



Asia-Pacific  
Economic Cooperation

HANDBOOK

# AI-POWERED TOURISM: BEST PRACTICES AND STRATEGIES FOR APEC ECONOMIES

APEC Tourism Working Group

July 2026







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Economic Cooperation**

# **AI-Powered Tourism: Best Practices and Strategies for APEC Economies**

**APEC Tourism Working Group**

**July 2026**

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# PREFACE

The tourism sector across APEC economies is undergoing a significant transformation as digital technologies increasingly influence destination management, service delivery, and visitor experiences. Artificial intelligence (AI) has emerged as a crucial enabler of this transformation, offering potential benefits in areas such as operational efficiency, data-driven decision-making, and destination competitiveness. However, the uneven pace of digital readiness, differences in institutional capacity, and concerns related to governance, ethics, and inclusivity underscore the need for careful and context-sensitive approaches to AI adoption in the tourism sector.

In response to these challenges, this Handbook was developed under the project *“Futuristic Frontiers: AI-Led Evolution of Tourism Stakeholders in APEC Economies”* to support tourism stakeholders in strengthening their understanding and capacity for AI adoption. Rather than promoting technology in isolation, the Handbook focuses on the conditions that enable responsible, inclusive, and practical use of AI, particularly for tourism authorities, industry associations, and micro, small, and medium-sized enterprises (MSMEs).

The Handbook draws on a combination of literature review, hybrid case studies, and stakeholder engagement. Case studies from selected APEC economies, such as People's Republic of China; Indonesia; Republic of Korea; Malaysia; and Peru, offer insights into diverse policy environments, varying levels of digital maturity, and different implementation experiences. Through cross-economy comparison, the Handbook highlights common patterns as well as context-specific challenges in AI adoption across the tourism sector.

Emphasis is placed on key enabling dimensions, including policy and governance frameworks, digital infrastructure and readiness, human capital and skills development, public–private–academic collaboration, and considerations for gender and inclusivity. Building on empirical evidence and stakeholder-validated insights, the Handbook concludes with a strategic framework and phased roadmap to guide AI adoption in ways that are realistic, human-centred, and aligned with APEC’s broader objectives of inclusive and sustainable growth.

This Handbook is intended to serve as a reference resource for policymakers and tourism stakeholders seeking to navigate the opportunities and complexities of AI adoption in tourism, while supporting informed decision-making, capacity building, and cross-economy learning within the APEC economies.

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A photograph of a person from the back, holding a smartphone and looking at a city street. The person is wearing glasses and a dark jacket. The background shows a busy city street with tall buildings, a crosswalk, and some pedestrians. The scene is brightly lit, suggesting daytime. A large red circular graphic is overlaid on the bottom left of the image, containing the text.

01

# Current Landscape of AI in Tourism Across APEC





Tourism is one of the most dynamic and rapidly evolving sectors across APEC economies. It plays a pivotal role in generating employment, supporting small and medium-sized enterprises (SMEs), promoting cross-cultural exchange, and making a significant contribution to GDP growth. However, the sector is under increasing pressure to adapt to changing consumer behaviours, sustainability imperatives, and the digital economy.

Artificial Intelligence (AI) is widely recognised as a transformative technology that can reshape the future of tourism. From enhancing customer experiences through personalised recommendations to improving operational efficiency, optimising resource allocation, and strengthening destination management, AI offers significant potential. Yet, adoption across APEC economies remains uneven. While some economies have developed domestic strategies and invested in smart tourism initiatives, others struggle with infrastructure, workforce readiness, and financial barriers.



# GLOBAL CONTEXT OF AI IN TOURISM

Artificial intelligence has moved from pilot projects to a structural capability in the tourism economy. Over the last three years, the conversation has shifted from “should we use AI?” to “how do we scale and govern it responsibly across the value chain?” (UN Tourism, 2025; WTTC, 2024). This section outlines the global baseline, including the market trajectory, the primary use cases along the traveller journey, and the emerging governance and risk management agenda.

## MARKET TRAJECTORY AND TECHNOLOGY SHIFTS

### From narrow AI to general-purpose GenAI

Early tourism applications were dominated by rules-based chatbots, recommender systems, and predictive analytics. Since 2023, large language models (LLMs) and multimodal generative AI have enabled natural language interactions, AI trip planners, synthetic images and videos, and more capable decision support for staff (WTTC, 2024; UN Tourism, 2025).

Global estimates suggest that the AI in the tourism market was in the range of USD 2.95–3.37 billion in 2024, with forecasts converging around USD 13–14 billion by 2030, implying annual growth rates of roughly 26–29% (MarketsandMarkets/Research and Markets, 2025; Grand View Research, 2024).

### Cloud-native and platform-centric deployment

Major online travel agencies, GDSs, and platform players are embedding AI into their core products, rather than offering standalone tools, by integrating models with booking, payments, and CRM systems (EY, 2025; Trip.com Group, 2024).

Across the broader AI economy, the global AI market is projected to exceed USD 1.8 trillion by 2030, with compound annual growth above 35% between 2024 and 2030 (EY, 2025). Travel and tourism are consistently highlighted as high-potential service sectors within this broader transformation (UN Tourism, 2025; WTTC, 2024). Several structural technology shifts underpin this growth:

### Convergence with other technologies

AI is increasingly combined with IoT sensors, geospatial analytics, biometrics, and blockchain to support smart destinations, seamless borders, and data-sharing across stakeholders (OECD, 2024a; UN Tourism, 2025).





*AI has moved from the margins to the core of tourism development. An empirical study of the world's top ten destinations (2010–2022) demonstrates that AI diffusion is positively linked to tourism efficiency and sustainable economic growth, alongside traditional drivers such as GDP and FDI.*

*In parallel, systematic reviews consistently identify AI as a foundational theme in tourism research and practice, spanning recommender systems, service robots, analytics, and generative AI.*

# AI along the Travel Value Chain

Global reports from UN Tourism, WTTC and the OECD converge on a similar mapping of AI uses across the tourism value chain (OECD, 2024a; UN Tourism, 2025; WTTC, 2024). Table 2-1 summarises typical applications.

Table 1-1. Global AI use cases along the tourism value chain

|                                               | Typical AI applications                                                                                                                                                     | Observable benefits<br>(global experience)                                                                                              |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inspiration &amp; planning</b>             | Generative AI trip planners; conversational search; hybrid recommender systems combining historical behaviour, context, and real-time data                                  | Reduced search friction; higher conversion from “lookers” to “bookers”; more tailored itineraries (UN Tourism, 2025; IndustryARC, 2024) |
| <b>Booking &amp; payment</b>                  | Dynamic pricing engines; fraud detection models; demand forecasting; personalised bundling of ancillaries                                                                   | Revenue optimisation, higher load factors, reduced chargebacks (WTTC, 2024; Research and Markets, 2025)                                 |
| <b>Transport &amp; mobility</b>               | AI-based crew and fleet scheduling; route optimisation; real-time disruption management; biometric border and boarding systems                                              | Reduced delays, lower operating costs, smoother passenger flows (OECD, 2024a; Reuters, 2025)                                            |
| <b>Accommodation &amp; attractions</b>        | Chatbots and digital concierges; service robots; demand forecasting for staffing; computer vision for housekeeping and safety; AI-based energy and food-waste management    | Improved service availability, cost savings, reduced food waste and energy use (UN Tourism, 2025; Reuters, 2025)                        |
| <b>Destination management &amp; marketing</b> | Sentiment analysis of reviews and social media; predictive visitor-flow models; location intelligence; generative content for campaigns; segmentation and propensity models | Evidence-based promotion and product development; more targeted campaigns; better crowd management (ETC, 2025; UN Tourism, 2025)        |
| <b>Post-trip engagement &amp; loyalty</b>     | Recommendation engines for repeat visits; automated feedback analysis; personalised offers across channels                                                                  | Higher lifetime value and advocacy (UN Tourism, 2025; Wang, 2025)                                                                       |



At the inspiration and planning stages, large consumer platforms now integrate GenAI trip planners that generate comprehensive itineraries, suggest hotels and flights, and adapt to budget or preference changes through conversational prompts (EY, 2025; Trip.com Group, 2024). Early evidence suggests that such tools can enhance engagement and increase booking conversions, although robust longitudinal data remain limited (UN Tourism, 2025). In booking and pricing, AI-powered revenue management models have become standard among major airlines and hotel chains. These models dynamically adjust prices based on demand forecasts, competitor rates, and customer behaviour, supporting yield optimisation across channels (WTTC, 2024; Research and Markets, 2025). On the other hand, in operations, AI is driving both efficiency and resilience. Examples include:

- ✓ **Airlines are using machine learning to optimise routes and avoid contrails, which can substantially reduce fuel use and radiative forcing (Reuters, 2025).**
- ✓ **Hospitality groups are deploying computer vision and machine learning to cut food waste and optimise procurement, generating both cost savings and emissions reductions (UN Tourism, 2025; Reuters, 2025).**

In marketing and destination management, tourism organisations are increasingly leveraging natural language processing and network analytics to monitor real-time sentiment, identify emerging trends, and model visitor flows. The European Travel Commission's 2025 study on AI in tourism, for instance, finds that domestic tourism organisations view AI-based trend detection and insight generation as priority use cases for research and marketing teams (European Travel Commission [ETC], 2025).



# Emerging Governance and Risk-management Themes

As adoption accelerates, global institutions have moved quickly to articulate principles for AI in tourism.

The **UN Tourism** report *Artificial Intelligence Adoption in Tourism* highlights three overarching considerations for sector stakeholders:

- Embedding principles such as fairness, accountability, transparency, and privacy by design.
- Investing in capacity-building so that tourism workers and managers can understand, monitor, and improve AI systems rather than treating them as black boxes (UN Tourism, 2025).
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The **OECD/G7** policy paper *Artificial Intelligence and Tourism* similarly stresses that while AI can support innovation and sustainability, it also amplifies certain risks:

- Algorithmic bias in recommender systems can redistribute tourist flows in unintended ways, exacerbating overtourism in already saturated areas while neglecting lesser-known destinations.
- Dynamic pricing, if poorly governed, may raise fairness concerns for affected travellers and small intermediaries.
- Data-rich AI systems increase exposure to information protection and privacy risks, particularly for tourism businesses that rely on third-party technology providers (OECD, 2024a).



Recent academic work on recommender systems reinforces these concerns. For example, Muellner et al. (2025) argue that tourism algorithms often optimise single metrics (e.g. click-through or revenue) and fail to account for multi-stakeholder fairness, including residents, small businesses, and the environment.

Across reports, three governance trends stand out:



### **Soft-law and guidance rather than burdensome regulation**

International bodies favour principles, toolkits, and voluntary standards over sector-specific legislation, partly to avoid stifling innovation (UN Tourism, 2025; OECD, 2024a).



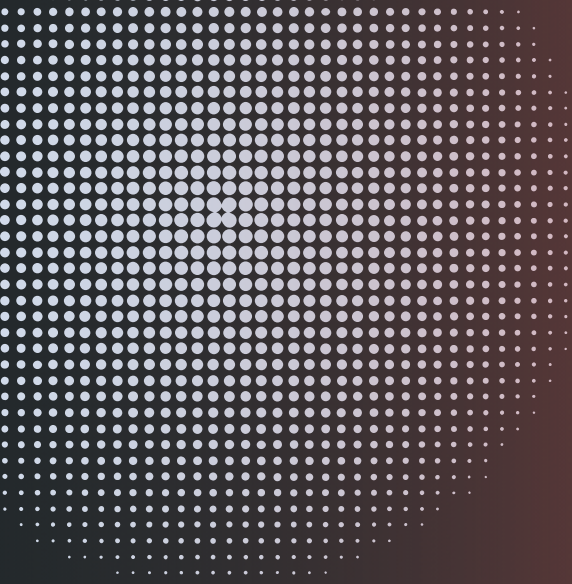
### **Alignment with cross-sector AI standards**

Tourism is encouraged to align with emerging horizontal AI standards (e.g. around risk management, data quality, and transparency) so that sector-specific practices remain consistent with broader international standards and evolving global guidance (OECD, 2024a; UN Tourism, 2025).



### **Multi-stakeholder participation**

There is emphasis on involving destinations, technology providers, workers, residents, and travellers in the design and oversight of AI systems to ensure social licence and trust (UN Tourism, 2025; WTTC, 2024).



# Implications for APEC Economies

The global landscape suggests several implications that will shape how APEC economies can leverage AI in tourism:

- 1.** The pace of innovation is set by global platforms and technology providers, meaning APEC tourism stakeholders will increasingly integrate and govern AI through partnerships rather than building everything in-house (WTTC, 2024; EY, 2025).
- 2.** AI capabilities are diffusing unevenly, with large firms and advanced destinations already operating at scale, while MSMEs and emerging destinations risk being excluded from AI-enabled value creation (UN Tourism, 2025; Antczak, 2025).
- 3.** Global evidence suggests that AI can serve as a catalyst for more sustainable tourism patterns, provided it is combined with complementary policies on skills, data governance, and environmental management (Siddik, 2025; Wang, 2025).

These global dynamics provide the benchmark against which the current state of AI adoption in APEC's tourism sector can be assessed in the next section.



# APEC-WIDE BASELINE: STATE OF AI ADOPTION IN TOURISM ACROSS THE APEC ECONOMIES

The adoption of artificial intelligence across APEC economies exhibits a pattern of rapid acceleration, particularly in digitally advanced markets, which contrasts with the structural constraints faced by emerging tourism economies. This uneven profile is shaped by disparities in digital infrastructure, data governance maturity, firm capabilities, and human capital readiness (APEC Policy Support Unit, 2025; BCG, 2025; ERIA, 2023).

As a result, the APEC economies exhibit a “multi-speed AI transition,” where large firms and advanced destinations deploy AI at scale. At the same time, MSMEs, which represent more than 80% of tourism enterprises, struggle to participate meaningfully in AI-driven value creation (UN Tourism, 2025). This section synthesises the APEC economies’ baseline across four analytical dimensions: AI maturity, institutional readiness, industry adoption, and capability gaps.

## **AI Maturity and Institutional Readiness Across APEC Economies**

Across APEC, AI adoption in tourism is strongly correlated with overall domestic AI readiness, particularly in areas such as cloud infrastructure, data management, information protection, and the existence of domestic AI strategies. According to APEC’s 2025 *Navigating the AI Landscape* report, economies can be categorised into three broad tiers: leaders, emerging adopters, and constrained markets (APEC PSU, 2025).

Table 1-2. APEC AI Maturity Profile

| Tier                | Economies (Illustrative)                                                                          | Institutional & Digital Characteristics                                                                                                                                                | Tourism-Sector Implications                                                                                                                                                  |
|---------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AI Leaders          | Australia; Canada; People's Republic of China; Japan; Republic of Korea; Singapore; United States | Robust cloud infrastructure, strong information protection, effective AI governance arrangements, high R&D spending, established digital talent pipelines (APEC PSU, 2025; BCG, 2025). | Large tourism enterprises deploy AI in marketing, pricing, biometrics, mobility, and sustainability analytics. Public-private alignment enables destination-level AI pilots. |
| Emerging Adopters   | Chile; Malaysia; Mexico; New Zealand; Peru; Thailand; Viet Nam                                    | Rapid digitalisation, expanding AI pilot programmes, strengthening data governance, but skills gaps persist (BCG, 2025; ERIA, 2023).                                                   | AI used in OTAs, airports, hotels, and smart tourism platforms, but MSMEs have limited capacity due to cost and expertise constraints.                                       |
| Constrained Markets | Indonesia; Papua New Guinea; The Republic of the Philippines                                      | Infrastructure gaps, uneven connectivity, low AI capital investment, and limited technical workforce (ERIA, 2023; UN Tourism, 2025).                                                   | Tourism MSMEs rely heavily on platforms; uptake of advanced AI remains small-scale. Domestic tourism authorities show interest but lack sustained resources for adoption     |

*The ASEAN AI governance landscape, part of APEC's subregional context, follows a similar three-tier pattern. The 2025 ASEAN-BCG Unlocking Southeast Asia's AI Potential report notes that Singapore leads on enterprise AI adoption, followed by Malaysia; Viet Nam; Thailand; and Indonesia, reflecting divergent levels of digital ecosystem maturity (BCG, 2025).*

# Industry Adoption Patterns Along the Tourism Value Chain

Although AI awareness is high across APEC tourism stakeholders, adoption remains uneven. Large aviation, accommodation, and OTA companies generally operate AI-enabled business models, while MSMEs and local attractions primarily access AI through platforms (APEC TWG, 2025).

## *Air Transport & Mobility*

Airlines in Australia; Japan; Republic of Korea; Singapore; and United States have deployed AI in crew scheduling, predictive maintenance, disruption management, and biometrics-enabled travel (OECD, 2024a; Reuters, 2025). Singapore's Changi Airport and Tokyo's Haneda Airport have introduced AI-supported passenger flow analytics and automated border processing. These deployments reflect advanced regulatory and data-sharing capabilities across leading APEC economies.



## *Accommodation Sector*

Large hotel chains operating in APEC markets (e.g., Marriott, Accor, IHG) utilise AI for dynamic pricing, sentiment analysis, and predictive housekeeping. Emerging evidence suggests that AI-based systems can reduce food waste and energy consumption in high-volume hospitality operations (UN Tourism, 2025; Reuters, 2025). However, MSME hotels, which are dominant in Southeast Asia and Latin America, rarely implement such tools due to cost and integration barriers (APEC TWG, 2025).

