Digital Transformation In Railway Ticketing:An Analysis of User Satisfaction And Ai Support

Ms. KamaliPriya .S[1], Dr. G. Sowmya[2]
[1] Dept of B.Com Professional Accounting
[2]Assist.Professor, Dept of B.Com RM
[1, 2]Sri Ramakrishna College of Arts and Science(Autonomous), Nava India, Coimbatore-641006.

Abstract- *The rapid growth of digital technologies has significantly transformed the railway ticketing system, replacing traditional methods with user-friendly online platforms and mobile applications. This study, titled "Digital Transformation in Railway Ticketing: An Analysis of User Satisfaction and AI Support", explores the evolving landscape of digital ticket booking and evaluates user experiences in this domain. The primary objectives are to identify the most commonly used train ticket booking applications, to examine the level of satisfaction with various features offered by these apps, to analyze the usefulness of Artificial Intelligence (AI) technologies in enhancing the booking experience, and to study the challenges encountered by users during the process. The research highlights how AI-driven tools, such as chatbots, predictive search, and personalized recommendations, contribute to efficiency and convenience, while also addressing user concerns related to technical glitches, payment security, and accessibility. By combining user feedback with analytical insights, this study provides a comprehensive understanding of digital transformation in railway ticketing and offers recommendations for improving app usability, reliability, and AI integration.*

Keywords- Mobile Applications in Transportation, User Satisfaction, Travel Technology.

I. INTRODUCTION

The rapid growth of digital technologies have significantly transformed the way services are delivered across industries, and the railway sector is no exception. Traditionally, railway ticket booking involved long queues and manual processes, which often caused inconvenience for passengers. However with rise of digital platforms and mobile applications, train ticket booking has become more accessible, efficient, and user-friendly. Today, a wide range of train ticket booking apps provide passengers with features such as instant reservations, digital payment options, real-time train updates, and personalized recommendations. In addition to basic booking services the integration of Artificial Intelligence(AI) into these applications has further enhanced the user experience. AI-powered chatbots, predictive analytics and recommendation system helps users plan their journeys more effectively by offering faster query resolutions, personalized suggestions, and improved system efficiency. Despite these advancements, challenges such as technical glitches, payment failures, data security concerns, and usability issues continue to affect user satisfaction. This research focuses on digital transformation in railway ticketing by identifying the commonly used booking apps, examining the level of user satisfaction with their features, analyzing the role of AI in improving the booking experience, and exploring the challenges faced by users. By understanding these aspects, the study aims to provide valuable insights into the effectiveness of digital and AI driven innovation in railway ticketing services, while highlighting areas that require further improvement for enhancing passenger convenience and trust.

II. OBJECTIVES

- To identify apps used for train ticket booking.
- To examine the level of satisfaction regarding features in train ticket booking apps.
- To analyze the helpfulness of AI technology used in train ticket booking apps.
- To study the challenges faced by users of train ticket booking apps.

III. REVIEW OF LITERATURE

1. **Ririn Argus Triani, Femmy Sofie Schouten (2023)** conducted a research on application of online train ticket booking applications access by KAI with the main objective as to analyse the impact of implementation of online train ticket booking applications on the number of train passengers based on train ticket sales data. The researchers user secondary data obtained from the Central Bureau of Statistics and uses a quantitative approach. The researcher used Normality test and Homogeneity test for the analysis. The study found that there is significant impact on the launch of online train ticket booking application (Access by KAI) one the increase in train passenger numbers in Indonesia.

2. **Ahmed Salim , Rizky Wijaya (2025)** conducted a research design on online train ticket booking applications prototype with the objective of designing a prototype for online train ticket booking applications for simplifying ticket booking process. In this study, the researchers used user interface UI/UX in determining the success of the application. The results showed that this application has an easy-to-understand and easy-to-use interface with more efficient booking time compared to traditional methods.

3. **Anuj Bhudkar, Sanhita Das (2017)** conducted a study on finding trend of advanced ticket booking with the objective of study the trend of ticket booking in Indian trains from the day of opening and closing of date of reservation. The researchers used primary data by analyzing bookings on alternative daily trains and used general trend analysis. The result show that there is an variation in heavy-rush, mid-rush and off-peak days.

