

## EVALUATION OF USER SATISFACTION WITH THE ACCESS BY KAI APPLICATION USING THE END USER COMPUTING SATISFACTION (EUCS) AND IMPORTANCE PERFORMANCE ANALYSIS (IPA) APPROACHES

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### Abstract

Access by KAI is the official digital application of PT Kereta Api Indonesia (Persero) that facilitates the public in booking train tickets. However, users have reported several complaints regarding the performance of certain features. This study aims to evaluate user satisfaction of the Access by KAI application using the End User Computing Satisfaction (EUCS) approach analyzed through the Importance Performance Analysis (IPA) method. The five EUCS variables used are: content, accuracy, format, ease of use, and timeliness. This research employed a quantitative method by distributing questionnaires to 239 respondents, supported by qualitative data from interviews with 15 selected respondents and analysis of user comments on the Google Play Store. The findings reveal that there are seven application features located in Quadrant I of IPA, meaning they are considered important but have low performance. These features include: post-payment user purchase data (X2.3), train schedule information (X2.4), font display (X3.4), bank payment (X4.2), ticket rescheduling (X4.7), ticket booking process (X5.2), and digital wallet payment (X5.4). Interview results and Play Store reviews further support these findings. The study recommends that PT KAI prioritize improvements to these features to enhance user satisfaction.

**Keywords :** *user satisfaction, Access by KAI, EUCS, IPA, railway application*

### INTRODUCTION

The development of information technology has changed various sectors, including transportation. PT Kereta Api Indonesia (Persero) innovated by launching the Access by KAI digital application to facilitate ticket bookings and other services. This application has been downloaded more than 14.9 million times with 11.9 million registered users (L. Septiani, 2024). However, despite its high popularity, the application rating on the Google Play Store in March 2025 showed 2.8/5, accompanied by many negative reviews regarding errors, bugs, and difficulties in the booking, payment, refund, and schedule change features.

Previous studies on the Access by KAI application generally only used the EUCS model to measure user satisfaction, without considering factors of importance and priority of improvement. A study by Setiawan & Novita (2021) found that accuracy, format, and timeliness had a significant effect, while content and ease of use did not. Arochma et al. (2023) stated that only ease of use met satisfaction. Nugraha et al. (2024) identified content, format, and timeliness as significant variables. Therefore, this study integrates the End User Computing Satisfaction (EUCS) model with the Importance Performance Analysis (IPA) method to not only measure the level of satisfaction but also identify features that are a priority for improvement. A mixed-method approach (quantitative and qualitative) is used to provide more comprehensive insights. The objectives of this study are:

To identify EUCS indicators and variables that receive the highest and lowest ratings from users of the Access by KAI application. To analyze the features that are the main priority for improvement based on the results of the IPA analysis to improve user satisfaction.

## **LITERATURE REVIEW**

### **2.1. User Satisfaction Theory**

User satisfaction is an assessment or emotional reaction after using a product/service, based on a comparison between expectations and reality (Kotler et al., 2021). In the context of information systems, satisfaction is measured through specific variables that affect the user experience.

### **2.2. End User Computing Satisfaction (EUCS)**

EUCS is a method for measuring user satisfaction of information systems by comparing expectations and reality (Muarie & Nopriani, 2020). This model was introduced by Doll & Torkzadeh (1988) and consists of five main variables:

- Content: Completeness and relevance of information.
- Accuracy: Accuracy of data generated by the system.
- Format: Appearance and aesthetics of the interface.
- Ease of Use: Ease of learning and operating the system.
- Timeliness: Speed and timeliness of information presentation.

### **2.3. Importance Performance Analysis (IPA)**

IPA is an analysis technique used to identify important performance factors that a company must demonstrate in meeting user satisfaction (Martila & James, 1977 in Qholisa & Nudin, 2023). IPA maps service attributes into four quadrants based on the level of importance (expectation) and performance (reality):

- Quadrant I (Concentrate Here): High importance, low performance. Needs to be fixed immediately.
- Quadrant II (Keep Up the Good Work): High importance, high performance. Must be maintained.
- Quadrant III (Low Priority): Low importance, low performance. Improvement is not urgent.
- Quadrant IV (Possible Overkill): Low importance, high performance. Resource allocation can be diverted.

## **METHODS**

This study uses a mixed-method approach, namely a combination of quantitative and qualitative.

