

# E-Commerce Adoption in Tourism: Drivers and Performance Outcomes in Kolkata, India

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## Abstract

Digital technology is rapidly changing how the tourism industry works, and going online has become essential for businesses to stay competitive. This study looks at what motivates tourism businesses in Kolkata such as hotels, travel agencies, and tour operators to adopt digital commerce. Using well-known frameworks (TAM, DOI, and RBV), it finds that factors like ease of use, usefulness, competitive benefits, and a company's digital readiness play a key role in this shift. Based on survey data and statistical analysis, the results show that businesses that embrace online commerce tend to perform better they attract more customers, increase their revenue, and strengthen their market position. Overall, the study highlights that improving digital skills, infrastructure, and supportive policies can help tourism businesses grow in a more sustainable and competitive way.

**Keywords:** Digital Commerce Adoption, Tourism Industry, Technology Acceptance Model (TAM), Competitive Advantage, Business Performance

## 1. Introduction

Tourism constitutes one of the most vibrant segments of the global service sector, serving as a major driver of job creation, regional advancement, foreign exchange generation and intercultural exchange. Economic progress in countries like India relies heavily on tourism, especially during tough times. According to figures released by the Ministry of Tourism, Government of India (2024), this area accounted for about 5-6 per cent of the national GDP in 2023–24. Jobs tied to hotels, transport networks, shops, and local culture have held firm because of it. After dipping due to earlier health crises, movement picked back up - data shows more foreign visitors and internal trips through early 2025. Growth didn't stall; instead, it proved once again how central travel is to India's broader shift toward service-driven expansion. With growth came changes in how tech supports travel businesses. Internet access spreads wider now, phones stay in hand more often, payments shift online, and websites guide trips - each piece ties into how tours and stays move digitally. Buying things through networks, which means doing business using connected devices, alters old ways of booking spots or advertising places. Direct deals happen faster, ads reach further, chats respond instantly, and help arrives without delay. Thinking beyond tools alone, some argue these systems do more than run tasks - they shape advantage for locations, cut costs when trading, and adjust offerings

to fit individual needs. Rooted in long-standing theories about how people accept new tech, digital uptake in travel finds its base. Utility and simplicity - those shape whether someone will actually use a system, says Davis back in 1989. When planning trips, folks lean toward apps, e-payments, or web bookings to cut down on hassle, feel more in control, and run smoothly. Think of it like this: companies adopt digital tools only when the benefits clearly outweigh the unknowns. Wider reach, smoother operations, closer guest ties - these often tip the scale. Because hesitation fades not when change arrives, but when value becomes visible.

Beyond TAM (Davis, et.al,1987), the Diffusion of Innovation model (Rogers, 2003) helps explain how new tech spreads through groups and organisations over time. What makes people adopt it faster? Things like clear advantages, fit with current routines, ease of use, chances to test it out, and seeing real results matter most. Big city hotels and major tour operators usually lead the way in using digital tools. Smaller tourism businesses tend to follow much later, often held back by tight budgets, lack of know-how, or poor infrastructure. When some move fast, and others lag, the whole local tourism scene feels the impact, particularly in places rich in cultural depth and varied setups. East of India, Kolkata stands out in how people travel across the country. Colonial buildings rise beside busy streets where books and ideas have long thrived. Festivals burst into life each year, especially during Durga Puja, filling lanes with colour and sound. Museums hold quiet stories while food carries flavours from many worlds at once. This mix attracts different kinds of travellers, not just one. A study conducted years ago showed what draws visitors here using numerical patterns (Mukherjee et al., 2015). Foreign tourists arriving in 2024 rank West Bengal highly nationally. So, the city holds weight, quietly shaping movement through eastern routes. Still, even with positive signs, blending online business into Kolkata’s travel scene brings both opportunities and hurdles. Where digitisation boosts how places are marketed, widens global visibility, sharpens ad targeting, supports decision-making with data, streamlines operations, there too linger problems like shaky data security, uneven infrastructure, gaps in tech skills among small providers, and weak trust in internet payments. This mix underscores the need for a study grounded in solid theory and real-world evidence on how e-commerce operates within the city’s tourism ecosystem. Looking closer, this work explores how online selling might help - yet also face roadblocks within Kolkata’s travel industry, using well-known ideas about tech use and current growth thinking. Instead of just listing pros and cons, it connects city-level business shifts with how individual businesses adopt tools, adding weight to talks about going digital in rising tourist spots while suggesting practical steps that could boost resilience and market position over time.