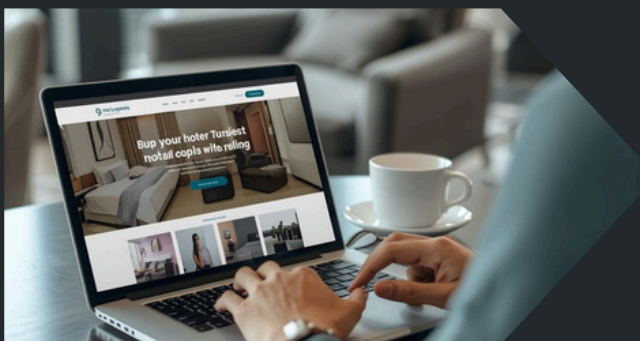




## ***Destination Management & NTO Adoption***

The ETC's 2025 cross-regional benchmarking study notes that NTO research teams globally remain in exploratory phases, whereas marketing teams have adopted GenAI tools more rapidly (ETC, 2025). APEC tourism organisations show similar patterns:

- Advanced economies utilise AI for sentiment analysis, trend identification, market segmentation, and creative asset generation.
- Emerging NTOs express a strong interest but lack structured data environments and internal AI capability (APEC PSU, 2025).
- Domestic DMOs in Australia; Japan; Republic of Korea; and Singapore are developing or piloting AI-enabled visitor intelligence platforms. In contrast, similar initiatives in Indonesia; Peru; and The Republic of the Philippines are still in the early stages of planning.

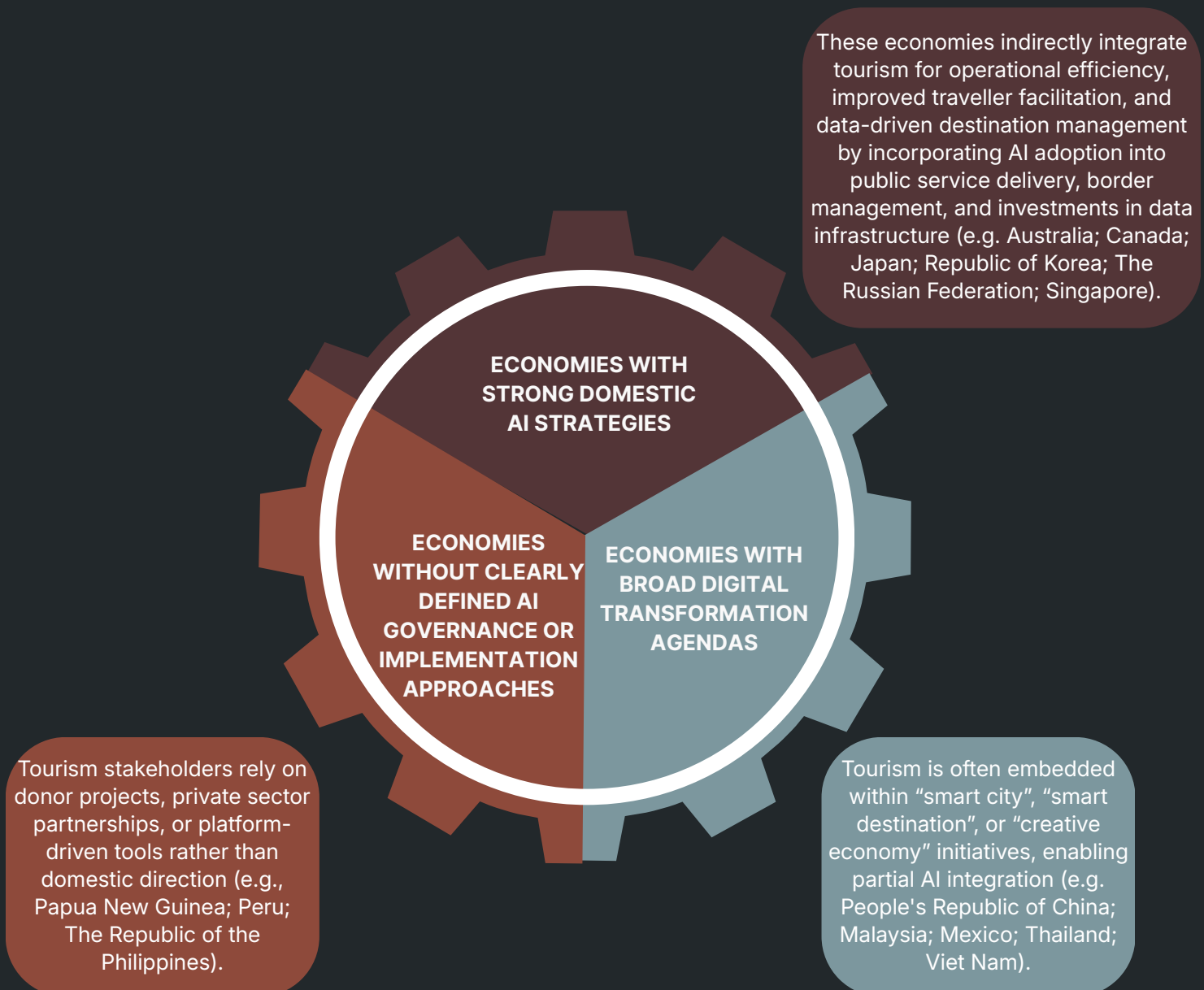


## ***Tourism Platforms and Digital Intermediaries***

People's Republic of China-based platforms (Trip.com, Fliggy, Meituan) and US-based platforms (Google Travel, Airbnb, Expedia) are increasingly acting as AI innovation hubs, influencing the entire APEC tourism landscape. Trip.com's AI-powered recommendation systems and generative-travel tools, for example, shape outbound and in-destination behaviour across APEC markets (Trip.com, 2024). APEC's tourism MSMEs thus experience AI indirectly through the platform economy, which lowers entry barriers but also increases dependency (ERIA, 2023).

# The Role of Domestic AI Strategies in Shaping Tourism Adoption

APEC's policy ecosystem is characterised by soft-law alignment rather than harmonised regulation. Many economies rely on voluntary guidelines, risk assessment toolkits, and sector-neutral AI acts - legal and policy instruments designed to govern and guide the development and use of AI across the entire economy rather than targeting specific industries (such as tourism, health, or finance) (APEC PSU, 2025). This governance model influences how AI diffuses into tourism:





# Baseline Capability Gaps Across APEC Tourism Systems

*Across institutional, enterprise, and workforce levels, several capability gaps constrain AI adoption. As a result, MSMEs risk being locked out of AI-enabled competitiveness unless supported through financial incentives, plug-and-play solutions, and shared platforms:*

**1.**

## **Skills and Workforce Readiness**

APEC and ASEAN-wide assessments highlight a significant shortage of applied AI talent, particularly in data engineering, ML operations, and prompt engineering (BCG, 2025). Tourism workers in MSMEs often lack digital literacy, limiting AI integration in day-to-day operations (UN Tourism, 2025).

**2.**

## **Data Availability and Quality**

Many APEC destinations lack integrated visitor data platforms, reducing the efficacy of AI models for forecasting, segmentation, and sustainability analytics (APEC TWG, 2025). Fragmented data ecosystems across OTAs, airlines, hotels, and local authorities hinder real-time intelligence.

**3.**

## **MSME Constraints**

MSMEs account for more than 80% of tourism firms in Southeast Asia and Latin America (UN Tourism, 2025). They face structural barriers, including:

- High cost of AI tools and subscriptions
- Limited managerial capacity
- Weak digital infrastructure in rural and island destinations (ERIA, 2023)

**4.**

## **Governance and Trust Gaps**

Policy support remains uneven. Many APEC economies lack clear guidelines for algorithmic transparency, responsible AI deployment, and data-sharing across tourism actors (APEC PSU, 2025). This increases perceived risk among tourism businesses and slows adoption.





# Outlook Across APEC Economies: A Multi-Speed but Converging AI Landscape

The overall APEC baseline indicates that while AI adoption is more advanced in public-sector border management, aviation, and large hotels, the destination and SME layers lag significantly.

As AI becomes increasingly embedded in global tourism platforms, APEC economies face a strategic choice:

- Leverage AI as a productivity and sustainability accelerator, or
- Accept widening competitiveness gaps between digitally advanced and emerging tourism economies.

Across all reports, including those from APEC PSU (2025), UN Tourism (2025), and BCG (2025), a clear trend is emerging: APEC is entering a phase of convergence. During this period, the growing availability of cloud services, AI toolkits, open-source models, and interoperable standards will gradually reduce the adoption gap. These trends set the foundation for the next section on strategic opportunities for AI in tourism across APEC economies.

# OPPORTUNITIES FOR AI IN TOURISM ACROSS APEC

AI presents a transformative opportunity for APEC economies to lift productivity, enhance visitor experience, improve destination sustainability, and strengthen competitiveness across the tourism value chain. Unlike earlier waves of digitalisation, AI, especially generative AI and advanced analytics, enables personalisation at scale, real-time decision-making, and resource optimisation, which are essential for tourism recovery and long-term resilience (UN Tourism, 2025; WTTC, 2024).

The following subsections structure the opportunity landscape across four domains: personalisation, operational efficiency, marketing and market intelligence, and sustainability and destination management.



# 1

# Personalisation and Experience Enhancement

Generative AI and conversational engines are reshaping how travellers discover destinations, plan itineraries, and interact with tourism providers. Across APEC, the opportunity lies in delivering high-quality, context-aware interactions at scale, particularly for multilingual and cultural markets.

## *AI-powered trip planning and itinerary optimisation*

Global platforms such as Trip.com, Expedia, and Google Travel have deployed GenAI systems that build complete itineraries based on natural language prompts, budget constraints, and behavioural patterns (Trip.com, 2024; EY, 2025). These tools reduce search friction and can significantly increase conversions by matching travellers with relevant products in real-time (UN Tourism, 2025). APEC destinations, many of which rely on long-haul and high-spending travellers, can significantly benefit from these capabilities in targeting, itinerary bundling, and cross-selling experiences.

## *Advanced recommender systems for APEC markets*

Modern AI systems integrate visitor profiles, geospatial movement, reviews, and seasonal patterns to recommend activities and locations. In high-density urban destinations such as Japan; Republic of Korea; and Singapore, AI-based relevance engines can tailor experiences while distributing visitors more evenly (OECD, 2024a). For tourism ecosystems driven by MSMEs in Indonesia; Malaysia; Mexico; and Peru, there is an opportunity to enhance the visibility of lesser-known providers, which helps counteract the concentration effects generated by platforms (ERIA, 2023).

## *Multilingual and multicultural engagement*

APEC's linguistic differences provides a strong case for GenAI-supported translation, cultural adaptation, and real-time digital concierge services. Generative models now support more natural, domain-specific communication, enabling tourism providers to serve travellers in languages they do not natively speak (UN Tourism, 2025).





# 2 Operational Efficiency and Resource Optimisation

Across airlines, hotels, attractions, and transport operators, AI enables significant cost reduction, higher operational reliability, and improved service quality.

## ***Predictive maintenance and mobility optimisation***

AI models used by major APEC aviation hubs (Australia; Japan; and Singapore) support aircraft maintenance scheduling, crew optimisation, disruption prediction, and route planning, including contrail-avoidance to reduce emissions (Reuters, 2025). These systems improve resilience against delays and climate-related disruptions.

## ***Hotel and attractions operations***

Such systems have demonstrated measurable cost savings and environmental benefits, especially in high-volume operations (UN Tourism, 2025; WTTC, 2024). AI-driven tools in hospitality support:

- Forecasting occupancy and staffing
- Automated housekeeping task allocation
- Inventory and food-waste management through computer vision
- Energy optimisation across HVAC, lighting, and water systems

## ***Workforce augmentation rather than substitution***

Contrary to common concerns, AI in tourism is primarily used to augment service workers, reducing routine administrative workload while improving guest-facing interactions (UN Tourism, 2025). For labour-constrained APEC destinations, such as Japan; Republic of Korea; and Singapore, AI-enabled workforce productivity can help offset demographic pressures.



## 3

# Marketing, Market Intelligence, and Demand Forecasting

AI enables tourism organisations to derive insights from large-scale visitor datasets, reviews, mobility traces, and booking patterns. These capabilities unlock strategic opportunities across APEC, particularly for improving market positioning and responsiveness. APEC economies with advanced data ecosystems, including Australia; People's Republic of China; Japan; Republic of Korea; Malaysia; and Singapore, are well-positioned to capitalise on these opportunities.

## ***Real-time sentiment and trend analysis***

Natural language processing (NLP) systems can analyse millions of reviews and social media posts to detect emerging traveller preferences, safety concerns, or dissatisfaction signals (ETC, 2025). These insights support NTOs and DMOs in adapting marketing campaigns and product offerings with shorter lead times.

## ***Precision segmentation and personalised marketing***

AI-based clustering and propensity models allow tourism marketers to build segments based on behavioural micro-patterns rather than demographic proxies (WTTC, 2024). This results in more efficient media spending and a higher campaign ROI, which is a crucial advantage for destinations competing for long-haul visitors across the APEC economies.

## ***Demand forecasting and yield optimisation***

Advanced forecasting models help airlines and hotels optimise pricing, reduce inventory spoilage, and align capacity with expected demand. At the destination level, predictive analytics support event planning, public transportation coordination, and surge management responses (OECD, 2024a).



# 4

## Sustainability, Visitor Management, and Destination Resilience

APEC economies are facing various sustainability challenges, including overtourism in Japan and Thailand, climate change challenges in Pacific island economies, and environmental degradation in coastal destinations. AI offers tools that support evidence-based governance, resource optimisation, and adaptive visitor management.

### **AI for environmental stewardship**

These capabilities directly align with APEC's sustainability and resilience priorities. Studies from the aviation and hospitality sectors demonstrate that AI supports:

- Carbon-efficient routing via contrail avoidance (Reuters, 2025)
- Energy savings through predictive HVAC optimisation
- Food-waste reduction using image recognition and inventory forecasting (UN Tourism, 2025)

### **Crowd forecasting and dispersal strategies**

AI-based mobility models using telecom data, sensors, and booking timelines enable destinations to forecast visitor concentrations and implement dispersal mechanisms. Japan; Republic of Korea; and Singapore have piloted such systems in peak-season management (OECD, 2024a). For emerging economies, these tools provide a pathway to manage growth without degrading cultural and environmental assets, enabling more strategic tourism zoning.

### **Risk intelligence and crisis response**

AI can analyse weather patterns, health indicators, and real-time traveller movement to support early warning systems and emergency planning. APEC's Digital Tourism Recovery agenda emphasises the significance of analytics-driven disaster resilience for tourism economies vulnerable to pandemics, typhoons, and tsunamis (APEC TWG, 2025).





# 5 Strategic Implications for APEC Economies

The opportunity landscape suggests several strategic imperatives:

**APEC economies with strong digital fundamentals**, such as Australia; Japan; Republic of Korea; Singapore; and United States, can accelerate their progress towards fully AI-enabled tourism ecosystems that integrate border control, airports, hotels, attractions, and transportation.

**Middle-income tourism economies**, Chile; People's Republic of China; Malaysia; Mexico; Thailand; and Viet Nam stand to gain significantly from hospitality and DMO-focused AI applications, especially in marketing intelligence and demand forecasting.

**Emerging economies**, such as Indonesia; Papua New Guinea; Peru; and The Republic of the Philippines, can leverage AI-enabled platforms to compensate for infrastructure and skills gaps while investing in foundational data and workforce capabilities.

While adoption will remain uneven, the convergence of cloud-based AI services, interoperable standards, and affordable GenAI tools is expected to lower barriers across the APEC economies (APEC PSU, 2025; BCG, 2025). As opportunities expand, governance, capacity-building, and the integration of MSMEs will determine the extent to which AI contributes to sustainable economic growth in the tourism sector.



# KEY CHALLENGES FOR AI ADOPTION IN TOURISM ACROSS APEC

Despite the significant opportunities outlined in the previous section, AI adoption in APEC's tourism sector remains constrained by structural, institutional, and market-level challenges. These constraints highlight broader gaps in digital readiness across the economies. They are exacerbated by the unique characteristics of tourism, including a high dominance of MSMEs, fragmented value chains, and significant reliance on human interaction (UN Tourism, 2025; APEC PSU, 2025; ERIA, 2023). Four interdependent challenge vectors shape the current risk landscape: digital divide, MSME capacity constraints, skills and workforce readiness gaps, and governance and regulatory fragmentation.



**Digital Divide and Infrastructure Disparities**



**MSME Constraints Across Tourism Value Chains**



**Skills Gap and Workforce Readiness**



**Digital Policy Approaches and Data Regulation for AI in Tourism**



**Structural Interdependence of the Four Challenge Vectors**





# Digital Divide and Infrastructure Disparities

The most persistent challenge across APEC economies is the uneven distribution of digital infrastructure, which directly impacts the feasibility of deploying AI solutions in the tourism sector.

According to the APEC Policy Support Unit, economies show significant differences in cloud adoption, broadband penetration, data centre availability, and cybersecurity maturity, all of which are foundational prerequisites for AI at scale (APEC PSU, 2025).

Similarly, BCG's *Unlocking Southeast Asia's AI Potential* report highlights that AI readiness across ASEAN ranges from world-leading capabilities (Singapore) to structurally constrained environments (Indonesia; The Republic of the Philippines; and Cambodia), shaped mainly by infrastructure gaps (BCG, 2025).

## Impact on Tourism Systems includes:

- Rural and island tourism destinations, which are prominent in economies such as Indonesia; Malaysia; Papua New Guinea; Peru; The Republic of the Philippines; and Thailand, lack robust connectivity, making it challenging to run cloud-based AI systems for bookings, predictive analytics, or mobility monitoring (ERIA, 2023).
- National Tourism Organisations (NTOs) and Destination Management Organisations (DMOs) in infrastructure-limited economies face difficulty building integrated visitor intelligence platforms, as they cannot reliably aggregate real-time mobility or transaction data (APEC TWG, 2025).
- Large enterprises (airlines, airports, hotel chains) often maintain advanced AI capabilities, while the destinations they operate in lack the underlying infrastructure to support ecosystem-level transformation.



