

## 9

## Role of Artificial Intelligence in Reshaping Indian Tourism and Hospitality: Toward the Vision of Viksit Bharat 2047

**Ankit Baral<sup>1\*</sup>, Faslu Rahman<sup>2</sup> & Dr. Sadanandam Ariyaputhiri<sup>3</sup>**

<sup>1</sup>Junior Research Fellow, Tourism Studies, Central University of Kerala, India.

<sup>2</sup>Senior Research Fellow, Tourism Studies, Central University of Kerala, India.

<sup>3</sup>Assistant Professor, Tourism Studies, Central University of Kerala, India.

\*Corresponding Author: [ankitbaral.2302607007@cukerala.ac.in](mailto:ankitbaral.2302607007@cukerala.ac.in)

DOI: 10.62823/MGM/2026/III/9789349468061/09

### Abstract

The tourism and hospitality sector, as a whole, is experiencing a significant structural shift that is powered by Artificial Intelligence (AI) and is strategically relevant to India as it progresses towards the Viksit Bharat 2047 development centenary. This conceptual case study chapter looks at the impact of AI technologies such as machine learning, generative AI, natural language processing, computer vision, predictive analytics, and robotics on the operations, marketing, customer experience and governance of tourism and hospitality in India. The chapter critically examines recent literature, industry trends and policy interventions regarding current AI-driven practices in the hospitality sector, airline networks, smart airports, online travel agencies, heritage sites and pilgrimage destinations. The analysis is based on practical examples of Indian companies like MakeMyTrip, IHCL (Taj Hotel), DigiYatra, and IndiGo. The chapter also charts prospective future applications of AI in the travel industry such as hyper-personalised tourism and digital twin destinations, emotion AI, autonomous hospitality systems and multilingual AI travel companions, and evaluates how prepared India is for these new technologies. Issues of data privacy, algorithmic bias, digital exclusion, and job displacement are explored, as are mitigations. The chapter culminates in a strategic recommendations framework in line with the Viksit Bharat 2047 vision, positioning AI-powered tourism transformation as a key part of India's journey towards becoming a globally competitive, inclusive, and sustainable tourism economy.

**Keywords:** Artificial Intelligence, Tourism, Hospitality, India Tourism, Viksit Bharat 2047.

### Introduction

Tourism has historically been a driver of economic growth, cultural relations and job creation. The sector accounted for around 5.22 % of GDP in India in 2025

(Ministry of Tourism, 2025) and provided livelihoods to more than 48.2 million people, and is expected to grow to 6.9% of GDP by 2035 (WTTC, 2025). In this context, where scale and strategic value come into play, the advent of AI does not just represent a technological upgrade; it marks a fundamental reimagining of the creation, delivery, and preservation of tourism value. AI use in the travel and hospitality sector has been surging globally since the start of the COVID-19 pandemic, when companies wanted to go contactless, have more precise forecasting and engage more individuals with personalised digital solutions (Huang et al., 2019). New tourism economies, such as India, face competitive opportunities and governance challenges as large language models, generative AI systems, and real-time data analysis platforms accelerate the pace of AI experimentation to become mainstream (Buhalis & Moldavska, 2021). India is in a unique situation in this scenario. The structural conditions for the tourism transformation driven by AI are in place as the country has the world's largest youth population, rapidly developing digital public infrastructure (UPI, Aadhaar and BharatNet), an ambitious smart cities programme, and a government has given out the vision of a developed nation status by its 100th year of independence in the form of 'Viksit Bharat 2047' (Ministry of Tourism, 2023; NITI Aayog, 2021). The National Tourism Policy 2022 draft (Government of India, 2022) has made it a point to highlight the role of digital technologies in making destinations more competitive and initiatives like DigiYatra and Swadesh Darshan 2.0 indicate a policy desire to drive tourism governance via technology. This chapter advances the existing research on tourism and hospitality and the role of AI in the future of the Indian tourism and hospitality sector (Ivanov & Webster, 2019; Buhalis & Leung, 2017), offering a conceptually sound, empirically rich overview of the current and future potential of AI in the Indian tourism and hospitality industry. The analysis starts from a conceptual stage and comes to the applications in different sectors, smart destination governance, the future possibilities, ethical challenges, and strategic recommendations, while maintaining alignment with the socioeconomic needs of Viksit Bharat 2047 at every stage.

