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Service Quality Mediation : The Quality of Service Facility Design And Utilization of Digital Technology on Passenger Satisfaction

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ABSTRACT

This study aims to determine the impact of the variable The quality of service facility design and utilization of digital technology against passenger satisfaction with service quality an intervening in Kualanamu International Airport, Medan. Research data were analyzed using the SEM-PLS method and it can be almost 30 samples of Kualanamu International Airport passengers. Data were collected in this research with a questionnaire to all respondents using the accidental sampling technique. Data processing using the SEM approach PLS basis with Smart-PLS 3.0. device**.** The data result analysis indicated that the quality design of facility and utilization of digital technology had positive points and is significant against passenger satisfaction. And utilization of digital technology had positive points and is significant against service quality.

Keywords: The Quality Design of Facility, Utilization of Digital Technology, Service Quality, Passenger Satisfaction.

INTRODUCTION

Kualanamu Airport is one of the airports in the Indonesian Sumatra Region which is managed by PT (Persero) Angkasa Pura II , Based on Law Number 1 of 2009 concerning Aviation, an airport is an area on land and/or waters with certain boundaries used as a place for aircraft to land and take off, go up and down, load and unload goods, as well as a place for intra and intermodal activities (Breakers & Exchange, 2020). Transportation equipped with pilot safety and security facilities, as well as basic facilities and other supporting facilities. This, airport managers must provide satisfactory service to service users/prospective aircraft passengers so that they feel comfortable and safe at the airport (Challenges et al., 2012). The services provided by the airport management must be in accordance with the costs incurred by prospective aircraft passengers based on the Aircraft Passenger Service (PJP2U) tarif. This service will have an impact on the attitude of service users in the form of satisfaction or dissatisfaction (Operations Research Society For Eastern Africa (Orsea), n.d.)

Of course the airport always wants to provide satisfaction and comfort to its passengers with quality facilities and services, available facilities such as X -rays , Digital banners , Digital maps, Toilets and others have a very positive effect on passenger and even visitor satisfaction (Fabiana Meijon Fadul, 2019). The facilities available at Kualanamu airport must always be upgraded so that passengers feel comfortable at the Kualanamu airport , and the facilities available are online, such as selfcheck -in which makes it easier for passengers to check-in independently so that passengers do not have to queue at check-in (Park et al., 2004). Not only Kualanamu airport facilities also provide high quality services such as fast and responsive service in helping passengers, friendliness when serving passengers and providing safety guarantees for passengers (Weber et al., 2013). Quality service quality greatly affects passenger satisfaction. Besides that, it is also closely related to creating profits for the company (Eu et al., 1998). The higher the quality of service provided by the company, the higher the satisfaction felt by passengers.

At this time, we realize that the airport is a place for organizing air travel. It should be noted that to meet the needs of passengers on their journey, of course the passengers require additional facilities to support their needs. Among them, good facilities are electronic to tenants who meet their needs. The facility design of an airport is a reference value for passengers to have satisfaction. On the results of research from (Fodness & Murray, 2007) stated that the aviation industry since the last 10 years has experienced a significant growth rate of 5% to 6%. From this it can be seen that the level of increased demand is caused by a condition and the value of satisfaction as a reference for selecting the airport should always be considered.

What can be taken into account in assessing passenger satisfaction with the airport is the quality of service facility design , the application of digital technology at the airport and the services provided by employees. According to (Medvedev et al., 2017)the first view of the passengers at the airport is the physical layout of the airport. Of course, passengers expect convenience in the process of air travel (Drennen, 2011). For this reason, passengers also want convenience in using the airport facilities themselves (Antwi et al., 2021). For example, to go to a toilet, restaurant or other grocery store, it must be placed strategically, for example placement in each terminal. Talking about the *design quality* of airport service facilities according to (Sohail & Al-Gahtani, 2005) the same is the case with service facility innovation. This shows that for developments towards the future, of course, airport expansion or facility improvements need to be carried out in order to balance high

competition, improve aircraft equipment with materials and tools that use advanced technology, update airport infrastructure, expand airports, and increase the number of facilities. In the design of airport services (Yuliana et al., n.d.), it must pay attention to aspects of passenger safety to flight safety with comfort as and a sense of security as the key. This is consistent with the theory of thought explaining that innovation in airport design has an important role in the aviation safety chain, which links aviation safety with the security of passengers and customer goods.

