EVALUATING SERVICE QUALITY USING SPSS: IN AIR CARGO OPERATIONS

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Abstract
The conceptualization of service quality and the development of measurement tools and techniques aimed at assessing service quality and customer satisfaction levels have been central theme of recent years. The research is to be conducted to examine the customer expectation and perceptions of service quality in air cargo sector, using SERVQUAL instrument. The research hypothesis is that, between the expected and obtained service, there is a gap regarding dimensions of reliability, tangibility, empathy, responsiveness and assurance between the service provider and service user. The goal of this paper is to measure the customer satisfaction and service quality in CIAL, i.e. in the air cargo section.

The research has been carried out in the cargo section, CIAL and it's wider surrounding. 12 airlines and 35 cargo agents were surveyed regarding the service quality. Data were collected using questionnaires in two parts. The first part is concerned with Customer expectation and the second part is concerned with perception. The results have emphasized a negative gap between, perception and expectation of given type of service. The negative gaps are noted in dimensions of facilities, reliability, assurance, empathy and responsiveness which show that customers were least satisfied with service quality of cargo terminal. The paired t-test was used to test the significant mean difference (gap) between customer expectation and perceptions of service quality.

Keywords: SERVQUAL, Service Quality, Customer Satisfaction, Air Cargo.

INTRODUCTION
Research on service is a relatively new and under research field. Reliving high service quality produce measurable benefits in profit, cost saving and market share. Service quality can be considered the most competitive weapon available to service providers. Therefore, an understanding the nature of service quality and how it is achieved in org. has become priority for research. Quality is considered to be one of the management's crucial competitive priorities and prerequisite for the growth of firms. The measurement and management of service quality is the fundamental issue for survival and growth of service companies [1, 13]. Knowledge about the content and the formation of perception of service quality enables organizations to deal with the fields that directly influence their competitive advantage and not to waste too many resources on unimportant fields. The focus of this paper is the customer satisfaction and service quality in air cargo section in CIAL, Kerala. The application of quality-management practices by manufacturers and service providers has become increasingly widespread. Quality is considered to be one of the management's crucial competitive priorities and a prerequisite for the growth of firms. The quest for quality improvement has become a highly desired objective in today's intensive competitive markets [9].

The issue of quality has been increasingly emerging in the literature related to the organizational culture. The concept of quality has been used to describe the extent to which quality is important and valued in an organization, i.e. how much organizational culture supports and values the quality. Firms that are clearly interested in providing outstanding customer value would be expected to have a culture that reinforces high quality [2]. A culture that supports the quality is particularly important in service organizations, where simultaneous production and consumption of the service makes the control of quality rather difficult. Therefore, the measurement and management of service quality is the fundamental issue for survival and growth of service companies. If service quality is to become the cornerstone of marketing strategy, one must have the means to measure it [3]. The most popular measure of service quality is SERVQUAL, an instrument developed by Parasuraman (see Parasuraman, Zeithaml and Berry, 1985) .His research on this instrument has been often cited in the marketing literature, as well as it has been widely used in the industry. SERVQUAL is designed to measure service quality as perceived by the customer. Relying on information from focus group interviews, Parasuraman identified basic dimensions that reflect service attributes used by consumers in evaluating the quality of service provided by service businesses. Dimensions, for example, included reliability and responsiveness, while the service businesses included hospital services, banking and credit card companies. Consumers in focus groups discussed service quality in terms of the extent to which service performance on the dimensions matched the level of performance that consumers thought a service should provide. A culture that is supportive of quality maybe particularly important in service organizations, where simultaneous production and consumption of the service makes close control impossible. Firms that are clearly interested in providing outstanding customer value would be expected to have a culture that reinforces high quality. The level of performance that a high quality

service should provide was termed customer expectations. If performance was below expectations, consumers judged quality to below. To illustrate, if a firm's responsiveness was below consumer expectations of the responsiveness that a high quality service organization should have, the organization would be evaluated as low in quality of responsiveness.