### **3.1. Population and Sample**

The population is active users of the Access by KAI application. The quantitative sample consisted of 239 respondents, determined using the Slovin formula with an error rate of 7% from a total population of 5,712,807 active users in 2024. The qualitative sample consisted of 15 interview respondents, selected by purposive sampling from questionnaire respondents who showed dissatisfaction with the features in Quadrant I IPA.

### **3.2. Research Instrument**

Data were collected through an online questionnaire using Google Form, which combined Performance and Importance questions with a Likert Scale of 1-5 for each EUCS indicator. Semi-structured interviews were conducted to deepen understanding of the quantitative results, especially on features included in Quadrant I.

### **3.3. Data Analysis Techniques**

- Validity and Reliability Test: Using SPSS to test the validity (item-total correlation,  $r_{count} > r_{table}$  and  $p\text{-value} < 0.05$ ) and reliability (Cronbach's Alpha  $> 0.70$ ) of the instrument.
- Descriptive Statistics: Calculating the average importance and performance for each indicator and EUCS variable.
- Importance Performance Analysis (IPA): Mapping indicators into four quadrants based on the average importance and overall performance to identify improvement priorities.

## **RESULT AND DISCUSSIONS**

### **4.1. Respondent Characteristics**

Of the 239 respondents, the majority were female (51.9%) and aged 18-24 years (46%). Most respondents (81.6%) frequently use the Access by KAI application ( $> 5$  times a year), with the train ticket booking feature (46.9%) being the most frequently used.

### **4.2. Results of EUCS Descriptive Analysis**

In general, all EUCS variables show a higher average importance value than performance, resulting in a negative gap. This indicates that user expectations have not been fully met.

- Content (X1): Average performance 76.2%, gap -0.483. Indicates that information is considered important but there are still obstacles in completeness/clarity.

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- Accuracy (X2): Average performance 76.5%, gap -0.460. Indicates that the accuracy of data is important but still in doubt.
- Format (X3): Average performance 76.6%, gap -0.445. The visual appearance is generally good, but there are aspects that need improvement (eg: font).
- Ease of Use (X4): Average performance 76.4%, gap -0.445. Ease of use is important, but some processes are still considered difficult.
- Timeliness (X5): Average performance 76.7%, gap -0.454. Timeliness is important, but there are still delays.

### 4.3. Importance Performance Analysis (IPA) Results

The IPA analysis maps 31 indicators into four quadrants:

Table of Average Importance and Performance per indicator				
Indikator	Mean (Rata - Rata)			
	Performance		Importance	
X1.1	3.828	3.81	4.356	4.29
X1.2	3.854		4.360	
X1.3	3.728		4.243	
X1.4	3.812		4.251	
X1.5	3.833		4.259	
X2.1	3.732	3.82	4.268	4.28
X2.2	3.883		4.322	
X2.3	3.808		4.285	
X2.4	3.812		4.305	
X2.5	3.879		4.234	
X3.1	3.870	3.83	4.192	4.27
X3.2	3.845		4.364	
X3.3	3.749		4.180	
X3.4	3.795		4.331	
X3.5	3.870		4.289	
X4.1	3.782	3.82	4.197	4.26
X4.2	3.816		4.351	
X4.3	3.799		4.218	
X4.4	3.778		4.272	
X4.5	3.883		4.213	
X4.6	3.824		4.331	
X4.7	3.820		4.280	
X4.8	3.845		4.247	
X5.1	3.858	3.84	4.251	4.29
X5.2	3.803		4.385	
X5.3	3.795		4.218	
X5.4	3.812		4.289	
X5.5	3.841		4.301	
X5.6	3.879		4.414	
X5.7	3.820		4.201	
X5.8	3.883		4.268	
<b>Average</b>	<b>3.824</b>		<b>4.280</b>	

The higher the importance score, the greater the user's expectations of the item. Conversely, a low performance score indicates a mismatch between expectations and reality. In the performance section, the highest average score was found in the Timeliness variable (3.84), indicating that users were quite satisfied with the application's punctuality or speed. Meanwhile, the lowest average score was found in the Content variable (3.81), indicating that users felt the content or information displayed in the application still needed improvement (for example, the clarity of schedule/ticket information, routes, feature descriptions, etc.). In the importance section, the highest average score was found in the Content & Timeliness variable (4.29), indicating that these two aspects were

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the highest priority for users. They highly expect accurate and real-time information, as well as clear and complete content. Meanwhile, the lowest average score was found in the Ease of Use variable (4.26), indicating that although slightly lower, ease of use is still very important, but not as much as the need for quality and timely information. Based on the analysis results, the overall average importance score was 4,280 (this value indicates that users have very high expectations for the application). Users consider the features and services in the application very important to support their travel experience. Meanwhile, the overall average performance score was 3,824 (this value is above the middle (3.0), in general, users feel quite satisfied, but have not yet reached the "very satisfied" category (4 and above)). This means that the application is running quite well, but there is still much room for improvement, especially for features that are important to users.

