



Evaluation of User Resistance to E-Boarding Pass on KAI Access: A Case Study at Tegal Station

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Abstract

This study analyzes factors influencing user resistance to the e-boarding pass system of KAI Access at Tegal Station using quantitative methods through questionnaires administered to 100 respondents. The results indicate that 48% of users still prefer physical tickets (CTM) due to three primary factors: 1) technical difficulties 46%, 2) data security concerns 52%, and 3) lack of socialization efforts 83%. However, 81% of respondents believe video tutorials could enhance their understanding of the system. Based on these findings, the study recommends: simplifying the application interface, improving data security education, and implementing intensive visual-based socialization programs to promote more inclusive adoption of the digital ticketing system.

Keywords: E-Boarding Pass, Technology Resistance, Digital Transportation, Service Innovation, Digital Literacy

1. Introduction

The development of digital technology has driven the transportation sector to pursue various innovations, one of which is the digitalization of railway services by PT Kereta Api Indonesia (Persero) through the KAI Access application. One of the main features of this application is the e-boarding pass, which enables passengers to independently and efficiently check in without the need to print a physical ticket [1]. This innovation is expected to enhance passenger convenience, accelerate service processes, and reduce paper usage in support of environmentally friendly principles [2].

However, despite its availability and extensive promotion, the adoption of the e-boarding pass has not been fully embraced by all railway service users. Several factors influencing this adoption include users' limited understanding of technology and concerns about personal data security [3]. Therefore, various efforts and initiatives are needed to improve public awareness through education and outreach on the benefits and usage procedures of the e-boarding pass [4]. Collaborative efforts between PT Kereta Api Indonesia and relevant stakeholders can accelerate public understanding of the e-boarding pass and promote broader adoption [5]. One crucial step is organizing training and outreach programs that directly involve users to explain how the system works and the advantages it offers [6].

Resistance to technology is not a new phenomenon in the context of innovation adoption. It is essential to understand the factors influencing this resistance to develop more effective and sustainable technology implementation strategies [7]. One frequently overlooked factor is effective communication, which has proven to be critical in reducing resistance to technological changes [8]. Resistance to technological changes (Jambak et al., 2023). Good communication can help clarify the benefits of new technology and address user concerns, thereby increasing acceptance and participation in the adoption process. The importance of effective communication can also be seen in the context of mobile payment application usage, where user resistance is influenced by various factors such as privacy and security concerns [9]. Therefore, clear and transparent communication strategies must be implemented to alleviate such concerns and enhance user interest in mobile payment applications in Indonesia [10].

Thus, it is necessary to evaluate the causes of user resistance to the e-boarding pass, particularly at Tegal Station, so that PT KAI can formulate a technology adoption strategy that is not only modern but also inclusive and friendly to vulnerable groups such as the elderly, persons with disabilities, and communities with limited digital access [11] his study has a dual objective: to identify the causes of such resistance and to formulate evidence-based recommendations to promote technology adoption in the public transportation sector [12]. As such, the study is expected to serve as an empirical foundation for the development of more user-oriented digitalization policies in the railway transportation sector, especially in mitigating the digital divide. The findings of this research can also serve as a reference for similar studies at other stations across Indonesia, while enriching the literature on technology adoption in the mass transportation sector of developing countries. Ultimately, these efforts are expected to drive a digital transformation that is inclusive, efficient, and sustainable for all segments of society.

2. Research Methods

This study aims to investigate user resistance to the e-boarding pass feature on the KAI Access application at Tegal Station. The research was conducted using a mixed-methods approach, which combines the collection of both primary and secondary data. Mixed-methods research is a methodology that integrates quantitative (numeric/statistical data) and qualitative (narrative/contextual understanding) elements within a single study to explore user resistance to the Self-Ticket Printing (CTM) service in favor of the e-boarding pass, thereby supporting the improvement of public service quality at Tegal Station. According to Hermina et al. (2024) mixed-methods research enriches the data collected by combining both approaches, resulting in higher levels of validity, reliability, and objectivity. The goal is to gain a more holistic and in-depth understanding of the research problem by leveraging the strengths of both quantitative and qualitative methods while minimizing their respective limitations. In this study, an exploratory case study was used with a mixed-methods approach (qualitative and quantitative) involving three primary techniques: questionnaires, in-depth interviews, and field observations to understand the factors influencing user resistance to the Self-Ticket Printing (CTM) service in favor of the e-boarding pass.

In addition, this study also utilizes secondary data, referring to information previously collected and published by other parties, yet relevant to answering the research questions. This secondary data complements the primary data (results from questionnaires, interviews, and observations), enriching the analysis, validating findings, and providing a macro context for understanding the phenomenon of user resistance at Tegal Station. Adapun The determination of the number of respondents in this study was based on the Slovin formula:

$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

Description:

n : sample size

N : population size

e : margin of error (0,1)

$$n = \frac{2961}{1 + 2961(0,1)^2} \quad (2)$$

Based on the Slovin formula with a population of 2,961 and a 10% margin of error, the minimum required sample size is 97 respondents. To ensure data quality and field practicality, the sample size was rounded up to 100 respondents.