The focus of this paper is the customer satisfaction and service quality in air cargo section in CIAL, Kerala. CIAL is a new and unique venture in Indian civil aviation industry. Cochin International Airport is one of the leading International Air Cargo Centre's in Southern part of India. The new Air Cargo Centre at Cochin International Airport commissioned on 01st December 2000.It is the foremost cargo centre in India having the single service provider concept. CIAL, provide a single stop shop for all the logistic needs through air including the security functions. The regions, one of the biggest and busiest air cargo airports, can easily accommodate long-haul direct and non-stop International/Domestic traffic. Located at Nedumbassery, Cochin (COK), the airport is just 20 KMs from Sea Port, 15 KMs from Cochin Economic Zone and 10 KMs from the Industrial and Commercial capital of Kerala.

The traditional conceptualizations of service quality are based on the disconfirmation paradigm–perceived quality is viewed as a result of comparing particular performance with some kind of standard. For example, Grönroos has defined the perceived service quality as ˝the outcome of an evaluation process, where the customers compare their expectations with the service they have received [4]. Parasuraman, Zeithaml and Berry support the same view, defining the concept of service quality as ˝a form of attitude, related, but not equivalent to satisfaction, that results from a comparison of expectations with perceptions of performance. Expectations are viewed as desires or wants of customers, i.e. what they feel a service provider *should* offer rather than *would* offer˝. Cronin and Taylor, however, argue that the conceptualization of service quality as a gap between expectations and performance is inadequate. They point out the confusion in pertaining literature over the relationship between service quality and consumer satisfaction. According to them, the concept of service quality should be customers attitude towards the service, since the concept of satisfaction is defined as a gap between expectations and performance or disconfirmation of expectations. An attitude-based conceptualization would argue for either an importance-weighted evaluation of specific service attributes or even just an evaluation of performance on specific service attributes.

DEFINITION AND MEASUREMENT OF SERVICE QUALITY
Service quality has been a challenging issue for many scholars, including the pioneers in the field such as W.Edwards deming, Joseph M. Juran and Kaoru Ishikawa. Early quality models have been concentrating on goods, but the (recent) development in the economy, i.e. shift from the manufacturing economy to service economy, and increasingly drew the attention services and their quality. Service quality is a concept that has raised considerable interest and debate in the research literature because of the difficulties in defining and measuring it whereby the consensus on both issues is still missing. It has been generally acknowledged that the service quality is more difficult to model than the quality of goods due to the intangible nature of services themselves. There is no universal definition on the service quality. The simplest definition of the notion states that the service quality is a product of effort that every member of the organization invests in satisfying customers. In the broadest sense, service quality is defined as superiority or excellence as perceived by customer. Zeithamal and Bitner define the notion as the delivery of excellent or superior service relative to customer expectations. According to Harvey define the notion as the delivery of excellent or superior service relative to customer expectations. According to Harvey quality is behavior – an attitude – that says you will never settle for anything less than the best in service quality is defined as superiority or excellence as perceived by customer (Peters and Austin, 1985). Zeithamal and Bitner define the notion as the delivery of excellent or superior service relative to customer expectations. According to Harvey quality is behavior – an attitude – that says you will never settle for anything less that the best in service for your stakeholders, whether they are customers, the community, your stockholder or colleagues with whom, you work every day. Lewis considers quality as providing a better service than the customer expect. Juran considers quality as providing a better service than the customer expect. Juran suggests that quality should be seen as "fitness for use". Another short definitions views quality as "Conformance to requirements" rather than "goodness, or luxury, or shininess, or weight" (Crosby, 1979). One that is commonly used defines service quality as the extent to which a service meets customer's needs or expectations (Wisniewski, 2001). Today there are two popular models of service quality in use – Gronroos Service Quality Model and Parasuraman's gap model. The brief description of each is following.

GRONROO'S SERVICE QUALITY MODEL
The model created by Gronroos attempts to illustrate how the quality of a given service is perceived by customers. It divides customer's perception of any particular service into two dimensions [4]:

Technical quality - what the customer receives the technical outcome of a process. This dimension is called outcome quality by Parasuraman and Physical quality by Lehtinen and Lehtinen.