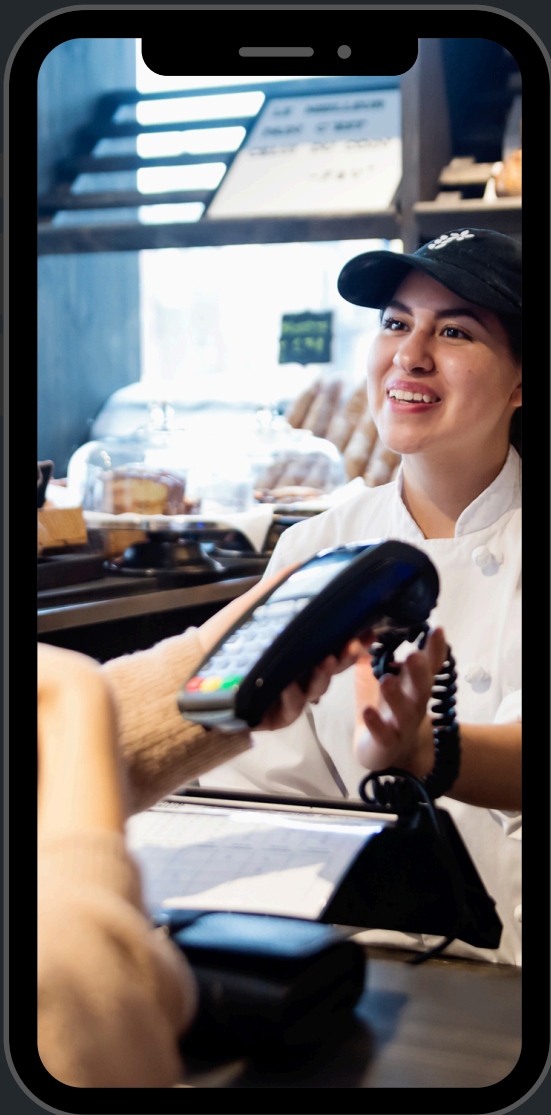




*This uneven distribution of digital infrastructure creates a multi-speed tourism innovation landscape, where advanced destinations experiment with AI-driven visitor management, while emerging destinations struggle to digitise core operations.*

# MSME Constraints Across Tourism Value Chains

Tourism in APEC, especially in Southeast Asia and Latin America, is primarily driven by micro, small, and medium enterprises, which encounter significant barriers to AI adoption. UN Tourism (2025) notes that MSMEs often have the lowest digital and data maturity, rendering AI integration difficult even when tools are available.



## Structural Barriers Facing MSMEs include:

- **Cost and resource limitations** - AI tools, especially enterprise-grade solutions, require recurring investments in cloud services, integration, training, and maintenance. MSMEs frequently lack both financial capital and managerial capacity (ERIA, 2023).
- **Limited digitisation of processes** - Many MSMEs do not use digital POS systems, CRM platforms, or inventory management tools, resulting in insufficient data to power AI models (UN Tourism, 2025).
- **Platform dependency and uneven value capture** - MSMEs heavily rely on OTAs and social media platforms that embed AI in their algorithms. While platforms increase market access, they also control traffic flows, customer data, and pricing visibility, reinforcing structural asymmetries (ERIA, 2023).
- **Low awareness and perceived risk** - Smaller operators often perceive AI as a high-risk investment or associate it with job displacement rather than productivity enhancement (APEC TWG, 2025).

Unless MSMEs are supported through shared digital platforms, subsidies, and capacity-building initiatives, AI risks widening the competitiveness gap between technologically advanced tourism businesses and the majority of enterprises that underpin local economies.





# Skills Gap and Workforce Readiness

A shortage of digital and data talent limits AI adoption across all APEC economies. The 2025 BCG-IMDA report concludes that many economies face insufficient numbers of AI engineers, data scientists, and machine-learning specialists to meet enterprise demand, noting that “talent shortage is the primary barrier to AI scaling across ASEAN-6” (BCG, 2025). Workforce-Level Challenges in Tourism include:

- **Low baseline digital literacy** - Tourism workforces, especially in MSMEs, lack exposure to digital tools, making it challenging to adopt AI systems that require data entry, interpretation, or backend configuration (UN Tourism, 2025).
- **Limited managerial capability for technology integration** - Many tourism businesses lack personnel who can evaluate AI vendors, manage data governance, or oversee AI-enabled customer-experience workflows (APEC PSU, 2025).
- **Concerns about job displacement** - ERIA (2023) highlights that the fear of automation is prevalent among service workers in Southeast Asia. Without clear communication and reskilling initiatives, AI is viewed as a threat rather than an enabler.
- **Limited structured training systems** - While advanced economies (e.g., Australia; Japan; and Singapore) are investing heavily in AI-related workforce development, most APEC tourism economies have not yet integrated AI competencies into tourism skills frameworks or vocational programs (APEC TWG, 2025).



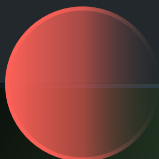
*These skill deficits constrain not only adoption but also governance of AI, as workers and managers struggle to interpret outputs, validate model behaviour, or identify risks such as bias or privacy breaches.*



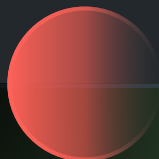


# Digital Policy Approaches and Data Regulation for AI in Tourism

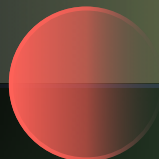
Digital policy approaches for AI across APEC economies continue to evolve across diverse institutional and regulatory contexts. Many economies favour soft-law instruments, including guidelines, principles, and voluntary risk-based mechanisms, which support innovation flexibility while strengthening transparency, accountability, and public trust (APEC, 2024). Policy approaches reflect varying digital maturity levels, domestic priorities, and sectoral structures across the region. Across APEC economies:



Implementation of dedicated AI principles, regulatory sandboxes, and sector-specific guidelines to guide responsible AI adoption.



Integration of AI oversight within broader digital-economy and domestic development strategies.



Strengthening institutional readiness and capacity-building initiatives to support sustainable AI deployment for all.



AI adoption in tourism requires large-scale, multi-source datasets, including mobility patterns, transaction data, reviews, sensors, and social media analytics. However, coordination across digital and data regulatory systems remains an important consideration in the tourism context:

Strengthening data-sharing protocols between public and private actors can improve interoperability and responsible AI use.

Cross-border tourism flows highlight the need for cooperation on privacy, transparency, and consumer protection standards (APEC, 2024).

Destination management organisations may require enhanced institutional support to coordinate multi-agency data ecosystems effectively.

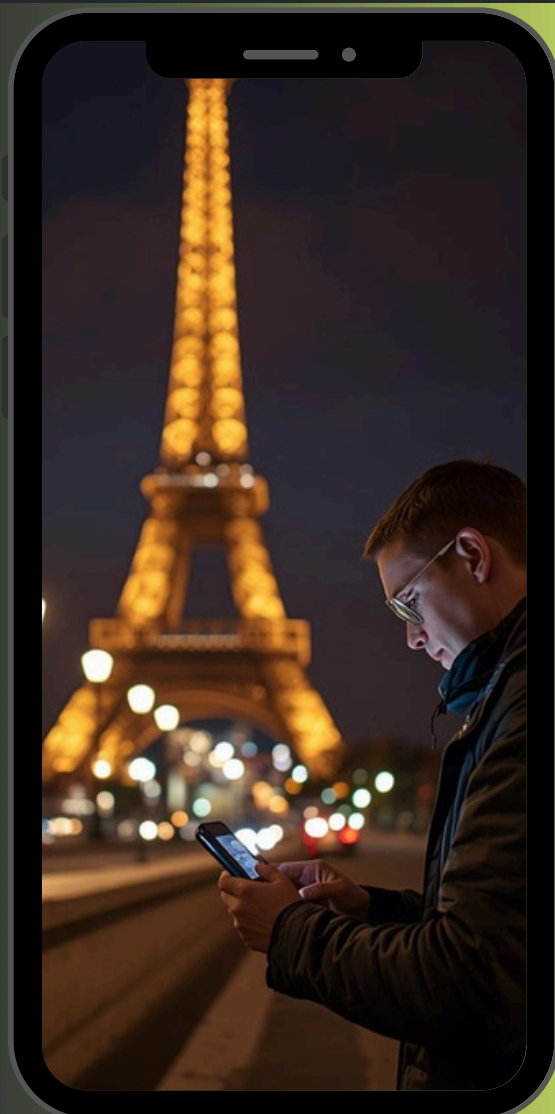
Without coherent digital and data-regulatory systems, AI deployment risks undermining trust among travellers, residents, and tourism workers. The OECD (2024a) highlights several AI-specific risks that tourism economies must manage:

Managing risks of algorithmic bias in recommender systems.

Enhancing transparency in proprietary AI applications used by digital platforms.

Promoting responsible approaches to dynamic pricing mechanisms

Safeguarding personal data within high-volume hospitality environments





# Structural Interdependence of the Four Challenge Vectors

The challenges identified above are deeply interlinked. Table 2-3 summarises how these vectors reinforce one another, creating systemic barriers to AI-enabled tourism transformation in the APEC economies.

Table 1-3. Interdependence of Key AI Adoption Challenges in APEC Tourism

| Challenge Vector         | Structural Constraint                                                       | Resulting Impact on Tourism AI Adoption                                                                                       |
|--------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Digital Divide           | Uneven infrastructure and cloud readiness across economies and destinations | Limits feasibility of AI deployment; reduces data collection reliability; constrains real-time analytics (APEC PSU, 2025).    |
| MSME Constraints         | Dominance of small operators with limited capital and digital maturity      | Restricts market-wide AI diffusion; increases platform dependency; widens competitiveness gaps (UN Tourism, 2025; ERIA, 2023) |
| Skills Gaps              | Shortage of digital, data, and AI-literate workforce                        | Constrains adoption, governance, and safe use; increases operational risk (BCG, 2025)                                         |
| Governance Fragmentation | Divergent regulatory approaches and limited sector-specific guidelines      | Creates uncertainty, inhibits investment, and complicates cross-border AI systems (APEC, 2024; OECD, 2024a)                   |





# Section Summary

Artificial intelligence has become a structural enabler of transformation in the global tourism sector. The chapter demonstrates that AI adoption has progressed beyond pilot experiments, now integrated throughout the traveller's journey, from inspiration and trip planning to booking, operations, marketing, and post-trip engagement. Advanced markets leverage AI for route optimisation, demand forecasting, sustainability analytics, and personalised visitor experiences, while generative AI is redefining how travellers interact with digital platforms.

Across APEC, however, the adoption trajectory is uneven. Economies such as Australia; Canada; Japan; Republic of Korea; Singapore; and United States operate at the technological frontier with mature digital ecosystems and strong domestic AI strategies, enabling widespread application across aviation, hospitality, and destination management. Middle-income economies such as Chile; People's Republic of China; Malaysia; Mexico; Thailand; and Viet Nam are rapidly enhancing their AI capabilities but still encounter challenges related to workforce readiness and data governance. In emerging economies, AI adoption is primarily facilitated through global platforms, constraining MSMEs' ability to reap the benefits of digital transformation.

The opportunities for APEC economies are significant: AI can enhance personalisation, reduce operational costs, improve marketing precision, and support environmental sustainability and resilience. Yet these benefits are hindered by persistent challenges. The digital divide, particularly between urban and rural areas, limits access to foundational infrastructure. MSMEs face structural barriers, including limited capital, low digital maturity, and dependence on platform intermediaries. Workforce shortages in AI and data skills constrain both the adoption and governance of these technologies. Finally, fragmented policy coordination and inconsistent data standards complicate interoperability and undermine trust.



02

# Hybrid Case Study Findings



# Preamble

*Understanding how artificial intelligence is adopted in tourism requires close attention to the institutional, infrastructural, and social contexts in which its implementation occurs. Across APEC economies, tourism systems differ markedly in terms of digital maturity, governance arrangements, market structures, and workforce capacity. These differences shape not only the pace of AI adoption, but also the forms it takes and the challenges encountered by tourism stakeholders.*

*Insights drawn from selected APEC economies provide valuable perspectives on how AI initiatives unfold in practice. Experiences from People's Republic of China; Indonesia; Republic of Korea; Malaysia; and Peru illustrate a wide spectrum of approaches, ranging from early-stage experimentation to more advanced applications embedded within broader smart tourism strategies. Examining these experiences side by side helps reveal common patterns as well as context-specific constraints.*

*The learning points presented in the following sections are derived from qualitative evidence gathered through hybrid case studies. They highlight practical observations rather than evaluative judgments, offering a grounded basis for understanding how AI adoption is shaped by local realities across the APEC economies.*

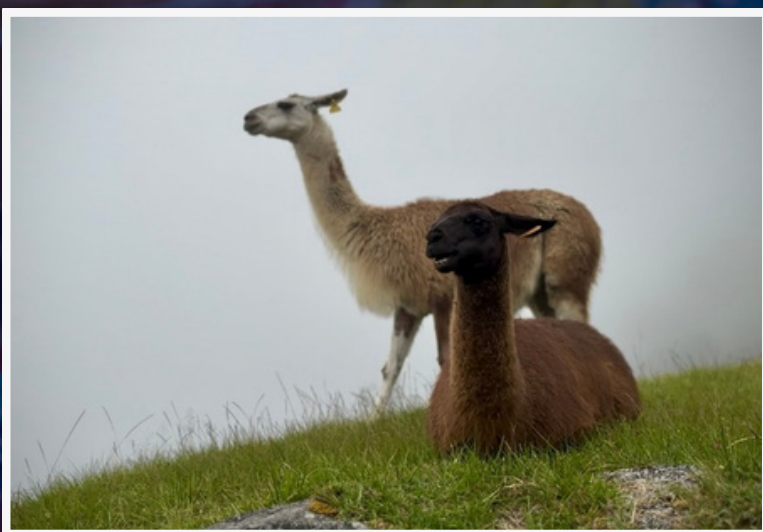






# PERU: EMERGING ADOPTION AND STRUCTURAL BARRIERS





*Onsite case study in Peru on 16 - 25 May 2025*



Peru can be regarded as one of the earliest adopters among Latin American economies that actively encourage the use of artificial intelligence (AI) and other emerging technologies, including those in its tourism sector. In July 2023, Peru passed the Law No. 31814, titled "Law that promotes the use of artificial intelligence in favour of the economic and social development of the country" (OECD, 2025c). This law establishes a domestic AI governance regime, adopting a risk-based model that requires human oversight, ensures transparency, and strengthens data governance.

In September 2025, the government approved Supreme Decree 115-2025-PCM, which sets out detailed regulations for Law 31814, making Peru the first economy in Latin America to adopt a comprehensive AI regulatory regime of this kind (Hopkins & Gajate, 2025).

The institutional setup designates the Presidency of the Council of Ministers (PCM) through the Secretariat of Government and Digital Transformation (SGTD) as the domestic technical regulatory authority for AI in Peru. The regulations also establish bodies such as CNIADIA (National Centre for Digital Innovation and AI), mandate digital governance units in public entities, and enforce rules on algorithmic audits, reporting of security incidents, and lifecycle risk management (Smart & Montori, 2025).

In tourism, although detailed and comprehensive economy-level AI strategies specific to the sector are still emerging, signs of digital innovation are visible, especially in major urban destinations such as Lima and Cusco. In these places, larger tourism enterprise destination management organisations and government agencies are experimenting with smart visitor management systems, web and mobile platforms that utilise predictive algorithms, and data-driven marketing tools.

Previous research supported this uneven spread. A study by Ramirez-Flores (2025) found emerging research on technologies in Peruvian tourism, especially in AI, big data, augmented reality, and the Internet of Things, with most work concentrated in institutions based in urban areas.

Another study by Maquera et al. (2022) reported an Intelligent Digital Platform (IDP) for community-based tourism in Peru, aiming to integrate local service providers with digital visibility, data analytics, and personalisation tools. However, although the idea exists in theory, very few people are implementing it yet. Peru represents a "front-runner" in regulatory readiness and digital ambition; however, the actual application of AI in tourism remains heavily skewed towards urban, well-resourced areas.



# Strength: Peru's policy, Innovation Labs and Pilot Project

One of Peru's major strengths is that it has taken a legal-first approach. The enactment of Law 31814 provides the state with a formal mandate to support the deployment of AI, safeguard rights, and regulate associated risks (Pinate, 2025). Detailed mechanisms for governance, oversight, and multi-stakeholder coordination complement the law's regulations. Such alignment places Peru ahead of many peer economies in establishing a coherent domestic framework.

Law 31814 also commits to fostering AI training, strengthening digital infrastructure and creating a collaborative AI ecosystem. This helps provide legal backing for programs targeting tourism sectors. In Lima, Cusco, and other major tourism destinations, universities, centres, and technology firms have begun pilot projects and innovation labs focusing on smart mobility, visitor flow management, predictive analytics, and digital marketing.

These labs often partner with tourism boards and agencies, experimenting with AI-driven dashboards, automated chatbots and recommendation engines. One of the promising developments of Intelligent Digital Platforms (IDPs) is to support community-based rural tourism in remote areas. The IDP integrates AI, analytics and local provider networks to improve product visibility, personalise visitor experiences, and streamline bookings (Maquera et al., 2022).

Similarly, Peru has undertaken efforts to enhance rural connectivity, which facilitates digital tourism. The "*Internet para Todos (IpT)*" initiative is a public-private program aimed at extending mobile broadband to underserved rural communities. It utilises open radio access (openRAN), infrastructure sharing, and a revenue-sharing model to reduce deployment costs.

According to reports, IpT has upgraded more than 3,000 cell sites from 2G to 4G and aims to reach tens of thousands of rural communities. Furthermore, within the telecommunications legal framework, Peru established the Telecom Investment Fund (as per Article 12 of the Telecom Law) to finance telecom services in rural and socially prioritised zones, requiring telecom providers to allocate a portion of their revenue to rural connectivity.

In response to COVID-19, Peru introduced support measures for tourism SMEs. For instance, the Business Support Fund for SMEs in the tourism sector, known as *FAE-Turismo*, with a capital of PEN 200 million, was established to support SMEs in 23 regions (OECD, 2022). Peru's National Strategy for Tourism Reactivation 2022-2025 also emphasised strengthening destination management, improving information systems and promoting alliances, which are complementary to digital and AI adoption.



# Challenges: Connectivity, Cost, Training and Cross- Economy Disparities

A fundamental barrier is the uneven distribution of internet access in Peru. According to recent data reported by the International Trade Administration (2024), only 9% of rural households have usable internet access. This rural connectivity deficit limits the ability of small tourism operators to utilise cloud-based AI tools, dashboards, or real-time systems.

