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The Airport Terminal Level of Service Model SERVICE (ATLOS) Model for Service Quality Evaluation

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ABSTRACT

Kuala Lumpur International Airport 2 (KLIA2), become Malaysia's generation hub that enables unified connectivity for domestic and international low cost and full service providers. KLIA2 is constructed to accommodate the growth of the low cost emission industry. It is intended to accommodate 45 million passengers a year. The increased in low-cost air travel has reversed the international airport capability. The complaint arise exponently differently at many area of services included in terminal operation and services. Based on SKYTREX, most of passengers give low on the evaluation of services in KLIA2. The objective of this research is to provide an intelligent evaluation service quality tools in order to evaluate customers satisfaction at airport terminal using Airport Terminal Level of Service (ATLOS) model for evaluting process to the airport teminal operation and services for to increase their service quality. This research begin by identify the factors that affect the service quality at the airport terminal through the details literature review. Next, the ATLOS model developed and validated by questionnaire among user at KLIA2. This research evaluated the passenger's perceptions and expectations towards airport terminal performances by the development of ATLOS model based on service quality (SERVQUAL) dimensions that is tangible, reliability, responsiveness, assurance and empathy and statements. This research would help Malaysia Airport Holding Berhad (MAHB) in evaluating their services and improved those services in order to meet passenger's expectations and satisfactions.

Keywords: Model Development, Perception, Expectation, KLIA 2, SERVQUAL

1. THE INTRODUCTION:

The Kuala Lumpur International Airport 2 (KLIA2), become Malaysia's generation hub that enables unified connectivity for domestic and international low cost and full service providers. KLIA2 is constructed to accommodate the growth of the low cost emission industry. It is intended to accommodate 45 million passengers a year. Increased international and domestic air travel has resulted in increased demand for airport facilities [1-5]. The increased in low-cost air travel has reversed the international airport capability. Based on SKYTREX, most of passengers given low an evaluation of services in KLIA 2 [1]. That related to service quality [6-10], but not measurement level model done yet for the airport terminal.

This research based on the experienced of the KLIA 2 [1]. The main objectives goals of this research are to identify the factors that affect service quality at the airport terminal, to develop

Airport Terminal Level of Service (ATLOS) model and to validate the ATLOS model at KLIA 2.

This research evaluated the passenger's perceptions and expectations towards airport terminal performances by developing ATLOS model based on Service Quality (SERVQUAL) dimensions that is tangible, reliability, responsiveness, assurance and empathy and statements. A modified of 22 statements of original SERVQUAL instrument to 20 statements was tested for reliability and validity [11-14]. An empirical study was conducted at KLIA2 using a sample of 204 respondents [15]. The development ATLOS has been verified and validated as well. This research would help Malaysia Airport Holding Berhad (MAHB) in evaluating their services and improved those services in order to meet passenger's expectations and satisfactions [7-11]. ATLOS also can use as a tool for comparing the performance of various airport terminals across the country.

2. RESEARCH METHOD:

ATLOS is a model that measures service quality and performance of the airport terminal services and infrastructure. In order to provide a clear and suitable understanding and context for evaluating airport terminal services and infrastructure, it is necessary to review the current efforts that propose an ATLOS. The quality of airport terminal facilities and services for passengers is commonly assessed by an ATLOS. The indicators in ATLOS is comes from the dimension of quality in SERVQUAL method which are tangible, reliable, responsiveness, assurance and empathy. An adoption of SERVQUAL dimension of quality was used to develop the questionnaire for ATLOS model in measuring service quality at KLIA 2 based on passenger's perceptions. Besides that, a modified of 22 statements of SERVQUAL instrument to 20 statements or evaluation criteria was used in developing the questionnaire. Conventionally, designed questionnaire frequently uses the Likert Scale to gauge the feeling of respondents. ATLOS model was developed in order to measure and evaluate the level of service at the airport terminal by considering customer expectation and perception of the service offered [16-18]. The following procedures relating to the use of methods of ATLOS shown as Figure 1.

