Analyzing Benefits of Online Train Ticket Reservation App Using Technology Acceptance Model

Henoch Juli Christanto[1*], Stephen Aprius Sutresno[1], Yerik Afrianto Singgalen[2], Christine Dewi[3]

[1] Department of Information System, Atma Jaya Catholic University of Indonesia, Jakarta 12930, Indonesia
[2] Department of Tourism, Atma Jaya Catholic University of Indonesia, Jakarta 12930, Indonesia
[3] Department of Information Technology, Satya Wacana Christian University, Salatiga 50711, Indonesia

Corresponding Author Email: henoch.christanto@atmajaya.ac.id

ABSTRACT

The research addresses the challenges faced by PT KAI (Kereta Api Indonesia) Persero in adapting to the digital revolution, particularly in the context of online ticket purchasing and train service reservations. It focuses on the need for PT. KAI to improve efficiency and customer satisfaction in response to complaints about conventional ticket purchase methods. It will employs the Technology Acceptance Model (TAM) to understand user acceptance and satisfaction with the KAI Access application. The sample size is quantified with 150 valid questionnaires and analyzes relationships between perceived ease of use (PEU), perceived usefulness (PU), attitude toward using (ATU), and intention to use. The results indicate that PEU positively influences PU, ATU, and intention to use, while PU positively influences ATU and intention to use. The study highlights the importance of understanding consumer needs in the digital era, emphasizing the significance of the KAI Access application in meeting these needs. The findings are expected to contribute to PT. KAI's service development and inspire similar companies facing challenges in the evolving digital landscape.

1. INTRODUCTION

PT KAI (Kereta Api Indonesia) Persero, serving as a key cornerstone in delivering railway transportation services in Indonesia, plays a pivotal role in fulfilling the mobility requirements of the community. However, with the rapid advancement of technology and changes in consumer behavior increasingly reliant on the internet, PT. KAI finds itself facing several significant challenges related to adapting to this digital revolution [1, 2]. The main issue that arises is how to improve efficiency and meet customer satisfaction levels, especially in the context of ticket purchasing and train service reservations.

The rapid advancement of technology and the widespread prevalence of the internet have led to the transformation of conventional transaction methods, such as through counters or Call Center 121, internet reservations and applications via Android, and the official web from PT KAI, including www.kereta-api.co.id becoming less efficient in meeting the expectations of modern consumers [3]. Complaints regarding long queues, lack of accessibility, and discomfort in the conventional ticket purchase process have become the main focal points that PT. KAI urgently needs to address. Therefore, the company is required to take innovative steps in developing information systems, particularly in the implementation of online ticket purchases, as an urgent effort for PT. KAI to remain competitive and relevant in this evolving digital era.

The importance of understanding the needs of modern consumers who desire ease, speed, and accessibility in

transactions serves as the primary impetus for this research. The focus on improving services and the efficiency of the online ticket purchase process through the KAI Access application is an integral part of PT. KAI's strategy in understanding and overcoming the challenges faced in this digital era [4]. In this context, research utilizing the Technology Acceptance Model (TAM) is relevant for gaining a deep understanding of user acceptance and satisfaction with the technological innovations implemented by PT. KAI.

User satisfaction with the KAI Access application is one of the performance indicators and online transaction services of PT. KAI. However, the measurement tools for user satisfaction with the application vary significantly, such as End User Computing Satisfaction (EUCS), which places emphasis on factors such as content, accuracy, format, ease of use, and timeliness [5]. On the other hand, user satisfaction with the application can also be measured using a summative usability analysis approach that emphasizes aspects of usefulness, ease of use, ease of learning [6], and satisfaction [7]. Another approach involves E-Service Quality, focusing on several indicators: Efficiency; System Availability; Fulfillment; Privacy; Responsiveness; Compensation; Contact [8]. This indicates that customer satisfaction analysis of PT. KAI is necessary to identify the service performance of PT. KAI. One of the approaches to be used in this research is the Technology Acceptance Model (TAM). The consideration for using the TAM approach lies in the relevance of the socio-technological context in Indonesia, where the acceptance level of technology

needs to be analyzed first before conducting consumer satisfaction analysis for a specific product, in this case, PT. KAI transportation services.

With this background in mind, this research aims for a broader perspective: to provide comprehensive insights into the technology acceptance among users of the KAI Access application and to analyze its impact on customer satisfaction levels. By gaining a comprehensive understanding of these issues, it is anticipated that this research will provide a substantial contribution to PT. KAI in enhancing the development of its services. Additionally, the findings of this study are anticipated to inspire and guide similar companies facing similar challenges in navigating the continuously evolving digital era.

2. RELATED WORKS

2.1 Theoretical basis

A structured system is typically crafted, comprising a combination of computer-based and manual elements, with the aim of gathering, storing, and overseeing data while delivering relevant information to users [9]. These systems, often referred to as Information Systems (IS), employ a range of information technologies (IT) to execute designated functions, engage with diverse organizational or societal users, and convey information [10]. Information systems offer enhanced value to various facets of business operations, including processes, production, quality, management, supporting decision-making, problem-solving, and the attainment of competitive advantages. This proves highly beneficial for overall business activities [11].

An online ticket reservation information system uses internet media or digital technology to document sales of customer travel activities without having to issue physically

valuable documents or traditional paper tickets [12]. This information system has become more popular than conventional because customers are flexible in placing orders. Remote customers can adjust the schedule and type of travel to be used [13].

The KAI Access application is a mobile-based information system owned by PT. Kereta Api Indonesia Persero. KAI Access application has main features such as train ticket booking, E-Ticketing, E-Boarding Pass, and Remind Me to remind ticket schedules. The KAI Access application also has additional supporting elements such as an Info Promo, and about KAI, and several still under development, namely E-Moda, Porter, and Meals.