### **Conceptual Understanding of AI in Tourism and Hospitality**

In general terms, AI (artificial intelligence) is the ability of machines to execute tasks that usually require human mental abilities such as perception, reasoning, learning, and decision-making (Russell & Norvig, 2020). In tourism and hospitality, AI can be found in various applications, many based on different technical approaches. The power of machine learning (ML) is its ability to learn from data, making predictions and continuously refining them without the need for manual programming (Yu & Chen, 2022), which is essential for demand forecasting, dynamic pricing, and guest preference modelling. Conversational AI is driven by natural language processing (NLP), which is the ability for a chatbot or virtual assistant to comprehend and respond to customer requests in natural human language, such as

negative feedback or requests for travel itineraries. (Li et al., 2018) At airports, computer vision is used for facial recognition; at heritage sites, in real-time for monitoring crowds; and at hospitality environments, for detection of the various emotions (Panigrahy & Verma, 2025). Generative AI is the latest frontier, with large language models (LLMs) like GPT-4o, Gemini, and Claude generating human-like text, images, and code that can help create personalised travel plans, and even boost marketing content using AI (Gursoy et al., 2019). Predictive analytics uses historical and real-time data streams to predict future states, such as booking rejections due to surges or maintenance issues, and optimizes operations based on this prediction instead of reacting to it (Pan & Yang, 2016). In the hospitality sector, Robotics provides physical representation of artificial intelligence (AI) by enabling autonomous service delivery, cleaning and concerning capabilities with the deployment of robots (Ivanov & Webster, 2019). As a whole, they form the core of the smart tourism ecosystem, which is an interconnected network of a set of AI-enabled services, digital platforms, physical infrastructure and data governance systems that dynamically add value to the tourist and destination (Gretzel et al., 2015) The major AI technologies in the tourism and hospitality sector are summarised in Table 1.

**Table 1: Major AI Technologies in Tourism and Hospitality**

AI Technology	Description	Tourism Application	Industry Example
Machine Learning (ML)	Algorithms that learn from data patterns without explicit programming	Demand forecasting, dynamic pricing, guest preference prediction	OYO Rooms (India), Marriott dynamic pricing
Natural Language Processing (NLP)	Enables machines to understand and generate human language	Chatbots, voice assistants, multilingual tourist support, review analysis	MakeMyTrip AI chatbot, IRCTC support bot
Computer Vision	Image/video analysis and facial recognition	Smart airport check-in, security surveillance, emotion detection in hotels	DigiYatra (India), Hilton facial recognition pilots
Generative AI (GenAI)	AI that creates text, images, and multimedia content	Personalized itinerary creation, marketing content, virtual tour narration	ChatGPT for travel planning, Airbnb GenAI descriptions
Predictive Analytics	Statistical models to forecast future outcomes	Occupancy forecasting, tourist flow management, revenue optimization	Taj Hotels revenue systems, Indian Railways demand analytics

Robotics & Automation	Physical AI-driven machines performing service tasks	Hotel check-in robots, room service, concierge assistance	Henn-na Hotel (Japan), Aloft Hotel robot butlers
Sentiment Analysis	AI identification of emotions from text/reviews	Real-time reputation management, service quality improvement	TripAdvisor analytics, Revinate AI for Indian hotels
Recommendation Systems	Collaborative filtering and content-based suggestion engines	Destination recommendations, personalized packages, upselling	Booking.com AI, Yatra.com personalization engine

Source: Compiled by the Author from Buhalis et al. (2023); Ivanov & Webster (2019); Gursoy et al. (2019)

## Current AI Applications in Indian Tourism and Hospitality

- **Hotel Operations and Revenue Management**

AI has increasingly integrated into the Indian hotel industry, transforming property management, revenue strategy, and guest experience, particularly as the market grows in size and value, estimated at around USD 595 billion in 2030 (HVS, 2026). Integrated hotel companies like IHCL (Taj Hotels), ITC Hotels and Lemon Tree Hotels use Oracle OPERA's artificial intelligence (AI) powered property management systems for demand forecasting, rate optimisation and cross-property analytics. Dynamic revenue management, which relies on ML algorithms that analyse historical booking trends, competitor rate indices, local events and weather forecast, allows hotels to make near real-time pricing changes that are linked to 15-30% increases in RevPAR for digitally-mature properties (Bhondve, 2025). Review AI tools like Revinate and ReviewPro, which combine guest feedback from TripAdvisor, Google, OTAs, and social media, use NLP to uncover service failure trends and patterns, as well as sentiment trends and competitive positioning. For mid-scale Indian chains having multiple properties in different geographical locations, these tools give them actionable intelligence data which would be difficult to create manually.

