Quality Function Deployment and Application on a Fast Food Restaurant

Züleyhan Baran
PhD Candidate in Social Sciences Institute
University of Sakarya
Sakarya, Turkey

Mehmet Selami Yıldız, PhD
Professor
Department of Business Management
University of Duzce
Duzce, Turkey

Abstract

It is important to be successful product development and the ability to respond quickly to customer demand in a company. Quality Function Deployment (OFD) is applied by companies' in order to plan activities to meet customer requirements in a products/services design process. QFD provides a competitive advantage to a company according to customer expectations of products/services by reducing development time in the industry. The purpose of this paper is to answer customer requests for product/service and to increase customer satisfaction/loyalty under the led of QFD methodology. In this paper, QFD application was performed on a fast food restaurant to make assessment that depending on the opponents and to discover existing requirements according to current customer demands. The practicality of QFD was applied on a fast food restaurant. This company may considerably represent traditional manufacturing environment at the global level. Quality house was evaluated where made of QFD application in the fast food restaurant. As a result, giving some suggestions about healthy product, useful equipment and customer relationships for how to satisfy customer demands which considering the fact that the current state to the fast food restaurant and company in general.

Keywords: Quality function deployment; Quality house; Fast food restaurant

1. Introduction

Quality function deployment (QFD) process is generally used as customer-oriented quality management and product development methodology in the manufacturing industry. It is also used for developing product and design quality in the service industry (Chan and Wu, 2002a; Akao and Mazur, 2003; Vinodh and Chintha, 2011). QFD applications have developed for product quality as well as adapted to the service industry but applications for the service industries are very limited (Paryani, 2010). Nowadays, the more important point is that customers have vital importance to provide satisfaction and loyalty in food and beverage managements. QFD is a widely used method of improving the design of products/services in accordance with customer requirements. The main reason for using QFD is the period which gives priorities to the customer satisfaction, especially at decision making process and provides using management performance efficiently. The relationship between customer requirements and business needs, significant competitive reviews, priorities and ability of management capabilities can be evaluated at the quality house which is created by method of QFD. In this paper, QFD method which is based on four staged product was adapted on a three staged model to be applied on a fast food restaurant which was adapted for service industry. In this paper firstly WHAT's, HOW's and matrices of relationship are determined among them and after the quality house which will be used for uncovering the technical requirements was created for the fast-food restaurant. And then the data transferred to the Quality House that was assessed and some suggestions have been done about the issues such as customer relations, healthy products and useful equipment to improve the management. As a result; giving some suggestions about healthy product, useful equipment and customer relationships for how to satisfy customer demands which considering the fact that the current state to the fast food restaurant. In this paper, innovation and regulation are more important where the implementation was carried out for service industry.

## 2. Quality Function Deployment (QFD)

"Quality Function Deployment" concept had emerged between the years 1960-1965 as a result of implementations of "Total Quality Control" technique. QFD is a method, which works to adapt the customer demand for most appropriate product/service sensibilities (Mazur, 1996). In the first process, the relevant schemes and the use of case studies have led to development the idea of "business functional deployment". The concept here in QFD has been shaped by the use of process schemas (Mazur, 2008). The purpose of QFD has been in the direction of orientation and realization with listening to the voice of customers at different parts to improve a new product/service according to customer demands (Khoo and Ho, 1996).

QFD application has three main aims (AUT, 2011):

1. To prioritize customer demands which was mentioned/unmentioned,
2. To convert these demands into operating characteristics,
3. To provide realizing of quality product or service supply all of departments which are focus on customer satisfaction.

In the direction of these aims, the company can reduce its outgoings, easily adapt on changing in market and release right product and service at first time with identifying of recovery time (Zairi and Youssef, 1995). QFD period is a comprehensive which is based upon to make suitable for all data and evaluation of the results related with Quality House (Shillito, 1994). QFD application ends with to be constituted and commented of "Quality House" matrix. There are five systematically procedural steps for Quality House (Lee and Lin, 2011). In general, a four-phase QFD model applied in the manufacturing industry was adapted in the form of a three-step model of QFD by transformation of deployment process matrix to the methodology of the action plan. A three stage model of QFD is shown in Figure 1 (Paryani, 2010):

