shortcomings in the implementation of Quality Function Deployment (QFD), it is difficult to distinguish between various consumer needs that are conflicting and difficult to meet the needs of different groups or segments of consumers. The purpose of using Conjoint Analysis is to find out how consumers are willing to sacrifice the attributes and levels of a product against other product attributes. Connected to the research study conducted, the research of (Irawati *et al.,* 2016) has to do with the implementation of Quality Function Deployment and with the integration with Conjoint Analysis; it can be an input for the execution of customer needs. This integration model also helps to obtain technical responses according to existing market share and consumer preferences.

The Kano Model is a method developed by (Noriaki Kano, 1984), which is a series of concepts, ideas, and techniques to help determine customer satisfaction from the product attributes offered. There have been many studies involving Kano, such as the results of the (Sauerwein *et al.,* 1996) and (Xu *et al.,* 2009) which highlighted the use of canoes to delight consumers and customer needs analysis. Or research that integrates with other tools such as those conducted by (Basfirinci and Mitra, 2015), (Kuo *et al.,* 2016), or (Lin *et al.,* 2018). The Kano model proposes a dimension of satisfaction consisting of 5 aspects: Frustrated - Dissatisfied - Neutral - Satisfied - Delighted. Frustrated shows the condition of dissatisfaction at all while delighted showed very satisfied conditions. There are also dimensions of the existence of product specifications consisting of 5 aspects, namely None - Some - Basic - Good - Best. Where none showed absolutely no product specifications while Best shows the best product specifications. The dimensions of satisfaction and the existence of product specifications are integrated to create the basis of the Kano Model and determine how consumers feel about the attributes of the products they have.

The Kano Model classifies features or attributes of a product into three One-dimensional categories, Must Be, Attractive. One-dimensional categories or Performance

are product features that are directly proportional to customer satisfaction. The more features offered, the higher the level of satisfaction felt by consumers. In other words, the One-dimensional category provides an opportunity for organizations or companies to continue to maintain their presence in certain markets. Must Be category is a product feature that is expected by consumers. If the product does not have the expected features, consumers will feel very dissatisfied with what we provide. Attractive categories are product features that are not required to exist and are not expected by consumers. Attractive product features are unexpected, but these features cause positive reactions from consumers because, with Attractive product attributes, the opportunity to increase customer satisfaction is very high.

METHODOLOGY

The study was conducted with the following steps: (Heizer and Render, 2014). First, collect data to conduct observations and conduct structured interviews with representatives from Restaurant B. Second, collect data by reviewing directly on consumers or visitors to Restaurant B. This stage includes: making a direct review design or survey on issues related to the research hypothesis, determine samples, collect data, process and analyze, interpret data, and make conclusions. Third, process the overall data that has been obtained (observation, interview, and direct review) to have the result of the data and problems. Fourth, classify each problem and each technical data obtained from Restaurant B. Fifth, identify the result of data that have been obtained with a questionnaire using the Kano model evaluation table which consists of several categories namely Q = Questionable, O = One-dimensional, R = Reverse , A = Attractive, I = Indifference and M = Must Be. The population in this study was restaurant consumers B Bandung. The sample selection method in this study used a non-probability purposive technique. Sixth, redesigning service quality standards for Restaurant B by using the House of Quality (HOQ).

Matrix 1 is Customer Input which contains information about what things are desired by consumers to give satisfaction. This information is usually obtained through surveys or research result because with this the company can understand firsthand the main priorities of this consumer needs. Matrix 2 is Technical Characteristics, which contains information that is useful for the needs of the company in fulfilling the Customer Input on the matrix 1. Information on matrix 2 must contain what technical characteristics and technologies related to meeting customer needs. Matrix 3 is in the form of Planning Matrix, which contains information about the comparison of companies with other competitors in dealing with aspects that become customer requirements. This matrix aims to provide information about what the company has advantages over other competitors or even information about what is the company's weaknesses compared to other competitors so that it can be a reference for improvement.

Matrix 4 is a Relationship Matrix that contains information about the relationship between the matrix 1 Customer Input and Matrix 2 which is Technical Characteristics. The purpose of this relationship is how strong the technical characteristics have been set by the company to support customer satisfaction. This relationship is symbolized by 3 symbols

that describe the Strong, Medium, and Weak relationship. Matrix 5 is a Technical Matrix that contains the performance targets of Technical Characteristics set by the company to meet consumer needs. This matrix is also an indicator of the company's success if it can reach or even exceed the target. Matrix 6 is Technical Correlations which contains information about the relationship between Technical Characteristics on matrix 2. This relationship is also symbolized by a positive symbol if there is a correlation between 2 technical characteristics that have been determined by the company.