Functional quality - how the customer receives the technical outcome, what Gronoroos calls the "expressive performance of a service". This dimension is called process quality by Parasuraman and interactive quality by Lehtinen and Lehtinen.

"How" the service is delivered is evaluated during delivery (Schwartz and Brown, 1989). Gronroos suggests that, in the context of services, functional quality is generally perceived to be more important than technical quality, assuming that the service is provided at a technically satisfactory level. He also points out that the functional quality dimensions could be perceived in very subjective manner.

THE GAP MODEL BY PARASURAMAN
The service quality model by Parasuraman indicates that consumers' perceptions of quality are influenced by four gaps occurring in the internal process of service delivery:

Gap 1: *Not knowing what customer expect*-the difference between consumer expectation and management's perception of this expectation.
Gap 2: Not selecting the right service design- the difference between management perceptions of customer expectations and the service quality specifications.
Gap 3: *Not delivering to service standards*-the difference between service specification and actual service delivery.
Gap 4: *Not matching performance to promise*-the difference between the service delivery and what is communicated about the service to consumers.
Gap 5: Perceived service quality-the difference between consumer expectation and consumer perceptions.

SERVQUAL scale
SERVQUAL is designed to measure service quality in a variety of different business or better business models [6]. Parasuraman measured service quality in the following set of organizations: retail banks, a long-distance telephone company, a securities broker, an appliance repair and maintenance firm, and credit card companies. From the results of a set of about 100 questions Parasuraman concluded that consumers perceive service quality by comparing expectations to performance and evaluate the quality of the service in different dimensions [14]. The first set comprised ten dimensions. Factor analysis was used to provide a means of determining which questions are measuring dimension number one, which questions are measuring dimension number two and so on, as well as which questions do not distinguish between dimensions and the number of dimensions in the data. Questions that were not clearly related to a dimension were discarded. A revised scale was used in a second sample, questions were tested and the result was 22-question (item) scale measuring five basic dimensions: Reliability: The ability to perform a promised service dependably and accurately; Responsiveness: willingness to help customer and to provide support service; Assurance: The knowledge and courtesy of employee and their ability to inspire trust and confidence; Empathy: The caring, individual attention firm provide to customer; Tangibles: The physical facilities, equipment and appearance of personnel[5,8].

The recipients of the questionnaires were later asked to allocate 100 points among these five dimensions in order to be able to rank the importance of the respected dimension. During their research Parasuraman identified that reliability was the most important dimension used by customers in evaluating service quality, responsiveness was the next and the tangibles had the lowest influence on overall service quality. Based on these quality dimensions Parasuraman developed the series of standard questionnaires to measure the stated gaps and to what extent they exist respectively in a given organization. The standard questionnaires firstly measure the respondent's expectation of a service then the actual perception of the service delivered by the organization. Since both expectations and perceptions are measured using 22 parallel questions, a total of 44 questions are inquired. The answers are measured on a seven-point Likert scale with 7 indicating "Strongly agree and 1 "Strongly disagree". Quality is measured as the performance minus expectations for each pair of questions and the summary score across all questions was the measure of quality. Parasuraman also tested their SERVQUAL scale for reliability and validity.

DATA AND METHODOLOGY
For the success of Air-Cargo sector, accurate measurement of service quality is as important as understanding the nature of the service delivery system. Without a valid measure, it would be difficult to establish and implement appropriate tactics or strategies for service quality management. A survey was conducted to measure service quality of air-cargo section in CIAL,

Kerala. This is a first time where this internationally recognized SERVQUAL instrument has been used in the CIAL for assessment of service quality of air-cargo section. The goal of this paper is to measure the customer satisfaction and service quality in CIAL, i.e. in the air cargo section. The research has been carried out in the CIAL and its wider surrounding 12 airlines and 30-45 cargo agents were surveyed regarding the service quality. The measuring instrument in this research has been SERVQUAL. The survey instrument consisted of two sections: (1) items focusing on customer expectations of service quality (2) items focusing on received service quality.