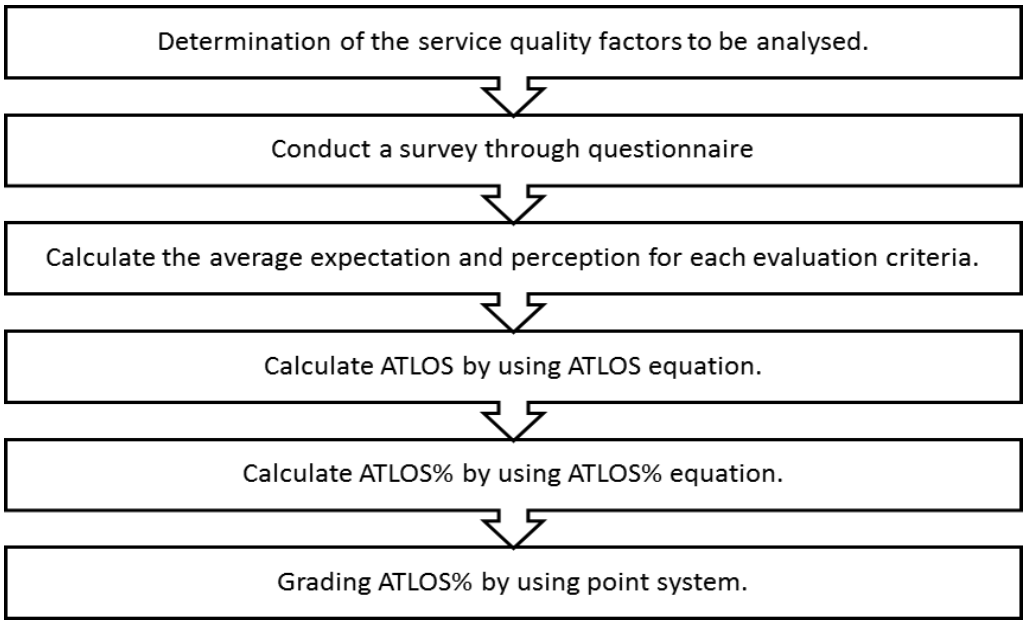

Figure 1. Procedure of ATLOS model

ATLOS can also be used as an evaluation tool for comparing the performance of an airport terminal with reference to the passengers' expectation and perception. For each factor of service quality will be tested validation by using ATLOS. Usually, six LOS levels from A to F are defined. LOS A indicates "very pleasant" while LOS F indicates "very unpleasant". Therefore,

ATLOS is a formula that has developed in measuring service quality and at the same time grading the condition or performance of point system of level of service.

This an ATLOS model based on a point system to rate airport terminal. It attempts to evaluate passenger's perception and expectation towards airport terminal service quality and infrastructure. These indicators do not have the same effects on the ATLOS, so each of them may have a specific coefficient. The expectation mean indicator presents the effectiveness of each airport terminal facility and service for ATLOS, so the importance and the priority of each indicator is illustrated by µE. This µE is estimated by the average of passenger evaluation on expectation of service quality regarding Airport terminal facilities and services using Likert Scale rating from "1" for "Very Dissatisfied" until "5" for "Very Satisfied". The same concept goes to perceptions mean indicator which illustrated by µP [19-21]. This "*i"* is the number of evaluation criteria used in this research. Therefore, mathematically, the ATLOS can be defined as follows refer to Equation 1.

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$$ATLOS = \sum_{i=1}^{n} (\mu E_i \mu P_i)$$

Where:

ATLOS	=	Airport terminal Level of Service
i	=	indicator number
n	=	number of indicator
µE	=	Expectation Mean on Service Quality at airport terminal
µP	=	Perception Mean on Service Quality at airport terminal

To facilitate understanding of the ATLOS value that is achieved by calculating μE_{iS} and μP_{iS} based on equation 1, in a special rating system, the percentage of ATLOS is defined. The "a" indicator presents the best fit condition or best rating scale between existing condition of Airport terminal which is in this research, the researcher will use the maximum rating scale is 5. This value is the percentage of existing ATLOS of the ideal ATLOS (with the best fit condition or best rating scale between existing conditions of Airport terminal). The percentage of ATLOS is indicated as follow refer to Equation 2.

$$ATLOS\ \% = \frac{ATLOS}{\sum_{i=1}^{n} \mu E_i * a} * 100$$

Where:

ATLOS%	=	Percentage of Airport terminal Level of Service
ATLOS	=	Airport terminal Level of Service
i	=	indicator number
n	=	number of indicator [21]
µE	=	Expectation Mean on Service Quality at airport terminal
a	=	the Best Fit / Best Rating Scale

The rating system involves a degree from A to F. ATLOS A indicates the highest quality of the Airport terminal facilities and services for passengers [2-3][22-25]. ATLOS B can become acceptable with minor improvements. While ATLOS C requires more improvements and for

the rest of ATLOS D, E and F ratings below this require major improvements.

3. RESULT AND ANALYSIS:

Table 1 below is summary question in questionnaire that is using the SERVQUAL dimension. The question was start with Tangibility, Reliability, Responsiveness, Assurance and Empathy. Average of each question have shown below by answer from 204 respondent's satisfaction about KLIA 2. This analysis is carried out by total of mark satisfaction from 204 respondent and divide with five because rate satisfaction very dissatisfied to very satisfied.

Based on the result from five factor that show, ATLOS for empathy contributes the highest score that is 75.47% (grade B). This shows that the respondents have high quality level of service at KLIA 2 and seems that they satisfied with this dimension. While ATLOS for reliability contributes the lowest score, 60.54% (grade B).

