THE EFFECTIVENESS OF SELF CHECK-IN AND BAGGAGE CHECK-IN ON PASSENGER SATISFACTION AT SOEKARNO HATTA AIRPORT

Yuwono D. Sucipto [(1)], Deslida Saidah [(2)], Angela Vanessa Jusuf [(3)] , Fasya Rahma Fitri [(4)*]

[(1)] *Faculty of Management and Business, Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia*
[(2)] *Faculty of Management and Business, Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia*
[(3)] *Faculty of Management and Business, Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia*
[43)] *Faculty of Management and Business, Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia*
[*] *fasyarahma26@gmail.com*

Abstrak. Di Indonesia, salah satu bandara internasional tersibuk adalah Bandara Internasional Soekarno-Hatta, yang sering menghadapi lonjakan jumlah penumpang secara signifikan sehingga menyebabkan antrean panjang di loket check-in manual. Penelitian ini bertujuan untuk mengkaji dampak penggunaan mesin self check-in terhadap efektivitas dan kepuasan penumpang di Bandara Soekarno-Hatta. Populasi dalam penelitian ini adalah penumpang di Bandara Soekarno-Hatta, dengan sampel sebanyak seratus (100) orang yang diambil menggunakan teknik nonprobability sampling melalui accidental sampling, khususnya mereka yang pernah menggunakan mesin self check-in. Metode penelitian ini bersifat kuantitatif dengan teknik analisis data SEM-PLS yang digunakan untuk memprediksi dan mengembangkan penelitian. Hasil penelitian ini mengungkapkan bahwa mesin self check-in dapat mengurangi waktu tunggu, meningkatkan kepuasan penumpang, dan meningkatkan efisiensi proses check-in.

Kata Kunci : Efektivitas Pelanggan; Kepuasan Pelanggan; Mesin Check-In; Bagasi; Bandara Internasional Soekarno-Hatta

Abstract*. In Indonesia, one of the busiest international airports is Soekarno-Hatta International Airport, and it often faces a significant increase in passenger numbers, which in turn causes long queues at manual check-in counters. This research aims to examine the impact of using self check-in machines on the effectiveness and satisfaction of passengers at Soekarno-Hatta Airport. In this study, the population that is the focus is passengers at Soekarno-Hatta Airport, with a sample of one hundred (100) people taken using nonprobability sampling techniques via accidental sampling, especially those who have used self check-in machines. This research method is quantitative with SEM-PLS data analysis techniques which are used to predict and develop research. The results of this research reveal that Self Check-in Machines can reduce waiting time, increase passenger satisfaction, and increase the efficiency of the check-in process.*

Keywords*: Customer effectiveness; Customer satisfaction; Check-in Machines; Baggage; Soekarno-Hatta International Airport*

INTRODUCTION

Soekarno-Hatta Airport as the largest and busiest international airport in Indonesia, this airport always tries to improve the quality of its services. One of the technological efforts and innovations made is by providing self check-in machine facilities. As the number of passengers using Soekarno Hatta airport flight services increases, this machine makes it easier for passengers to check-in independently, without having to queue at the manual check-in counter. This is expected to reduce waiting times and long queues, thereby increasing effectiveness and passenger satisfaction. Self Check-in is a system that allows airplane passengers to carry out the Check-in process independently without having to queue at

the manual check-in counter (Agustus & Fatmayati, 2022).

Effectiveness can be interpreted as the level of success or efficacy of the Self-Check in machine in improving the performance and comfort of passengers at Soekarno Hatta Airport. Effectiveness can be measured using various methods from various perspectives and is closely related to efficiency. Increasing effectiveness and efficiency in various aspects needs to be done, including through the application of technology such as self check-in machines (Agustus & Fatmayati, 2022).

Passenger satisfaction is the extent of the service and experience provided by the airport or airline meets passenger expectations, such as passengers tend to feel satisfied if the self check-in machine is easy to use with clear instructions. Passenger satisfaction can be influenced by the availability of self check-in machines at various strategic locations at the airport and the ease of access for all passengers.

