



A Study on the Impact of Service Quality on Customer Satisfaction towards the RailOne App

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ABSTRACT:

The RailOne App, developed by the Centre for Railway Information Systems (CRIS), integrates key Indian Railways passenger services such as ticket booking, PNR enquiry, train enquiry and tracking on a single platform and has recorded over 4.55 crore downloads. This study examines the impact of service quality on customer satisfaction towards the RailOne App using the five SERVQUAL dimensions, namely Tangibility, Reliability, Responsiveness, Assurance and Empathy. A descriptive research design was adopted, and primary data were collected from 80 RailOne App users through a structured questionnaire using purposive sampling. The data were analysed using percentage analysis, weighted average analysis, multiple regression and correlation analysis. The results show a generally favourable perception of service quality, with Assurance recording the highest weighted average among the five dimensions. Regression analysis confirmed that the SERVQUAL dimensions collectively have a significant effect on passenger convenience ($F = 28.89$, $p < 0.001$), and correlation analysis revealed a strong positive relationship between passenger convenience and customer satisfaction ($r = 0.700$, $p < 0.001$). Areas needing improvement include device access restrictions, booking interruptions, and refund and grievance handling. The findings offer insights for Indian Railways, CRIS and app developers on enhancing service quality and satisfaction.

Keywords: Service Quality, Customer Satisfaction, RailOne App, SERVQUAL, Passenger Convenience, Indian Railways

Introduction:

Service Quality and Customer Satisfaction in the Digital Era

Quality, service and value have become the foundations of modern marketing, as organisations can no longer compete on price or product availability alone. Rising competition, globalisation and technological change have raised customer expectations, and customers now compare services on reliability, convenience, responsiveness and overall experience. Parasuraman, Zeithaml and Berry (1988) defined service quality as the difference between customers' expectations and their perceptions of the service actually received. Their SERVQUAL model identifies five dimensions of service quality, namely tangibility, reliability, responsiveness, assurance and empathy, and has been widely adopted for measuring service performance across industries.

Customer satisfaction is the customer's overall evaluation of a service after comparing expected performance with the actual experience. Earlier research consistently shows that higher service quality contributes to customer satisfaction, loyalty and positive behavioural intentions. As mobile applications become a primary channel through which passengers access transportation services, expectations of digital service quality continue to rise. The effectiveness of a digital platform depends not only on the availability of services but also on system reliability, information accuracy, responsiveness, ease of use, security and customer support.

The Indian Railways Digital Landscape and the RailOne App

Indian Railways, which began passenger services in 1853, is one of the largest railway networks in the world and has progressively adopted digital technologies. The IRCTC online ticketing platform and the IRCTC Rail Connect application enabled reservation of long-distance tickets, PNR enquiry, cancellation and refunds, while the Unreserved Ticketing System (UTS) on Mobile served suburban and unreserved commuters. The coexistence of separate applications, however, required passengers to switch between platforms and created demand for a single integrated application.

RailOne is an integrated railway application launched by Indian Railways on 1 July 2025, on the 40th Foundation Day of CRIS, and is available on Android and iOS. CRIS is an organisation under the Ministry of Railways that develops and maintains IT systems for Indian Railways. RailOne brings together reserved, unreserved and platform ticket booking, PNR enquiry, train enquiry and Rail Madad services. According to the Ministry of Railways, the application had recorded 4.55 crore downloads and an average of 9.65 lakh daily ticket bookings by July 2026.

Review of Literature and Research Gap

Ndubisi (2003) observed that superior service quality improves customer satisfaction, loyalty and retention, while Cronin and Taylor (1992) proposed the performance-based SERVPERF model and found that service quality significantly influences customer satisfaction and purchase intentions. Johnston (1995) identified reliability, responsiveness, assurance, empathy and tangibles as key determinants of satisfaction and dissatisfaction. Nguyen (2021) reported that the five SERVQUAL dimensions significantly influence customer satisfaction, loyalty and brand equity, and Shah and Kubota (2022) found that better service quality improves passenger satisfaction and continued use of app-based ride-hailing services. In an existing RailOne study, Stanly, Sheeba and Perumal (2025) applied structural equation modelling to a sample of 300 respondents and found that app usability, information quality and service features improve passenger convenience, service experience and satisfaction. That study did not examine service quality through the SERVQUAL framework. The present study addresses this gap by examining how the five SERVQUAL dimensions influence passenger convenience and how passenger convenience is related to customer satisfaction among RailOne App users.

