The Role of Innovation and Airport Service Quality on Airport Image: Mediated Effect of Passenger Satisfaction

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Abstract

The airport is a window to the world that represents the country's image. Through innovation in service infrastructure and digitalization of processes, encouraging passenger-oriented airport service management. So, the purpose of this study was to examine the effect of innovation on airport service quality management practices, passenger satisfaction, and airport image. The survey was conducted at five main airports in Indonesia with passengers in the departure area. The partial least square structural equation model (SEM-PLS) is used for analysis in this study. It is proven that innovation influences airport service quality, passenger satisfaction, and airport image. Like-wise, service quality affects airport satisfaction and image. Passenger satisfaction has succeeded in mediating innovation, the quality of airport services, and their influence on the airport's image. Through these findings, it is hoped that it will be useful for airport operators to carry out con-tinuous innovation in supporting services so that it has a positive effect on passengers and, in the long term, improves the airport's image. Future research is expected to examine the effect of image on the desire of passengers to make other paid transactions in the airport terminal area.

Keywords: Airport service quality; innovation; passenger satisfaction; airport image

Introduction

In managing airports, service quality, innovation, passenger satisfaction, and image are very important aspects to be considered by airport operators. Quality of service as one of the attributes that makes the airport different from other airports and in building competitive advantage (Pantouvakis & Renzi, 2016). Innovative airport infrastructure conditions can attract the attention of passengers, and can be used to measure passenger opinion in assessing airports for service quality improvement (Bellizzi et al., 2020). The crucial component used to evaluate airport operational performance is passenger satisfaction (Lin & Chen, 2013). Several studies tested the role of airport service quality on passenger satisfaction with positive results (Bezerra & Gomes, 2015, 2020; Hong et al., 2020; Mainardes et al., 2021; Prentice & Kadan, 2019; Saut & Song, 2022). Systematic review by (Usman et al., 2022) summarizes various studies on airport service quality, with the result that studies on airport service quality are closely related to passenger satisfaction, airport image, and intention to use the airport.

Airports have the potential to derive advantages from innovation projects in various aspects, including the design, building, operation, and enhancement of passengers' experience processes. One prevalent domain of innovation in airports pertains to the utilization of information and communication technology (ICT) to facilitate interaction, with the objective of providing consumers with efficient, expeditious, and high quality services (Straker & Wrigley, 2016). Several examples of information and communication technologies (ICT) include self-service technologies found at check-in kiosks (Chang & Yang, 2008), automated board control technologies (Oostveen et al., 2014), radio-frequency identification (RFID) based baggage tracking systems (Zhang et al., 2008), and mobile applications (Martin-Domingo & Martín, 2016). Self-service technologies (SST) enable clients to engage with self-service software autonomously (Chen et al., 2015), without the need for employee assistance (Castillo-Manzano & López-Valpuesta, 2013), technology readiness (Suwannakul, 2021). According to (Lin & Hsieh, 2011), customers can utilize various technologies to make flight reservations, complete ticket purchases, and receive flight information using their mobile devices. This not only provides convenience for customers but also offers potential benefits for companies. Based on (Lin & Hsieh, 2007)suggest that companies can reduce labor costs and enhance service efficiency by adopting these technologies. Additionally, (Chang & Yang, 2008) argue that the implementation of such technologies can also improve time-efficiency for enterprises.

The implementation of innovation at airports yields numerous advantages. For instance, the study conducted by (Niine et al., 2017) classifies the associated consequences into four primary categories, namely the impact on service pricing, service quality, service volume, and the potential for differentiation. In a similar vein, (Straker & Wrigley, 2018) assert that the utilization of technology at airports enhances passenger satisfaction. Additionally, (Lin, 2013) affirms that innovations have the capacity to provide a distinctive brand experience for airports, thereby contributing to their competitive advantage (Arif et al., 2013). Consequently, it is evident that airports need implementing innovative practices. However, there is currently a lack of comprehensive research in the academic literature that consolidates the many studies on airport innovation. Furthermore, there is a dearth of structured overviews outlining the potential avenues for innovation that airports can utilize as a foundation for their strategic planning.

