IMPROVING SERVICE QUALITY USING QUALITY FUNCTION DEPLOYMENT: A CASE STUDY IN HEALTHCARE INDUSTRY

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To My Family

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ABSTRACT

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Improving Service Quality Using Quality Function Deployment: A Case Study in Healthcare Industry

In the part I, the service sector and the notion of customer in the health sector have been discussed. The definition of service, its features and difficulty and complexity of the health sector have been examined. Perceptions of the notion of patient and relatives of patients instead of customer in the health sector and its definition and types have been discussed.

In the part II, by whom and when the Quality Function Deployment was brought forward, the past, today and future of the QFD and its superiorities according to other product and service development systems. After that, how opinions of patients or customers can be measured most objectively has been examined. How the customer information part with results of these measurements is composed and later, composing of the technical information part of the QFD and building of the roof of the QFD matrix have been explained. Later, how the QFD matrix is evaluated or analyzed most objectively has been told.

In the part III, the issues taken into consideration in the part I and II have been put into practice. Firstly, patients' thoughts about FUH, degree of satisfaction, gratification and complaints have been measured. This data measured has composed the patient information part of the QFD matrix. Later, the technical part and the roof of the QFD matrix have been composed. All of this data has been located into related parts of the QFD matrix or the House of Quality as the other name. Finally, the results coming up have been evaluated as 25 elements and what these elements mean in FUH one by one has been told.

Key words:

QFD, service sector, FUH

KISA ÖZET

Alim YATKIN **Haziran 2011**

Kalite Fonksiyon Yayılımı Kullanarak Hizmet Kalitesini Artırma: Sağlık Endüstrisinde Bir Çalışma Dosyası

I. bölümde, hizmet sektörü ve sağlık sektöründe müşteri kavramı ele alınmıştır. Hizmetin tanımı, özellikleri, sağlık sektöründe hizmetin ne a, zorlukları, karmaşıklığı incelenmiştir. Sağlık sektöründe müşteri kavramı yerine hasta ve hasta yakınları kavramı algılaması, tanımı ve tipleri ele alınmıştır.

II. bölümde, Kalite Fonksiyon Yayılımı dünyada ilk defa ne zaman ve kimin tarafından ortaya atılmıştır. KFY'nın dünü, bugünü ve geleceği ile diğer ürün ve hizmet geliştirme sistemlerine göre üstünlükleri anlatılmıştır. Sonrasında müşteri veya hastaların sesinin en objektif bir şekilde nasıl ölçülebileceği incelenmiştir. Bu ölçümlerin sonuçları ile KFY matrisinin müşteri bilgileri kısmının nasıl oluşturulacağı daha sonra KFY matrisinin teknik bilgiler kısmının oluşturulması ve KFY matrisinin çatısının oluşturulması anlatılmıştır. Daha sonra KFY matrisinin en objektif olarak nasıl değerlendirilebileceği, analizi anlatılmıştır.

III. bölümde, I ve II bölümlerde ele alınan konular Fatih Üniversitesi Hastanesinde uygulamaya konulmuştur. Öncelikle hastaların FÜH ile ilgili düşünceleri, tatmin seviyeleri, memnuniyetleri ve şikayetleri ölçülmüştür. Ölçülen bu veriler KFY matrisinin hasta bilgileri kısmını oluşturmuştur. Sonrasında KFY matrisinin teknik bilgiler ve çatı kısmı oluşturulmuştur. Bütün veriler KFY matrisi diğer adı ile Kalite Evinin ilgili alanlarına yerleştirilmiştir. Son olarak ortaya çıkan sonuçlar 25 madde olarak değerlendirilmiş ve tek tek bu maddeler FÜH'de ne anlama geldiği anlatılmıştır.

Anahtar Kelimeler:

KFY, Hizmet Sektörü, FÜH

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LIST OF ABBREVIATIONS

FUH: Fatih University Hospital

QFD: Quality Function Deployment

USA: The United States of America

WHO: World Health Organization

INTRODUCTION

In our world where rivalry is being experiencing intensively, to survive the firms which are in production and service sector seek for new solutions by which they could gain superiority over their rivals and keep these superiorities. The firms which supply products and services in the world choose the most suitable system for them among the systems applied to make their products and services better and more fruitful. So, they want to gain superiority over their rivals.

To gain superiority over their rivals, the firms, firstly, have to know what their customers think about the product or service presented, the level of customer satisfaction, their expectations and the developments in that area. There are many ways of measuring customer demands.

Here, we are going to measure, first, opinions and evaluations of the patients and their relatives about health services they have got from the hospital acting in the service sector. Then, we are going to conclude this data with the help of Quality Function Deployment which provides chance of evaluating in the best and the most developed way and is very popular recently.

Firstly, we are going to examine the service sector. It is going to be examined what the definition of service is and what the features and functions of service are. Also, how service in the health foundations is and its difficulties and structure are going to be evaluated. Again, the customer in health foundations and its types are going to be taken into consideration.

Secondly, we are going to consider the Quality Function Deployment we are going to use while evaluating service of the hospital. The QFD is a system which appeared in Japan and spread through the world from here. It was used in the service sector as was in the production sector and gave fruitful results. It was also used in the health sector which is the most complicated, difficult and hard to measure one among the service sectors.

The historical process of QFD is examined and the reasons of its development are put forward. After benefits of the QFD are listed, it s definition and purpose and

relations between QFD and customers are taken into consideration. To compose the QFD matrix, there are two important steps: the customer information part and the technical information part. The customer information part is composed of measuring correctly of the satisfaction level and opinions of the patients who get service from the hospital about hospital services. To measure correctly the customer information, things to do are examined. The methods which can be used in measuring of the customer information are explained and the questionnaire type we are going to use is explained. After things to do to determine the applicants of the questionnaire in a correct way, firstly, giving the chance of explaining their opinions to customers, understanding of the customers, taking into considerations of things told, converting of these opinions into natural groups and gaining additional information about customers are examined. It is told how the customer information part should be composed by using this information and how it is located into the matrix.

To compose the QFD matrix, the technical information part should be composed after the customer information part. It is important that the technical information should be prepared by an expert team and it should be correct, understandable and brief. The technical information part is examined under these headings: converting of customer thoughts into technical needs, recording of the team decides about technical needs, determining of relations, the technical data about rivals, determining of targets and correlations.

In addition to these, it is told that the roof should be composed for the full appearance of the QFD matrix, maximum relation values, relative weights, development directions of the relations and the functions and meanings of the symbols which are going to be used in determination of these relations.

In the last part, we move through the evaluation part by composing the Quality Function Deployment with the information got. Firstly, patient satisfaction is measured with questionnaire questions prepared with the SERQUAL method, and the Likert scale with 7 model. The data got from results of questionnaires is located into the customer information part of the QFD correlations. Then, the technical information is composed and located into the correlation. The relation between the

customer and technical information, importance degrees, relative weight, maximum relation value and the roof of House of Quality emerge.

With the data emerging, the performance of the hospital is learnt with the QFD model. Also, to what extent and which of the services patients are satisfied from and which of the services they are less satisfied from are learnt. As a result of this information, the hospital administration can foresee what should be done in what area and notice their advantages and disadvantages over other hospitals. So, they make necessary modifications and corrections and gain advantages over their

CHAPTER I

1.1. FEATURES OF SERVICE SECTOR

1.1.1 Definition of Service: They are the activities which are offered to customers to fulfill their needs and satisfy them, free and not resulting with any possession.[1] It is an activity or benefit which is offered by a person or foundation to a person or foundation. Because it has not a concrete qualification, there is not any possession change in this exchange. The basic characteristic of service institutions is their using of technology heavily. Individuals benefit from an expert to get service they demand at a certain cost.[2]

1.1.2 Features of Service

Services have different features than products. These features are untouchability, dissimilarity, inseparability, vulnerability and not being possessed.

1.1.2.1 Untouchability (Being Abstract) Services cannot be defined with features used to define a product such as color, style, package, taste, strength, etc. so, before the customers buy it, they cannot foresee benefits and results it provides them. The feature of being abstract of service makes harder measuring of productivity in service sector relatively than in production of any material.[3] Because of that abstractness, customers look for concrete clues to get information related to quality of service. They try to perceive quality of service from the place they will be serviced in, people who will serve them, the equipment, symbols, costs, opinions of other people about the company, and contact with the company before buying.[4]

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[1] Halil Can, Doğan Tuncer, (2003) Doğan Yaşar Ayhan Genel işletmecilik Bilgisi", Siyasal Kitabevi,
[2]Özdamar, Kazım. (2004), "Paket Programlar ve İstatistiksel Veri Analizi", Kaan Kitabevi, GeniĢletilmiĢ 5. Baskı, Eskişehir.
[3] Halil Can, Doğan Tuncer, (2003) Doğan Yaşar Ayhan Genel işletmecilik Bilgisi", Siyasal Kitabevi,
[4] Kotler, Philip, (1994) Marketing Management: Analysis, Planning, Implementation and Control, 8th Edition, New Jersey: Prentice Hall

1.1.2.2 Dissimilarity (Not Being Homogeneous – Variability): Quality of service depends on where, how and when it is done and especially the person who serves. People also show variability more than products. As the same service varies from person to person, even the same person serves differently in different times. While the people are nice and polite in most of the time, sometimes they may be angry and rude. This situation may stem from different factors such as psychological state of the person, workload and the degree of collaboration related to service and personality.[5]

1.1.2.3 Inseparability (Being Simultaneous) : In most of the time, physical material is produced first, and then it is stored by considering demanding, and lastly it is distributed to different places, sold and consumed. However, services are demanded first and bought, and then it is produced and consumed in the same place. The customer may attend to stages of production.

1.1.2.4 Vulnerability: Services cannot be waited and stored. So, they cannot be presented in a way that its time benefit will arise. When there is not demanding for the company, its current capacity stays unemployed and the situation of vice versa causes failings in production and presentation of service.[6]

1.1.2.5 Not Being Possessed: That there is not possession in service products is one of the most important features of service. Not possession but buying the right of use for a certain while is possible. The thing to possess is not the service itself but the benefit got from the service. A person who goes to a hotel on the seashore does not buy the hotel, however; he benefits from accommodation, entertainment facilities of the hotel and at the same time, he fulfills his need for the sea. Here, users depend on the producer while buying and using the service.[7]

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[5] Assael, Henry (1993), Marketing: Principles and Strategies (2nd Edition*)*, Forth Worth: The Dreyden Press.
[6] Halil Can, Doğan Tuncer, (2003) Doğan Yaşar Ayhan Genel işletmecilik Bilgisi", Siyasal Kitabevi,
[7] Öz Fatma.(2004) Sağlık Alanında Temel Kavramlar. İmaj İç ve Dış Tic. AŞ.Ankara.

1.1.3 Health Services and Its Functions

In this part, the notions of health and disease, the features of health services and classification, services to develop health, the definition of hospitals, its types and functions are going to be discussed.

Health services are the total of the activities conducted by various health staff to preserve the current health level of people with diagnosis and treatment of diseases in various health foundations and institutions. World Health Organization (WHO) defines health services as the permanent system which is nationally organized to realize the aims which vary according to needs and demands of the society and in that way, to provide health caring for the people/societies with the help of any preservative and curative activities by facilitating various types of health staff in certain health institutions.[8]

-Notions of Health and Disease

Today, the definition of health used widely is the definition which takes place in the World Health Organization Foundation Act. According to it, health is not only absence of disease and injury but also the state of being in a total welfare physically, psychologically and socially. In this definition, in addition to difficulty of explaining the notion of welfare, how to measure the "total" is a complicated question to answer. On the other hand, seeing health as a state reduces duty responsibility of a person to a static situation. However, the notion of socially welfare which takes place in the definition should be seen as an important development.[9]

The meaning of the notion of disease which takes place in the definition of health is important especially for the person, because, there should be an unordinary situation that directs the person to seek for service to benefit from health services. Every person has his own perception of himself and accordingly, his understanding

[8] Akar, Çetin ve Hüseyin Özalp (2002), Sağlık Hizmetlerinde ve İşletmelerinde Yönetim, Somgür Eğitim Hizmetleri, Yayıncılık Limited Şirketi, Ankara

[9] Hayran Osman ve Sur Haydar (1998) Sağlık Hizmetleri El Kitabı Örgütlenme, Finansman, Yönetim,Mevzuat, Yüce Yayım İstanbul

of health and disease. Reactions shown to unordinary symptoms and feelings in their bodies by people might be different from one another.[10]

To sum up, somebody's demanding for service by deciding on feeling sick himself is a process. Operating this process might vary from culture to culture or from person to person. That while in some societies having a false tooth is accepted as a disease and requires consulting a doctor; in some societies even dentists do not care about their own false tooth is a typical example of this situation.

-Definition of Health Services

Health services are defined as preservative, curative and rehabilitation services which are presented by a health staff to preserve and develop health of individuals and the society.

-Features of Health Services

Health institutions have some distinctive features that separate them from other industry and service foundations. Health institutions produce service. To comprehend basic characteristics of health institutions better, it will be beneficial to examine basic characteristics of service production. The major differences between services and physical materials are given at the table 1.1.

Services cannot be evaluated in the ways products are evaluated more than financial elements such as being seen, being felt, being touched and etc. Services cannot be evaluated by seeing, feeling, touching, etc. as it is in products rather than financial elements. Because of these qualifications, services are lack of possibilities such as storage and keeping. One of the other qualifications of services is that production and consumption are simultaneous. Because of this feature, direct distribution is inevitable, for example; in production of some services like doctor's examination or getting a haircut, the customer has to be present there.

[10] Hayran Osman ve Sur Haydar (1998) Sağlık Hizmetleri El Kitabı Örgütlenme, Finansman, Yönetim,Mevzuat, Yüce Yayım İstanbul

Table 1.1 Differences between Physical Materials and Services

Physical Materials	Services
* touchable	* untouchable
* homogeneous	* not homogeneous
* Production and distribution have separated from consumption.	* Production and consumption are simultaneous processes.
* It is a thing or object	* It is an activity or process
*Basic value is produced in the company	* basic value is produced with interaction between buyer and seller
*Customers do not join production process	* customers join production process
* storable	* not storable
* possession can be transferred	* possession cannot be transferred

Resource: Öztürk, A. Sevgi " Hizmet Pazarlaması " 1998

Quality and contents of services change and vary from service supplier to other or customer to customer day by day, for example; any of the operation is not the same to another. Another feature making services different is that there is possession transfer while selling service. Only, there is the usage right for a certain while.

Lastly, services do not have physical strength and long life span like products, for example; plane seats that are not sold for a certain flight, empty patient rooms, theatre tickets that are not sold waste in a period of time that will never come back because they cannot be stored. In addition to general features of services, health services vary from other services due to its several features. These features are explained below:

-In health institutions, the level of being an expert is very high

In health institutions**,** degree of being an expert is high. The major factors that elevates this level are changes emerging in the diseased tissue, developments in medicine and its technology.[11]

- Health Institutions Have a Complicated Structure

The biggest lower system of systems that produce heath service is hospitals. Hospitals are the enterprises that produce health services without being interrupted economically, whose first target is not profit, process various inputs and convert into outputs, are complicated and expensive and show different features according to it.[12] In hospitals, a lot of experts from different areas work.

- The costumer is weaker than the expert

The customer has an opinion about appropriateness of quality and service for many products and services. However, in health services, the customer has a little information about appropriateness and quality of the treatment method that is applied to him. In that sense, the customer depends on the doctor nearly in all means.[13]

Health services are more abstract than other services. Patients do not have any chance to try out service before buying. Besides, the usage of devices depending on advanced technology basically and the usage of advanced medical terms prevent the customer from getting information enough and makes the customer's deciding on their own as he does in other services harder. In most of the time, the health staff decides which treatments to apply on behalf of the patient. The health staff who work as service presenter do not have supremacy.[14]

- Health Services provide outer benefits and they are public domains

In health services, there may be positive effects because of that, third persons benefit from the material and service consumption of people. In health services, most the positive effects emerge during public health applications. These effects also

[11] Kavuncubaşı, Şahin: (2000), Hastane ve Sağlık Kurumları Yönetimi, Siyasal Kitabevi, Ankara
[12] Ak Bilal, (1990), Hastane Yöneticili;i, Özkan Matbaac_l_k Sanayi, Ankara
[13] Tengilimoğlu, Dilaver., Çıtak, Nilgün., (2003), Yönetici ve Tıp Sekreterliği, Seçkin Kitapevi, Ankara
[14] Tengilimoğlu, Dilaver., (2001), Türkiye'de Sağlık Hizmetleri Pazarlamasında Karşılaşılan Sorunlar ve Çözüm Önerileri, Yeni Türkiye

explain why the government interferes with social services such as health and education. In the situation of positive effects, the government interferes and serves free, for example; treatment of a patient with a contagious disease provides benefits not only for that patient, but also it decreases risks of contamination in the society. Besides, that a country has developed health services effects tourism in that country positively, because, tourists do not prefer countries where there is a contagious disease and emergency services are not organized well.[15]

- There Is Information Asymmetry

In markets open to rivalry, customers are free to maximize their benefits while deciding on what to consume or not. In the same way, producers are also free to act as they wish regarding of customers' preferences. In other words, customers try to maximize their benefits while producers try to maximize their profits.[16]

Buyers and sellers have the degree of information about features, quality and costs of products and services which are to buy or sell to maximize their benefits without being effected by each other in the market. This information degree also comprises the quality and costs of alternative products and services.[17] The basic difference which separates health services from other kinds of products and services is the information asymmetry which exists between the presenter and the consumer.[18] Those procedures are very complicated in health services and customers have limited information about health services differentiate health services from other services. In health services, it is not possible to get enough information about inputs, processes and outputs. On the other hand, activity and output data is not completed in most of the health systems.

- In health foundations, human resources is composed of professionals and these professionals care about occupational targets more than institutional targets

[15] Tengilimoğlu, Dilaver., Çıtak, Nilgün., (2003), Yönetici ve Tıp Sekreterliği, Seçkin Kitapevi, Ankara

[16] Donaldson, Cam and Gerard, Karen, (1994), Economics of Health Care Financing: The Visible Hand. The Macmillan Press Ltd

[17] Uz, Mehmet Hulki.(1997), "Sağlık Hizmetlerinin Finansmanı ve Ödeme Modelleri" *Hastane Yöneticiliği* (Editörler: Osman Hayran ve Haydar Sur), Nobel Tıp Kitabevi, İstanbul

[18] Donaldson, Cam and Gerard, Karen, (1994), Economics of Health Care Financing: The Visible Hand. The Macmillan Press Ltd

Professionalization refers to education level of institution workers. When the profile of human resources who work in health institutions, it is seen that there is need for a long time to educate human resources.