For passengers, convenience in the process is needed, especially in the use of digital technology (Freathy & O'Connell, 1998a). This greatly affects the satisfaction they get when using flight services. Technology that is growing rapidly is one of the references for increasing competitors in business. This means that every airport must be able to balance digital operations that are implemented with new output technologies (Chonsalasin et al., 2021). In the explanation (Brida et al., 2016), it should be noted that the higher the actual speed value of the technology, the more satisfied its users will be. At airports, technology is needed, especially for aircraft technology by prioritizing passenger safety and operational accuracy. The airport certainly has to continuously update the technology used, be it in the form of aircraft operational technology, information or facility technology. For example, the use of an escalator which can be upgraded to the use of an elevator (George, 2013). Of course it makes it easier for passengers to use it.

Service quality and passenger satisfaction are things that are in great demand by every goods and service business industry. Passenger satisfaction can be assessed from the quality of services provided (Weber et al., 2013). The airport must have good service standards, for that the staff must understand how to serve properly and correctly. There are several things that need to be considered when serving passengers, namely politeness and tidiness, always being willing to provide information that can help passengers, processing time that prioritizes comfort and safety, and always evaluating the level of airport service quality (Freathy & O'Connell, 1998b).

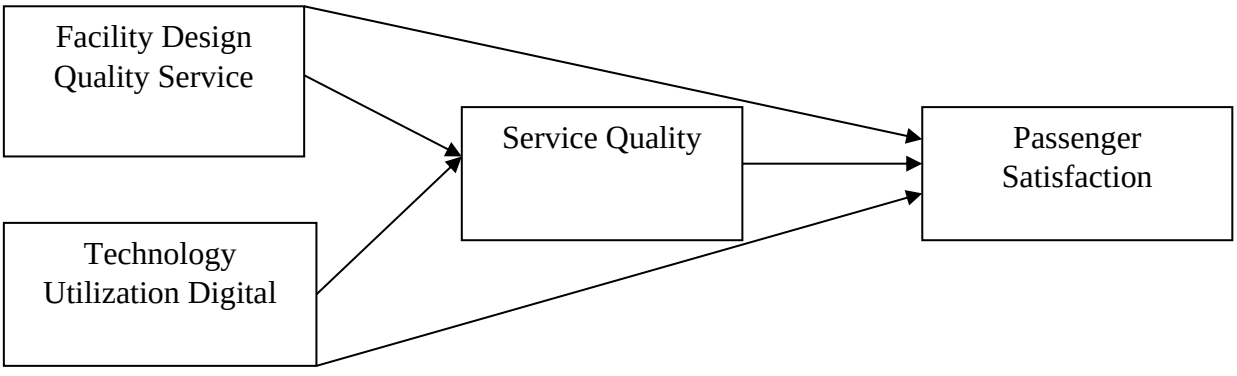

Figure 1. Conceptual Framework

The hypothesis that can be given in this study describes the relationship in the conceptual framework in Figure 1: H1: Quality of service facility design has a positive and significant effect on service quality. H2: Quality of service facility design has a positive and significant effect on passenger satisfaction. H3: Service Quality has a positive and significant effect on Passenger Satisfaction. H4: The use of digital technology has a positive and significant effect on service quality. H5: The use of digital technology has a positive and significant effect on passenger satisfaction. H6 : Quality of Service Facility Design on Passenger Satisfaction

through Service Quality. H7: Utilization of Digital Technology on Passenger Satisfaction through Service Quality.

METHOD

The method used in this research is descriptive and verification analysis method. Researchers use this method to describe facts related to the material under study and analyze the relationship between variables or how one variable mediates other variables. The population in this study are passengers and visitors to Medan Kualanamu Airport who use airport services and the number is unknown and can be said to be in the unlimited category.