Therefore, the primary objective of this study is to address the existing research void by providing a comprehensive overview and classification of airport innovation. The intention is to present practical insights that can be utilized by both the academic community and the airport sector. The current trend in both industry and academia is to place greater emphasis on innovation. However, there is a noticeable absence of study particularly addressing the attainment of innovation within airport settings and its subsequent effects on service quality, passenger pleasure, and the overall image of airports. This study offers a comprehensive examination of scholarly research pertaining to the influence of innovation on an airport's image, with the aim of enhancing its competitive position vis-à-vis other airports globally. This study enhances the current body of literature by extending the scope of airport innovation research, which has received limited attention in previous studies on its influence on passengers' emotional experiences as consumers of airport services. Furthermore, the implementation of innovative strategies at airports plays a crucial role in enhancing airport satisfaction and improving the overall image of airport operators, especially in the face of intensifying competition.

Literature review
Innovation
Innovation was introduced by Schumpeter in 1934, nowadays apart from the broad meaning of innovation which is often discussed in the literature the view of innovation is limited to technological innovation. In an article written by (Schumpeter, 1934) It is said that innovation is accomplished through creating new goods, employing novel manufacturing techniques, expanding markets, utilizing innovative processing materials, and re-designing current ones. This is in line with what was written by (Garcia & Calantone, 2002), basically innovation is mostly triggered by the need to create new products or services using new technology (Suwannakul, 2021). In his writings (Calik et al., 2017; Jensen et al., 2007) explained that basically, the primary objectives of innovation are to enhance customer service and goods, raise customer happiness, improve productivity, save costs, and open new opportunities (create opportunity). In this study, innovation at airports is measured by landside innovation for airport design and infrastructure as well as information & communication technology innovation which is an important aspect of service (Aulman, 2019; Aulman et al., 2022; Bogicevic et al., 2017; Brida et al., 2016; Davies et al., 2009; Hasanzade & van Oel, 2022).

Studies on the connection between innovation and customer happiness have been conducted outside of the airport environment by (Marei et al., 2022) in the banking sector (Amoako, 2022) in laundry service companies, in the hotel industry (Cabral & Marques, 2022; Lemy et al., 2019), in the cosmetics industry (Daragahi, 2017), and (Mahmoud et al., 2018)in the telecommunications sector. The test results show that innovation plays an important role in increasing customer satisfaction. In the airport industry, innovation is a moderating variable for passenger satisfaction on customer value (Chen et al., 2015). This study places innovation as exogenous variables for airport service quality, passenger satisfaction and airport image, the research hypothesis is formulated as follows:

> *H1: The innovation positively influences on airport service quality.*
> *H2: The innovation positively influences on passenger satisfaction.*
> *H3: The innovation positively influences on airport image.*

Airport service quality
Commonly used service quality models were introduced by (Parasuraman et al., 1988) and (Grönroos, 1984)to evaluate the items' and services' levels of customer service. By listening to the "voice" of customers and utilizing it as a performance standard, researchers have assessed passenger perceptions of airport service quality in the airport industry sector (Fodness & Murray, 2007). Service quality in a variety of industries, including restaurants, hospitals, banks, and airports, has been well researched. Service quality is often characterized as a comparison between expectations for services and views of how services are delivered (Zeithaml et al., 1990). The SERVQUAL framework was created in 1988 by Parasuraman et al. to evaluate the reliability, assurance, tangibles, empathy, and responsiveness of services. While Gronroos (1988) shows two dimensions used, namely technical quality and functional quality. For the airport industry, (Fodness & Murray, 2007) show three dimensions used to measure the quality of airport services, namely function, interaction, and diversion. Several researchers have tried to build service quality measurement models that focus on service areas (Correia, 2008). Some researchers focus on the physical environment (Bitner, 1992; Fodness & Murray, 2007; Jiang & Zhang, 2016; Park & Ryu, 2019). Others researchers have tried to expand the attributes of service quality to include cognitive psychological aspects (Liou et al., 2011; Nghiêm-Phú & Suter, 2018). Meanwhile, (Chao et al., 2013)measured the standard of the facilities and services offered at the airport, including ground transportation, check-in services, departure security