Technology Acceptance Model (TAM) is formulated to scrutinize and comprehend the factors impacting users' acceptance of Information Technology (IT) [14]. TAM is specifically crafted to discern and forecast the acceptance levels of users towards a particular technology [15]. In its essence, TAM elucidates the cause-and-effect connection between users' beliefs, encompassing the perceived benefits and ease of use of an information system, and the subsequent behaviors, intentions, and actual usage of the said system by the user [16].

In adopting an Information System (SI), two things are need to be observed in determining the attitude and utilization of information systems is guided by user perceptions, particularly in terms of perceived usefulness (PU) benefits and perceived ease of use (PEU) considerations [17]. To be more realistic, this is depicted in the chart shown in Figure 1. Technology Acceptance Model (TAM) is influenced by two key perceptions, which in turn shape user attitudes and behaviors in real-world technology usage scenarios. Concurrently, external factors impacting the TAM construct may manifest as features inherent in the adopted information system or as attributes associated with users and information systems.
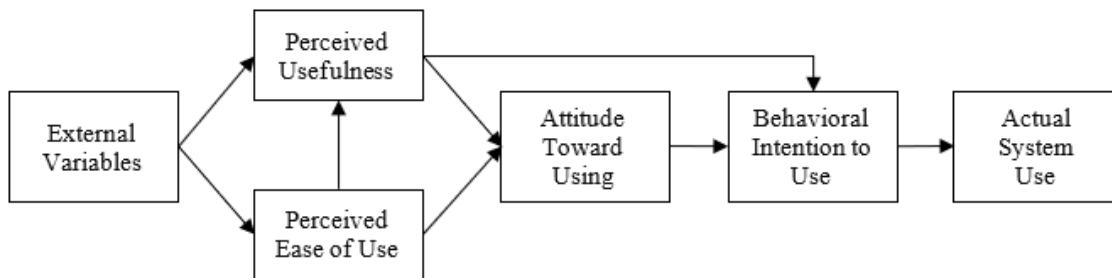

Figure 1. Technology Acceptance Model (TAM) [18]

Perceived usefulness (PU) can be interpreted as the degree to which a person believes using a specific system can improve their performance. Perceived ease of use (PEU) can be interpreted as the level at which a person believes that using the system does not require any effort (free of step) [19]. Perceived ease of use (PEU) also affects perceived usefulness (PU) which can mean that if someone feels the system is easy to use, then the system is helpful for them [20].

TAM can be applied when you want to study the transition process of booking, pay train tickets from traditional money and counters using electronic money (e-money), and order using the PT KAI Access application. With Behavioral intention to use as a variable influenced by other variables, it is hoped that the PT KAI Access application will be able to make its users repeat bookings and ticket purchases. It is even

expected that users can influence others to use the application.

SEM is Structural Equation Modeling which is used to see how much influence other variables have on the intention to use [21]. Structural Equation Modeling (SEM) is a fusion of two distinct statistical methodologies: factor analysis, which originated in psychology and psychometrics, and a simultaneous equation model, which was developed in econometrics [22]. This equation model combines factor and path analysis into one comprehensive statistical method. The effectiveness of TAM modelling will be known from the calculations carried out using SEM. In addition, variables affect the intention to use. It will be advantageous for application managers to further develop their services and features in the application, which can be tailored to the needs of their consumers [23].

2.2 Previous studies

Previously, Wijaya conducted research on the analysis of the influence of using the Technology Acceptance Model (TAM) and Brand Trust on consumers' intention to make purchases on tiket.com. The study commenced with the distribution of questionnaires using a non-probability sampling method, yielding 110 respondents. Subsequently, the data were analyzed using Hierarchical Regression Analysis, resulting in a TAM sig. value of 0.014, which is smaller than 0.05. Therefore, it can be concluded that TAM significantly affects consumers' intention to make purchases on tiket.com [24]. This research supports the selection of TAM as an approach to understanding consumer interest in purchasing tickets. A clear distinction lies in the case study object, where this study focuses on train tickets in KAI Access, while the previous research covered various tickets such as flight tickets, hotel reservations, train tickets, etc., on tiket.com.

Another study conducted by Dewi also focused on analyzing user satisfaction on KAI Access using E-Service Quality. The research aimed to explore the relationship between e-Service Quality, e-Satisfaction, and e-Trust. The study utilized a random sampling method, collecting data from 400 respondents. The results showed that all t-value scores were greater than 1.9659, indicating a positive correlation between e-Satisfaction and e-Trust. Findings from the research suggested that an improvement in service quality would positively impact consumers, leading to more future purchases [25]. This supports research conducted with a different model, specifically using TAM. Therefore, the research provides a different perspective on customer satisfaction with KAI Access services, offering insights for KAI Access to enhance their services.

Another research investigation has revealed that the positive influence of perceived usefulness and perceived ease of use is evident in consumer engagement with car technology for online ticket bookings [26]. TAM, which was used to see the acceptance and utilization rate of music applications, found that Application design and application interaction correlated with perceived ease of use (PEU) while expectations correlated with perceived usefulness (PU) [27]. Some of these studies support the selection of using TAM by employing these variables for the research object in KAI Access.

3. METHODOLOGY

This research is conducted in several stages. The first stage involves Analysis and Problem Formulation, conducted through Literature Study Observation to generate a suitable problem background for further study. The second stage, Data Collection, is carried out using a questionnaire and involves generating primary data obtained from respondents for processing. The third stage, Analysis, Data Processing, and Credibility Testing, is conducted using SEM for processing data and validating it through data reduction and statistics using relevant theory. The final stage is Final Report Writing, which will be encapsulated in a Scientific Article, producing the final report articulated in a scientific article. The entire process is illustrated in Figure 2.