The *Internet para Todos* initiative aims to address this, but the pace of coverage expansion is uneven, and numerous remote areas still lack reliable signal coverage. On another note, even where the connectivity exists, cost is a significant barrier. AI platforms, cloud services, data analytics subscriptions and AI-driven software require capital, recurring fees and maintenance.

For small tourism operators, particularly those located in remote or underserved areas within economies, this cost may be prohibitive. Peru's own research in SME digitalisation notes that access to finance, cost of technology, and uncertainty about returns are key obstacles (Torres et al., 2025). Without subsidies, grants and innovation funds, many MSMEs cannot justify AI investments.

One of the challenges also covered is the scarcity of digital literacy and AI-specific skills among smaller tourism operators and rural community members. Many lack exposure towards data analytics, programming, dashboard interpretation and AI management. Without capacity-building, even existing technologies may not be adopted or used effectively.

Moreover, Peru is geographically and culturally diverse, whereas digitalisation in tourism mirrors this disparity. Urban areas, such as Lima and Cusco, attract numerous investments, talents, and institutional support. On the contrary, places such as the Sacred Valley, remote highland districts or Amazon communities are left behind. Interviews with stakeholders confirm that AI visibility is primarily concentrated in urban zones, while most rural valleys remain largely "offline" in many respects.

This spatial inequality may deepen economic and social divides, with better-resourced destinations gaining more innovation, attracting tourists, while the remote ones lag further behind.





# Learning Points

The experience of AI adoption in Peru, particularly in the tourism industry, provides a valuable lesson. There are a few key considerations that should be included, such as:

## Designing low-cost, low infrastructure of AI tools

Instead of using high-end and server intensive system, deploy lighter and offline-capable tools that suit to low-bandwidth environments. Tools that can operate partially offline may assist.

## Subsidies, grant and shared platforms.

Governments, investors or any tourism networks could subsidize the AI adoption for small tourism operators. Shared platform such as regional AI platform could reduce cost by pooling data, infrastructure and maintenance.

## Local capacity-building and digital literacy program

Training programs tailored to rural operators (in vernacular languages, with hands-on modules) are essential so that AI tools are not seen as a module but practically useable.

## Strong connectivity backbone

Continued investment in rural broadband via initiative like *Internet para Todos (IpT)* and telecom infrastructure funds is essential. Policies that promote infrastructure sharing may help reduce deployment costs.

## Coordination among government, academic and private sector

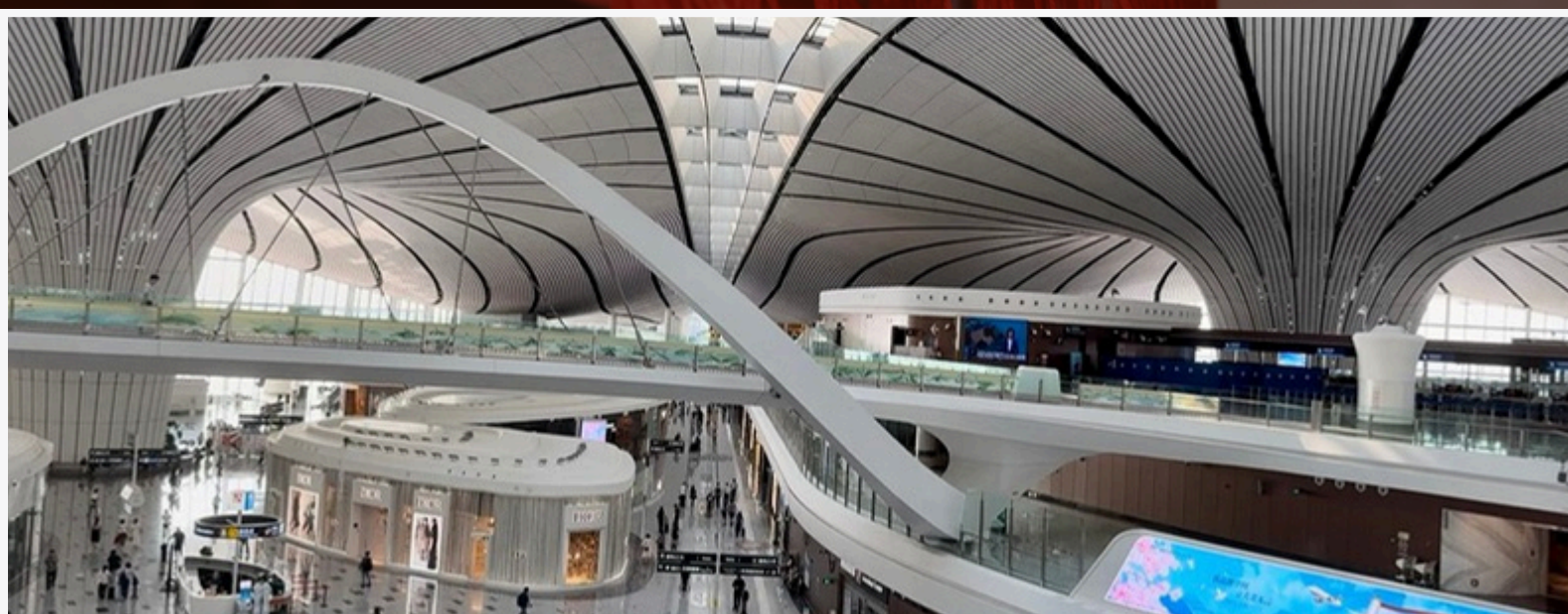
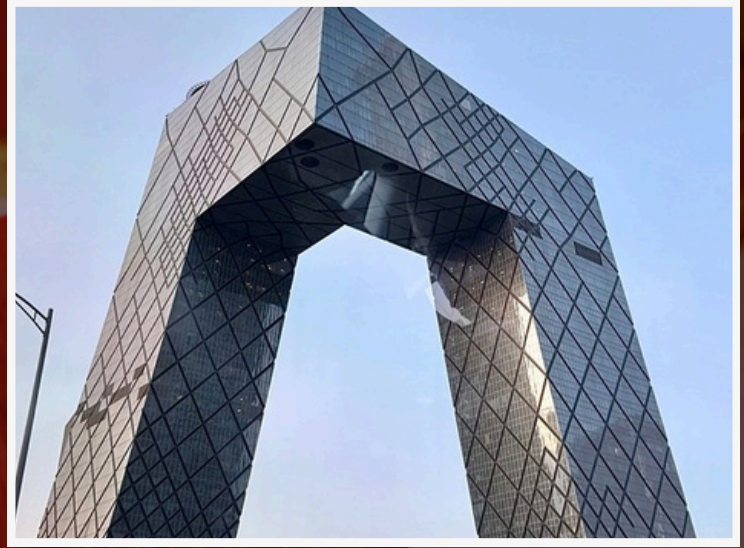
The multi-stakeholder approach under the LAW 31814 is promising, aligning tourism agencies, universities, tech firms and community which help to ensure that AI proposals are grounded in local realities.





# PEOPLE'S REPUBLIC OF CHINA: STRATEGIC LEADERSHIP BUT LIMITED LOCAL CONSISTENCY





*Onsite case study in People's Republic of China on 14 - 20 June 2025*



# Domestic Strategy and Smart Tourism Plans

People's Republic of China's tourism sector is being increasingly shaped by an advanced domestic push towards smart tourism, with the government issuing coordinated policies to promote digital integration, immersive experiences, and data-driven management of destinations.

In mid-2024, People's Republic of China launched the Action Plan for the Innovative Development of Smart Tourism (2023-2027), jointly issued by the Ministry of Culture and Tourism, the Central Cyberspace Affairs Commission, National Development & Reform, the Ministry of Industry & Information Technology and the National Data Bureau (China Daily, 2024).

This action plan outlines eight specific tasks aimed at driving smart tourism infrastructure, enhancing smart service products, and delivering more immersive and personalised tourism experiences. By 2027, the plan envisions a more mature smart tourism economy, offering richer and higher-quality smart tourism experiences, and providing more convenient services for visitors.

What makes People's Republic of China's approach distinctive is the top-down coordination, where multiple high-level agencies are involved, ensuring that culture, technology, data, and infrastructure policies are aligned. Local cultural and tourism authorities are mandated to play a role in supervising online tourism platforms, verifying the qualifications of operators, ensuring the authenticity of information, and regulating content protection.

Furthermore, smart city development in People's Republic of China complements tourism digitisation. The synergy between smart city systems and tourism means that technologies deployed for urban management (IoT, sensors and data analytics) can also support tourism flows, visitor monitoring and mobility planning (Ying et al., 2024).

In many cities, digital infrastructure such as 5G, edge computing and sensor networks are being built to handle large-scale and real-time operations, which become supportive backbones for smart tourism applications.



# AI-Powered Virtual Guides and Platforms in Tourism

One of the visible AI applications in People's Republic of China's tourism sector is in virtual guides, personalised itinerary generation, and recommendation engines, which are embedded in travel platforms and local destination apps. For instance, the travel platform known as "*Mafengwo*" has been at the forefront of integrating AI into tourism services.

Their "DeepSeek" AI model is being incorporated into smart tourism ecosystems such as "AI Travel Qianxinan" and "AI Travel Xijiang". This model employs chain-of-thoughts reasoning to craft more logical, balanced, and personalised itineraries that consider user demand analysis, spot relevance, time, transport constraints, and energy consumption (Beijing Review, 2025).

In 2025, Guizhou Province launched People's Republic of China's first provincial AI tourism assistant application, known as "AI Guided Tours in Guizhou". The application offers interactive travel planning, multilingual tour guide services, real-time adjustments and predictive analytics (People's Republic of China Daily, 2025). It enhances the profiles and behaviours of big data visitors to inform local tourism policy, forecast demand, and design smarter tourism operations.

In travel planning more broadly, AI trip-planner applications have become increasingly common. Users input their destination, budget, travel period, and preferences, and receive a ready-made itinerary with schedules and cost estimates. This has enhanced the dependency on AI as a "travel buddy".





# Data Governance, Local Disparities and Challenges

## *Uneven adoption across economies and fragmentation*

Although flagship projects flourish in Beijing, Shanghai, Guizhou, and a few leading provinces, there is a lack of wide local consistency. Numerous smaller cities and rural destinations lag in AI adoption. The disparities arise from resource concentrations, varying institutional capacities and uneven digital readiness (Wang et al., 2021).

Provinces and municipal tourism authorities often have disparate priorities, budgets, and technical capacities, which leads to fragmentation rather than a synchronised rollout. Some local governments may lack incentives to adopt the domestic smart tourism directives or may interpret them loosely, resulting in patchwork implementation (Ying et al., 2024).

The fragmentation is also evident in data silos. Tourism data is collected through various systems, including local platforms, attractions, online travel agencies, transportation services, and city management. However, the integration and interoperability remain limited. Without a unified standard, numerous AI applications cannot fully harness cross-domain data.



## *Data privacy, security and governance issues*

The expansion of AI and big data in tourism raises critical questions about data governance, privacy, and security. People's Republic of China's governance framework is evolving; nevertheless, in sectors such as tourism, many regulatory and ethical issues remain unresolved. Local authorities are required to supervise online tourism platforms, verify the legitimacy of operators, ensure the authenticity of content and manage complaint records.

Yet, the same oversight must also address algorithmic transparency, user consent, and data sharing, which are not always frequently regulated at all jurisdictional levels. As AI becomes more autonomous in itinerary generation and recommendation, the challenges of bias, explainability, and misuse of personal data increase. Some tourism stakeholders raise concerns over how user behavioural data is stored and shared across agencies.





# Learning Points

People's Republic of China is a prime example of how strong domestic direction and infrastructure investment can drive a comprehensive vision of smart tourism. Nonetheless, it also emphasises that policy direction must be matched with local execution, capacity and governance. Here are a few key considerations for future use:

## Translate plans into local, context-sensitive actions

01

*Policy frameworks must be adapted to provincial and municipal levels with tailored implementation roadmaps. Oversight mechanisms should reach subnational tiers to ensure consistency*

## Standardize data protocols and interoperability

02

*To overcome the data silos, standard data schemas, open APIs and cross-domain integration must be mandated. Shared platforms or data hubs can help localities pool resources and avoid duplication.*

## Regulate AI with transparency, ethics and accountability

03

*Clear rules for algorithm audits, user consent, data privacy and redress mechanisms should be embedded from the start. Local authorities need capacity to interpret and regulate AI in tourism.*

## Promote capacity building for local government & small operators

04

*Training in AI literacy, model management and data practices is essential. Providing subsidies, support centres and shared AI services may help smaller operators to be experts in AI industry.*

## Deploy infrastructure equitably

05

*Investment in broadband, edge computing and digital infrastructure should prioritise lagging regions. Smart city and smart tourism convergence can make investments more efficient.*





# REPUBLIC OF KOREA: SMART TOURISM WITH HIGH-TECH INTEGRATION





*Onsite case study in Republic of Korea on 12-19 July 2025*



# Strategic Vision and High-Tech Tourism Projects

Republic of Korea has been positioning its economy at the edge of digital innovation. Their innovation and tourism sector aims to transform it into a smart tourism ecosystem. The government's broader commitments to mission-oriented innovation policy and the National Strategic Smart City Program (NSSCO) create a conducive environment for tourism digitisation (Lee et al., 2025).

Republic of Korea is among the top global adopters of AI, underscoring its ability to integrate advanced technologies across various sectors. Under the Ministry of Science and ICT, Republic of Korea explicitly encourages the growth of Extended Reality (XR) capabilities by supporting 5G+XR co-production projects, aiming to enhance the competitiveness of globally recognised XR companies. Such approaches provide a technological foundation for tourism applications that merge the physical and virtual realms.

A prominent recent development in the Seoul Robot and AI Museum (RAIM), which opened in October 2024 as a public showcase of robotics, AI and interactive exhibits. This museum embodies Republic of Korea's ambition to institutionalise advanced tech within cultural and tourism spaces. At the urban level, smart city platforms, particularly in Seoul, Incheon, and other pilot cities, integrate IoT, big data, and urban analytics.

These platforms, built under Republic of Korea's NSSCP, serve as backbones upon which tourism-specific services, such as mobility prediction, environmental sensing, and visitor flow management, can be layered. Incheon is often cited as a model smart tourism city. A case study describes how Incheon's smart tourism city project combines physical space and metaverse/virtual environment, offering content, information and service integration for tourists (Um et al., 2022).

Meanwhile, in cities with strong heritage and tourist appeal, local governments invest in AI-enabled tourism innovation. In Gyeongju, for instance, the municipal government has invested in developing one-click reservation systems, AR/VR guides, multilingual services, and smart mobility systems (Republic of Korea-EU Research Centre, 2022).

A specific XR-Bus project was designed to deliver immersive, AI-augmented tourism across the Silla heritage sites, using digital human technology as AI-guided narrators. Republic of Korea also cultivates its creative tech export potentials, such as through organisations like KOCCA, Republic of Korea's AI, XR and smart tourism startups, which are promoted internationally (e.g. Launchpad UAE 2025).



# XR, Virtual Guides and AI-Enabled Services in Tourism

One of the most visible manifestations of technology in Republic of Korea's tourism is the integration of XR with AI and digital content in visitor experiences. The XR-Bus in Gyeongju is a flagship project that includes riding along heritage routes, tourists experience augmented or mixed reality visualisation, digital narrators and interactive storytelling tied to historical context. Another is the Trickeye Museum in Seoul, Busan, and Jeju, which incorporates AR into its exhibits; visitors use smartphone applications to interact with and bring the artwork to life.

Republic of Korea's commitment to XR is formalised by policy; the Ministry of Science and ICT's push for a 5G+XR joint project aims to create scale-up XR content creation, which can benefit tourism deployments. On the software and education side, EON Reality is expanding its rollout in Republic of Korea with a "Spatial AI Centre" planning 10,000 XR/AI-tailored courses. These immersive education tools and infrastructure can be adapted or co-opted for tourism training and VR/AR content creation.





# Gaps and Challenges

## **Urban concentration and limited spillover to SMEs**

The majority of high-tech tourism projects are concentrated in major cities and heritage hubs such as Seoul, Incheon, Gyeongju and Jeju. Rural tourism destinations received less attention and fewer resources. The technologies, such as XR, high-speed connectivity and AI services, are often expensive, requiring specialised staff and infrastructure that small operators often cannot afford or implement. Hence, numerous SMEs, such as guesthouses, local tour guides, and rural attractions, may not benefit directly or lack the capacity to leverage these innovations.

## **Workforce skills, training and upgrading needs**

Advanced technology adoption depends on human capacity, including developers, content creators, data analysts, AR/VR designers, and AI engineers. For tourism actors, especially SMEs, these skills are often lacking. Continuous training and upskilling are required to maintain, adapt and scale tech solutions. Republic of Korea's mission-oriented policy approach (MOIP) highlights innovation capacity building across sectors. However, translating such macro policies into hands-on training for rural tourism actors remains uneven.

## **Fragmented governance and standardisation**

While domestic strategies and smart city programs exist, coordination across municipalities and tourism authorities is variable. Local governments may adopt different standards, data protocols and policies for tourism tech deployments, which can lead to fragmentation and inefficiency. XR and AI content often lacks interoperability or common protocols, making it difficult for small operators to integrate or share resources across systems or economies.

## **Data privacy and trust issues**

As AI systems guide itineraries or make recommendations, explainability, user consent and data privacy become critical. A recent cross-cultural AI trust experience (ExplainitAI) found that Republic of Korea users tend to trust AI more than users in Germany; nonetheless, trust varies by topic and explainability (Kang et al., 2025). This highlights that the design of AI systems in Republic of Korea must carefully consider cultural expectations around transparency, bias and control. In tourism, users may question how their location preferences or data are used behind the scenes. As systems get more autonomous, algorithmic bias or opaque decision logic could erode trust.





# Learning Points

Republic of Korea's experience shows that combining advanced technologies such as XR, AI, robotics and IoT with strong institutional support can accelerate smart tourism, but inclusivity must be explicitly addressed. There are a few key lessons and recommendations that should be considered:

1.