Professionals generally focus on occupational targets and perform their duties by taking into consideration ethical rules of their occupation. Occupational targets of professionals are more important than instutional targets. While the main target of a doctor is treatment of a patient whatever its cost is, the main target of the institution administration is to realize the quality and productivity targets.[19]

- There is not customer supremacy

Customer supremacy which is the most important element of the customer behavior theory stems from the hypothesis that nobody can be replaceable with the customer who has the most appropriate judge while selecting the best way of consuming and will maximize his profit.[20]

Customer supremacy work in favor of service presenters because of characteristics features of health services in health services area. In the area of health, there are many handicaps which hinder customer supremacy. The biggest handicap is that the area of health services does not work like a typical market. Besides, that doctors and hospitals that are presenters of health services are not very willing to customer supremacy composes a big handicap.[21]

- The administrative and institutional control mechanism which is effective fully on activities of doctors who determine an important part quantity of service and health expenses is not built

In health institutions, the most important working group who determines quantity of service is doctors. In health institutions, to realize rationality, administrative and institutional control mechanisms which control decisions and behaviors of doctors are needed to a great extent. In health services, because treatment of patients comes first, doctors take into consideration of requirements of

[19] Öz Fatma.(2004) Sağlık Alanında Temel Kavramlar. İmaj İç ve Dış Tic. AŞ.Ankara.
[20] Shackley**,** Phil and Ryan**,** Mandy. (1994) What is the Role of the Consumer in the Health Care? Journal of Social Policy
[21] O'Rourke T.W. (1988) Consumer Sovereignty in a Competitive Market: Fact or Fiction? In: Melhado, E.M. et al., (Eds.) Money, Power and Health Care

being a doctor more than financial status of the patient and the hospital. In that issue, doctors are not under pressure of the hospital administration.[22]

- It is under governmental intervention

It is assumed that under the market conditions, benefits of both of the producer and the consumer sides will be maximized. Because of that, in rivalry market, the government does not intervene to protect or favor one of these sides.[23] When it is thought in terms of productivity and equality, there is no need for direct governmental intervention to the health services market as the presenter. However, governmental interventions to determine the general policy, organization and control and that some parts or the whole of health needs of poor people are financed from public resources are like a minimum intervention package agreed on it.[24]

- There is dual authority line in all of the health institutions especially in hospitals and this situation causes coordination, control and conflict problems

Due to high level of having an occupation, in health institutions, professionals have autonomy to an important extent. Professionals have authority deriving from their occupational knowledge and control. Services' not being physical brings out obligation of a very good explanation and convincing. Doctors should make their patients believe in benefit they will get from treatment.[25]

- The majority of activities done in health institutions are urgent and not postponed

In health institutions, service is produced for 24 hours non-stop; people whose health state gets worse or who are suspicious about their health state may consult in every minute to get health service. Rejecting this consultation is not possible scientifically, legally or ethically. Patients' facilitating from services cannot be

[22] Kavuncubaşı, Şahin: (2000), Hastane ve Sağlık Kurumları Yönetimi, Siyasal Kitabevi, Ankara
[23] Uz, Mehmet Hulki.(1997), "Sağlık Hizmetlerinin Finansmanı ve Ödeme Modelleri" *Hastane Yöneticiliği* (Editörler: Osman Hayran ve Haydar Sur), Nobel Tıp Kitabevi, İstanbul
[24] Tengilimoğlu, Dilaver., Çıtak, Nilgün., (2003), Yönetici ve Tıp Sekreterliği, Seçkin Kitapevi, Ankara
[25] Karafakıoğlu, Mehmet, (1998) Sağlık Hizmetlerinin Pazarlaması, İşletme Fakültesi Yayını, İstanbul Üniversitesi

postponed except for a few exceptional situations; for example; consulting to health institutions of patients who involved in traffic accident or having a heart attack.[26]

- There is much sensibility to mistakes and ambiguity in activities done and tolerance is not shown

Services produced in health institutions are related to human life. Decisions and acts of health professionals effect patients' chance to survive directly. Fixing the mistakes made during diagnosis and treatment processes is not possible. The mistakes made may cost human life.[27]

- Defining and measuring of the output is difficult

The basic input and output of health institutions is human. It is hard to see and evaluate results of preservative and curative services in short time as it is in other service sectors, for example; it is not possible to evaluate results of an operation at that moment and easily in a hospital.[28]

- In health institutions, operational dependency is very high; because of this, there is need for coordination on a high level among activities of different occupational groups

Operational dependency means that someone or some unit needs another one or unit to perform the duty. Because of this, different occupational groups should be in coordination and perform the duties together.

- Health Services market is not transparent, there is ambiguity and risks

In a full rivalry market, everything is transparent and come true in the market environment. Buyers and sellers can predict that which product is sold, how much it is sold, how much it costs.[29] In health services, the customer cannot predict that when, where, how and how much he needs or demands health services and effect of the medical treatment. That many health services are sudden and unexpected and also too expensive creates ambiguity related to needs, demands and consumption of

[26] Öz Fatma.(2004) Sağlık Alanında Temel Kavramlar. İmaj İç ve Dış Tic. AŞ.Ankara
[27] Kavuncubaşı, Şahin: (2000), Hastane ve Sağlık Kurumları Yönetimi, Siyasal Kitabevi, Ankara

[28] Kavuncubaşı, Şahin: (2000), Hastane ve Sağlık Kurumları Yönetimi, Siyasal Kitabevi, Ankara

[29] Tengilimoğlu, Dilaver., Çıtak, Nilgün., (2003), Yönetici ve Tıp Sekreterliği, Seçkin Kitapevi, Ankara

health services. Due to these facts, the notion of insurance has emerged and governmental interventions have become inevitable.[30]

Although insurance systems do not require public intervention, the government contributes to many insurance types and runs their control systems. In addition to being a solution to risks and unclear situations seen in health services, insurance mechanisms have some negative aspects, for example; private insurance companies do not cover some chronicle diseases and some demographical groups. Therefore, governmental intervention in the insurance sector becomes inevitable.[31]

-There is an unbalance between health services offers and demands

Health services are not standard; consumers cannot determine quality and quantity of service they will get and know its technical features. Health services cannot be substituted and postponed: Health services are produced by institutions which care about profit and not.[32] While presenting health services, there is a great need for changes and improvements. For this, health administrators and employees should be informed on the issue of medical documentation and secretariat by public education institutions, the Ministry of Health and non-governmental organizations.[33]

1.2 DEFINITON OF CUSTOMER AND CUSTOMER TYPES IN HEALTH INSTUTIONS

1.2.1 Customer

Customers and consumers are very important notions for companies. Companies can survive thanks to customers. Today, giving importance to customers by companies has become more and more important. They have started struggled to develop their relationships with customers intensively.

[30] Donaldson, Cam and Gerard, Karen, (1994), Economics of Health Care Financing: The Visible Hand. The Macmillan Press Ltd
[31] Tatar, Fahrettin. (1996) Sağlık hizmetleri Finansman Kaynakları. Toplum ve Hekim Cilt 11, Sayı 72
[32] Şahin İ., Sargutan E., Tarcan M. (2000) Dünyada ve Türkiyede Sağlık Yönetimi Eğitimi, 1.Ulusal Sağlık İdaresi Kongresi Bildiriler Kitabı
[33] Demirtola Hüseyin**,** Sağlık Hizmeti Sunumlarında Karşılaşılan Sorunlar. SAĞLIK, Yıl 12, Sayı 136, Haziran *2003***.** Demirtola Hüseyin**,** Sağlık

The thought that the only customer in health service is the patient has been expired its validity. While before, when it is "customer" in health instutions, only patients come to mind, today, all of the individuals and instutions attending to the health service production process are accepted as customers. Customers of health instutions can be classified into two main subcategories: inner and outer customer. Inner customer refers to health institution employees or individuals or groups who have an organic relationship with the health institution. Outer customer includes individuals or instutions that benefit from basic services of the health institutions directly or indirectly. Examples of outer and inner customers of health instutions are given at the table 1.2

Table 1.2 Outer and inner customers in health instutions

Outer customers	inner customers
Patients, their families and acquaintance	Institution employees
Accompanies, visitors	Proportion owners
The Government	Counselors
Other health instutions	
Foundations having a contract	
Pharmacies	
Unions	
Media	
Insurance companies	
Medical apparatus and drug firms	

Resource: Çiçek, Recep 2002 " İlişki Pazarlamasının Uygulanması ve Hastane Performansına Etkisi" doktora tezi İstanbul

As it is given in the table 1.2, there is a wide and heterogeneous customer group that health instutions needs to satisfy. That health instutions carry out their

success and life depends on its ability to meet demands and expectations of these customers to a great extent.[34]

1.2.2 Customer Types

1.2.2.1 Possible customer is a customer candidate who the company is interviewing with for sales but has not become a customer of the company yet.

1.2.2.2 Old customer is the individual or the foundation that used to be a customer of the company before but for some reasons is not a customer of the company anymore.

1.2.2.3 New Customer is the customer who buys the product or service of a company for the first time.

1.2.2.4 Targeted Customer is the individual or the foundation to whom the company targets to sell its certain products.[35]

Any instutition or person's being a customer of a firm needs to have desire or possibility to buy that particular firm's present product or service on the market or product or service.

[34] Kavuncubaşı, Şahin, (2000), Hastane ve Sağlık Kurumları Yönetimi, Siyasal Kitabevi, Ankara
[35] Taşkın, Erdoğan, (2000), *Müşteri İlişkileri Eğitimi,* Genişletilmiş İkinci Baskı, İstanbul, Papatya Yayıncılık

CHAPTER II

2.1 QUALITY FUNCTION DEPLOYMENT

Nowadays, firms use many methods to stand and have superiority to their rivals under developing rivalry conditions. That technology is developing fast, globalization and due to these, everybody has bome aware of everything require listening to the customer and patting attention to their endless requests. As a method to have superiority to their rivals, firms want to satisfy their customers best and in that way, to be preferred in the market and to be advantageous to their rivals. One of the ways of having superiority is the QFD model which takes place in the Total Quality Model and is believed to reflect voices of customers and answer them best.

Quality Function Deployment (QFD) is a tool for designing manufacturing (service) processes in response to customers' needs by translating what the customers want into what the organization produces. Two Japanese Professors namely, Professor Shigeru Mizuno and Professor Yoji Akao jointly developed QFD in late 1960s. Their purpose was to develop the quality assurance method that would incorporate customers' needs into the design of a product before it was manufactured. Before the development of QFD, quality control methods were primarily aimed at fixing a problem during or after manufacturing of the product.

QFD was first applied at the Kobe Shipyards of Mitsubishi Heavy Industry in designing of an oil tanker in 1972. Toyota used the tool in 1977 in designing a new van. The application saved Toyota's start-up cost for the van significantly. QFD was introduced to USA in 1983 when US Society for Quality Control published Akao's work in Quality Progress. In the same year, Cambridge Research (now Kaizen Institute) invited Akao to give a seminar on QFD in Chicago. After this seminar, before the US executives, Akao delivered a series of talks sponsored by Bob King and GOAL/QPC in Boston. Because of QFD's flexibility, comprehensiveness, in US the methodology drew widespread attention from the business community that was facing tough Japanese competition.

Apart from Japan, Akao and Mazur (2003) claimed that QFD is successful in Argentina, Chile, Columbia and many other Latin-American countries. Not only that, the tool has also been widely used in European countries such as Italy, UK, Sweden, Germany, Austria, Spain, France, Denmark and the Netherlands. Other than Europe, Latin-America, USA and Japan, QFD has gained interest in South Africa, Iran, Malaysia, Thailand and Indonesia.[36]

QFD, as developed in Japan, addresses both design of products (hardware) and improvement of business processes (narrowly defined QFD). This has facilitated its use in service industries because QFD has the tool to look at customer needs and measurements as well as the tool to describe and assure the quality of human tasks, as will be shown later. Increasing competition, shrinking profitability and the prospect of health reform are forcing hospitals to differentiate in the delivery of services. One way to achieve differentiation is to constantly deliver what customers want, an deven further, what will deligh them.QFD ensures cilinicians hear the voice of the customer above the "high tech" din of health care.[37]

2.2 QUALITY FUNCTION DEPLOYMENT PAST, PRESENT, FUTURE

2.2.1 The Past

The Quality Function Deployment began to appear in Japan through the end of 1960s. Before that, the Japanese Industry used a product development method which was done via imitation and copying. Later, they started to develop original products. In the beginning, in Total Quality Control system, it started developing as the method of developing a new product. First publishings related to this issue were realized by Dr. Shigeru Mizuno and Yoji Akao.

The Japanese automobile industry which developed very fast after 1965s was looking for new approaches for development of a product and designing new

[36] Islam, Rafikul. Ahmed, Mohiuddin and Alias, Masliza (2008), Application of quality function deployment in redesigning website: A case study on TV3, Masliza International Islamic University Malaysia

[37] Mazur, Glenn H. Gibson, Jeff. Harries, Bruce. (1995) QFD Applications in Health Care and Quality of work Life. First International Symposium on QFD. Tokyo

products. These searches were effective in development of the QFD. After 1967, the articles and publishings in different numbers carried on.

The QFD got little attention until 1972. After the first book related to Mitsubishi Heavy Industry was published, the QFD had its breakthrough. In 1987, Japanese Standards Association published a book on QFD. Later, it got more and more famous in many countries especially in the countries in Europe and America.

-Incorrect historical facts seem to be widely accepted.[38]

a. Incorrect: Quality deployment originated at the Kobe Shipyards of Mitsubishi Heavy Industry.

What Mitsubishi Heavy Industry devised was a quality chart. It is true that this chart has become the core of QFD methodology. I first wrote about quality deployment, however, in an article published in April of 1972, which described both the terminology and the procedure.

This article was a compilation of what I had taught and experimented with at variouscompanies over a six year period beginning in 1966. The writing of this article took place before the MHI quality chart was made public in May of 1978. It should be noted that the MHI paper where the first quality chart appeared covered only as far as setting the design quality; the terminology "quality deployment" was not used there.

b. Incorrect: Quality deployment originated with Toyota.

Please be aware that quality deployment had already a 10 year history preceding the application by the Toyota Group. As chronicled in reference , the first companies in the Toyota Group to try quality deployment were Hino Motors under my guidance and Toyota Auto Body under the guidance of Mr. Nobuo Takezawa who learned the method from my papers. Mr. Yabuta, general manager of Toyota Motors, attended one of the QFD lectures I gave at JUSE and expressed a desire to introduce the method to the entire Toyota Group. It was around 1979 when a seminar was put together for about 100 QA managers from Toyota affiliates. Following my

[38] Akao, Yoji (1997) QFD: Past, Present, and Future, International Symposium on QFD, Linköping

keynote speech, a lecture was given by Mr. Takezawa and case studies from Hino Motors were presented. After this event, QFD was more quickly disseminated among the group affiliates than at the parent Toyota Motors itself, largely because of its size. When the name “Toyota” is cited in QFD history, most usually assume it is Toyota Motors, but that is not correct. It was actually Toyota Auto Body where Mr. Akashi Fukuhara was a QA manager. Mr. Fukuhara, who later joined the Central Japan Quality Control Organization, was eventually dispatched to ASI where he spread his QFD knowledge in the U.S. and made a great contribution.

c. The true reason why the quality chart is called “House of Quality” in the West.

The quality chart topped with a triangular peak, a shape that became a standard in the U.S., was the brainchild of Toyota Auto Body. The table of this shape was already in use by Mr. Tsuneo Sawada when they were working on the development of the Light Ace van. It was at a JSQC research presentation conference when the table was for the first time referred by the name “House of Quality” because of its shape. Mr. Fukuhara later introduced the table in the U.S., using this name. This is believed to be the true origin of how this nickname came to be popular.

d. The origin of the term Quality Function Deployment.

Quality Function Deployment is a literal translation of the Japanese words hinshitsu kino tenkai, but was initially translated as quality function evolution in 1978 . When I was a visiting scholar at Kansas State University in 1972, an associate researcher, Dr. L.T. Fan, had suggested that name. Having looked the word tenkai up in his dictionary, of the words development, deployment, and evolution listed, evolution seemed the most creative he thought.

2.2.2 The Present

In the present day, the QFD method is applied in many of the firms all around the world, especially in Japan and the USA and in some countries, again especially in Japan and the USA, publishings are done and seminars are arranged on this issue.

2.2.3 The Future

Professor Yoshizawa listed the following two points as the significance of QFD in industry.[39]

a. QFD has changed what we have known as quality control in manufacturing processes, and established quality control for development and design. In other words, QFD has established quality management in product development and design. QFD has played a significant role when the focus of TQC shifted from process-oriented QA to design-oriented QA and creation of a new product development system.

b. QFD has provided a communication tool to designers. Engineers, positioned midway between the market and production, need to lead new product development. QFD renders a powerful arm to engineers as they build a system for product development.

In developing and designing of new products, the QFD is going to have more importance parallel with its being widespread all over the world. In the area of computer programs related to the QFD, new programs are going to be developed and they are going to be applied by companies.

With a growing increase in giving importance of customer demands and opinions, the Total Quality Management and Quality Function Deployment product development process is going to gain more importance. As a result of this, new methods and strategies are going to emerge and develop in this area.

The Quality Function Deployment is going to find more application areas in the service sector and the company which offers more services is going to understand the importance of QFD to increase service quality and utilize from it in their facilities.

[39] Akao, Yoji (1997) QFD: Past, Present, and Future, International Symposium on QFD, Linköping

2.3 WHY AND FOR WHAT QUALITY FUNCTION DEPLOYMENT HAS BEEN DEVELOPED?

Through the end of 1960s, Japan was able to realize the steel production at a very low price and transmuted the raw material exported into high quality steel so cheap that no country had succeeded this before thanks to the processes developed for Japan's limited natural resources.

Japan built cargo ships with super tanks from this economical but quality steel produced, however; some problems occurred in those ships on the issues such as maneuver, buoyancy and staying on balance. Mitsubishi Heavy Industries that built those ships consulted to the Japanese Government in 1960s and asked for help to modify these complicated cargo ships logistically.

By setting up a team whose members were professors from different universities, the Japanese Government led to compose a system which was intended for customer needs totally, covered the process building a ship step by step and with these steps, classified customer needs into their proper groups and in that way, Quality Function Deployment was born.

2.4 BENEFITS OF QUALITY FUNCTION DEPLOYMENT

Quality Function Deployment is accepted as the best system to bring out positive quality by understanding demands and needs of customers, to create positive and new values and in that way to satisfy customers more.

Benefits of quality function deployment are;[40]

2.4.1 It is customer-focused.

- It enables to focus on customer needs.
- It enables to use the information related to rivals effectively.
- It distributes the sources according to priorities.

[40] Bilgili, Turhan 19 Nisan 2003'de İstanbul Kültür Üniversitesi'nde "Lanchester Stratejisi ve KFG İle İlişkisi" konulu bildiri sunumu

- It determines the topics to be studied on.
- It enables to use information and experience together.

2.4.2 It shortens the application duration.

- ıt decreases the number of changes in the design.
- It decreases the problems after the presentation.
- It prevents from unnecessary flourishes in the future.
- It defines the opportunities related to future applications.
- It uncovers assumptions unnoticed.

2.4.3 It promotes team work.

- It is agreement-based.
- It creates communication among the departments.
- It defines the activities between the departments.
- It creates a global point of view in details.

2.4.4 It provides documentation.

- It makes documents reasonable for designing.
- It makes internalization easier.
- It configures the information.
- It is a document which adapts to changes and lives.
- It creates a base for sensitivity analysis.

2.5 QUALITY FUNCTION DEPLOYMENT and CUSTOMER

A lot of companies cannot work on understanding of customer demands and needs intensively. Nearly all of the companies are dependent on warranty programs, complaints from customers and the information the sales staff provides to be in contact with their costumers in any time. As a consequence, while again a lot of companies focus on problems related their current products, they cannot deal with customer expectations and demands on the new products enough. Moreover, the companies which do not exploit from results of customers researches cannot have the possibility to know where they or their rivals are in the customer evaluation range. In these companies, new products are planned and offered for sale without any information about demands and needs of the prospective customers from the first hand. Therefore, it can be said that these products which are designed without

information related to fail to meet the needs of customers and these sales cannot achieve their potential. The rival companies which pay attention to their customers and present products which meet their needs are going to have superiority over others and gain “Market Share.”

In the methodology of quality function deployment, customer needs and demands are used as the basic input. If companies use QFD as a methodology in the process of designing a product, they are supposed to pay attention to their customers. In that way, a lot of companies use the information they will get by getting in touch with their current and prospective customers to present more competitive and innovative products to the market. Thanks to this process, competitiveness raises and the base of satisfied customer is composed. For industries struggling in the global rivalry environment, taking into consideration customers and their needs have become an obligation to survive.

2.6 METHODS OF TESTING AND EVALUATION OF CUSTOMER SATISFACTION

When firms come up for the first time, they should be more innovative and provide some more advantages for customers than other firms so that they can find a market share in the market. When a lot of firms are founded, they begin rivalry with the faith that they can satisfy customers better. It does not matter how much effective a firm is while meeting its customer demands at the beginning; what is important is that it must respond to endless demands and needs of customers to maintain its success and compete with other firms. The firms which cannot respond demands and needs of customers and cannot realize the required activity are subject to be defeated by his rivals and disappear in that market in time.

A lot of firms are conscious about the necessity of responding customer demands and needs to survive. However, the methods and devices to find out these demands and needs are different.

These are;[41]

• Customer questionnaires
• Face to face interviews with customers
• Interviews on the phone
• conducting an observation related to human behaviors
• Focus group interviews
• Consultation panels
• E-mail address
• Complaints of customers
• repots of customer/consumer unions
• Researches on the market
• Franchisee information
• Benchmarking
•In the integrated method, people can both trust their perceptions and utilize from observations and experiences of sales staff or use with other methods as the usage of questionnaire method.

2.7 HEALING DEVICES USED IN FIRMS

- Statistical process control
- Constant improvement
- Value engineering
- Installation design
- Manufacturability
- Setting up a team
- Team work
- Experiment design
- Control of storage
- Bench Marking
- Simultaneous production
- brainstorm
- Total Quality Management[42]

[41] Odabaşı, Yavuz (2000) Satışta ve Pazarlamada Müşteri İlişkileri Yönetimi Sistem Yayınılık İSTANBUL
[42] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

The subjects in the firms are so related that effects on another topic of the precautions taken to bring a solution may arise by duplicating, for instance; while efforts to increase satisfaction of customers also increase new and repetitive sales, at the same time, the economical state of the firm strengthens and inputs directed to improve social welfare of both the workers and the society.

Most of the improvements devices above have a focus and are designed according to a specific topic. During usage of some of them, there may not be enough allusions to helpful points which may be important.

