Analysis of User Behavior in Face Recognition Boarding Gate Services Towards the Satisfaction of Long-Distance Train Passengers Using the UTAUT2 Model

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ABSTRACT
In the Industry 4.0 era, technology adoption is crucial for improving performance, efficiency, usability, and sustainability, particularly in transportation. PT Kereta Api Indonesia (Persero) has implemented Face Recognition Boarding Gate technology to simplify train departures and enhance passenger experience. However, this technology raises concerns about data security and privacy. This study examines the impact of Face Recognition Boarding Gate technology on long-distance train passenger satisfaction using the UTAUT2 model. A quantitative approach with purposive sampling was applied, focusing on respondents aged 17 and above who have used the service at least once. A total of 166 valid responses were gathered through online questionnaires and analyzed using PLS-SEM in Google Colab. The findings reveal that 7 out of 9 proposed hypotheses were accepted, with a 77% acceptance rate. Performance expectancy, effort expectancy, and perceived security significantly influence passenger satisfaction. Additionally, hedonic motivation and habit positively impact behavioral intention, which subsequently affects satisfaction and use behavior. These results emphasize the importance of balancing security and privacy concerns with enhancing user experience. This study provides valuable insights for service providers and policymakers, guiding them in optimizing technology adoption while ensuring user trust. Furthermore, it serves as a reference for future research on the integration and impact of emerging technologies in the transportation sector.

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1. INTRODUCTION

The rapid development and implementation of technological innovations in the era of Industry 4.0 have significantly impacted various sectors, including transportation. In Indonesia, transportation is a fundamental need for supporting daily activities. The adoption of technology in the transportation sector has notably influenced the railway industry. PT Kereta Api Indonesia (Persero), the sole railway service provider in Indonesia, is fully supervised by the state-owned enterprises (BUMN) (Kospandani & Wahyudi, 2021). Trains offer a faster travel option compared to other land transportation modes prone to long traffic jams.

In 2023, the number of long-distance train passengers in Indonesia reached 19 million, reflecting a 53% increase from 2022, underscoring the importance of rail transport in the country (Pakpahan, 2023). PT Kereta Api Indonesia (Persero), committed to enhancing passenger experience through technological innovations, operates under the tagline " Adaptive, Solutive, and Collaborative for Indonesia" aligning with its mission to provide the best service, comfort, and quality products.

According to (Midiyanti et al., 2020) service quality at railway stations is influenced by new facility investments, improved working conditions, easy access to information, and the quality of service provided by railway managers. Previous research by (Kriswardhana et al., 2018) indicated that passenger satisfaction with railway service quality positively affects their travel frequency. Satisfied passengers are more likely to use train services repeatedly.

One significant technological innovation by PT Kereta Api Indonesia (Persero) is the Face Recognition Boarding Gate, aimed at simplifying the boarding process. The biometric-based passenger service system has emerged as a crucial solution for streamlining service processes and enhancing travel experiences (IATA'S Report, 2022). This system integrates cameras with ticket data to identify and validate passengers through facial recognition, eliminating the need for physical documents such as boarding passes and ID cards (Siaran Pers KAI, 2022) Currently, 11 stations have implemented the Face Recognition Boarding Gate, including Bandung, Yogyakarta, Surabaya Gubeng, Malang, Solo Balapan, Gambir, Cirebon, Surabaya Pasar Turi, Semarang Tawang Bank Jateng, Madiun, and Purwokerto. Despite its advantages, the implementation of facial recognition technology in transportation raises concerns about data security and privacy. Passengers sometimes face issues such as undetected faces, necessitating ticket scanning, and long queues due to the lack of dedicated registration points at some stations (Sari & Hartono, 2023).

This study aims to analyze the behavior of users of PT Kereta Api Indonesia (Persero)'s Face Recognition Boarding Gate technology using the UTAUT2 model. The analysis seeks to understand the factors contributing to user satisfaction and

intention to use this technology. The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is an influential model for researching user acceptance of information technology, focusing on consumer context. Compared to UTAUT, UTAUT2 includes additional factors like Hedonic Motivation, Price Value, and Habit, enhancing its relevance to consumer acceptance (Venkatesh et al., 2012).