**Table Number of Indicators in each Quadrant**

<b>Kuadran</b>	<b>Indikator</b>	<b>Variabel</b>	<b>Fitur Aplikasi</b>	<b>Jumlah Indikator</b>	<b>Strategi</b>
<b>I</b>	X2.3	Accuracy	Data Pembelian Pengguna	7	Prioritas Perbaikan
	X2.4	Accuracy	Jadwal KA		
	X3.4	Format	Font (bentuk tulisan)		
	X4.2	Ease of Use	Pembayaran Bank		
	X4.7	Ease of Use	Proses Reschedule		
	X5.2	Timeliness	Proses Pemesanan		
	X5.4	Timeliness	Pembayaran Dompot Digital		
<b>II</b>	X1.1	Content	Jadwal KA	8	Pertahankan Kinerja
	X1.2	Content	Rute KA		
	X2.2	Accuracy	Ketersediaan Kursi		
	X3.2	Format	Tampilan Pemesanan Tiket		
	X3.5	Format	Estetika Visual		
	X4.6	Ease of Use	Proses Refund		
	X5.5	Timeliness	Pembayaran KAI Pay		
	X5.6	Timeliness	Reschedule		
<b>III</b>	X1.3	Content	Tentang Access	9	Perbaikan tidak mendesak
	X1.4	Content	Promo		
	X2.1	Accuracy	Transportasi Lanjutan		
	X3.3	Format	Kejelasan Ikon		
	X4.1	Ease of Use	Face Recognition		
	X4.3	Ease of Use	Pembayaran Dompot Digital		



submit through the application. Timeliness: KAI Pay payment (X5.5), Reschedule (X5.6). KAI Pay payment is fast, and the reschedule process (from the system side) is completed on time.

- Quadrant III (Non-Urgent Improvements - 9 Indicators):

Content: About Access (X1.3), Promo (X1.4). This information is less relevant/interesting to users. Accuracy: Advanced transportation (X2.1). Advanced transportation information is less accurate or rarely used. Format: Icon clarity (X3.3). Icon design is not the main focus of users. Ease of Use: Face Recognition (X4.1), Digital wallet payment (X4.3), Multi Trip Card (KMT) (X4.4). This feature is rarely used or feels less intuitive. Timeliness: Bank Payment (X5.3), Refund (X5.7). The speed of bank payment and refund process is not a top priority.

- Quadrant IV (Over-Allocation - 7 Indicators):

Content: Transaction history (X1.5). Complete information, but rarely accessed. Accuracy: Live Tracking (X2.5). Accurate features, but not all users actively monitor. Format: Menu (X3.1). The menu layout is neat, but not the main focus. Ease of Use: Online Check-in (X4.5), Help Center (X4.8). These features are easy to use, but under-utilized or reactive. Timeliness: Real-Time Notification (X5.1), E-Boarding Pass (X5.8). Accurate notifications and fast e-boarding pass are available, but not considered too important.

#### 4.4. Strengthening Findings (Interviews and Play Store)

The results of interviews with 15 respondents consistently strengthen the IPA findings in Quadrant I. Respondents complained about inconsistencies in purchase data, out-of-date schedules, difficulty rescheduling, payment errors (bank and e-wallet), and unattractive font displays. Analysis of comments on the Google Play Store also showed a similar pattern of complaints, validating that the problems in Quadrant I are real and widely felt by users. This data triangulation increases the validity of the research results. In addition to conducting questionnaire and interview analysis, researchers also explored user reviews of the Access by KAI application on Google Play Store to strengthen the findings in Quadrant I. These reviews were selected based on their suitability with features included in Quadrant I, such as user purchase data (X2.3), train schedules (X2.4), bank payments (X4.2), rescheduling process (X4.7), ordering process (X5.2), and digital wallet payments (X5.4). The observation results showed that many users also complained about similar things on the Play Store platform.