This study used a non-probability sampling technique in the form of accidental sampling because the population size was too large so that 31 samples were determined. In this technique, each element of the population has a different chance of being selected for the sample. Data collection in this study used observation techniques and questionnaires were measured using a Likert scale. The Likert scale is used to measure the level of the subject agrees or disagrees with the statement, which has five choices in the order: Strongly Agree (5); Agree (4); Enough (3); Disagree (2); Strongly Disagree (1). Hypothesis testing was carried out using the PLS (Partial Least Square) based SEM (Structural Equation Model) approach, which aims to test whether there is a relationship and influence between variables. There are two stages in this technique. Namely, the first stage tests the measurement model, and the second stage tests the structural model.

RESULT AND DISCUSSION

From the results of the questionnaire that was collected, the number of respondents was 31. The demographics of the respondents consisted of 75 percent women and 25 percent men. Based on age, 70 percent are 22-27 years old, 17 percent are 25-27 years old, and 13 percent are 29-32 years old. Based on status, 20 percent are married, 80 percent are not married.

In evaluating the quality of an outer model, it is necessary to test the reliability of internal consistency and test the validity of both convergent and discriminant. Internal consistency reliability test is a form of reliability measure used to assess the extent to which different test items investigating the same construct produce similar results. Cronbach Alpha (CA) is a component that can be used when carrying out this internal reliability test. CA is a form of estimation based on the intercorrelation of each indicator of latent variables. With this method, if the value of CA ≥ 0.60 then the research variable is declared reliable.

In addition to using CA analysis, it is also necessary to carry out Composite Reliability (CR) analysis to measure and conduct reliability tests. CR has a value between 0 to 1, the accepted CR value is ≥ 0.7 (Dash & Paul, 2021), the higher the CA and CR values it can be concluded that the higher the reliability. If you look at the CA value in table 3, it shows a value greater than 0.6, which is between 0.690 and 1.000. Likewise, the CR value in table 3 shows a value greater than 0.7, which is between 0.859 and 1,000. Based on these results it can be ascertained that each item in the variable is reliable so that each questionnaire answer can be relied upon as a parameter describing the relationship between variables or hypotheses.

Then to carry out a validity test consisting of convergent validity and discriminant validity, you can go through the *Average Variance Extracted* (AVE) test with an acceptable value of > 0.50. If you look at the AVE value in table 3, it shows a value greater than 0.5. These results indicate that the research items have a good correlation.

Convergent validity testing can be seen in the value of its loading factor. The acceptable loading factor value is at least 0.6 and preferably above 0.7. If you look at the loading value in table 3, it shows that the loading factor value is greater than 0.7. With these results, each indicator is appropriate and meets the requirements of convergent validity.

Table 1. Outer Loading (Measurement Model)

Variables	Indicators	Outer Loading	Composite Reliability (CR)	Cronbach's Alpha (CA)	*Average Variance Extracted* (AVE)
Service Facility Design Quality	X1_7	0.930	1,000	1,000	1,000
Utilization of Digital Technology	X2_2	0.797 0.864	0.8661	0.7218	0.764
	X2_4	0.708 0.763			
Passenger Satisfaction	Y_5	1,000	1,000	1,000	1,000
Service quality	Z_2	0.902 0914	1,000	1,000	1,000

To evaluate discriminant validity, the square root average variance extracted (√AVE) criterion can be used. In principle, the correlation between indicators of different latent variables must be small. If there are 2 (two) latent variables and each of the latent variables has 4 (four) indicators, then the indicator of the latent variable 1 (one) has a smaller correlation than the indicator variable 2 (two) (no multicollinearity).

For testing, you can see the value of the √AVE parameter and its correlation with latent variables. In carrying out and completing the discriminant validity test, the Fornell-Larcker Criterion ratio approach can be used. The diagonal column that is bolded must always be greater than the correlation between each latent variable in the same column either above or below it. If seen in table 2 the results meet the requirements to pass discriminant validity.

Table 2. Discriminant validity test results (Cross loading).