This research omits the Price Value variable since the Face Recognition Boarding Gate service is free. Instead, it adds Satisfaction and Perceived Security variables. User satisfaction is closely related to continued use intention and usage frequency of an information system. Previous studies indicate that most UTAUT2 variables significantly influence satisfaction (Kalinić et al., 2020) While Face Recognition Boarding Gate offers faster and more efficient authentication and identification processes, it raises cybersecurity concerns (Kim et al., 2023). Studies show that perceived security significantly affects users' behavioral intention (Norfolk & O'Regan, 2020; Rukhiran et al., 2023; Yuliani & Amin, 2022). By understanding user behavior and satisfaction with PT Kereta Api Indonesia (Persero)'s Face Recognition Boarding Gate technology, this study aims to provide valuable insights for improving user experience and ensuring successful adoption of this innovative boarding feature.

2. RESEARCH FRAMEWORK

This study is based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model (Venkatesh et al., 2012), with modifications incorporating additional variables such as Perceived Security affecting Behavioral Intention, and Satisfaction affecting Behavioral Intention. The research hypotheses proposed are as follows:

In this study, Performance Expectancy is defined as the extent to which long-distance train passengers believe that using the Face Recognition Boarding Gate service will be beneficial and help them complete the boarding process quickly and efficiently. According to (Venkatesh et al., 2003), Performance Expectancy is the degree to which users believe that using a specific technology will provide benefits and advantages in their daily activities. Previous studies have shown that Performance Expectancy significantly affects user satisfaction ((Mantik et al., 2022; Mukminin et al., 2019; Musyaffi, 2020). Therefore, the following hypothesis is proposed:

H1: Performance Expectancy (PE) has a positive and significant effect on Satisfaction (SAT).

Effort Expectancy measures the extent to which long-distance train passengers find it easy to use the Face Recognition Boarding Gate service and indicates that users do not face difficulties in using this service. Effort Expectancy is defined as the ease of use of the technology (Venkatesh et al., 2012). Studies by (Agarwal & Sahu, 2022; Kalinić et al., 2020) found that Effort Expectancy positively affects customer satisfaction. Hence, the following hypothesis is proposed:

H2: Effort Expectancy (EE) has a positive and significant effect on Satisfaction (SAT).

Social Influence measures the influence of social factors, such as family, friends, and colleagues, on users' decisions to use the Face Recognition Boarding Gate service. Previous studies have indicated that Social Influence has a significant positive effect on Satisfaction (Hamza & Shah, 2014; Kalinić et al., 2020; Zhao & Bacao, 2020). Therefore, the following hypothesis is proposed:

H3: Social Influence (SI) has a positive and significant effect on Satisfaction (SAT).

Hedonic Motivation refers to the pleasure or enjoyment consumers experience when using a technology and significantly impacts technology acceptance and use (Brown & Venkatesh, 2005). In this study, it explains the enjoyment users feel when using the Face Recognition Boarding Gate service. Previous research has shown that Hedonic Motivation affects Satisfaction (Rahmadilah & Sari, 2021; Yusnara & Soepatini, 2023). Therefore, the following hypothesis is proposed:

H4: Hedonic Motivation (HM) has a positive and significant effect on Satisfaction (SAT).

Perceived Security is influenced by factors such as service provider credibility, privacy policies, security features, and prior user experiences. Studies have expanded the UTAUT2 model to include Perceived Security to explain technology acceptance and use (Andrew et al., 2021; Farzin et al., 2021; Widyanto et al., 2022). In this study, Perceived Security refers to the sense of safety users feel when using the Face Recognition Boarding Gate service. Therefore, the following hypothesis is proposed:

H5: Perceived Security (PS) has a positive and significant effect on Satisfaction (SAT).

Facilitating Conditions are consumers' perceptions of the resources and support available to perform a behavior using technology (Venkatesh et al., 2012). This includes technical infrastructure, ease of access, user guides, and customer support in the context of the Face Recognition Boarding Gate service. Previous studies have shown that Facilitating Conditions positively affect Behavioral Intention (Akinnuwesi

et al., 2016; Lancelot Miltgen et al., 2013). Therefore, the following hypothesis is proposed:

H6: Facilitating Conditions (FC) have a positive and significant effect on Behavioral Intention (BI).