- **Airports and Airlines**

The DigiYatra initiative by the Ministry of Civil Aviation and its implementation at 38 Indian airports by 2026 (Travel Diary, 2026), is a prime example of how the government has started implementing computer vision-based facial recognition for contactless, paperless boarding.

DigiYatra has proven to be effective in reducing travellers' processing time at the participating airports, which on an average has come down from 4 minutes to 45 seconds at the checkpoint by 2024, and has created the basis for a scalable biometric infrastructure with potential applications in hotel check-in and smart destination entry systems (*Ministry of Civil Aviation*, 2024), 2024; BW Hotelier, 2024). Amadeus AI systems have been implemented in India's airline sector, where major carriers such as IndiGo, Air India (now a part of Vistara) and Air India have embraced

the technology for demands forecasting, schedule optimisation and generating ancillary revenue. An operational metric for carriers flying 300+ flights a day, the use of AI-powered predictive maintenance analytics has been a key factor in limiting unplanned OG incidents with IndiGo. The introduction of AI-powered systems for baggage tracking and management, powered by RFID and computer vision, has also been a game-changer in terms of enhancing baggage delivery reliability.

- **Online Travel Agencies and Digital Platforms**

A leader in the OTA space in India, MakeMyTrip, Yatra.com, Cleartrip, and EaseMyTrip have been among the first and most proactive users of AI for personalisation, dynamic pricing, and automating customer service. Developed with the help of GenAI and the conversational NLP, MakeMyTrip's AI trip planner allows users to express their travel choices in a natural language format and receive a personalized, bookable travel plan, eliminating friction in travel planning and boosting conversion rates. In the highly price-sensitive travel market, Yatra.com's machine learning (ML) based price prediction and alert system has contributed to a rise in customer retention. From the tatkal demand prediction to fraud detection in ticket transactions to personalised promotional communications, IRCTC, which manages one of the world's highest-volume rail reservation systems, has been progressively leveraging AI. All this show cases the potential of AI to handle the complexity at scale, which is a critical requirement in India's mass-market domestic tourism segment.

- **AI Tools and Platforms**

Table 2 offers a structured list of existing AI tools/technologies are in use or can be used in the Indian tourism and hospitality sector and their functionalities, providers, and key use-cases.

**Table 2: Current AI Tools and Platforms in Tourism and Hospitality**

Area	AI Tool/Platform	Provider	Tourism/ Hospitality use	Indian/Global Example
Guest Communication	ChatGPT / GPT-4o	OpenAI	24/7 multilingual guest queries, itinerary drafting, complaint resolution	MakeMyTrip integrated AI assistant
Search & Discovery	Gemini	Google	Travel search enhancement, destination discovery, voice booking	Google Travel AI, Cleartrip integration
Hospitality Operations	Claude (Anthropic)	Anthropic	Policy drafting, staff training content, guest correspondence automation	International hotel chains' back-office AI

Enterprise CRM	Salesforce Einstein AI	Salesforce	Guest profile management, loyalty analytics, predictive service	ITC Hotels CRM AI integration
PMS/CRS Intelligence	Oracle Hospitality AI	Oracle	Property management, revenue optimization, demand forecasting	Taj Hotels, Lemon Tree Hotels (Oracle OPERA)
GDS & Distribution	Amadeus AI Systems	Amadeus	Real-time pricing, booking optimization, flight demand forecasting	Air India, IndiGo Amadeus GDS integration
Personalization Engine	Airbnb AI	Airbnb	Smart search ranking, localized recommendations, dynamic pricing	Airbnb India hosts and travellers
Review Intelligence	Revinat / ReviewPro	Revinat / Shiji	Aggregated review analytics, NPS tracking, competitor benchmarking	Indian luxury hotel chains
Facial Recognition	DigiYatra Platform	MoCA, Gol	Biometric boarding, contactless airport entry, identity verification	Delhi, Bengaluru, Hyderabad airports
Conversational AI	IBM Watson Assistant	IBM	Intelligent virtual concierge, FAQ automation, loyalty programme support	IHCL (Taj) chatbot, Oberoi pilot

Source: Compiled by the author from Gursoy et al. (2019); Buhalis et al. (2023); Industry reports