2.8 PROACTIVE AND REACTIVE APPROACHES DURING DEVELOPMENT OF PRODUCT

When Quality Function Deployment is applied as required, it is a systematic process which is intended to fulfill demands and needs of customers. Thanks to its features in application, Quality Function Deployment helps designers to respond correctly to demands and needs of customers. In Quality Function Deployment, demands and needs of customers are recorded with customers' own statements and in that way, they are utilized from in production process. Otherwise, the total design may be founded on false bases.[43]

There are a lot of examples which demonstrate that the Japanese spend much time on planning of the starting. Supplement foundations which sell products to Japanese firms or companies which work with them in the common enterprises frame have experienced this situation. In the figure 2.1, there are results of a work realized by a USA company which consiacated with a known Japanese company. Both of the companies are the same in terms of activities related to design, improvement and final production of similar products.

While the curved line indicated with the term of "Reactive" represents experiences of the USA company, the curved line indicated with the term of "Proactive" represents experiences of Japanese company.

[43] Pardee, William.j. (1996) to satisfy and Delight Your Costumer, USA Dorset House Publishing Co

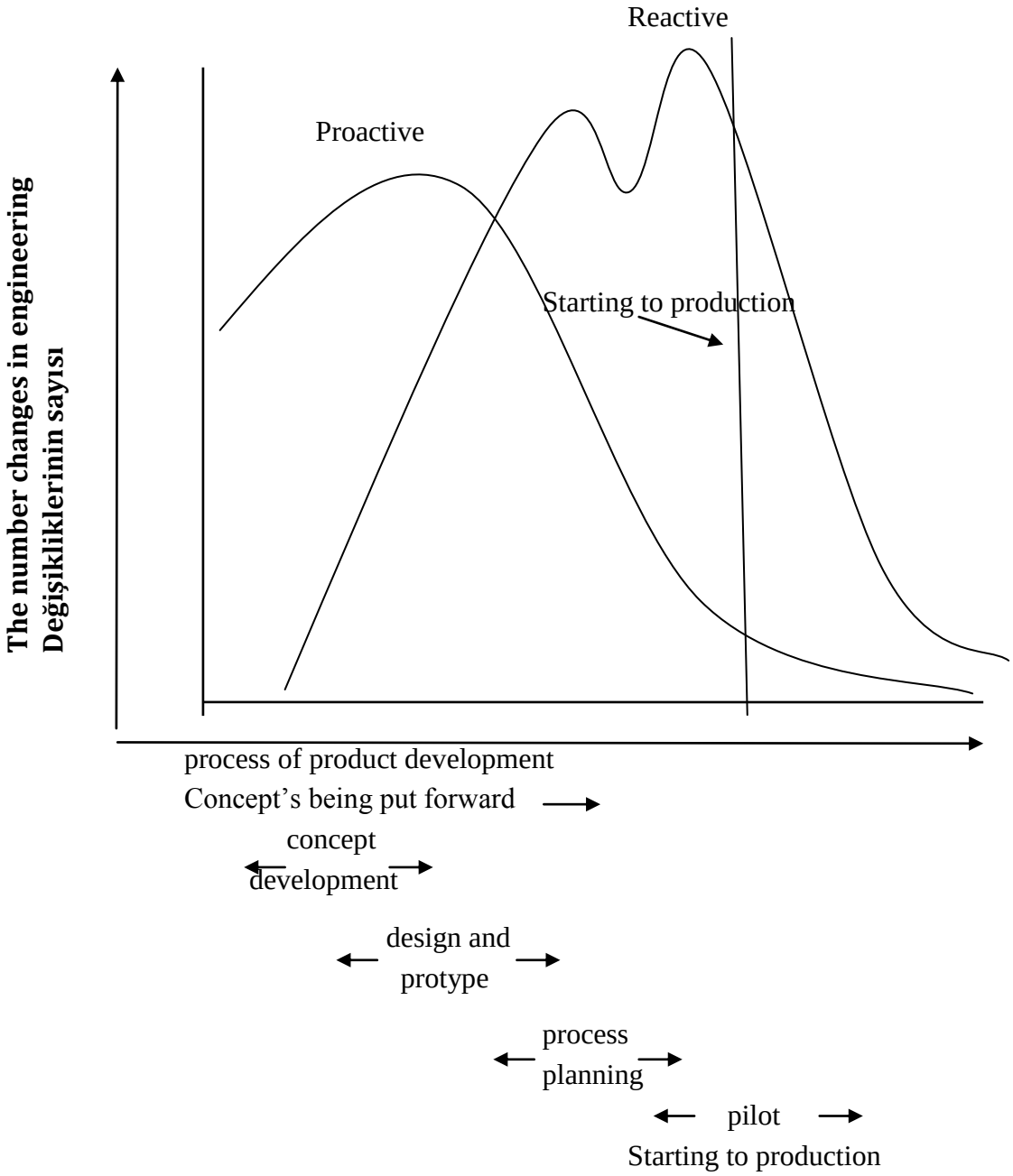

Figure 2.1 the number of changes done in the duration of process-project[44]

The reactive curved line indicates a few changes in the first phase of developing the product. Some problems occur when the company starts to produce concepts or to build and test the prototypes. As the product curved line shifts to the prototype and pilot stages, the number of necessary changes increases.

[44] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi

However; the Japanese firm examines and evaluates the project in detail and starts to modifications related to required changes at an earlier stage. At this stage, modifications are done for the plan and notions rather than the materials or pieces. These modifications done on the paper require less time and cost. As a result of paying attention to every detail at the planning stage, the Japanese firm needs much less modifications to make at the next pilot and planning stage.

In the hole on the Reactive curved line, there is need for modification at a number the company could not make and as a result of this, some modifications are being got limited and when these frozen modifications become an obligation again, the curved line raises again and the most necessary modifications are made.

As it is understood from the figure, the production has to continue after the production of changes on the Reactive curved line.

2.9 DEFINING OF QFD PROCESS

QFD is not a device, but a planning process which helps a firm to put forward useful and prominent issues which are related to usage of other technical devices in a supportive and complementary way. The QFD process which takes the customer as a basis helps foundations to gain a customer focus. It is this focusing which enables a foundation to understand what is needed to raise customer satisfaction.

Table:2.1 Defining Of QFD Process[45]

- A planning process
- Inputs: demands and needs of customers
- The matrix format used to record important information
- Allows to analyze and determine prominent topics
- output: important movement issues which focus on customer inputs and raise customer satisfaction

[45] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

- QFD is not a device intended to solve problems or analysis, but a planning project.

- Demands and needs of customers compose the input of the matrix. The process cannot be started without these inputs. Basically, QFD forces foundations to be in contact with people using their products.

- In a short and basic format, a matrix targeted to demonstrate crucial information for the project.

- In the matrix format, this information collected together makes the processes of examination, cross control and analysis easier and helps the foundation to determine on the issues related to competitive targets and required priority intervention.

- The output got from the analysis of QFD matrix has two sides

1- Targets intended to rivalry and about customers' opinions are composed

2- Some prominent issues to focus on are chosen. As a result of focusing on targets and prominent issues chosen, satisfaction of customers raises to a great extent.

2.10 TARGET OF QFD PROCESS

QFD should be taken into consideration as a methodology which enables a company to become a united whole with its customers and helps the same company in the planning process from global point of view. A company's perception of QFD process is shaped with being composed of a matrix. That the matrix becomes a target is encountered frequently. The company should try to avoid from this trap. The target is not to composed matrixes, but to become a united whole with customers and use this information to develop products which satisfies customers. QFD process helps a company organize and analyze all of the required information related to a project. During the analysis, important subject have a role to increase customer satisfaction to a great extent

Successful companies always benefit from the data and information in the planning process. In the planning of a new product, engineers always examine the manufacture and performance data belonged to the former product. They compare their product with products of rival companies by using the data got from laboratory and field tests. Any information related to the degree of customer satisfaction is taken into consideration.

However, the majority of this information is generally missing and they are considered as individual data without comparing with supportive or other disagreeing data.

On contrary to this, in QFD, a matrix format which includes many components which are crucial for the appropriate and planning process is used. The matrix provides a broad frame which enables to explore the current information the company in a way multidimensional way. This situation invokes the team to make effective decisions based on examinations of the team and unification of the appropriate data.

The QFD process might be used while finding solutions to diverse problems of planning. It is generally defined as a product planning process. However, in it, there are some different usage areas such as service or work planning, choosing the worksite and curriculum planning.

2.11 DETERMINING OF CUSTOMER NEEDS IN COMPOSING QFD PROCESS

While planning revisions to be done in a new or present enterprise, companies need to be in contact with the people who are going to buy their products and services. They need to know thoughts of their customers. Doing this plays an crucial role in terms of tough issues such as customer evaluation of that to what extent their demands and needs are fulfilled. Easier issues such as selection of place and planning of work are important equally. In such circumstances, customers are responsible with determining that how the duty is fulfilled inside the company.

When demands and needs of customers are known once, the company can obtain other information related to customers. They can have an idea about relative importance of various needs and demands of customers but utilizing from questionnaires. They can find out the number of customers who use their or rival companies' products and this reveals the evaluations the customers made about performance of both their own and chief rival's companies.

2.12CUSTOMER INFORMATION

2.12.1 Determination of questionnaire applicants

Matters to be taken into consideration while choosing applicants

2.12.1.2 Determination of targeted market

2.12.1.3 Determination of demographic structure

2.12.1.4 Determination of geographical distribution

2.12.1.5 Working with an independent questionnaire company

2.12.1.6 Application the questionnaire to people out of the organization

2.12.1.7 Application the questionnaire with and without related product sample

2.12.1.1. The first thing to do is to compose the targeted market. This step makes clear that who applicants are going to be. This is a complicated issue. Well-informed and experiences staff should be responsible with composition of the market, for instance; if a company is getting ready to put on a new sport car to the market, the ones who have a sport car or are interested in sport cars should be among the spectators. Applying a questionnaire to people having a big and luxurious sedan does not reflect the ideas of real sport car fans. If the plans are related to the new or modification model of a product, questionnaires include present customers typically. The company willing to enlarge its market is going to want to arrange interviews with prospective customers. To get an idea about the difference in expectations of the company's own and the rival companies' customers should be included to the questionnaire.

2.12.1.2. The demographic structure requires being determined. This also requires age distribution, level of income, marital status, geographic differences and information about the present and former owner of the product.

2.12.1.3. Geographical distribution should be examined because it effects the expectations of new customers from the product or service. Expectations might be effected by the environment or traditions of the related place. Needs and demands from the groups of clothing, furniture, packaged food and construction materials vary according to the geographical location.

2.12.1.4. For a real questionnaire, thinking for working with an independent company is important. Experiences on this issue put forward importance of confidentiality. There may be inaccurate results because of that people know that the questionnaire is applied by a certain company. Working with a group helps keeping the company secret during interviews.

2.12.1.5. Applying the questionnaire to people not inside but outside of the organization. Questionnaires are expensive. Generally, people may be asked to spend a long time during these interviews. Suggesting a materialistic encouragement is needed frequently. To decrease the expenses, companies prefer to use their own workers and this usually results in misguiding of the staff about needs for the product or service.

2.12.1.6. Questionnaires are applied with or without the samples put on the market. The questionnaire results which require the examination of a specific service or product are going to be different from the ones obtained when the sample does not exist.

2.12.2 Providing customers the right of expressing their ideas

This can be provided with help of methods below[46]

2.12.2.1 Interest groups

2.12.2.2 Interviews

- On the phone

[46] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

- Face to face

2.12.2.3 Questionnaires[47]

2.12.2.3.1. Group Type Questionnaire

2.12.2.3.2. Questionnaire by post

2.12.2.3.3. Questionnaire on the phone

2.12.2.4 Product Clinics

2.12.2.5 Rumors and Observations

2.12.2.1 Interest groups are usually composed of from 8 to 12 customers. A lot of topics to discuss are agreed on in advance. An assistant works to provide speeches from participants on their attitudes, needs and demands related to each topic discussed with the other group members. The assistant should be careful to keep the discussion alive, hinder some members' efforts to be foreground and utilize from the natural synergy emerged in the group discussion.

2.12.2.2 Interviews represent one to one conversations with customers. These can be made on the phone or with the help of a mediator. Personal interviews made face to face have the potential to be the most efficient method. When being in contact with the ones who are going to answer and they accept to come to the place mentioned for the process, they are aware of the time they are going to spend. In that way, the interview includes more questions and becomes more detailed.

2.12.2.3 The questionnaire is completed without coming face to face with participants but with providing information by making a connection with the mediation of the question ruler. In a research, if the questionnaire method is used, the group type questionnaire is chosen as either questionnaire by post or questionnaire on the phone.[48]

[47] Boyacıoğlu, Hayal. (2006)Tasarım kalitesi, Kalite Fonksiyon Açılımı'ndaki son gelişmeler neler? KalDer Forum Temmuz-Ağustos-Ey

[48] Boyacıoğlu, Hayal. (2006)Tasarım kalitesi, Kalite Fonksiyon Açılımı'ndaki son gelişmeler neler? KalDer Forum Temmuz-Ağustos-Ey

2.12.2.3.1 Group type Questionnaire: it is the process of collecting answers in a certain time and as a whole by giving the question ruler to the ones being together as a group.

Advantages of the Group type Questionnaire

- a result of participants' being together and getting the answers as a whole, it saves from time and cost.
- In the case that the researcher is appropriated in the group, he prepares an environment which directs the ones who want to avoid from answering to participation to some extent.

Disadvantages of the Group Type Questionnaire

- The possibility that the participants get affected from each other while answering cannot be hindered emerges because their interaction between them.
- That participants are together may cause more participants' wish to prevent from participating to the research.

2.12.2.3.2 Questionnaire by post: collecting data by post is one for the most common technique in the questionnaire method. In this method, question rules are sent to participants' addresses with a request to send back.

Advantages of Questionnaire by post method

- The cost in this method is lower than it is in other data collection method.
- There is possibility to get information from a frame comprising a very large area.

Disadvantages of Questionnaire by post method

-With this method, the possibility to obtain information requiring thinking, producing solutions and making inductions is low.
-This method provides limited information because it does not have any possibility to keep participants interested and alive.

2.12.2.3.3 Questionnaire on the phone: It is the process of collecting data on the phone.

Advantages of Questionnaire on the phone

- It provides possibility of collecting data very quickly.
- It lowers the cost in short distances.

Disadvantages of Questionnaire on the phone method

- There is not possibility to interview with participants who do not have a telephone.
- A figure requiring examination by looking cannot be reflected to participants.

2.12.2.4 Product clinic is a perfect way to develop a perspective related to what people think on a special suggestion and concept. Product clinics are applied in the circumstances that questions such as “Which of these drinks and foods does taste best?”, “Which of these control pens is more sensitive?” or “What is the appropriate coffee heath to serve?” are not enough alone.

Clinics provide an organization the opportunity to learn customer opinions about various suggestion concepts developed for observation and/or usage. Participants are given question forms to write down their personal opinions. Organization and analysis of the question form provides statistical evaluation techniques.

2.12.2.5 Personal observation is another efficient approach. The Japanese use the term of “rumor” to define this simple process of listening and observing. This is not a scientific process; can give some interesting ideas related to customers. Product shows can be arranged to learn customers’ positive or negative opinions about both the company’s own and rival companies’ products. Watching pupils at school puts forward the problems related to the strength needed to open beverage cans and insert the cane inside.

2.12.3 Understanding Customers

The process of asking questions to people does not reveal everything related to understanding demands and needs of customers. Noritaki Kano study provides a model helping us understand the expectations and the customer satisfaction topic as a whole. The Figure 2.2 shows observations related to Kano. The horizontal axis indicates how the company products and services fulfill expectations of customers. The vertical axis indicates the real level of customer satisfaction for the product and service.

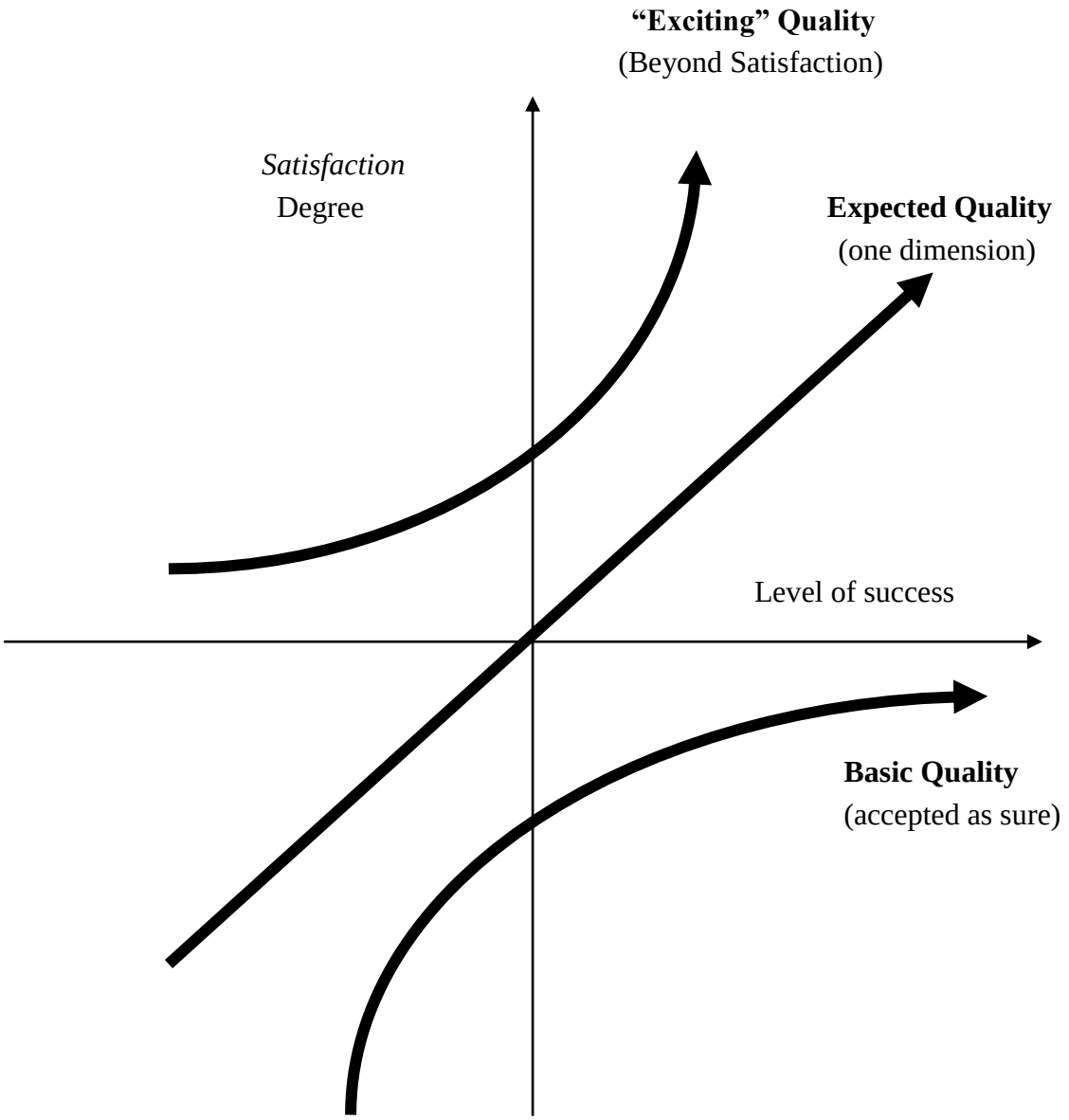

Figure 2.2 Kano Model[49]

The curved line below can be accepted as an example for the expression. The poin of rightmost arrow on the line represents customers feeling that their expectations are fulfilled completely by the producer.

Until they come across with a breakdown recently and personally, the customers do not usually mention basic quality issues. Because these basic elements

[49] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

are expected as minimum and provided generally, they do not come to mind during interview.

The curved line in the middle represents the issues emerged in customer interviews typically.

One of the principals of QFD process is to force companies to speak with their customers. In this process, they learn demands and needs of customers and can plan their strategies to raise customer satisfaction.

The curved line above includes the elements representing exciting quality. Customers rarely speak about these during interviews directly. These are beyond expectations of customers.