DISCUSSION

The research variables in the questionnaire were further evaluated with the Kano model using five dimensions of service quality or SERVQUAL (Dedeoğlu and Demirer, 2015; Parasuraman *et al.,* 1985; Rauch *et al.,* 2015) obtained from 150 respondents. The result of the validity test (Table 1) showed that the value of the corrected item-total correlation of all statement items in each research variable is greater than the r-table value of 0, 134. It can be concluded that all statements of each SERVQUAL five-dimensional variable are declared valid. While the reliability coefficients produced are 0.895 and 0.919 so it can be concluded that the questionnaire used to assess restaurant B service quality has a sufficient or sufficient level of reliability and fulfills the requirements so that it can produce consistent and accountable answers and it can be concluded that all instruments used in this study reliable.

The description of the research subjects showed that the respondents consisted of 150 people with a composition of female sex of 58%; over 25 years old at 56.67%; the majority work as Civil Servant / Police / Army at 26%; has an income of between Rp.3,000,000 and Rp.7,000,000 for 42%; and the frequency of visiting restaurant B is more than 1 time at 76%.

Table 1. Test of Validity of Variable Interest & Reality Instruments

No. Item	Pearson Correlation	r-table	Explanation	Pearson Correlation	r-table	Explanation
T1	0.394	0.134	Valid	0.343	0.134	Valid
T2	0.390	0.134	Valid	0.521	0.134	Valid
T3	0.399	0.134	Valid	0.317	0.134	Valid
T4	0.563	0.134	Valid	0.573	0.134	Valid
T5	0.570	0.134	Valid	0.433	0.134	Valid
T6	0.721	0.134	Valid	0.530	0.134	Valid
T7	0.739	0.134	Valid	0.685	0.134	Valid
T8	0.615	0.134	Valid	0.648	0.134	Valid
T9	0.727	0.134	Valid	0.645	0.134	Valid
R1	0.593	0.134	Valid	0.490	0.134	Valid
R2	0.671	0.134	Valid	0.564	0.134	Valid
R3	0.708	0.134	Valid	0.620	0.134	Valid
A1	0.766	0.134	Valid	0.506	0.134	Valid
A2	0.727	0.134	Valid	0.676	0.134	Valid
A3	0.759	0.134	Valid	0.699	0.134	Valid

No. Item	Pearson Correlation	r-table	Explanation	Pearson Correlation	r-table	Explanation
A4	0.552	0.134	Valid	0.622	0.134	Valid
RS1	0.676	0.134	Valid	0.646	0.134	Valid
RS2	0.671	0.134	Valid	0.567	0.134	Valid
E1	0.681	0.134	Valid	0.607	0.134	Valid
E2	0.487	0.134	Valid	0.548	0.134	Valid
E3	0.482	0.134	Valid	0.556	0.134	Valid
E4	0.610	0.134	Valid	0.484	0.134	Valid
E5	0.642	0.134	Valid	0.553	0.134	Valid

Source: (Primary data processed, 2016)

Based on the identification of the voice of the customer (VOC), there are 23 attributes of restaurant B service based on five SERVQUAL dimensions (Table 2). The process of collecting voice of customer data is done by distributing questionnaires to 150 respondents who visited restaurant B. The questionnaire was formed by integrating two methods, namely the SERVQUAL approach and the Kano model as previous studies that integrated Kano with other methods (Basfirinci and Mitra, 2015); (Kuo *et al.*, 2016); (Lin *et al.*, 2018). Attributes that have a negative value of satisfaction indicate that consumers of restaurant B are not satisfied with the service provided. The satisfaction value of each attribute can be shown in table 3.