The items in the questionnaire were measured on a 7 Point Likert scale ranging from "strongly agree" coded as seven to "strongly disagree" coded as one. Each question was associated with the number one to seven and to complete their answers. Customers were asked to tick the number for their opinion. The items of the scale were pre-tested for wording, layout and comprehension. Samples cargo agents and airlines that fill out the questionnaires were requested to complete the survey questionnaire regarding their expectations and perceptions of the service quality.

DATA ANALYSIS
1. The following table and figure gives the overall rating (the gap between expected service and received service) given by the airlines for the various dimension of service quality.

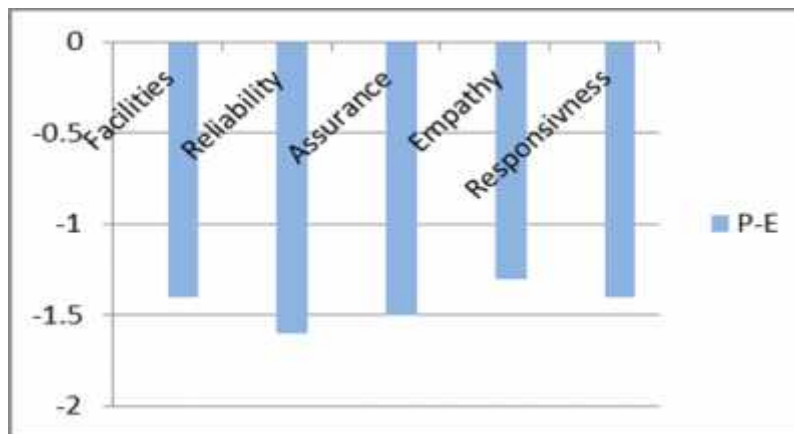| Serial Number	Factors	Gap (P-E)
1.	Facilities	-1.4
2.	Reliability	-1.6
3.	Assurance	-1.5
4.	Empathy	-1.3
5.	Responsiveness	-1.4

Fig.1 Service quality gap results in the view of airlines

2. The following table and figure gives the overall rating (the gap between expected service and received service) given by cargo agents for the various dimensions of service quality.

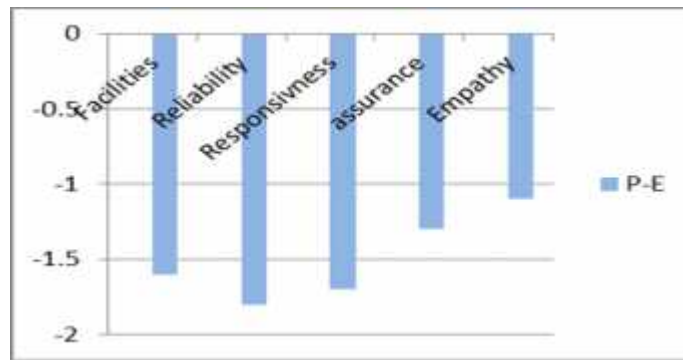| Serial Number	Factors	Gap(P-E)
1.	Facilities	-1.6
2.	Reliability	-1.8
3.	Responsiveness	-1.7
4.	Assurance	-1.3
5.	Empathy	-1.1

Fig.2 Service quality gap results in the view of cargo agents

From the figure one and two it can been seen that both airlines and cargo agents expect more from cargo terminal service in terms of facilities, reliability, assurance, empathy and responsiveness . Even though airlines and cargo agents are two heterogeneous groups both have expressed similar opinion about the requirement of facilities, reliability, assurance, empathy and responsiveness. Thus for improving service quality efficiently, the cargo terminal should consider how to reduce the gaps between the customer perception on service received and the expectation on required service [10, 11].

The statistical package, SPSS was used to summarize and analyze the response [16]. Data were analyzed using descriptive analysis. The paired t-test was used to test the significant mean difference (gap) between customer expectation and perceptions of service quality.

