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The Influence of Self Check-in Machine Performance, Adoption Behavior, and Perception of Ease on Decisions to use Self Check-in Machines Through Consumer Communication at Terminal 3 Domestic Soekarno Hatta International Airport

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Abstract: This research is motivated by the implementation of Self check-in at Terminal 3 Domestic Soekarno Hatta Airport, but along with the implementation there are still some shortcomings of Self check-in kiosks, including that they can only be used by passengers who do not have luggage and can only be used no later than 1 hour before departure. This study aims to determine the effect of Self check-in machine facility performance, adoption behavior, and perception of ease on the decision to use the self checkin machine through consumer communication at Terminal 3 Domestic Soekarno Hatta International Airport. The research method uses quantitative samples and research of 250 respondents taken using purposive sampling techniques. While the data collection technique uses questionnaires and data analysis using Structural Equation Modeling (SEM) based on Smart PLS. The results of the study show that consumer communication is influenced by the performance of Self check-in machine facilities, adoption behavior and perception of ease, and usage decisions. Furthermore, adoption behavior and perception of ease have a direct or indirect effect through consumer communication variables on the decision to use the Self check-in machine. However, consumer communication is not a variable that connects the influence of Self check-in machine performance on the decision to use the Self check-in machine.

Keyword: Performance of Self Check-In Machine Facilities, Adoption Behavior, Perception of Convenience, Consumer Communication, Decision to Use Self Check-In Machines.

INTRODUCTION

In today's era of rapid technological and informational advancements, human lifestyles are evolving to fulfill their increasingly diverse needs in an easy and efficient manner. These needs are not limited to goods but also extend to services, which play a crucial role in daily life (Taherdoost, 2023). The growing demand for services has led to the intensive promotion of offerings ranging from basic to highly advanced products designed to meet the ever-expanding

needs of society. With the increasing mobility of people moving from one place to another and the rising volume of goods transportation, the demand for transportation facilities has also significantly increased (Luz, 2022). To remain competitive in the service industry, PT Angkasa Pura Indonesia Soekarno-Hatta must continuously improve the quality of its services by addressing the needs and expectations of its users. Airports should be managed in an integrated manner, ensuring that passengers can seamlessly navigate processes such as reservations, check-in, and boarding.

A study conducted by Hardianika (2023) identified several shortcomings in the self-check-in kiosks at Terminal 3 Domestic of Soekarno-Hatta International Airport. These issues include the lack of Passenger Service Assistants (PSA) stationed near the kiosks, limited accessibility for certain passenger categories (such as pregnant women, passengers with infants, wheelchair users, the elderly, and group bookings), the need to re-touch the touchscreen, frequent system errors, paper shortages, printer malfunctions, the inability to select seats, and restrictions on usage, as the system becomes unavailable less than one hour before departure.

As the operator of the air transportation sector, airport management is required to provide facilities, including self-check-in services, to ensure passenger satisfaction. A positive experience with these facilities can encourage users to communicate favorably about them to other consumers (Wonmaly & Yudianto, 2023). This aligns with previous research by Kazungu (2023), which found that available facilities can influence consumer behavior in communicating the quality of a service to others.

Research on self-service technology conducted by Frice et al. (2024) indicates that ease of use and perceived benefits are key factors influencing individuals' decisions to utilize self-service technology. Additionally, these facilities must align with user needs to encourage their adoption (Considine & Cormican, 2016).

Based on the background and the issues surrounding the extent to which the performance of self-check-in kiosks at Terminal 3 Domestic of Soekarno-Hatta International Airport impacts usage decisions—an aspect that still requires further exploration—this study aims to investigate this relationship. The research is presented under the title: The Influence of Self Check-In Kiosk Performance, Adoption Behavior, and Perceived Ease of Use on the Decision to Use Self Check-In Kiosks Through Consumer Communication at Terminal 3 Domestic of Soekarno-Hatta International Airport.