checks, signage, and information. Meanwhile, (Bezerra & Gomes, 2015; Park, 2018) argue that criteria such as facility size, check-in process, service landscape, security, ambiance, comfort, and price may be used to measure the quality of airport services. Researchers used three main dimensions to measure airport service quality: servicescape, outcome quality, and interactional quality (Hong et al., 2020) and functional quality (Fodness & Murray, 2007).

Customer loyalty and satisfaction are influenced by several factors, including service quality (Ali et al., 2016; Isa et al., 2020; Wattanacharoensil et al., 2016, 2017). Passenger characteristics also operate as a mediator in the link between the parameters of service quality and customer happiness (Awad et al., 2019; Wiredja et al., 2019)and moderated by perceived value (Bezerra & Gomes, 2020). In the context of restaurant service quality, service quality has a significant positive effect on satisfaction (Abdullah et al., 2022; Achmadi et al., 2023; Raghavendra et al., 2019; Toan et al., 2020). Servicescape relationship with passenger satisfaction (Bogicevic et al., 2016; Jeon & Kim, 2012). The results of the study (Hong et al., 2020; Zorlu et al., 2022) show that while physical environment quality and servicescape have no substantial impact on passenger happiness, interactional service quality and delivery and result quality and convenience. The research results not in line with research findings from (Bogicevic et al., 2016; Jeon & Kim, 2012) . The difference in research results is the basis for researchers to examine the same relationship in the context of major airports in Indonesia, the following is the initial hypothesis:

H4: The airport service quality positively influences on passenger satisfaction.

The image of the airport will be formed through evaluating the services of passengers (Nghiêm-Phú & Suter, 2018). There have been studies on the impact of airport service quality on airport image (Mainardes et al., 2021; Nesset & Helgesen, 2014; Saut & Song, 2022) which showed the strong favourable effect on the image of customers' assessments of service quality. However, the research results from (Saut & Song, 2022) stated that there was no significant positive relationship between service quality and image. In Indonesia's major airports, the disparity in research findings highlights the significance of testing the same item to demonstrate the link be-tween service quality and airport image, the hypothesis stated as follows:

H5: The airport service quality positively influences on airport image.

Passenger satisfaction
Satisfaction is defined by (Oliver, 1980) as post use satisfaction, which is a linear combining of earlier attitudes or expectations and expectations that were not met. The definition of satisfaction according to (Anderson & Sullivan, 1993) is contentment with the post purchase evaluation of a certain product's or service's quality in comparison to pre-purchase expectations. While the opinion of (Oliver, 1999), satisfaction is an assessment of expectations and performance of services received. Another definition of satisfaction is the customer's overall cumulative experience to date (Auh & Johnson, 2005; Seigyoung et al., 2014). In airport service quality, satisfaction is a gradual performance that is formed by compar-ing expectations with realization (Bezerra & Gomes, 2015). To assess the success of airport service quality, like in other businesses, passenger happiness is critical. The important performance metric for airport operations is service quality (Pantouvakis & Renzi, 2016). In this study, satisfaction was measured as a cognitive and affective psychological response of passengers to service quality and innovation that occurred at the airport (Bezerra & Gomes, 2020; Nesset & Helgesen, 2014; Saut & Song, 2022).

Many studies from the literature discuss the relationship between customer satisfaction and brand image, airport image, product, or company. According to (H. H. Hu et al., 2009) customer satisfaction affects the image of service companies, as the results of re-search from (Lemy et al., 2019; Nguyen & Leblanc, 2001) the hospitality service industry stated that satisfaction can directly create a positive image of a hotel. Also, empirical research has revealed that client contentment improves bank image (Amin et al., 2013). In the airport industry, satisfaction affects airport image (Mainardes et al., 2021; Saut & Song, 2022). Based on the results of the literature review, the hypothesis is formulated as follows:

H6: The passenger satisfaction positively influences on airport image.