This study is a quantitative descriptive research, as evidenced by the research data in the form of numbers and the analytical method using statistics. The choice to adopt a quantitative approach in this research is driven by the need for systematic and structured data analysis to address specific research objectives. The primary objective of this study is to identify and analyze the factors influencing consumer acceptance of the KAI Access application, as well as to evaluate the level of user satisfaction. A quantitative approach is selected due to its ability to measure and numerically quantify variables and relationships within a broad dataset. This corresponds to the research's requirement to acquire a comprehensive understanding of user perceptions and preferences regarding the application. The Technology Acceptance Model (TAM) is employed as the theoretical framework for this purpose, the quantitative approach allows for precise analysis of factors influencing user acceptance. Additionally, the quantitative method will facilitate measuring user satisfaction levels through Likert scales in structured surveys, providing numerical data for statistical analysis. Overall, the quantitative approach is chosen for its alignment with the research objectives, enabling accurate analysis and generating quantitative data to provide strategic recommendations for enhancing services provided by PT. KAI through the KAI Access application.
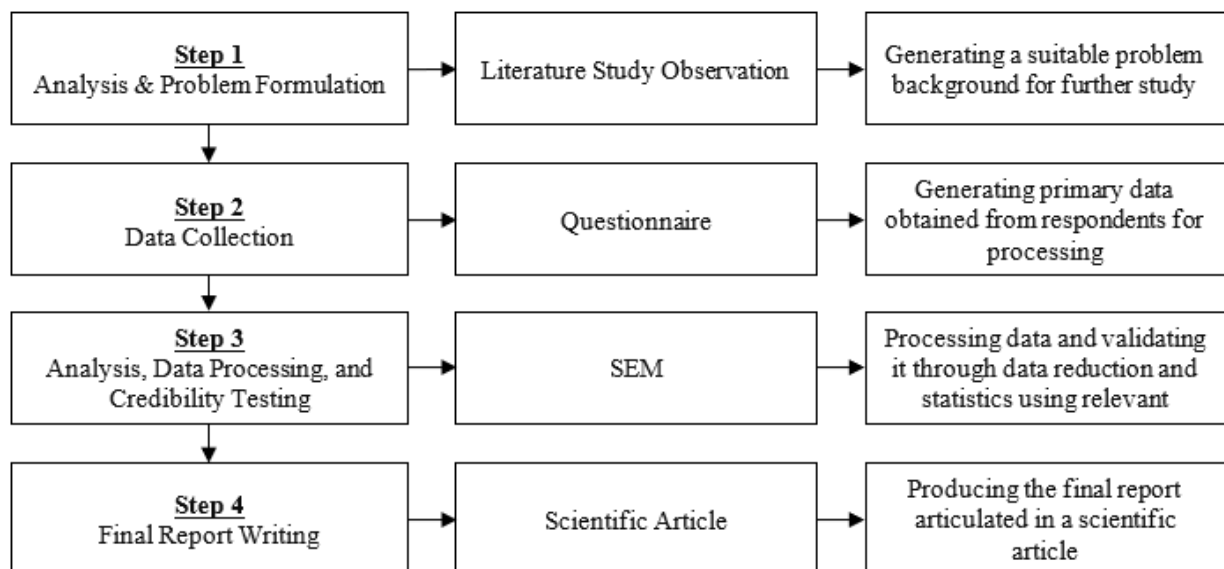
Figure 2. Research method

3.1 Data analysis

The analytical approach employed in this research involves utilizing a statistical method known as multiple regression equations. The initial step in data analysis involves the manipulation of data through Microsoft Excel. Subsequently, classical assumption testing and the implementation of multiple regression tests are conducted. The examination will be conducted utilizing SPSS version 20 and AMOS software. The procedure begins by entering research variables into the SPSS version 20 and Amos program and producing outputs according to predetermined data analysis methods. The following is a model of this study:

Reviewing from the Figure 3 of structural models between constructs, the study has hypotheses:

H1: Perceived ease of use (PEU) will influence perceived usefulness (PU).

H2: Perceived ease of use (PEU) will influence user attitude toward using (ATU).

H3: Perceived usefulness (PU) will influence attitude toward using (ATU).

H4: Perceived ease of use (PEU) will influence the intention to use.

H5: Perceived usefulness (PU) will influence the intention to use.

H6: The user's attitude toward using (ATU) will influence the intention to use.
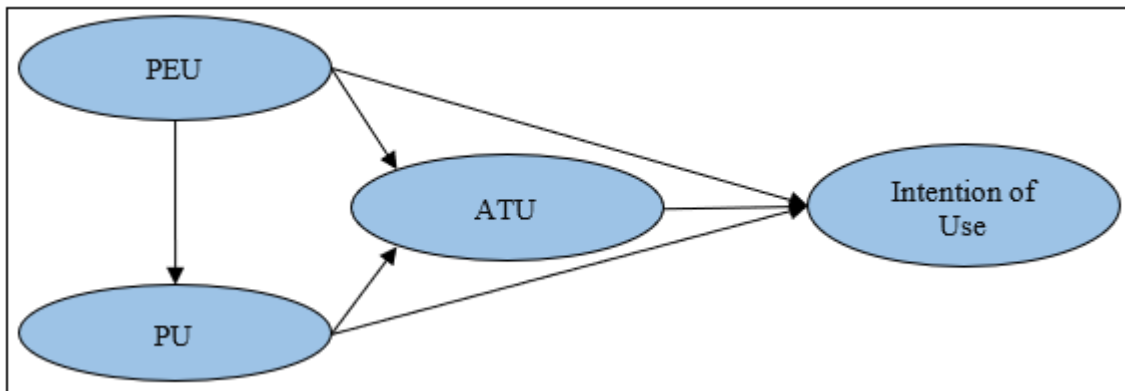
Theoretical Model Development: the development of a theory with scientific justification is the main requirement for using SEM modelling. The Flowchart of this study explains four variables, namely, perceived ease of use (PEU), perceived usefulness (PU), attitude toward using (ATU) and Intention to use are all latent variables or constructs, namely variables that cannot be measured directly (unobserved). From this structural equation, which is an exogen (independent) variable, namely, perceived ease of use (PEU), perceived usefulness (PU), and attitude toward using (ATU). Intention to use is an endogenous variable (dependent) because the previous variable influences this variable. Latent variables are measured by indicators or manifest variables (questions in the form of likert scales). Suppose that variable perceived usefulness (PU) is measured by 3 indicators X1, X2 and X3 with measurement errors (errors) e1, e2 and e3 respectively. A structural equation (SEM) formulated to express causal relationships between various constructs can be seen in Figure 3, built upon various literature studies that have been conducted, as illustrated in Table 1.