3. Analysis of airline data using SPSS

Table 3: Analysis of service quality dimensions

EXPECTATION			PERCEPTION	
Factors	Mean	Std.Deviation	Mean	Std.Deviation
F	5.8	1.09	4.3	0.65
R	5.8	1.27	4.2	0.75
A	5.6	1.45	4.1	0.59
E	5.6	1.14	4.3	0.73
P	5.5	0.88	4.2	0.59

Table 4: t-value analysis & significance of quality dimensions

Factors	t value	Sig (2-tailed)
Facilities	4.511	0.003
Reliability	4.840	0.002
Assurance	4.231	0.004
Empathy	4.429	0.003
Responsiveness	5.158	0.001

4. Analysis of cargo agent's data using SPSS

Table 5: Analysis of service quality dimensions

EXPECTATION			PERCEPTION	
Factors	Mean	Std.Deviation	Mean	Std.Deviation
F	5.9	0.50	4.3	0.39
E	5.9	1.80	4.8	0.48
A	5.6	1.27	4.3	0.64
P	5.6	1.38	4.0	0.60
R	5.8	1.18	3.9	0.77

Table 6: t value analysis & significance of quality dimensions

Factors	t value	Sig (2-tailed)
Facilities	17.765	0.000
Empathy	10.159	0.000
Assurance	8.214	0.000
Responsiveness	7.334	0.000
Reliability	12.149	0.000

In this research, customer's expectations are almost similar in both cases. This suggests that quality of service dimensions are the most important factors customer expect from the service provider [15]. Customer least satisfied with services they expect most, especially in the reliability factor. The gap is more in both cases. Although expectations of these factors were not highest among customer's , these are the factors that service provider should concentrate on in order to improve their service, so that they not only satisfy the basic needs of their customer but also provide a service which exceeds their expectation.

RESULTS & DISCUSSION
In results, knowing how customers perceive the service quality and being able to measure service quality can benefit industry professionals in quantitative and qualitative ways. Parasuraman model of service quality is used to measure service quality with SERVQUAL method and service quality gaps are identified. The measurement of service quality can provide specific data that can be used in quality and better understanding how various dimension affect overall service quality would enable organizations to efficiently design the service delivery process. By identifying strengths and weaknesses pertaining to the dimensions of service quality organizations can better allocate resources to provide better service and ultimately better service to customers. The statistical package, SPSS was used to summarize and analyze the response. Data were analyzed using descriptive analysis.

The paired t-test was used to test the significant mean difference (gap) between customer expectation and perceptions of service quality. The mean scores in this study (airlines) ranged from 5.5 (Std.Deviation=0.88) to 5.8 (Std.Deviation=1.27) for SERVEXP scale and 4.3 (Std.Deviation=0.73) for SERVPERC scale. The mean scores in this study (cargo agents) ranged from 5.6 (Std.Deviation=1.38) to 5.9 (Std.Devaition=1.80) for SERVEXP scale and 4.8 (Std.Deviation=0.48) for SERVPEC scale. Paired T-test confirmed the hypothesis that there is a statistically significant difference between average ratings of expectations and perception by the customers. Even though airlines and cargo agents are two heterogeneous groups both have expressed similar opinion about the requirement of facilities, reliability, assurance, empathy and responsiveness. Thus for improving service quality efficiently, the cargo terminal should consider how to reduce the gaps between the customer perception on service received and the expectation on required service. Customer's expectations are almost similar in both cases. This suggests that quality of service dimensions are the most important factors customer expect from the service provider. Customer least satisfied with services they expect most, especially in the reliability factor. The gap is more in both cases. Although expectations of these factors were not highest among customer's , these are the factors that service provider should concentrate on in order to improve their service, so that they not only satisfy the basic needs of their customer but also provide a service which exceeds their expectation. For the success of air-cargo sector, accurate measurement of service quality is as important as understanding the nature of the service delivery system. Without a valid measure, it would be difficult to establish and implement appropriate tactics or strategies for service quality management.

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