**Advanced technology integration accelerates smart tourism when institutionally supported**

The combination of extended reality, artificial intelligence, robotics, and the Internet of Things can drive rapid smart tourism development when embedded within strong institutional frameworks and coordinated policy environments.

2.

**Participation does not automatically follow technological sophistication**

Even in technologically advanced contexts, smart tourism initiatives may remain concentrated among larger attractions or well-resourced destinations unless access and participation are explicitly addressed.

3.

**Scalability and modularity lower adoption barriers**

Modular XR and AI applications, along with shared content platforms, enable smaller attractions and local operators to adopt standardised components rather than develop bespoke systems, reducing technical and financial thresholds.

4.

**Shared repositories support diffusion and local adaptation**

Centralised content repositories and incubation mechanisms facilitate the spread of innovation by allowing localities to adapt existing templates and tools, limiting duplication across economies.

5.

**Human capital development remains essential**

Capacity-building initiatives focused on digital content creation, AI tools, and user experience design help broaden participation beyond major urban centres and strengthen local skills ecosystems.

6.

**Governance coordination underpins trust and interoperability**

Clear data governance arrangements, algorithmic transparency, and coordination across cities and local governments support responsible technology use, interoperability, and sustained trust in smart tourism systems.





# **MALAYSIA: BUILDING SMART TOURISM 4.0 FOUNDATIONS**





*Pictures were taken during Empowering Tourism with AI: A Capacity Building Workshop for APEC Economies held on 13–14 November 2025 at Hotel Maya Kuala Lumpur, with tourism stakeholders across APEC economies.*





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Malaysia has positioned itself as a focal economy in Southeast Asia, leveraging towards Tourism 4.0, which positions the sector into digitalisation and the economy's digital economy goals. The government's Malaysia Digital Economy Blueprint (MyDIGITAL) and National Fourth Industrial Revolution (4IR) Policy support efforts to connect AI with data analytics, cloud computing, and the Internet of Things, aligning with domestic development priorities (Ministry of Economy, 2021).

Through these efforts, tourism acts as beneficiary of technological progress and as a catalyst for wider digital transformation. Numerous experiments are conducted to exemplify this strategy, such as AI-enabled urban management systems in Kuala Lumpur, sensor-based mobility initiatives in Putrajaya, and digital hospitality programs spearheaded by the Malaysia Digital Economy Corporation (MDEC), all of which showcase how automation and artificial intelligence are enhancing visitor experiences and destination operations (MDEC, 2024).

However, the level of adoption is still in its infancy, particularly among regional Destination Management Organisations (DMOs) and SMEs that continue to gain benefits despite experiencing financial and resource constraints, inconsistent connectivity, and limited technical capacity to fully implement smart-tourism solutions.





# Malaysia's Strength in the Digital Strategy

Malaysia's key advantage stems from its well-structured digital policy framework and the government's sustained focus on technological innovation.

The MyDIGITAL Blueprint (2021-2030) outlines strategic pillars that include expanding digital infrastructure, strengthening innovation ecosystems, and improving public-private collaboration, all of which directly reinforce the digital transformation of the tourism sector (Ministry of Economy, 2021). This vision aligns closely with the National Tourism Policy 2020-2030, which emphasises integrating technology and innovation to enhance competitiveness and long-term sustainability.

Government bodies have translated these ambitions into actionable programs. The MDEC operates the Digital Tourism Innovation Lab (DTIL) as an accelerator that connects startups, technology developers and tourism operators to co-create digital products. Simultaneously, the Malaysia Digital Initiative continues to channel investment incentives and upskilling resources to nurture a digitally competent workforce.

On the infrastructure side, global technology leaders such as Microsoft, Google, and Amazon have expanded their data centre presence in Malaysia, creating a robust backbone for AI-driven and data-intensive tourism applications.

A further defining feature of Malaysia's approach is its commitment to Public-Private Partnerships (PPPs). Collaborations such as Tourism Malaysia and Mastercard data sharing partnership and Tourism Malaysia with HONORS AI marketing campaign illustrate how government agencies improve the private sector analytics and technology platforms to strengthen destination promotion and gain deeper insights into visitor spending behaviours. Hence, these elements form the cornerstone of Malaysia's progress toward an integrated Smart Tourism 4.0 ecosystem.





# Challenges towards Malaysia's Policy

Despite strong policy support, several barriers constrain inclusive adoption. The first is uneven digital readiness among MSMEs. While large hotel chains and urban attractions increasingly employ AI chatbots, dynamic pricing systems and data dashboards, smaller operators in secondary or rural destinations often rely on manual booking and promotion methods. Many lack both the financial capacity and technical expertise to procure, implement, or maintain AI tools.

Apart from that, financial barriers persist. Although government grants and innovation funds exist, many micro-businesses are unaware of these programmes or find the application processes complex. The cost of hardware, software subscriptions and skilled personnel remains high relative to small-business margins (Business Today Malaysia, 2025). Without easier access to financing and shared service models, MSMEs struggle to justify or sustain digital investment.

Moreover, Malaysia faces a skills and human-capital gap. AI and data-driven operations require not only general digital literacy but also competencies in analytics, content management, cybersecurity and algorithmic ethics.

While domestic training campaigns, such as Microsoft Malaysia's goal to upskill 800,000 people in AI by 2025, focus on signalling progress, many tourism workers and entrepreneurs need contextualised, industry-specific learning pathways that can connect directly to their day-to-day operations.

There are also governance and interoperability issues as different state authorities may enforce varying digital platforms or standards, creating silos that hinder information sharing between tourism boards, hotels and transport agencies.

As Malaysia develops its National Cloud Policy and strengthens its AI governance framework through the newly established National AI Office (Reuters, 2024), harmonising standards and ensuring secure, yet accessible data exchange will be vital for cross-destination analytics and coordinated marketing.





# Learning Points

Malaysia's experience demonstrates that strong domestic digital aspirations, supported by policy frameworks and infrastructure investment, can advance tourism digitalisation, but sustained progress depends on aligning these ambitions with grassroots capacity and inclusive participation across the tourism ecosystem:

## **Alignment between domestic ambition and grassroots capacity is critical**

Malaysia's experience highlights that strong domestic aspirations for digital and AI-driven tourism must be matched with the practical capacity of local actors, including tour guides, rural homestays, heritage managers, and community-based tourism groups.

## **Policy and infrastructure progress do not automatically translate into local participation**

Despite advances in policy design, infrastructure development, and technology investment, gaps persist between domestic initiatives and the ability of micro and small tourism enterprises to engage meaningfully in digital transformation.

## **SME-focused capacity building shapes long-term adoption outcomes**

The effectiveness of AI adoption is closely linked to the availability of affordable, modular tools, mentorship, and applied support tailored to the operational realities of micro-businesses, particularly outside metropolitan centres.





# Learning Points

Malaysia's experience demonstrates that strong domestic digital aspirations, supported by policy frameworks and infrastructure investment, can advance tourism digitalisation, but sustained progress depends on aligning these ambitions with grassroots capacity and inclusive participation across the tourism ecosystem:

## **Access to financing influences digital uptake among small operators**

The presence of dedicated financing mechanisms and collaborative arrangements between financial institutions and tourism authorities affects the extent to which small tourism enterprises can invest in digital and AI-enabled solutions.

## **Education and training institutions play a supporting role in workforce readiness**

The integration of AI literacy and applied data analytics into tourism-related education and vocational training helps prepare future practitioners to operate within increasingly digital tourism ecosystems.

## **Community perspectives enhance the relevance of domestic digital strategies**

Incorporating the views and experiences of local communities and small enterprises into the evolution of domestic digital initiatives supports more inclusive and context-sensitive implementation of Tourism 4.0 objectives.





# INDONESIA: FRAGMENTED ADOPTION AND CONNECTIVITY ISSUES





*Indonesia is a vast archipelago composed of over 17,000 islands with sharply contrasting geographies, economies and connectivity levels. Its tourism sector is dynamic and diverse. From Bali's globally known destination to frontier ecotourism in Papua or the Moluccas.*

*This variety brings opportunities but also presents a core challenge, such as the fragmented adoption of digital and AI tools across its many islands and socioeconomic zones. In Bali and Jakarta, tourism businesses are increasingly employing AI-driven marketing, dynamic pricing, and personalising itineraries, while more remote or rural tourism actors remain disconnected from these trends.*

*Key obstacles include uneven internet and mobile connectivity, affordability, low digital literacy among MSMEs, and a lack of targeted capacity-building programs for tourism operators.*





# Early Signals of Digital and AI Uptake in Tourism

In recent years, Indonesia's domestic tourism portal (Indonesia Travel) has integrated AI-powered features, such as Travel Planner, Travel Companion and a command centre dashboard to deliver personalised trip suggestions and real-time support (TTG Asia, 2025).

This demonstrates an ambition to transform the domestic tourism platform into a more intelligent and interactive guide for prospective visitors. In parallel, private platforms and travel-tech firms are experimenting with itinerary-generation engines and recommendation tools tailored to the Indonesian context.

*Nodeflux*, an Indonesian AI/vision analytics firm, has gained recognition for providing crowd counting, people detection, license plate recognition and smart city AI modules that could support tourism management. Its technology has been applied in Jakarta's smart city initiatives, thus demonstrating local capacity for AI-backed infrastructure services.

Another relevant signal is the *Sahabat-AI* project launched by *Indosat Ooredoo* and *GoTo* (Gojek/Tokopedia) aimed at building large language models that understand the Indonesian language and diverse local languages. This has promising implications for localised AI services such as chatbots, translation tools, or voice-based guides, even in remote areas.

Nevertheless, these innovations remain concentrated in urban centres or digital hubs not yet diffused broadly to rural regions or small-scale tourism operators.





# Strength of AI in Indonesia

Despite its challenges, Indonesia has several strengths that can support scaling AI in tourism.

## **Strong interest in AI-enhanced marketing and heritage storytelling**

Numerous DMOs and tourism boards are exploring how AI can help market cultural heritage, optimise visitor routes, and personalise traveller experiences. For instance, intelligent tourism models are being developed that interweave local culture, ecosystem sustainability and SI-based algorithms for recommendation.

## **Growing startup and ecosystem capacity**

Indonesia's tech ecosystem is robust. Startups like Nodeflux exemplify homegrown AI/visual analytics capability, while the GoTo-Indosat collaboration reflects how larger tech conglomerates can support AI innovation. The presence of such firms lowers the barriers for technology adoption in tourism ecosystems across Indonesia's islands.

## **Synergistic domestic ambition towards smart cities**

Indonesia has set a goal to expand its network of smart cities from about 25 currently to another 75 by 2045 (Trescon, 2025).

## **Community-level digital upgrading in rural contexts**

Some rural and village-level initiatives are partnering with technology to promote digital literacy and local MSMA integration. For instance, in Bali, a project is helping Baturiti Village integrate website development for local MSMEs in rural tourism to improve visibility and sales. These models of localised digital integration show potential for scaling context-sensitive tools.



# Challenges of AI in Indonesia

Many parts of Indonesia, especially outer islands, mountainous regions, or forested zones, are still struggling with limited or unreliable broadband/mobile speeds. Rural tourism operators in these zones often lack consistent internet connectivity that is strong enough to support cloud-based AI, real-time systems, or rich media (video/XR).

Rural tourism and small-scale operators in such zones are effectively excluded from many digital innovations. The rural digital divide has been documented in the studies of rural tourism and small enterprises, such as Harsanto (2025), and is recognised as a foundational barrier.

Not only that, the unevenness of digital literacy and ICT skills portrays the challenges in Indonesia. Even where connectivity is present, numerous MSMEs and local tourism practitioners lack digital competencies, especially in AI, data analytics, content design and system maintenance.

A recent study on rural MSMEs found that digital communication technologies and literacy can empower rural entrepreneurs; however, many still lag behind in their usage or mastery (Nugroho et al., 2025).

Furthermore, the cost structure of AI and digital tools, including software subscriptions, hardware, connectivity, and maintenance, often exceeds the budget of micro and small tourism operators.

Unlike large hotels or urban attractions, rural homestays or small operators may not see immediate returns, making risk-averse behaviour likely. Access to targeted or financial instruments tailored to tourism tech is limited.

Indonesia's decentralised governance structure means that provinces, municipalities and districts often operate independently, leading to inconsistent digital platforms, data standards and regulatory regimes. This fragmentation makes it difficult for cross-destination AI tools to scale. Without economy-level coordination or standardisation, integrating data across multiple islands or jurisdictions becomes a complex task.

Additionally, Indonesia is popular for its variety of contexts and cultural sensitivity. Indonesia's linguistic, cultural, and environmental variety means that off-the-shelf AI systems may not adapt well. Tourism AI systems built with mainstream or global models may misinterpret local dialects or nuances of cultural heritage. Bias or poor translation may degrade visitor experiences. Therefore, ensuring cultural sensitivity and linguistics in AI models is significant.

Some studies suggest that digital transformation in MSMEs may inadvertently exclude some operators who have limited access to networks or capital (Azizah et al., 2024; Yogatama et al., 2025). Social barriers and norms affect who benefits from digital upgrades, which needs more attention in Indonesian tourism planning.





# Learning Points

Indonesia's experience illustrates that AI adoption in tourism across a geographically dispersed archipelago requires modular, context-aware approaches that accommodate uneven infrastructure, unique local conditions, and significant regional disparities in capacity:

## **Geographic dispersion shapes AI adoption pathways**

Indonesia's archipelagic context underscores the need for AI-enabled tourism solutions to be modular and adaptable, as approaches effective in major digital hubs may not translate directly to more remote or resource-constrained regions.

## **Phased scaling supports diffusion across varied regions**

Adoption trajectories often emerge from digitally mature hubs before extending outward, carrying lessons, tools, and institutional support that can be adapted to local conditions in secondary and peripheral destinations.

## **Lightweight and offline-capable tools expand accessibility**

Shared toolkits that incorporate low-bandwidth algorithms, lightweight AI models, and offline-capable modules play a crucial role in expanding digital participation to remote tourism operators and communities.



# Learning Points

Indonesia's experience illustrates that AI adoption in tourism across a geographically dispersed archipelago requires modular, context-aware approaches that accommodate uneven infrastructure, unique local conditions, and significant regional disparities in capacity

## **Place-based capacity building enables practical use**

Training initiatives that are hands-on, locally grounded, and embedded within tourism workflows strengthen the ability of operators to apply AI tools in areas such as visitor engagement, cultural storytelling, and multilingual communication.

## **Financial mechanisms influence participation and risk-sharing**

Subsidies and cooperative approaches to digital infrastructure ownership affect the willingness and ability of small tourism operators to engage with AI adoption, particularly in remote areas.

## **Connectivity and governance coherence remain enabling conditions**

Continued investment in digital connectivity, harmonisation of data governance across provinces, and attention to language- and culture-aware AI development shape the inclusivity and effectiveness of domestic AI strategies within the tourism sector.

## **Domestic investment instruments can support regional participation**

The design of sovereign or domestic AI funding mechanisms influences whether resources reach tourism actors beyond major urban centres, affecting regional inclusion and balanced development outcomes.



# CROSS-ECONOMY ANALYSIS

The comparative examination of AI adoption across People's Republic of China; Indonesia; Republic of Korea; Malaysia; and Peru shows that, while each economy exhibits unique trajectories, several structural patterns consistently emerge. These shared themes highlight both progress and the persistent digital divides shaping the future of AI-enabled tourism across APEC economies.

## Urban Concentration and Uneven MSME adoption

Across all five economies, AI adoption is concentrated geographically and institutionally. Large enterprises, metropolitan destinations and government agencies, such as Lima's smart tourism labs, Beijing's AI-driven visitor management systems, Seoul's XR museums, Kuala Lumpur's AI city platforms, and Jakarta's Smart City Command Centre, benefit most from advanced digital infrastructure and investment pipelines.

By contrast, rural and micro-scale operators remain on the periphery. In Peru, MSMEs in the Sacred Valley continue to use manual booking logs. In Indonesia, rural homestays and island operators rely on social media messaging due to intermittent connectivity. In Malaysia, smaller community tourism enterprises often lack cloud access or digital payment tools. This imbalance demonstrates that the digital dividend of AI remains spatially uneven, mirroring broader urban-rural economic gaps.

## Limited Visibility of AI in the Tourist Experience

For most travellers, AI is invisible or perceived merely as convenience rather than transformation. Across economies, tourists primarily encounter front-end automation such as self-check kiosks, QR-based menus, translation applications and chatbots. For instance, service robots in Republic of Korea's airports, AI-assisted museum narration in Beijing and QR-code ticketing in Malaysian attractions.

Few destinations yet fully integrated, personalised AI itineraries or adaptive experience layers that respond to real-time visitor data. In Peru and Indonesia, for instance, digital storytelling and heritage interpretation still rely heavily on human guides. The gap between back-office experimentation and visitor-facing visibility indicates that AI's transformative potential for the tourist experience remains largely unrealised.



## Policy Ambition versus Sector Level Execution

Each government articulates ambitious digital and AI strategies; however, sector-specific guidance for tourism remains inconsistent. People's Republic of China's Smart Tourism Plan (2023-2027), Malaysia's MyDIGITAL Blueprint, and Indonesia's *Stranas KA* (2020-2045) all recognised AI's strategic importance. Yet, translation into tourism frameworks often depends on local interpretation and the availability of funding.

Indonesia and Malaysia, for example, have robust domestic AI policies, but their implementation is fragmented among DMOs and regional authorities. Peru's Law No. 31814 on Digital Tourism signals a commitment, but rural stakeholders report limited awareness and technical support. This policy-practice gap highlights the need for cross-ministerial coordination that bridges ICT, education and tourism portfolios to deliver tangible outcomes at the destination level.

## Human Capacity and Skills as Critical Enablers

All case studies confirm that technology adoption rises or falls in relation to human capability. Governments are investing in training pipelines, such as People's Republic of China's vocational AI academies, Republic of Korea's domestic XR-skill programs, and Malaysia's partnership with Microsoft to upskill 800,000 citizens by 2025; however, tourism-specific curricula remain rare. At the micro level, small businesses frequently express uncertainty about data handling, AI ethics or return on investment.