Selection of Input Matrix and Model Estimation: SEM uses data input that uses only the variance matrix or covariance or correlation matrix for the overall estimate performed. The standard AMOS estimation model uses maximum likelihood (ML) estimation. Model Identification: In the AMOS output results, the number of samples n = 150 can be explained, and the amount of covariance data can be computed using the formula p(p+1)/2, where p represents the number of observed variables.

Figure 3. Research model

Table 1. Attribute of the structural equation model

Variable	Attribute	Reference
Perceived Ease of Use (PEU)	PEU1: I feel the KAI Access service helps me book tickets more easily PEU2: I feel the KAI Access mobile service helps me buy tickets more efficiently PEU3: I find the ticket purchase service on KAI Access mobile very useful	[27, 20]
Perceived Usefulness (PU)	PU1: I feel that the utilization of KAI Access mobile services is relatively easy to use PU2: I feel that using KAI Access mobile service does not take a long time PU3: I am comfortable using KAI Access mobile service	[28, 29]
Attitude Toward Using (ATU)	ATU1: I intend to use the KAI Access mobile service. ATU2: I intend to buy tickets through KAI Access mobile service transactions. ATU3: If I have the opportunity, I will use KAI Access mobile service	[30]

3.2 Data collection

In contrast, data collection was conducted through interviews and Likert-scale questionnaires, comprising multiple questions for the participants, enabling the collection of specific data by questionnaire with period of two months.

The sampling technique employed in this study involved determining the required number of respondents through purposive sampling methods. The purposive sampling technique is a technique for determining the splinter with specific considerations [31]. Purposive sampling was selected due to its ability to yield more reliable information from respondents [32]. This method allows for the intentional selection of individuals who possess the desired knowledge or

experience, ensuring a targeted approach to gather specific information based on the identified needs [33].

Respondents were directly obtained from train passengers using train services at several train stations. Respondents had to be those who had purchased train tickets through the application with a minimum frequency of one purchase per month. The total number of respondents in this study was 167 participants willing to fill out the questionnaire, and out of the 167 completed questionnaires, 150 were declared valid. Therefore, these 150 questionnaires are utilized as research data and subject to further analysis.

3.3 Descriptive statistical analysis

Descriptive statistical analysis of the study variables was presented to facilitate a better understanding of the demographic factors pertaining to the research respondents [34]. These demographic factors include gender, age, level of education and as well as the media used by respondents in booking KAI tickets. The presentation of this information is essential for illuminating the multifaceted characteristics of the study's participants, here is a demographic table of respondents:

Table 2. Respondent demography

Demographic	Identification	Frequency	Percentage
	Man	80	53.3
Gender	Woman	70	46.7
	Total	150	100.0
	17-22 years	35	23.3
	23-27 years	49	32.7
Respondent's Age	28-32 years	66	44.0
	Total	150	100.0
	Senior High School	41	27.3
	Diploma	60	40.0
Last Education Level	Bachelor	49	32.7
	Total	150	100.0

According to the Table 2, the study comprised 150 respondents. Among them, 80 respondents (53.3%) were men, and 70 respondents (46.7%) were women. Considering the age range of respondents, those who varied included 17-22 years as many as 35 respondents (23.3%), 23-27 years as many as 49 respondents (32.7%) and 28-32 years as many as 66 respondents or (44%). Analyzing the respondents' educational backgrounds, the distribution includes 41 respondents (27.3%) with a high school education level, 60 respondents (40%) with a Diploma, and 49 respondents (32.7%) with a Bachelor's degree.

4. RESULT

4.1 Suitability test

Prior to assessing the adequacy of the structural model, it is imperative to embark on a critical examination of the data slated for processing. This preliminary step serves the vital purpose of discerning whether the dataset aligns with the underlying assumptions that substantiate the structural equation model. Through the judicious employment of a goodness-of-fit test, researchers can acquire valuable insights into the extent to which the hypothesized model aligns with, or "fits," the empirical reality reflected in the sample data [35].

The results of the goodness-of-fit test are presented in the following table, providing a thorough understanding of the alignment between the hypothesized model and the empirical data in Table 3.

Table 3. Result of the goodness of fit test

Goodenss of Fit Index	Cut of Value	Model Result	Description
X2 Chi-Square Statistics	Expected to be small	93,598	Fit
Significance Probability	≥ 0,05	0,003	Not fit, due to the large number of samples
CMIN/DF	≤ 2,00	1,586	Marginal
GFI	≥ 0,90	0,912	Fit
AGFI	≥ 0,90	0,865	Fit
TLI	≥ 0,90	0,847	Marginal
CFI	≥ 0,90	0,884	Fit
RMSEA	≥ 0,08	0,063	Fit

The results of the goodness of fit index test indicate that the model is well-suited to the sample data. Several indices show values supporting the model fit, such as the relatively small X2 Chi-Square Statistics (93.598), GFI (0.912), AGFI (0.865), CFI (0.884), and RMSEA (0.063), all of which meet the criteria for model suitability.