**Table 1: Comparative Overview of Tourism Performance – Global India and West Bengal (2021-2025)**

Indicator	Global Level	India (National)	WestBengal(State Level)
<b>Contribution to GDP</b>	Tourism contributed approximately 9-10% to global GDP (Post pandemic recovery phase).	Tourism contributed around 5-6% to India’s GDP (FY 2023-24).	Tourism significantly contributes to state service-sector growth, particularly in Kolkata and heritage circuits.
<b>Employment Generation</b>	Supports nearly 1 in 10 jobs worldwide across	Generates extensive direct and indirect employment in	Provides substantial employment in hotels, tour

	direct and indirect sectors.	hospitality, transport, retail and cultural services.	operations, transport and festival-based tourism.
<b>International Tourist Arrivals (2024)</b>	International arrivals globally approached pre-pandemic levels, with steady growth.	Foreign Tourist Arrivals (FTA) show significant recovery with consistent year-on-year growth in 2024-2025.	West Bengal ranks among the leading Indian states in foreign tourist arrivals.
<b>Domestic Tourism Movement</b>	Strong domestic tourism recovery across major economies.	Domestic Tourist Visits (DTV) exceeded pre-pandemic levels in 2024	High domestic tourism inflows, especially to Kolkata, Darjeeling, and the Sundarbans.
<b>Digital Adoption in Tourism</b>	Widespread use of online booking platforms, digital payments, and AI-driven personalisation.	Rapid expansion of online travel portals, UPI payments, and mobile-based bookings.	Increasing adoption among hotels and travel agencies, though uneven among small operators.
<b>Growth Trend (2024-2025)</b>	Stable growth trajectory driven by digitalisation and international mobility recovery.	Sustained recovery supported by policy initiatives and digital infrastructure expansion.	Growth supported by cultural tourism, festivals (e.g., Durga Puja) and improved connectivity.

## 2. Research Rationale and Objective

Online bookings, web-based ads, and digital payments have changed how people travel. Still, few studies examine tech use in growing cities like Kolkata. Even with more visitors arriving, weak internet infrastructure and threats from online attacks could slow the adoption of e-commerce tools. A theoretical approach makes sense here, drawing on the Technology Acceptance Model (TAM) and the Diffusion of Innovations (DOI) perspectives.

helps uncover what drives digital uptake among tourism players in Kolkata. What shapes their choices becomes clearer through this lens, especially when focusing on how new tools spread across such networks.

### The study aims to:

- To assess the level of digital commerce implementation within the tourism industry of Kolkata.
- To determine the factors shaping technological uptake by applying the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) perspectives.
- To evaluate the principal prospects and constraints linked to the incorporation of digital systems

## 3. Literature Review

### • Conceptual Foundations of Digital Tourism and Online Commerce

The integration of Information and Communication Technologies (ICTs) has profoundly transformed the organisation and operations of the tourism industry. Digital tourism, also known as e-tourism, involves the application of digital tools across various stages of the tourism value chain, such as marketing,

distribution, booking systems, and service delivery (Buhalis, 2003). The rise of online commerce in tourism has facilitated web-based reservations, electronic payments, and broader access to global markets, helping reduce costs and improve price transparency (Laudon & Traver, 2021). This shift has led to a more customer-focused model that emphasises personalised services, streamlined operations, and real-time engagement with travellers. However, challenges including cybersecurity risks, digital access disparities, and excessive reliance on technology remain critical issues that question the sector's long-term sustainability (UNWTO, 2020).

- **Theoretical Approaches to Technological Adoption**

One way people study tech use in travel companies involves models such as the Technology Acceptance Model (TAM), the Diffusion of Innovations (DOI) theory, and the Resource-Based View (RBV). Instead of just saying yes or no to tools, workers tend to go along when they feel something works well and feels simple (Davis, 1989). In tour firms, that sense often links to faster work and better guest experiences. Rogers pointed out back in 2003 how new ideas catch on - through usefulness, fit with old routines, and how tough they are to run. Each idea carries a different weight depending on the business setup. Not far behind those ideas, the RBV approach sees skills such as tech systems, online marketing know-how, and data analysis as key advantages that shape a lasting business edge (Barney, 1991). Taken together, such views provide a coherent framework for studying how travel companies adopt e-commerce.