Habit is the extent to which people tend to perform behaviors automatically due to learning (Limayem et al., 2007). In this study, Habit measures how frequently long-distance train passengers choose to use the automated face recognition boarding process. Habit has been found to have a significant positive effect on Behavioral Intention (Farzin et al., 2021; Morosan & DeFranco, 2016; Yuliani & Amin, 2022). Therefore, the following hypothesis is proposed:

H7: Habit (H) has a positive and significant effect on Behavioral Intention (BI).

Satisfaction is defined as the feeling of contentment long-distance train passengers experience when using the Face Recognition Boarding Gate service for boarding. Satisfaction is derived from the Expectation-Confirmation Model developed by (Bhattacherjee, 2001). Previous studies have shown that Satisfaction significantly affects Behavioral Intention (Hermawan & Paramita, 2021; Musyaffi, 2020; Yousaf et al., 2021; Zhao & Bacao, 2020). Therefore, the following hypothesis is proposed:

H8: Satisfaction (SAT) has a positive and significant effect on Behavioral Intention (BI).

Behavioral Intention indicates the extent to which individuals intend to use a specific technology in the future, as captured by their willingness to use the technology (Ajzen, 1991). Similar findings have been reported in studies by (Cabrera-Sánchez et al., 2021; Wu & Liu, 2023). Therefore, the following hypothesis is proposed:

H9: Behavioral Intention (BI) has a positive and significant effect on Use Behavior (UB).

3. RESEARCH METHODS

3.1 Sampling

This research employs purposive sampling to select participants who are long-distance train passengers of PT. Kereta Api Indonesia (Persero) and have utilized the Face Recognition Boarding Gate service at selected stations. The criteria for participation include having used the service at least once and possessing a valid national identity card (KTP). The sample size determination followed guidelines by Barclay's 10 times rule and Roscoe's theory, suggesting a minimum of 150 respondents to ensure statistical power. The selected stations for data collection include: Bandung Station, Semarang Tawang Bank Jateng Station, Surabaya Gubeng

Station, Malang Station, Solo Balapan Station, Gambir Station, Cirebon Station, Surabaya Pasar Turi Station, Purwokerto Station, Madiun Station, Yogyakarta Station.

3.2 Research Instrument

he instrument utilized in this study is a structured online questionnaire distributed via platforms such as WhatsApp, Instagram, Telegram, and Twitter. The questionnaire consists of 30 statements designed to assess various constructs related to the usage of the Face Recognition Boarding Gate service. Each statement is rated on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree".

3.3 Data Analysis

Data collected through the questionnaire are analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This method combines principal component analysis with regression-based path analysis to estimate parameters in structural equation models. In conclusion, this rigorous methodological approach ensures robustness in examining user behavior towards the Face Recognition Boarding Gate service, contributing to both theoretical advancements and practical insights in technology adoption within transportation contexts.

4. RESULTS AND DISCUSSION

4.1 Demographic Analysis

A total of 166 data were used in this research. The demographics of respondents by station shows that the stations with the highest number of respondents are Gambir Station and Semarang Tawang Bank Jateng Station with 39 respondents each or 24% of the total respondents. Demographics based on gender are dominated by women with a percentage of 67%. Based on the age distribution of respondents using the Face Recognition Boarding Gate service, it is dominated by passengers aged 17-25 years, namely 64%. then as many as 59% of long-distance train passengers have used the Face Recognition Boarding Gate service more than once. The demographic profile of respondents is shown in Table 1.

