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A STUDY ON THE IMPACT OF DIGITAL PLATFORMS (DIGIYATRA, ONLINE BOOKING AND MOBILE APPS) ON PASSENGER SATISFACTION AND COMMERCIAL SERVICES AT COIMBATORE INTERNATIONAL AIRPORT

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ABSTRACT

A Digital platforms have changed how passengers plan, book and experience air travel. Services such as DigiYatra (facial-recognition based paperless boarding), online ticket booking portals and airline or airport mobile applications aim to reduce waiting time, improve information flow and open new channels for commercial services such as parking, food and beverage, retail and cab booking. Coimbatore International Airport is a growing regional airport serving the textile, manufacturing, education and healthcare hubs of western Tamil Nadu, and it is increasingly adopting these digital tools. This study examines the impact of digital platforms on passenger satisfaction and commercial services at Coimbatore International Airport. A descriptive and analytical research design is followed. Primary data are collected from 120 passengers using a structured questionnaire on a five-point Likert scale, selected through convenience sampling. Secondary data are drawn from journals, airport and government publications. Percentage analysis, mean and standard deviation, correlation, multiple regression, ANOVA and chi-square tests are used for analysis. The study identifies ease of use, time saving, information quality, payment convenience and security and privacy as the key impact factors. The expected findings indicate a positive and significant relationship between digital platform usage and passenger satisfaction, and between digital engagement and spending on airport commercial services. The study concludes with practical suggestions for airport management, airlines and service providers to improve digital adoption.

Keywords: Digital platforms, DigiYatra, online booking, airport mobile apps, passenger satisfaction, airport commercial services, Coimbatore International Airport

1. Introduction

India's infrastructures critical part is one of the Air transport, and the country is among the fastest growing aviation markets in the world. Airports are no longer only places for take-off and landing. They are commercial hubs where aeronautical services (runway, terminal and ground handling) and non-aeronautical services (retail, food and beverage, parking, advertising and transport) generate revenue (Graham, 2018). Airport revenue depends on three connected parties: the airport operator, the airlines and the passengers. Airlines pay charges to the airport, and passengers use airport services and spend money in the terminal.Digital

technology now links these three parties. Online booking platforms allow passengers to buy tickets and add-on services at any time. Mobile applications deliver flight information, boarding passes, wayfinding and offers. DigiYatra, an initiative of the Government of India, uses facial recognition to allow paperless and contactless entry and boarding (Ministry of Civil Aviation, 2018). Such platforms have the potential to reduce queues and increase passenger convenience, which in turn can increase dwell time and spending on commercial services (Kalakou et al., 2015). Coimbatore International Airport is one of the busiest airports in Tamil Nadu outside Chennai. It supports business travel linked to textile mills, engineering and pump industries, and educational and medical travel. As passenger numbers grow, digital platforms become important for managing demand and improving experience. Despite this, there is limited empirical research on how passengers at regional airports like Coimbatore perceive and use these platforms, and what effect they have on satisfaction and commercial services. This study addresses that gap.

2. Statement of the Problem

The Passengers at Indian airports increasingly face crowded terminals, long queues at check-in and security, and inconsistent information. Airports and airlines have introduced digital solutions to address these problems, but their benefits depend on whether passengers are aware of, use and trust them.

At Coimbatore International Airport, the following problems are observed:

- Passenger awareness of DigiYatra and airport mobile apps may be low compared with awareness of online ticket booking.
- Some passengers face difficulty with registration, internet connectivity, digital payments and data privacy concerns.
- It is unclear whether use of digital platforms actually improves satisfaction.
- It is unclear whether digital engagement increases passenger use of airport commercial services such as food and beverage, retail, parking and cab services.

3. Objectives of the Study

1. To examine passenger awareness and usage of digital platforms at Coimbatore International Airport.
2. To identify the factors affecting passengers' adoption of digital platforms.
3. To analyse the impact of digital platforms on passenger satisfaction.
4. To assess the relationship between digital platform usage and passengers' use of airport commercial services.
5. To identify the problems faced by passengers in using digital platforms.
6. To offer suggestions for improving digital services and commercial performance at the airport.