Figure 1: A Three-Phase Action Plan Based QFD Flow down Process in the Hospitality Industry
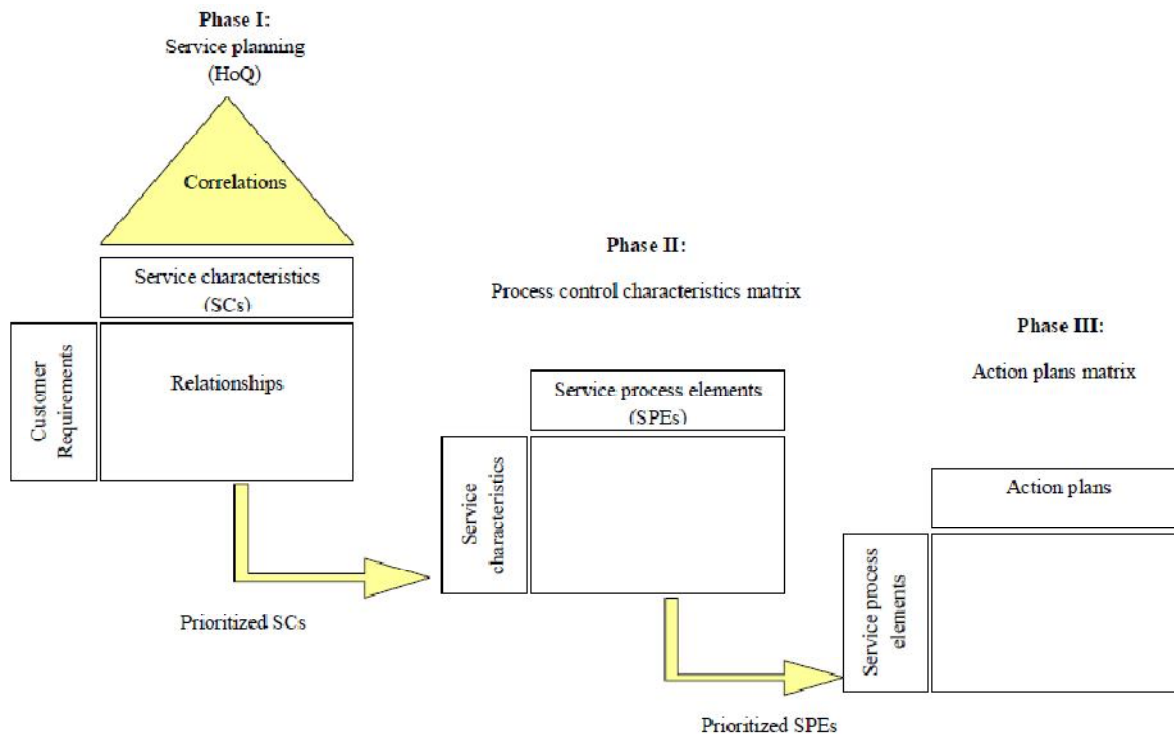
Source: Paryani, 2010

3. Fast Food Managements

Progress of concept is specially connected with change of food habits of Europeans after 2nd World War. Industrial progress and long hours of work emergent after the war years was revived problem of limited time for eating of people. (Dann and Hornsey, 1984).

Main purposes of fast food restaurant are (Ninemeier, 1990; Davis and Stone, 1985):

- to concentrate on one product
- franchised
- to get better of marketing
- to apply of specific price range
- to use of practical products
- to drive of food production method with automatic control system
- to apply of self-service method

4. QFD Application

This research was conducted on one of the famous chain of fast food restaurants in Kuşadası branch-operating by taking franchise in Turkey between June 18 and July 30 in 2011. This fast food chain does not allow their name to be used in any research because of that the name of the chain will not mention in this study.

4.1. Service Planning Matrix

Respectively service planning matrix which comprises:

4.1.1. The Establishment of QFD Team

During implementation of QFD to establish a more effective communication between functions it is required an effective team of QFD. Branch manager is selected as leader of QFD team in processes that will done about QFD implementation due to lack of operational capacity of management. However, two employees who are experienced in their fields and volunteer to work in the team of QFD were also included in the team which performs the implementation. Created QFD team firstly provided collection of customer voice during analyze of Gemba process. Afterward, determining the characteristics of management to how to meet customer demands got into the stage of creation of Quality House.