	Service Facility Design Quality	Utilization of Digital Technology	Service quality	Passenger Satisfaction
X1_7	1,000	0.3729	0.3952	0.5322
X2_2	0.4291	0.9519	0.5014	0.5161
X2_4	0.1465	0.7903	0.2557	0.2530
Y_1	0.5322	0.4770	0.2557	1,000
Z_2	0.3952	0.4671	1,000	0.2557

To verify the hypothesis, testing the inner model or structural model is used, namely by looking at the relationship between the variables from the R-Square value of the research model. By using Smart-PLS, the model assessment begins by looking at the R-Square for each dependent latent variable. The results of the value on the R-square can be used to assess

the effect of certain exogenous latent variables on endogenous latent variables that have a substantive effect.

The causal relationship model between the Quality Service Facility Design and Utilization of Digital Technology with the mediation of Service quality on Passenger satisfaction that has been generated from the PLS model can be seen in Figure 2 below:

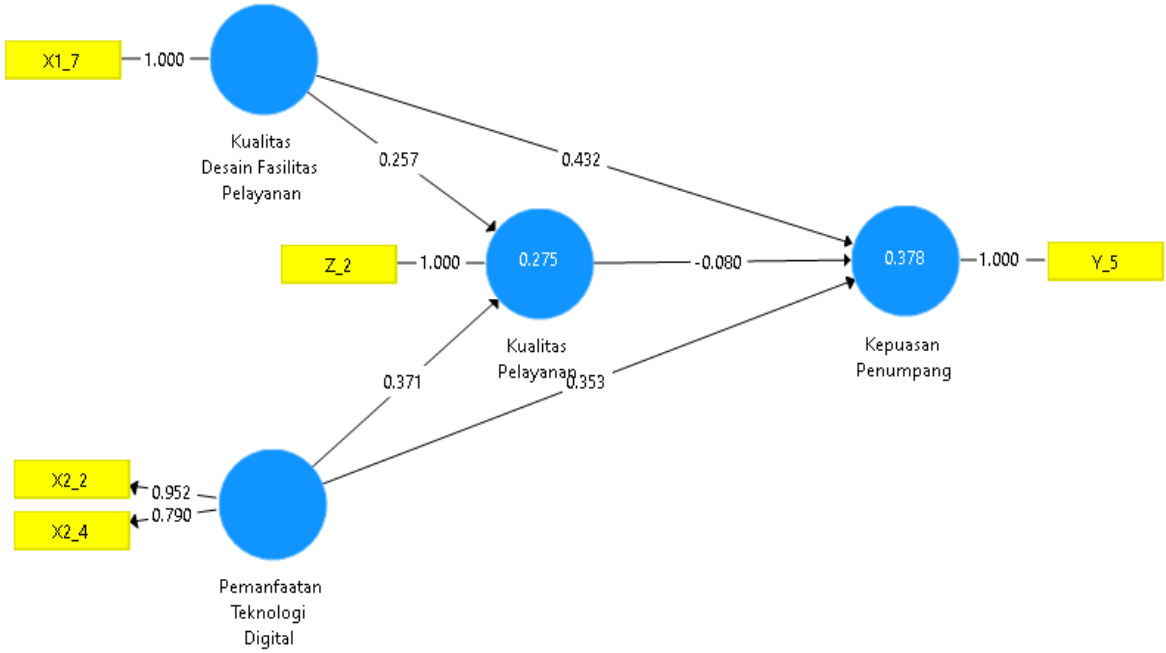

Figure 2: Relationship Model between Research Results Variables

Table 3. Path Coefficient

	Original Sample	Standard Deviation	T Statistics	P-Values	Noted
Service Facility Design Quality -> Passenger Satisfaction	0.4322	0.2131	2.0277	0.0431	Accepted
Service Facility Design Quality -> Service Quality	0.2568	0.1690	1.5195	0.1293	Rejected
Service Quality -> Passenger Satisfaction	-0.0801	0.1613	0.4967	0.6196	Rejected
Utilization of Digital Technology -> Passenger Satisfaction	0.3533	0.1703	2.0750	0.0385	Accepted
Utilization of Digital Technology -> Quality of Service	0.3713	0.1351	2.7482	0.0062	Accepted
Service Facility Design Quality -> Service Quality -> Passenger Satisfaction	-0.0206	0.0604	0.3405	0.7336	Rejected
Utilization of Digital Technology -> Service Quality -> Passenger Satisfaction	-0.0298	0.0713	0.4171	0.6768	Rejected