Airport Image

Image is a vague, ephemeral concept that is hard to define accurately. So that in general, image is defined as an immediate mental reaction that represents certain target associations, and a comprehensive concept that reflects consumers' emotions, behaviours, and understandings (Keller, 1993; Nguyen et al., 1998; Yoo & Donthu, 2001). Airport image is an individual's holistic perception as an airport user (Nghiêm-Phú & Suter, 2018) which is an important aspect of airport branding. Passenger evaluation of airport characteristics influences the airport images (Nghiêm-Phú & Suter, 2018) or passengers overall impression of the airport (Park & Park, 2018). Some researchers (Jiang & Zhang, 2016) concentrate mostly on physical characteristics, including surrounding circumstances, signals, logos, and spatial functions, which make passengers more impressionable. The dimensions used to measure airport image are airport brand (Figueiredo & Castro, 2019), airport credibility (Ryu & Park, 2019), and airport reputation (K. C. Hu & Huang, 2011).
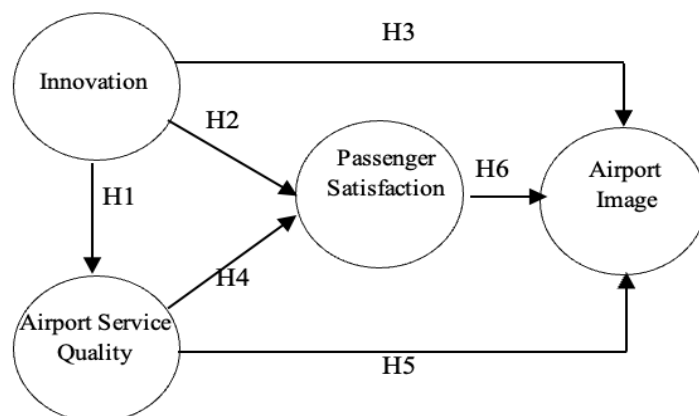

Figure 1. Research Model and Hypothesis

Methodology

Based on the study's goals, confirmatory analysis was employed in a quantitative manner. The partial least squares structural equation model (PLS-SEM) is appropriate for quantitative statistical research to investigate the interaction between exogenous and endogenous factors via intermediary variables. This statistical method is used because it follows the development of the theoretical framework and research model that we propose is relatively complex (Hair et al., 2019, 2020; Usakli & Kucukergin, 2018). The research model and hypothesis were evaluated using Smart PLS version 3 software's partial least squares analysis-structural equation modelling (PLS-SEM). PLS-SEM also benefits from the use of a construct model with a single item size and non-normally distributed data (Ramayah et al., 2018; Usakli &

Kucukergin, 2018). A questionnaire was used to gather information from departing travellers who were waiting in the airport and lounge areas. The Likert scale is utilized, with a range of 1 (strongly disagree) to 10 (strongly agree) (Taherdoost, 2019). The viability of the instrument as a tool for data collect was examined using instrument validity and reliability tests. The second stage involves gathering information on a sample of respondents once each statement item has been verified as valid and reliable. The third stage is the analysis of structural relationships using SmartPLS version 3. The sample size follows Hair et al. minimum criteria of 100 for five construct items (Hair et al., 2019). In this study, the number of samples was 356 respondents who were taken proportionally at the five main airports in Indonesia. To ensure that the samples taken are representative, samples are taken randomly from passengers waiting to depart in the terminal and lounge area. Respondents according to sex consisted of 53% male and 47% female. Based on non-business travel destinations 18%, business 28%, education 6% and tourism travel 47%. By type of flight, 72% were domestic flights and 28% were international flights. Meanwhile, based on the frequency of trips 0-2 times 55%, 3-5 times 25% and more than 5 times 19%. Details of the respondent's profile can be seen in Table 1.