Providing self check-in machines is a strategic step to optimize the check-in process and provide convenience for passengers. By utilizing this machine, passengers can save time and avoid long queues, especially during rush hours. This will certainly increase efficiency and comfort for airport service users, and also reduce the risk of manual errors that will occur during check-in by staff. These machines are usually more accurate in managing data and issuing boarding passes correctly (Bintang & Ariebowo, 2024; Kaban, 2020).

With this research, the author can analyze and evaluate the effect of using self check- in machines and baggage check-in on the effectiveness, satisfaction and waiting time of passengers at Soekarno Hatta Airport. This research also tries to determine the extent to which the use of this technology can improve passenger comfort and increase passenger satisfaction.

LITERATURE REVIEW

Self Check-in Machine

Aldelweis & Andrian (2017) stated that Self Check-In is a machine or information system service due to technological advances which aim to handle security requirements, procedures and assistance from a machine service and can be done independently, especially for passengers who do not bring luggage (Napitupulu et al., 2024). Sumarmo (2019) stated that check-in service is a service stage for passengers who wish to travel by airplane. Anggela (2023) said that self check-in machines can make it easier and shorter for service users to carry out several flight procedures according to Putri et al., (2018) The check-in process is usually carried out by passengers when they arrive at the airport (Tatrasandi et al., 2022). With technology becoming increasingly sophisticated and providing convenience nowadays, the registration process does not always have to be carried out at the airport counter. This is because most airlines in Indonesia already provide online check-in services.

Effectiveness of Use

Beni (2016) suggests that effectiveness is a link between goals and output, or can be interpreted as a measure of the extent to which the output, policies and procedures of a company or organization can achieve the stated goals. Mardiasmo (2018) states that effectiveness is an indicator of the success or failure of an organization in achieving its stated goals (Bintang & Ariebowo, 2024).

Baggage Check-in

Majid & Warpani (2009) say that baggage is cargo, articles, property and personal baggage belonging to passengers which are permitted by airlines to be carried on airplanes for personal purposes

e-ISSN : 2722-0117
p-ISSN : 2715-1018

and can be used by passengers during or during midway. According to Asmokho (2015), baggage is a passenger's luggage that is permitted by the airline to be carried on an airplane and contains items that the passenger needs during the trip. Baggage, based on Article 6 paragraph 2 of the Air Transport Ordinance Stb.1939-100, is all goods owned or under the control of passengers who are required to be carried before boarding an airplane (Novriantama, 2022).

Self-service bag drop (SSBSD) is an automated system intended to shorten the time it takes passengers to check-in. SSBD technology is used at many airports and allows passengers to print bag tags and boarding passes and enter their luggage into the baggage system with an easy-to-use user interface. Self-service technology enables the processing of large numbers of passengers everywhere outside the airport itself. This allows for better use of staff in other areas of the airport where it may be needed.

Passanger Satisfaction

Passenger satisfaction is when the service or product or service provided by management, producers, or entrepreneurs meets or exceeds customer expectations (Hefyansyah et al., 2020). Kotler & Lane (2018) define customer satisfaction as feelings of pleasure or disappointment that arise when the performance (results) of a product are compared with the expected performance (or results). Satisfaction is defined as a consumer's reaction or assumption towards the features or advantages of the product or service itself, which provides a level of customer satisfaction in terms of meeting their needs. Hefyansyah et al. (2020) said that satisfaction is when managers, producers, or actors meet or even exceed customer expectations for products or services (Napitupulu et al., 2024).

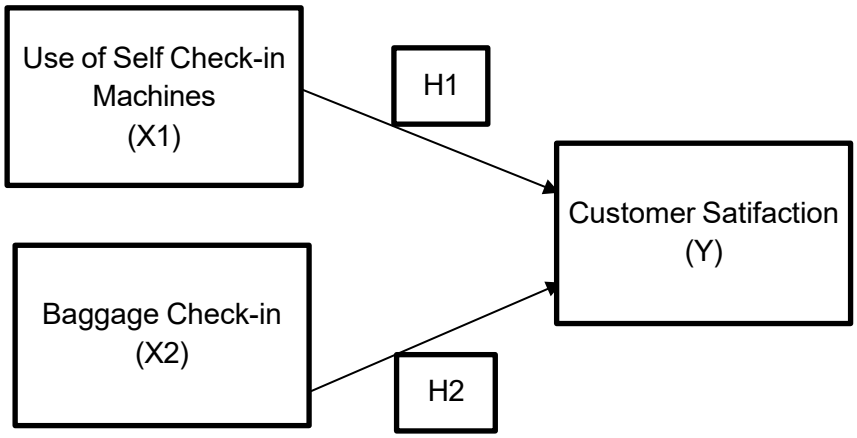

Figure 1. Framework of Thinking

H1 : It is suspected that there is an influence of using Self Check-in Machines on Passenger Satisfaction Soekarno Hatta Airport.

