SERVQUAL and Kano's model integrated to develop a conceptual model of airport terminal service implementation

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Abstract. This paper proposed a conceptual model to contribute the development of airport terminal service quality by conducting an empirical investigation intocustomer value co-creation behavior in Airport terminal service. The research approach to develop a scale to measure passenger expectations of airport terminal service quality, provide the airport service model to reach the passenger expectation and improved service quality. Research finding the airport service improvement with the top service quality and high rank in the business competitions. The proposed service quality framework comprised of 5 service quality dimension called RATER model which consider passenger perception in 22 criteria to measure and integrate with Kano's Model in airport service measurement to find the Satisfaction Index (SI) and Dissatisfaction Index (DI) of passenger perception. Airport operations and management team can use the developed quality framework to improve airport service quality. The research value is to extended service quality level by provides a comprehensive service management in airport operations to meet the passenger expectation to improved image. The newly developed conceptual model with SERVQUAL and Kano's Model integrated.

1 Introduction

Airport service terminals are complex and have an impact on aviation industry service quality. Because of the changes in terminal facilities and terminal services, such as passenger check-in, passport control procedures and ground handling services, that have significant impacts on both airline passengers and airport operators, this will have a negative effect on passengers' experiences with the services of an airport facility. If the quality of airport terminal services cannot be improved, it will become unsatisfactory in the perception of the customers.

According to [1] service quality is the level of service quality delivered to meet customer expectations. The improvement in service quality can be supported to increase customer demand consequent profitability and also through new and repeat purchases from more loyal customer. Customer satisfaction will influence their loyalty; growth and maximized profitability are primarily stimulated by customer loyalty [2].The service

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quality is defined as the level of service that is delivered in order to meet customer expectations [3]. As a consequence, there will be increased profitability through the new and repeat purchases from more loyal passengers [1].

2 Literature review

2.1 Service Quality Measurement in Aviation Service

The aviation industry service quality is complex and different from other service industries such as in-flight atmosphere and seating comfortable in airline service, ticketing and check-in process also baggage service at the airport terminal, arrival service at destination must be considered. The definitions of service quality are variety, those definitions can be formulated from the customers' perspective and what customers perceive are important dimensions of quality. The service quality definitions can be formulated from the customers' perspective, and what customers perceive are a variety of dimensions, and thus it is important to measure the service quality [4]. The characteristics of servicebeing unable to be produced in advance, the quality of service must exceed customers' expectations and the service quality's outcome is also important [5]. Customer satisfaction will influence their loyalty; growth and maximized profitability are primarily stimulated by customer loyalty [6]. According to [7], the main characteristics of a service are that it is unable to be produced in advance, and that the quality of services must exceed customers' expectations. Therefore, the quality of the outcome of a service is also very important.

The customer loyalty will influence the growth and maximize profitability, which are primarily stimulated by customer perceptions [8]. Because the complexity of the service quality in the airline industry is different from other service industries, numerous factors such as comfortable seating, the ticketing and check-in process, the in-flight atmosphere, baggage services, and arrival services at the destination must be considered.

An airport authority could lead in the market's competitive environment through the offering of superior quality services with an understanding of the competitive advantages in the airport services [9]. The SERVQUAL is a model of development, and the disconfirmation model service quality measurement is called the GAP model [10, 11]. This instrument is used to measure service quality and its dimensions [12]. The five dimensions of service quality are tangibles, reliability, responsiveness, assurance and empathy, and 22 scales are included. The airport service quality is an important factor and should be evaluated. The RATER model of SERVQUAL with 22 criteria, which has been proposed for aviation service quality measurement, is one of the methods utilised to measure the airline industry service quality [13]. With regard to airport services, including reservations and ticketing, check-in, boarding the aircraft as well as in-flight services and post-flight services, if a service failure has caused a loss of service quality, the measurement of that service should be conducted for service quality improvement [14].

Implementation of Airport terminal service quality measure

Airports have a significant opportunity to build an integrated, high-value experience for passengers starting from pre-flight activity such as cheek-in and travelling to and through the airport until the journey's end.

As airportroles and service models evolve, passengers have increased expectations for personalised services. These should be tied to a reward system built on combined airport and airline spending, not just airline spending. A superior, integrated passenger experience will become the key differentiator for both airlines and airports, by improving passenger experience and consequently, passenger loyalty [15].