However, there are some indices indicating some discrepancies, such as Significance Probability being less than 0.05, suggesting that the model is not entirely fitting due to the sample size. Similarly, TLI falls into the "Marginal" category with a value of 0.847. However, it can be generally concluded that the model exhibits a satisfactory level of fit, especially based on the supporting indices GFI, AGFI, CFI, and RMSEA. Therefore, it can be justified to proceed with further analysis using this model, taking into account some identified discrepancies.

4.2 Confirmatory factor analysis

4.2.1 Perceived ease of use variable

Confirmatory Factor Analysis of the Perceived Ease of Use Variable is a confirmatory factor analysis of the perceived ease of use variable. It can be observed that each dimension within the respective dimensions has significant factor loading values (λ coefficients) or regression weights or standardized estimates with critical ratio (C.R.) values > 2.58. The results above also indicate that there are no convergent validity values below 0.5.

4.2.2 Perceived usefulness variable

Confirmatory Factor Analysis of the Perceived Usefulness Variable is a measurement model for the confirmatory analysis of the endogenous variable, perceived usefulness. The output in AMOS indicates that in the confirmatory factor analysis of the perceived usefulness variable, it can be observed that each dimension within the respective dimensions has significant factor loading values (λ coefficients) or regression weights or standardized estimates with critical ratio (C.R.) values > 2.58. The results above also indicate that there are no convergent validity values below 0.5.

4.2.3 Attitude toward using variable

Confirmatory Factor Analysis of the Attitude Toward Using

Variable is a confirmatory factor analysis of the Attitude Toward Using variable. It can be observed that each dimension within the respective dimensions has significant factor loading values (λ coefficients) or regression weights or standardized estimates with critical ratio (C.R.) values > 2.58. The results above also indicate that there are no convergent validity values below 0.5.

4.2.4 Intention to use variable

Confirmatory Factor Analysis (CFA) of the Intention to Use variable involves an examination of the confirmatory factors associated with the Intention to Use variable. It can be seen that each dimension within their respective dimensions has significant factor loading values (λ coefficients) or regression weights or standardized estimates with critical ratio (C.R.) values > 2.58. The results above also indicate that there are no convergent validity values below 0.5.

4.3 Estimation result

The next estimation result involves estimating the full structural model, including only the indicators that have undergone construct testing. The AMOS output suggests that the model satisfies the fit criteria, enabling us to conclude that the structural equation model is a good fit. The outcomes of the structural equation model analysis are depicted in the Figure 4.

The results indicate that the used model is acceptable. The proposed hypothetical model is viable, as seen in the comparison of the ChiSquare, RMSEA, RMR, CMIN/DF, GFI, AGFI, TLI, and CFI values with the specified range. Despite some discrepancies, such as Significance Probability being less than 0.05, indicating a less-than-perfect fit due to the small sample size, and TLI falling into the "Marginal" category with a value of 0.847. Nevertheless, in conclusion, overall, the model fits well, especially with support from GFI, AGFI, CFI, and RMSEA.

4.4 Convergent validity testing

Convergent validity is about testing indicators of a latent construct to ensure that they come together or share a substantial amount of variance. The assessment of convergent validity is based on scrutinizing the factor loadings to determine the extent of alignment among the indicators. Table 4 displays the factor loading values for each construct.

Table 4. Standardized factor loading of constructs

Relationship			Estimate
PU	←	PEU	.535
ATU	←	PU	.678
ATU	←	PEU	.921
Intention to Use	←	ATU	.605
Intention to Use	←	PU	.599
Intention to Use	←	PEU	.504
X1	←	PEU	.754
X2	←	PEU	.631
X3	←	PEU	.588
X6	←	PU	.669
X5	←	PU	.972
X4	←	PU	.587
Y1	←	ATU	.560
Y2	←	ATU	.520
Y3	←	ATU	.608
Y7	←	Intention to Use	.509
Y5	←	Intention to Use	.631
Y4	←	ATU	.515
Y6	←	Intention to Use	.684
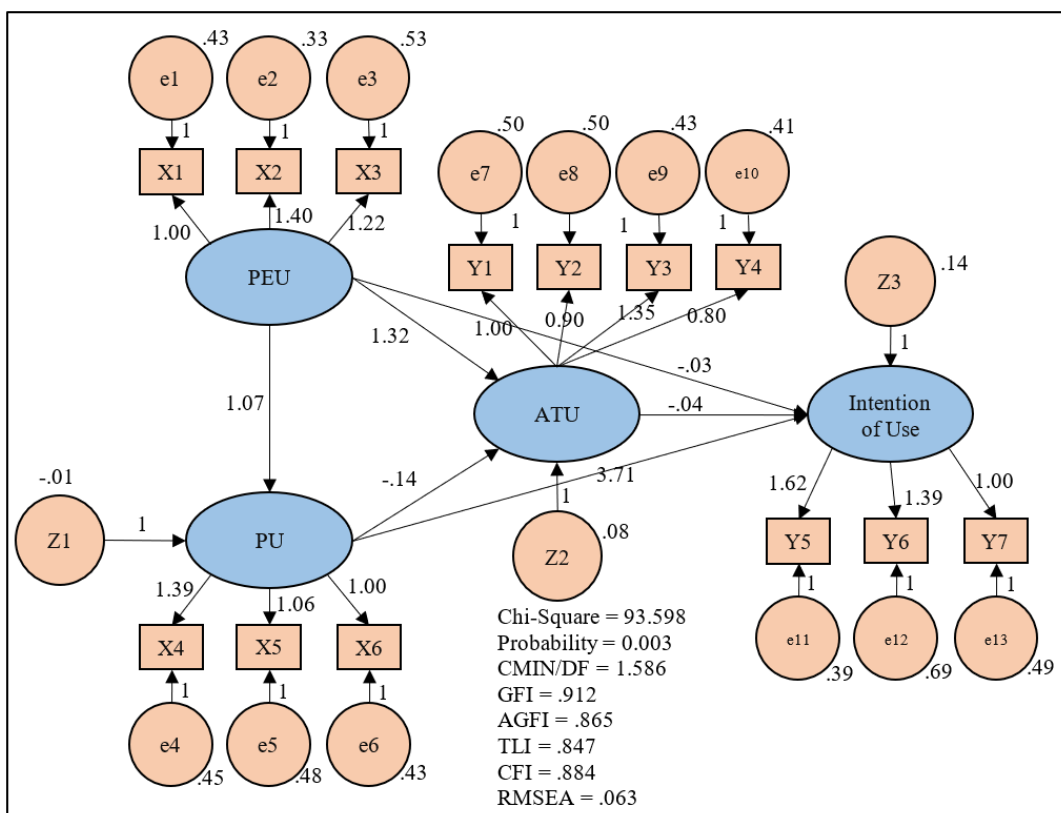
Figure 4. Result of the structural equation model