Table 1. Demographic Profile of Respondents

Respondent profile	Total	Percentage
Railway Station		
St. Bandung	14	9%
St. Cirebon	8	5%
St. Gambir	39	24%
St. Magelang Kota	7	4%
St. Malang	9	5%
St. Purwokerto	8	5%
St. Semarang Tawang Bank Jateng	39	24%
St. Solo Balapan	9	5%
St. Surabaya Gubeng	9	5%
St. Surabaya Pasar Turi	12	7%

Respondent profile	Total	Percentage
St. Yogyakarta	12	7%
Gender		
Male	112	67%
Female	54	33%
Age		
17 - 25 years	106	64%
26 - 35 years	27	16%
36 - 45 years	23	14%
46 - 60 years	10	6%
Use Frequency		
1 Times	102	59%
More than 1 times	69	41%

4.2 Outer Model Measurement Result

The results of the outer model testing verify that the constructs included in the research model have met the required standards. Several components of the outer model test that will be used include composite reliability for each latent variable, discriminant validity and convergent validity. The results of the convergent validity analysis for all indicators/items are presented in Table 2. Measurement items are considered acceptable if the loading factor value is > 0.7 (Hair et al., 2017).

Table 2. Outer Loading Score

Indicator	Outer Loading	Status
BI1	0,866	Valid
BI2	0,880	Valid
BI3	0,889	Valid
EE1	0,890	Valid
EE2	0,743	Valid
EE3	0,857	Valid
FC2	0,891	Valid
FC3	0,922	Valid
HA1	0,726	Valid
HA2	0,851	Valid
HA3	0,868	Valid
HM1	0,908	Valid
HM2	0,729	Valid
HM3	0,861	Valid
PE1	0,714	Valid
PE2	0,833	Valid
PE3	0,821	Valid
PS1	0,874	Valid
PS2	0,814	Valid
PS3	0,935	Valid
SAT1	0,944	Valid
SAT2	0,731	Valid
SAT3	0,937	Valid
SI1	0,881	Valid

Indicator	Outer Loading	Status
SI2	0,947	Valid
UB1	0,815	Valid
UB2	0,873	Valid
UB3	0,916	Valid
BI1	0,866	Valid
BI2	0,880	Valid

The next stage is the discriminant validity test using the Cross Loading and Fornell-Larcker criteria. The result of cross loading evaluation is revealed that each indicator shows the highest loading value on the construct it represents, compared to other constructs. Fornell-larcker criterion is considered fulfilled if the square root value of the AVE (Average Variance Extracted) for each construct, which is displayed in the diagonal matrix, exceeds the correlation value between that construct and other constructs. The result in table 3 shown all latent variables had an AVE value ≥ 0.5. If the AVE value exceeds 0.5, it indicates that the level of Convergent Validity is good and acceptable (Hair et al., 2017).

Table 3. Fornell-Larcker Score

	BI	EE	FC	HA	HM	PE	PS	SAT	SI	UB
BI	0,878									
EE	0,278	0,833								
FC	0,226	0,219	0,907							
HA	0,500	0,305	0,366	0,818						
HM	0,336	0,188	0,133	0,226	0,836					
PE	0,369	0,423	0,237	0,194	0,307	0,791				
PS	0,173	0,200	0,329	0,277	0,263	0,139	0,876			
SAT	0,452	0,339	0,25	0,444	0,384	0,418	0,326	0,876		
SI	-0,032	-0,013	0,01	-0,079	-0,076	-0,161	-0,044	-0,158	0,915	
UB	0,474	0,231	0,361	0,622	0,141	0,239	0,301	0,336	0,025	0,869

Reliability was tested using three criteria, namely Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE). Composite Reliability measures the internal consistency of the construct, with values above 0.7 indicating good reliability. Meanwhile, AVE measures convergent validity, with values above 0.5 considered adequate. The reliability test result demonstrates that all variables utilized in this study are reliable, as indicated in Table 5.

Table 4. Reliability Test Results

Variable	*Cronbach's Alpha*	*Composite Reliability*	*AVE*	Status
BI	0,853	0,910	0,769	Valid
EE	0,776	0,871	0,694	Valid

Variable	*Cronbach's Alpha*	*Composite Reliability*	*AVE*	Status
FC	0,784	0,902	0,822	Valid
HA	0,758	0,857	0,668	Valid
HM	0,808	0,874	0,703	Valid
PE	0,701	0,833	0,626	Valid
PS	0,849	0,908	0,767	Valid
SAT	0,841	0,907	0,768	Valid
SI	0,811	0,911	0,837	Valid
UB	0,837	0,902	0,755	Valid

4.3 Inner Model Measurement Result

This stage involves a series of evaluations which include several aspects, namely, collinearity, analysis of path coefficients, evaluation of the coefficient of determination (R2), calculation of effect sizes (f2), testing of predictive relevance (Q2).