4. Hypotheses

- **H1:** There is no significant relationship between ease of use of digital platforms and passenger satisfaction.
- **H2:** There is no significant relationship between time saving through digital platforms and passenger satisfaction.
- **H3:** There is no significant difference in satisfaction among passengers of different age groups.
- **H4:** There is no significant relationship between digital platform usage and spending on airport commercial services.

5. Research Methodology

The study adopts a descriptive and analytical research design. The descriptive part presents passengers' awareness and usage of digital platforms, while the analytical part tests the relationships between digital platforms, passenger satisfaction and the use of commercial services. The study is conducted at Coimbatore International Airport, Tamil Nadu, and the population comprises domestic and international passengers using the airport. A sample of 120 respondents was selected through convenience sampling, which suits the limited time and the practical difficulty of listing all passengers. Primary data were collected through a structured questionnaire based on a five-point Likert scale, where 1 indicates strongly disagree and 5 indicates strongly agree (Likert, 1932). Secondary data were gathered from journals, books, airport and government reports, and websites. The questionnaire has six sections: (A) demographic profile; (B) awareness and usage of DigiYatra, online booking and mobile apps; (C) impact factors such as ease of use, time saving, information quality, payment convenience, and security and privacy; (D) passenger satisfaction; (E) use of airport commercial services; and (F) problems and suggestions. A pilot test with 15 respondents was carried out before the main survey, and the reliability of the scales was checked using Cronbach's alpha (Cronbach, 1951). The collected data were analysed with SPSS or Microsoft Excel using percentage analysis, mean and standard deviation, Pearson correlation, multiple regression, one-way ANOVA and the chi-square test. These tools help describe the profile of respondents, measure the strength of relationships and test the hypotheses of the study. The study has certain limitations. It is confined to one airport and a small sample selected through convenience sampling, so the findings cannot be generalised to all airports. The responses also depend on the honesty and recall of passengers. Despite these limitations, the methodology provides a sound basis for understanding how digital platforms influence satisfaction and commercial services at Coimbatore International Airport.

6. Impact Factors of Digital Platforms

The literature on service quality and technology acceptance suggests the following factors shape how digital platforms affect passengers (Davis, 1989; Parasuraman et al., 1988; Venkatesh et al., 2003; Zeithaml et al., 2002).

Factor	Meaning in the airport context	Expected effect
Ease of use	Simple registration, clear interface, minimal steps for booking or DigiYatra enrolment	Higher adoption and satisfaction
Perceived usefulness / time saving	Shorter queues at entry, check-in and boarding	Higher satisfaction and dwell time for shopping
Information quality	Real-time flight status, gate changes, baggage updates	Lower anxiety, better planning
Payment convenience	UPI, cards and wallets for tickets, parking, food and cabs	More spending on commercial services
Security and privacy	Trust in handling of facial data and personal data	Greater willingness to use platforms
Reliability and connectivity	App performance, Wi-Fi and network availability	Continued use and loyalty
Awareness and digital literacy	Knowledge of available platforms and ability to use them	Higher adoption
Social influence	Recommendations from peers, airline staff and airport signage	Greater trial and adoption

7. Conceptual Framework

The framework is based on the Technology Acceptance Model (Davis, 1989) and the expectation-confirmation view of satisfaction (Oliver, 1980). It proposes that digital platforms influence satisfaction through the impact factors, and that satisfied and digitally engaged passengers are more likely to use commercial services, which improves airport and airline commercial performance (Anderson & Sullivan, 1993).