The service quality impacts of the proposed airport serviceability are analysed. The research outline, based on the Service Quality Measurement and Airport Terminal Services in the above literature review, surveys the effects of airport terminal services on airline services; firstly, of the service quality measurement, and secondly, of the airport terminal serviceability. In the service quality measurement, the SERVQUAL with the five dimensions of the RATER model have been applied, as mentioned in the literature review and discussed above, to investigate the airport terminal service impacts of the service criteria list of airport terminal services provided to airline passengers. In this analysis, the impacts of the airline passenger experience of the airport terminal services have been evaluated and discussed according to the criteria designed as shown in Table 1 in order to measure airline passenger experience of airport terminal services associated with the case study that surveyed airport terminal service quality with the intention of deriving the impacts for three very different levels of operation [16].

In terms of Airport Terminal Service characteristics, this aspect has become the one that has most significant effect on airlines services, such as passenger check-in, baggage conveyer services and aircraft ground handling, which provide support to the airlines. The most dramatic increase occurs when the airport congestion affects airline passenger services and is extended to the passengers' experience. The results of the service criteria in Table 1 present the 22 Airport Terminal Service Quality Measurement criteria based on the five RATER dimensions of SERVQUAL.

Table 1. Airport Terminal Service Quality Measurement Criteria.

RATER Dimensions	Airport Terminal Service Quality Measurement Criteria	Criteria Reference
Responsiveness	Solving flight delay problems of the airport	Res1
	Airport staff willing to help in unexpected situations	Res2
	Courtesy of ground handling staff	Res3
Assurance	Airport safety operations	Asu4
	Airport operator performs confident actions with passenger tangibles	Asu5
	Airport operator provides the necessary information	Asu6
	Airport staff have the knowledge to answer questions	Asu7
	Airport staff's willingness to help	Asu8
	Employees promptly handle flight delays	Asu9
Tangibility	Airport is operated with modernised facilities	Tan10
	Full ramp equipment facility support	Tan11
	Appearance of airport staff	Tan12
	Quality of ground support equipment and facilities	Tan13
Empathy	Employees provide individual attention to the passengers	Emp14
	Alternative plans for irregularities are available	Emp15
	Airport operating time is convenient	Emp16
	Airport handling includes modern equipment and facilities	Emp17
	Employees understand the passengers' specific needs	Emp18
	Employees provide speedy handling	Emp19
Reliability	Airport operations support the flights to be on time	Rel20
	Airport staff's insistence on travel service	Rel21
	In an irregularity, airport staff perform accurate service procedures	Rel22

2.2 Kano's model for attractive service in an airport service

Kano's model developed in 1984 by Dr. Noriaki Kano and his colleagues. This model identified customer requirements and areas of service or product improvement by

examining the nonlinear relationship between service performance and customer satisfaction [17].To be applied in airport service, the Kano's model distinguishes in three types of service requirements as follows:

A =Attractive requirements: Attractive requirements are neither explicitly expressed nor expected by the passenger. Fulfilling these requirements leads to more than proportional satisfaction. If they are not met, however, there is no feeling of dissatisfaction. These requirements are the product or service criteria which have the greatest influence on how satisfied a passenger will be with a given service.

M = Must-be requirements: A passenger regards the must-be requirements as prerequisites, he or she takes them for granted and therefore does not explicitly. These are basic criteria of applied in airport service requirement. The passenger will be extremely dissatisfied if must-be requirements in service are not fulfilled to passenger expectation. On the other hand, as the passenger takes these requirements for granted, their fulfillment will not increase his satisfaction. Airport service fulfilling the must-be requirements will only lead to a state of "not dissatisfied".

O =One-dimensional requirements: With regard to these requirements, passenger satisfaction is proportional to the level of fulfillment - the higher the level of fulfillment, the higher the passenger's satisfaction and vice versa. These requirements are usually explicitly demanded by the passenger.

I = Indifferent quality: Whether the airport service is present to passenger or not. The passenger is not very interested on this service.

R =Reverse quality: This reverse airport service quality has no desires and expects by passenger.

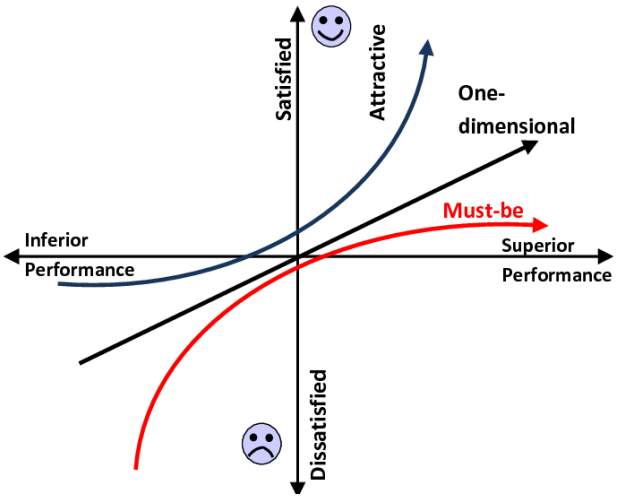

Fig. 1. Kano's excitement and basic quality model.