4.5 Reliability testing

In this test, reliability is measured using Composite (Construct) Reliability. The calculation results indicate that the composite (construct) reliability values for each construct falls between 0.6 and 0.72, This indicates that all constructs within the full model meet the reliability standards and can be categorized as reliable [36].

4.6 Variance extracted testing

Variance Extracted is a critical concept in the field of statistics and measurement, particularly when assessing the quality and effectiveness of formative variables in research and analysis. It serves as a valuable metric for understanding the extent to which a set of indicators successfully captures and reflects the underlying construct or concept that researchers aim to measure. Variance Extracted represents the extent of variance explained by the indicators. A high variance extracted value indicates that the indicators effectively represent the developed formative variable [37]. Based on the variance extracted calculations, the values for each construct is above the cut-off value of 0.5. This means that all indicators effectively represent the variables within the full model [38].
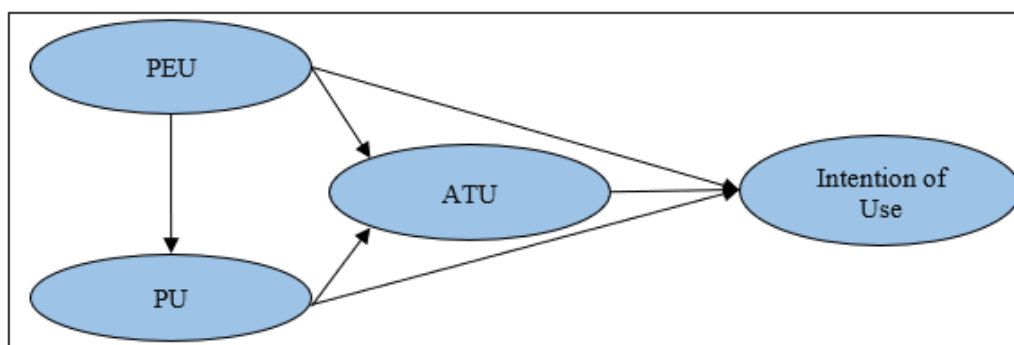
4.7 Hypothesis testing

A relationship can be considered significant and accepted if the result of the convergent validity is below 0.5; otherwise, it may be eliminated or rejected.

Table 5. Result of the hypothesis testing

Hypothesis	Relationship	Estimate	Decision
H1	PEU→PU	1.070	Accepted
H2	PEU→ATU	1.379	Accepted
H3	PEU→Intention to use	1.319	Accepted
H4	PU→ATU	4.312	Accepted
H5	PU→Intention to use	3.708	Accepted
H6	ATU→ Intention to use	3.308	Accepted

The results of the hypothesis testing in Table 5 show that the variables with a significant influence are as follows: PEU on PU is accepted, PEU on ATU is accepted, PEU on Intention to Use is accepted, PU on ATU is accepted, PU on Intention to Use is accepted, and ATU on Intention to Use is accepted. Model modifications related to the Benefit Analysis reveal significant relationships among variables. The new model can be seen in the Figure 5.

The final model in Figure 5 can be explained as follows: PEU (Perceived Ease of Use) influences PU (Perceived Usefulness), PEU influences ATU (Attitude Toward Using), PEU influences Intention to use, PU influences ATU, PU influences Intention to use, and ATU influences Intention to use. The analysis results can be summarized as follows: PEU has a positive influence on PU. This result indicates that consumers' perception of the ease of booking KAI tickets significantly affects their perception of the service's usefulness.

PEU (Perceived Ease of Use) has a positive influence on ATU (Attitude Toward Using), indicating that consumers' perception of ease directly impacts consumers' attitudes and behaviors in a positive direction. PEU also has a positive influence on Intention to Use, suggesting that consumers' perception of ease significantly affects their desire to use the application.

PU (Perceived Usefulness) has a positive influence on ATU (Attitude Toward Using). The ease experienced by consumers affects their attitudes and behaviors positively. This is closely related to PU exerting a positive influence on Intention to Use. The ease with which consumers can book tickets positively affects their intention to make repeat bookings. Additionally, Attitude Toward Using (ATU) also has a positive impact on Intention to Use, indicating the favorable attitude and behavior of consumers who intend to make repeat ticket purchases.

Despite several features still being under development, it hasn't deterred customers from using KAI Access services. This is evident from the continued positive impact of PU and PEU on this application. Naturally, it is hoped that PT KAI will further enhance the quality of its services, thereby increasing its customer base.