4.1.2. Customer Demands (WHATs)

Quality house is a process starting with to determine customer demand and transferring the ideas with customer interviewing methods to the quality house (Park and Noh, 2002). Among the methods used for determining customer demands there is also stage of determining the customer demands in place with Gemba analysis and converting the demands to implementation problems determined with SERVQUAL technique. Commonly used SERVQUAL technique in the service point for determining customer demands is among methods what supports Gemba step (Paryani, 2010). Customer demands can also be accessed through complaints; but innovations not only with the listening of complaints and understanding what is the real (Lager, 2005). Firstly related to the service size from the demands obtained result of Gemba analyses as a basis of QFD literature implemented to the service area (Paryani, 2010) converted to the SERVQUAL sizes, after demands about products were converted to the customer voice about product as a base of QFD literature implemented in the production area. Direct method of assessment was used for rating the results of survey. In this way clearer results were obtained while planning target assessment. Here the most important customer's demands were determined and to what extent they answered these demands between implementation of management with competing management.

4.1.3. The Level of Importance Customer Demands (WHATs)

After uncovering customer demands prioritization process should be done for determining the basic needs (Hepler and Mazur, 2006). When determining the importance level of customer demands, customers were asked rate demands for determining the level of importance to get more realistic results. When determining importance level of customer demands directly methods were used to determine (Enríquez et. al., 2004; Chan and Wu, 2005):

- Direct assessment
- Sort by severity,
- $ 100
- 1-2-3 Rank
- Analytical Hierarchy Process (AHP)
- Kano model

According to the survey results in this method, each demand was calculated by taking the arithmetic average of importance level of demands. When regarding arithmetical average of "importance level of customer demands", rather than customer demands from producing weight is seen to the demands for service. In the survey prepared according to the quintet Likert Scale was optimized to decimal to get more accurate results of importance level. In this applied research there are arithmetic averages of each statement of 246 surveys. In this way which statement attached importance by the customers were determined.

4.1.4. Management Requirements (HOWs)

It is a step of searching the answers of the questions of QFD team to how to meet customer demands and which technique characteristic ensures more customer satisfaction (Park and Noh, 2002). Customer satisfaction is determined demands and then converted suitable productions and service characteristics. Correlation is determined for the purpose of uncovering which features can affect each other positive or negative among the characteristics (Guinta and Praizler, 1993).

4.1.5. The Relationship Matrix (WHATs & HOWs)

Customer demands, product or service characteristics are determined by QFD team in this stage. Which technique characteristic how much meets which demand is determined in the body portion of quality house within the relationship matrix (Dekker et. al., 2001). Part of the relationship matrix is used to detect WHATs and HOWs meet the demands adequately or not (Paryani, 2010). Three different levels are identified for this relationship matrix. The relation points between WHATs and HOWs which their meanings are shown in Table 1:

Table 1: Relation between WHATs & HOWs

Relation Degree	Point	Figure Mode
Strong	9	◉
Medium	3	O
Weak	1	△

The strong association between "WHATs" and "HOWs" shows the corporation can fully respond the customer voice (Paryani, 2010; Park and Noh, 2002). Given symbols are not obligatory to comply for defining the relationship. Here the main target is to choose the most straightforward (Hauser and Clausing, 1988).

4.1.6. Customer Competition Assessment

Customer competition assessment can provide to take a different opportunity for developing the company. Comparison values are asked to give from customers about other company in the same position of industry to evaluate the performance of the company and rival company. In this way customers can better determine the position in the market about the conducted company of field research within learning the customer perceptions (Paryani, 2010). Customers are requested to evaluate the products of the company with the rival company according to determined points system by using five level Likert scale (i.e., "1" represents the least importance and "5" represents the highest importance) (Ferrell and Ferrell, 1994). In conducted survey, customers were asked to compare fast-food restaurant with the others operating in the same level of status in the same industry. In assessing this, customers were asked to evaluate what extent implemented these demands on both companies from their most importance given demands. Therefore, before the survey was made customers were specifically asked whether they tried a product or a service at least one from rival fast-food restaurant or not. Survey has been applied according to this response. After identifying the importance level of these statements, the second stage will start. This stage basically covers the process of converting the identified statements into voice of company.

4.2. The Characteristic Matrix of Process Control

After first matrix was made the priors between determined demands are transferred as data lines which are the second matrix (WHATs). The purpose of creating the second matrix is to decide the realizing determined demands or column data (HOWs) that becoming service characteristic. Hence QFD team performs the work to determine the required parts for meeting the service requirements or products like they do in first stage. After details were determined, relationship matrix was created and putted forth effects of service features with each other and which piece is more important to fulfill the demands of the customers were determined. Later, required matrices (HOWs) for meeting the demands of service (WHATs) or the products that determined are defined.