Relevance and Significance of the Study

As digital railway applications gain wider use, evaluating users' perceptions of service quality is necessary to understand the strengths of RailOne and the areas that require improvement. By analysing the relationship between service quality and customer satisfaction, this study provides evidence that can help Indian Railways, CRIS, policymakers and app developers improve digital service delivery, enhance the passenger experience and encourage wider adoption of railway platforms.

Methodology:

This study combines primary and secondary data sources. Primary data were collected through a structured questionnaire prepared using Google Forms and circulated among RailOne App users, employing purposive sampling, a non-probability technique, to select 80 respondents. As no complete list of RailOne users was available, accessible users who were willing to respond formed the sampling frame. The questionnaire covered demographic details, app usage, 18 statements on the five SERVQUAL dimensions (Tangibility, Reliability, Responsiveness, Assurance and Empathy) and three statements on customer satisfaction, all rated on a five-point scale from Strongly Disagree (1) to Strongly Agree (5). Secondary data were gathered from books, journals, research articles, previous studies and websites. The research is classified under a descriptive research design, which describes the characteristics, perceptions and opinions of respondents without manipulation or control. The data were analysed using percentage analysis, weighted average analysis, multiple regression analysis and correlation analysis.

Objectives:

Primary Objective:

To study the impact of service quality on customer satisfaction towards the RailOne App.

Secondary Objectives:

1. To measure the level of service quality perceived by users of the RailOne App.
2. To identify the service quality dimensions that significantly influence passenger convenience.
3. To analyse the relationship between passenger convenience and customer satisfaction towards the RailOne App.
4. To suggest suitable measures for improving service quality and enhancing customer satisfaction towards the RailOne App.

Data Analysis and Interpretation

1. PERCENTAGE ANALYSIS FOR AGE

PARTICULARS	FREQUENCY	PERCENTAGE
Below 18 years	2	2.5
18 – 25 years	69	86.3
26 – 35 years	5	6.3

PARTICULARS	FREQUENCY	PERCENTAGE
36 – 45 years	1	1.3
Above 45 years	3	3.8
Total	80	100.0

INFERENCE Most respondents (86.3%) are between 18 and 25 years old, indicating that the survey largely reflects young adult users. The other age groups are far smaller: 26 – 35 years (6.3%), above 45 years (3.8%), below 18 years (2.5%) and 36 – 45 years (1.3%).

2. PERCENTAGE ANALYSIS FOR GENDER

PARTICULARS	FREQUENCY	PERCENTAGE
Male	39	48.8
Female	41	51.3
Total	80	100.0

INFERENCE Female respondents (51.2%) slightly outnumber male respondents (48.8%), indicating a nearly balanced gender distribution.

3. PERCENTAGE ANALYSIS FOR HOW OFTEN RESPONDENTS USE THE RAILONE APP

PARTICULARS	FREQUENCY	PERCENTAGE
Daily	8	10.0
Several times a week	7	8.8
About once a week	3	3.8
2 – 3 times a month	13	16.3
Less than once in a month	49	61.3
Total	80	100.0

INFERENCE Most respondents (61.3%) use the RailOne App less than once a month, followed by 2 – 3 times a month (16.3%) and daily (10.0%). Only 22.5% use the app at least once a week, which suggests that RailOne is largely used occasionally, when a journey is planned.

4. WEIGHTED AVERAGE ANALYSIS OF SERVICE QUALITY DIMENSIONS

DIMENSION	WEIGHTED TOTAL	WEIGHTED AVERAGE	RANK
Tangibility	301	20.07	2
Reliability	284	18.93	5
Responsiveness	285	19.00	4
Assurance	304	20.27	1
Empathy	292	19.47	3

INFERENCE Assurance has the highest weighted total (304) and weighted average (20.27) among the five dimensions. Tangibility follows (301; 20.07), then Empathy (292; 19.47) and Responsiveness (285; 19.00), while Reliability records the lowest weighted total (284) and weighted average (18.93). Based on the weighted average method, Assurance emerges as the dimension receiving the highest weighted response.