H2 : It is suspected that there is an influence of using Self Check-in Machines on Passenger Satisfaction Soekarno Hatta Airport.

H3 : It is suspected that there is an influence of the use of self-check-in and baggage check-in on passenger satisfaction at Soekarno Hatta Airport.

e-ISSN : 2722-0117
p-ISSN : 2715-1018

RESEARCH METHOD

The research method applied is a quantitative method, using research instruments and data analysis. The population in this study were passengers at Soekarno-Hatta Airport and a non-probability sampling sample using accidental sampling technique with a total of one hundred (100) people who had used the Self Check-in machine at Soekarno Hatta Airport. This research uses Google Form. This research uses SEM-PLS.

RESULTS AND DISCUSSION

In this study, respondents were first categorized based on gender. The sample was categorized into men and women, the characteristics of passengers in this study were aged 17-50, respondents in this study were also categorized based on their last education and respondents were also categorized based on their occupation.

Evaluation of the Measurement Model (Conceptual Framework)

This research uses a reflective measurement model to measure variables such as passenger satisfaction, baggage check-in, and self-check-in machines. According to Hair et al. (2021), assessment of reflective measurement models should include external loadings of at least 0.70, mixed confidence of at least 0.70, Cronbach's alpha of at least 0.70, and average variation extracted (AVE) of at least 0.50. In addition, the discriminant evaluation must include the criteria of HTMT (Heterotrait Monotrait Ratio) below 0.90 and fornell and lacker root AVE having a greater correlation.

Test Outer Model

When carrying out this outer model test, several analyzes are carried out to measure validity and reliability tests.