METHOD

The research begins by identifying problems from empirical and theoretical sources. After defining the problem, the researcher formulates it and proposes hypotheses based on theoretical reviews and previous studies. To test the hypotheses, an appropriate research method is selected, and a questionnaire is developed as a data collection instrument. The questionnaire undergoes validity and reliability testing to ensure it accurately measures the research variables. The collected data is then analyzed using statistical tools relevant to the research objectives. Finally, conclusions are drawn to address the research problem and hypotheses.

The study was conducted at Terminal 3 Domestic of Soekarno-Hatta International Airport from September 2024 to November 2024. The population consists of all consumers at Terminal 3 Domestic, specifically passengers who directly use the self-check-in machine facilities. Since the exact population size is unknown, the study employs purposive sampling, a method in which samples are selected based on specific criteria. According to Hair (2017), when the population size is uncertain, the sample size should be determined based on the number of questionnaire indicators, ranging from 5 to 10 times the number of indicators. This study includes 25 statement items, resulting in a minimum required sample size of 250 respondents (25 x 10). Data collection was carried out through an e-questionnaire distributed via an online survey platform such as *Google Form.*

Research Trial Calibration

1. Validity Testing

Validity testing is conducted to determine the accuracy of the measurement instrument used in the study, ensuring that the data collection tool is reliable and precise. The purpose of this test is to assess the validity of the questionnaire in measuring and obtaining research data from respondents.

2. Reliability Testing

Reliability testing aims to measure the consistency of the questionnaire used in the study, ensuring that it remains dependable even when applied repeatedly at different times. This test is conducted by analyzing the Cronbach's alpha value, which represents the reliability coefficient, along with composite reliability. To be considered reliable, the Cronbach's alpha value must exceed 0.70, and the composite reliability should also be greater than 0.70.

Data Analysis Method

1. Coefficient of Determination (R2)

The coefficient of determination measures the proportion of variation in a dependent variable that can be explained by independent variables. Its value ranges from 0.00 to 1.00, where a value closer to 1.00 indicates a better model fit.

2. Hypothesis Testing

Hypothesis testing is conducted to determine whether the null hypothesis (H_0) is accepted or rejected. This is done by comparing the p-value with the significance level ($\alpha = 0.05$) or the t-statistic value with the t-table value (1.96). If the p-value is lower than 0.05 or the t-statistic exceeds 1.96, H_0 is rejected, and the alternative hypothesis (H_1) is accepted. Conversely, if the p-value is greater than 0.05 or the t-statistic is below 1.96, H_0 is accepted, and H_1 is rejected.

RESULTS AND DISCUSSION

Validity and Reliability Testing

1. Validity Testing

Based on the validity test results for each indicator (Performance of Self Check-In Machine Facilities, Adoption Behavior, Consumer Communication, and Decision to Use the Self Check-In Machine), it was found that the loading factor value for each indicator used in measuring each variable (Performance of Self Check-In Machine Facilities, Adoption Behavior, Consumer Communication, and Decision to Use the Self Check-In Machine) is greater than 0.50. Therefore, it can be concluded that the 50 indicators used in measuring each variable (Performance of Self Check-In Machine Facilities, Adoption Behavior, Consumer Communication, and Decision to Use the Self Check-In Machine) have met the criteria for convergent validity.

2. Reliability Testing

Table 1. Cronbach Alpha Test Result

No	Variable	*Cronbach Alpha*	Description
1	Performance of Self Check-In Machine Facilities	0.948	Reliable
2	Adoption Behavior	0.935	Reliable
3	Perceived Ease of Use	0.930	Reliable
4	Consumer Communication	0.910	Reliable
5	Decision to Use the Self Check-In Machine	0.954	Reliable

Source: Smart PLS Data Processing Results by Author

Based on the reliability test results shown in Table 1, it is evident that the Cronbach's alpha values for the variables Self check-in machine facility performance, adoption behavior,

perceived ease of use, consumer communication, and Self check-in machine usage decision are all greater than 0.70. This indicates that the research instrument is reliable and consistent.