Peru's rural guides, Malaysia's homestay operators and Indonesia's island tour providers need practical, context-relevant training on how to use AI translation bots, manage digital reviews or analyse visitor analytics, not just a generic digital literacy course. Embedding AI literacy into tourism-education and certification systems may represent one of the most impactful interventions of adoption for all.

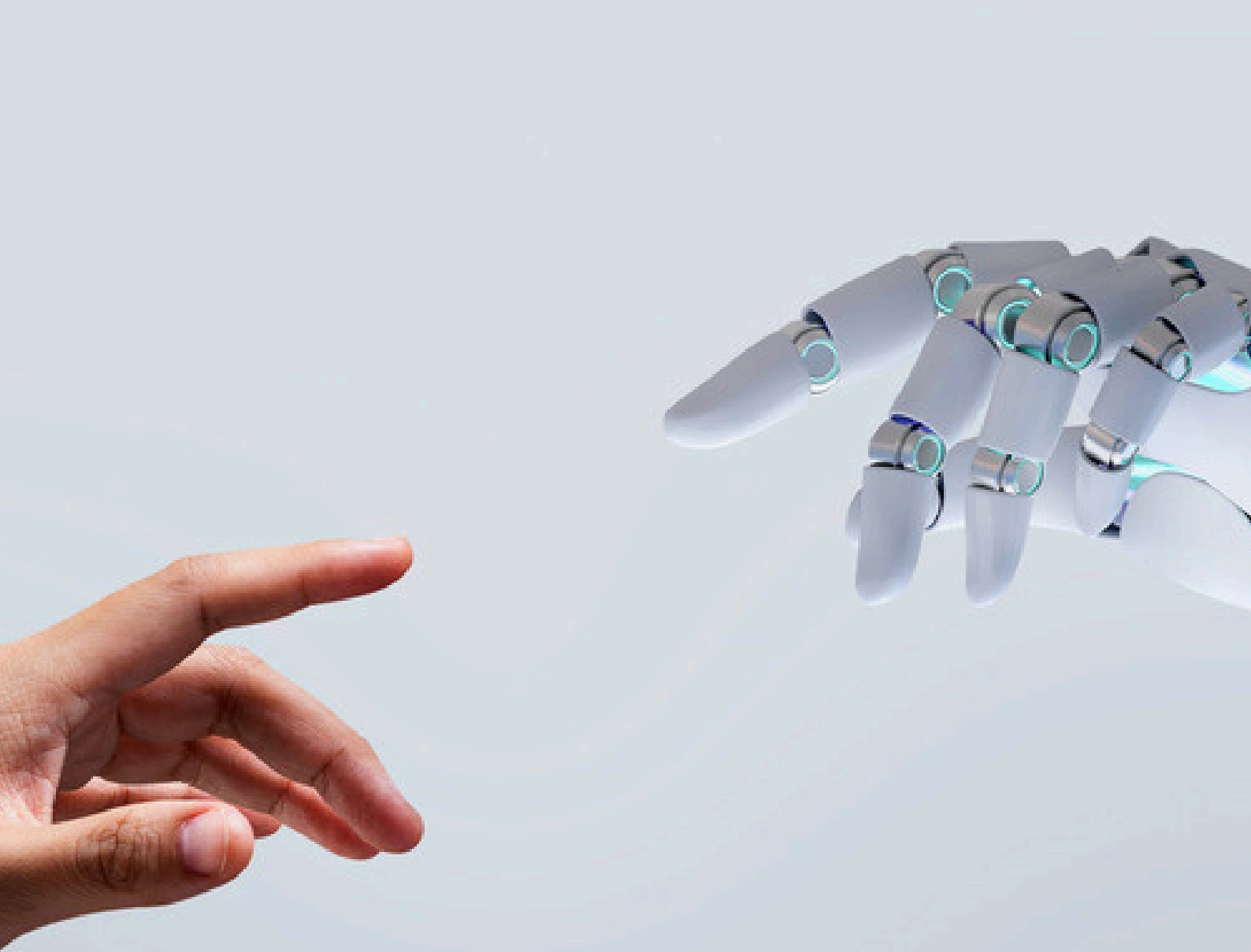




## Section Summary

The case study evidence presented in this section demonstrates that AI adoption in tourism across APEC economies is shaped primarily by contextual conditions rather than technological availability alone. Differences in governance arrangements, digital infrastructure, institutional coordination, and workforce capacity significantly influence how AI initiatives are designed, implemented, and sustained. The experiences of People's Republic of China; Indonesia; Republic of Korea; Malaysia; and Peru illustrate that there is no uniform pathway to AI adoption, with each economy navigating distinct opportunities and constraints.

At the same time, several common patterns emerge across the case studies, including the importance of phased implementation, the central role of public institutions in enabling coordination, and the need for capacity-building approaches that are closely aligned with tourism operations. These learning points provide an empirical foundation for identifying the enabling conditions that support responsible AI adoption, which are examined in the following section.



**03**

# **Enablers and Best Practices for AI Adoption**



# PREAMBLE

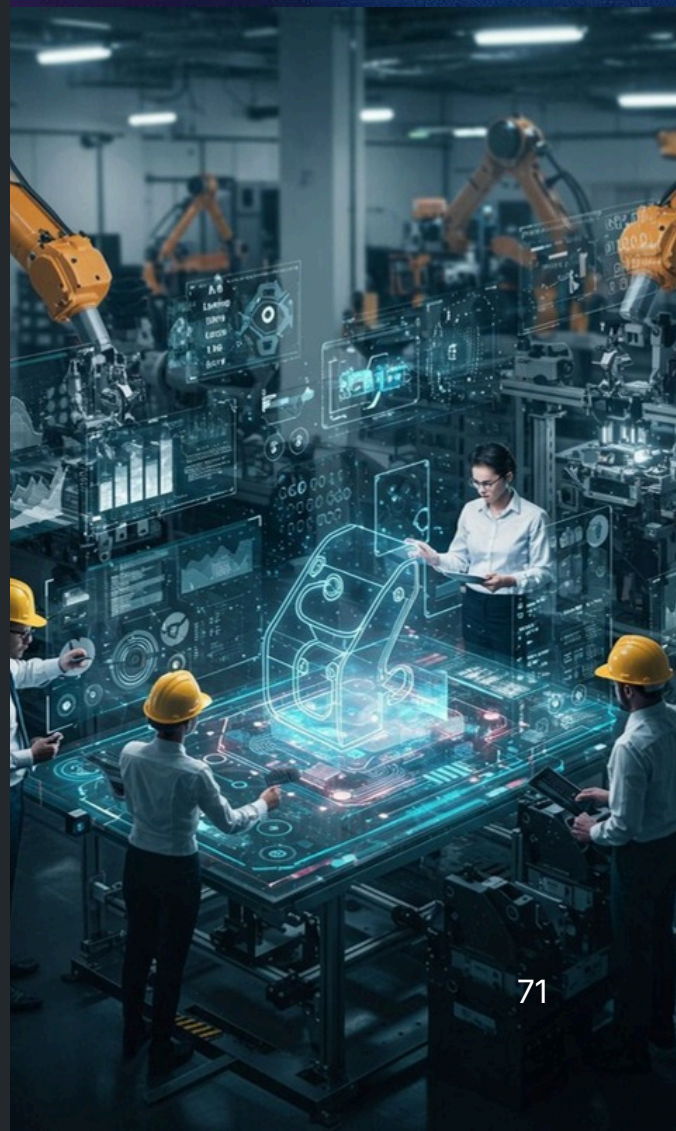
While technological capabilities are a critical component of artificial intelligence adoption, experience across APEC economies suggests that successful implementation depends on a broader set of enabling conditions.

Policy coherence, digital infrastructure, workforce capacity, institutional collaboration, and governance each play an interrelated role in shaping how AI is introduced and sustained within tourism systems.

These enabling conditions influence whether AI initiatives remain isolated pilot projects or evolve into scalable and widely adopted practices.

In tourism sectors characterised by a high prevalence of micro, small, and medium-sized enterprises, the presence or absence of these enablers can significantly affect participation and long-term impact

The following sections examine key enabling dimensions that have been observed across different APEC contexts. Together, they offer a structured understanding of the conditions that support the responsible and context-sensitive adoption of AI in tourism.





## Policy and Governance Approaches

The adoption of artificial intelligence (AI) in tourism is closely shaped by the presence of effective policy and governance arrangements. Tourism authorities play a crucial role in creating conditions that enable the deployment of AI in socially acceptable, operationally feasible, and aligned with broader development objectives.

While AI tools may be increasingly accessible, their meaningful use in tourism depends on the existence of domestic strategies, sectoral coordination mechanisms, and trusted governance arrangements that guide implementation across multiple institutional contexts.

### 1

## Domestic AI Strategies

The development and deployment of AI in tourism are influenced by the degree of coordination among domestic authorities responsible for digital transformation, innovation, and sectoral development. Across APEC economies, governments have increasingly recognised the need to integrate AI into domestic development strategies, digital economy visions, and sector-specific action plans.

In People's Republic of China, for example, the Smart Tourism Action Plan 2023–2027 outlines task areas aimed at integrating AI, big data, virtual and augmented reality, and immersive experiences into tourism and cultural services. Within this domestic strategy, priorities such as infrastructure expansion, service quality enhancement, and user experience improvement provide direction for both governments and private-sector actors.

At the same time, differences in legal and regulatory environments across economies shape how domestic AI strategies are implemented in practice. While some jurisdictions have established comprehensive policy approaches for emerging technologies, others are developing foundational legal provisions to guide the responsible use of AI. Peru's Law No. 31814 exemplifies an approach that promotes the safe and responsible application of AI, aligning with human rights principles and designating a central authority to oversee AI development and implementation.

Such policy approaches highlight the importance of clarity in defining AI applications within tourism, mechanisms for inter-ministerial coordination, and alignment with broader sustainability and digital economy objectives. Through these arrangements, domestic AI strategies can support innovation while addressing risks related to data governance and algorithmic bias.



## 2

## Sectoral Alignment

Beyond domestic strategies, sectoral alignment plays a crucial role in enabling AI adoption in tourism. Alignment between tourism-specific initiatives and wider domestic digitalisation priorities supports coherence across interconnected sectors such as transport, culture, environment, and small business development. In the absence of such alignment, AI deployment risks becoming fragmented or duplicative within complex tourism systems.

Observed approaches to sectoral alignment include the development of tourism-focused AI strategies that translate broad domestic priorities into operational contexts relevant to destination management organisations, tourism associations, and micro, small, and medium-sized enterprises. Cross-ministerial coordination also features prominently, with AI-related initiatives in tourism increasingly linked to digital infrastructure, mobility systems, and sustainability planning.

In addition, decentralised implementation models allow regional and local authorities to pilot context-specific applications while remaining aligned with domestic standards and trustworthiness principles. Together, these arrangements support more consistent and broad diffusion of AI across tourism ecosystems.

## 3

## Safe, Secure, and Reliable AI Ecosystem

Trustworthiness is a central component of governance arrangements for the adoption of AI in tourism. International and domestic guidance increasingly emphasises principles related to privacy, fairness, transparency, and human oversight. Within the tourism context, these principles are reflected in approaches that prioritise data protection, algorithmic transparency, and mechanisms for accountability and redress.

Experiences across APEC economies illustrate different stages of AI governance development. Some jurisdictions have enacted comprehensive legislation aimed at balancing technological advancement with the protection of individual rights, while others are refining regulatory instruments and guidelines to address emerging risks.

In Malaysia, the AI Governance and Ethics Guidelines offer practical reference points for risk assessment, transparency, and data ethics, including applications relevant to the tourism and hospitality sectors. Comparable initiatives in other economies focus on demonstrable governance indicators that assess fairness, safety, and accountability in the deployment of AI.

Across various contexts, these best practices function more as enablers of trust than as regulatory constraints and help sustain public confidence and support responsible innovation within tourism systems.



**Policy and governance arrangements underpin the responsible adoption of AI in tourism by shaping priorities, coordination, trust, and promoting innovation. Domestic strategies provide strategic direction, sectoral alignment supports coherence across interconnected systems, and reliability best practices ensure that innovation remains secure and accessible for all.**



# Infrastructure and Digital Readiness

Digital infrastructure constitutes a foundational condition for the adoption of AI in tourism. Elements such as computational capacity, connectivity, and interoperable smart systems shape the ability of tourism enterprises, such as MSMEs, to integrate AI technologies into their operations. Across APEC economies, varying levels of digital maturity are evident. Advanced economies such as Japan; Republic of Korea; and Singapore have achieved near-universal broadband coverage and well-developed cloud infrastructure, while others, including Indonesia and Peru, continue to address connectivity gaps in rural and remote areas.

These disparities influence both the pace and opportunity for AI adoption within tourism systems. This section outlines the key enablers of infrastructure readiness, focusing on connectivity and access, cloud and data infrastructure, and the integration of smart systems.

## 1

### Connectivity and Access

Reliable and affordable connectivity underpins digital transformation in the tourism industry. Without stable internet access, AI-enabled applications such as smart booking platforms, digital payment systems, and real-time language translation remain difficult to deploy effectively.

Evidence indicates that while broadband penetration in urban areas of APEC economies is relatively high, connectivity levels remain significantly lower in many rural, coastal, and peripheral tourism destinations. These gaps disproportionately affect community-based tourism operators, heritage sites, and nature-based destinations that depend on digital visibility for market access and competitiveness.

Observed approaches to improving connectivity include the expansion of broadband and mobile networks in secondary and rural areas through public-private partnerships. Targeted infrastructure initiatives that prioritise tourism-relevant locations have demonstrated the potential to enhance regional resilience and participation in digital tourism ecosystems.

Additionally, the use of destination-level connectivity assessments helps identify digital blind spots and inform a more strategic allocation of infrastructure investment. Financial incentives that support MSMEs in accessing digital platforms further influence the extent to which connectivity improvements translate into practical AI adoption. Collectively, these experiences suggest that enhanced connectivity supports not only technological adoption but also the broader incorporation of remote communities within tourism value chains.



## 2

### Cloud Infrastructures and Data Readiness

AI applications in tourism depend on access to computational resources, secure data storage, and scalable digital platforms. Cloud computing enables tourism stakeholders to process data, conduct demand forecasting, and automate operational functions without substantial on-site investment. Despite these advantages, access to cloud-based solutions remains uneven, particularly among smaller tourism operators facing cost constraints or limited digital literacy. Across APEC economies, different approaches have emerged to improve cloud and data readiness.

Shared digital platforms and data-sharing arrangements help lower entry barriers by pooling resources across tourism actors.

Examples of best practices include:

- **Establish tourism data hubs** that integrate datasets from accommodation providers, transport operators, and attractions, supporting analytics and evidence-based decision-making.
- **Adopt open-data policies** that enable the use of anonymised tourism datasets to further contribute to innovation and transparency.

Hence, by integrating cloud infrastructure with trustworthy data governance, economies can ensure that AI development remains reliable and safe while accelerating sectoral digitalisation.

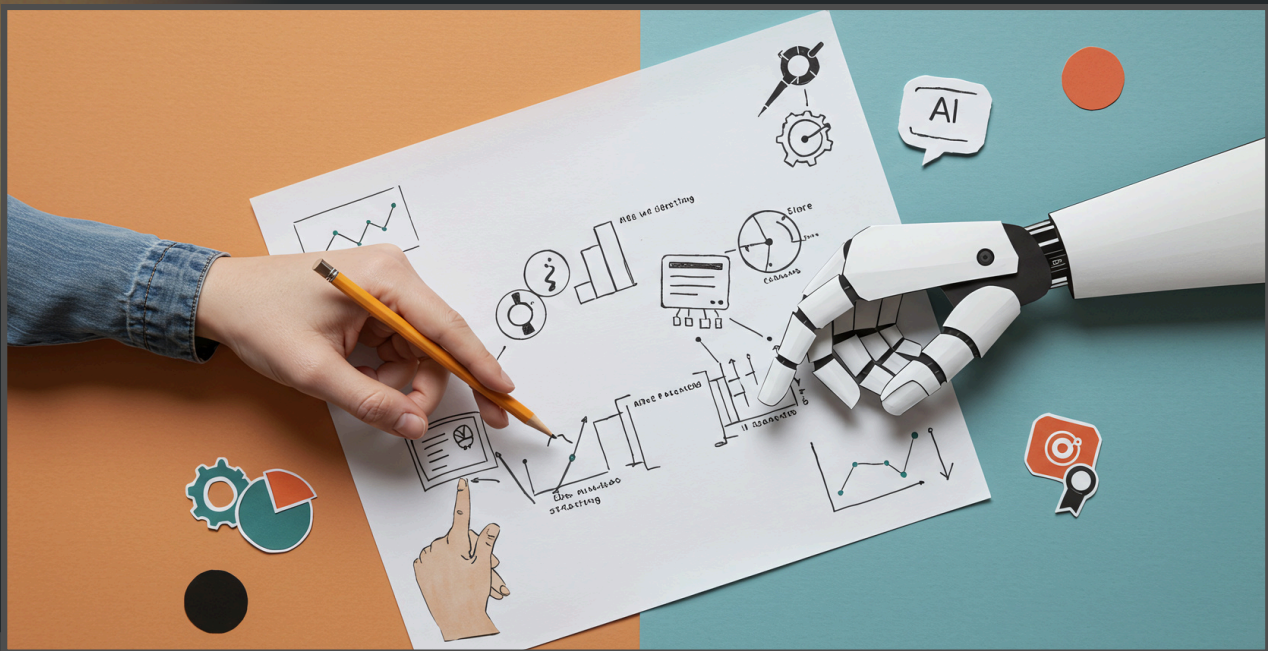
## 3

### Smart Systems and Interoperability

Beyond connectivity and cloud infrastructure, AI readiness in tourism is shaped by the integration of smart systems and the degree of interoperability among digital platforms. Smart systems utilise technologies such as Internet of Things sensors, predictive analytics, and digital payment solutions to support coordinated destination management. Interoperability enables these systems to exchange and analyse data effectively, reducing fragmentation and inefficiencies associated with isolated platforms.