2.12.4 Examination of ideas

The thought of determination of basic demands related to customer opinions is crucial for success of interview process. Customers tend to mix up their needs, solutions and problems. Customers usually talk about their demands with the interviewer without stating a reason.

a. Establish basic needs.
b. Do not miss even a word of speeches.
c. Shorten the ideas to a necessary degree.
d. Thoughts of combining

a. If the process of asking questions do not target to the basic demand, the value of information is not measurable anymore. After the interview is over and the customer leaves, it is almost impossible to establish the meaning of the opinion which is not understood fully.

b. After completing each of the interviews, the interviewee and the company representor examine questionnaire notes and tapes to reveal the real meaning of the customer interviews.

c. Thoughts should be short to be used as inputs for the matrix. However, making them too intensive causes to lose the original customer input.

d. When the result is taken into consideration, many people refer to the same things in different ways. If it is possible, they should be gathered under just one topic. As the number of customer thoughts arise, the management of the matrix

becomes more difficult. As the number of thoughts decrease, it is easier to work with the rest information needs of the matrix.

2.12.5 Convention of thoughts into natural groups

Customer thoughts develop randomly. The opinion that “Coffee is drunk when it is fresh.” can be followed by the comments such as “The cup keeps the coffee hot.” or “There is need for a cover preventing coffee form pouring.” While working with a QFD matrix, if the classes having the same qualification are grouped together, examining these and converting them into technical needs become relatively much easier. Discussion focuses on only one topic and the synergy required is emerged.

2.12.6 Getting Additional information about customers

The relationship of customers who are consulted to with other rival companies should ne known and also, their thoughts of rival products should be learned.

Therefore, being in contact with thoughts of customers should be a non-stop process. Opinions will change. The degree of importance will change. The perception of rivalry performance will change. Only, researches conducted constantly will keep the company interested in needs and demands of customers.

The research process should be carried on with the aim of feedback for gaining success and determining of trends and changing thoughts.

2.13 COMPOSING OF CUSTOMER INFORMATION IN QFD MATRİX

After obtaining the data,

a. A team process should be composed.

b. The table of customer information should be prepared.

c. The diagram of pre-planning should be prepared.

d. This diagram of pre-planning is used for management of the project and determination of privileges.

a. QFD is a team process. The size of a typical QFD matrix, the range of required information and need for synergic discussion create the obligation that this must be a team process. The team should be composed at the first stage of planning of the market research at the very beginning of the project.

b. The preparation of the table of customer information starts with customers helping to define the product and product characteristics and as a result of this, it starts with customer needs. The customer demands got by the methods such as face to face interview, visiting customers, questionnaire at the stage 1 are supposed to be written as the input of the house of quality composed at the stage 2. Customer needs take place in the "WHAT"s parts of the matrix.[50]

In QFD process, customer needs are classified according to certain rules. While expectations of customers are listed, in the section named as primary customer expectation, features are stated with general notions. In the secondary customer expectations section, sub*sections in the primary section are got more detailed. However, these expressions are not enough to be used in the engineering stage. For this, by utilizing from the tertiary section, the topics in the secondary section are stated in a more detailed way. Listing expectations of customers in a hierarchical structure in detail provides a systematic approach to express the expectations in a way that they can be used in engineering. An importance degree is determined to each demand of customers with again information obtained from customers later.[51]

	Primary	**Secondary**	**Tertiary**
Customer expecations			

[50] U.Erman Eymen, 2006 U.Erman Eymen, Kalite Fonksiyon Göçerimi, Kaliteofisi Yayınları No:11 Şubat 2006

[51] U.Erman Eymen, 2006 U.Erman Eymen, Kalite Fonksiyon Göçerimi, Kaliteofisi Yayınları No:11 Şubat 2006

Customer demands for a car door are indicated as a diagram. For the primary demand, being useful and work properly with a good appearance is determined after that for the secondary demand, a cover opening and closing with ease, isolation, arm support, inner accessories, cleaning and well-montage make the primary demands a bit more detailed. For the tertiary demand, all of the thoughts of customers are taken into consideration in detail and evaluated by examining demands made detailed as the secondary deeply.

Primary	**Secondary**	**Tertiary**
Being useful and working well	**Cover opening and closing with ease**	It closes with ease from outside
		It stays open in slope
		It opens with ease from inside
		It does not goes back
		It closes with ease from inside
		It opens with ease from outside
	Isolation	It does not penetrate water
		There is not road noise
		It does not penetrate water while washing the car
		There is not wind noise
		It does not drop water while opening
		It does not create noise
	Arm Support	Soft, cozy
		In the right location
Good looking	**Inner Accessories**	Material not fading
		Having charm (not giving impression of plasticity)
	Cleaning	Easy to clean
		No grease split from door mechanism
	Well-montage	Door panels with proper montage

Table 2.2 for a car door, the qualifications customers demand[52]

c. The first customer information table should be examined before using the horizontal part of the planning matrix. This is an advice control to be sure that the

[52] John R. Hauser ve Don Clausing,The House of Quality. Harvard Business Review-May June 1988

thoughts which do not have a direct application in the first level QFD matrix do not exist.

Broad matrixes can require to collect data at a harmful level and to determine too many mutual relationships. Ideally, matrixes should have from 25 to 50 entrances in the customer demands section.

During the elimination of pre-planning diagram, subject belonged to other groups or details at the lower level and they should be converted into beside a list with application groups.

d. An organization may find impossible to carry on beyond the time-customer information table. Factors such as timing and cost may require stopping at that point. Even if the process stops at this level, it will have contributed to the company to a great extent. The company will stay in contact with its customers. Customer needs and demands will be known. In these circumstances, the team will use the customer information table as a pre-planning diagram to determine primary thoughts that will compose a part of the project management process.

Managers may agree on primary subject for product revision. This is an important point. That sources are limited obliges only a few of the subject selected frequently at the beginning to be the final product development project. The level of pre-planning diagram is an appropriate time to determine the privileges and agree on the movement plan.

2.14 TECHNICAL INFORMATION PART

In this part, the vertical or technical part of QFD matrix is studied.

There is not an order related to the entrance of information to the QFD planning matrix. The order explained is the one followed most. The actual order varies from team to team and from the project to project and depends on existence of information to a great degree.

2.14.1 Convention of customer thoughts into technical needs

The first step to start to the technical part of the matrix is convention of customer thoughts into technical needs. Thoughts, must convert company products into the language the company uses to explain designing, processing and production. At the same time, technical needs must represent solutions.

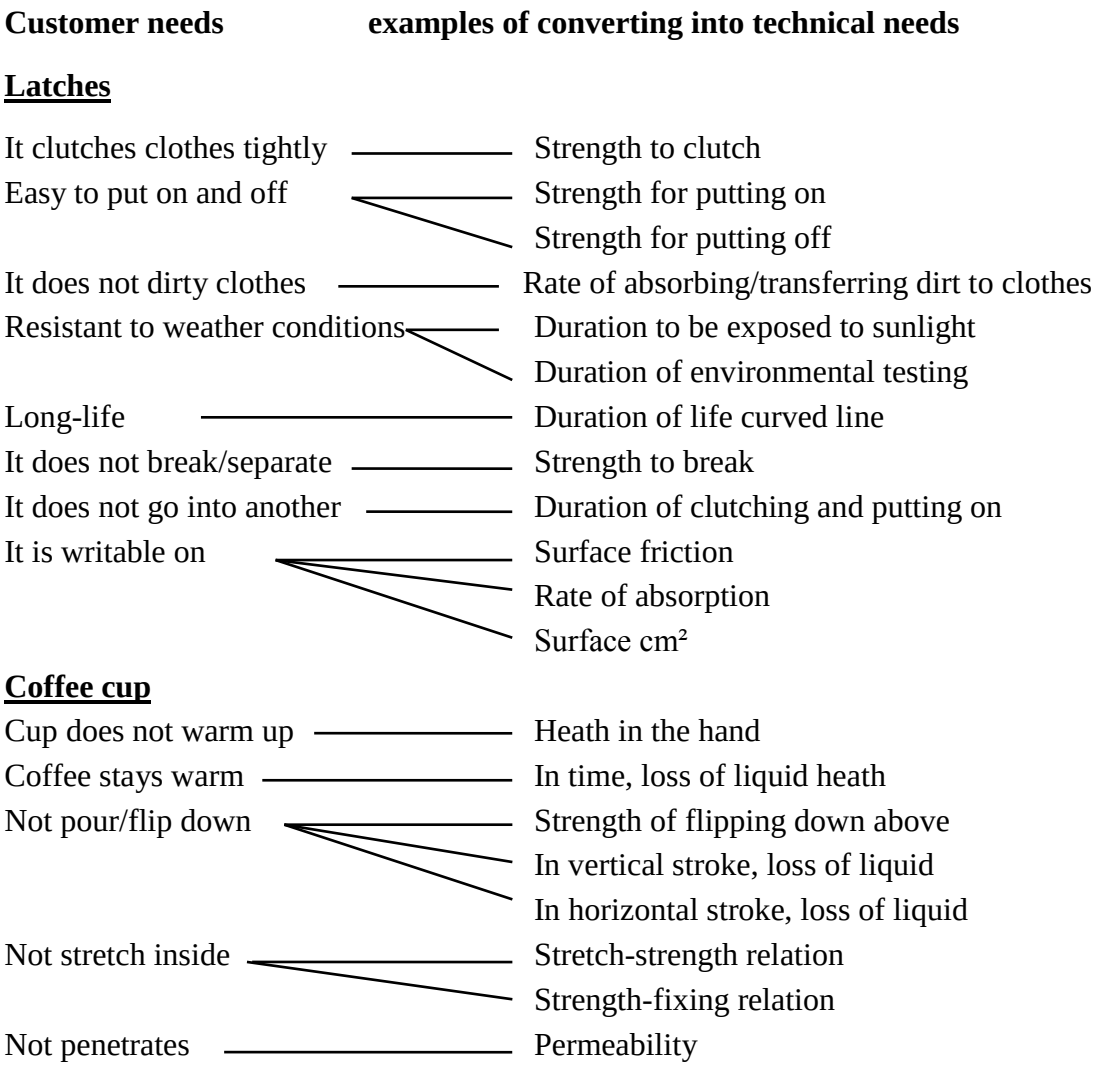

Figure 2.3 Convention of customer needs into technical needs[53]

The figure 2.3 indicates some typical customer thoughts and technical needs. Typical answers are strength, heath, life curved line, resistance, duration of process

[53] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

or duration of completing the activity, readability, permeability, distance to access and level of voice, measurability not special to the design.

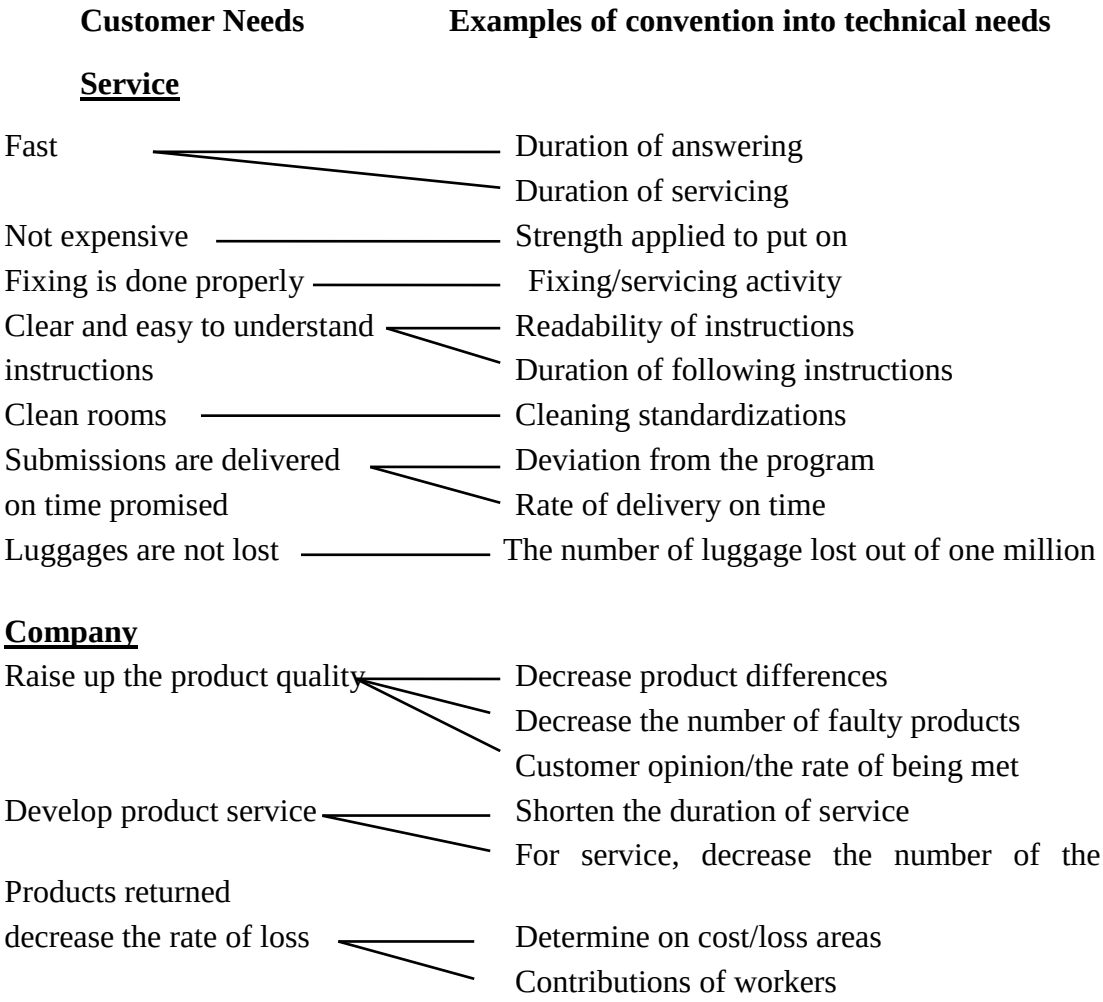

Figure 2.4 In the applications not related to the product, convention of customer needs into technical need [54]

The figure 2.4 indicates some customer needs not related to the product. Opinions on the service are typical customer inputs. Customers expect a quick, kind and reliable service for their products. Service staff expects instructions which are clear, readable and easy to follow to diagnose and fix errors. Technical needs to answer them are duration of giving an answer, activity of service, readability of instructions and returning of faulty products.

[54] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

The lower part of the figure 2.4 indicates some typical company inside thoughts emerged during work planning discussions. The format of the matrix is an ideal device to examine this kind of subject**,** For this subject, measures can be developed as indicated in the figure 2.4.

2.14.2 Recording of team decisions related to technical needs

In this method, each of thought recordings is examined by starting from the first row and following to the last row and for each thought, the team decides on the required technical need (or needs) aimed to that thought. Later, these are entered to the area separated for technical needs from the upper part of the matrix.

Technical needs should be determined with care. To satisfy this thought, one or two needs are enough. If a team starts brainstorming to give possible answers to any topic, in the matrix, there are a lot of technical needs and detail in a great extent. As the number of technical needs increases, the degree of complexity of the matrix also increases to a great extent. The number of technical needs determines the number of the column in the matrix and this increases both the number of tests needed to develop technical evaluation data directed to rivalry and the number of decisions needed to be made. As a general rule, the team should try to keep the rate of technical needs to customer needs somewhere between 1 and 1.5.

2.14.3. Determination of relationships

A team can examine the relationships between technical needs and customer needs for example while waiting for data such as results of a test. Decisions are recorded to the matrix by using symbols stating strength of relationships. Symbols used most frequently are double circles for a strong relationship, single circle for an average relationship and a triangle for a weak relationship. Teams tried to use numbers such as 1,3 and 5 instead of symbols but experiences have shown that symbols are read more easily.

In determination of relationship strengths, it is important to work on columns and after checking each of the technical needs and asking themselves “Are we going to work on this needs to fulfill the customer need mentioned, teams should follow the related column to the down.

The figure 2.5 indicates the coffee matrix added relationships to. Here, when the team members ask the question that "Are we going to work on heath of the cup in the hand to meet customer need?" we see that only the first two thoughts are related to this.

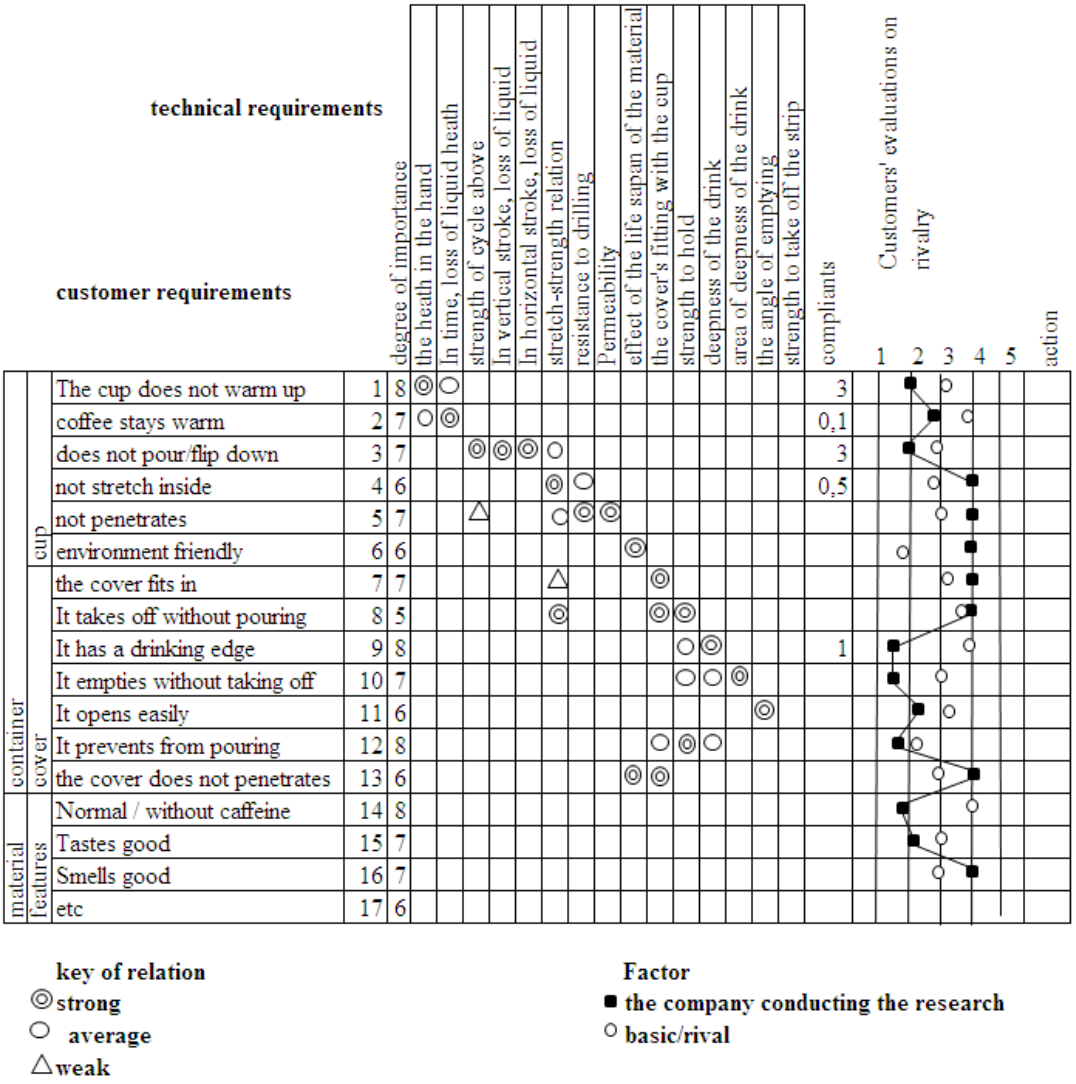

Figure 2.5 the QFD matrix to which symbols are added to demonstrae the relation between customer requirements and technical requirements[55]

2.14.4. Technical Data related to Rivals

The figure 2.6 is a broaden frame of the part of technical evaluation of the QFD coffee matrix and indicates the simplest approach to issue of graphical illustration of the technical data directed to rivalry. For the technical need that heath in the hand,

[55] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

our company is indicated as 150˚ F and the best rival company is indicated as 130˚ F. The development way taking place at the upper part of the figure indicates that customers prefer a lower heath however there is not a present value which is optimum or targeted for heath in the hand. The team can determine a scale length which is appropriate for these data. In this situation, a scale between 130˚-150˚ may be chosen and this 20˚-distinction can be divided into four divisions and in this way, each division of the scale would be 5˚. Because customers prefer a lower heath, the scale goes from 130˚ which is above to 150˚ which is below and the dark squares in the data graphic refer to our company.