Validity and Reliability Test

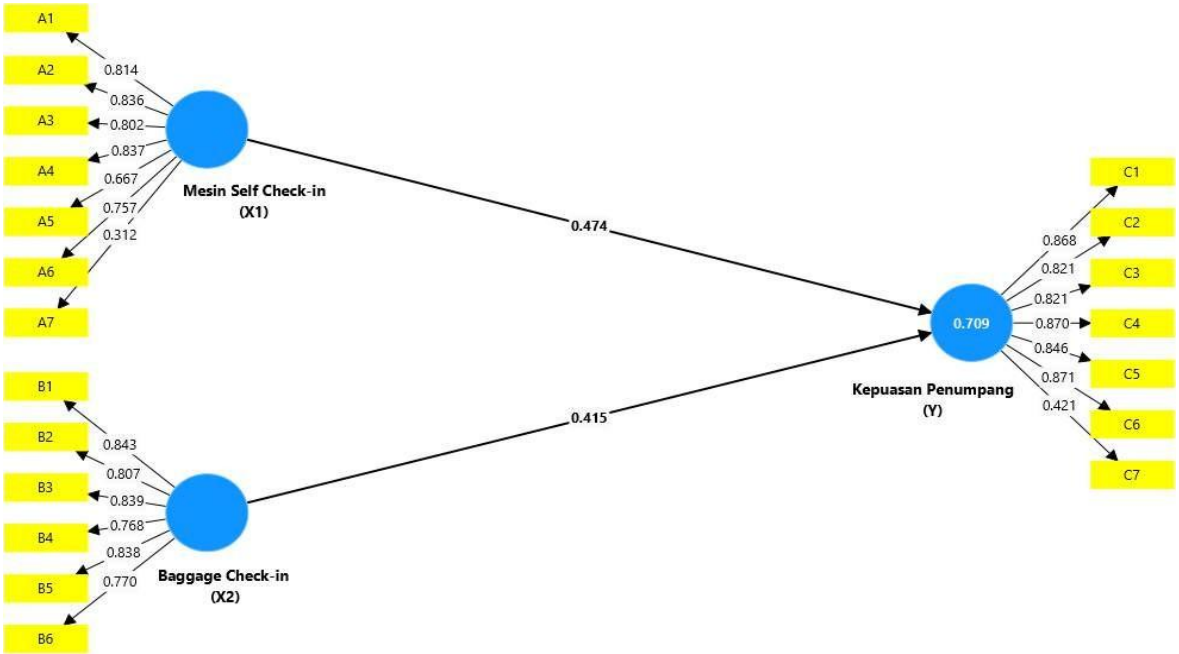

Figure 2. Outer Model

Table 1. Convergent Validity

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Result
A1< Mesin Self Check-In _(X1)	0.814	0.813	0.038	21.324	0.000	Valid
A2 < Mesin Self Check-In _(X1)	0.836	0.833	0.034	24.386	0.000	Valid
A3 < Mesin Self Check-In _(X1)	0.802	0.798	0.050	15.917	0.000	Valid
A4 < Mesin Self Check-In _(X1)	0.837	0.836	0.029	29.006	0.000	Valid
A5 < Mesin Self Check-In _(X1)	0.667	0.662	0.074	9.048	0.000	Invalid
A6 < Mesin Self Check-In _(X1)	0.757	0.756	0.046	16.551	0.000	Valid
A7 < Mesin Self Check-In _(X1)	0.312	0.305	0.110	2.824	0.005	Invalid
B1 < Baggage Check-In_(X2)	0.843	0.841	0.034	24.505	0.000	Valid
B2 < Baggage Check-In_(X2)	0.807	0.806	0.039	20.933	0.000	Valid
B3 < Baggage Check-In_(X2)	0.839	0.835	0.047	18.027	0.000	Valid
B4 < Baggage Check-In_(X2)	0.768	0.767	0.057	13.520	0.000	Valid
B5 < Baggage Check-In_(X2)	0.838	0.838	0.028	29.454	0.000	Valid
B6 < Baggage Check-In_(X2)	0.770	0.771	0.040	19.120	0.000	Valid
C1 < Passanger Satisfaction_(Y)	0.868	0.866	0.027	32.261	0.000	Valid
C2 < Passanger Satisfaction_(Y)	0.821	0.820	0.041	20.132	0.000	Valid
C3 < Passanger Satisfaction_(Y)	0.821	0.819	0.041	20.143	0.000	Valid
C4 < Passanger Satisfaction_(Y)	0.870	0.868	0.026	33.874	0.000	Valid
C5 < Passanger Satisfaction_(Y)	0.846	0.845	0.032	26.597	0.000	Valid
C6 < Passanger Satisfaction_(Y)	0.871	0.870	0.026	34.012	C0.000	Valid
C7 < Passanger Satisfaction_(Y)	0.421	0.417	0.082	5.135	0.000	Invalid

In Figure 2 and Table 1, it can be seen that indicators A5 is the Self Check-in Machine variable (X1), A7 is the Baggage Check-in variable (X2), and C7 is the Passenger Satisfaction variable (Y) have loading factor values below 0.70, which can be stated as invalid and not significant. So the next stage can be done by removing the existing indicators from the model. The following states the results of the indicator removal stage:

e-ISSN : 2722-0117
p-ISSN : 2715-1018

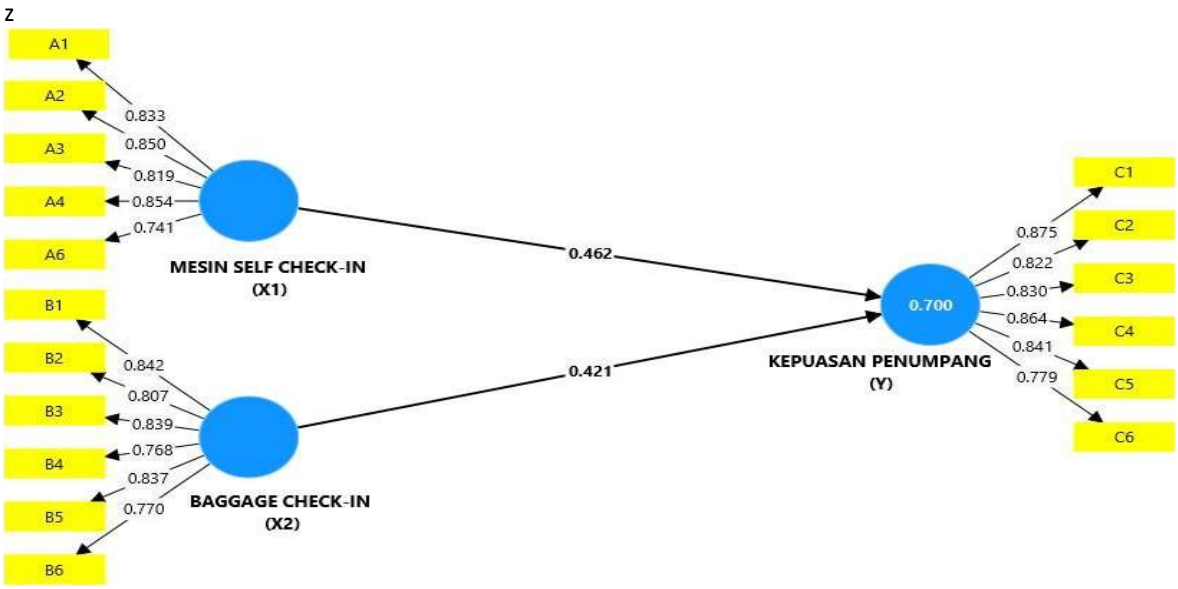

Figure 3. Outer Model (Modification)

Table 2. Convergent Validity (Modification)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Result
A1 < Self Check-In Machine _(X1)	0.833	0.832	0.037	22.811	0.000	Valid
A2 < Self Check-In Machine _(X1)	0.850	0.848	0.031	27.114	0.000	Valid
A3 < Self Check-In Machine _(X1)	0.819	0.815	0.046	17.689	0.000	Valid
A4 < Self Check-In Machine _(X1)	0.854	0.853	0.029	29.788	0.000	Valid
A5 < Self Check-In Machine _(X1)	0.741	0.741	0.051	14.428	0.000	Valid
B1 < Baggage Check-In _(X2)	0.842	0.841	0.035	24.337	0.000	Valid
B2 < Baggage Check-In _(X2)	0.807	0.807	0.038	20.995	0.000	Valid
B3 < Baggage Check-In _(X2)	0.839	0.835	0.047	18.006	0.000	Valid
B4 < Baggage Check-In _(X2)	0.768	0.767	0.057	13.456	0.000	Valid
B5 < Baggage Check-In _(X2)	0.837	0.837	0.029	29.241	0.000	Valid
B6 < Baggage Check-In _(X2)	0.770	0.772	0.040	19.227	0.000	Valid
C1 < Passanger Satisfaction(Y)	0.875	0.873	0.026	33.445	0.000	Valid
C2 < Passanger Satisfacation _(Y)	0.822	0.823	0.040	20.672	0.000	Valid

C3 < Passanger Satisfacation _(Y)	0.830	0.827	0.041	20.327	0.000	Valid
C4 < Passanger Satisfaction(Y)	0.864	0.864	0.026	33.747	0.000	Valid
C5 < Passanger Satisfaction(Y)	0.841	0.842	0.033	25.432	0.000	Valid
C6 < Passanger Satisfaction (Y)	0.779	0.784	0.094	8.315	0.000	Valid

Self Check-in Machine (X1)

All indicators (A1-A5) have high outer loading values, with significant t-statistic values and a p-value of 0.000. So this is proven to show that these indicators strongly and validly measure self check-in machine variables.

Baggage Check-in (X2)

All indicators (B1-B6) also have significant outer loading values, with significant t- statistic values and a p-value of 0.000. So this is proven to show that it is a valid measure for the baggage check-in variable.

Passenger Satisfaction (Y)

All indicators (C1-C6) have high outer loading values, with significant t-statistic values and a p-value of 0.000. So this is proven to show that they validly and reliably measure passenger satisfaction.