Table 2. Composite Reliability Test Result

No	Variable	*Composite Reliability*	Description
1	Performance of Self Check-In Machine Facilities	0.958	Reliable
2	Adoption Behavior	0.958	Reliable
3	Perceived Ease of Use	0.950	Reliable
4	Consumer Communication	0.937	Reliable
5	Decision to Use the Self Check-In Machine	0.964	Reliable

Source: Smart PLS Data Processing Results by Author

The composite reliability test is conducted to measure the actual reliability of indicator variables, and the values are considered acceptable if they fall within the range of 0.60 to 0.70. The composite reliability test results can be seen in Table 2 above. Based on the reliability test results presented in Table 2, it is evident that the composite reliability values for the variables Self check-in machine facility performance, adoption behavior, perceived ease of use, consumer communication, and Self check-in machine usage decisions are all greater than 0.70. Therefore, it can be concluded that the research instrument is reliable.

Coefficient of Determination

Table 3. Coefficient of Determination Values

No	Variable	*R Square*	*R Square Adjusted*
1	Consumer Communication	0.790	0.787
2	Decision to Use the Self Check-In Machine	0.844	0.841

Source: Smart PLS Data Processing Results by Author

Based on Table 3, the coefficient of determination values indicate the accuracy level between actual values and predictions for endogenous latent variables, as measured by the R^2 value. In the consumer communication model, an R^2 value of 0.790 or 79% was obtained, meaning that the model for the consumer communication variable can be explained by the variation of three variables Self check-in machine facility performance, adoption behavior, and perceived ease of use by 79%, while the remaining 21% is influenced by other variables not included in the model. The R^2 value for the Self check-in machine usage decision is 0.844 or 84%, indicating that this model can be explained by the variation of four variables Self check-in machine facility performance, adoption behavior, perceived ease of use, and consumer communication by 84%, while the remaining 16% is accounted for by other variables outside the model. The coefficient of determination values presented in Table 3 demonstrate that the model used in this study is strong.

Hypothesis Testing

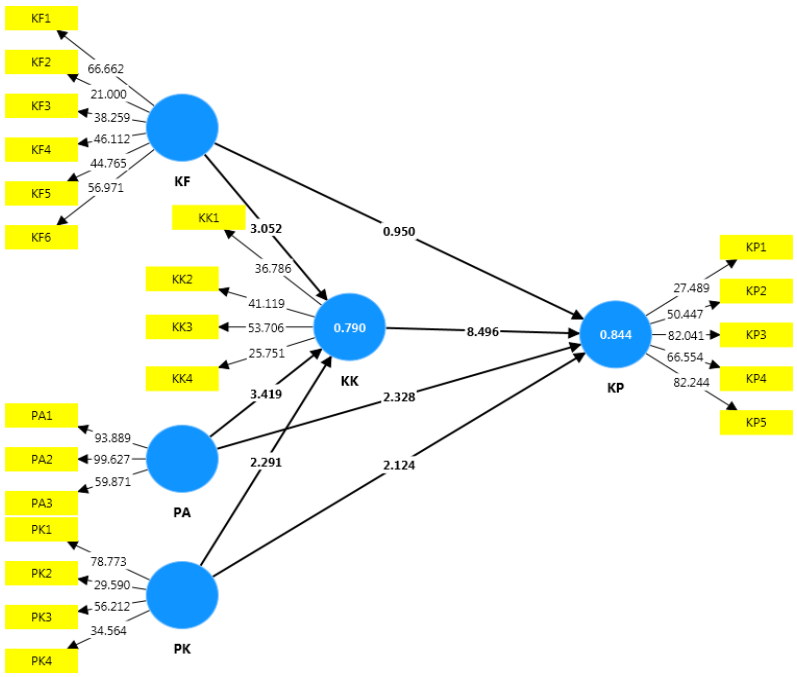
This study employs Structural Equation Modeling (SEM) using the Smart PLS 3.3 software. Hypothesis testing is conducted to examine whether the independent variables—self check-in machine facility performance, adoption behavior, and perceived ease of use—affect the dependent variable, which is the decision to use the Self check-in machine, through the mediating variable of consumer communication. The results of data processing using Smart PLS version 3.3 for hypothesis testing can be observed in Table 4 below.