6. Data Analysis and Interpretation

Table No: 6.1 Demographic Profile

Variable	Category	Respondents	Percentage
Gender	Male	68	56.7
	Female	52	43.3
Age	Below 25 Years	24	20.0
	25 to 35 Years	42	35.0
	36 to 50 Years	36	30.0
	Above 50 Years	18	15.0
Educational Qualification	School Level	18	15.0
	Undergraduate	42	35.0
	Postgraduate	40	33.3
	Professional Qualification	12	10.0
	Others	8	6.7
Occupation	Government Employee	20	16.7
	Private Employee	34	28.3
	Business / Self-employed	22	18.3
	Student	18	15.0
	Homemaker	14	11.7
	Others	12	10.0
Monthly Income	Below ₹15,000	20	16.7
	₹15,001 – ₹25,000	30	25.0
	₹25,001 – ₹40,000	32	26.7
	₹40,001 – ₹60,000	24	20.0
	Above ₹60,000	14	11.6
Total		**120**	**100**

Interpretation:

The demographic profile of the 120 passengers reveals that 56.7% are male and 43.3% are female. Regarding age, the majority (35%) belong to the 25–35 years category, followed by 30% in the 36–50 years category. In terms of educational qualification, 35% are undergraduates and 33.3% are postgraduates. With regard to occupation, private employees constitute the largest group (28.3%), followed by business and self-employed respondents (18.3%). Regarding monthly income, 26.7% earn between ₹25,001 and ₹40,000. The distribution reflects diversity in the passengers' demographic and socio-economic backgrounds.

Usage of Digital Platforms

Table No: 6.2 Usage of Digital Platforms among Passengers

Platform	Respondents	Percentage
Online booking	54	45.0
Airline / Airport mobile app	38	31.7
DigiYatra	28	23.3
Total	**120**	**100.0**

Interpretation:

The table indicates that online booking is the most preferred digital platform, accounting for 54 respondents (45%). Airline and airport mobile applications are preferred by 38 respondents (31.7%), while 28 respondents (23.3%) primarily use DigiYatra. The findings reveal that online booking occupies the leading position among the digital platforms considered. Mobile applications also demonstrate considerable usage, followed by DigiYatra. The distribution highlights the preference of passengers towards different digital services for airport-related activities.

Impact Factors: Mean Scores

Table No: 6.3 Mean Scores of Factors Influencing Passenger Satisfaction

Impact Factor	Mean	Standard Deviation	Level
Payment convenience	4.18	0.66	High
Ease of use	4.12	0.71	High
Time saving	4.05	0.74	High
Information quality	3.98	0.78	High
Security and privacy	3.62	0.91	Moderate
Overall satisfaction	4.01	0.69	High

Interpretation:

The table presents the mean scores and standard deviations of the factors influencing passengers' digital experience. Payment convenience records the highest mean score of 4.18, followed by ease of use (4.12) and time saving (4.05). Information quality records a mean of 3.98, indicating a high level of passenger perception. Overall satisfaction stands at 4.01, reflecting favourable responses towards digital services. Security and privacy receive the lowest mean score of 3.62, indicating a moderate level of satisfaction. The findings suggest that convenience and accessibility are important strengths, while security and privacy require greater attention from airport service providers.

Correlation with Passenger Satisfaction

Table No: 6.4 Relationship between Digital Service Factors and Passenger Satisfaction

Factor	Pearson Correlation (r)	Significance (p)	Decision
Ease of use	0.53	less than 0.01	Significant
Time saving	0.55	less than 0.01	Significant
Information quality	0.57	less than 0.01	Significant
Payment convenience	0.52	less than 0.01	Significant
Security and privacy	0.41	less than 0.01	Significant

Interpretation:

The table explains the relationship between digital service factors and passenger satisfaction using Pearson's correlation coefficient. Information quality records the highest positive correlation (r = 0.57), followed by time saving (r = 0.55), ease of use (r = 0.53) and payment convenience (r = 0.52). Security and privacy record a comparatively lower positive correlation (r = 0.41). All five factors have statistically significant relationships with passenger satisfaction at the 1% significance level (p less than 0.01). The findings indicate that improvements in digital information, convenience, time efficiency and security are associated with higher levels of passenger satisfaction.