Table 1. Respondent profile

Characteristic	Distribution	
Gender	**Frequency (n)**	**Percent (%)**
Male	188	53
Female	168	47
Total	356	100
Travel frequency	**Frequency**	**Percent (%)**
0 – 2 trips	197	55
3 – 5 trips	90	25
>5 trips	69	19
Total	356	100
Trip Purpose	**Frequency**	**Percent (%)**
Non business	65	18
Business	99	28
Education	23	6
Leisure and other purpose	169	47
Total	356	100
Flight type	**Frequency**	**Percent (%)**
Domestic	258	72
International	98	28
Total	356	100

Result and discussion

Validity and reliability test

The processes done include testing the constructs' reliability and validity to make sure they are dependable for usage in this study. Many of the items in the measurement construct findings have loading factors more than 0.7, which is following the suggested threshold criterion (Hair et al., 2019). There are several items from the construct lower than 0.7, namely ASQ7 (0.597), ASQ13 (0.670) and INV6 (0.676). In accordance with the external loading test suggested by Hair et.al 2017, ASQ7, ASQ13, and INV6 was removed from the model, because less than 0.70 not met the threshold value. Each construct has a Cronbach's alpha value and Composite Reliability (CR) value that are less than 0.60, indicating that the construct's dependability satisfies the criteria (Table 2). Referring to (Hair et al., 2019) mentioned that one method to assess dependability with upper and lower bounds is to use Cronbach's alpha (0.7). According to Table 2, the Cronbach's Alpha value airport service quality 0.950, innovation 0.894, passenger satisfaction 0.941 and airport image 0.936. All item of construct is in the range of

0.894 and 0.941, which is higher than 0.6 as recommended. According to (Hair et al., 2019) for exploratory research, a composite reliability rating in the range of 0.6 and 0.7 is adequate.

Table 2. Construct validity

Latent variable	Item	Loading	Cronbach's α	CR	AVE
Airport service quality	ASQ1	0.738	0.940	0.948	0.626
	ASQ2	0.744			
	ASQ3	0.765			
	ASQ4	0.781			
	ASQ5	0.801			
	ASQ6	0.783			
	ASQ7	0.597*			
	ASQ8	0.805			
	ASQ9	0.788			
	ASQ10	0.810			
	ASQ11	0.830			
	ASQ12	0.814			
	ASQ13	0.670*			
Innovation	INV1	0.777	0.894	0.922	0.702
	INV2	0.869			
	INV3	0.856			
	INV4	0.808			
	INV5	0.839			
	INV6	0.676*			
Passenger satisfaction	SAT1	0.929	0.941	0.958	0.850
	SAT2	0.917			
	SAT3	0.936			
	SAT4	0.906			
Airport image	AIM1	0.747	0.936	0.947	0.664
	AIM2	0.815			
	AIM3	0.768			
	AIM4	0.828			
	AIM5	0.876			
	AIM6	0.841			
	AIM7	0.758			
	AIM8	0.892			
	AIM9	0.793			

*value under 0.70

The composite dependability value for all the constructs is between 0.918 and 0.958, which is considered acceptable (See Table 3). Henseller et al. employed the hetero-trait-monotrait (HTMT) correlation ratio to test discriminant validity. All HTMT values were below 0.90, demonstrating the constructs' adequate discriminant validity (Henseler et al., 2016).

Table 3. *Discriminant validity HTMT ratio*

	ASQ	AIM	INV	SAT
ASQ				
AIM	0.863			
INV	0.823	0.883		
SAT	0.843	0.885	0.830	

Structure model (Inner model)
The precision of the model's predictors is shown by the coefficient of determination (R^2). It is calculated using the square correlation between a certain endogenous component and the predicted value (Hair et al., 2019). The findings of the R^2 value for Airport service quality is 0.577, meaning that this variable is explained by innovation of 57.7% while the rest is explained by other variables not examined in this model. The R^2 value for passen-ger satisfaction is 0.961, meaning that the satisfaction variable is influenced by innovation and