**Table 3: AI Applications Across Tourism and Hospitality Sectors**

Sector	AI Application	Operational Role	Customer Experience Impact	Strategic Benefit
Hotels	Dynamic revenue management & AI check-in	Automates pricing, room allocation, check-in/out	Faster, seamless arrival experience	RevPAR optimization, reduced staff costs
Airlines	Predictive maintenance & demand forecasting	Schedules maintenance, manages seat inventory	Fewer delays, personalized seat/meal offers	Fleet efficiency, ancillary revenue growth
Airports	Biometric processing & crowd analytics	Streamlines passenger flow, security, boarding	Contactless, paperless journey	Throughput capacity, safety enhancement

OTAs & Travel Platforms	AI recommendation & chatbot support	Personalizes search results, automates queries	Tailored packages, 24/7 support availability	Conversion rate uplift, reduced CX costs
Restaurants/ F&B	AI menu personalization & waste reduction	Analyses dietary preferences, optimises inventory	Customised dining suggestions	Waste reduction, profitability improvement
Destinations	Crowd management & smart mobility	Real-time visitor flow analytics, shuttle routing	Reduced congestion, enhanced safety	Sustainable visitor management
Heritage Tourism	AR/AI interpretation systems	Provides contextualised historical narration	Immersive, educational visitor experience	Extended dwell time, visitor satisfaction
Pilgrimage Tourism	AI crowd analytics & digital queuing	Manages surge visitor flows safely	Safe, organised darshan/visit experience	Safety compliance, visitor welfare

Source: Author's compilation from Ivanov & Webster (2019); Huang et al. (2021); Li et al. (2018)

**Table 4: Indian Case Examples of AI Adoption in Tourism and Hospitality**

Organisation/ Destination	AI Implementation	Objective
DigiYatra (MoCA, Gol)	Facial recognition-based biometric boarding at 24+ airports	Paperless, contactless passenger processing
KTDC (Kerala Tourism Dev. Corp.)	AI-chatbot for tourist enquiries and package personalisation	Enhance visitor engagement and booking conversion
MakeMyTrip	GenAI trip planner with NLP-driven itinerary builder	Personalised travel planning at scale
IRCTC	AI-driven dynamic demand forecasting and tatkal analytics	Optimise train capacity and revenue
Taj Hotels (IHCL)	AI-powered Oracle OPERA PMS with sentiment analytics integration	Holistic property management and reputation intelligence
Madhya Pradesh Smart Tourism	AI crowd analytics at heritage sites (Khajuraho, Sanchi)	Sustainable visitor management at fragile heritage locations
Yatra.com	Machine learning-driven personalisation and price alert engine	Retain customers through hyper-relevant offers
IndiGo Airlines	AI-powered predictive maintenance and baggage tracking	Operational reliability and passenger satisfaction

Source: Author's Compilation from MoCA (2024); HVS India (2025); Company Disclosures

## **AI and Smart Tourism Development in India**

India's journey of smart tourism is part of the larger initiative of Digital India and the Smart Cities programme that has driven investment in digital infrastructure in 100+ cities (PIB, 2024). The Swadesh Darshan 2.0 scheme, which prioritizes sustainable and responsible tourism development, has now started to incorporate digital intelligence layers into the tourism management of the destinations, such as sensor networks, visitor analytic dashboards and digital interpretation systems at heritages sites (Ministry of Tourism, 2023). At major pilgrimage sites, like Vaishno Devi, Tirupati, and Kumbh Mela, with over a million people in a crowd in such limited time, it is a governance challenge of unprecedented complexity which is being addressed using AI-aided crowd analytics. AI-based crowd density monitoring, combined with command-and-control dashboards, allowed for real-time rerouting of visitors during the Maha Kumbh festival in Prayagraj in 2025, and the early warning of unsafe crowd situations, showcasing AI's role as a safety-critical public infrastructure system in pilgrimage tourism. The Ministry of Electronics and Information Technology's (MeitY) Bhashini is a national language AI platform with 22 scheduled languages and has transformative potential for inclusive tourism experiences. From linguistic minorities and foreign tourists who do not understand English or Hindi, AI translation and voice interfaces can provide access to tourist information, booking systems and assistance within the destination, in the native language of the user, thereby addressing a key obstacle to the democratisation of India's inbound and domestic tourism. The data substrate for the AI powered tourism consumption analytics is digital payment infrastructure, which has 13+ billion monthly transactions as per UPI. By integrating data from UPI transactions into tourism intelligence platforms, destination managers have the ability to gain insights into visitor spending patterns, discover new demand corridors, and tailor promotional interventions with unprecedented precision, which would not be possible with the conventional approach of surveys.