- **International and National Policy Environment**

Worldwide, progress in tourism tech comes from building better systems, updating rules, then aligning government efforts (UNWTO, 2020). Richer countries tend to weave technology deeply into services. Meanwhile, poorer regions lean on national projects plus training pushes to catch up digitally. Research shows understanding tools matters - so do safe payments along with clear leadership structures - for real results (Goodwin, 2016). Even in rural corners of India, internet access grows - fuelled by initiatives like Digital India that push faster connections, digital payments, and e-governance tools. Online visibility now shapes travel plans, so tourism strategies lean into web platforms, virtual engagement, and smart tech for smoother guest experiences. Yet many small tour operators still struggle - not from lack of demand, but due to tight budgets, shaky know-how with software, and fear of data leaks or scams online (NITI Aayog, 2021).

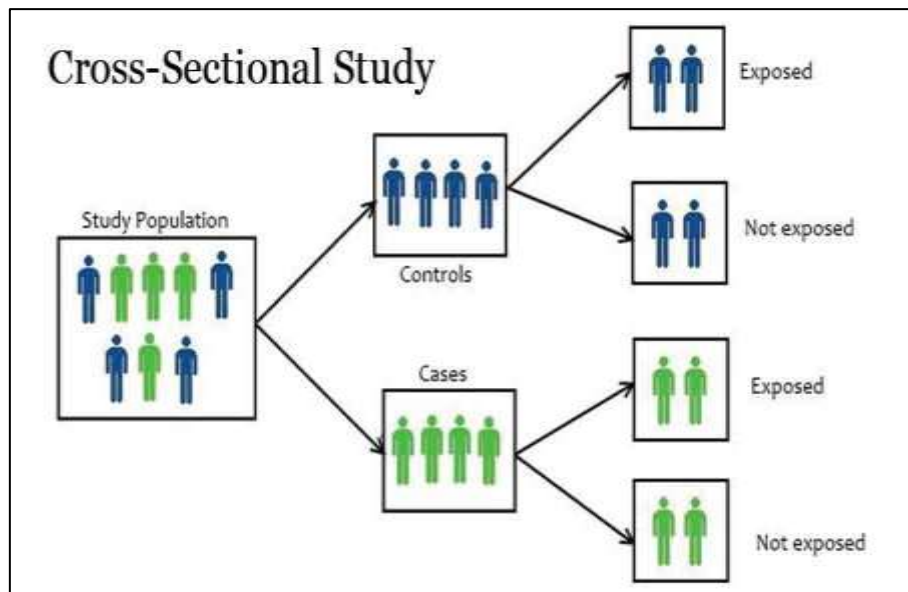
- **Digital Commerce in West Bengal Tourism**

Tourism in West Bengal now leans more on online tools to boost visibility and reach new visitors. While city spots - particularly in Kolkata - tend to handle tech needs well, rural operators usually depend on outside help because they lack digital access. Studies show training initiatives, better infrastructure, and smoother government teamwork can create fairer, longer-lasting progress across the industry (Thomas et al., 2024; Government of West Bengal, 2019).

#### 4. Research Methodology

- **Research Design**

This study uses a quantitative, explanatory research design to explore the factors influencing e-commerce adoption and its impact on performance within tourism enterprises in Kolkata, West Bengal. Drawing on established theories of technology adoption, it empirically examines how digital adoption is linked to firm performance outcomes. Data are collected through a cross-sectional survey, with each tourism enterprise treated as the primary unit of analysis.



**Fig 1: cross-sectional study, all factors (exposure, outcome, and confounders) by Sagar,2024**

## 5. Data Collection and Sources

Primary data were gathered using a structured questionnaire distributed to hotels, travel agencies, tour operators, and other tourism service providers based in Kolkata. The questionnaire drew from established scales used in earlier studies on e-commerce and technology adoption, with responses measured on a five-point Likert scale (1 = Strongly Agree). A pilot test was carried out to confirm the instrument's reliability and content validity.

Secondary data were collected from academic publications, policy papers, government reports, and official statistics to help shape the theoretical framework and provide context for interpreting the findings.

- **Sampling**

A purposive sampling technique was used to select activity operating tourism enterprises. This final sample consisted of approximately 120-150 firms, considered adequate for multivariate statistical analysis.

- **Data analysis**

Data were analysed using SPSS. The analytical procedures included descriptive statistics, reliability testing through Cronbach's Alpha, Correlation analysis and multiple regression analysis to examine the impact of e-commerce adoption determinants on enterprise performance. Statistical significance was evaluated at the 5 percent level ( $p < 0.05$ ).