In this instance to analyze correctly of service demands or products that defined by customers are quite important for next step. The production which will meet customer demands or service features is defined and relationship matrix is created between the demands and these features in this stage (Guinta and Praizler, 1993). Customer demands are converted to the terms which will be used to explain about product or service by company (Day, 1993). According to the technique characters (HOWs) which technique features must be met according to the first determined by company. This is very important level for strategic targets (Paryani, 2010). In this research each customer demands how can be met by which practice was discussed by QFD team and the characteristic technique of each demand was showed in Table 2. From the left part of the table, customer demands were classified respectively. There are the column of customer demands, technical requirements, exhaustive determined column of measurement units and how these requirements can be met. At this stage, the important point is to remember that how these technique requirements can be measure to check their satisfaction.

Table 2: Technical Requirements

Category	Customer Requirements	Technical Requirements (WHATs)	Measurement Unit
Price	The combined products for free	Cost of purchasing	Changes in raw material prices
		Cost of production	Product costs
			Wastage rates: The cost of waste from manufacturing defects (cost of the staff meal etc.)
		Cost of service	Number of staff
	Promotion price applications	Discounts	For a certain segment (children, etc.)
			Special days and weeks (April 23, etc.)
			Applied to part-time campaigns
		Sponsorship	Company contracts
Product	Cooking level	Grill temperature	300-350 ° C
		Cooking time	1min 45 s – 2 min
	Temperature	Gold Standard Service (GSS)	2 min 30 s
		Microwave	4 s
	Image	Ingredients	Material arrangement
			Material freshness
		Packaging paper	Cleaning of packaging material
	Quality	Spices	Quantity (g)
		Cooking level	Degree/Time (ºC)
		Combined products	Expiration date and quantity (g)
		Time of service	Minute (min.)
		Sandwich bread	Temperature range (40 ºC) and caramelized
		Hygiene	Food Safety System
			Quality-Service-Cleanliness Schedule contr.
		Requests	Number of complaints (complaints/day)
		Education	Staff knowledge level (education / year)
		Expiration date specified of the meat	Day-Month-Year
		The expiration date of bread, combined products (ketchup etc.)	P= Preparation U= Usage W= Waste
	Healthy	Quality of the material	Raw material quality control (control / day)
		Production line cleaning	Training of staff
			Quality-Service-Cleanliness Schedule contr.
		Additive	Food Safety System
		Vegetable and meat	The use of registered organic products
		Food Safety System	Efficiency measurements (control / year)
Packaging	Pack	Design work	Idea number / year
		Manufacturer	BRC certificate
			SQA certificate
			Standardization of product and pack
		Ease of Unpacking	Spiral paper raw material (cellulose, etc.)

Table 2 (Continued): Technical Requirements

Category	Customer Requirements	Technical Requirements (WHATs)	Measurement Unit
Service	The spatial design	Functional, structural and esthetic design	Planning and Implementation
		Interior and exterior spaces design	Interior: black leather and wood
			Exterior: metal and garden furniture
		The location of billboards	Planning and Implementation
		Non-smoking and smoking area	Specifying the sections
	Staff Uniform	Uniform and firm representing	suitable design
		According to gender	Women / men
		According to the rank Form/Badge	**Director:** white shirt and gray pants and white tag **Expert:** blue jeans, black T-shirt-Red Badge **Conductor:** blue shirt, black pants and blue Badge **Staff:** Red T-shirt-blue jeans-and-yellow Badge
	Convenient equipment	Soap dispenser	Functional and filled 3/1 (control / day)
		Hand dryers	in operation 3/1 (control / day)
		Photocell	in operation 3/1 (control / day)
	Standard service	5-step application	Smile and order taking Order repetition and preparation Money collection Order repetition and presentation Sendoff
		Price standardization	Financial analysis (4 times a year)
	Staff knowledge level	Application of the rotation system	Weekly and monthly applications
		Examination system	Staff assessment examination 4 times a year
	Delivery Time	Delivered as promised	Minute
		Gold standard service time	The customer come through the door, taking orders, delivery orders and sendoff: 2 m 30 s
	7/24	Shift system	3 shifts in a day (each 8 hours)
		Premium salary	Salary + premium (based on sales)
		Part-time work	Hour application
	Extensive branch network	Domestic Franchising	Planning and implementation
	Customer relationship	Friendly service	Customer perception - the number of complaints in a day
		Problem solving	Meeting / phone call / internet / wish box
		Forwarding to suit customer needs	Menu selection recommendation