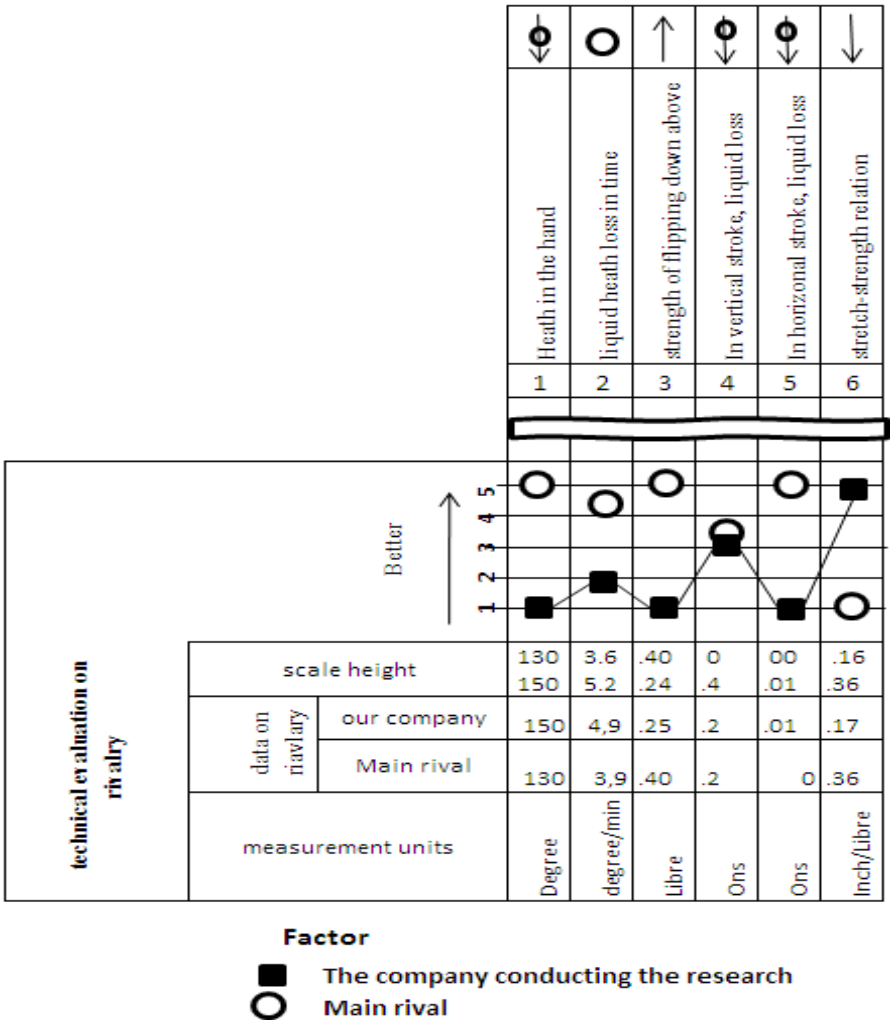

Figure 2.6 Graphic of technical data on rivalry[56]

[56] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

This is a flat approach to the issue of demonstrating of data in graphics. Generally, the scale length depends on real data and data comprise a large part of the scale, as it is indicated in the column 4 whose heading is “liquid loss in the vertical stroke”, it is possible to have a judgment to some extent. Both of the companies preferred a 0.2 ons-quantity poured and they modified the scale to reflect this. Because of that, the scale was modified to be in the .4 ons-interval and both of the companies took place in the middle of the graphic from this view.

2.14.5. Determination of targets

Here, the question that “Which target is supposed to be detected?” must be asked. The evaluation data related to rivalry obtained from customers indicate the judgment that none of the companies is successful. Even, our company which is the best among them got only 2 from the scale 1-5. In addition to this, the best company, our company, gets a complaint in every one thousand sales. It is an important signal from customers showing the low presence of all companies. Any company researching on customers in a similar way will see this biased circumstance and clear opportunity. A company which could develop a coffee cup which warms the hand less and aimed to human factors can take advantage of this opportunity to be more competitive and this company again will be the company which could use development as a means of advertisement and a “sales point”.

If we consider that the heath value in the hand of our company is lower, for instance 120˚, in this case, our company will be placed at the point 4.4 in the scale 1-5 and will be in much better condition according to its rivals.

If while the heath value in the hand of our company is 150˚, the rival A’s is 132˚ and the rival B’s 140˚, in that case, our rivals are much more advantageous than us. However, the best rival, A, is only at the point 3.5 in the scale of 1-5. In that, rival companies are not so successful in satisfying customers. In this circumstance, if we manage to make the heath value lower than our rivals’, we could be again advantageous in rivalry.

14.6. Correlations

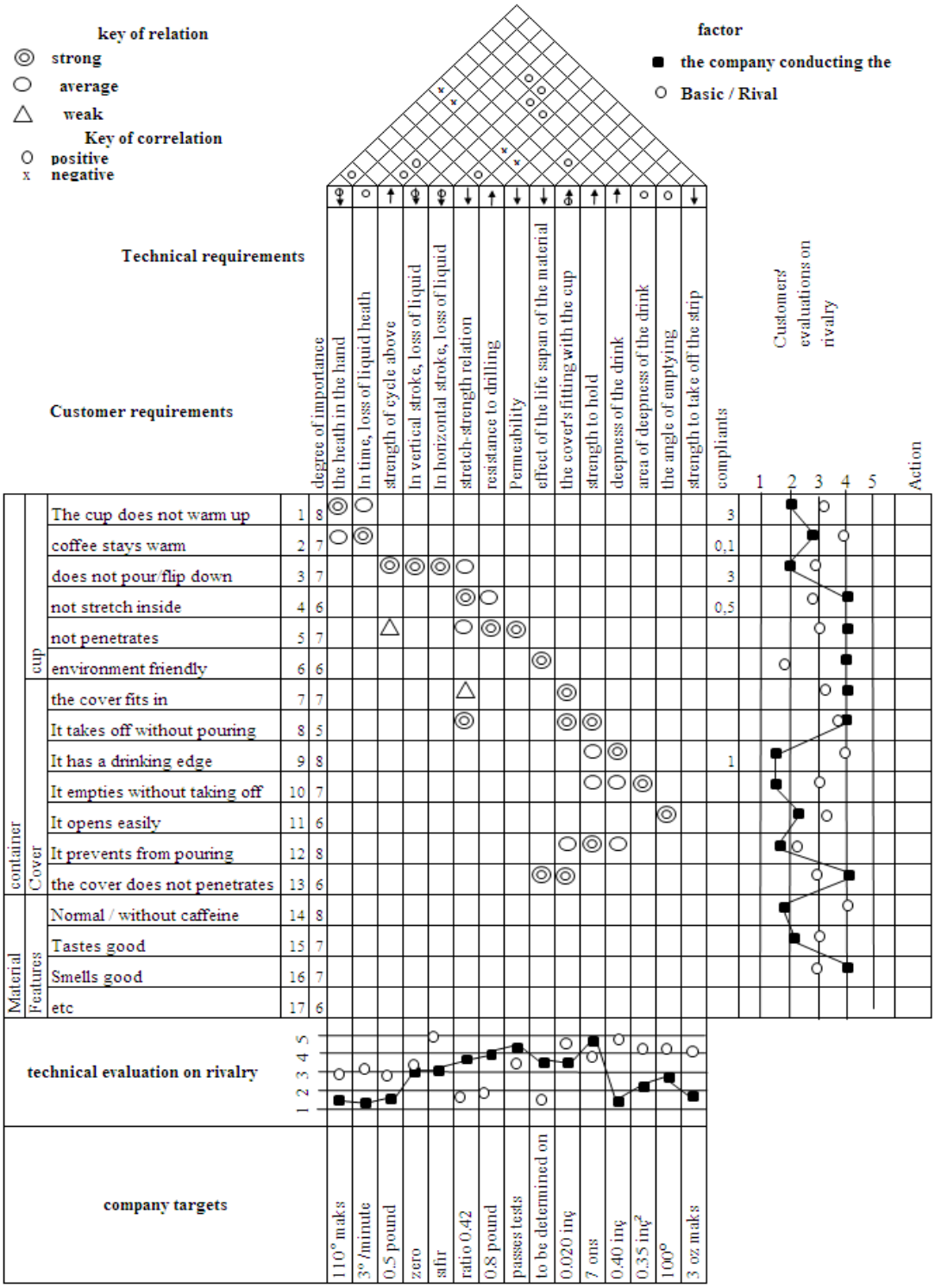

Figure 2.7 The QFD matrix to which correlations are added[57]

[57] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

Many of the technical needs are related to other technical needs. A work done to develop one of these could help the related need and as a result of this, a positive or useful impact emerges. On the other hand, it is possible that that work done to develop a need could affect it negatively, for instance, improving of the value of mile/gallon may effect acceleration negatively. Both of them are customer opinions; both of them are very important and related to each other. However, this is a negative relation, because the process going through to improve the other will have a harmful effect on it. On the other hand, if it is accepted that characteristics of a power transfer system are unchanged during efforts to decrease the weight, it will have a beneficial impact on both mile/gallon and acceleration issues.

The figure 2.7 demonstrates the coffee matrix to which the correlation matrix is not added. To simplify the topic, only two symbols, circle and X, are used to indicate positive and negative correlations. Besides, all of the four negative correlations include the technical need with the heading, "effect of material life-span". There is a powerful relationship between this need and the customer voice in the way of "Environmental Security". The team perceived that all of needs which are heath in the hand, liquid loss in time, alcove/strength and resistance to be staged in are related to this environment issue in a negative way. The real reason for this is that customers' interest on the cup's staying cold, keeping the coffee hot and resistance to squeezing is a topic depending on the material choice. Every material has its own life-span impact and is harmful to environment to some degree.

2.15 EXAMINATION OF MATRIX ON THE BASIS OF PRIVILIGES

The analysis of the QFD matrix should start with the customer part of the matrix. This part includes customer demands and needs, their criterion of importance level and evaluations on rivalry. Here, the aim is to revise the data and determine customer needs to be taken into consideration while planning presentations of new products. The highly prior materials chosen could be listed according to the importance level by the team and balanced for changes in products by depending on human resources and the budget.

There are budget limitations in any of product programs. Because of this reason, the analysis of customer information in the QFD matrix is designed to help that institution to balance its resources according to customer needs and after that, decisions on which categories will have priorty are made on the basis of customer requirements rather than internal experiences and perceptions.

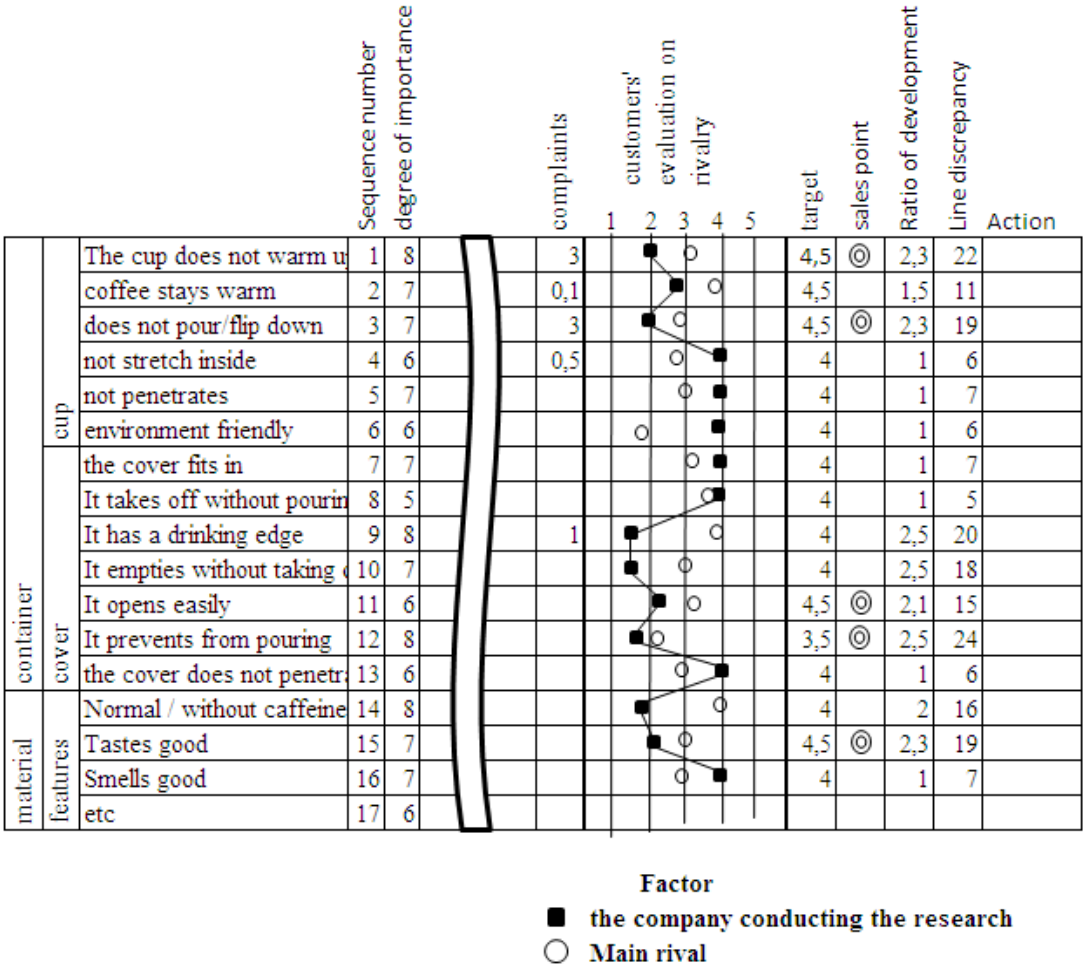

Figure 2.8 The customer part of the planning matrix to which quality planning information and weights of lines[58]

The first column on the right carries the title, "Target", and is used to record results of judgments made on targets for customer satisfaction, for example; a 4.5-target in the column 1 means that the company believes that they should work hard to

[58] Day, Ronald G.(1998) Kalite Fonksiyon Yayılımı, Bir Şirketin Müşterileri ile Bütünleştirilmesi. Tercüme Enternasyonel Tercüme Hizmetleri Ltd. A.Ş Marshall Boya

improve this need of the company and the evaluation of the new product by customers should be 4.5 on average in the scale 1-5. The present product is evaluated with 2 by customers.

Next column is for “sales points” and should be used to emphasize the importance of lines of the process directed to develop a product which are capable of providing a competitive aspect. In such circumstances, the company may advertise this competitive aspect.

While calculating the improving rates, two methods could be used. One of them is division of the target value determined by the customer evaluation rate, for example, 2.23 is obtained by the division of the target value 4.5 in the column 1 by 2. The other method is is to removal of the customer evaluation value from the target value. Again, 2.5 is obtained from the removal of 2 from the target value 4.5 in the column 1.

The last column which is “Line Interval” is multiplying of these three columns: the customer importance level, sales points and the developing rate. In this situation, Bu the value 1.2 is given to the presence of a sales point arbitrarily and according to it, in the line 1, the line interval is determined as (8x1.2x2.3=) 22.08 and it is rounded to 22.

- Category A: Because the rival is in a leadership position which could be regarded as important by customers, it defines a subject of which first stage is examining products
- Category B: It defines subjects in which rivalry does not play a leading factor role. In this situation, firstly, the product of the rival should be examined and after that, a list of concepts should be developed directing to required evaluation and synthesis to come up with the best idea.
- Category C: It comprises items in which there is an opportunity for rivalry, none of the companies has a leadership situation which could be regarded as important; because of that reason, new ideas and concepts should be studied and discovered.

CHAPTER III

3.1 HOUSE OF QUALITY APPLICATION

Today, human rights and freedom have gained importance as it had never been. The rights of living and utilizing from health services are the most important ones in those. Depending on this, countries also have given importance to health of humans and assured it with their constitutions. In Turkey, these rights have been assured with the part 17 and 56 in the '82 constitution.[59]

In our country, recently, there have been great breakthroughs and changes in the health area. Governmental institutions (SSK, Bağkur and Emekli Sandığı) have been unified in the health area and hospitals associated with it have been gathered together. Working conditions of the personnel in the health area have been organized over again. Patients have had the chance to buy medicine from any pharmacy they wish and go to any hospital they wish.

These regulations emerged in the state hospitals have helped to improvements in health services and raise the service quality. From now on, patients could get health services which is faster and more satisfying from hospitals belonged to the state.

As the contract private hospitals made with the government requires, they cannot get money from their patients more than the fee decided on. Therefore, patients prefer private hospitals because they do not have to pay too much and feel more satisfied. This condition also limits that private hospitals get too much money by providing patient satisfaction. However, it leads to get attention of many patients by satisfying them and in that way to raise their income.

These difficult rivalry conditions enable service quality and patient satisfaction to gain more importance. Also, hospitals have started to seek for ways to become advantageous over their rivals by raising their service quality.

The Quality Function Deployment is one of the best methods to measure the services hospitals offer their patients in a multidirectional and appropriate way and as a result

[59] www.tbmm.gov.tr/develop/owa/anayasa

of this, to discover their superior features and develop them more in order to become advantageous over their rivals, not to fall behind their rivals by detecting and fixing their shortcomings, even to fix shortcomings and get superiority in these areas.

The House of Quality is an evaluation method which has superior features in terms of showing a lot of input together and providing an opportunity to evaluate their relations to each other in a multidirectional and appropriate way.

3.2 MEASURING OF PATIENT SATISFACTION

Here, patient satisfaction is measured by applying questionnaires to patients. While preparing the questionnaire, the SERQUAL Model and the Likert Scale with 7 were used.

Health services have their own distinctive features. These include being social, uncertain demands, great risks, depending on the expert's information and in addition to these, consumers' having not enough information about the product or service, not being able to measure the benefit and quality service provides and to possess services.[60]

Patient satisfaction is a complicated notion that gets affected from many elements and one of the most important indicators of quality patient caring. Patient satisfaction broadly depends on service's fulfilling patient expectations or perceiving service offered. The service quality determines on patient satisfaction basically and in this process, plays a role in all of activities such as patient appliance, diagnosis, cure and care. The elements determining the service quality are the environment that service is offered, appearance, service timing, service providers' being experts, demanding on continuity, being reliable, accurate and flexible. In addition to these, in determination and perception of health services, some elements such as waiting durations of patients, politeness and consistency of the staff, accessibility to service,

[60] Turan, Nurcan; (2004), Türkiye'de Sağlık Hizmetleri ve Sağlık Sektöründe Temel Sorunlar; Çözüm İçin Sağlık Kooperatifçiliğinden Yararlanma

service's being done in one time and accurately, the staff's finding solutions to unexpected situations and answering them, service's being on time and complete.[61]

In 1984, Gronross defined the service quality as a result which evaluates the process comparing customer perceptions with expectations and made the first move to measure the service quality that service firms offered. Parasuraman, Zeithalm and Berry composed a scale named SERVQUAL evaluating the service quality in ten dimensions with the studies done on focus groups. These dimensions are accessibility, communication, adequacy, politeness, being believable, reliability, willingness, security, physical features and understanding-knowing customers. In their study,[62] Parasuraman et al. established the validity of the scale discussed in five different service branches (banks, credit card firms, maintenance and fixing firms, international telecommunication firms and securities broker) and after statistical analysis, they reduced the Likert scale with 7 composed of 22 questions and the SERVQUAL scale on which both perceptions and expectations are measured to five dimensions. While physical features, reliability and willingness remained the same, the other seven dimensions were listed under two headings as giving security and empathy (understanding customers) (tangibles, reliability, responsiveness, assurance, and empathy). Different methods were developed to measure patient satisfaction.[63]

This scale was developed by Parasuraman, Zeithalm and Berry and it was adapted for the health sector by testing its validity in 1992 by Babakus and Mangold.[64]

In 2002, in their study conducted on appropriateness of the SERVQUAL scale for The Turkish, Argan and Argan researched in a university hospital including 269 patients and their entry procedure, nursery services, doctors, assistant personnel, food, rooms and the size of the hospital by adapting five dimension (physical

[61] TarımMehveş, (2000), Hizmet Organizasyonlarında (Hastanelerde) Kalite, Prof. Dr. Nusret Ekin'e Armağan, Türk Ağır Sanayii ve Hizmet Sektörü Kamu İşverenleri Sendikası Yayını No:38, Ankara
[62] Parasuraman, A.; Zeithalm, Valarie A. ve Berry, Leonard L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing
[63] Parasuraman, A.; Zeithalm, Valarie A. ve Berry, Leonard L. (1988). SERVQUAL: AMultiple-Item Scale for Measuring Consumer Perceptions of Service Quality. Journal of Retailing
[64] Babakus E., and Mangold W.G. (1992) Adapting the SERVQUAL Scale to Hospital Services: An Emprical Investigation, Health Services Research

features, reliability, willingness, security and empathy) of the of the scale to deeds on health services and paying attention to the Turkish and their cultural background.[65]

3.2.1 The Gap Model and the Service Quality

Parasuraman and his colleagues got some findings as a result of interviews done with firm administrators deeply. They showed the gaps between both quality perceptions and practices of the firms offering service and the gaps between expectation of customers from service and the real service they benefit from and that how these gaps affect the service quality perceived by paying attention to the service quality and service providers and beneficiaries with the "Gap Model".