airport service quality by 96.1%, while the R^2 value for airport image is 0.792. This means that city image is explained by innovation, airport service quality and passenger satisfaction by 79.2%. while the rest is influenced by other variables not examined. The R^2 value based on the SMART PLS output can be seen in Table 4. The analysis of the inner model's predictive power and how the model incorporates omit-ted data, on the other hand, is covered in Q^2. The Q^2 value for each endogenous component is shown in Table 4 using blinding techniques. The Q^2 result in this investigation is larger than zero, showing that the airport service quality (0.356), airport image (0.519) and passenger contentment explicitly support the endogenous constructions concept (0.582).

Table 4. Result of R2 and Q2

Variable	R^2	Q^2
Airport Service quality	0.577	0.356
Airport image	0.792	0.519
Passenger satisfaction	0.961	0.582

The impact size f^2 measures how much an independent/exogenous variable or predictive construct affects the dependent/endogenous construct. The values of f^2 according to (Hair et al., 2019) are 0.02, 0.15, and 0.35, which indicate weak, moderate, strong effects. Based on Table 4 the outcome of f^2 in airport service quality has a great effect size of 0.358 in relation to passenger satisfaction it is strong effect, airport service quality has a great effect size of 0.121 in relation to airport image it is moderate effect, innovation to airport image 0.164 it is a moderate effect, innovation to passenger satisfaction 0.194 its moderate effect and passenger satisfaction to airport image 0.206 it is a moderate effect. Result of effect size can be seen in Table 5.

Table 5. Effect size (f^2)

Variable	ASQ	AIM	INV	SAT
Airport service quality (ASQ)	-	0.120	-	0.355
Airport image (AIM)	-	-	-	-
Innovation (INV)	1.364	0.162	-	0.192
Passenger satisfaction (SAT)	-	0.207	-	-

Hypothesis testing
The findings of the test of hypothesis H1 show that airport service quality positively impacted by the innovation, the hypothesis is supported by a t-stat value of 28.679 (> 1.96), coefficient 0.760 and p-value 0.000 under <0.05. Hypothesis H2 indicate that the innovation positively effects on passenger satisfaction, the hypothesis is supported by a t-stat value of 6.362 (> 1.96), coefficient 0.375 and p-value 0.000 under <0.05. Hypothesis H3 indicate that the innovation positively effects on airport image, the hypothesis is supported by a tstat value of 4.037 (> 1.96), coefficient 0.308 and p-value 0.000 under <0.05. Hypothesis H4 indicate that the airport service quality positively effects on passenger satisfaction, the hypothesis is supported by a tstat value of 8.669 (> 1.96), coefficient 0.510 and p-value 0.000 under <0.05. Hypothesis H5 indicate that the airport service quality positively effects on airport image, the hypothesis is supported by a tstat value of 4.951 (> 1.96), coefficient 0.283 and p-value 0.000 under <0.05. The last hypothesis H6 indicate passenger satisfaction positively impacts on airport image, the hypotehsis is support by t-stat value of 5.972 (>1.96), coeficient 0.374 and p-value 0.000 under <0.05. All hypotheses tested proved to have a significant positive effect.
Table 6.

Hypothesis test

Hypothesis	Relations	SE	T-statistic	Coef.	P-value	Result
Direct relations						
H1	INV → ASQ	0.026	28.679	0.760	0.000	Accepted
H2	INV → SAT	0.059	6.362	0.375	0.000	Accepted
H3	INV→ AIM	0.076	4.037	0.308	0.000	Accepted
H4	ASQ → SAT	0.059	8.669	0.510	0.000	Accepted
H5	ASQ→ AIM	0.057	4.951	0.283	0.000	Accepted
H6	SAT → AIM	0.063	5.972	0.374	0.000	Accepted
Indirect relations						
H7: INV → SAT→ AIM		0.034	4.117	0.140	0.000	Accepted
H8: ASQ → SAT → AIM		0.037	5.082	0.191	0.000	Accepted