4.3. Action Planning

After Quality House created in this stage the matrix of process control characteristics are developed for service characteristic or each prioritized products. These determined characteristics are qualitatively because it reflects the quality of service. An ideal target is assigned and determined characteristics for each unit. The matrix exactly moves the features of service process with measurement units and target values. But some of these determined characteristics may vary which will be affected by the properties of the application (Paryani, 2010). For instance, the availability of the research is made in a fast-food restaurant requires to evaluate the characteristics looking at certain aspects in product as well as service determined target values during the research will be able to host both qualitative and quantitative features at the same time. The target values assigned for factors of service process or product are optimally determined as qualitative and quantitative scale range also percentage of scale range. To determine all the elements of the service process or product are critically important for developing the next stage of the action plan (Paryani, 2010). Here it should be considered that, it will not be meaningful to focus the high cost works if it does not provide benefit to the management. Because generating the relationship matrix takes a long time. So, QFD team must evaluate the best process which will be useful both for the time and financially (Ferrell and Ferrell, 1994).

4.3.1. Column of the Target and Point of Sale

It is a stage of providing information to what actions should be done to increase customer demands, meet the needs of different customers and determine after the overall relative weights for each demands of the customers (Paryani, 2010). The aim here is to compare the actual values of management with the rival management and then determine target values in the light of this information (Yıldız and Baran, 2011b).

- 1.0: No Sale Point
- 1.2: Point of Average Grade Sale
- 1.5: Strong Selling Point Feed rate

Column of process rate is found by dividing "target" column to the "company today" column. In this calculation, the company will be learned how far the target is and how much they come closer to it. Here the goal of the company is always to approach the value of 1 (Ferrell and Ferrell, 1994).

4.3.2. Importance Score and Percentage (%) Importance

Column of percent significant degree that placed in planning matrix is obtained by dividing importance score of each customer demand to the importance score column. Thus, percentage of importance of customer demands is calculated. Both customer thoughts and carrying value of customer demands in terms of company are also taken into account during the calculation of the percent importance degree. Importance degree is affecting coefficient of weighting factor and specific statistical results in matrix. Here, if the number has lower importance degree it is less important; if the number has higher importance degree this means it is highly important (Terninko, 1996).

4.3.3. Action Plan Matrix

It is a process of determining the relationship between customer demands (WHATs) and technical requirements (HOWs). At this stage the relationship is determined between previously created for customer demands (WHATs) and technical needs (HOWs) regarded as the voice of the company. Thereby, the company's demands will be met or not and in terms of the company's technical requirements which is higher priority will be found. The lack of more symbols between customer demands and technical characteristics or the existence of weak relationship expresses does not met in design of a product or service to meet customer demands quality. After relationship matrix was created, correlation analysis is required to in order to show which positive or negative relationships are determined between these specified technical needs (Yıldız and Baran, 2011a).
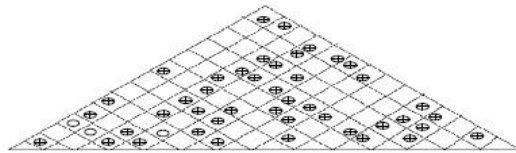
4.3.4. Correlation Analysis

In this stage, negative or positive relationships are determined by eliminating the contradictions if necessary reorganization of technical needs are provided. Because when trying to meet a technical need if the other technical need gets the negative impact from this situation, this situation can make the process complicate to meet its related customer demand with complicating the meet of technical needs (Hauser and Clausing, 1988). On the contrary there could be technical needs that influence each other in a positive way.

Some symbols are used in the correlation matrix for the examination of technical requirements affected by positively or negatively (Guinta and Praizler, 1993):

⊕ Positive correlation
○ Negative correlation

4.3.5. The Quality House

The final step of the design phase is to show the quality house with all the components and all the calculations on a single matrix. Therefore, fast-food restaurant will be able to see easily all the reviews which are determined for them. A detailed Quality House shape is given below in Figure 2.