Gap1: the gap between customer expectation and the administration's perceptions of customer expectation. This stems from that the administration cannot perceive customers' quality expectations fully and correctly.

Gap 2: the gap between the administration's perceptions of customer expectation and converting these into quality specifications.

Gap 3: the gap between quality specifications and presentation of service. In a service firm, to expect the same performance from all of the staff and to standardize it may not possible always. Because of this, quality specifications should not be too complicated, be accepted by all of the staff and be appropriate to the organization culture.

Gap 4: the gap between service offered and knowledge customers have about it. To minimize or prevent from this gap, what was promised to customers should be realized.

Gap 5: the gap between service expected and service perceived. Parasuraman, Zeithaml and Berry stated that the four gaps explained briefly above are the main reasons which compose the fifth gap setting the base of the SERVQUAL model. When this gap is positive, in that, the service perceived is equal to the service expected or exceed it, quality may be told. If the service perceived is under expectations, this leads to poor quality.

[65] Argan M. Ve Argan M.T. (2002) Sağlık Hizmetleri Pazarlamasında Kalite ve Osmangazi Üniversitesi Tıp Fakültesi Hastanesindeki Servislerde Yatan Hastalara Yönelik Bir Araştırma, 7. Ulusal Pazarlama Kongresi Bildiri Kitabı 133-150 Afyon

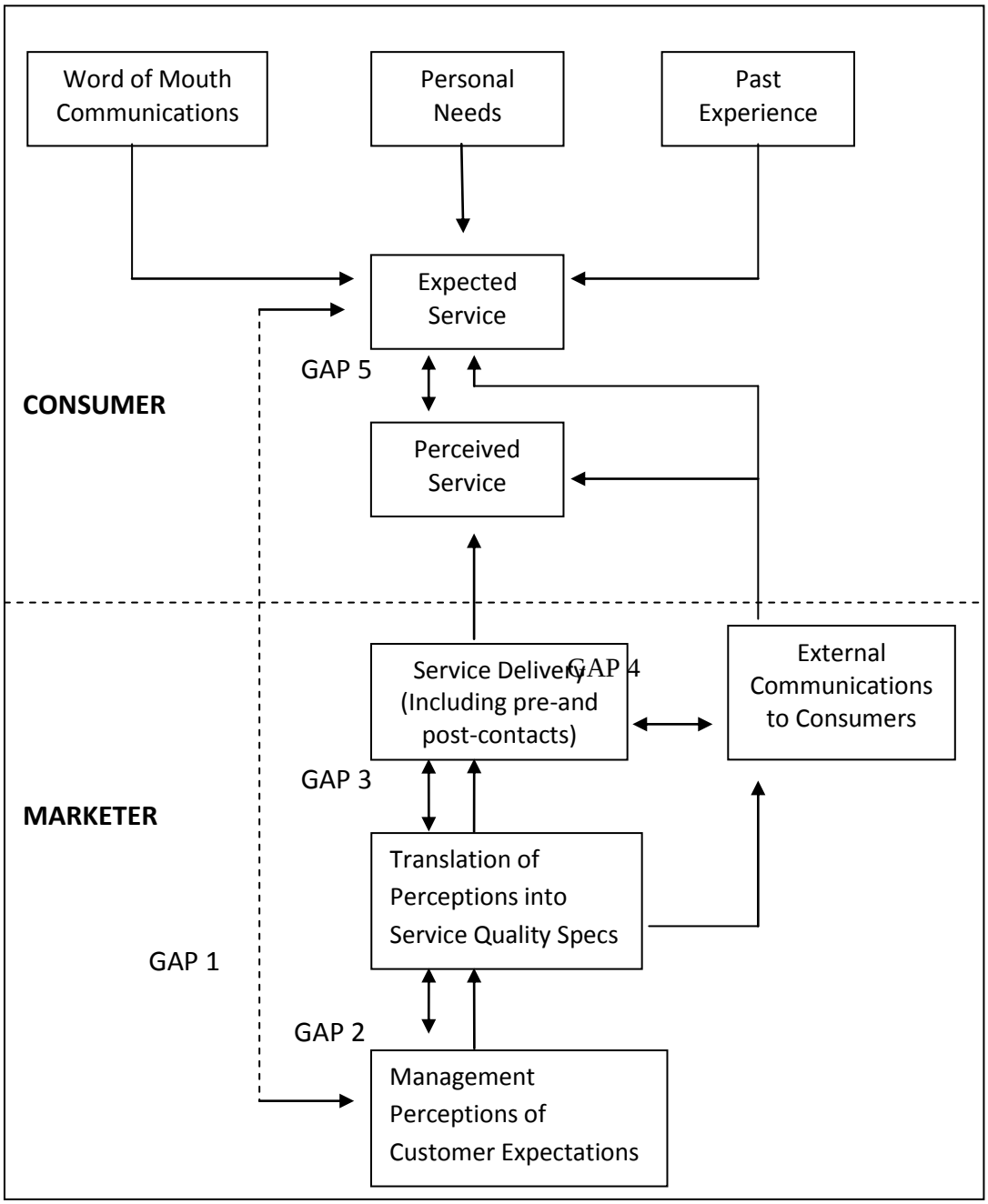

Figure 3.1 Service Quality Model (Gap Model)[66]

3.2.2 Likert Scale

The Likert Scale is one of the most convenient question forms. This scale, in 1932, was named after Rensis Likert, the creator of the scale. These scales include a sentence array related to attitudes towards only one object. In these scales, two kinds

[66] Parasuraman, A., Zeithaml, V.A. ve Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing

of sentence structure are seen. The first kind is agreement sentences showing positive attitude towards the interest object. The sentence that "the number of the doctors is enough." is an example of this kind. The second kind is agreement sentences showing negative attitude towards the object. The sentence that "Meals are not delicious." is an example of this kind. In the scale, the numbers of the positive and negative statements are tried to be kept equal.

In the most common format of this scale, applicants are led to degree their agreement with every one of the sentences. In short, a sentence is presented to the individual and he is asked whether he agrees with it or not in the scale with three, five or seven options.[67]

3.2.3 Preparation of Questionnaire Questions

The questionnaire questions were prepared according to the SERVQUAL scale in that way:

1-According to physical features

a- In FUH, the equipment used is extremely modern.

b- In FUH, the general atmosphere is nice and clean.

c- In FUH, the food is delicious and appetizing.

d-In FUH, the heath of the meals is appropriate.

e-In FUH, the rooms are appropriate to provide comfort for both the patient and the companion.

f- In FUH, there are suitable parking areas.

g-In FUH, the number of the doctors and nurses is enough.

2-According to timing

a-In FUH, the staff realizes their promises to patients exactly on time.

b-In FUH, the procedures of the patient who is going to be discharged are done very quickly.

c-In FUH, nurses serve very fast during treatment of the patient.

d-In FUH, the entry procedures of new comers are done very quickly.

e-In FUH, appointments are realized exactly on time.

[67] Likert, Rensis (1932). "A Technique for the Measurement of Attitudes". Archives of Psychology

3-according to security

a-In FUH, doctors are experts. They give confidence to the patients and their relatives.

b-In FUH, nurses are experts. They give confidence to the patients and their relatives.

c-In FUH, other personnel are experts. They give confidence to the patients and their relatives.

d-In FUH, the patient who is going to be discharged is sure about the correctness of the fee.

e-In FUH, the staff is respectful to patient confidentiality.

4-According to politeness

a-In FUH, the hospital staff behave kindly to the patients during entry procedures.

b-In FUH, the administration behaves extremely kindly to the patients.

c-In FUH, the doctors are extremely kind and nice to their patients.

d-In FUH, the nurses are extremely kind and nice to patients.

e-In FUH, the patient relatives visiting the patients are treated very kindly.

5-according to importance

a- FUH has a staff caring about patients discharged personally.

b- FUH doctors and nurses care and pay attention to patients one by one.

c-In FUH, as an indicator of importance given to patients, patient counseling and guidance processes are very good.

These questions were given 400 patients receiving treatment in the services of the hospital and 210 of them turned back completed, 170 of them were found appropriate for evaluation. The results of the questionnaire are below.

1. In FUH, the equipment used is extremely modern.	0	0	4	5	13	50	98	170
2. In FUH, the general atmosphere is nice and clean.	0	1	3	5	9	69	83	170
3. In FUH, the food is delicious and appetizing.	4	5	9	13	19	68	52	170
4. In FUH, the heath of the meals is appropriate.	0	3	3	8	24	78	54	170
5. In FUH, the rooms are appropriate to provide comfort for both the patient and the companion.	0	2	2	7	14	49	96	170

6. In FUH, there are suitable parking areas.	15	17	20	23	43	26	26	170
7. In FUH, the number of the doctors and nurses is enough.	0	0	2	12	9	56	91	170
8. In FUH, the staff realizes their services to patients exactly on time.	0	0	2	9	12	78	69	170
9. In FUH, the procedures of the patient who is going to be discharged are done very quickly.	0	1	2	6	18	72	71	170
10. In FUH, nurses serve very fast during treatment of the patient.	1	0	5	12	21	81	50	170
11. In FUH, the entry procedures of new comers are done very quickly.	0	0	1	8	26	68	67	170
12. In FUH, appointments are realized exactly on time.	0	0	3	7	21	85	54	170
13. In FUH, doctors are experts. They give confidence to the patients and their relatives.	0	0	0	8	13	68	81	170
14. In FUH, nurses are experts. They give confidence to the patients and their relatives.	0	2	2	14	22	79	51	170
15. In FUH, the other personnel are experts. They give confidence to the patients and their relatives.	0	0	4	8	23	81	54	170
16. In FUH, the patient who is going to be discharged is sure about the correctness of the fee.	1	2	4	13	18	76	56	170
17. In FUH, the staff is respectful to patient confidentiality.	0	0	0	4	7	79	80	170
18. In FUH, the hospital staff behaves kindly to the patients during entry procedures.	0	2	5	5	24	82	52	170
19. In FUH, the administration is extremely kind and nice to their patients.	0	0	3	5	8	71	83	170
20. In FUH, the doctors are extremely kind and nice to their patients.	0	3	6	3	16	73	69	170
21. In FUH, the nurses are extremely kind and nice to their patients.	1	0	5	7	23	71	63	170
22. In FUH, the patient relatives visiting the patients are treated very kindly.	0	0	2	5	18	91	56	172
23. FUH has a staff caring about patients discharged personally.	0	2	2	5	34	78	49	170
24. In FUH, doctors and nurses care and pay attention to patients one by one.	0	0	4	6	21	84	55	170
25. In FUH, as an indicator of importance given to patients, patient counseling and guidance processes are very good.	0	0	8	10	19	74	59	170

3.3 COMPOSING OF THE HOUSE OF QUALITY

With the data got from patients, the customer needs part of the Quality Function Deployment was composed and the inputs became ready to be located in the customer information table.

After that, the topic shifted to composing the vertical or technical part of the QFD planning matrix.

3.3.1 Composing of technical information part QFD

The aim of the House of Quality is to design the product of service which will fulfill expectations of customers or develop present designs. The most important point in an application directed to this aim to convert expectations of customers into technical definitions which can be used in the engineering stage. These, technical definitions, compose the second floor of the house of quality. All of the definitions in this part should be in a relation at least one of elements of the customer expectations part. This part of the house of quality is really important, because material or service producers' fulfilling customer expectations fully depends on true definitions of technical definitions.

"HOW" questions may be resulted from processes, individuals, functions, facilities or methods. However, to determine on them, there is need for organization information. In this point, conducting a team work very disciplinary is very important, because solutions to problems require different ideas and experiences.[68]

A team is set up to compose the technical information part of the QFD. The team is composed of a representative from the administration, a person in charge with public relations, a representative from doctors, a representative from accounting and discharging, a representative from nurses, a representative from secretaries and s person in charge with the cleaning company.

The team has composed this information to covert thoughts of the patients into technical needs by relating to the questionnaire questions applied to the patients. Here, thoughts of patients were converted into a technical language in a way that

[68] Guinta, Lawrence R.- Praizler, C. Nancy. The QFD Book, The Team Approach to Solving Problems and Satisfying Customers Through Quality Function Deployment, New York, Amacom, 1993.

they could represent also solutions. It was paid attention that the statements were short and easy to understand.

Quality Characteristics (a.k.a. "Functional Requirements" or "Hows") / **Demanded Quality** (a.k.a. "Customer Requirements" or "Whats")	Attitudes of doctors towards patients	Medical knowledge of doctors	Attitudes of nurses towards patients	Nurses' being experts	Attitudes and behaviors of other personnel towards patients	Other personnel's being experts	General atmosphere of the hospital	The hospital's being good in terms of cleaning and hygiene	Modern and adequate medical equipment	Patient entry process fast and without problems
In FUH, the equipment used is extremely modern.										
In FUH, the general atmosphere is nice and clean.										
In FUH, the food is delicious and appetizing.										
In FUH, the heath of the meals is appropriate.										
In FUH, the rooms are appropriate to provide comfort for both the patient and the companion.										
In FUH, there are suitable parking areas.										
In FUH, the number of the doctors and nurses is enough.										
In FUH, the staff realizes their promises to patients exactly on time.										
In FUH, the procedures of the patient who is going to be discharged are done very quickly.										
In FUH, nurses serve very fast during treatment of the patient.										

Figure 3.2 The addition of technical information

The part of technical information is these:

-Attitudes of doctors towards patients
- Medical knowledge of doctors
- Attitudes of nurses towards patients
-Nurses' being experts
- Attitudes and behaviors of other personnel towards patients
- Other personnel's being experts
- General atmosphere of the hospital
- The hospital's being good in terms of cleaning and hygiene
- Modern and adequate medical equipment
- Patient entry process fast and without problems
- The lab results' being reliable and given in a short time
- Adequate number of hospital personnel (doctor, nurse and other personnel)

- Transportation to the hospital
- Enough parking area of the hospital
- Cheap hospital expenses
- Fast and reliable discharging process
- Enough direction tables and writings
- Reporting patient complaints and suggestions to the related areas
- The hospital administration's being interested in patients and their relatives
- The hospital rooms' being suitable for patients and their relatives
- Appointments' being realized on time
- The examination waiting duration's being short
- Paying attention to patient confidentiality
- Cleaning and control of patient rooms' being done on time
- Meals' being delicious, appetizing and warm enough

This data of technical information determined on also was located to the technical information part in the house of quality after the customer information part and so the customer information and technical information parts of the house of quality were composed.

3.3.2 The relations between customer information and technical information

While determining on customer demands and technical features, this procedure is started by asking the question that what does each cell of the matrix effect. If there is interaction in the answer of the this question, that cell is left empty, in that, there is no relation. If there is interaction, the level of the relation is stated as weak, average or strong.

Decisions are recorded in the matrix by using symbols which will indicate power of the relation. The most common symbols are double circle or the number 9 for a strong relation, single circle or the number 3 for an average relation and a triangular or the number 1 for a weak relation.

In determination of relations, the target is to emphasize the technical needs which are related to thoughts of customers to a great extent. Later, the matrix completed is analyzed to determine on the prior ones of the thoughts of customers. By examining the relation symbols in the matrix, the project team decides on the technical need to be paid attention.

In the figure below, the relations between customer information and technical information are given. In the evaluation, double circle is used for a strong relation and it represents the number 9. Single circle is used for an average relation and it represents the number 3. A triangular is used for a weak relation and it represents the number 1.

Here, the relations between customer information and technical information are shown according to the level of the relations between each other in the house of quality

Customer Requirements / **Functional Requirements**	Attitudes of doctors towards patients	Medical knowledge of doctors	Attitudes of nurses towards patients	Nurses' being experts	Attitudes and behaviors of other personnel towards patients	General atmosphere of the hospital	The hospital's being good in terms of cleaning and hygiene	Modern and adequate medical equipment	Enough parking area of the hospital
In FUH, the equipment used is extremely modern.								Θ	
In FUH, the general atmosphere is nice and clean.						Θ	O		
In FUH, the number of the doctors and nurses is enough.	▲		▲						
In FUH, nurses serve very fast during treatment of the patient.			▲	▲					
In FUH, the doctors are extremely kind and nice to their patients.	Θ								
In FUH, the patient relatives visiting the patients are treated very kindly.					O				
In FUH, there are suitable parking areas.									Θ

Figure 3.3 Power of the relations between customer information and technical information

3.3.3 Degree of importance, value of relative weight and maximum relationship

DEGREE OF IMPORTANCE: Here, locating of the data got form questionnaire results into degree of importance, value of relative weight and maximum relation which take place in the left part of the house of quality are shown.

The patients were asked to provide a degree of importance they gave to each question by giving numbers according to the Likert scale to the questions asked as a result of the questionnaire. The level of importance of customer expectations has a direct proportion with that the value assigned to the degree of importance is low or high. As it indicates the degree of importance of expectations, the degree of importance serve as the co-efficient affecting the weight factor and certain statistical results in the matrix. In determination of the degree of importance, the Analytic Hierarchy Process can be used as a scale is. The degree of importance is shown in the vertical column in the figure 3.4.

RELATIVE WEIGHT: The relative weight is the vertical column showing degree of importance which come up as a of results got form the answers of the questionnaires equal to what percentage. In the figure below (figure 3.4), the relative weight values are the numbers which come up as a result of 25 questions composing of the total House of Quality because the relative weight values are written according to importance degrees which are results of answers given to the 25 questions.

MAXIMUM RELATION VALUE: The maximum relation value shows degree of relations with results got from patient questionnaires in the customer information part and with one or several elements taking place in the technical part of the house of quality. Because one of the elements in the customer information may be in a relation with many of the elements in the customer information, the maximum relation value is showed with the highest value.

In the figure 3.4, the element that in FUH, the general atmosphere is nice and clean has a strong relation (9) with the element that the general atmosphere of the hospital in the technical information part. At the same time, again, it has an average relation (3) with the element that cleaning and hygiene of the hospital is good.

Because of that, the degree of relation of the element that the general atmosphere is nice and clean is showed as a strong relation (9).

The cells which do not have any symbol or letter for classification represent situation in which relations between expectations and definitions are not set. In this circumstance, these elements are deleted and not evaluated because they do not occupy a place in the matrix.

The target of composing the relation matrix in house of quality is to determine on important technical needs fulfilling each of the customer needs and utilize form technical needs which have a strong relation to make into production customer needs which have a great importance in the next stage[69]

	Max Relationship Value in Row	**Relative Weight**	**Weight/Importance**	**Customer Requirements** / **Functional Requirements**	Attitudes of doctors towards patients	Medical knowledge of doctors	Attitudes of nurses towards patients	Nurses' being experts	Attitudes and behaviors of other personnel towards patients	General atmosphere of the hospital	The hospital's being good in terms of cleaning and hygiene	Modern and adequate medical equipment	Enough parking area of the hospital
1	9	4,2	6,4	In FUH, the equipment used is extremely modern.								Θ	
2	9	4,2	6,3	In FUH, the general atmosphere is nice and clean.						Θ	O		
3	1	4,2	6,3	In FUH, the number of the doctors and nurses is enough.	▲		▲						
4	1	3,9	5,9	In FUH, nurses serve very fast during treatment of the patient.			▲	▲					
5	9	4,0	6,1	In FUH, the doctors are extremely kind and nice to their patients.	Θ								
6	3	4,1	6,1	In FUH, the patient relatives visiting the patients are treated very kindly.					O				
7	9	2,9	4,4	In FUH, there are suitable parking areas.									Θ

Figure 3.4 Degree of importance, relative weight and maximum relation value

[69] Savaş ve Ay, 2005: 86 Savaş, Halil - AY, Mevhibe. Üniversite Kütüphanesi Tasarımında Kalite Fonksiyon Göçerimi Uygulaması,Sullivan, LP. Quality Function Deployment, QualityProgress, June, 1986

3.3.4 Development direction of the technical information

The symbols, upside and upside down triangle used to record the development direction and X and the symbols indicating to direct patient improvement are usually located on the technical needs and they are very important while examining common relations among technical needs. If they are located to upside part and to the width of the matrix, it is possible to detect their location with ease during determining on common relations. These symbols added to the matrix are seen in the figure 3.5

As it is seen in the figure 3.5, it will be better that doctors improve their attitudes towards patients in a positive way. In addition to this, that the examination waiting duration is short, in that, shortened will come up with positive effects for patient satisfaction. It is seen that the general atmosphere of the hospital is enough for patient satisfaction.