Further analysis was also carried out to measure the intervening effect of passenger satisfaction on the relationship between innovation and airport service quality on airport image (see Table 6). It was found that passenger satisfaction mediates the relationship between innovation and airport image with a coefficient value of 0.140, t-stat 4.117 (> 1.96) and p-value 0.000 under <0.05 so that hypothesis H7 is accepted. As for the effect of service quality on airport image, it is proven that satisfaction mediates this relationship with a path coefficient value of 0.191, t-stat 5.082 (> 1.96) and p-value 0.000 under <0.05 so that this hypothesis is accepted. The results show that there is a significant beneficial influence of service quality and innovation on airport image, as well as an indirect effect of these factors on airport image through passenger satisfaction. This shows that passenger satisfaction mediates the innovation and quality of airport services and its influence on the airport image. The results of the hypothesis testing are all shown in Table 6.
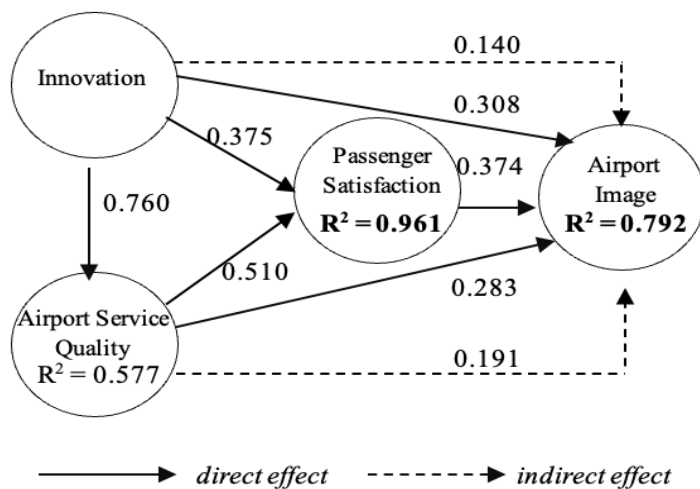

Figure 2. Structural model testing result

Discussion

All research hypotheses can be accepted by considering the test results. Innovation has a significant positive effect on the management of airport service quality, supporting the first hypothesis 1. This shows that the innovation capability of airport operators has an impact on service quality innovation at airports. The existence of innovation changes the ways of delivering services to passengers more efficiently and effectively. For example, the application of digital check-in (checkin kiosk) and RFID-based baggage handling is a form of innovation that changes the delivery of airport service quality. The findings of this study are in line with those of (Shabani et al., 2022) who tested the effect of digitalization on quality of services. Hypothesis 2 and 3: The effect of innovation on passenger satisfaction and airport image is proven to be significantly positive. Digital innovation and service technology carried out by

airport operators can encourage passenger satisfaction as service users, this result are in line with findings from (Abolina, 2022; Chen et al., 2015). Innovation influences improving the airports image in line with findings from (Caviggioli et al., 2020; Moliner-Velázquez et al., 2019; Nghiêm-Phú & Suter, 2018), that the more innovative Airport managers, both in terms of services and physical innovation at the airport, will improve the image of the airport as perceived by passengers. These changes proved to be positively received by passengers, so they were satisfied with these innovations that made it easier for them. In the end when passengers are satisfied with airport services, a positive image of the airport will be formed. Hypotheses 4 and 5; Airport service quality influences airport satisfaction and image. This shows that the management of service quality by airport operators is a crucial component that needs attention to provide a good response to customers which is manifested in the form of satisfaction. These findings confirm the results of previous studies conducted by (Bezerra & Gomes, 2020; Hong et al., 2020; Saut & Song, 2022; Wani et al., 2023). The effect of satisfaction on airport image is a multilevel response from passengers which will form a positive image of the airport. The findings of this study are not in line with (Saut & Song, 2022) but are supported by (Mainardes et al., 2021; Nesset & Helgesen, 2014).

