

## **SERVICE QUALITY MANAGEMENT SYSTEM IN URBAN PUBLIC TRANSPORT**

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### **ABSTRACT**

*This study deals with service quality in Urban Public Transport systems and service quality management system that has been established for Taksim - 4.Levent metro as a sample implementation. Service quality is crucial tool for attracting customer and competing with other companies. However defining and measuring quality of service are harder than manufacturing products. Mystery shopper survey and direct measurement method, which are measurement tools, are implemented in the metro line. The results point that objective measurement system is major factor for sustaining and improving quality of services. A survey has done at the metro line in order to collect customer perceptions and expectations, which are presented as well.*

**Key Words:** Service Quality, Urban Public Transport, Customer Perceptions and Expectations

### **1. INTRODUCTION**

The number of private cars has been increasing strictly in İstanbul [1] therefore the traffic congestion has become the most important problem in the city that it causes extra energy consumption, pollution emissions, accidents and wasting time. Urban public transport (UPT) should be more common and available in order to solve this problem. Policies which aim at increasing public transport usage should promote its image, but at the same time, public transport systems need to become more market-oriented and competitive, this requires an improvement in service quality, which can only be achieved by a clear understanding of travel behavior and customer needs and expectations [2]. In the light of customer needs and expectations the UPT companies should build their services and try to sustain the quality of services. Otherwise, people don't prefer UPT unless they have to use due to economical reasons.

### **2. SERVICE QUALITY SYSTEM**

At Taksim-4th Levent Metro Line, Service Quality Management System is established in order to obtain sustainable high quality metro services. Service Quality Programs are consisting of two main parts, which are establishing Service Delivery Standard and developing Performance Measurement Methods. Service Delivery Standard is a key factor that how passengers' needs and expectations are met. Hence, passengers' requirements and expectations are important input for the standard workings. In addition to customer idea, the metro line's and İstanbul Ulasim's technical and economical capacity are determinative factors for establishing the Standard. After the standard is began to implement, the performance and perceive level is measured with performance measurement methods. As performance measurement methods, direct measurement methods, mystery shopper survey and customer satisfaction survey are implemented. Figure 1, based on EN 13816 Standard's Service Quality Loop, summarizes instruction of the service quality system which is developed within this study in M2 metro line. [3]

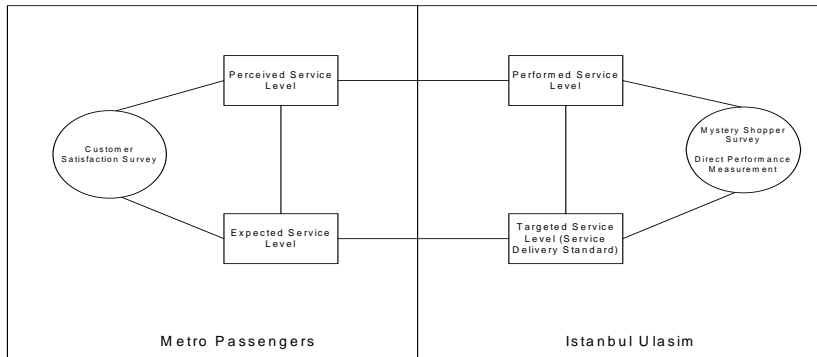


Figure 1. Service Quality Loop

Service Delivery Standard explains how to deliver services to customers in stations, trains, and supporter services such as call center, web site. In order to establishing standard, the quality criteria have to be determined. Determinants and criteria are determined for metro line with respect to table 2.4, which is published by EN 13816.

Determinants and quality criteria are shown in table 1[4].

Table 1 : Determinants and quality criteria

Determinants	Quality Criteria
Availability	Availability of escalators, lifts and moving walkways (travelators)
	Availability of ticket machines
	Availability of validation devices
Information	Permanent information in stations
	Permanent information in trains
	Client information in case of planned traffic disturbance
Time	Waiting for trains
Comfort	Cleanliness and neatness of metro stations
	Cleanliness and neatness of trains
	Passengers comfort in trains
	Passengers comfort in trains during the off-peak hours
Customer Care	Reception and information in station on the offer of services
	Contact Centre
	Web site
	Replying Written Complaints
Security	Fight Against Fare-dodging

Reference services are established for all quality criteria. In table 2, sample reference services are mention according to availability.

Table 2 : Reference services of quality criteria related with availability

Quality Criteria	Reference Services
Availability of escalators, lifts and moving walkways (travelators)	When a passenger wants to use escalators and elevators, these devices must be in operation (except the cases of restoration and maintenance).
Availability of ticket machines	In each station, at every equipped access, the traveler can upload his Akbil (=electronic ticket) at Akbil machines.  The customer must pay the exact amount and he gets a confirmation of the upload.  In each station, at every equipped access, the traveler can buy a token at token machines.  He recovers his change and gets information on the monitor.
Availability of validation devices	The traveler can validate his ticket (akbil or token) no matter what validation machine he's addressing to.  One of the validation devices is accessible to all categories of users (PRM included).

### 3. PERFORMANCE MEASUREMENT SYSTEM

Customers always expected excellent service and they don't tolerate the mistakes. Even one mistake after several successful services delivered they conclude the company cannot be counted on [5]. Mystery shopper survey and direct measurement methods are essential tools in order to obtain the reference services and performance target defined within the management system. The measurements are done periodically and the results are reported monthly. Corrective actions can be taken incase the performance target isn't reached.

In the Taksim-4.Levent Metro customer satisfaction survey is conducted in order to understand customer perceptions and expectations. Face to face method is decided as a implementation method. If the survey aims to define the needs and desired of current customers service points is a strong alternative for the survey. Station and trains are main service points and the survey can be implemented in these points. For M2 Taksim – 4.Levent metro line, the research is done at the stations at metro line. The behavior or characteristic of customers which are shown below are used for In Taksim -4.Levent Metro survey:

- Stations(all the stations of the line)
- Kinds of ticket used (token, standard and discounted akbil)
- Days of the week (weekdays, saturday, sunday)
- Peak and non-peak hours

There are 25 quality criteria that contribute determining the satisfaction level of customers. In addition satisfaction level, the most important criteria according to customers are asked in order to understand customers' expectations. The importance of criteria is considered in importance-satisfaction (IS) analysis. In the result of analysis, the criteria are classified in three groups which are first priority area, second priority area, and third priority area. Table 4 shows the results of IS analysis . According to results, density of the trains is in the first priority area. In the other words, Istanbul Ulasim should focus on more in order to increase the service quality of density of the trains. In the second priority area involves waiting times for trains, security level at the stations, fare amount of journey, air condition on trains, and security level on trains. The rest of the criteria locate in the priority area. Improving the service level of criteria, which is involved first and second are contributes increasing the satisfaction level.

Table 4.: The results of IS analysis

Criteria	Frequency	Percentage	Satisfaction	IS	Priority Area
Density of the trains	200	26,7%	0,41	0,16	1
Waiting times for trains	368	49,1%	0,8	0,10	2
Security level at the stations	260	34,7%	0,72	0,10	2
Fare amount of journey	172	22,9%	0,59	0,09	2
Air condition on trains (temperature, dampness)	144	19,2%	0,55	0,09	2
Security level on trains	227	30,3%	0,74	0,08	2

#### 4. CONCLUSION

Service quality is the decisive factor that service companies can use to difference and obtain competitive advantage. In this research, the most satisfied criteria are the duration of journey, lighting at the stations, and availability of validation devices according to the results of survey. The Least satisfied criteria are air condition on trains, passenger density in trains and the service delivered by call center.

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