

United International Journal of Multidisciplinary Research

ISSN: 3048-6726(UIJMR)Impact Factor: 6.934 (SJIF)

An International Peer-Reviewed and Refereed Multidisciplinary Journal

www.ujmr.in Vol-3, SpecialIssue-2,2026

Smart Tourism as a Catalyst for Entrepreneurship and Employment - A Vision for India's Future

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Abstract

Smart tourism, integrating digital technologies including artificial intelligence (AI), Internet of Things (IoT), augmented and virtual reality (AR/VR), and Big Data analytics, is transforming India's travel and hospitality sector into a dynamic entrepreneurial ecosystem. This research examines how intelligent, technology-enabled tourism infrastructure enhances visitor experiences, promotes environmental and cultural sustainability, and catalyzes entrepreneurship through emerging startups in travel-tech, agri-tourism, and heritage tourism. Drawing on secondary data analysis from government reports, industry statistics, and case studies (2024–2025), this paper analyzes the role of smart tourism in employment generation and inclusive growth within India's broader developmental agenda. Key government initiatives including Digital India, Smart Cities Mission, and Swadesh Darshan 2.0 are examined as mechanisms for decentralizing economic benefits to rural and peripheral destinations. Findings indicate the tourism sector's GDP contribution reached ₹22 trillion in 2025 (WTTC, 2025), supporting over 48 million jobs (9.5% of total employment), with projections to ₹42 trillion and 64 million jobs by 2035. The paper presents evidence that strategic integration of emerging technologies, coupled with targeted policy frameworks, can empower local communities, particularly women and youth entrepreneurs, while addressing critical challenges including digital divides, infrastructure deficits, and data privacy concerns. Recommendations focus on bridging regional disparities through expanded digital infrastructure, mainstreaming tourism-tech education, and fostering inclusive entrepreneurial ecosystems aligned with India's Viksit Bharat 2047 vision.

Keywords: Smart Tourism, Digital Innovation, Entrepreneurship, Employment Generation, Sustainable Tourism, Indian Tourism Policy, Travel-Tech Startups, Regional Development, Inclusive Growth

110National Conference On “*Contemporary Issues In Global Business Management Practices*”25 &26 February,2026 by University Arts & Science College (Autonomous), Kakatiya University.

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1. Introduction

Tourism stands as a cornerstone of India's economy, contributing significantly to gross domestic product, facilitating cultural exchange, and generating employment across geographies and skill levels. The global tourism landscape is undergoing a paradigmatic shift toward "smart tourism"—an intelligent, technology-enabled ecosystem powered by information and communication technologies (ICT), AI, IoT, Big Data analytics, and mobile solutions designed to deliver personalized, efficient, and sustainable travel experiences[1].

India's tourism sector has demonstrated remarkable resilience and growth. According to the World Travel & Tourism Council (2025), the sector contributed approximately ₹21 trillion to India's GDP in 2024, representing 6.6% of national output and supporting 46.5 million jobs (9.1% of total employment). Conservative projections for 2025 estimate contributions exceeding ₹22 trillion, with employment surpassing 48 million persons. More ambitiously, by 2035, the sector is projected to contribute nearly ₹42 trillion to GDP, generating 64 million employment opportunities across the value chain[2].

Government policy frameworks have accelerated India's transition toward smart tourism. Key initiatives include the Digital India mission (expanding digital infrastructure), Startup India scheme (supporting innovation), the Smart Cities Mission (integrating tourism features into urban planning), and most notably, Swadesh Darshan 2.0, which emphasizes sustainable, destination-centric development. The Union Budget 2025-26 allocated ₹2,541 crore specifically for tourism infrastructure, including development of 50 top-tier destinations through challenge-based mechanisms and advancement of eco-friendly tourism circuits[3]. Simultaneously, state governments have launched ambitious policies; for instance, the Telangana Tourism Policy 2025-2030 targets attracting ₹15,000 crore in investments and creating 3 lakh jobs through diversified tourism segments including spiritual, heritage, eco-, medical, and adventure tourism.