## **Future of AI in Indian Tourism and Hospitality toward Viksit Bharat 2047**

As AI continues to evolve, it is likely that the lines between the physical tourism experience and the digital intelligence will blur further in the future. In order to take a leading role in the convergence by 2047, India needs to invest in technology and have the institutional imagination to seize the opportunity. Through emotion AI systems, which analyse emotional expressions, tone of voice and physiological signals in real-time, hotels and destinations will be able to tailor ambiance, content and choreography of services to individual guests' emotions (Tung & Law, 2017). The next step after current chatbot functionalities is the AI travel companion, which refers to AI agents that can handle the entire travel experience, from planning to the in-destination experience and even after the trip. Furthermore, the concept of AI travel companions, which involves AI agents managing the entire travel experience from the

initial planning phase to the in-destination experience and beyond, is the next step beyond what current chatbots can accomplish (Buhalis & Moldavska, 2021). Creating such language-based companions, which are coupled with Bhashini-class NLP models that have been fine-tuned in tourism sectors, is a commercially and socially relevant innovation area for the Indian AI start-up ecosystem. The ability to simulate visitors, test infrastructure scenarios and monitor impacts on conservation without physical experimentation is possible with digital twin technology, which creates dynamic virtual replicas of the physical destination, in cases like the Taj Mahal complex, the Andaman archipelago or Hampi (Gretzel et al., 2016). Though in early stages of commercialization in the world, metaverse tourism can give opportunities to India's heritage rich and geographically diverse destinations to promote experiential access to people who are not able to travel to the physical locations, thereby broadening the tourism participation beyond its socioeconomic and geographic boundaries. The Viksit Bharat 2047 mission has been focused on India becoming a developed country with high technology, inclusive prosperity and sustainable development, and tourism needs to play its part in this not only in terms of contribution to GDP but in being an industry that reflects India's technological capability and sophistication of governance. The development of an AI-powered National Tourism Intelligence Platform would provide the infrastructure to enable evidence-based tourism policy making across the country using real-time visitor data, destination performance, sustainability measures and market intelligence, similar to best-practice examples in Singapore and the Netherlands (OECD, 2024).

### **Challenges, Risks, and Ethical Concerns**

While the promise of AI in tourism is undeniable, it is essential to have a critical understanding of the inherent risks and limitations of AI structures. The Digital Personal Data Protection Act (DPDP Act, 2023) has laid a basic consent-driven regime for data rights, but its applicability is sector agnostic and does not provide sector specific regulations for data collection and sharing in sectors like tourism, where the collection of biometric, location, behavioural data happens at scale (Ministry of Law and Justice, 2023; Basrur, 2024) Compliance obligations are complicated by the cross-jurisdictional flow of tourists' data, including data collected by international tourists who use Indian AI systems. The bias in tourism AI systems is often overlooked, particularly in its algorithmic form. The recommendation engines are likely to discriminate against the rural destinations, vernacular language content, and low-cost products and services, thereby reinforcing the existing tourism concentration patterns, instead of spreading benefits as envisaged in the Indian tourism policy (Mehrabi et al., 2021). Specifically, there is a tension between human and automation in the hospitality sector, which requires special attention. The academic literature has repeatedly shown that there is still much more to tourist satisfaction in high-involvement service encounters than the machine can provide:

there is a human relational aspect that remains very strong. (Tussyadiah, 2020) If hospitality firms fail to pay attention to this dimension, they risk what's been dubbed the 'uncanny valley of service' — the technologically efficient but experientially empty service experience that may make their brand indistinguishable and guests less loyal, especially in the luxury and cultural tourism sector in which India's positioning is strongest. The digital divide is a structural risk in the context of India. Without accessible analogue service pathways, an AI-first tourism ecosystem stands the risk of leaving exactly the communities tourism development aims to reach behind.