The next finding is for hypothesis 6, passenger satisfataction significant positive effect of on airport image. Airport operators who can manage passenger emotions through satisfaction driven by service quality and innovation will be able to increase the positive image of the airport in the eyes of passengers. This result is consistent with studies from (Mainardes et al., 2021; Saut & Song, 2022) which argues that a key component of improving the airport's reputation is controlling passenger happiness. Testing of hypothesis 7 and 8 is to test the mediating effect of passenger satisfaction. Passenger satisfaction has been shown to be significantly positive, providing a mediating effect for innovation and airport service quality on airport image. This means that the key to the success of airport operators in building a positive image of the airport lies in the emo-tionality of the passengers who are driven by the quality of service and the image of the airport. The image of the airport will improve in the eyes of passengers if service quality is managed effectively by airport operators. This study refutes the findings from (Saut & Song, 2022) which states that service quality does not have a direct effect on airport image but confirmed research result from (Mainardes et al., 2021). The fifth hypothesis is to confirm that innovation has a significant positive effect on airport image. Innovations that suit the needs of customers will be able to have a positive impact on the airport. These findings confirm the results of (Ma et al., 2017; Nghiêm-Phú & Suter, 2018). Overall, this research contributes to the stimulus organism response S-O-R theory initiated by (Mehrabian & Russell, 1974), that service quality is an aspect that affects passengers' emotions that has an impact on the positive image of the airport. This study provides practical benefits for airport operators in managing airport innova-tion which is realized through service quality. Innovation and service quality at airports play an important role in passenger satisfaction which in the long run has an impact on the airport image. This study also has theoretical merit in supporting the stimulus organism response (S-O-R) model (Mehrabian & Russell, 1974). Innovation and service quality are driving positive responses from service users for a better airport image.

Conclusion
The purpose of this study was answered after an in-depth analysis using the structural equation model partial least square (SEM-PLS) approach. Innovation has a direct effect on service quality and passenger satisfaction. This shows that the innovations carried out by airport managers have an influence on service management activities, satisfaction, and the image of the airport. It can be concluded that innovation at the airport has proven to have a positive

impact on airport service management activities, has an impact on passenger satisfaction as a service user and in the long run has an impact on the image of the airport. Management of airport service quality is an important aspect that is of concern to airport operators to manage passenger emotions so that passengers feel satisfied and afterwards have an impact on improving the airport's image. Passenger satisfaction has proven to be an important aspect for airport operators, because it can provide a positive assessment of airport innovation and services to build a positive image of the airport. It is proven that positive stimuli will be responded to by organisms, namely passengers, in the form of positive reviews about the airport for innovation and delivery of quality airport services. Therefore, it is important for airport operators to manage innovation that is transformed in the delivery of airport service quality so that it has a positive impact on passenger satisfaction and airport image.

The first limitation is that this study examines airports in Indonesia which are managed by government-owned enterprises, so there may be differences in research results if the research is conducted at airports under private sector management. Second, this study only took a sample of passengers in the departure area so that passengers did not have a complete picture of the airport they visited. These three studies were conducted during the transition from pandemic to endemic conditions, the results would be if they were carried out in post-pandemic conditions. Based on the research's limitations, the researchers suggest expanding the scope of future research to include airports outside of Indonesia as well as airports managed by the private sector, allowing for a comparison of results between airports managed by the government and those managed by private businesses. The two samples are not only taken from passengers in the departure area but need to expand the scope of the sample in the transit and arrival areas. Third, it is necessary to test the model by comparing conditions during the pandemic and after the pandemic. This research is expected to provide implications for airport practitioners to develop airport service quality management through digital innovation and other innovations related to airport terminals. It is proven that innovation is a driver for passenger satisfaction, so this needs to be a concern going forward in an era of increasing passenger needs while at the airport. Managing the emotions of passengers is important because it enhances the positive image of the airport. More than that, the feeling of pleasure and satisfaction from passengers will encourage them to make paid transactions while at the airport, such as using lounges, shopping in retail areas which can ultimately improve non-aeronautical revenue performance.

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