The KAI Access application greatly simplifies transactions for consumers. In conclusion, the KAI Access application significantly assists consumers in booking and purchasing KAI tickets. In fact, consumers are even more interested in using the KAI Access application again.

Figure 5. Final model

5. CONCLUSION

This research focused on addressing the challenges faced by PT KAI in adapting to the digital revolution, particularly in the context of online train ticket reservations. The study aimed to offer comprehensive insights into the technology acceptance among users of the KAI Access application and analyze its impact on customer satisfaction levels. The Technology Acceptance Model (TAM) served as the theoretical framework, emphasizing the significance of user perceptions of perceived

ease of use (PEU) and perceived usefulness (PU). The results indicated that PEU positively influences PU, ATU, and Intention to Use, highlighting the importance of users' perceptions of ease in shaping their attitudes and behaviors. Similarly, PU positively affects ATU and Intention to Use, emphasizing the role of perceived usefulness in influencing user attitudes and intentions. ATU was also found to positively impact Intention to Use, indicating that a positive user attitude contributes to the desire for repeat transactions.

This study addresses the need for understanding user acceptance and satisfaction with technological innovations in the context of PT KAI's services. The research findings align with the identified challenges of long queues, lack of accessibility, and discomfort in conventional ticket purchase processes, providing insights for PT KAI to enhance its services through the KAI Access application. The company can capitalize on the positive influence of perceived ease of use and perceived usefulness to improve user satisfaction and promote repeated usage of the KAI Access application. It is recommended that PT KAI continues to invest in improving the quality of its services, considering user perceptions and attitudes as crucial factors in the success of the digital ticketing platform. PT KAI can use these findings to further develop and customize the KAI Access application to meet the evolving needs of modern consumers. Emphasizing features that enhance ease of use and perceived usefulness, along with addressing any remaining issues, can contribute to increased customer satisfaction and loyalty.

Further research in the context of PT KAI and similar organizations should consider delving deeper into the user experience, analyzing behavioral patterns, and conducting cross-cultural studies to understand the influence of technology adoption and customer satisfaction. Exploring factors like digital literacy, data security, and long-term user retention, along with comparative studies with other transportation providers, can provide valuable insights. Additionally, the impact of COVID-19 on online booking services and the role of government policies in shaping technology adoption in the transportation sector should be explored, offering practical guidance for optimizing digital services and enhancing customer relations in an evolving digital landscape.

REFERENCES

[1] Christanto, H.J. (2022). Game theory analysis on marketing strategy determination of KAI access and traveloka based on usability of HCI (Human-Computer Interaction). Journal of Information Systems and Informatics, 4(3): 665-672. https://doi.org/10.51519/journalisi.v4i3.300

[2] Christanto, H.J. (2020). Analisa tingkat usability berdasarkan human computer interaction untuk sistem pemesanan tiket online kereta Api. Jurnal Sistem Informasi Bisnis, 10(2): 163-172. https://doi.org/10.21456/vol10iss2pp163-172

[3] Riyadi, M.I., Hudayat, Y. (2022). Evaluasi kinerja operasional dan pelayanan stasiun kereta api. Nautical: Jurnal Ilmiah Multidisiplin Indonesia, 1(7): 535-542. https://doi.org/10.55904/nautical.v1i7.365

[4] Kim, H.Y., Lee, J.Y., Mun, J.M., Johnson, K.K.P. (2017). Consumer adoption of smart in-store technology: Assessing the predictive value of attitude versus beliefs in the technology acceptance model. International Journal of Fashion Design, Technology, and Education, 10(1): 26-36. https://doi.org/10.1080/17543266.2016.1177737

[5] Setiawan, H., Novita, D. (2021). Analisis kepuasan pengguna aplikasi kai access sebagai media pemesanan tiket kereta api menggunakan metode EUCS. Jurnal Teknologi Sistem Informasi, 2(2): 162-175. https://doi.org/10.35957/jtsi.v2i2.1375

[6] Christanto, H.J., Sutresno, S.A., Denny, A., Dewi, C. (2023). Usability analysis of human computer interaction in google classroom and microsoft teams. Journal of Theoretical and Applied Information Technology, 101(16): 6425-6436.

[7] Citra, W., Mustika, K.D., Thya, S.S., Yulita, W.I. (2021). E-boarding KAI access summative usability analysis with adoption of USE questionnaire. Journal of Physics: Conference Series, 1918(4): 042134. https://doi.org/10.1088/1742-6596/1918/4/042134

[8] Rahayu, D.S. (2022). E-service quality dari mobile application kai access pt kereta api indonesia (persero) daop II bandung. Journal of Applied Business Administration, 6(2): 115-122. https://doi.org/10.30871/jaba.v6i2.4258

[9] Hasan, F.F. (2018). A review study of information systems. International Journal of Computer Applications, 179(18): 15-19. https://doi.org/10.5120/ijca2018916307

[10] Zeng, F., Lee, S.H.N., Lo, C.K.Y. (2020). The role of information systems in the sustainable development of enterprises: A systematic literature network analysis. Sustainability, 12(8), 3337. https://doi.org/10.3390/su12083337

[11] Kadir, A. (2014). Pengenalan Sistem Informasi Edisi Revisi.

[12] Angkasa, Y., Nawang, K. (2013). Peranan Teknologi Informasi dalam E-Ticketing Pesawat Udara. Jurnal Aviasi Langit, 5(13): 25-31.

[13] Grebenshchikov, I., Ivanova, Tz., Batchkova, I. (2016). Information Modeling of Online Air Tickets Reservation System. International Scientific Journals, 3(1): 54-57.