**Table 6: Challenges and Ethical Issues in AI-Enabled Tourism**

Challenge	Tourism Impact	Risk Level	Mitigation Strategy
Data Privacy & Consent	Unauthorized profiling of tourists; cross-border data sovereignty issues	High	Implement DPDP Act 2023 compliance frameworks; sector-specific data governance
Cybersecurity Threats	PMS and booking system breaches; identity theft of traveller data	High	Mandatory ISO 27001 certification; AI-driven intrusion detection systems
Algorithmic Bias	Discriminatory pricing or service quality based on traveller demographics	Medium-High	Bias audits; diverse training datasets; ethical AI review boards
Job Displacement	Automation of front-desk, housekeeping coordination, and concierge roles	Medium-High	Reskilling via PMKVY; human-AI collaboration models; new AI-adjacent roles
Digital Divide	Rural, elderly, and low-income tourists excluded from AI-enabled services	High	Offline fallbacks; AI kiosks in regional languages; inclusive design mandates
Technology Infrastructure Gaps	Poor connectivity in remote tourism destinations limits AI deployment	Medium	BharatNet expansion; satellite internet for border and eco-tourism zones
Loss of Authentic Experience	Over-automation may erode the cultural authenticity of tourism encounters	Medium	Balance automation with human touchpoints; preserve cultural heritage protocols
Regulatory Lag	Absence of AI-specific tourism regulations creates compliance ambiguity	Medium-High	Develop National AI Tourism Policy; periodic regulatory sandboxes

Source: Author's compilation from Mehrabi et al. (2021); Tussyadiah (2020); MeitY (2023).

## Strategic Recommendations

The governance and strategic priorities that arise out of this analysis are mapped by key stakeholder groups and linked to Viksit Bharat 2047 goals in Table 7. Several of the overarching strategic imperatives are worth highlighting, however, across these stakeholder-specific recommendations. First, there is a need for a National AI Tourism Strategy, which is being developed through a multi-stakeholder consultative process and in alignment with the National AI Strategy 2.0 (NITI Aayog, 2021) which will give coherent direction, coordinate on investment and have accountability mechanisms. Secondly, India's vast domestic tourism market, which is linguistically diverse and young, gives a unique opportunity for training AI systems, and this data should be considered a national treasure and used strategically for competitive purposes with proper safeguards. Third, good AI governance including transparency requirements, algorithmic audit obligations and remedies in relation to AI tourism decisions should be built into the enabling environment at the same time as the promotion of innovation, and not as a reaction or corrective measure.

**Table 7: Strategic Recommendation Framework for AI-Enabled Tourism Transformation**

Stakeholder	Recommendation	Expected Outcome	Alignment with Viksit Bharat 2047
Ministry of Tourism (GoI)	Formulate a National AI Tourism Strategy with dedicated funding, AI tourism observatory, and inter-ministerial coordination	Coherent AI-tourism roadmap; evidence-based policymaking	Positions India as a top-5 global tourism economy by 2047
State Tourism Departments	Integrate AI crowd management and smart destination dashboards in pilgrimage and heritage site management	Sustainable visitor management; enhanced destination safety	Inclusive, sustainable tourism growth across states
Hotel Industry / FHRAI	Adopt AI-powered PMS, revenue management, and sentiment analytics; standardise data interoperability	Improved RevPAR; data-driven service excellence	Globally competitive Indian hospitality sector
OTAs & Travel Platforms	Invest in GenAI trip-planning tools with multilingual support for domestic travellers	Democratisation of personalised travel; Tier-2/3 market penetration	Broader domestic tourism base; inclusive digital tourism

Hospitality Educators / Universities	Integrate AI literacy, data analytics, and responsible AI modules in BHM/MBA-Tourism curricula	AI-ready tourism workforce; reduced skills mismatch	Human capital development aligned with future industry needs
Skill Development Institutions (THSC)	Launch AI-in-hospitality micro-credentials; reskilling programmes for frontline staff	Upskilled workforce resilient to automation	Employment-linked AI adoption; equity in digital transition
Tourism Startups & Industry	Build AI applications addressing rural/pilgrimage tourism gaps; use Bhashini for vernacular AI	Innovation in underserved segments; inclusive growth	Entrepreneurship-led tourism GDP contribution
Regulatory Bodies (MeitY/TRAI)	Establish AI-tourism sandboxes; develop sector-specific data protection and algorithmic audit standards	Responsible innovation with consumer protection	Trustworthy AI ecosystem underpinning Viksit Bharat's digital economy

Source: Author's compilation aligned with Ministry of Tourism (2023); NITI Aayog (2021);