Table 3. Composite Reliability

	Cronbach's alpha	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**Average Variance Extracted (AVE)**
Self Check-in Machine (X1)	0,878	0,879	0,911	0,673
Baggage Check-in (X2)	0,896	0,899	0,920	0,658
Passanger Satisfaction (Y)	0,914	0,916	0,933	0,699

The table above shows that all variables have Cronbach's alpha, reliability and AVE values that meet the validity and reliability requirements. This shows that the measurements for these three variables are very consistent and have significant values for self-check-in machines, baggage check-in, and passenger satisfaction in various locations.

Test Inner Model

Table 4. R-Square

	R-Square	**R-Square Adjusted**
Passanger Satisfaction (Y)	0.700	0.694

Thus, an R-Square value of 0.700 indicates that self check-in and baggage check- in machines account for 70% of the variability in passenger satisfaction. This shows that these two factors have a strong impact on passenger satisfaction simultaneously.

Table 5. F-Square

	Self Check-in Machine (X1)	Baggage Check-in (X2)	Passanger Satisfaction (Y)
Self Check-in Machine (X1)			0,264
Baggage Check-in (X2)			0,219
Passanger Satisfaction (Y)			

So based on the table above on Self Check-in Machines, the f-square value is 0.264, indicating that self check-in machines have quite a large impact in explaining the variability in passenger satisfaction. This really shows the importance of self check-in machines in increasing passenger satisfaction.

Meanwhile, based on the table above on Baggage Check-in, the f-square value is 0.218, indicating that baggage check-in also greatly contributes to passenger satisfaction, although the impact is smaller than that of self check-in machines.

Hypothesis Testing

Table 6. Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-statistics (|O/STDEV|)	P-Values	Result
Self Check-in Machine (X1) → Passanger Satisfaction (Y)	0,462	0,464	0,081	5,688	0,000	Valid
Baggage Check-in (X2) → Passanger Satisfaction (Y)	0,421	0,425	0,081	5,182	0,000	Valid

Self Check-in Machine (X1) on Passenger Satisfaction (Y)

The coefficient size is 0.462, indicating a very significant positive influence, with the resulting t-statistic value being 5.688 and p-value 0.000. This shows that improving self check-in machines will significantly and have a direct influence on increasing passenger satisfaction.

Baggage Check-in (X2) to Passenger Satisfaction (Y)

A coefficient of 0.421 shows a very significant positive influence, with the resulting t- statistic value being 5.182 and a p-value of 0.000. This shows that increasing baggage check-in will significantly and have a direct influence on increasing passenger satisfaction.

Table 7. HTMT (Heterotrait-Monotrait Ratio)

	Self Check-in Machine (X1)	Baggage Check-in (X2)	Passanger Satisfaction (Y)
Self Check-in Machine (X1)		0,891	0,866
Baggage Check-in (X2)			
Passanger Satisfaction (Y)		0,862	

Relationship between Variables

Based on the data above, the relationship between variables from the table above shows that the HTMT value between the variables shows a significant relationship but is not too high, which means there is no problem with discrimination between the variables being measured.

So the data above indicates that self check-in machines and baggage check-in both play an important role in increasing passenger satisfaction, with self check-in machines having a greater influence. All measurements used in this research are reliable and valid, so the results can be trusted.

CONCLUSION

Based on the results of this discussion, it shows that the baggage check-in system and self-check-in machines have a significant influence on passenger satisfaction at Soekarno Hatta Airport. With an R-Square value of 0.700, this research found that self check-in machines, with an f-square value of 0.264, have a greater influence than baggage check-in systems, with an R-Square value of 0.700.

The results indicate that innovation in airport services is critical to improving the passenger experience. Airports can increase passenger satisfaction by improving service and waiting times with technology such as self check-in machines. This study helps airport managers and other stakeholders continue to innovate and improve services to meet passenger expectations.

Overall, the research found that adding technology to the check-in process improves operational efficiency and increases customer satisfaction, which is an important component in the aviation industry.

SUGGESTION

Based on the practical implications, airport authorities and airline management are encouraged to enhance the availability and accessibility of self-check-in machines. Strategic placement, user-friendly interfaces, and seamless integration with baggage check-in services will streamline the passenger experience while reducing congestion at manual counters. This effort not only improves operational efficiency but also strengthens the airport's image as a responsive and modern service provider.