The explanation from table 1 to table 3 is as follows: The Effect of Service Facility Design Quality on Passenger Satisfaction, based on the path analysis table, it can be seen

that the path coefficient value is 2.0277 with a t-statistic > 1.96. Because the significant value is <0.05, the H1 hypothesis is accepted. Based on the influence of the Quality of Service Facility Design on Service Quality, it is found that the path analysis table shows a coefficient value of 1.5195 with a t-statistic <1.96. Because the significant value is <0.05, the H2 hypothesis is rejected. Based on the influence of Service Quality on Passenger Satisfaction, it is found that the path analysis table shows a coefficient value of 0.4967 with a t-statistic <1.96. Because the significant value is <0.05, the H3 hypothesis is rejected. Based on the path analysis table, it can be seen that the path coefficient value is 2.0750 with a t-statistic > 1.96. Because the significant value is <0.05, the H4 hypothesis is accepted. Based on the path analysis table, it can be seen that the path coefficient value is 2.7482 with a t-statistic > 1.96. Because the significant value is <0.05, the H5 hypothesis is accepted. Based on the path analysis table, it can be seen that the path coefficient value is 0.4171with t-statistics >1.96. Because the significant value is > 0.05, the H6 hypothesis is rejected. Based on the influence of the Quality of Service Facility Design on Passenger Satisfaction through Service Quality, it is found that the path analysis table shows a coefficient value of 0.3405 with a t-statistic <1.96. Because the significant value is > 0.05, the H7 hypothesis is rejected.

DISCUSSION

Explanation of Discussion 1

This study demonstrates a complete mediation study on the effect of the quality of service facility design and the use of digital technology on passenger satisfaction mediated by service quality as an intervening variable at Kualanamu Airport, Medan. The results of this study indicate that of the seven hypotheses, three are supported and four are not supported, namely service facility design quality on service quality, service quality on passenger satisfaction, service facility design quality on passenger satisfaction through service quality and technology utilization on passenger satisfaction through service quality.

Explanation of Discussion 2

The design quality of service facilities is created through passenger expectations of the times. (Antwi et al., 2021)These results are inconsistent with many previous studies, which show that perceived value is an important factor in behavioral intentions. After that,(Halpern et al., 2021)service quality also has a significant effect on customer satisfaction. The better the Perceived Value, the customer satisfaction will increase. Consumers may feel that the value of products/services differs in terms of personal values, needs, preferences, and financial resources. Thus, companies must build superior customer perceptions of value compared to competing for service products. Customers receive quality and feel the comfort provided by the airport by prioritizing service quality.(Hutchinson et al., 2013)

IMPLICATIONS

Currently, many airports are choosing to use quality design facilities and use of technology to provide consumers with more comfort and ease of operation . However, if it's only like that, it is likely to result in an incorrect decision because it must be accompanied by other indicators as support for ease of implementation . The findings from this study indicate that companies need to upgrade the quality of their facilities and services in order to increase passenger satisfaction.

CONCLUSION

From the results of this research, the authors conclude that service quality is the most

important factor to obtain a high level of passengers which will have an impact on the level of popularity of the airport itself. It can be understood that a corporate agency must establish service standards which are additional facilities. It should be noted that consumers have critical thinking about a product/service that will be used. The use of technology that is growing in every era becomes a focal point to always update and equalize positions with competitors so that an agency does not become backward.

Although the topic of discussion is quite interesting, this study still has shortcomings which will later be used as the basis for improvement in further research. There are limitations involving the lack of maximum results from this study. For this reason, it is hoped that future researchers will redevelop the topics that have been introduced and explain more sharply the problems that exist in this study. Another limitation in this study is that researchers did not conduct field surveys and did not interview respondents directly, so they did not know clearly the intent and purpose of the respondents in responding to the questions given.

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