Table 4. Results of Direct and Indirect Effect Hypothesis Tests

Influence	T Statistic	P Value	Decision

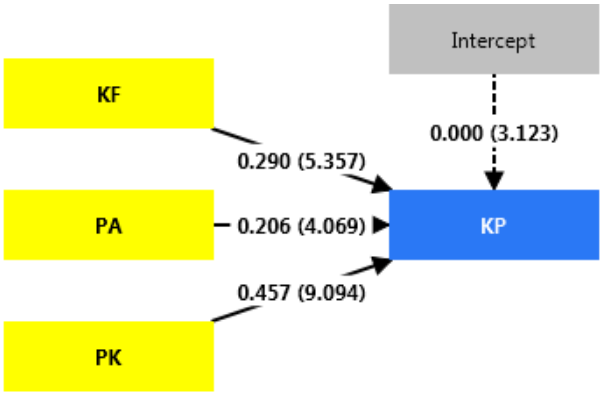
Performance of Self check-in machine facilities towards consumer communication	3.052	0.002	H1 accepted
Adoption behavior towards consumer communication	3.419	0.001	H2 accepted
Perceived ease of use towards consumer communication	2.291	0.022	H3 accepted
Performance of Self check-in machine facilities towards decision to use the Self check-in machine	0.950	0.342	H4 rejected
Adoption behavior towards decision to use the Self check-in machine	2.328	0.020	H5 accepted
Perceived ease of use towards decision to use the Self check-in machine	2.124	0.034	H6 accepted
Consumer communication towards decision to use the Self check-in machine	8.496	0.000	H7 accepted
Performance of Self check-in machine facilities towards decision to use the Self check-in machine	2.909	0.004	H8 accepted
Adoption behavior towards decision to use the Self check-in machine	3.287	0.001	H9 accepted
Perceived ease of use towards decision to use the Self check-in machine	2.084	0.037	H10 accepted
Performance of Self check-in machine facilities towards decision to use the Self check-in machine	3.123	0.002	H11 accepted

Source: Smart PLS Data Processing Results by Author



Source: Smart PLS Data Processing Results by Author

Figure 1. Partial Hypothesis Test Results



Source: Smart PLS Data Processing Results by Author
Figure 2. Simultaneous Hypothesis Test Results

1. Hypothesis 1

The results of the hypothesis testing presented in Table 4 indicate that the performance of Self check-in machine facilities significantly influences consumer communication, as evidenced by a p-value of 0.002 (< 0.05) and a t-statistic of 3.052 (> 1.96), thereby confirming that the hypothesis is accepted.

In an ideal scenario, the performance of Self check-in machine facilities has a direct impact on consumers' willingness to communicate their experiences regarding the facility to other users. High-performance Self check-in facilities encourage users to share positive feedback concerning the efficiency and reliability of the system with their acquaintances. Conversely, if the machine exhibits suboptimal performance, users tend to communicate their dissatisfaction by sharing negative experiences regarding the facility with fellow consumers.

2. Hypothesis 2

The results of the hypothesis testing presented in Table 4 reveal that adoption behavior has a significant impact on consumer communication, with a p-value of 0.001 (< 0.05) and a t-statistic of 3.419 (> 1.96), leading to the acceptance of the hypothesis.