In addition, staff training remains a critical aspect to complement technological advancements. Although self-check-in machines increase efficiency, many passengers still value and require human assistance, especially when encountering technical difficulties. By equipping staff with the necessary skills to assist and communicate effectively, airports can ensure that the efficiency of technology is balanced with the warmth and reliability of personal service, thereby enhancing overall passenger satisfaction.

From a theoretical standpoint, future research should expand on these findings by examining additional factors influencing passenger satisfaction, such as service speed, digital accessibility, and the role of emerging technologies like mobile applications or AI-driven services. Broader research across diverse passenger groups and airport contexts will provide more comprehensive insights, ensuring that both technology and human interaction continue to evolve in harmony to improve the overall passenger journey.

RESEARCH LIMITATIONS

This study investigates how passenger satisfaction at Soekarno Hatta Airport is influenced by self-check-in machines and baggage check-in. This

e-ISSN : 2722-0117
p-ISSN : 2715-1018

research has several limitations, such as a limited sample, focus on one location, and only quantitative data collection methods. These limitations may affect the generalizability of the results and suggest that additional research with a broader sample is still needed. Further research is needed with a larger sample, more diverse locations, and a more comprehensive approach to look deeper into the passenger experience.

By acknowledging these limitations, researchers hope to provide the clarity necessary for evaluating research results. To address the identified issues, future research should include additional factors influencing passenger satisfaction and conduct research in multiple time and location contexts. It is hoped that this effort will increase knowledge on this topic and make a greater contribution to the understanding of how technology can improve the passenger experience in the aviation industry.

DAFTAR PUSTAKA

Agustus, A., & Fatmayati, F. (2022). Analisis Pengaruh Tingkat Pemahaman Dan Kendala Yang Di Hadapi Penumpang Terhadap Pemahaman Penggunaan Web Check-In Pada Maskapai Citilink: Studi Kasus: Bandara Internasional Adi Soemarmo Solo. *Mamen: Jurnal Manajemen*, *1*(2), 178–187.

Asmokho. (2015). *Definisi Bagasi Penumpang Pesawat Udara*. https://asmokho.wordpress.com/2015/05/03/definisi-bagasi-penumpang-pesawat-udara/

Bintang, A. I., & Ariebowo, T. (2024). Pengaruh efektivitas penggunaan mesin self check-in terhadap kepuasan penumpang maskapai Citilink di Yogyakarta International Airport. *Global Leadership Organizational Research in Management*, *2*(1), 311–323.

Hefyansyah, A., Siahaan, L. D., & Sihombing, S. (2020). Kinerja Pelayanan Terminal Terpadu Merak. *Jurnal Manajemen Transportasi Dan Logistik*, *7*, 77–86.

Kaban, I. D. (2020). Analisa Inovasi Pelayanan Pengguna Jasa Penerbangan Melalui "Airport Digital" Di Bandara Soekarno Hatta. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, *1*(1), 211–223.

Kotler, P., & Keller, K. L. (2018). *Marketing Management*. Prentice Hall.

Majid, S. A., & Warpani, E. P. D. (2009). *Ground Handling: Manajemen pelayanan darat perusahaan penerbangan*. Rajawali Pers.

Napitupulu, I., Aptakusuma, H. B., & Kardi. (2024). Pengaruh Fasilitas Dan Kualitas Pelayanan Terhadap Kepuasan Penumpang Di Bandar Udara. *Gudang Jurnal Multidisiplin Ilmu*, *2*(7), 236–241.

Novriantama, M. A. (2022). *Pengaruh Kualitas Pelayanan Self Check In Dan Baggage Check In Terhadap Kepuasan Penumpang Penerbangan Cgk-Sub Maskapai Garuda Indonesia Di Bandara Soekarno Hatta Tahun 2022*. ITL Trisakti.

Tatrasandi, D., D., Y. S. M. A., & Taaqbier, M. (2022). Pengaruh Mesin Self Check-in Terhadap Kepuasan Penumpang di Maskapai Citilink Bandar Udara Internasional Adi Sutjipto Yogyakarta. *Jurnal Kewarganegaraan*, *6*(2), 2761–2768.

e-ISSN : 2722-0117
p-ISSN : 2715-1018