Infrastructure and digital readiness form the operational backbone of AI-powered tourism. Universal connectivity enables participation, cloud infrastructure supports scalable innovation, and interoperable smart systems facilitate seamless and data-driven experiences. While investment in these areas is a necessary condition for AI adoption, infrastructure alone is insufficient. Governance arrangements, human capital development, and collaborative partnerships remain integral to translating digital readiness into effective and universal AI use. Smart systems transform destinations into adaptive, data-driven environments that enhance visitor satisfaction while preserving natural and cultural assets.

Infrastructure readiness is not merely a technical prerequisite but a strategic enabler of AI adoption in tourism for all. The experiences across APEC economies indicate that closing connectivity gaps, expanding shared digital infrastructure, and ensuring interoperability are essential to prevent smaller destinations and MSMEs from being excluded from emerging AI-driven value chains. Moving forward, infrastructure investments should be aligned with capacity-building and governance best practices so that digital expansion translates into practical, scalable, and equitable tourism innovation rather than isolated technological upgrades.



# Human Capital and Skills Development

Human capital and skills development constitute a central enabling condition for effective AI adoption in tourism. Even where digital infrastructure and governance arrangements are in place, transformation remains constrained without a workforce capable of understanding, applying, and managing AI responsibly.

Across APEC economies, evidence points to a persistent gap between general digital literacy and the more advanced competencies required for AI-driven innovation. Addressing this gap through targeted training, institutional capacity development, and workforce readiness initiatives supports more universal and sustainable adoption of AI within the tourism sector.

## 1

### Training Needs

Training needs play a key role in shaping the pace and depth of AI adoption in tourism. Tourism professionals increasingly require a combination of foundational and advanced digital competencies. Foundational skills commonly include digital literacy, data handling, and online marketing, while more advanced competencies relate to data analytics, algorithm-informed decision-making, and AI reliability.

According to studies conducted by the Asia-Pacific Economic Cooperation (APEC, 2024a), which reveals that over 60 per cent of tourism MSMEs in developing economies recognise a lack of digital and AI familiarity as their primary barrier to innovation. Correspondingly, up to 40 per cent of tourism-related professions will require some form of AI or data analytics competency, according to the World Economic Forum's Future of Jobs Report (2023).

Some examples of best practices for training needs are:

- **Develop modular, micro-credential training programs** for tourism professionals, emphasising flexibility and accessibility as demonstrated by Australia's Digital Skills Organisation (DSO).
- **Integrate AI literacy** into formal tourism education, as exemplified by Japan's University-Industry Collaboration Model, which includes hospitality programs that utilise AI for service management and predictive analytics (MLIT Japan, 2023).



## 2

### Capacity Building

Institutional capacity building influences how tourism organisations adopt and sustain AI applications. Many MSMEs face constraints not only in technical expertise but also in organisational capabilities related to planning, evaluation, and maintenance of AI solutions. Capacity-building initiatives, therefore, extend to organisational leadership, governance structures, and supporting ecosystems.

An example of a best practice is:

- Support knowledge sharing and the adoption of best practices for strengthening domestic AI capacity within the tourism division. For instance, Malaysia's Tourism 4.0 Blueprint (2024) highlights key skills clusters, including digital operations, data governance, and automation management, which can inform training approaches and capacity development efforts across APEC economies (Tourism Malaysia, 2024).

Institutional capacity also encompasses enhancing governance skills, such as risk assessment for AI, ethical oversight, and data management, which ensure responsible implementation throughout the entire tourism value chain.

## 3

### Workforce Readiness

Workforce readiness extends beyond the acquisition of discrete technical skills to include adaptability and lifelong learning. Given the people-centred nature of tourism, AI is commonly positioned as a tool that augments human creativity, judgement, and service quality rather than replacing human interaction. A workforce characterised by continuous reskilling, digital confidence, and full participation is therefore more likely to engage productively with AI-enabled transformation.

Evidence across APEC economies highlights the importance of workforce strategies that recognise the significant representation of women and youth within tourism labour markets. Approaches observed in this area include incorporating lifelong learning mechanisms into tourism development strategies, designing training programmes targeting untapped economic potential, and using indicators to monitor workforce readiness.

Monitoring tools that track the diffusion of AI-related skills and workforce participation help inform adaptive policy responses and support more balanced development outcomes.

Ultimately, alignment between industry needs, education systems, and policy approaches influences the long-term readiness of the tourism workforce for AI adoption. Economies that embed AI competencies within vocational and professional training systems and support upskilling pathways are better positioned to sustain competitiveness in an increasingly digital tourism landscape.



**Human capital underpins the effective deployment of AI in the tourism industry. Addressing training needs enhances digital literacy, capacity building strengthens organisational and institutional readiness, and workforce preparedness supports adaptive transformation. Together, these enabling conditions contribute to more broad and sustainable adoption of AI across APEC tourism economies.**



## Public-Private-Academic Partnerships (PPAPs)

Public-Private-Academic Partnerships (PPAPs) constitute an important enabling mechanism for accelerating AI adoption in the tourism sector. These collaborations bring together academic research capacity, private-sector innovation, and public-sector policy approaches to support sustainable digital transformation for all. Across APEC economies, PPAPs have emerged as facilitators of AI ecosystem development by bridging the gap between technological advancement and practical tourism applications.

Their effectiveness lies in creating collaborative environments that integrate data, research expertise, and technological infrastructure to enhance destination management, service delivery, and workforce preparedness. When well-coordinated, PPAPs support knowledge exchange, innovation diffusion, and alignment between AI deployment and broader developmental and reliability considerations.

### 1

## Innovation Ecosystems

Innovation ecosystems provide a structured environment in which government, industry, and academic actors jointly develop AI-enabled tourism solutions. Within such ecosystems, governments commonly contribute regulatory arrangements and funding support, academic institutions supply research expertise and human capital, and private enterprises deliver technological applications. The interaction among these actors supports innovation pipelines that contribute to sustained AI-driven development in tourism.

- **Data-sharing best practices**, where cooperative data platforms enable predictive analytics for tourist management by facilitating the exchange of anonymised visitor, mobility, and behavioural data.
- **Incubation and acceleration programs**, which target AI innovation hubs funded by corporate investment and governmental funding, are advantageous to startups.
- **Open innovation**, which encourages multi-stakeholder partnerships in AI design, ensures broad participation and relevance to all local tourism needs.



## 2

## Knowledge Transfer and Collaboration Models

Knowledge transfer mechanisms play a central role in disseminating AI research findings, technological innovations, and policy insights across the tourism sector. Effective collaboration models support two-way learning processes, whereby industry actors contribute operational feedback and contextual knowledge, while academic institutions provide evidence-based insights and analytical expertise (UNESCO, 2024).

Some core mechanisms for knowledge transfer are:

- **Joint Research Programs:** Universities team up with government and private firms to explore AI applications in sustainable tourism management, such as predictive modelling of visitor flows or smart heritage preservation (Alves et al., 2025; Siddik et al., 2025).
- **Living Labs and Demonstration Projects:** Real-world testbeds allow stakeholders to experiment with AI applications in live tourism environments (Schuurman et al., 2024).
- **Cross-Sector Talent Mobility:** Exchange programs between academia and industry foster mutual understanding of AI challenges and opportunities in tourism (APEC, 2024a).

Furthermore, a few examples of best practices for knowledge transfer and collaboration models are:

- **Japan's Smart Destination Living Lab (2023):** A collaboration between Kyoto University, the Japan Tourism Agency, and industry partners that applies AI to crowd management and cultural heritage conservation (MLIT Japan, 2023).
- **Republic of Korea's Tourism AI Fellowship Program (2025):** Promotes academic-industry exchange through applied research placements in AI-driven travel platforms (Ministry of Science and ICT Republic of Korea, 2025).
- **Chile's Collaborative AI in Tourism Initiative (2024):** This initiative endorses the adoption of artificial intelligence in Chile through a partnership between NVIDIA, DIGEVO, and Chilean governmental bodies. It supports the expansion of AI education, research, and the broader AI ecosystem to support the economy's scientific and economic capacities (OECD, 2024c).

These programs show how collaborative learning ecosystems are replacing isolated innovation. PPAPs promote capacity building, ethical monitoring, and technological dissemination by encouraging ongoing sectoral contact.

Public-Private-Academic Partnerships provide a collaborative foundation for AI adoption in tourism by supporting innovation ecosystems and facilitating knowledge transfer. Through coordinated interaction among government, industry, and academic actors, PPAPs contribute to the diffusion of AI capabilities, the development of practical applications, and evidence-informed policymaking. These enabling arrangements help explain how AI adoption can be scaled while maintaining attention to trustworthiness considerations, broad-based participation, and long-term sustainability.



## Broad-Based Participation in AI Adoption

Broad participation in digital transformation influences the extent to which AI adoption in tourism contributes to sustainable and resilient sector development. While AI technologies can enhance productivity, service quality, and innovation, their benefits depend on the ability of tourism businesses, workers, and institutions to access digital tools, skills, and supporting infrastructure. Without sufficient access to training, digital resources, and technology ecosystems, some tourism stakeholders may face barriers to adopting AI-driven solutions.

Within the tourism sector, enabling widespread engagement with AI technologies supports innovation, competitiveness, and workforce readiness. Expanding digital capability development, strengthening participation in innovation ecosystems, and improving monitoring of technology adoption are therefore important policy considerations.

### 1

#### AI Policies and Programmes Supporting Digital Capability Development

Public policies and domestic digital strategies play an important role in supporting the implementation of AI technologies across sectors, including tourism. Across APEC economies, programmes designed to strengthen digital skills, technology awareness, and access to innovation networks help tourism enterprises and workers adapt to the opportunities created by emerging technologies. Such initiatives often focus on strengthening workforce capabilities, supporting entrepreneurship, and facilitating participation in digital innovation ecosystems.

These measures help tourism stakeholders develop the skills required to integrate AI-enabled tools into business operations, marketing, customer service, and destination management.

One example of a programme that supports digital capability development is the Zamboanga region's Department of Information and Communications Technology (DICT) is working to close the digital divide and expand access to science, technology, engineering, and mathematics (STEM) and information and communications technology (ICT) skills development programmes (Dharmaraj, 2025).

By linking AI strategies with workforce capability development and digital skills training, economies can strengthen the readiness of tourism sectors to adopt emerging technologies.



## 2

### Promoting Participation in AI Innovation Ecosystems

Participation in digital innovation ecosystems plays a critical role in accelerating the diffusion of AI technologies across industries. Collaboration between governments, industry stakeholders, technology providers, and local communities can help expand awareness of AI tools and support experimentation with new digital applications in tourism services. Across APEC economies, digital transformation strategies increasingly incorporate community-based programmes that promote digital literacy and support engagement with emerging technologies. Initiatives such as “AI for All” and “Digital Literacy for All” movements aim to strengthen digital capability development and encourage broader participation in the digital economy.

Examples of initiatives supporting participation in digital innovation ecosystems include:

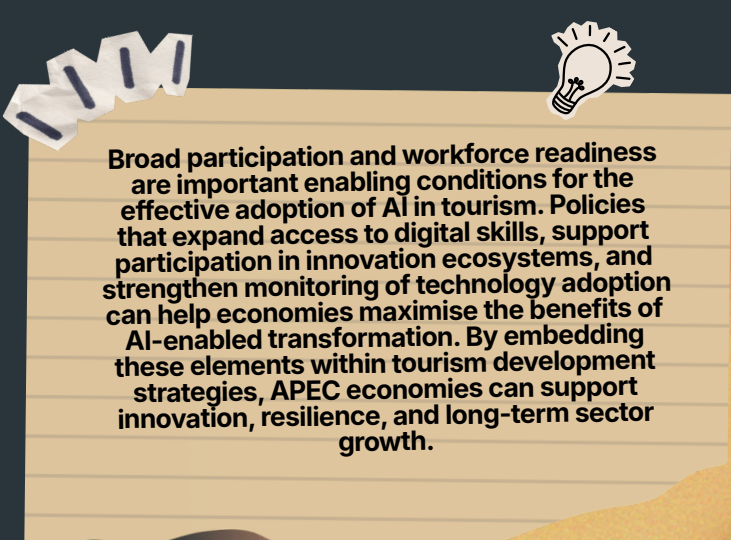
- Viet Nam’s domestic digital transformation strategy emphasises community-based initiatives such as the “AI for All” and “Digital Literacy for All” movements, which promote broader participation in digital technologies and support the development of a digitally enabled society (Viet Nam Law and Legal Forum, 2025).
- EmpowerHer Digital, run by the Ministry of Digital and supported by MDEC, DNB, and Maxis, provides participants with access to markets, digital skills training, and entrepreneurship support while accelerating digital transformation among small and medium-sized businesses (MDEC, 2025). These initiatives demonstrate how accessible digital innovation ecosystems can support business development, technology adoption, and broader engagement with AI-enabled digital transformation.

## 3

### Monitoring AI Adoption Through Data

Effective monitoring mechanisms support better understanding of how AI adoption progresses across tourism sectors and regions. The systematic collection and analysis of digital transformation indicators enable policymakers and tourism authorities to assess workforce readiness, participation in training programmes, and the diffusion of AI-related capabilities.

Data-driven monitoring helps identify capability gaps, inform policy adjustments, and support more targeted digital development strategies. Standardising data collection practices across sectors can also improve the comparability of digital transformation outcomes across economies. One example of a relevant initiative is the APEC Women in STEM Symposium 2025, which encourages member economies to strengthen and standardise data-collection practices related to digital transformation and workforce participation in technology-related fields (APEC, 2025a). Such data-informed approaches help ensure that AI adoption strategies remain responsive to emerging workforce and technology trends within the tourism sector.



**Broad participation and workforce readiness are important enabling conditions for the effective adoption of AI in tourism. Policies that expand access to digital skills, support participation in innovation ecosystems, and strengthen monitoring of technology adoption can help economies maximise the benefits of AI-enabled transformation. By embedding these elements within tourism development strategies, APEC economies can support innovation, resilience, and long-term sector growth.**



# Summary of Enablers & Best Practices

AI is increasingly reshaping tourism through changes in destination management, experience personalisation, and approaches to sustainability. However, evidence across APEC economies indicates that the potential of AI cannot be realised through technology alone. Effective adoption is shaped by the presence of a cohesive ecosystem encompassing policy alignment, digital infrastructure, skilled human capital, cross-sector collaboration, and inclusive governance. Together, these elements form the enabling conditions that support responsible and context-appropriate use of AI in tourism.

Policy and governance frameworks provide strategic direction by aligning the deployment of AI with domestic development objectives, sectoral priorities, and ethical safeguards. Experiences from economies such as People's Republic of China and Republic of Korea illustrate how clearly articulated strategies and regulatory frameworks support the integration of digital innovation with sustainability and cultural considerations. These arrangements help create clarity for public and private actors while reinforcing accountability and trust.

Digital infrastructure and connectivity constitute another foundational enabler. Persistent disparities in access to high-speed networks, interoperable data systems, and affordable cloud services continue to shape uneven AI readiness across destinations, particularly in rural and community-based tourism contexts. Examples from several APEC economies demonstrate how public investment in infrastructure, combined with open data initiatives and shared platforms, supports broader participation by tourism MSMEs in digital transformation.

Human capital and skills development further influence the effectiveness of AI adoption. Without workforce readiness, technological advances are unlikely to generate a meaningful impact. Training, reskilling initiatives, and collaboration with academic institutions contribute to the development of practical digital literacy and AI-related competencies among tourism professionals, supporting adaptive and sustained use of emerging technologies.

Public-private-academic partnerships function as connective mechanisms within AI innovation ecosystems. Through collaborative platforms, innovation labs, and joint research initiatives, these partnerships facilitate experimentation, knowledge exchange, and risk-sharing among stakeholders. Such arrangements support the translation of research and policy objectives into practical applications suited to different tourism contexts.

Public-private-academic partnerships function as connective mechanisms within AI innovation ecosystems. Through collaborative platforms, innovation labs, and joint research initiatives, these partnerships facilitate experimentation, knowledge exchange, and risk-sharing among stakeholders. Such arrangements support the translation of research and policy objectives into practical applications suited to all tourism contexts.

Overall, this chapter highlights that AI adoption in tourism is shaped by the interaction of technological readiness, institutional capacity, and collaborative governance. These enabling conditions provide a foundation for knowledge sharing and the exchange of best practices across APEC economies. The following chapter builds on this analysis by synthesising these enablers into a set of shared insights and practical approaches to support AI adoption in tourism across APEC economies.





04

# Strategic Approaches to AI Adoption in Tourism



# Preamble

Empirical evidence and enabling conditions provide important insights into how artificial intelligence is currently being adopted in tourism, but they do not on their own offer a clear direction for future action. Synthesising these insights is necessary to support more coherent planning, coordination, and decision-making across all APEC economies.

Drawing on findings from the hybrid case studies and stakeholder engagement activities, a set of cross-cutting patterns and shared considerations emerges. These patterns reflect both common challenges and strategic opportunities, highlighting the need for phased, flexible approaches that accommodate varying levels of readiness and institutional capacity.

The sections that follow integrate empirical observations and stakeholder-validated insights into a structured APEC best practice for AI adoption in tourism. This integration is intended to support tourism stakeholders in navigating AI adoption in ways that are realistic and aligned with broader economic and social objectives.





# HIGHLIGHTED BEST PRACTICES: STRATEGIC SYNTHESIS FROM EVIDENCE AND STAKEHOLDER INSIGHTS

The hybrid case studies revealed that effective AI adoption in tourism depends less on the sophistication of technology and more on the quality of governance, capacity development, and ecosystem coordination. This section synthesises the most salient best practices that cut across economies and stakeholder groups.

These practices form the strategic foundation for the frameworks and roadmap presented later in this chapter. One of the most consistent lessons across APEC economies is the persistent gap between economy-level AI or digital economy strategies and their implementation within the tourism sector.

While many economies have articulated ambitious visions for AI-driven growth, these strategies often remain abstract from the perspective of tourism operators. MSMEs, in particular, frequently lack clarity on how domestic AI priorities translate into concrete actions relevant to their businesses.