Base on Kano's excitement and basic quality model, the CS formula are applied to indicate the qualitative values of the customer satisfaction index [18,19]. According to Fig. 1, [14] identified the customer satisfaction coefficient (CS) measures qualitative values of customer satisfaction and dissatisfaction. Attractive quality separated Kano's service requirements into Must-be requirements (M), One-dimension requirements(O), Attractive requirements (A), Indifferent quality (I) and Reverse quality(R) as details in Table 1 here under.

Table 2. Kano's model applied to airport service satisfaction to passengers.

Airport Service Requirement	Details in the meet service requirement
M = Must-be requirements	If service requirements are not fulfilled to passenger expectation, the passenger will be extremely dissatisfied.
O = One-dimensional requirements	Passenger satisfaction is proportional to the level of fulfillment - the higher the level of fulfillment, the higher the passenger's satisfaction and vice versa.
A = Attractive requirements	Fulfilling these requirements leads to more than proportional satisfaction. If they are not met, however, there is no feeling of dissatisfaction.
I = Indifferent quality	The passenger is not very interested, whether it is present or not.
R = Reverse quality	The passenger has no desires and expects the reverse.

3 Research Methodology

This study proposed a conceptual model to developing SERVQUAL and Kano's Model integrated for improve airport service quality implementation with the integration five RATER dimensions of the SERVQUAL and Kano's model forming part of this study. A purpose concept model for developing airport service quality as shown in Fig.2 below.

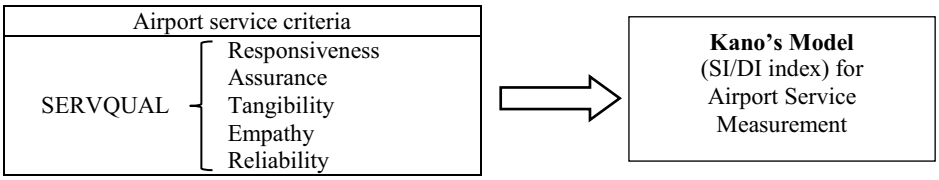

Fig. 2. A model for developing SERVQUAL and Kano's Model integrated to improve airport service quality implementation.

According to the research conceptual frame work has shown in Figure 2, it was developed base on SERVQUAL and Kano's Model in [19]. The literature review in case study of service quality failure cause of severe weather conditions at the airport terminal service. In the interests of safety, flights are unable to operate in to the severe weather conditions, thus cancellation or delaying the flight to await improved weather is the best practice for airline operations.

The analyze has been conducted base on SERVQUAL and Kano's Model [19] past research. The systematic approach to service quality improvement has been developed base on SERVQUAL and Kano's Model. The purpose is to improve service quality at the airport with attractive quality in passenger satisfaction with integrate SERVQUAL and Kano's model.

4 Discussion

To investigate the complexity of problems in the case study, the research has been conducted with the framework by identifying problems in the case study of past research. The SERVQUAL with 22 criteria and Kano's Model have been applied as the guide lines to investigate the service quality of airport operations. SERVQUAL 5 dimensions integrated with Kano's Model for solving the problem and improving the airport service quality that can be improved the industry's image. SERVQUAL with RATER dimensions applied to

the industry and Kano's attractive principles to improve the airport service quality to attain a top service quality. The image is based on the attractive service that airport can be provide to passengers [14]. But many factors may affect the airport's service such as the case of severe weather conditions [20]. Based on case studies of past research, we have found that the attractive service quality can be improved industry image with the criteria studies [19, 21].

The research methodology was developed a conceptual model base on the problem solving of airport service quality by flights being heavily delayed due to weather condition. The problem has been identified and found that the severe weather conditions may cause lengthy flight delays or cancellations [22,23]. The discussion of problem solving has shown that extra services for passengers should be applied to meet their needs and these will turn a potentially customer experience in to an attractive service.

5 Conclusion

The purpose of this research is to study and propose a conceptual framework of airport service quality management to achieve higher service quality with an attractive service experience to passenger. The study and discussion with the empirical case study which affect service quality and with airport image. The study presented a relationship of SERVQUAL five dimensions RATER model in airport service quality. Kano's Model has been applied as a tool to improve the service quality and link to attractive service improvement. The study shown that the improvement of serviceability in the aviation industry is extremely important in airport management.

Also, aviation industry image conformance has a relationship with the attractive service quality of airlines and airports. These relationships can be applied SERVQUAL and Kano's Model principles to integrate service quality criteria and attractive service improvement enables an airline and airport to improve their image.

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