The results of the collinearity test are shown in obtaining the VIF value results for each construct that influences a construct. For the constructs that influence the SAT construct, each has a value ranging from 1 to 2. This value is less than 3 so that each construct does not indicate a problem with multicollinearity.

Coefficient of determination defines Values of 0.67 or higher indicate substantial explanatory power and a strong relationship between variables. A value of 0.33 suggests moderate explanatory power. Values below 0.19 demonstrate weak explanatory power, signifying that the independent variable explains only a small portion of the dependent variable's variation (Hair et al., 2017). From the results of the variance analysis in Table 4.12, the R2 value for each construct is obtained as follows: BI (Behavioral Intention) of 0.316, SAT (Satisfaction) of 0.318, and UB (Use Behavior) of 0.225. These values indicate that the model used can explain a small part of the variability in the construct.

Table 5. R-Square Score

Variable	R Square	Information
Behavioral Intention (BI)	0,316	Kecil
Satisfaction (SAT)	0,318	Kecil
Use Behavior (UB)	0,225	Kecil

Effect size analysis reveals that independent variables (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Perceived Security, Hedonic Motivation, and Habit) have relatively small contributions to the variability in Satisfaction and Behavioral Intention, with effect sizes below 0.15. However, Behavioral Intention demonstrates a moderate effect size (0.290) on User Behavior, indicating a more substantial contribution to explaining User Behavior variability compared to other model variables.

The next stage is predictive relevance testing using the blindfolding method. The Q2 value on BI is 0.226, the Q2 value on SAT is 0.221, and the Q2 value on UB is 0.163. The Q2 values for the three constructs show values that are more than zero, which means that the three endogenous constructs have good observation values and are at a moderate level of predictive relevance.

Based on the results in Table 4.6, the SRMR value is 0.07, which means that the suitability of this research model is said to be good. The chi-square value is 1217.220, meaning that this research model has good suitability. Meanwhile, the NFI value, namely 0.601, does not meet the good fit criteria. The closer the NFI value is to 1, the better the model fit (Hair et al., 2017).

Table 6. Fit Model Result

Criterion	Model Value	Status
SRMR	0,072	Good Fit
Chi-Square	1217,220	Good Fit
NFI	0,601	Model Fit

The results of the path coefficient statistical test are presented in Table 4.7. Most of the hypotheses were accepted by showing a positive and significant influence of the constructs tested. However, there were two hypotheses that were rejected because they did not show a significant influence, namely the influence of SI on SAT and FC on BI. A relationship can be categorized as positive and significant if it meets three criteria: the original sample value is equal to or exceeds 0, the P-Values value does not exceed 0.05, and the T-Statistics value is equal to or exceeds 1.96 (Hair Jr. et al., 2022).

Table 7. Path Coefficient Result

Relationship	Original Sample (O)	t Statistics	p Values	Information
BI -> UB	0,474	7.553	0,000	Accepted
EE -> SAT	0,154	2.222	0,026	Accepted
FC -> BI	0,020	0,288	0,773	Rejected
HA -> BI	0,367	5.502	0,000	Accepted
HM -> SAT	0,221	2.974	0,003	Accepted
PE -> SAT	0,243	2.968	0,003	Accepted
PS -> SAT	0,200	2.582	0,010	Accepted
SAT -> BI	0,284	3.541	0,000	Accepted
SI -> SAT	-0,092	1.604	0,109	Rejected
BI -> UB	0,474	7.553	0,000	Rejected