IV. STATEMENT OF PROBLEM

With the rapid advancement of digital technology, mobile applications and online platforms have become the primary means for passengers to book train tickets in India. Several train ticket booking apps are available, each offering various features. However, despite their growing popularity, users continue to face challenges related to usability, reliability, refund processes, technical errors, and the overall satisfaction with these apps. While some applications are widely used, little is known about the actual factors that make them preferable to others. Similarly, though advanced technologies like Artificial Intelligence (AI) are integrated into booking systems, their helpfulness and effectiveness from the user's perspective remain unclear. Therefore, it becomes necessary for the researcher to systematically analyze which apps are most commonly used, how satisfied the users are with their features and to what extent AI technology adds value to the booking process.

RESEARCH METHODOLOGY

The present study adopts a descriptive research design to investigate the usage, satisfaction, challenges, and technological aspects of train ticket booking applications. This design is appropriate because it enables a systematic description of the current practices, user preferences, and perceptions regarding mobile applications used for booking train tickets.

SOURCES OF DATA

PRIMARY DATA: The study uses both primary and secondary data. Primary data collection is done through structural questionnaire.

SECONDARY DATA: Secondary datas are collected from journals, newspapers, websites of IRCTC.

Area of Study

DATA SIZE: The study was conducted with a sample size of 50 users who regularly use railway ticket booking applications.

TOOLS USED: Online survey forms, MS Excel for descriptive statistics, Likert scale analysis to measure satisfaction levels and Thematic analysis for qualitative responses regarding challenges and AI support**.**

LIMITATIONS

1. The sample size may not fully represent the entire population of railway app users.
2. Responses are based on self-reported data, which may include bias or inaccuracy.
3. The study focuses on selected apps; hence, findings may not apply to all available railway ticket booking platforms.

TABLE 1: DEMOGRAPHIC REPRESENTATION OF RESPONDENTS

Category	Options	Responses (out of 50)	Percentage
Profession	Student	39	78%
	Business	3	6%
	Employee	7	14%
	Homemaker	1	2%
	Other	0	0%
Educational Qualification	10^{th}	2	4%
	12^{th}	7	14%
	UG	39	78%
	PG	2	4%
Income Level	0–10,000	34	68%
	10,000–50,000	11	22%
	50,000–1,00,000	3	6%
	Above 1,00,000	2	4%
Frequency of Booking	Very often	4	8%
	Often	2	4%
	Sometimes	10	20%
	Rarely	19	38%
	Very rarely	15	30%

TABLE 1 represents the demographic factors of the respondents using Train Ticket booking apps. 78% of the respondents are Students and their Educational Qualifications are UG (78%) with Income Level of less than 10000 (68%) and rarely use booking apps (38%).

TABLE 2:BEST TRAIN TICKET BOOKING APP

Options	Responses (out of 50)	Percentage
IRCTC Rail Connect	28	56%
Confirm TKT	10	20%
Ixigo	6	12%
Rail Yatri	6	12%

TABLE 2 represents the best train ticket booking apps which shows TRCTC Rail Connect is the best with highest percentage of 56% followed by Confirm TKT (20%), Ixigo (12%), and Rail Yatri (12%).

TABLE 3:FEATURES THAT SATISFIED USERS

Options	Responses (out of 50)	Percentage
Seat selection	19	38%
Multiple paymen options	15	30%
Train schedule info	17	34%
Cancellation & refund	14	28%
Tatkal & premium Booking	3	6%

TABLE 3 shows the features that satisfied users which indicates that 38% of the users are satisfied with selecting seats using the app followed by Train Schedule(34%), Multiple Payment Options (30%), Cancellation & Refund (28%) and Premium Bookng (6%).