3. Results and Discussion

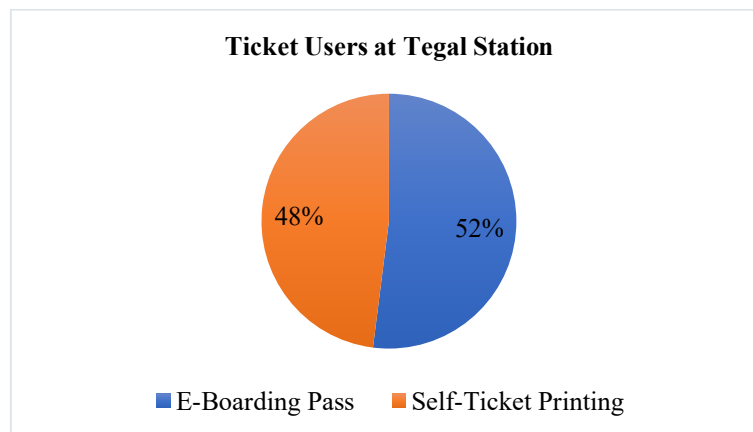


Fig. 1: KAI Ticket Users at Tegal Station

Based on the results of the study, the use of the e-boarding pass on the KAI Access application has become a popular ticketing option among KAI service users at Tegal Station. However, a considerable number of passengers still prefer physical tickets for their train journeys through Tegal Station. This indicates that user resistance to the e-boarding pass on KAI Access at Tegal Station remains relatively significant.

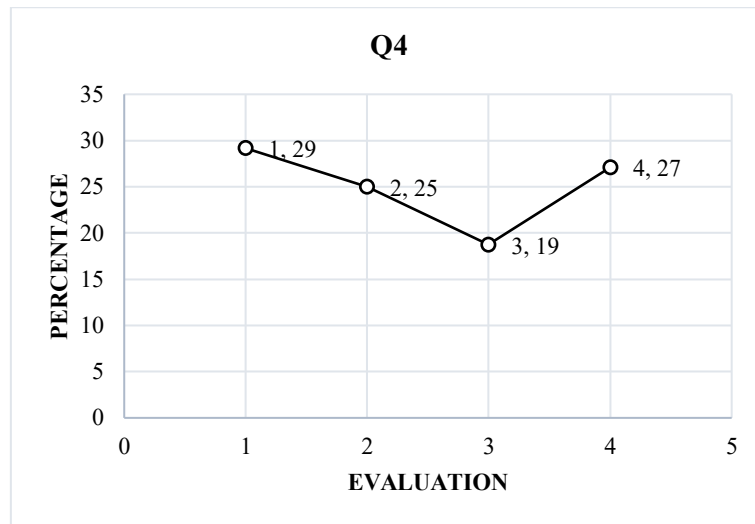


Fig. 2: User Resistance to Self-Ticket Printing (CTM)

Based on the quantitative and qualitative analysis conducted through in-depth interviews, it was found that user resistance to the e-boarding pass at Tegal Station is influenced by several complex factors.

First, technical difficulties emerged as the main barrier, with a number of respondents reporting challenges in downloading or operating the KAI Access application. As one user stated, “I often fail when trying to check in because the app suddenly crashes or responds slowly.” This aligns with the quantitative findings, which show that 46% of users experience technical difficulties, indicating that the application interface may not be fully user-friendly—particularly for individuals with limited digital literacy.

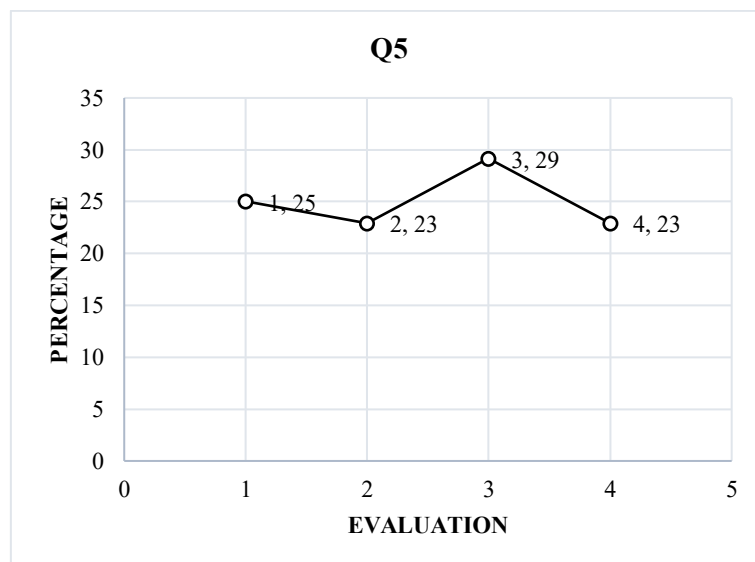


Fig. 3: User Resistance to Self-Ticket Printing (CTM)

Second, concerns about personal data security also contribute to user resistance. Interview results revealed that many users are reluctant to switch to digital tickets because they perceive a higher risk of data breaches. One respondent stated, “I’m not sure my data is safe on this app, so I’d rather use a physical ticket.” This finding supports the questionnaire data, which showed that 52% of respondents are concerned about data security, highlighting the importance of education and transparency from PT KAI regarding its data protection policies.