This convergence of technological capability, policy enablement, and entrepreneurial opportunity creates unprecedented potential for smart tourism to drive inclusive economic growth. However, significant challenges persist: infrastructure gaps, digital divides affecting rural areas, cybersecurity vulnerabilities, and the tension between technological advancement and cultural preservation. This paper examines smart tourism as a catalyst for entrepreneurship and employment generation in India, addressing research gaps in India-centric

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analyses, rural entrepreneurship linkages, and policy integration. The paper synthesizes secondary research, government data, case studies, and policy documents to develop strategic recommendations for maximizing smart tourism's contribution to India's development goals.

2. Smart Tourism: Concepts, Evolution, and Global Benchmarks

2.1 Defining Smart Tourism

Smart tourism represents an evolution of smart city principles applied to the travel and hospitality sector[4]. It leverages real-time data collection through IoT sensors, artificial intelligence for predictive analytics and personalization, cloud computing infrastructure, and mobile applications to create seamless, integrated travel experiences. Gretzel et al. (2015) define smart tourism as technology-enabled tourism systems that collect and integrate data from multiple sources to deliver intelligent services that enhance visitor satisfaction while optimizing operational efficiency.

In the Indian context, smart tourism encompasses digital platforms for reservations, IoT systems for crowd management at heritage sites, AI-powered recommendation engines for personalized itineraries, AR/VR applications for immersive heritage experiences, and Big Data analytics for demand forecasting and resource optimization[5].

2.2 Global Implementations and Lessons

International cities demonstrate the transformative potential of smart tourism infrastructure. Barcelona has implemented extensive IoT networks to monitor and manage overtourism at popular attractions, providing real-time visitor flow data that enables visitor redistribution to secondary sites[6]. Seoul's comprehensive smart tourism ecosystem integrates AI-driven navigation systems, multilingual support, and IoT-enabled accessibility features, resulting in enhanced visitor experiences and optimized municipal resource allocation. These implementations show correlation between smart tourism investments and increased job creation in technology services, hospitality, and cultural interpretation roles.

2.3 Alignment with Sustainable Development Goals

The United Nations Sustainable Development Goals framework establishes targets directly aligned with smart tourism development. SDG 8 (Decent Work and Economic Growth) encompasses both employment quantity and quality—smart tourism platforms generate jobs while often offering flexible, skill-development opportunities. SDG 11 (Sustainable Cities and Communities) emphasizes balanced tourism development and protection of cultural heritage, directly addressed by smart

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infrastructure enabling visitor management and preservation priorities. SDG 12 (Responsible Consumption and Production) is supported through Big Data-driven resource efficiency, reduced waste, and promotion of sustainable tourism practices[7].

3. Smart Tourism Infrastructure in India: Government Initiatives and Emerging Destinations

3.1 Policy Framework and Government Programs

India's government has established a comprehensive policy ecosystem supporting smart tourism development:

- **Digital India Mission (2015–ongoing):** Provides foundational digital infrastructure, enabling platforms like the Incredible India Digital Platform, which uses AI to deliver personalized tourism marketing and information services to prospective visitors[8].
- **Swadesh Darshan 2.0 (2023–ongoing):** Represents a significant paradigm shift from asset creation to sustainable, destination-centric development. As of 2025, 52 projects have been sanctioned under this scheme with investment of ₹2,208.27 crore, focusing on environmental sustainability, socio-cultural preservation, and economic inclusivity. The scheme explicitly incorporates emerging tourism trends including experiential, wellness, and cultural tourism[9].
- **Smart Cities Mission (2015–2025):** 100 cities identified for comprehensive smart development; tourism infrastructure integration in cities like Surat, Pune, and Kochi demonstrates urban smart tourism implementation, generating employment in technology services, hospitality, and cultural tourism roles[3].
- **Challenge Based Destination Development (CBDD):** Sub-scheme enabling competitive selection of emerging destinations for rapid infrastructure development, creating entrepreneurial opportunities in hospitality, tourism services, and digital platforms.
- **Union Budget 2025-26 Tourism Allocations:** ₹2,541 crore investment directed toward developing 50 top destinations and advancing eco-friendly tourism circuits, with explicit emphasis on inclusive growth and regional development[10].