[14] Surendran, P. (2012). Technology acceptance model: A survey of literature. International Journal of Business and Social Research, 2(4): 175-178. https://doi.org/10.18533/ijbsr.v2i4.161

[15] Davis, F.D. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results. Doctoral Dissertation, Massachusetts Institute of Technology.

[16] Lai, P.C. (2017). The literature review of technology adoption models and theories for the novelty technology. JISTEM-Journal of Information Systems and Technology Management, 14(1): 21-38. https://doi.org/10.4301/S1807-17752017000100002

[17] Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3): 319-340. https://doi.org/10.2307/249008

[18] Li, L. (2010). A critical review of technology acceptance literature. Referred Research Paper, Grambling State University.

[19] Venkatesh, V., Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2): 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

[20] Owusu, P.R., Asiedu, E.P., Ji, J., Sarpong, F.A. (2022). Innovation and evaluation of technology acceptance model (Tam) in S-commerce: A case of social media platforms in Ghana. Journal of Computer and Communications, 10(3): 100-124. https://doi.org/10.4236/jcc.2022.103007

[21] Hartwell, M.L., Khojasteh, J., Wetherill, M.S., Croff, J.M., Wheeler, D. (2019). Using structural equation modeling to examine the influence of social, behavioral, and nutritional variables on health outcomes based on NHANES data: Addressing complex design, nonnormally distributed variables, and missing information. Current Developments in Nutrition, 3(5): nzz010. https://doi.org/10.1093/cdn/nzz010

[22] Fariyanda, M. (2023). Structural Equation Modelling (SEM) method in the analysis of affecting factors student achievement with the system learning online. JMEA: Journal of Mathematics Education and Application, 2(1): 34-44. https://doi.org/10.30596/jmea.v2i1.12472

[23] Paramita, A.V., Mujahidin, M. (2014). Analisis Kemanfaatan dan Kemudahan Penggunaan Aplikasi Manajemen Surat dengan Pendekatan Technology Acceptance Model pada PT. XYZ Surabaya. Jurnal Teknik ITS, 3(2): A216-A221. https://doi.org/10.12962/j23373539.v3i2.8286

[24] Wijaya, O.R.C., Susilo, C.L. (2021). The influence of technology acceptance model (Tam) and brand trust toward consumer's intention to buy in Tiket.Com with E-Wom as a moderating variable. Journal Of Tourism, Culinary and Entrepreneurship (JTCE), 1(1): 15-24. https://doi.org/10.37715/jtce.v1i1.1797

[25] Dewi, A.S., Wulandari, A., Rahayu, A., Hendrayati, H. (2023). Gaining user satisfaction of KAI (Indonesian Railways Company)-access: E-service quality dimensions as antecedent through E-trust. Asia-Pacific Management and Business Application, 11(3): 363-378. https://doi.org/10.21776/ub.apmba.2023.011.03.8

[26] Assegaff, S. (2017). Analisis Perilaku User pada Pemanfaatan Layanan Pemesanan Tiket Online pada Aplikasi Mobile (Prespektif Kepercayaan dan Resiko oleh Konsumen). Jurnal Manajemen Teknologi, 16(1): 62-80. https://doi.org/10.12695/jmt.2017.16.1.5

[27] Wikarsa, L., Angdresey, A. (2021). Using technology acceptance model to evaluate the utilization of kolintang instruments application. Pekommas, 6(1): 33-41. https://doi.org/10.30818/jpkm.2021.2060104

[28] Natasia, S.R., Wiranti, Y.T., Parastika, A. (2022). Acceptance analysis of NUADU as e-learning platform using the Technology Acceptance Model (TAM) approach. Procedia Computer Science, 197: 512-520. https://doi.org/10.1016/j.procs.2021.12.168

[29] Sukendro, S., Habibi, A., Khaeruddin, K., Indrayana, B., Syahruddin, S., Makadada, F.A., Hakim, H. (2020). Using an extended Technology Acceptance Model to understand students' use of e-learning during Covid-19: Indonesian sport science education context. Heliyon, 6(11): e05410. https://doi.org/10.1016/j.heliyon.2020.e05410

[30] Stefany, B.A., Wibowo, F.M., Wiguna, C. (2021). Analysis of user satisfaction of the brebes tourism application using the technology acceptance model (TAM) method. (Analisis Kepuasan Pengguna Aplikasi Wisata Brebes Dengan Metode Technology Acceptance Model (TAM)). Journal of Information Systems and Informatics, 3(1): 1-13. https://doi.org/10.13140/RG.2.2.15959.80801

[31] Farrugia, B. (2019). WASP (write a scientific paper): Sampling in qualitative research. Early Human Development, 133: 69-71. https://doi.org/10.1016/j.earlhumdev.2019.03.016

[32] Andrade, C. (2021). The inconvenient truth about convenience and purposive samples. Indian Journal of Psychological Medicine, 43(1): 86-88. https://doi.org/10.1177%2F0253717620977000

[33] Etikan, I., Musa, S.A., Alkassim, R.S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1): 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

[34] Thompson, C.B. (2009). Descriptive data analysis. Air Medical Journal, 28(2): 56-59. https://doi.org/10.1016/j.amj.2008.12.001

[35] Maydeu-Olivares, A., Fairchild, A.J., Hall, A.G. (2017). Goodness of fit in item factor analysis: Effect of the number of response alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 24(4): 495-505. https://doi.org/10.1080/10705511.2017.1289816

[36] Taber, K.S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. Research in Science Education, 48: 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

[37] Ab Hamid, M.R., Sami, W., Sidek, M.M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. Journal of Physics: Conference Series, 890(1): 012163. https://doi.org/10.1088/1742-6596/890/1/012163

[38] Fornell, C., Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1): 39-50. https://doi.org/10.2307/3151312