Based on the resulting Path Coefficient values, 77% hypotheses were proven to be accepted, while others were rejected. The first hypothesis (H1) examining the influence of Performance Expectancy on Satisfaction was accepted. This finding aligns with the fundamental premise that users' expectations of a system's performance play a crucial role in their overall satisfaction. When users believe that the Face Recognition Boarding Gate technology will enhance their efficiency and productivity, they are more likely to experience higher levels of satisfaction. This result corroborates previous studies by (Kalinić et al., 2020; Mantik et al., 2022; Mukminin et al., 2019; Musyaffi,

2020), all of which highlighted the positive relationship between performance expectancy and user satisfaction in various technological contexts. The acceptance of this hypothesis underscores the importance for PT. Kereta Api Indonesia to ensure that the Face Recognition Boarding Gate system consistently meets or exceeds user expectations in terms of speed, accuracy, and efficiency. By focusing on delivering high performance, the company can significantly enhance user satisfaction, potentially leading to increased adoption and loyalty.

The second hypothesis (H2) positing a positive relationship between Effort Expectancy and Satisfaction was also accepted. This acceptance reinforces the notion that the perceived ease of use of a technology significantly contributes to user satisfaction. When users find the Face Recognition Boarding Gate system intuitive and straightforward to use, their overall satisfaction with the service increases. This finding is consistent with research conducted by (Agarwal & Sahu, 2022; Kalinić et al., 2020; Musyaffi, 2020), who all found similar positive correlations between effort expectancy and user satisfaction across various technological applications. The acceptance of H2 highlights the critical need for PT. Kereta Api Indonesia to prioritize user-friendly design and intuitive interfaces in their Face Recognition Boarding Gate system. By minimizing the learning curve and cognitive load associated with using the technology, the company can significantly enhance user satisfaction and potentially increase adoption rates among a broader range of users, including those who might be less technologically savvy.

Contrary to expectations, the third hypothesis (H3) suggesting that Social Influence positively affects Satisfaction was rejected. This unexpected result indicates that, in the context of Face Recognition Boarding Gate technology, the opinions and behaviors of others may not play a significant role in shaping individual user satisfaction. This finding aligns with research by (Indah et al., 2022), who also found that social influence did not significantly impact user satisfaction in technology adoption contexts. The rejection of H3 suggests that the personal experience and perceived benefits of using the Face Recognition Boarding Gate system may outweigh social pressures or influences in determining user satisfaction. This insight is particularly valuable for PT. Kereta Api Indonesia, as it indicates that marketing strategies focusing on social proof or peer influence may be less effective in enhancing user satisfaction. Instead, the company might benefit more from emphasizing the direct, personal advantages of using the technology to individual users.

The fourth hypothesis (H4) proposing a positive relationship between Hedonic Motivation and Satisfaction was accepted. This acceptance underscores the importance of the enjoyment and pleasure derived from using the Face Recognition Boarding Gate technology in contributing to overall user satisfaction. Users who find the experience of using the system entertaining or enjoyable are more likely to report higher levels of satisfaction. This finding is in line with previous research by (Akinnuwesi et al., 2016; Ciftci et al., 2020; Lancelot Miltgen et al., 2013), all of which emphasized the role of hedonic motivation in technology acceptance and user satisfaction. The acceptance of H4 highlights an opportunity for PT. Kereta Api Indonesia to enhance user satisfaction by incorporating elements of fun and enjoyment into the Face Recognition Boarding Gate experience. This could involve gamification elements, visually appealing interfaces, or interactive features that make the process of using the technology more engaging and pleasurable for users.

The fifth hypothesis (H5) examining the impact of Perceived Security on Satisfaction was accepted, reinforcing the critical role that security perceptions play in

shaping user satisfaction with facial recognition technology. Users who feel confident about the safety and privacy measures implemented in the Face Recognition Boarding Gate system are more likely to express higher levels of satisfaction. This finding aligns with research conducted by (Akinnuwesi et al., 2016; Ciftci et al., 2020; Lancelot Miltgen et al., 2013), all of which highlighted the importance of perceived security in technology adoption and user satisfaction. The acceptance of H5 emphasizes the need for PT. Kereta Api Indonesia to prioritize and communicate robust security measures in their Face Recognition Boarding Gate system. This could involve implementing state-of-the-art encryption, transparent data handling policies, and clear communication about privacy protections to instill confidence in users and enhance their overall satisfaction with the service.