TABLE 4:AI TECHNOLOGIES IDENTIFIED

Options	Responses (out of 50)	Percentage
Chatbot (ASKDISHA)	28	56%
AI-based alternate route suggestion	10	20%
Hyper-personalisation	6	12%
Smart Quota Managment	6	12%

TABLE 4 shows the AI –technology identified in train ticket booking apps. In which 56% of the respondents availed Chatbot(ASKDISHA) AI service followed by AI-based alternate route suggestion (20%), Hyper-personalization (12%) and Smart Quota Management (12%).

TABLE 5:CHALLENGES FACED IN BOOKING

Options	Responses (out of 50)	Percentage
Payment & transaction issues	24	48%
More advertisements	8	16%
Slow server performance	24	48%
System crash during Tatkal	10	20%
Poor accessibility	7	14%

TABLE 5 shows the challenges faced by users of apps that shows 48% of users experience payment & transaction issues and Slow Server Performance whereas 20% experience System Crash during Tatkal, 16% faces More advertisement issues and 14% esperiences Poor accessibility.

V. CONCLUSION

The study suggests that railway ticket booking apps should focus on improving usability, integrating advanced AI support for predictive confirmations, and offering seamless payment methods to further enhance user satisfaction. Given that IRCTC Rail Connect is the most preferred app, competitors can increase their adoption by strengthening reliability and feature-rich services. Enhancing real-time train updates, personalized seat preferences, and customer support can attract wider user acceptance. In conclusion, while IRCTC Rail Connect dominates the market, overall satisfaction depends largely on features that improve convenience and reliability, thereby indicating that consistent innovation in service quality and user-friendly technology is crucial for sustaining competitiveness in digital railway ticketing platforms

REFERENCES

[1] Anuj Budhkar, Sanhita Das, Finding trend of advanced ticket booking in Indian railways, Transportation Research Procedia 25, 4822-4831, 2017.
[2] Ahmed Salim , Rizky Wijaya, Design of Online Train Ticket Booking Application Prototype, Journal of

Computer and Science Innovation, 11-22, vol. 1, ISSN NO. 3089-9532, 2025.

[3] Ririn Argus Triani, Femmy Sofie Schouten, Analysis of The Application of Online Ticket Booking Applications Access by KAI, 132-138, vol.7, E-ISSN: 2597-369X, 2023.

[4] Yuxian Guan, Bo Wu Jianmin Jia, Does online ticket bookin system make people better off ? An empirical study on railway service, Transportation Research Part F: Traffic Psychology and Behaviour, 143-154, vol.73, 2020.

[5] Subarnarekha Ghosal, Shalini Chaturvedi, Android application for ticket booking and ticket checking in suburban railways, Indian Journal of Sceince and Technology, 171-178, vol-8, ISSN:0974-5645, 2015.

[6] Yi-Heng Lin, Li-Heo Chen, Interface Design of Transport Mobile Commerce App: A Case Study of Taiwan Railway, Future of Information and Communication Conference, 138-149, 2021.

[7] Jick Castanha, Mayuri Prabhu, Behaviour intention to adopt IRCTC application for railway ticket reservation services: A case study of Goan consumers, Journal of Multidisciplinary Academic Tourism, 19-30, vol-7, 2022.

[8] Lisana and Bena, Dea Almira and Sutanto, Usability Evalutation of Ticket Purchasing Applications, Case Study Public Railways in Indonesia, Jurnal Ilmu Sistem Informasi, 50-55, ISSN:2085-4579, 2024.

[9] Elroy Gomes, Tryambak Gour, R Dakshayani, Travel booking and management application: TravelBel, Conference Paper, 57-64, 2022.

[10] Md Rabiul Awal, Tahmina Akter Arzin, Understanding railway passengers E-ticketing usage intention in an emerging economic context: application of an extended technology of acceptance model, Arab Gulf Journal of Science Research, 602-620, vol-42, 2024.

[11] https://dpi.org/10.1108/AGJSR

[12] https://ejournals.umn.ac.id/index.php/SI/article

[13] https://traveltriangle.com

[14] https://doi.org.10.1009/TCE.2019.2908.944

[15] https://doi.org/10.1108/JHTI-02-2022-0087