- **Ethical Considerations**

Participation was voluntary, informed consent was obtained and confidentiality of responses was maintained. Data were used solely for academic purposes.

## 6. Results And Discussion

The findings show that many tourism businesses in Kolkata have adopted basic digital commerce tools, including online booking systems, electronic payment methods, and social media marketing. However, the extent of adoption differs across business types. Larger hotels and well-established travel agencies tend to use technology more extensively, while smaller operators and independent service providers lag behind in digital integration. Average scores for Perceived Usefulness and Perceived Ease of Use are above

the midpoint of the scale, suggesting a generally positive attitude toward digital tools. Respondents also agree that online commerce improves visibility and strengthens customer engagement. Reliability analysis shows that all measurement constructs meet acceptable standards, with Cronbach's Alpha values above 0.70. Correlation results reveal significant positive relationships between perceived usefulness, relative advantage, digital competence, and the level of digital adoption. Additionally, embracing digital tools is linked to improved business performance, particularly in terms of revenue growth and market reach. Regression analysis indicates that perceived usefulness has a significant positive effect on digital adoption ( $p < 0.05$ ). Relative advantage and digital capability also strongly influence adoption, while ease of use has a positive but less pronounced impact. Digital adoption itself significantly enhances business performance ( $p < 0.05$ ), explaining a notable portion of the variation in revenue growth and customer acquisition. The model demonstrates solid explanatory power, as shown by acceptable  $R^2$  values. Discussion The results support key principles from the Technology Acceptance Model, Diffusion of Innovation theory, and Resource-Based View. The strong influence of perceived usefulness suggests businesses adopt digital systems when tangible operational and economic benefits are clear. Similarly, the role of relative advantage aligns with diffusion theory, indicating that perceived competitive benefits encourage faster technology uptake. Digital competence within organizations emerges as a key factor, supporting the view that technical infrastructure and skilled personnel are strategic assets that improve performance. The positive connection between digital adoption and business outcomes underscores the economic importance of technological advancement in Kolkata's tourism sector. The relatively smaller role of perceived ease of use implies that while user-friendliness matters, firms are primarily driven by strategic and financial gains. This highlights the need for policies that focus not only on simplifying technology use but also on demonstrating concrete business advantages and strengthening technical capabilities. Overall, the results suggest that upgrading digital infrastructure, building technical skills, and increasing awareness of the commercial benefits of online systems could significantly boost the growth and competitiveness of tourism enterprises in Kolkata.

## 7. Conclusion

This research looked into what drives tourism businesses in Kolkata to adopt online trading, also how it affects their success. Findings show connecting digitally tends to go hand in hand with better company results - more earnings appear, more clients come in, a stronger position forms within the marketplace. Usefulness in practice, an edge over rivals, and skill within the company shape how tech is adopted - backed by well-known ideas like the Technology Acceptance Model, Diffusion of Innovation, and Resource-Based View. While smooth operation helps sway choices, it holds less weight; companies care more about real wins in strategy and money than just simpler workflows. One way to look at it: using online sales isn't just about new tools - it reshapes how travel companies operate and can lift their results. Yet gaps remain, since not every business adapts at the same pace, exposing differences in tech preparedness and deeper barriers still in place.

## 8. Policy Implications

This study yields several practical recommendations for public authorities and industry stakeholders:

- **Strengthening Digital Infrastructure**

Robust broadband connectivity, secure online transaction systems, and accessible digital platforms are essential to help tourism businesses particularly small operators engage successfully in digital markets.

Expanding Skills Through Training Targeted training programs in digital marketing, booking systems, data management, and cybersecurity can greatly enhance technical capabilities and strengthen the long-term sustainability of tourism operations.

- **Supporting MSMEs**

Supporting Micro and Small Enterprises. Financial aid, expert guidance, and simplified regulatory processes can empower smaller businesses to adopt digital solutions independently, minimising reliance on external intermediaries.

- **Coordinated Digital Tourism Planning**

Integrated Digital Tourism Strategies State-level tourism planning should include defined digital transformation goals, promoting coordination among government agencies, private sector actors, and local businesses to ensure consistent and effective execution. Promoting Innovation and Unique Market Positioning Using digital technologies to strengthen destination branding, diversify offerings, and enable interactive guest experiences can improve Kolkata's competitive position in domestic and international tourism markets.

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