Table 2. Restaurant B Customer Satisfaction Level

Item	Attribute	Perceived	Expected	Satisfaction
T1	Restaurant comfort	2.69	3.80	-1.11
T2	Attractive restaurant design	3.80	3.80	0
T3	Additional facilities available (Television, Free Wi-Fi, Smoking Area)	3.80	3.56	0.24
T4	Clear representation of the food and beverage menu	3.80	2.78	1.02
T5	Courteous employee appearance	3.80	3.80	0
T6	Clean eating and drinking equipment	3.56	3.15	0.41
T7	Comfortable and clean toilet	2.85	3.56	-0.71
T8	A comfortable and clean place of worship	2.98	3.80	-0.82
T9	Large parking area	2.14	3.80	-1.66
R1	Food and drinks come quickly	3.31	2.49	0.82
R2	Guaranteed quality of food and drinks	2.98	3.31	-0.33
R3	The restaurant is easily contacted by consumers	2.98	2.36	0.62
A1	Employees understand the menu offered	3.31	3.80	-0.49
A2	Employees are friendly and polite	3.56	2.82	0.74
A3	Employees can be trusted	3.80	2.75	1.05
A4	Careful employees in calculating payments	3.80	2.82	0.98
RS1	Employees are quick to respond to help consumers	2.94	3.09	-0.15
RS2	Suggestions and criticisms are easy to convey	3.04	3.42	-0.38
E1	Payment systems vary	3.80	3.56	0.24
E2	Discount facility	3.42	3.42	0
E3	Entertainment for consumers	3.80	3.56	0.24

Item	Attribute	Perceived	Expected	Satisfaction
E4	Operating hours according to the wishes of consumers	3.23	3.80	-0.57
E5	Complete restaurant facilities	3,80	3,80	0

Source: (Primary data processed, 2016)

After searching for restaurant B customer satisfaction values, the next is to categorize each attribute which has a negative satisfaction value with the Kano model (Sauerwein *et al.,* 1996; Xu *et al.,* 2009). By finding the frequency of each answer in the functional and dysfunctional attributes, canoe categories can be obtained as in table 3.

Table 3. Categorizing Attributes to Canoe Categories

Item	Attribute	Categories	Weight
T1	Restaurant comfort	I	0
T2	Attractive restaurant design	I	0
T3	Additional facilities available (Television, Free Wi-Fi, Smoking Area)	M	1
T4	Clear representation of the food and beverage menu	I	0
T5	Courteous employee appearance	I	0
T6	Clean eating and drinking equipment	M	1
T7	Comfortable and clean toilet	M	1
T8	A comfortable and clean place of worship	M	1
T9	Large parking area	M	1
R1	Food and drinks come quickly	I	0
R2	Guaranteed quality of food and drinks	M	1
R3	The restaurant is easily contacted by consumers	I	0
A1	Employees understand the menu offered	M	1
A2	Employees are friendly and polite	M	1
A3	Employees can be trusted	M	1
A4	Careful employees in calculating payments	M	1
RS1	Employees are quick to respond to help consumers	M	1
RS2	Suggestions and criticisms are easy to convey	I	0
E1	Payment systems vary	I	0
E2	Discount facility	I	0
E3	Entertainment for consumers	I	0
E4	Operating hours according to the wishes of consumers	I	0
E5	Complete restaurant facilities	M	1

Source: (Primary data processed, 2016)

The next step is to calculate the adjusted importance value, which is an absolute value for the multiplication of each weight of the canoe category with a gap value and level of importance. Adjusted Importance = (Gap Score x Expected Score) x Canoe score. Referring to (Tan and Pawitra, 2001), stated that true customer needs are obtained by removing attributes that have an indifference category. In this study there are three attributes with indifference categories of nine attributes that have negative satisfaction values, so that true customer needs are as many as six attributes.

Table 4. Priority Customer Requirements

Item	Attribute	Importance Level	Gap	Category	Weight	Adjusted Importance	% of Adjusted Importance	Rank
T7	Comfortable and clean toilet	3.56	0.71	M	1	2.53	16.46%	3
T8	A comfortable and clean place of worship	3.80	0.82	M	1	3.12	20.29%	2
T9	Large parking area	3.80	1.66	M	1	6.31	41.05%	1
R2	Guaranteed quality of food and drinks	3.31	0.33	M	1	1.09	7.09%	5
A1	Employees understand the menu offered	3.80	0.49	M	1	1.86	12.1%	4
RS1	Employees are quick to respond to help consumers	3.09	0.15	M	1	0.46	2.99%	6
						Total 15,37	Average 16.67%	

Source: (Primary data processed, 2016)

Two service attributes have a percentage of adjusted importance above average (Table 4). The attribute that has the highest percentage of 41.05% is "Large parking area". This is suitable to be the priority because based on the current condition of restaurant B, the parking area that is owned is less able to meet the demands of consumers. If consumers who are willing to visit restaurant B do not get parking space, especially car vehicles, the stand-by security guard does not find alternative parking spaces for consumers who want to visit the restaurant. Valet services are not provided so that when faced with a situation like that consumers will feel confused, whether consumers have to wait to get a parking or change their dining destination. If restaurant B loses consumers simply because parking is not enough, of course, it is very detrimental.