Table 1. Average of Evaluation Criteria

Dimension	Evaluation Criteria	Expectation Mean (EM)	Perception Mean (PM)	EM x PM	Best Rating Scale (BRS)	EM x BRS
Reliability	Good frequency of domestics and international terminal services	3.29	3.10	10.2	5	16.45
	There has sufficient and accessible ticket counters	3.49	3.03	10.57	5	17.45
	Timetable at terminal counter is zero-error	3.14	3.16	9.92	5	15.7
	On time terminal arrival	3.01	2.81	8.45	5	15.05
Total		12.93	12.10	39.15		64.65
Assurance	Customers feel safe at night	3.29	3.03	9.97	5	16.45
	Customers feel safe during transaction	3.50	3.30	11.55	5	17.5
	Staff are always polite	3.44	3.13	10.77	5	17.2
	Police and guard surveillance	3.18	3.44	10.94	5	15.9
Total		13.41	12.90	43.23		67.05
Tangibility	Airport terminal was equipped with modern technology e.g. e-ticket machine or self-check-in machine	3.35	2.94	9.85	5	16.75
	Easy access to public transport and convenience to surrounding areas	3.39	2.99	10.14	5	16.95
	Airport terminal provides disabled facilities and breastfeeding rooms	3.37	3.12	10.51	5	16.85
	There are comfortable waiting areas in the terminal airport	3.43	3.19	10.94	5	17.15

Total		13.54	12.24	41.44		67.70
Empathy	Staff always taking care of their customers interest	3.46	3.22	11.14	5	17.30
	KLIA 2 serves convenience operation hours to all customers	3.15	3.44	10.84	5	15.75
	Staff know how to win customers heart	3.27	3.11	10.17	5	16.35
	Staff show good image among customers	3.52	3.38	11.90	5	17.60
Total		13.40	13.15	44.04		67.00
Responsiveness	KLIA 2 always informs their passenger in changing of schedule	3.25	3.21	10.43	5	16.25
	KLIA 2 provides efficient and timely customer services	3.36	3.08	10.35	5	16.8
	Communication between staff and customer is clear and helpful	3.52	3.26	11.48	5	17.6
	Staff willing to help customers	3.24	3.01	9.75	5	16.2
Total		13.37	12.56	42.01		66.85

In order to ascertain the quality of services at KLIA 2 responses regarding the expectations and perceptions on the five dimensions of the SERVQUAL model were collected and the results are presented in the following sections. Results are presented for each dimension, indicating the perceptions average and expectations average scores simultaneously. Table 2 show overall result for each dimension.

Table 2. Result for each dimension

Dimension	ATLOS	ATLOS %	ATLOS Model
Reliability	39.15	60.56%	B
Assurance	43.23	64.47 %	B
Tangibility	41.44	61.26%	B
Empathy	44.04	65.74%	B
Responsiveness	42.01	62.84%	B

To concludes, all dimensions as resulted through their mean of each dimension is generated. Below shows the calculation of overall average of ATLOS at KLIA 2.

= ATLOS% (D_1 + $D2$ + D_3 + D_4 + D_5) / Total number of dimension

= 62.97 %

The overall average for ATLOS at KLIA 2 is B (ATLOS=62.97%) reflects that some important airport terminal facilities and services in high quality and acceptable in meeting respondents expectations. It also reflects that KLIA 2 meet user's expectation and they satisfied with service served by that airport terminal. Overall, level of service acquires average scores among the five dimensions evaluation of service quality by respondents

4. CONCLUSION:

Based on the findings, the result obtained from the questionnaire survey that has been conducted by the researcher. As mention earlier, the aim of this research tries to develop ATLOS model based on level of service and SERVQUAL. Other than that for measure also evaluate the level of services at airport terminal by considering customer expectation and perception of the service offered besides the objectives of this research are to identify the effective factors that affect service quality at airport terminal. The summary of the findings show that the objectives of this research was met. The summary that can draw from the findings are:

- The factors that affect service quality at an airport terminal were extracted from the literature review. There are based on five SERVQUAL dimensions that are reliability, assurance, tangibles, empathy, and responsiveness [21][26].

- The ATLOS at KLIA 2 is B (ATLOS=64.45%) reflects that some important airport terminal facilities and services in high quality and acceptable in meeting respondents expectations. Overall, level of service gets average scores among the five dimensions evaluation of airport terminal service quality by respondents. Therefore, it is necessary to do a comprehensive adjustment and improve the level of service and service quality in order to meet passenger's expectation and perception

Overall findings of this research are evident that passenger perceives that factor of quality of services can meet their expectations. It is also evident that visible efforts by KLIA 2 should be in place to improve or upgrade airport terminal services and facilities. In summary, the level of service of an airport terminal considered as a critical indicator that would enhance its customer satisfaction. However, findings of this research will helpful for the MAHB in strategy making and future planning.

As the model is ready and the validation process is done, the software application will be developed to proceed this research as complete system as future research. The auto-generated system wil be utilized to process rapid evaluation result which will create more satisfactory to all passengers and users.

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