3.2 Emerging Smart Tourism Destinations

India's emerging tourism destinations demonstrate smart tourism adoption, creating entrepreneurial ecosystems and local employment:

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Destination	Smart Technologies Deployed	Entrepreneurship Impact
Rishikesh	IoT crowd management; AI-driven booking platforms; mobile apps for adventure logistics	Startups in yoga tourism guides; spiritual experience platforms; adventure logistics coordination
Khajuraho	AR/VR heritage tour applications; AI-powered multilingual guides; IoT visitor tracking	Digital heritage content creation; tech firms developing immersive experiences; employment in content curation
Majuli Island	IoT environmental monitoring; sustainable tourism digital platforms; smart homestay networks	Agri-tourism startups; eco-lodge digital management systems; local community technology training
Puducherry	AI cultural assistants; fusion tourism digital platforms; IoT-enabled heritage site management	Travel-tech startups; cultural experience platforms; employment in digital tourism services

Table 1: Emerging Smart Tourism Destinations in India

These destinations exemplify how technology integration enables local entrepreneurship while maintaining cultural and environmental sustainability, particularly benefiting rural communities traditionally marginalized in tourism development.

4. Entrepreneurship Opportunities in the Smart Tourism Ecosystem

4.1 Market Size and Growth Trajectory

India's startup ecosystem ranks third globally in quantity and demonstrates particular dynamism in travel-tech. The travel-tech market is projected to reach \$125 billion globally by 2027, with India capturing increasing market share[11]. Within India, the travel and tourism sector is expected to generate 58.2 million new jobs by 2033, representing cumulative employment growth of nearly 14 million jobs from 2024 baseline figures[2]. This growth encompasses not only direct tourism employment but increasingly gig-economy roles—since January 2023, gig positions in tourism have increased 14%, comprising translators, photographers, specialized guides, and digital content creators, projected to grow 18–20% over the next two years[12].

4.2 Case Studies: Smart Tourism Entrepreneurship

Empirical examples demonstrate the entrepreneurial potential of smart tourism integration:

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OYO Rooms: Leveraging IoT sensors and AI-driven yield management, OYO has revolutionized budget hospitality by standardizing service quality across fragmented supply chains. The platform has generated thousands of direct and indirect employment opportunities, particularly for property managers, technology specialists, and hospitality staff across tier-2 and tier-3 cities[13].

udChalo: A digital services platform originally targeting armed forces travel, udChalo has expanded to provide integrated ticketing, itinerary planning, and experiential bookings. The company demonstrates smart tourism's potential to serve niche demographics while generating employment through technology and customer service roles, with particular focus on veteran employment.

Planet Abled: Specializing in accessibility technology for travelers with disabilities, Planet Abled exemplifies how smart tourism creates entrepreneurial opportunities in underserved market segments. The startup provides AI-powered recommendations, real-time accessibility information, and inclusive booking platforms, addressing both market gap and social inclusion objectives.

Digitour: Based in Goa, Digitour develops AR/VR applications for heritage tourism, enabling immersive experiences of historical sites. The company demonstrates how emerging technologies create employment in content development, software engineering, and cultural interpretation.

Emerging Platforms: Rural-focused startups including Villotale and NotOnMap are pioneering experiential eco-tourism models connecting travelers directly with rural communities, generating distributed employment across agriculture-linked tourism, environmental conservation, and digital platform management[14].

4.3 Support Ecosystem and Enablers

Entrepreneurial development in smart tourism is catalyzed by institutional support:

- **Startup India Scheme (2015–ongoing):** Provides tax incentives, regulatory streamlining, and access to government procurement opportunities for tourism technology startups.
- **NIDHI Program:** Provides mentoring and funding for technology-based startups, with specific tracks supporting tourism innovation.
- **Incubators and Accelerators:** FiiRE (Financial Inclusion Foundation for Research and Entrepreneurship) and government-supported Atal Innovation Mission Centers provide business development support, mentoring, and early-stage funding access.
- **Venture Capital Ecosystem:** Investors including Peak XV Partners (formerly Sequoia), Tiger Global, and emerging tourism-focused funds

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actively support travel-tech startups, creating expansion pathways and exit opportunities.

- **Government Schemes:** PRASHAD (Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive) and PMEGP (Prime Minister Employment Generation Programme) provide direct funding for micro and small tourism enterprises.