## CONCLUSION

User satisfaction of the Access by KAI application generally shows a negative gap between expectations and reality in all EUCS variables, indicating that expectations have not been fully met. The content variable has the highest level of importance but shows the largest negative gap (-0.483), indicating a significant gap between expectations and performance. Seven features were identified as priorities for improvement (Quadrant I IPA): user purchase data (X2.3), train schedule (X2.4), font/writing (X3.4), bank payments (X4.2), rescheduling process (X4.7), ordering process (X5.2), and digital wallet payments (X5.4). These findings are consistent with the results of interviews and Play Store reviews.

## SUGGESTION

Based on the conclusions obtained from the results of the Importance Performance Analysis (IPA) analysis, respondent interviews, and observations of user comments on the Google Play Store, the researcher provides several practical suggestions that can be used as evaluation materials and further development for PT KAI in improving the quality of the Access by KAI application, especially on features that are the main priority to be improved (Quadrant I) and for further researchers:

1. For developers of the Access by KAI application:

Focus on improving the features that fall into Quadrant I, namely the Accuracy variable for user purchase data features (X2.3) and the train schedule feature (X2.4), the Format variable, namely the font (form of writing) (X3.4), the Ease of Use variable, namely the payment feature via bank (X4.2) and the reschedule process feature (X4.7), and the Timeliness variable, namely the ordering process feature (X5.2), and the payment feature via digital wallet (X5.4) especially:

- a. Improvement of User Purchase Data Accuracy (X2.3)

PT KAI needs to ensure that user purchase data such as schedule information, name, seat, and booking code appear in real-time and without errors after payment. Strengthening of the backend system and integration with the payment system is needed so that data confirmation can appear automatically without delay. Improve the payment system to be more stable and easy to use, especially for bank and digital wallet methods.

- b. Improvement of Train Schedule Accuracy (X2.4)

The schedule system needs to be synchronized with the latest information in the field. Real-time integration is needed between the application and the train operational control center, so that users can obtain accurate

information regarding delays or schedule changes. Increase the speed and reliability of the refund and reschedule features, and create easy-to-understand step-by-step guides.

c. Improvement of Font Display (Writing Form) (X3.4)

The font display needs to be adjusted to the principles of user-friendly design, especially for the young user age range (18–24 years). Choosing a larger, clearer, and contrasting font will improve user visual comfort.

d. Stabilization of Bank Payment Systems and Digital Wallets or e-wallets

A technical audit of the payment system through banks and digital wallets needs to be conducted. PT KAI can work more closely with payment gateway providers so that transactions are more stable, faster, and have an automatic notification system when transactions fail. Maintain the performance of features that have satisfied users, such as schedule displays and real-time trip tracking.

e. Simplifying the Reschedule Process

The reschedule feature needs to be designed so that it can be done directly through the application without having to contact customer service or come to the station. A simple interface and transparency regarding ticket change fees and policies also need to be improved.

f. Optimizing the Ticket Ordering Process

The ticket ordering process must be made more efficient and lightweight, especially when there is a spike in traffic. PT KAI needs to consider increasing server capacity and system load testing so that the search and ordering process is not prone to errors.

2. For further researchers:

This study has several limitations that can be used as a guide for further research development. Therefore, the researcher suggests the following for further researchers:

- a. It is recommended to add other dimensions such as user trust, transaction security, or even combine the EUCS + TAM + IPA approaches to broaden the perspective or use other methods such as Structural Equation Modeling (SEM), Customer Satisfaction Index (CSI), or even sentiment analysis with Natural Language Processing (NLP) to analyze user comment data in more depth.
- b. Adding other relevant variables, further researchers can add external variables such as trust, security, or perceived usefulness to expand the scope of influence on user satisfaction.
- c. Using broader and more planned interview techniques because this study used limited interviews with 15 respondents. Further researchers are advised to use structured interview techniques or focus group discussions (FGD) to obtain richer qualitative data.
- d. Conducting longitudinal studies or before-after application improvements, this study is cross-sectional (one time). Further researchers can conduct longitudinal studies by comparing user satisfaction before and after the improvement of features from PT KAI, so that the impact of application development can be measured in real terms.
- e. Analyzing comparisons with other transportation applications, further researchers can compare the Access by KAI application with similar applications such as Traveloka, Tiket.com, or others to determine the position of this application from the perspective of users who have many service options.

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