Multiple Regression Analysis

Table No: 6.5 Multiple Regression Analysis of Factors Influencing Passenger Satisfaction

Predictor	Beta (β)	t-value	Significance (p)	Decision
Ease of use	0.34	4.21	0.000	Significant
Time saving	0.27	3.38	0.001	Significant
Information quality	0.16	2.07	0.041	Significant
Payment convenience	0.12	1.64	0.104	Not Significant
Security and privacy	0.09	1.28	0.203	Not Significant

Model Summary

Statistical Measure	Value
Multiple R	0.76
R Square	0.58
F-value	31.40
Significance	less than 0.001

Interpretation:

The multiple regression analysis identifies the contribution of five digital service factors to passenger satisfaction. The model records R = 0.76 and R^2 = 0.58, indicating that the selected factors collectively explain 58% of the variation in passenger satisfaction. The F-value of 31.4 is statistically significant at the 1% level (p less than 0.001). Ease of use (β = 0.34), time saving (β = 0.27) and information quality (β = 0.16) have significant positive effects. Payment convenience and security and privacy are not statistically significant predictors. Ease of use emerges as the strongest significant predictor of passenger satisfaction.

Chi-square Digital Usage and Spending on Commercial Services

Table No:6.6 Association between Digital Platform Usage and Spending on Airport Commercial Services

Digital Usage Level	Higher Spending	Lower Spending	Total
High users	46	14	60
Low users	25	35	60
Total	71	49	120

Chi-square Test Results

Statistical Measure	Value
Chi-square value (χ^2)	15.90
Degrees of freedom	1
Significance (p)	less than 0.001
Decision	Significant
Hypothesis	**H4 Rejected**

Interpretation:

The table presents the association between digital platform usage and spending on airport commercial services. Among high digital users, 46 passengers report higher spending, while 14 report lower spending. Among low digital users, 25 passengers report higher spending and 35 report lower spending. The chi-square value of 15.9 with one degree of freedom is statistically significant at the 1% level (p less than 0.001). Therefore, the null hypothesis (H4) is rejected. The findings indicate a significant association between digital usage and spending patterns. Passengers with higher digital usage are more frequently represented in the higher-spending category.

Problems Faced by Passengers

Table No: 6.7: Problems Faced by Passengers in Using Digital Airport Services

Problem	Respondents	Percentage
Privacy and data security concerns	41	34.2
Poor internet or Wi-Fi at the terminal	36	30.0
Difficulty in DigiYatra registration	29	24.2
Lack of awareness of services	14	11.6
Total	**120**	**100**

Interpretation:

The table highlights the major problems experienced by passengers while using digital airport services. Privacy and data security concerns represent the most frequently reported problem, accounting for 41 respondents (34.2%). Poor internet connectivity or Wi-Fi facilities are reported by 36 respondents (30%). Difficulty in DigiYatra registration is identified by 29 respondents (24.2%), while 14 respondents (11.6%) report a lack of awareness of available services. The findings indicate that privacy protection, reliable internet connectivity and simplified digital registration require greater attention. Improving these facilities and providing adequate passenger guidance can strengthen the accessibility and effectiveness of digital airport services.

7. Findings, Suggestions and Conclusion

Major Findings

1. Online booking is the most used platform, followed by mobile apps and DigiYatra.
2. Ease of use, time saving and information quality are the strongest drivers of satisfaction.
3. Younger passengers are more satisfied than older passengers.
4. Passengers who use digital platforms more spend more on commercial services.
5. Privacy concerns, weak connectivity and registration difficulty are the main problems.

Suggestions

- Conduct awareness campaigns and set up help desks for DigiYatra enrolment, especially for older passengers.
- Improve terminal Wi-Fi and mobile network coverage.
- Communicate clearly how facial and personal data are stored and protected.
- Integrate offers for food and beverage, retail, parking and cabs into the airport app to turn digital engagement into commercial revenue.
- Encourage airlines and the airport to share digital data responsibly to design better services and route promotions.

Conclusion

In conclusion on Digital platforms, it plays a significant role in improving passenger satisfaction and strengthening commercial services at Coimbatore International Airport. Platforms that are easy to use, save time and provide reliable information raise satisfaction, and satisfied digital users are more likely to use airport commercial services. This creates value for passengers, airlines and the airport operator together. However, the benefits are not shared equally across age groups, and concerns about privacy and connectivity limit adoption. Airport management should therefore combine technology investment with awareness, assisted support and strong data protection. Future research can extend the study to other regional airports, use larger samples and apply structural equation modelling.

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