The second attribute which has a percentage above the average of 20.29% is "Comfortable and clean place of worship". At present, there are 300 restaurant B consumers per day. Of course, consumers have high expectations of all facilities owned by restaurant B, especially places of worship or prayer rooms. But in reality, the place of worship owned by restaurant B cannot meet consumer expectations, because it is less clean and less comfortable. It is undeniable that the location of restaurant B is adjacent to one of the large mosques in the city of Bandung. Even so, restaurant B itself should fix the prayer room to be comfortable for consumers who want to worship in the restaurant.

Technical Response or Technical Characteristics (Table 5) are aspects of how the company responds and meets customer needs and desires (customer requirements). Based on the results of interviews with representatives from restaurant B, eight aspects of technical responses were formulated related to true customer needs. Then each of these technical characteristics is given the target value of an improvement. The following is the determination of the target direction of improvement for each technical characteristic of restaurant B.

Table 5. Technical Responses and target direction

No.	Technical Responses	Target
1	Employee competency	▲
2	Maintenance of restaurant facilities	▲
3	Restaurant design concept	▲
4	Additions and reviews of food and beverage menus	▲
5	Improved facilities for consumers	▲
6	Development of Standard Operational Procedure (SOP) for the kitchen, pantry, and bakery section	▲
7	Development of Standard Operational Procedure (SOP) for the restaurant service section	▲
8	Accuracy of service to consumers	▲

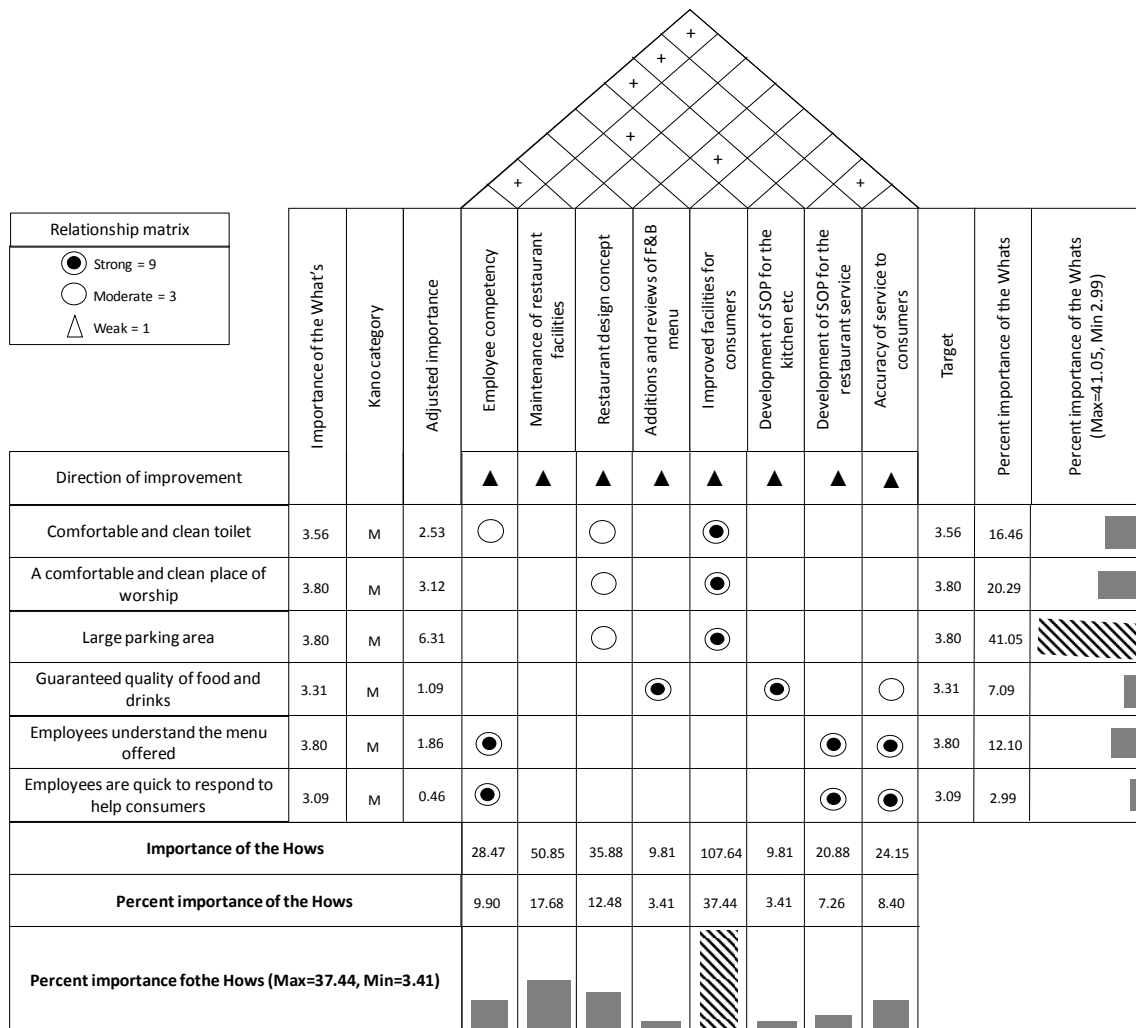Source: (Results of the interview, 2016)