Figure 2: Quality House Matrix

5. Discussion

Nowadays, customer demands of food and beverage managements are increasing. This is a fast growing industry around world. Because of that, food and beverage managements present both product and service, perform the customer demands in both points are so important in conditions of competition nowadays. Customer of food and beverage managements can be supply with ideally; demands must identify properly and must determined correctly. On the other hand, a factor relates with success of food and beverage managements, production and service concept of the firm belong together customer satisfaction. Especially, tendency of the youth on fast food restaurants become a current issue, recently. Within this scope, QFD applications which are realized in fast food restaurant, pose questions related with on the basis of product and service for determining both the customer demands and service. Importance level grading of customers for product and service, in quality house, is as below:

• For product; quality and healthy products are specified as the most important issues by customers.
• For service; useful equipment (washbasin, etc.), service manner, service time and customer relationships are determined as the most important tissues by customers.

After that credits of fast food restaurant, especially they increase selling, are added and calculated;

• The product has to be healthy,
• Convenient equipment and
• Customer relations issues are considered important by firm, customer satisfaction and fidelity increase.

The Quality House which is formed after these considerations, technical needs (HOWs) significance level which were specified for supply customer demands was calculated. The most regarded issues are specified for supply present demands in this point, too. According to calculated values;

• Staff,
• Training,
• Food safety

Consensus was declared to meet the customer satisfaction when concentrate on these issues. Generally majority of positive relationships according to roof of the Quality House is an indication of company requirements has been correctly identified. However, negative relationship only is concentrated at the cost, an indication of fast-food restaurant needs to consider especially when planning payments in yearly budget. To reach customer voice is realized with much easier and faster methods in today's technology in which communication methods are even easier and widespread. Through getting mail addresses of customers, requests can be collected by sending short surveys periods of 3-6 months and can contribute to development of the business by often evaluate. Selecting such an implementation method would be more practical when considering customer's point. Both customers will not get bored because short surveys will be implemented and a change of answering in ambient where they feel most comfortable will be born. So changing customer demands and the profile can be determined and changes that need to be done and measures to be taken can be achieved earlier. What to do and requirements for management are as follows; in fast-food restaurant in which the implementation is realized.

For fulfilling the demands of customers within the scope of healthy products; the quality of the materials used in the provision of products, services and suppliers should be checked at regular intervals. However food safety reports showing an additive are not used any of the products, accordance with the cleaning principles of the production line should be published at regular intervals. This eliminates the customer doubts and will increase the confidence of the customers to the company. For useful equipment about customer demands; customer demands can be met on this subject by checking at regular intervals after the beginning of each shift, especially the soap dish that becomes lavatory equipment, hand-drying apparatus and photocell lights. Developing a method of recording that controls were done also will help prevent the potential problems on this subject. About customer relations; keep in mind that the person who provides the first and the last communication with the customer is service personnel, the person who can change all the perceptions of the customers about product and service characteristics are also service personnel. Depending on established contact ensures the formation of positive or negative ideas about fast food restaurant. At this point, the circuit enters the educational process. To provide training to the personnel of the fast food companies that perform product and service offering is very important to customer demands. The subject is quite heeded in fast food restaurants but the ever-changing and increasing customer demands require more frequent intervals of this training. In line with these findings a fast food restaurant to develop product and service quality one of the primary requirements is most important to the personnel who is in one by one communication with the customer. Also giving toll-free telephone numbers to one by one interview, getting e-mail addresses to the complaints of the customers both facilities to listen customer complaints and remedied as soon as possible to ensure the needs of the customer.

Today, the most important feature is the application of Food Safety System that the conscious consumers especially look for in food and beverage managements. For customers, such a reliable system implemented in food and beverage management is a positive effect on the perception of the image for the company. Because the production in company that applies food safety system is known to be free of all kinds of pathogens, additives and other risk factors. Furthermore, receive trainings on personal hygiene and performance of personnel working in the food and beverage managements that implements Food Safety System is also an element of trust in the other. In this context, to have certificates BRC and SQA in fast-food restaurant that QFD implementation was carried out. On the other hand the implementation of food safety systems ISO 22000 those customers generally recognized and applied in Turkey. It would increase the reliability of the company in this regard. Finally, assessed demographic characteristics of the survey, the majority's was detected from people between the ages of 20-24, women, at the undergraduate level, student, income of 499 and less, single, with no children and 2-3 times visit to fast food restaurants in a week . According to this, the profile of customers in fast food restaurant seems to be among the factors to be taken into account. Because of the group that makes up the majority therewithal will also affect demands. Therefore, when creating marketing strategies of fast food restaurants, demographic characteristics should be taken into account also.