The adoption behavior of Self check-in machine users plays a crucial role in influencing other users, as individuals tend to disseminate information based on their own experiences following the adoption of a particular service facility. Consumers often communicate their personal encounters with the Self check-in system to others, especially to family members, friends, and close associates. Additionally, in the contemporary digital landscape, the presence of social media facilitates a broader spectrum of consumer communication, enabling users to share their experiences beyond their immediate social circles, thereby amplifying the impact of consumer-to-consumer interactions.

3. Hypothesis 3

The results of the hypothesis testing outlined in Table 4 demonstrate that perceived ease of use significantly affects consumer communication, as indicated by a p-value of 0.022 (< 0.05) and a t-statistic of 2.291 (> 1.96), confirming the acceptance of the hypothesis.

Perceived ease of use in the context of Self check-in machine facilities arises when users develop a strong belief that the system provides an effortless and seamless experience, requiring minimal effort to operate. This perception is reinforced when the Self check-in machines are easy to comprehend, highly practical, and conveniently accessible at multiple airport locations,

thereby fostering a positive consumer response and increased communication among users regarding the facility's advantages.

4. Hypothesis 4

The results of the hypothesis testing displayed in Table 4 indicate that the performance of Self check-in machine facilities does not exhibit a significant influence on the decision to use Self check-in machines, as evidenced by a p-value of 0.342 (> 0.05) and a t-statistic of 0.950 (< 1.96), leading to the rejection of the hypothesis.

These findings suggest that alternative factors contribute to users' decision-making processes when utilizing Self check-in facilities at airports. Specifically, adoption behavior and perceived ease of use emerge as more influential determinants in shaping consumers' decisions regarding the utilization of Self check-in machines. Furthermore, the study identifies that these two factors-adoption behavior and perceived ease of use demonstrate greater dominance and a more substantial impact on the decision to engage with Self check-in machine facilities compared to the direct influence of facility performance alone.

5. Hypothesis 5

The results of the hypothesis testing presented in Table 4 indicate that the performance of Self check-in machine facilities does not significantly influence the decision to use Self check-in machines, as evidenced by a p-value of 0.342 (> 0.05) and a t-statistic of 0.950 (< 1.96), leading to the rejection of the hypothesis.

The adoption behavior of users toward Self check-in facilities can significantly impact their decision to utilize Self check-in machines. Therefore, airport management, particularly the operators of Self check-in machines, must develop a comprehensive understanding of user adoption behavior. This knowledge is crucial in identifying the underlying factors that drive consumer interest or disinterest in utilizing Self check-in machines.

6. Hypothesis 6

The results of the hypothesis testing outlined in Table 4 demonstrate that perceived ease of use significantly influences the decision to use Self check-in machines, with a p-value of 0.034 (< 0.05) and a t-statistic of 2.124 (> 1.96), confirming the acceptance of the hypothesis. The findings from the hypothesis test and previous studies suggest that consumers are more inclined to opt for Self check-in machines rather than manual check-in if they perceive the check-in process as easy and convenient when using the machine at the airport.

Perceived ease of use is a critical factor that should be prioritized by service providers, including airport authorities and Self check-in machine operators. Continuous evaluation of the ease experienced by users when operating Self check-in machines is essential. By doing so, the adoption rate of Self check-in machines is expected to increase, leading to a higher number of users choosing the automated check-in process over manual check-in**.**

7. Hypothesis 7

The results of the hypothesis testing in Table 4.6 reveal that consumer communication has a significant impact on the decision to use Self check-in machines, with a p-value of 0.000 (< 0.05) and a t-statistic of 8.496 (> 1.96), confirming the acceptance of the hypothesis.

Consumer communication, whether conducted through word-of-mouth interactions or social media platforms, plays a vital role in influencing users' decisions to utilize Self check-in machines at the airport. Consumers actively absorb and evaluate the information exchanged between fellow users regarding their experiences with Self check-in machines. This evaluation process subsequently affects their final decision on whether to use or refrain from using the Self check-in system.