## Conclusion

AI is not just a part of the tourism strategy – it is integral to it. AI is not an add-on to the tourism strategy, it is a part of it. The transition is a critical strategic moment for India: the market for tourism is a growing and large one, the digital public infrastructure is maturing, the vision of 'Smart India' is ambitious, and the technology sector is dynamic enough to create AI-driven solutions that are relevant to India and capable of tackling the tourism challenges the country faces. The chapter has shown that AI can impact Indian tourism from an operational efficiency, revenue intelligence, smart governance of destinations, inclusive services and sustainable management perspectives. From DigiYatra, the airport technology startups; IHCL, the luxury hospitality technology firm; to MakeMyTrip, the digital distribution firm, Indian tourism organisations have shown that AI adoption is not a future dream, it is now. However, the study also shows that the distance between the promise of AI and its responsible and inclusive development is still significant and calls for concerted action from the government, industry, civil society and academia. The Viksit Bharat 2047 agenda necessitates the Indian tourism industry to not only be a witness to the change being brought in by AI but also a prime example of how an emerging economy can use AI to ensure that tourism is accessible for all, safeguard cultural heritage, improve tourism sustainability and provide globally competitive hospitality experience. It requires strategic foresight, governance maturity, and a firm commitment to making the benefits of AI-driven tourism growth inclusive to India's amazing diversity of people, places and experiences.

## References

Basrur, A. (2024, March 1). *The Digital Personal Data Protection Act, 2023: Recommendations for Inclusion in the Digital India Act*. orfonline.org. <https://www.orfonline.org/research/the-digital-personal-data-protection-act-2023-recommendations-for-inclusion-in-the-digital-india-act>

Bhondve, P. (2025, October 28). *Dynamic Pricing with AI for Hotels: Maximize Revenue*. <https://www.guestara.com/post/dynamic-pricing-with-ai-for-hotels-maximize-revenue>

Buhalis, D., & Leung, R. (2017). Smart hospitality—Interconnectivity and interoperability towards an ecosystem. *International Journal of Hospitality Management*, 71, 41–50. <https://doi.org/10.1016/j.ijhm.2017.11.011>

Buhalis, D., & Moldavska, I. (2021). Voice assistants in hospitality: using artificial intelligence for customer service. *Journal of Hospitality and Tourism Technology*, 13(3), 386–403. <https://doi.org/10.1108/jhtt-03-2021-0104>

Buhalis, D., Leung, D., & Lin, M. (2023). Metaverse as a disruptive technology revolutionising tourism management and marketing. *Tourism Management*, 97, 104724. <https://doi.org/10.1016/j.tourman.2023.104724>

*Digi Yatra achieves major milestones in 2024 - BW Hotelier*. (2024). BW Hotelier. <https://www.bwhotelier.com/article/digi-yatra-achieves-major-milestones-in-2024-543229>

Government of India. (2022a). Draft National Tourism Policy 2022. In *Ministry of Tourism*. <https://tourism.gov.in/sites/default/files/2022-09/Draft%20National%20Tourism%20Policy%202022%20Final%20July%2012.pdf>

Government of India. (2022b). Draft National Tourism Policy 2022. In *Ministry of Tourism*. <https://tourism.gov.in/sites/default/files/2022-09/Draft%20National%20Tourism%20Policy%202022%20Final%20July%2012.pdf>

Gretzel, U., Werthner, H., Koo, C., & Lamsfus, C. (2015). Conceptual foundations for understanding smart tourism ecosystems. *Computers in Human Behavior*, 50, 558–563. <https://doi.org/10.1016/j.chb.2015.03.043>

Gretzel, U., Zhong, L., & Koo, C. (2016). Application of smart tourism to cities. *International Journal of Tourism Cities*, 2(2). <https://doi.org/10.1108/ijtc-04-2016-0007>

Gursoy, D., Chi, O. H., Lu, L., & Nunkoo, R. (2019). Consumers acceptance of artificially intelligent (AI) device use in service delivery. *International Journal of Information Management*, 49, 157–169. <https://doi.org/10.1016/j.ijinfomgt.2019.03.008>

Huang, M., Rust, R., & Maksimovic, V. (2019). The feeling economy: Managing in the next generation of artificial intelligence (AI). *California Management Review*, 61(4), 43–65. <https://doi.org/10.1177/0008125619863436>

HVS. (2026). *HVS AnaROck India Hospitality Industry Overview 2025*. HVS Global Hospitality Services. <https://www.hvs.com/article/10451-hvs-anarock-india-hospitality-industry-overview-2025>

Ivanov, S., & Webster, C. (2019). Robots in tourism: A research agenda for tourism economics. *Tourism Economics*, 26(7), 1065–1085. <https://doi.org/10.1177/1354816619879583>

Kimes, S. E. (2011). The future of hotel revenue management. *Journal of Revenue and Pricing Management*, 10(1), 62–72. <https://doi.org/10.1057/rpm.2010.47>

Li, J., Xu, L., Tang, L., Wang, S., & Li, L. (2018). Big data in tourism research: A literature review. *Tourism Management*, 68, 301–323. <https://doi.org/10.1016/j.tourman.2018.03.009>