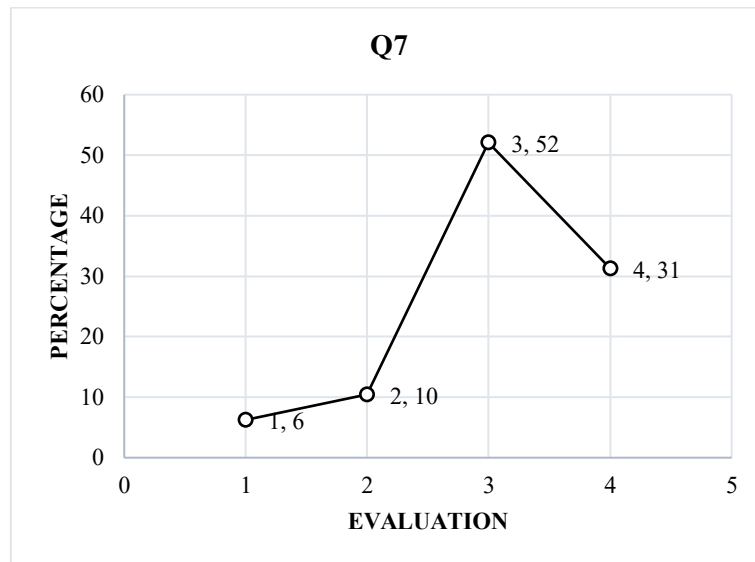


Fig. 4: User Resistance to Self-Ticket Printing (CTM)

Third, the lack of socialization and user guidance is a critical factor. The majority of interview respondents stated that they had never received any official instructions on how to use the e-boarding pass. As one user explained, “The station staff just told me to scan the QR code, but they didn’t explain how to register or troubleshoot issues.” This is consistent with the quantitative findings, which show that 83% of users have never received adequate information or guidance, indicating the urgent need for more widespread and accessible education programs.

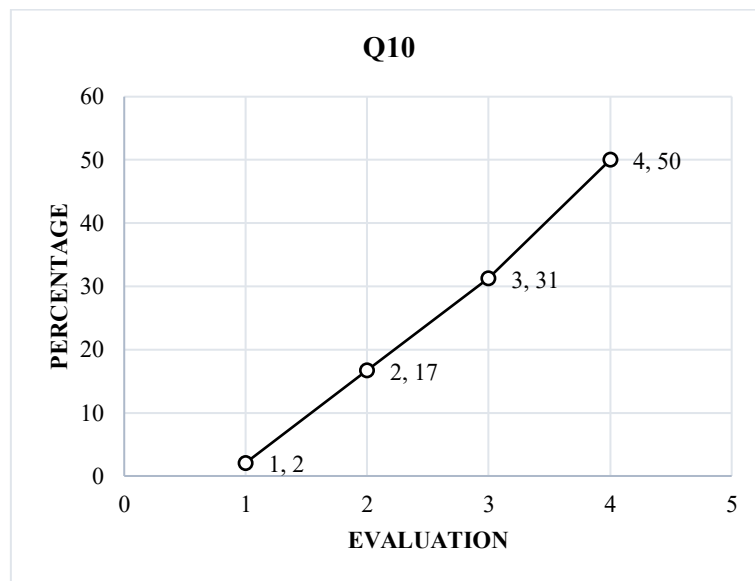


Fig. 5: User Resistance to Self-Ticket Printing (CTM)

However, a positive finding emerged from 81% of CTM (Self-Ticket Printing) respondents, who stated that tutorial videos displayed at stations or shared through digital platforms such as YouTube or Instagram would greatly assist them in using the e-boarding pass. This indicates a promising opportunity to increase technology adoption through visual approaches that are easier to understand. Theoretically, the findings of this study support the Innovation Resistance Theory, which highlights how technological complexity, perceived risks, and lack of knowledge serve as barriers to adoption. From a practical perspective, this research recommends simplifying the application interface, strengthening data security assurances, and developing outreach programs in the form of tutorial videos that are accessible across multiple digital platforms. These recommendations are especially important for reaching vulnerable groups, such as the elderly and users with limited digital literacy.

4. Conclusion

The study reveals that implementing the e-boarding pass via KAI Access at Tegal Station continues to encounter substantial obstacles, as nearly half of users (48%) still favor physical tickets. Contributing factors to this reluctance include operational challenges with the app (46%), privacy concerns related to personal data (52%), and limited user outreach, with 83% indicating they have never received any form of guidance regarding the system. Despite these issues, a promising insight emerged 81% of respondents believe tutorial videos would significantly aid their understanding of how to use the e-boarding pass. In response to these findings, the research recommends three core strategies: streamlining the application interface to enhance usability, offering thorough education on data protection to foster trust, and

intensifying outreach initiatives through visual media and direct support to promote inclusive and sustainable adoption of the digital boarding system.

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