6. MULTIPLE REGRESSION ANALYSIS

H0: The five service quality dimensions do not have a significant effect on passenger convenience towards the RailOne App.

H1: The five service quality dimensions have a significant effect on passenger convenience towards the RailOne App.

TEST STATISTICS (ANOVA)

SOURCE	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Regression	31.73	5	6.35	28.89	.000
Residual	16.25	74	0.22		
Total	47.99	79			

INTERPRETATION ($0.000 < 0.05$) Since the p-value is less than the 0.05 level of significance, the regression model as a whole is statistically significant. The null hypothesis is rejected and the alternative hypothesis (H1) is accepted: the five SERVQUAL dimensions, taken together, have a significant effect on passenger convenience. The sums of squares indicate that the model accounts for about 66% of the variation in passenger convenience ($R^2 = 31.73/47.99 = 0.66$).

7. CORRELATION ANALYSIS

H0: There is no significant relationship between passenger convenience and customer satisfaction towards the RailOne App.

H1: There is a significant relationship between passenger convenience and customer satisfaction towards the RailOne App.

TEST STATISTICS (PEARSON CORRELATION)

VARIABLES	CUSTOMER SATISFACTION	PASSENGER CONVENIENCE
Customer Satisfaction	1.000	.700
Passenger Convenience	.700	1.000
Sig. (2-tailed)		.000
N	80	80

INTERPRETATION ($0.000 < 0.05$) Since the p-value is less than the 0.05 level of significance, the null hypothesis is rejected. The Pearson correlation coefficient of 0.700 indicates a strong, positive and statistically significant relationship: higher perceived convenience in accessing and using railway services through RailOne is associated with higher customer satisfaction. Correlation shows association only and does not by itself establish cause and effect.

Results

The study examined users' perceptions of the service quality of the RailOne App using the SERVQUAL dimensions, the effect of service quality on passenger convenience, and the relationship between passenger convenience and customer satisfaction. Most respondents were young adults aged 18 to 25 years (86.3%), the gender distribution was nearly balanced, and 61.3% used the app less than once a month.

Perceptions of service quality were generally favourable: agreement was at least 60% for 17 of the 18 SERVQUAL statements, and 80.0% of respondents agreed that RailOne is a convenient way to access railway services. The weighted average analysis ranked Assurance highest (20.27), followed by Tangibility (20.07), Empathy (19.47), Responsiveness (19.00) and Reliability (18.93). The multiple regression analysis ($F = 28.89$, $p < 0.001$) showed that the five SERVQUAL dimensions collectively have a significant effect on passenger convenience, and the correlation analysis ($r =$

0.700, $p < 0.001$) showed a strong positive relationship between passenger convenience and customer satisfaction. The weakest areas were refund handling, device access restrictions, customer assistance and service consistency.

Conclusion

In conclusion, this study finds that RailOne App users generally hold a favourable perception of its service quality. Most respondents were satisfied with the clarity of the interface, the accessibility of ticketing services, the accuracy of bookings and payments, payment security and the overall usefulness of the application. Assurance was the highest-rated service quality dimension, the five SERVQUAL dimensions together significantly influence passenger convenience, and passenger convenience is strongly associated with customer satisfaction. Service quality therefore plays an important role in creating a convenient and satisfying digital railway experience.

The study also identifies areas requiring improvement. Indian Railways and CRIS should reduce unnecessary access restrictions linked to device settings such as Developer Options, USB debugging and app permissions; strengthen the reliability of unreserved ticket booking and reduce booking interruptions through better system monitoring, maintenance and faster recovery; ensure prompt and accurate updates of train running, arrival and departure information; provide faster customer assistance, simpler complaint procedures, complaint tracking and clear resolution timelines, particularly for refund-related issues; and communicate the app's privacy and security measures clearly to strengthen users' confidence. The clarity and ease of navigation of the interface should be preserved as new features are added.

The study is based on a small purposive sample of 80 users, most of them young adults, and relies on self-reported perceptions, so its findings may not be generalised to all railway passengers. It also examines RailOne alone and does not compare it with other railway applications. Future research may use larger and more diverse samples and compare RailOne with other railway applications.

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