Mehrabi, N., Morstatter, F., Saxena, N., Lerman, K., & Galstyan, A. (2021). A survey on Bias and Fairness in Machine Learning. *ACM Computing Surveys*, 54(6), 1–35. <https://doi.org/10.1145/3457607>

Ministry of Civil Aviation: Digi Yatra App users number crosses 45.8 lakhs. (2024). <https://www.pib.gov.in/PressReleaselframePage.aspx?PRID=2007679&=3&lang=2>

Ministry of Law and Justice. (2023). *Ministry of Law and Justice, The digital personal data protection act, 2023*. <https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf>

Ministry of Tourism. (2025). *Annual Report 2025-26*. Ministry of Tourism, Government of India. [https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://tourism.gov.in/sites/default/files/2026-02/Ministry%2520of%2520Tourism%2520Annual%2520Report\\_2025-26\\_english.pdf&ved=2ahUKEwiA0MmTu7WUAXUJsVYBHWA6FhUQFnoECBkQAQ&usq=AOvVaw1YhFBsEm4-Gyphn1zxdW77](https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://tourism.gov.in/sites/default/files/2026-02/Ministry%2520of%2520Tourism%2520Annual%2520Report_2025-26_english.pdf&ved=2ahUKEwiA0MmTu7WUAXUJsVYBHWA6FhUQFnoECBkQAQ&usq=AOvVaw1YhFBsEm4-Gyphn1zxdW77)

NITI Aayog. (2022). Responsible AI for all: Adopting the framework— A Use Case Approach on Facial Recognition Technology. Government of India. [https://www.niti.gov.in/sites/default/files/2022-11/Ai\\_for\\_All\\_2022\\_02112022\\_0.pdf](https://www.niti.gov.in/sites/default/files/2022-11/Ai_for_All_2022_02112022_0.pdf)

OCED (2024). Artificial intelligence and tourism. In *OECD Tourism Papers*. <https://doi.org/10.1787/3f9a4d8d-en>

Pan, B., & Yang, Y. (2016). Forecasting Destination Weekly Hotel Occupancy with Big Data. *Journal of Travel Research*, 56(7), 957–970. <https://doi.org/10.1177/0047287516669050>

Panigrahy, A., & Verma, A. (2025a). Tourist experiences: a systematic literature review of computer vision technologies in smart destination visits. *Journal of Tourism Futures*, 11(2), 187–202. <https://doi.org/10.1108/jtf-04-2024-0073>

Panigrahy, A., & Verma, A. (2025b). Tourist experiences: a systematic literature review of computer vision technologies in smart destination visits. *Journal of Tourism Futures*, 11(2), 187–202. <https://doi.org/10.1108/jtf-04-2024-0073>

PIB. (2024). *Smart Cities Mission Achievements* [Press release]. <https://www.pib.gov.in/PressReleaselframePage.aspx?PRID=2085711@=3&lang=2>

Russell, S., & Norvig, P. (2020). Artificial intelligence: A modern approach (4th ed.). Pearson. <https://www.pearson.com/en-us/pearsonplus/p/9780137505135?srsId=AfmBOorS9Kw1JzhQ6Dv55osqZwOatCiEheTbtK02WyGoFY5wqNV0jXOA>

Travel Diary. (2026, April 21). *Full list of DigiYatra airports in India*. Travel Blog | Travel Inspiration, Tips and News | Travel Diary. <https://www.indianeagle.com/traveldiary/full-list-of-digiyatra-airports-in-india/>

Tung, V. W. S., & Law, R. (2017). The potential for tourism and hospitality experience research in human-robot interactions. *International Journal of Contemporary Hospitality Management*, 29(10), 2498–2513. <https://doi.org/10.1108/ijchm-09-2016-0520>

Tussyadiah, I. (2020). A review of research into automation in tourism: Launching the Annals of Tourism Research Curated Collection on Artificial Intelligence and Robotics in Tourism. *Annals of Tourism Research*, 81, 102883. <https://doi.org/10.1016/j.annals.2020.102883>

World Travel and Tourism Council. (2025). *WTTC: Travel and Tourism Economic Impact 2025*. <https://drive.google.com/file/d/1dW8y5yDsjQ2vy83lelqWB9O40PsGn6PB/view>

Yu, N., & Chen, J. (2022). Design of Machine learning Algorithm for tourism demand Prediction. *Computational and Mathematical Methods in Medicine*, 2022, 1–9. <https://doi.org/10.1155/2022/6352381>.