	Max Relationship Value in Row	Relative Weight	Weight/Importance	Customer Requirements / Functional Requirements	▲ Attitudes of doctors towards patients	▲ Medical knowledge of doctors	▲ Attitudes of nurses towards patients	▲ Nurses' being experts	▲ Attitudes and behaviors of other personnel towards patients	X General atmosphere of the hospital	▲ The hospital's being good in terms of cleaning and hygiene	▲ Modern and adequate medical equipment	▼ The examination waiting duration's being short
1	9	4,2	6,4	In FUH, the equipment used is extremely modern.								Θ	
2	9	4,2	6,3	In FUH, the general atmosphere is nice and clean.						Θ	O		
3	1	4,2	6,3	In FUH, the number of the doctors and nurses is enough.	▲		▲						▲
4	1	3,9	5,9	In FUH, nurses serve very fast during treatment of the patient.			▲	▲					
5	9	4,0	6,1	In FUH, the doctors are extremely kind and nice to their patients.	Θ								
6	3	4,1	6,1	In FUH, the patient relatives visiting the patients are treated very kindly.					O				
7	9	2,9	4,4	In FUH, there are suitable parking areas.									

Figure 3.5 Development directions of technical information

3.3.5 Building of the Roof of the House of Quality.

A lot of technical needs may be related to other technical needs. A study targeted to improve one of these technical needs may help the related need and as a result of this, a positive or beneficial effect occurs. On the other hand, the study conducted to improve a need may affect the related need negatively.

In the correlation matrix, generally, four symbols are used. For a strong and positive relation, double pluses (++), for a positive but weak relation, single plus (+) and for a strong and negative relation, an upside down triangle (▼) and for a negative relation, minus (-) are used. In the correlation matrix, different symbols can be used to indicate relations among technical features, for example, for a strong and positive relation, double circle, for a positive but weak relation, single circle, for a strong and negative relation, double asterisks (**) and for a negative relation, single asterisk (*) are used. Technical needs are located into the roof the house of quality by examining relation among them. In the figure 3.6, the symbols in the roof of the house of quality and the correlation matrix are shown.

Max Relationship Value in Row	Relative Weight	Weight/Importance	Demanded Quality (a.k.a. "Customer Requirements" or "Whats") / Quality Characteristics (a.k.a. "Functional Requirements" or "Hows")	1	2	3	4	5	6	7	8	9
			Column: Minimize (▼), Maximize (▲), or Target (x)	x	▲	▲	▲	▲	x	▲	▲	▼
			Column: Minimize (▼), Maximize (▲), or Target (x)	the general atmosphere of the hospital	The hospital's being good in terms of cleaning and hygiene	Modern and adequate medical equipment	Patient entry process fast and without problems	The lab results' being reliable and given in a short	Adequate number of hospital personnel	Transportation to the hospital	Enough parking areas of the hospital	Cheap hospital expenses
9	4,2	6,4	In FUH, the equipment used is extremely modern.			⊖		⊖				
9	4,2	6,3	In FUH, the general atmosphere is nice and clean.	⊖	O							
9	4,2	6,3	In FUH, the number of the doctors and nurses is enough.						⊖			
3	3,9	5,9	In FUH, nurses serve very fast during treatment of the patient.						O			
9	4,1	6,2	In FUH, the staff realizes their promises to patients exactly on time.				⊖	O	▲			

Figure 3.6 Building of the roof the House of quality

3.4 EVALUATION OF RESULTS COMING UP IN THE HOUSE OF QUALITY

Companies generally utilize from a lot of problem solving methodologies. They vary from the simplest scientific method approaches or "five reason" method to processes with many stages. Changing the matrix approach with any of these problem solving methodologies is not suggested. A lot of company devote time and source at a great extent and make investments to educate their personnel more in problem solving. In this frame, applications chosen are continued effectively. However, in some situations, various sides of usage of a matrix can be examined. Matrixes help companies to organize and analyze their thinking processes.

During composing of the house of quality, it is not an obligatory to compose all of the sections explained in this part. To decide on which sections are necessary, the QFD team firstly compare the benefit they from the work with the time and money they spend for the work., for example, in some situations, it takes for months to compose only the correlation matrix. It is not meaningful to conduct works which are very expensive in order to get lower benefits relatively.[70]

Many of the QFD applicators end the QFD process at the stage of composing of the House of Quality. However, after composition of the House of Quality, it should not be thought that QFD work has done, because, in a designing activity, determination of technical characteristics corresponding to only customer demands is not enough. It is necessary to determine also that these technical characteristics are realized with which pieces, processes and production plan and to provide customer demands to go into every stage such as designing, developing and producing.[71]

In the first stages of the evaluation of the House of Quality, there is an examination process of determination on related people. One of the general approaches used in this issue is gathering people knowledgeable on this issue and discussing about solutions or holding brainstorming sessions. It is followed by

[70] Yenginol, Fatih.(2000) Yeni Ürün Geliştirmede Müşteri istek ve ihtiyaçlarını Teknik Karakteristiklere Dönüştürmeyi Sağlayan Bir Yöntem: Kalite Fonksiyon Göçerimi, İzmir
[71] Yenginol, Fatih.(2000) Yeni Ürün Geliştirmede Müşteri istek ve ihtiyaçlarını Teknik Karakteristiklere Dönüştürmeyi Sağlayan Bir Yöntem: Kalite Fonksiyon Göçerimi, İzmir

discussions on choosing the most probable reasons. Later, probable solutions chosen and related real-life situations are gathered together. After reaching general information, discussions focus on probable improvements or solutions.

Probable problem reasons may be accepted as input (what) for a matrix. Probable reasons can be taken into consideration as how questions. Symbols can be used to examine the strength of relations. Examining existence and weights of symbols may help to determine the priorities related to the importance degree of the probable solutions suggested. Weights of columns and lines can be utilized form. Using the matrix in that way gives the best application results in tangible topics in which the solution is related to methods and procedures.

The team which was composed to determine on the technical information part worked together to make evaluations in the result part of the House of Quality and to come up with an idea on solutions, to catch the most realistic solutions by brainstorming.

3.4.1 Weight of Column (Importance), Maximum Relation Values in the Column, Relative (%) Weight

A team can choose the way of adding the column weights into the ground of the matrix. This work includes giving some weights to the relation symbols randomly. The weights used most widely are 9 for the strong, 3 for the average and 1 for the weak. Some foundations use 5, 3 and 1 for the weight.

Software programs which can be used to help the foundation matrixes to develop make this calculation automatically. It is also possible to convert the raw column weights into percentages to help to emphasize the columns which have strong column weights relatively. Here, while composing the matrix, Traditional House of Quality (Large) with the link www.qfdonline.com/templates is utilized from.

Traditional House of Quality made the calculation by giving approximately 5,96 to the strong symbol, 2 for the average symbol and 0,65 for the weak symbol. According to this calculation, in the figure below, (figure 3.7) calculations are like these. The importance degree is 6,3 in the column that attitudes of doctors towards patients (column 1), in the line that in FUH, the number of doctors and nurses is

enough. If we multiply 6,3 with 0,65, we get approximately 4,1. If we calculated this on our won instead of with the help of the program and we assumed that we were going to use 9,3 and 1 symbols, we would get 6,3*1=6,3. If we continue to calculate with the program, the importance degree of the line 5 that in FUH, attitudes of doctors towards patients are extremely kind and nice is 6,1. Then, 6,1*5,96 equals to 36,4. Again, if we calculated on our own, we would get the result that 6,1*9 equals to 54,9. In the column 1, the column weight is calculated as 4,1+36,4 equals to 40,5. In the calculation we do without the program, we would get the result that 6,3+54,9 equals to 61,2. Again in the figure 3.7 if the column that attitudes of nurses towards patients is multiplied with the importance degree at the line 3, 6,3 x 0,65 = 4,1. For the line 4, 5,9 x 0,65 =3,8. For the line 8, we get the result that 5,9 x 0,65 = 3,8. We add them to each other, for the column 2, the line weight is 11,7. By calculating the other column in this way, the column weights are found.

The maximum relation value is the expression with symbols showing relations at the column of symbols showing the degree of relation between results got from patients for the customer information part and technical information. Also, here, symbols are expressed with the symbols showing the biggest value. figure 3.7

Relative value is expression of the column weight calculated with percentage. (figure 3.7) They are the values which show that the column weight equals to what percentage and help us to see the values when we want to see them with percentage. So, we can see and compare the weight among the other technical elements and how much important they are with ease. We take precautions according to importance of things to do, fix and improve with percentage by giving more importance and priority.

	Max Relationship Value in Row	Relative Weight	Weight/Importance	Customer Requirements	Functional Requirements	Attitudes of doctors towards patients	Attitudes of nurses towards patients	Nurses' being experts	Attitudes and behaviors of other personnel towards patients	General atmosphere of the hospital	The hospital's being good in terms of cleaning and hygiene	Modern and adequate medical equipment	The examination waiting duration's being short
						▲	▲	▲	▲	X	▲	▲	▼
1	9	4,2	6,4	In FUH, the equipment used is extremely modern.								Θ	
2	9	4,2	6,3	In FUH, the general atmosphere is nice and clean.						Θ	O		
3	1	4,2	6,3	In FUH, the number of the doctors and nurses is enough.		▲	▲						▲
4	1	3,9	5,9	In FUH, nurses serve very fast during treatment of the patient.			▲	▲					
5	9	4,0	6,1	In FUH, the doctors are extremely kind and nice to their patients.		Θ							
6	3	4,1	6,1	In FUH, the patient relatives visiting the patients are treated very kindly.					O				
7	9	2,9	4,4	In FUH, there are suitable parking areas.									
				Max Relationship Value in Column		9	1	1	3	9	3	9	1
				Weight / Importance		40,5	11,7	7,6	12,2	38	12,6	38,1	4,1
				Relative Weight		24,7	7	4,6	7,4	23	7,7	23,2	2,5

Figure 3.7 Max Relationship Value in Column, Weight in Column, Relative Weight

3.4.2 FUH according to patients

The results obtained from the questionnaires filled by patients and their relatives are listed according to their degree of importance like this.

1- 6,4 In FUH, the staff is respectful to patient confidentiality.

2- 6,4 In FUH, the equipment used is extremely modern.

3- 6,3 In FUH, the rooms are appropriate to provide comfort for both the patient and the companion.

4- 6,3 In FUH, administration behaves extremely kindly to the patients.

5- 6,3 In FUH, the general atmosphere is nice and clean.

6- 6,3 In FUH, the number of the doctors and nurses is enough.

7- 6,3 In FUH, doctors are experts. They give confidence to the patients and their relatives.

8- 6,2 In FUH, the staff realizes their promises to patients exactly on time.

9- 6,2 In FUH, discharging procedures of patients are done extremely quickly.

10- 6,1 In FUH, the entry procedures of new comers are done very quickly.

11- 6,1 In FUH, the patient relatives visiting the patients are treated very kindly.

12- 6,1 In FUH, the doctors are extremely kind and nice to their patients.

13- 6,1 In FUH, appointments are realized exactly on time.

14- 6,1 In FUH, doctors and nurses care and pay attention to patients one by one.

15- 6,0 In FUH, the nurses are extremely kind and nice to patients.

16- 6,0 In FUH, other personnel are experts. They give confidence to the patients and their relatives.

17- 6,0 In FUH, during entry procedures, the hospital staff treats patients kindly.

18- 6,0 In FUH, patient counselling and guidance procedures are very good in terms of importance given to patients.

19- 6,0 In FUH, heath of meals is appropriate.

20- 6,0 FUH has a staff caring about patients discharged personally.

21- 5,9 In FUH, nurses are experts. They give confidence to the patients and their relatives.

22- 5,9 IN FUH, the patient who is going to be discharged is sure about the correctness of the fee.

23- 5,9 In FUH, nurses serve very fast during treatment of the patient.

24- 5,6 In FUH, the food is delicious and appetizing.

25- 4,4 In FUH, there are suitable parking areas.

According to these results, the options patients and their relatives find the best appropriate are that the staff is respectful to patient confidentiality and the equipment used is extremely modern. The options following them are that the rooms are appropriate to provide comfort for both the patient and the companion, the administration behaves extremely kindly to the patients, the general atmosphere is nice and clean, the number of the doctors and nurses is enough and doctors are

experts and they give confidence to the patients and their relatives. Then, other options are listed.

The options that patients and their relatives find inappropriate is that parking areas are not enough. The majority of patients and their relatives complain about this. The options following it are that meals are not delicious or appetizing, nurses do not serve very fast during treatment of the patient, the patient who is going to be discharged is not sure about the correctness of the fee and nurses are not experts and they do not give confidence to the patients and their relatives enough.

While patients and their relatives are evaluating options, because they do not know these options' back plans, technical parts, official and bureaucratic parts, financial dimensions, backgrounds of that country and that hospital, health dimension and do not pay attention to these while evaluating, this questionnaire study is not expected to give an accurate result. To get more healthy results from this data for the hospital and the administration, there is need to use the House of Quality which enables to evaluate more broadly and get a result.

For example, the option that meals are delicious and appetizing generally stems from that because of their health state. In hospital meals, calories, salt, fat and etc. are arranged according to patients personally or the lowest quantities are used. In this situation, patients cannot have taste they have at their homes or in restaurants.

Making an evaluation without considering this kind of technical information may cause to make wrong decisions. By considering thoughts of patients and analyzing what kind of improvements can be done in that area, the result should be reached.

3.4.3 Technical Information and Evaluation

After evaluating technical part of results obtained from questionnaire results and all of the other sides they have a relation with in the correlation, the order of the column weight from maximum to minimum (the importance degree in the column) and their ratios of percents have been composed like this. From now on, the hospital administration is going to understand what patients want and determine what should be done to fulfill these requirements best without a mistake.

1	10,2	121,1	Patient entry process fast and without problems
2	10,1	119,7	Attitudes of nurses towards patients
3	10,0	118,5	Attitudes of doctors towards patients
4	6,5	76,8	Discharging process fast and reliable
5	6,2	73,0	Appointments' being realized on time
6	6,1	72,2	Attitudes and behaviors of other personnel towards patients
7	5,9	69,7	Adequate number of hospital personnel (doctor, nurse and other personnel)
8	4,2	50,3	The lab results' being reliable and given in a short time
9	3,8	45,5	Meals' being delicious, appetizing and warm enough
10	3,5	41,9	The hospital rooms' being suitable for patients and their relatives
11	3,4	40,0	Other personnel's being experts
12	3,3	39,2	Nurses' being experts
13	3,2	38,1	Paying enough attention to patient confidentiality
14	3,2	38,0	Modern and adequate medical equipment
15	3,2	37,7	The hospital administration's being interested in patients and their relatives
16	3,2	37,6	Medical knowledge of doctors
17	3,2	37,6	General atmosphere of the hospital
18	3,0	35,6	Enough patient direction tables and writings
19	2,2	26,4	Enough parking areas of the hospital
20	2,1	25,1	Cleaning and control of patient rooms' being done on time
21	1,1	12,5	The hospital's being good in terms of cleaning and hygiene
22	1,0	11,9	Reporting patient complaints and suggestions to the related areas
23	1,0	11,8	Cheap hospital expenses
24	0,4	4,2	The examination waiting duration's being short
25	0,2	2,9	Transportation to the hospital

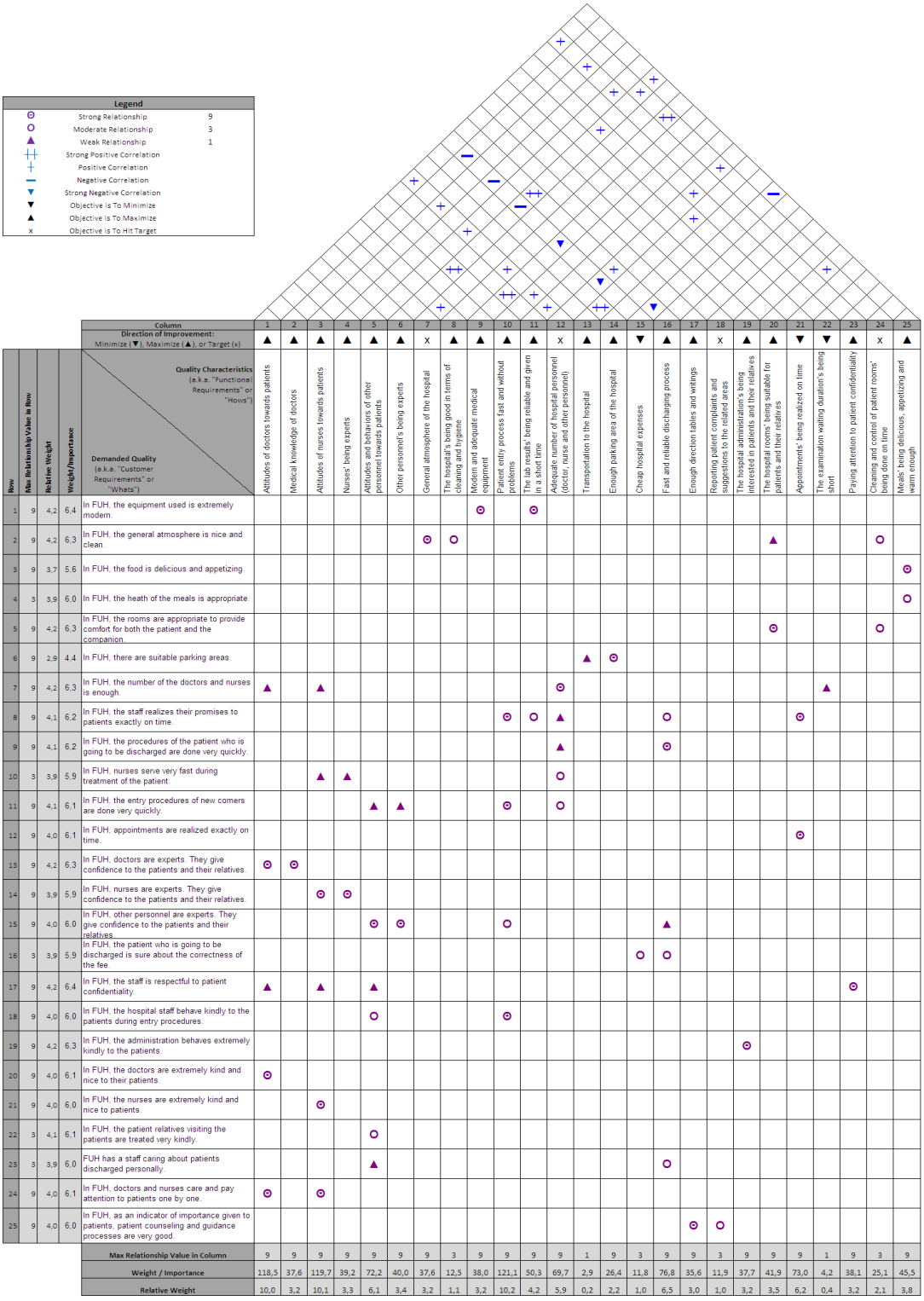

Figure 3.8 Completed the House of Quality

According to these data, the option which has the most weight is that "entry procedures are fast and without problems." with 121, 1. Its ratio equals to % 10,2.

The option that “entry procedures are fast and without problems” has a strong relation with the options that “the hospital employees serve on time, the entry procedures of new comers are done very quickly and during entry procedures, the hospital staff treats patients kindly.” It has an average relation with the option that “other personnel are experts. They give confidence to the patients and their relatives.” Again, in the technical information area, it has a positive relation with the option that “other personnel are experts.”

That the option that “entry procedures are fast and without problems” is at the top shows that patients who have preferred the hospital to which the questionnaire is applied to get rid of long waiting durations in the other Ministry of Health and state hospitals have great expectations in this issue and because of some factors such as the hospital employees’ being experts, their attitudes towards patients and well-arrangement of timing. Patients want to complete their treatments as soon as possible in the hospital and go back to their daily life. To increase patient satisfaction in this issue, the hospital should minimize waiting durations and make them without problems.

The second column which has the most weight is attitudes of nurses with 119,7. This column equals to % 10,1. Also, this column has a strong relation with the options that “nurses are experts and they give confidence to the patients and their relatives, the nurses are extremely kind and nice to patients and doctors and nurses care and pay attention to patients one by one.” It has a weak relation with the options that “the number of the doctors and nurses is enough, nurses serve very fast during treatment of the patient and the staff is respectful to patient confidentiality.” In the technical information part, there is a positive connection with the elements that “the number of the hospital employees and paying attention to patient confidentiality.

That attitudes of nurses is the highest column secondly is because nurses deal with patients (especially boarding) more than doctors and other employees in addition to powerful and positive effects of many elements above. That orders o doctors are being done by nurses, treatments are followed by nurses and the closest contact person is nurses in any situation are seen effective. For patient satisfaction, it

is important that nurses are interested and smiling and respond their expectations and questions about their treatments in a satisfying way.