5. Challenges in Smart Tourism Implementation

Despite significant growth potential, smart tourism development faces structural challenges:

1. **Digital Divides and Infrastructure Deficits:** Rural areas, which encompass much of India's tourism potential, suffer from unreliable broadband connectivity, limited digital literacy, and inadequate last-mile infrastructure. These gaps disproportionately affect micro-entrepreneurs and destination communities, limiting their ability to access digital platforms and capture tourism value[15].
2. **Data Privacy and Cybersecurity Risks:** IoT and Big Data infrastructure in smart tourism systems creates vulnerability to data breaches. The absence of comprehensive, tourism-sector-specific data protection frameworks increases risks for both businesses and travelers.
3. **Skill and Knowledge Gaps:** The tourism sector historically employs workers with limited formal education. Transition to technology-enabled operations requires upskilling programs, vocational training integration, and capacity-building initiatives that remain inadequately developed.
4. **Tension Between Authenticity and Digitization:** Over-reliance on technology can diminish authenticity of cultural and heritage experiences, a core value proposition in experiential tourism. Balancing technological enhancement with preservation of cultural integrity remains an ongoing challenge.
5. **Coordination and Regulatory Gaps:** Multiple agencies (Ministry of Tourism, state governments, municipal authorities, private platforms) operate with limited coordination. Overlapping jurisdictions and varying regulatory approaches create compliance burdens, particularly for startups and MSMEs.
6. **Funding Constraints for Infrastructure:** While venture capital funds travel-tech startups, capital for underlying tourism infrastructure remains

constrained, limiting connectivity and facility development in emerging destinations.

6. Methodology

This research uses qualitative secondary analysis with purposive sampling of diverse sources (2024–2025). Primary data includes government publications from India's Ministry of Tourism, policies like Digital India, Startup India, and Swadesh Darshan 2.0, plus economic reports from WTTC, IBEF, and NLB Services. Academic journals cover smart tourism, IoT, entrepreneurship, and employment trends; case studies draw from company reports, media, and industry analyses. Thematic analysis links technology adoption, entrepreneurship, and jobs. Limitations: secondary data reliance, industry biases, and limited disaggregated employment stats. Future work: primary surveys of entrepreneurs and communities.

7. Findings and Discussion

Smart tourism drives entrepreneurial development and employment in India. Key findings:

1. Technology as Enabler: Digital platforms, IoT, and AI lower entry barriers for new entrepreneurs versus traditional models.
2. Distributed Jobs: Roles span tech specialists (developers, analysts), digital marketers, content creators, tech-trained guides, and gig workers (translators, photographers).
3. Rural Potential: Infrastructure spreads benefits to marginalized regions beyond metros.
4. Policy Effects: Swadesh Darshan 2.0, Smart Cities, and budgets attract investment and startups.
5. Inclusion Barriers: Gaps in infrastructure, skills, and support hinder women, youth, and rural participation.
6. Sustainability: Systems integrate environmental monitoring and cultural preservation.

8. Policy Recommendations and Strategic Roadmap

Targeted interventions to unlock potential:

1. Rural Connectivity: Prioritize broadband via Digital India in Swadesh Darshan 2.0 and CBDD areas.
2. Education Integration: Embed AI, IoT, and digital skills in B.Com, B.Ed, and hospitality programs; add vocational tourism-tech modules.
3. Incubation Hubs: Build travel-tech incubators with mentoring, funding, and linkages for underrepresented founders.

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4. VC Support: Create tourism-tech funds and investor partnerships to ease capital access.
5. Inclusive Models: Target schemes for women, youth, and community startups in heritage/agri-tourism.
6. Data Framework: Set tourism-specific privacy, cybersecurity, and AI ethics standards.
7. Coordination: Form authorities for central-state-municipal harmony.
8. Best Practices: Share platforms for models like OYO and Digitour to scale replication.

9. Conclusion

Smart tourism transforms India's growth, boosting economy, inclusive jobs, sustainability, and dispersed communities. Projections: ₹22 trillion and 48 million jobs (2025) to ₹42 trillion and 64 million (2035).

Policies like Digital India, Swadesh Darshan 2.0, and Smart Cities provide foundations, but inclusive growth demands rural connectivity, digital skills, women/youth entrepreneurship, and data protections.

Entrepreneurial models—from startups to community agri/heritage tourism—can decentralize benefits. For Viksit Bharat 2047, balance tech with culture, break silos, and ensure inclusivity. Strategic policies can make it a global South model.

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