After that, a relationship matrix was built. Relationships Matrix is the 4th matrix of the House of Quality (HOQ) matrix which contains the relationship between customer needs or customer requirements in the 1st matrix with technical characteristics in the 2nd matrix. In its application, there is an identification of the value of relationships or Relationships Value as follows: strong = 9, medium = 3, weak = 1. Then the technical matrix is calculated which is the 5th matrix in HOQ (Table 6).

Table 6. The priority of Technical Responses

No.	Technical Responses	Absolute Importance	Relative Importance
1	Employee competency	28.47	9.9%
2	Maintenance of restaurant facilities	50.85	17.68%
3	Restaurant design concept	35.88	12.48%
4	Additions and reviews of food and beverage menus	9.81	3.41%
5	Improved facilities for consumers	107.64	37.44%
6	Development of Standard Operational Procedure (SOP) for the kitchen, pantry, and bakery section	9.81	3.41%
7	Development of Standard Operational Procedure (SOP) for the restaurant service section	20.88	7.26%
8	Accuracy of service to consumers	24.15	8.4%
	Source: (Primary data processed, 2016)	**Total** 287.49	**Average** 12.5%

There are two technical characteristics of restaurant B which have relative importance above the average. The first technical characteristic that has the highest percentage of 36.64% is an increase in facilities for consumers. And the second character with a percentage of 19.45% is the maintenance of facilities for restaurants. By giving special attention to these two characteristics, it will provide a direct influence on service attributes, especially on tangible dimensions such as maintenance of toilets and places of worship, maintenance of Wi-Fi facilities, and increased parking available. These efforts are expected to better meet the needs of consumer consumers (Heo, 2016; Ilyasa *et al.,*

2016; Nguyen *et al.,* 2018; Shin *et al.,* 2019) and can further improve overall company profitability and performance (Llach *et al.,* 2016; Menicucci, 2018; Mun and Jang, 2018).

Figure 1. Technical Correlations Source: (Primary data processed, 2016)

Technical Correlations (Figure 1) are the 6th matrix of the House of Quality (HOQ) matrix that is shown the relationship or interaction between each Technical Responses (technical characteristics). The form of the relationship is a matrix that resembles a roof. Also, the form of the relationship often referred to as a roof matrix so that this matrix is the last matrix that complements the House of Quality (HOQ) matrix (Figure 2).

Figure 2. House of Quality Matrix. (Primary data processed, 2016)

CONCLUSION

The following are some conclusions from the results of the analysis. First, the priority of customer requirements is identified from six service attributes that have a must-be category. There are two attributes with a percentage above the average, which is the top priority for the redesign, namely: a place of worship that is comfortable and clean and a large parking area. Second, technical characteristics priorities are identified by calculating the adjusted importance of each characteristic. There are two characteristics that restaurant B must prioritize to be ready to improve the quality of services, namely: improvement of facilities for consumers and maintenance of restaurant facilities. Third, in this study, the Kano Model was integrated with QFD in helping to build the first matrix in the House of Quality, namely the customer input matrix. This matrix together with other matrices then forms an intact building of House of Quality which is the hallmark of QFD.

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