The sixth hypothesis (H6) suggesting that Facilitating Conditions positively influence Behavioral Intention was rejected. This unexpected result indicates that the availability of resources, knowledge, and support may not significantly impact users' intentions to use the Face Recognition Boarding Gate technology. This finding is consistent with research by (Suo et al., 2021), who also found that facilitating conditions did not play a significant role in technology adoption in certain contexts. The rejection of H6 suggests that users may perceive the Face Recognition Boarding Gate system as sufficiently intuitive or that other factors are more influential in shaping their behavioral intentions. For PT. Kereta Api Indonesia, this insight implies that investing heavily in support infrastructure or extensive user training may not be as crucial as focusing on other aspects of the user experience to drive adoption and continued use of the technology.

The seventh hypothesis (H7) proposing that Habit positively influences Behavioral Intention was accepted. This acceptance highlights the significant role that habitual use plays in shaping users' intentions to continue using the Face Recognition Boarding Gate technology. As users become accustomed to the system and integrate it into their regular travel routines, their intention to use it in the future strengthens. This finding aligns with research (Indah et al., 2022; Mantik et al., 2022; Paulo et al., 2018; Suo et al., 2021), all of which demonstrated the powerful influence of habit on behavioral intentions in various technological contexts. The acceptance of H7 underscores the importance for PT. Kereta Api Indonesia to focus on strategies that encourage regular and repeated use of the Face Recognition Boarding Gate system. By promoting consistent usage and integrating the technology seamlessly into passengers' travel experiences, the company can foster strong habits that drive continued adoption and loyalty.

The eighth hypothesis (H8) examining the relationship between Satisfaction and Behavioral Intention was accepted, confirming that higher levels of user satisfaction lead to stronger intentions to continue using the Face Recognition Boarding Gate technology. This finding is consistent with a wealth of research in technology adoption, including studies by (Kalinić et al., 2020; Musyaffi, 2020; Zhao & Bacao, 2020), all of which emphasized the crucial role of satisfaction in driving future use intentions. The acceptance of H8 reinforces the importance of prioritizing user satisfaction in all aspects of the Face Recognition Boarding Gate experience. For PT. Kereta Api Indonesia, this means consistently delivering a high-quality, reliable, and user-friendly service that meets or exceeds user expectations, as satisfied users are more likely to become loyal, long-term adopters of the technology.

Finally, the ninth hypothesis (H9) proposing that Behavioral Intention positively influences User Behavior was accepted. This acceptance validates the theoretical link

between intentions and actual usage behavior in the context of Face Recognition Boarding Gate technology. Users who express strong intentions to use the system are indeed more likely to follow through and use it in practice. This finding aligns with numerous studies in technology adoption, including research by (Indah et al., 2022; Mantik et al., 2022; Paulo et al., 2018), all of which demonstrated the predictive power of behavioral intentions on actual use. The acceptance of H9 highlights the importance of nurturing positive intentions among users to drive actual adoption and continued use of the Face Recognition Boarding Gate system. For PT. Kereta Api Indonesia, this means focusing on strategies that not only create positive attitudes towards the technology but also actively encourage and facilitate its use in real-world scenarios.

5. CONCLUSION

The study investigated the factors influencing user satisfaction and Behavioral Intention towards Face Recognition Boarding Gate services. Performance Expectancy, Effort Expectancy, Hedonic Motivation, and Perceived Security were found to have significant positive effects on user satisfaction. Social Influence, however, did not significantly impact satisfaction. Habit and Satisfaction demonstrated strong positive influences on Behavioral Intention, while Facilitating Conditions showed no significant effect. Finally, Behavioral Intention positively influenced User Behavior. These findings align with previous research in technology adoption and underscore the importance of user-friendly design, perceived benefits, security, and habitual use in promoting satisfaction and continued usage of facial recognition technology in transportation services. The results provide valuable insights for service providers like PT. Kereta Api Indonesia in enhancing user experience and adoption of Face Recognition Boarding Gate technology.

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