8. Hypothesis 8

The results of the hypothesis testing presented in Table 4.6 indicate that the performance of Self check-in machine facilities influences the decision to use Self check-in machines through consumer communication, as evidenced by a p-value of 0.004 (< 0.05) and a t-statistic of 2.909 (> 1.96), confirming the acceptance of the hypothesis.

To cultivate a strong inclination among users to adopt Self check-in machines, service providers must prioritize both the performance of Self check-in machines and the effectiveness of consumer communication. The operational efficiency of Self check-in machines should position them as the preferred choice for travelers during the check-in process at the airport. Additionally, service providers must establish effective communication channels with airport users, particularly those preparing for the check-in process, to ensure that they receive accurate information and guidance regarding the Self check-in system.

9. Hypothesis 9

The results of the hypothesis testing presented in Table 4.6 indicate that adoption behavior significantly influences the decision to use Self check-in machines through consumer communication, as evidenced by a p-value of 0.001 (< 0.05) and a t-statistic of 3.287 (> 1.96), leading to the acceptance of the hypothesis.

The decision to use Self check-in machines at the airport is a crucial aspect for service providers, as it represents the desired outcome when airport users complete the check-in process. A higher rate of Self check-in machine usage reflects a strong adoption behavior among users and a positive consumer-to-consumer communication process in conveying information related to Self check-in machines.

10. Hypothesis 10

The results of the hypothesis testing presented in Table 4.6 demonstrate that perceived ease of use significantly influences the decision to use Self check-in machines through consumer communication, as indicated by a p-value of 0.037 (< 0.05) and a t-statistic of 2.084 (> 1.96), confirming the acceptance of the hypothesis.

The Self check-in machine facilities provided at airports should be designed to create a sense of ease, both in terms of system functionality and user interaction. This ease of use will encourage consumers to communicate positive information when engaging with other consumers, ultimately shaping users' decisions to utilize Self check-in machines.

11. Hypothesis 11

The results of the hypothesis testing in Table 4.6 indicate that the performance of Self check-in machine facilities, adoption behavior, and perceived ease of use collectively influence the decision to use Self check-in machines, as shown by a p-value of 0.002 (< 0.05) and a t-statistic of 3.123 (> 1.96), confirming the acceptance of the hypothesis. Furthermore, the hypothesis testing results reveal the path coefficient values for Self check-in machine performance at 0.290, adoption behavior at 0.206, and perceived ease of use at 0.457. Among these, the highest coefficient value belongs to perceived ease of use, indicating that this variable has the most significant impact on the decision to use Self check-in machines.

The decision to utilize Self check-in machines at the airport is a critical factor that requires the attention of airport management. Therefore, management must consider various aspects that support user decision-making, including ensuring high-performance Self check-in machine facilities, fostering adoption behavior among users, and cultivating a perception that Self check-in machines are easy to use.

CONCLUSION

The findings of this study indicate that the performance of Self check-in machine facilities, adoption behavior, and perceived ease of use play a significant role in influencing consumer communication as well as the decision to use Self check-in machines at airports. Specifically, consumer communication has been proven to act as a mediating factor that strengthens the impact of these variables on the decision-making process regarding Self check-in machine usage.

Among these factors, perceived ease of use has the most dominant influence on the decision to use Self check-in machines. This suggests that the easier it is for users to operate the Self check-in machine, the more likely they are to choose this service. Additionally, users' adoption

behavior contributes to the dissemination of their experiences with the Self check-in machine, whether through direct communication or social media platforms, ultimately shaping the decisions of other users.

Conversely, the performance of Self check-in machine facilities does not have a direct impact on the decision to use these machines. However, it can indirectly influence user decisions through consumer communication. Therefore, airport management should focus on enhancing the quality of Self check-in machines while also addressing factors related to adoption behavior and perceived ease of use to optimize the utilization of this service.

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