The column which has the most weight thirdly is attitudes of doctors with 118,5. It equals to % 10. The patient behaviors this column has a strong relation are those “doctors are experts and they give confidence to the patients and their relatives, the doctors are extremely kind and nice to their patients and doctors and nurses care and pay attention to patients one by one.” The patient behaviors this column has a weak relation are those “the number of the doctors and nurses is enough and the staff is respectful to patient confidentiality.” In the technical information part, it has a positive connection to these options: “the number of the hospital employees is enough and paying attention enough to patient confidentiality.”

That attitudes of doctors are high is a result of that they are the doctors who determine on the diagnosis and treatment and at the same time, determine on how to apply the treatment in addition to many options in the questionnaire results and having many connections to the options in the technical information area. While doing these, their behaviors and attitudes towards patients are very important, because as patients do not have medical knowledge, that doctors are smiling and interested in the patients and give convincing information and give satisfying answers are very effective for patient satisfaction.

The three options above are seen more important than other options for patient satisfaction. While all of the three options has a value more than % 10, the other option which is the closest to these is that “discharging procedures of patients are done reliably and quickly” with %6,5. Patients care about behaviors and attitudes of doctors, nurses and the other employees towards them much and they want to go through the procedures as soon as possible and without waiting and problems.

The column which has the most weight at the 4th row is that “discharging procedures of patients are done reliably and quickly” with 76,8. Its ratio is % 6,5. This column has a strong relation with the option that “discharging procedures of patients are done extremely quickly” form the results obtained from questionnaires and again it has an average relation with the options that “the staff realizes their services to patients exactly on time, the patient who is going to be discharged is sure

about the correctness of the fee and the hospital has a staff caring about patients discharged personally." It has a weak relation with the option that "other personnel are experts and they give confidence to the patients and their relatives." In technical information part, it has a strong negative connection with the option that "the hospital expenses are cheap." It has a positive connection with the option that "the number of the hospital employees is enough." It has strong positive relation with the option that "other personnel are experts."

The column that "discharging procedures of patients are done extremely quickly" has strong, average, weak and negative relations and connections with many options in patient information and technical information parts. Again, patients hurry to be discharged and want to be about the fee they pay.

The column that "appointments are realized on time" has 73 in terms of the weight and is at the 5th row. Its ratio is % 6,2. It has a strong relation with the option that "the staff realizes their services to patients exactly on time and appointments are realized on time." In technical information part, it has positive connections with the options that "transportation to the hospital and the other personnel are experts." The direction of development of this column is negative, in that, time should be shortened.

The option that "appointments are realized on time" is again related to time. While the second and third elements are related to behaviors and attitudes of the doctors and nurses towards patients, the first, fourth and fifth elements are related to time and speed. Patients want their procedures and appointments to be realized quickly and on time from the beginning.

The option that "behaviors and attitudes of the other staff" has 72,2 in terms of weight and is at the 6th row with % 6,1. This column has a strong relation with the option that "other personnel are experts and they give confidence to the patients and their relatives." It has an average relation with the options that "during patient entry procedures, the hospital personnel behave extremely nicely and patient relatives coming to visit are treated very well." Again, this column has a weak relation with the options that "the entry procedures of new comers are done very quickly, the staff is respectful to patient confidentiality and the hospital has a staff caring about

patients discharged personally." In the technical information part, it has a positive connection with the options that "the number of the hospital employees is enough and paying enough attention to patient confidentiality."

Although behaviors and attitudes of the other staff has relations and connections with many options in the patient information and technical information areas as explained in the paragraph above, it is not as important as behaviors and attitudes of the doctors and nurses but anyway it is at the 6th row on list of the things to be developed and improved.

The option that "the number of the hospital employees (doctors, nurses and the other employees) has 69,7 in terms of the weight and is at the 7th row. It follows with the ratio % 5,9. This column has a strong relation with the option that "the number of the doctors and nurses is enough." It has an average relation with the options that "nurses serve very fast during treatment of the patient and the entry procedures of new comers are done very quickly." It has a weak relation with the option that "the staff realizes their services to patients exactly on time and discharging procedures of patients are done extremely quickly." In the technical information area, there are positive connections among those "the lab results' being reliable and given in a short time, patient entry process fast and without problems, the hospital's being good in terms of cleaning and hygiene, Attitudes and behaviors of other personnel towards patients. The direction of the development is stable (x).

According to patient questionnaire results and the evaluation in technical information part, the number of the hospital employees (doctors, nurses and the other personnel) is enough and there is no need to be developed or increase the number because it has relations and connections with many patient and technical information parts. According to patients and the technical team, it would be possible to increase patient satisfaction by improving some other elements rather than increasing the personnel number. That the number of the hospital employees is enough is important at the 7th row but enough partly.

The option that "t he lab results' being reliable and given in a short time" is at the 8th row. The weight of this column is 50,3 and the ratio is % 4,2. This column has a strong relation with the option that "the equipment used is extremely modern"

while it has an average relation with the option that “the staff realizes their services to patients exactly on time.” In the technical information part, it has strong positive connection with the option that “modern and adequate medical equipment.”

That the lab results are reliable and given in a short time seems related to the medical equipment more but for patient satisfaction, it would be better to shorten the duration and increase reliability.

The option that “meals are delicious, appetizing and warm enough” is at the 9th row. Its weight is 45,5 and the ratio is % 3,8. This column has a strong relation with the option that “the food is delicious and appetizing” but it has an average relation with the option that “heath of the meals is appropriate.” In the technical information part, it has a negative connection with the option that “cheap hospital expenses.” It has a positive connection with the option that “other personnel are experts.”

Although the option that meals are delicious, appetizing and warm enough has a negative connection with the option that cheap hospital expenses in the technical information part, it has positive relations with other related options. In terms of customer satisfaction, it needs to be improved but because of the specific conditions of the patients such fat, salt, cholesterol, degree of satisfaction may not be too high not to affect patients. Patients may not have taste they have at their homes or in restaurants.

The option that “the rooms are appropriate to provide comfort for both the patient and the companion” is at the 10th row. This column has the value 41,9 and the ratio % 3,5. The column has a strong relation with the option that “the rooms are appropriate to provide comfort for both the patient and the companion.” It has a weak relation with the option that “the general atmosphere is nice and clean”. The option that “the rooms are appropriate to provide comfort for both the patient and the companion” is also one of the columns whose direction of development should be increased in a positive way in the house of quality.

The option that “other personnel are experts” is at the 11th row. Its column weight is 40 and the ratio is % 3.4. This column has a strong elation with the option that “other personnel are experts and they give confidence to the patients and their

relatives." It has a weak relation with the option that "the entry procedures of new comers are done very quickly." In the technical information area, it has a strong positive connection with the option that "patient entry process fast and without problems and discharging process fast and reliable." Again, it has a positive connection with the options that "appointments' being realized on time, cleaning and control of patient rooms' being done on time, and meals' being delicious, appetizing and warm enough." It has a negative connection with the option that "cheap hospital expenses."

That the option that "other personnel are experts" is at the 11th row has importance at the first degree and shows that how important behaviors of doctors and nurses are. Again, because this column is in interaction with many other columns and the patient information part, that other employees work well or badly would affect other many options but not as much as behaviors of doctors and nurses and it needs to be improved in a positive way.

The column that "nurses are experts." is at the 12th row. Its column weight is 39,2 and the ratio is % 3,3. The column has a strong relation with the option that "nurses are experts. They give confidence to patients and their relatives." It has a weak relation with the option that "nurses serve very fast during treatment of the patients." In the technical area, it has a negative connection with the option that "hospital expenses are cheap."

That nurses are experts is not so effective as their behaviors and attitudes towards patients. In this situation, that patients cannot measure how nurses are experts because of their inadequate knowledge and nurses have studied for four years and patients believe that during this training, they have learnt everything medical and practiced enough in the hospital seem effective. Due to that, in patient satisfaction, behaviors and attitudes of nurses are more important and that nurses are experts is one of the features needed to be developed.

There is the option that "patient confidentiality is paid attention enough" as the 13th. Its column weight is 38,1 and the ratio is %3,2. The column has a strong relation with the option that the "employees are respectful to patient confidentiality."

In the technical information area, it has a positive connection with the option that "attitudes and behaviors of the doctors, nurses and the other employees."

There is the option that "patient confidentiality is paid attention enough." It is one of the options needing to be raised in the positive direction and doctors, nurses and the other staff care about that altogether.

The option that "the medical equipment is modern and enough" is at the 14th row. Its column weight is 38 and the ratio is % 3,2. This column has a strong relation with the option that the equipment used is extremely modern." In the technical information area, it has a positive connection with the option that "lab results are reliable and given in a short time." The option that "hospital expenses are cheap" has a negative connection.

That medical equipment is modern and enough enables treatments and diagnosis in the hospital to give both reliable and fast results. However, that medical equipment is renewed in a modern way and missing equipment is completed make hospital services more quality and increase hospital fees.

The column that "the hospital administration is interested in patients and their relatives." is important at the 15th row. Its column weight is 37,7 and the ratio is % 3,2. This column has a strong relation with the option that "the hospital administration behaves extremely kindly."

Because the hospital administration is not in a direct contact with patients, that the hospital administration is interested in patients and their relatives is not so important in terms of patient satisfaction.

At the 16th row, there is the option that "doctors have enough medical knowledge." Its column weight is 37,6 and the ratio is % 3,2. This column has a strong relation with "Doctors are experts. They give confidence to the patients and their relatives." In the technical information part, it has a negative connection with the option that "hospital expenses are cheap."

In this column, it is thought that medical knowledge of doctors is enough. Again, patients take into consideration their attitudes and behaviors because they cannot measure their medical knowledge. For patient satisfaction, patients care about doctors' being smiling to patients, interested in them, giving enough and enlightening

information related to their diseases and treatments, listening to their complaints and questions related to their diseases and answering to them more that their medical knowledge. This column is also one of the columns which need to be raised to the positive direction.

At the 17th row, there is the option that "general atmosphere of the hospital should be nice." Its column weight is 37,6 and the ratio is % 3,2. This column has a strong relation with the option that "general atmosphere of the hospital is nice and clean." and in the technical information area, it has a positive connection with the option that "cleaning and hygiene of the hospital are good." The direction of the development is stable (x).

Although the option that "general atmosphere of the hospital should be nice." is one of the options that need to be improved, it is at the 17th row in terms of patient satisfaction. Patients care about hospital atmosphere for patient satisfaction much more than other options. They pay attention to options that attitudes of the hospital staff and working fast more.

The option which is at the 18th row is that "direction tables and writings for patients are enough." The weight is 35,6 and the ratio is % 3'. It has a strong relation with the option that "patient counseling and guidance procedures are very good in terms of importance given to the patients."

The option that "direction tables and writings for patients are enough" has a relation with only that option that "patient counseling and guidance procedures are very good in terms of importance given to the patients" in the questionnaire information area. Although it has no connection with any option in the technical information area, its being the 18th out of 25 is an indicator of patients' finding this important.

The option which is at the 19th row as the column weight is that "the hospital has enough parking areas." Its weight is 26,4 and the ratio is % 2,2. This column has a strong relation with the option that "the hospital has enough parking areas." In the technical information area, it has a positive connection with transportation to the hospital.

Although the option that “the hospital has enough parking areas.” is seen as the worst performance for the hospital in the patient questionnaires, it is at the 25th row at the importance/weight value and at the 19th row in the technical information area. This means that parking areas are not enough at all and this problem requires an immediate solution however it does not have an effect on preference of the hospital and it is far front of other options effective in preference of the hospital.

At the 20th row, there is the option that “cleaning and control of the hospital rooms are done on time.” The weight of the column is 25, 1 and the ratio is %2,1. This column has an average relation with the options that “In the hospital, general atmosphere is nice and clean.” and “hospital rooms are convenient for patients and their relatives to feel comfortable.” It has a positive connection with the option that “cleaning and hygiene of the hospital are good.” At the column, the maximum relation value is 3 and the direction of development is stable.

Although the option that “cleaning and control of the hospital rooms are done on time.” has connections and relations with many options in the patient information and technical information areas, that it is at the bottom of the list is seen as unimportant because it is enough for patient satisfaction.

The option being the 21th as column weight is the option that “cleaning and hygiene of the hospital are good.” Here, the weight of the column is 12,5 and the ratio is % 1,1. This column has an average relation with the option that “general atmosphere is nice and clean.” Again, the maximum relation value at the column is 3. In technical information area, it has a positive connection to the option that “cleaning and control of the patient rooms should be done on time.” It has a positive connection with the option that “the number of the hospital employees is enough.”

The option that “cleaning and hygiene of the hospital are good.” is like the option at the 20th row. That the two close options come after one another at the end is because the hospital is seen enough in this area and fulfills patient satisfaction to a great extent.

At the 22th row, there is option that reporting complaints and suggestions of patients to the related units. The column weight of this is 11,9 and the ratio is % 1. This option has an average relation with the option that “in the hospital, patient

counseling and guidance procedures are very good in terms of importance given to the patients." It has no connection with any option in the technical information area and the direction of development is stable.

In the 22th column, it is seen that complaints of patients are reported to the related units. There is not a problem while reporting complaints and suggestions of patients to the related person or unit and in this area, patient satisfaction seems very good.

The option that "hospital expenses are cheap" is at the 23th row as the weight of the column. The weight value of this column is 11,8 and the ratio is % 1. This column is in an average relation with the option that "the patient who is going to be discharged is sure about correctness of the fee." in the patient information area. But in the technical information area, it has strong negative connection with the option that "the number of the hospital employees is enough" and "medical equipment is modern and enough." Again, it has a negative connection with the options that "doctors' medical knowledge, nurses' being experts and the other employees' being experts". The direction of development should be negative.

The option that "hospital expenses are cheap" has a inverse ratio with the options that "good doctors, nurses and employees" and "hospital equipment is modern and enough". To keep the successful doctors and other employees in the hospital, their salaries should satisfy them. The better equipment is used in the hospital, the more expensive they will be. These will increase both quality of hospital services and their expenses. Because of this, the cost being reflected to the patient will increase. That this option's column weight is at the 23th row shows that these proportions are arranged well. The degree of importance is at the bottom because the patients preferring this hospital know that they have to pay more according to hospitals linked to the Ministry of Health and other state foundations and this reflects the service quality they will get. When quality of service and cost proportions are arranged, it is seen that these costs are tolerable in terms of patient satisfaction.

As the 24th, there is the option that waiting duration for examination is short. The weight value of this column is 4, 4 and the ratio is % 0,4. This column is in a weak relation with the option that "the number of doctors and nurses is enough." In

the technical information part, it has a positive connection with the option that “the number of the hospital employees is enough. The development direction of the column is negative. The maximum relation value of the column is 1.

Waiting duration for examination’ being short seems very good in terms of patient satisfaction. Waiting durations for examination are reasonable and because of this, its column weight is at the 24th row. For patients, procedures’ being fast is very important. (Weight of column, element 1) However, waiting duration for examination is not too long to disturb them.

At the bottom of list, there is transportation to the hospital. The weight value of this column is 2,9 and the ratio % 0,2. This column is in a weak relation with the option that “the hospital has appropriate parking areas”. The maximum relation value at the column is 1.

In terms of patient satisfaction, the option seemed the least important is transportation to the hospital. In this situation, that other options for patient satisfaction are much more important is effective in addition to easy and convenient transportation despite of inadequate parking areas.

CONCLUSION

In our world, thanks to globalization and developments in communication, people can reach any information in any time and fast. This makes rivalry environment which is hard already harder and requires having superiorities to compete with rivals. To be superior over rivals, it is needed to measure how our product or services we offer are perceived and their quality accurately. After that, by increasing quality of the product or service we offer, we should be more advantageous or superior than our rivals to be powerful on the market. This hard rivalry environment is valid for the health sector. Even, in the health sector, measuring and developing of service quality is more difficult.

On the market, there are many models to raise service quality. The QFD model emerged with works of Prof. Shigeru Mizuno and Prof. Yoji Akao at the end of 1960s and then it spread all over the world by developing. This method is used in this study because it reflects thoughts of customers very accurately and finds the most appropriate solutions to these. In this method, in the areas of customer information and technical information, being together of a lot of information and evaluation of them are superiorities of it.

It is seen that evaluation of a lot of information together gives very objective and accurate results. If it were wanted to produce solutions by taking into consideration only questionnaires coming from patients, it would be perceived that the biggest problem is the hospital's not having enough parking areas and I would be focused on and the real issues to raise patient satisfaction would be disregarded. It is true that enough parking areas raise patient satisfaction but it is at the bottom of the list in terms of hospital preference.

While deciding on the hospital, procedures fast and without problems and attitudes and behaviors of the staff (doctors, nurses, and other staff) towards patients are very important. Doctors, nurses, and the other staff are expected to be respectful, patient, smiling and give enough and enlightening information to patients without hurting them in their attitudes towards patients.

Being important of the elements above does not mean that the others are unimportant and can be disregarded. During solving problems, while paying attention to some elements, original and important reasons should be known and solutions should be produced according to these. As in some areas developments and improvements are easier and simpler, some other ay be more complicated, integrated and have negative effects while improving another issue. Here, QFD presents us all of these data with panoramic. Our solutions should be taken into consideration with this perspective.

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APPENDICE

QUESTIONNARIE ON PATIENT SATISFACTION

Name-Surname:

This section is prepared to learn your opinions about Fatih University Hospital you are having treatment. Below, there is a number between 1 and 7 opposite to each question. 7 represents "I totally agree" and 1 represents "I totally disagree". The numbers between 1 and 7 represent an expression between these two. In this evaluation, there is not a correct or wrong answer. In this evaluation, your opinion about Fatih University Hospital and your perception of this hospital are tried to be learned. In this section, questions are listed in certain headings.

Physical features:

1. In FUH, the equipment used is extremely modern.	1	2	3	4	5	6	7
2. In FUH, the general atmosphere is nice and clean.	1	2	3	4	5	6	7
3. In FUH, the food is delicious and appetizing.	1	2	3	4	5	6	7
4. In FUH, the heath of the meals is appropriate.	1	2	3	4	5	6	7
5. In FUH, the rooms are appropriate to provide comfort for both the patient and the companion.	1	2	3	4	5	6	7
6. In FUH, there are suitable parking areas.	1	2	3	4	5	6	7
7. In FUH, the number of the doctors and nurses is enough.	1	2	3	4	5	6	7

Timing:

8. In FUH, the staff realizes their services to patients exactly on time.	1	2	3	4	5	6	7
9. In FUH, the procedures of the patient who is going to be discharged are done very quickly.	1	2	3	4	5	6	7
10. In FUH, nurses serve very fast during treatment of the patient.	1	2	3	4	5	6	7
11. In FUH, the entry procedures of new comers are done very quickly.	1	2	3	4	5	6	7
12. In FUH, appointments are realized exactly on time.	1	2	3	4	5	6	7

Security:

13. In FUH, doctors are experts. They give confidence to the patients and their relatives.	1	2	3	4	5	6	7
14. In FUH, nurses are experts. They give confidence to the patients and their relatives.	1	2	3	4	5	6	7
15. In FUH, the other personnel are experts. They give confidence to the patients and their relatives.	1	2	3	4	5	6	7

16. In FUH, the patient who is going to be discharged
is sure about the correctness of the fee. 1 2 3 4 5 6 7

17. In FUH, the staff is respectful to patient confidentiality. 1 2 3 4 5 6 7

Kindness:

18. In FUH, the hospital staff behaves kindly to
the patients during entry procedures. 1 2 3 4 5 6 7

19. In FUH, the administration is extremely kind
and nice to their patients. 1 2 3 4 5 6 7

20. In FUH, the doctors are extremely kind and nice
to their patients. 1 2 3 4 5 6 7

21. In FUH, the nurses are extremely kind and nice
to their patients. 1 2 3 4 5 6 7

22. In FUH, the patient relatives visiting the patients
are treated very kindly. 1 2 3 4 5 6 7

Importance:

23. FUH has a staff caring about patients discharged
personally. 1 2 3 4 5 6 7

24. In FUH, doctors and nurses care and pay attention
to patients one by one. 1 2 3 4 5 6 7

25. In FUH, as an indicator of importance given to patients,
patient counseling and guidance processes are very good. 1 2 3 4 5 6 7

Other Measurements:

In this section, there are additional questions about Fatih University Hospital. Please, answer the questions by using the same scale.

1.If I or my family have a health problem, I ……think of coming again to FUH.

Never Always

1 2 3 4 5 6 7

2.Quality of Fatih University is ……

Too bad Perfect

1 2 3 4 5 6 7

3.According to my experiences in FUH, service of this hospital …….

Not satisfying at all Satisfying

1 2 3 4 5 6 7

If you have other thoughts you want to deliver, please write

…….....

……

Thank you for your interest and patient. Healthy days.