Thus, fast food restaurant will be increased customer satisfaction and the profit margin even more. Any food and beverage management was explained the importance of implementation of certain periods to apply this kind of surveys, which will determine the status of market in which the implementation was done. Fast food restaurants have been fit to perform the implementation on a regular basis in the next status determinations.

References

Akao, Y. & Mazur, G. H. (2003). The leading edge in QFD: Past, present, and future. International Journal of Quality and Reliability Management, 20 (1), 20-35.

AUT (Auckland University of Technology) (2011). Quality function deployment, Relative Industries Research Institute in New Zealand. http://www.ciri.org.nz/resources.html 01.07.2011

Chan, L. K. & Wu, M. L. (2002a). Quality function deployment: A comprehensive review +of its concepts and methods. Quality Engineering, 15 (1), 23-35.

Chan, L. K. & Wu, M. L. (2005). A systematic approach to quality function deployment with a full illustrative example. The International Journal of Management Science, 33 (2), 119-139.

Dann D. & Hornsey T., (1986). Towards a theory of interdepartmental conflict in hotels. International Journal of Hospitality Management, 5 (1), 23–28.

Day, R. G. (1993). Quality function deployment: Linking a company with its customers. Milwaukee: ASQC Quality Press.

Dekker, M., Jongen, W. M. F. & Costa, A. I. A. (2001). QFD in the food industry. Trends in Food Science, 11 (1), 306-314.

Enríquez F. T., Osuna A. J. & Bosch V. G. (2004). Prioritising customer needs at spectator events: Obtaining accuracy at a difficult QFD arena. International Journal of Quality and Reliability Management, 21 (9), 984 – 990.

Ferrell, M. S. & Ferrell, W. G., (1994). Using quality function deployment in business planning at a small appraisal firm. The Appraisal Journal, 62 (3), 382-390.

Guinta, L. R. & Praizler, C. N. (1993). The QFD book, the team approach to solving problems and satisfying customers through quality function deployment. New York: Amacom.

Hauser J. R. & Clausing D. (1988). The house of quality. Harvard Business Review, 66 (3), 63-73.

Hepler C. & Mazur G. H. (2006). Finding customer delights using modern QFD. 12th International Symposium on QFD in Tokyo, 37 (2), 157-168.

Khoo, L. P. & Ho, N. C. (1996). Framework of a fuzzy quality function deployment system. International Journal of Production Research, 34 (2), 299-311.

Lager, T. (2005). The industrial usability of quality function deployment, Journal of Quality and Reliability Management, 35 (4), 409-425.

Mazur, G. (2008). Modern quality function deployment introduction. ABD: QFD Institute.

Mazur, G. H. (1996). Doubling sales with quality function deployment, Proceedings of the 5th Annual Service Quality Conference, (16-17 September 1996, Las Vegas).

Ninemeier, J. D. (1990). Management of food and beverage operations. Michigan: Educational Institute of the American Hotel and Motel Association.

Park, H. S. & Noh, S. J. (2002). Enhancement of web design quality through the QFD approach. Total Quality Management, 13 (3), 393-401.

Paryani K., Masoudi A. & Cudney E. A. (2010). QFD application in the hospitality industry: A hotel case study. The Quality Management Journal, 17 (1), 7-29.

Terninko, J., (1996). Step by step QFD: Customer-driven product Design. Nottingham, NH: Responsible Management Inc.

Vinodh S. & Chintha S. K. (2011). Application of fuzzy QFD for enabling leanness in a manufacturing organization. International Journal of Production Research, 49 (6), 1627–1644.

Yıldız, M. S. & Baran, Z. (2011a). Quality Function Deployment and Application Essay in Homogenized Youghurt Production, Ege Academic Review, 11 (1), 59–72.

Yıldız, M. S. & Baran, Z. (2011b), Application of QFD on food and beverage managements. XI. Manufacturing Research Symposium, "The Evolving Role of Social Development and Production" Presentations Book, Istanbul Commerce University, (23-24 June 2011).

Zairi, M. & Youssef, M. A. (1995). Quality function deployment: A main pillar for successful total quality management and product development, International Journal of Quality and Reliability Management, 12 (6), 9-23.