This policy–practice gap was evident not only in developing economies such as Indonesia and Peru, but also in more advanced contexts, where local tourism authorities and enterprises struggled to operationalise high-level policy directives. Best practice, therefore, lies in developing tourism-specific AI frameworks that interpret domestic strategies into sector-relevant objectives, implementation pathways, and practical guidance.

Another critical best practice concerns treating digital infrastructure as a core issue in tourism development. The synthesis of the case studies demonstrates that limited connectivity in rural and peripheral destinations constrains even basic digital operations, effectively excluding many tourism actors from AI-enabled transformation.

Addressing these disparities requires policy coordination between tourism authorities, digital ministries, and infrastructure providers. Economies that integrate tourism needs into broader connectivity and digital infrastructure planning are better positioned to ensure that AI adoption supports balanced spatial development within economies rather than reinforcing existing barriers.

The evidence also highlights the importance of adopting a pragmatic approach to AI for tourism MSMEs. Across APEC economies, the tourism sector is dominated by small and micro enterprises with limited financial and human resources. For these businesses, AI adoption is most effective when it is incremental, problem-oriented, and clearly linked to operational benefits.

Rather than pursuing comprehensive digital transformation, MSMEs tend to benefit most from targeted applications such as AI-assisted customer communication, demand forecasting for pricing decisions, or automated digital marketing. Malaysia's Tourism 4.0 initiatives demonstrate how relatively simple AI tools can deliver measurable improvements in efficiency and market reach when aligned with the needs of MSMEs.

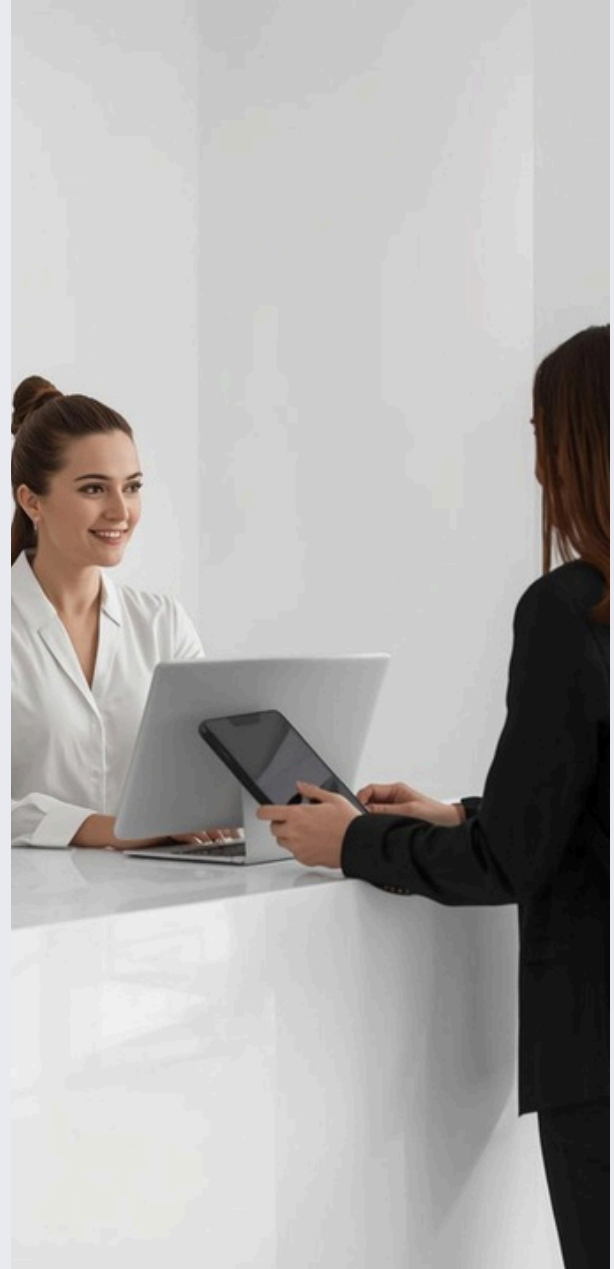
Human capital development emerged as another central pillar of best practice. Skills gaps were identified across all case economies, regardless of their overall level of technological advancement. Even in the context of the case studies, where advanced smart tourism projects are well established, stakeholders emphasised the need for continuous workforce upskilling to keep pace with rapid technological change.

Effective capacity-building approaches are progressive, practice-oriented, and embedded within institutional structures rather than delivered as one-off training interventions. Universities, vocational institutions, and industry associations play a critical role in sustaining these efforts over time.



Finally, the case studies highlight the importance of strong public–private–academic collaboration. Successful AI tourism initiatives are rarely driven by a single actor. Instead, they emerge from ecosystems in which governments provide enabling policy support, the private sector supplies technology and innovation, and academic institutions contribute research, talent development, and evaluation. Formalising these collaborations through innovation labs, pilot programmes, and co-funded initiatives allows economies to experiment with AI solutions while managing risks and sharing knowledge.

Taken together, these synthesised best practices provide a clear evidence-based foundation for the stakeholder-validated insights presented in the next section and directly inform the best practices and phases for AI adoption across APEC tourism economies. These evidence-based best practices were subsequently examined and validated through stakeholder engagement during the APEC capacity-building workshop, as discussed in the following section.



# STAKEHOLDER- VALIDATED INSIGHTS ON IMPLEMENTATION READINESS

The APEC capacity-building workshop served as a critical validation mechanism for the empirical findings and strategic directions identified through the literature review and hybrid case studies. Rather than generating entirely new policy directions, stakeholder discussions confirmed, refined, and contextualised the feasibility of AI adoption pathways across APEC economies, particularly from the perspectives of tourism authorities, industry associations, and micro, small, and medium-sized enterprises (MSMEs).

Across stakeholder groups, there was broad consensus that while awareness of artificial intelligence applications in tourism has increased, readiness for meaningful adoption remains uneven. Stakeholders consistently highlighted that MSMEs, which constitute the backbone of the tourism sector in many APEC economies, face persistent constraints related to financial capacity, limited access to digital infrastructure, and a lack of in-house technical expertise. These constraints do not reflect resistance to innovation, but rather structural limitations that hinder the ability of smaller operators to transition beyond basic digital tools to more advanced AI-enabled solutions.

Discussions further validated that human capital gaps represent one of the most significant barriers to effective AI implementation. Stakeholders emphasised that technical training alone is insufficient; instead, there is a need for applied, sector-specific capacity building that enables tourism practitioners to understand how AI can be integrated into operational decision-making, service design, marketing, and customer engagement. The workshop revealed that many tourism organisations remain uncertain about how to translate abstract AI concepts into practical use cases that align with their scale, resources, and regulatory environments. This finding reinforces the importance of phased and contextualised adoption strategies rather than uniform implementation models.

Institutional and governance-related challenges were also prominently raised during stakeholder engagement. Participants underscored the fragmented nature of AI governance within the tourism sector, where responsibilities are often dispersed across multiple agencies without clear coordination mechanisms. This fragmentation complicates data sharing, standard setting, and the development of interoperable digital systems.



Stakeholders therefore highlighted the need for clearer institutional leadership and cross-sector coordination to ensure that AI adoption in tourism aligns with broader domestic digital strategies while remaining responsive to sector-specific needs.

Importantly, stakeholder feedback affirmed that capacity-building initiatives must be embedded within existing tourism ecosystems rather than delivered as standalone interventions. Associations and destination management organisations were identified as critical intermediaries that can translate economy-level AI strategies into actionable guidance for tourism businesses. Stakeholders noted that peer learning, shared platforms, and collaborative pilot initiatives offer more practical value than isolated training programmes, particularly for MSMEs with limited absorptive capacity.

Finally, stakeholder discussions reinforced the principle that AI adoption in tourism must remain context-sensitive. Participants emphasised that AI should be positioned as an enabling tool to enhance service quality, operational efficiency, and visitor experience, rather than as a substitute for human interaction or local knowledge. This perspective aligns with the broader APEC emphasis on economic growth and underscores the importance of aligning technological innovation with social, cultural, and economic objectives within various tourism destinations.

Collectively, these stakeholder-validated insights confirm that successful AI adoption in APEC tourism requires not only technological readiness, but also coordinated governance, targeted capacity building, and implementation pathways that recognise the structural realities of tourism systems across economies. These insights directly inform the APEC best practices and phases presented in the subsequent sections of this chapter.



# AI ADOPTION FOR ALL

Ensuring that AI adoption in tourism remains balanced is not a peripheral concern, but a strategic condition for sustainable implementation and broad-based participation. This emphasis aligns with the APEC AI Initiative (2026–2030), which highlights the importance of secure, accessible and reliable AI ecosystems for all, and calls for “balanced and human-centred approaches across workforce, education and capacity-building policies.”

Evidence from the hybrid case studies and stakeholder engagement suggests that, without deliberate attention to capability gaps and implementation realities, AI adoption may reinforce existing structural barriers rather than expand participation. This is particularly relevant in tourism, where SMEs are widely recognised as underpinning sector activity and local value creation.

Across APEC economies, tourism commonly includes a high concentration of micro, small, and medium-sized enterprises (MSMEs), alongside a workforce that may face labour-market or skills barriers. Labour statistics analysis shows that women and youth are often strongly represented in tourism employment, and that tourism MSMEs can face constraints on investing in workforce training. In addition, persistent digital divides, particularly across urban and rural areas, shape which destinations and smaller operators can access the connectivity and digital services that underpin AI-enabled tools.

APEC’s AI Initiative frames these participation challenges as a capacity-building and cooperation agenda. In tourism, this points to the value of tailored, practical capacity-building initiatives that strengthen digital and AI literacy among businesses (including MSMEs and start-ups), alongside mechanisms for peer learning and stakeholder collaboration. Workforce-focused approaches that emphasise lifelong learning and effective upskilling and reskilling can support workers to navigate the AI transition, particularly where baseline digital literacy varies widely.



Stakeholder consultations also indicate that tourism enterprises and workers may face challenges in accessing emerging technologies, training opportunities, and institutional support. Best-practice responses observed internationally include the use of online and modular training formats, co-designed with tourism institutions and industry partners, to improve accessibility and relevance for practitioners and smaller firms. Such approaches help position tourism stakeholders not only as beneficiaries of digital transformation but also as active participants in AI adoption and adaptation.

AI adoption for all also extends to community-based tourism and destinations beyond major urban centres. APEC's AI Initiative encourages capacity-building that integrates local knowledge, culture and languages. This is consistent with UN Tourism work on intangible cultural heritage, which underscores that maintaining authenticity and building genuine partnerships with communities are central to sustainable cultural tourism, and that community-based tourism can enable direct communication between communities and tourism/heritage actors.

In practice, AI applications such as customer communication support, demand forecasting, and visitor flow management may be most effective when designed to complement local expertise and relational service quality, rather than standardising experiences.

Finally, the benefits of AI for all approach is closely linked to consumer capacity and trust. The APEC AI Initiative highlights public awareness on responsible AI use and strengthened consumer confidence in AI applications. This aligns with international AI ethics guidance emphasising privacy and data protection, transparency, fairness, and human oversight—elements that are particularly salient when AI-enabled tourism services involve sensitive personal data.

Embedding benefits of AI for all considerations strengthen not only social outcomes, but also implementation effectiveness: AI initiatives that are misaligned with operational realities are less likely to achieve sustained uptake. In contrast, approaches emphasising accessibility, practical relevance, skills development, and trusted use create conditions for AI solutions to be adopted, adapted, and shared across diverse tourism settings in line with APEC's cooperation- and best-practice-oriented approach.

# STRATEGIC APPROACHES FOR AI ADOPTION IN TOURISM

Building on the identified best practices across APEC economies, stakeholder-validated insights and balanced considerations, this section proposes structured APEC best practices to guide the adoption of AI in tourism across APEC economies. The APEC best practices are designed to support policy coherence and coordinated action, while remaining sufficiently flexible to accommodate different institutional contexts. It emphasises progression through interconnected phases rather than linear or isolated interventions.

The first phase focuses on readiness assessment. AI adoption should begin with a systematic understanding of existing conditions at multiple levels. At the domestic level, this involves assessing policy alignment, regulatory arrangements, data governance arrangements, and digital infrastructure. At the destination and organisational levels, readiness assessments examine digital maturity, workforce skills, access to data, and existing technology use. The objective of this phase is to identify priority gaps and feasible entry points for AI adoption, rather than to benchmark or rank economies and organisations.

The second phase centres on strategic planning and prioritisation. Based on readiness assessments, policymakers and tourism authorities should articulate clear objectives for AI adoption that align with broader tourism development and digital economy goals. These objectives may include enhancing competitiveness, improving sustainability management, strengthening crisis resilience, or broadening participation. Effective planning requires prioritising AI use cases that offer high potential impact relative to cost and complexity, particularly in MSME-dominated tourism systems. Strategic prioritisation also helps avoid fragmented or duplicative initiatives.

The third phase involves pilot implementation. Pilot projects allow stakeholders to test AI applications in controlled environments, generate evidence of value, and refine approaches before scaling. Case study evidence suggests that successful pilots are those that address clearly defined policy or operational challenges, actively involve end users, and incorporate learning mechanisms. The illustration from the case studies highlights that smart tourism pilots, for example, demonstrate how experimentation at the destination level can inform domestic policy while managing technological and organisational risks.



The fourth phase emphasises capacity building and change management. AI adoption requires adjustments to organisational culture, workflows, and skills, not merely the deployment of new tools. Sustained capacity-building programmes, supported by tourism associations and educational institutions, are essential to ensure that AI systems are effectively integrated into daily operations. Change management is particularly important for MSMEs, where resistance to new technologies may stem from perceived complexity or risk.

The final phase focuses on monitoring, evaluation, and scaling. Robust monitoring and evaluation strategies enable policymakers to assess outcomes, ensure accountability, and inform future decision-making. Relevant indicators may include adoption rates, improvements in productivity and visitor satisfaction, environmental performance, and participation outcomes. Successful initiatives can then be scaled through policy support, targeted funding, and cross-economy knowledge sharing within APEC. Figure 6.1 illustrates interconnected phases that support policy-coherent, scalable AI adoption across tourism systems, with a central emphasis on the benefits of AI for all, MSME participation, and institutional learning.

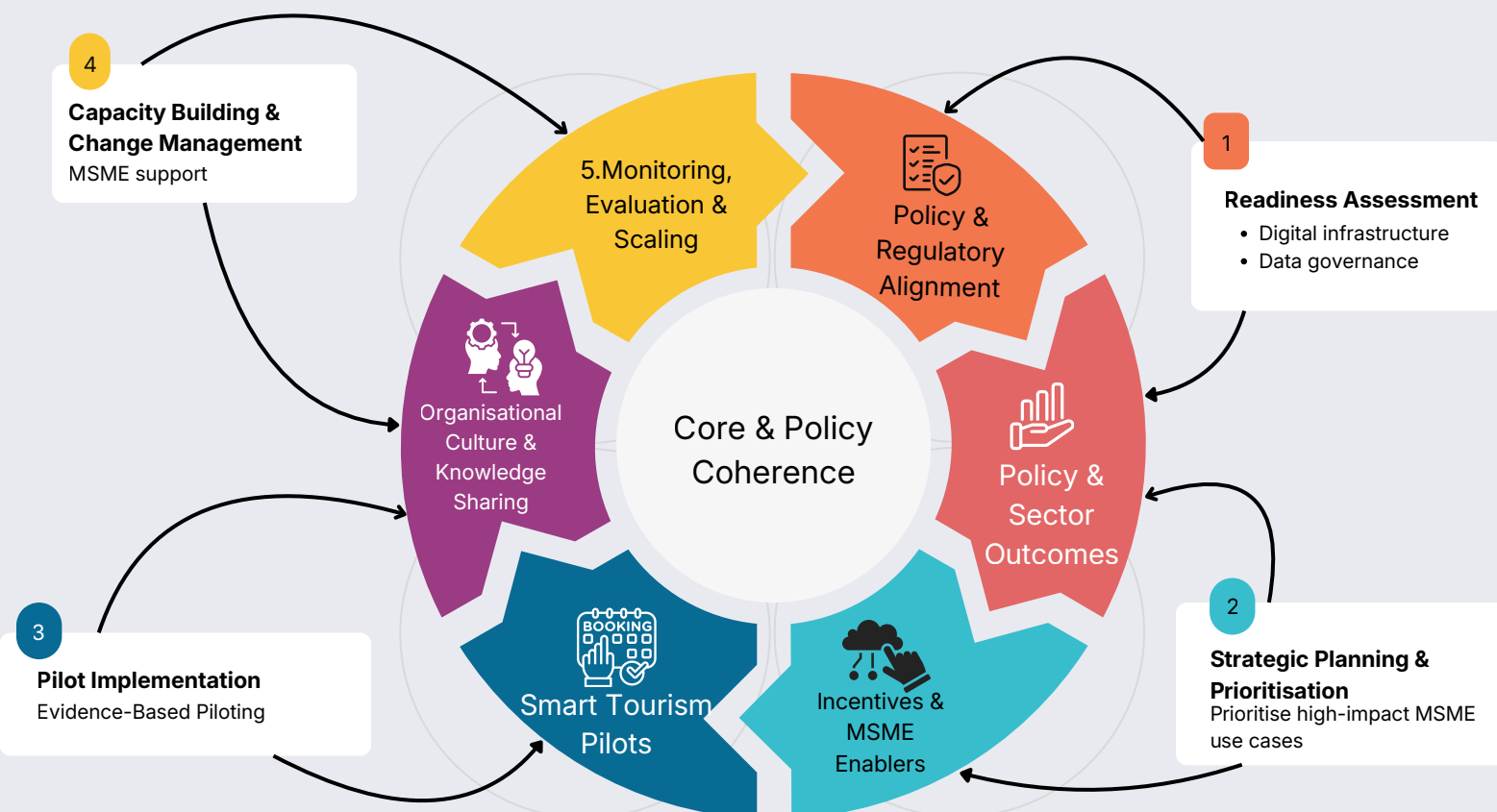
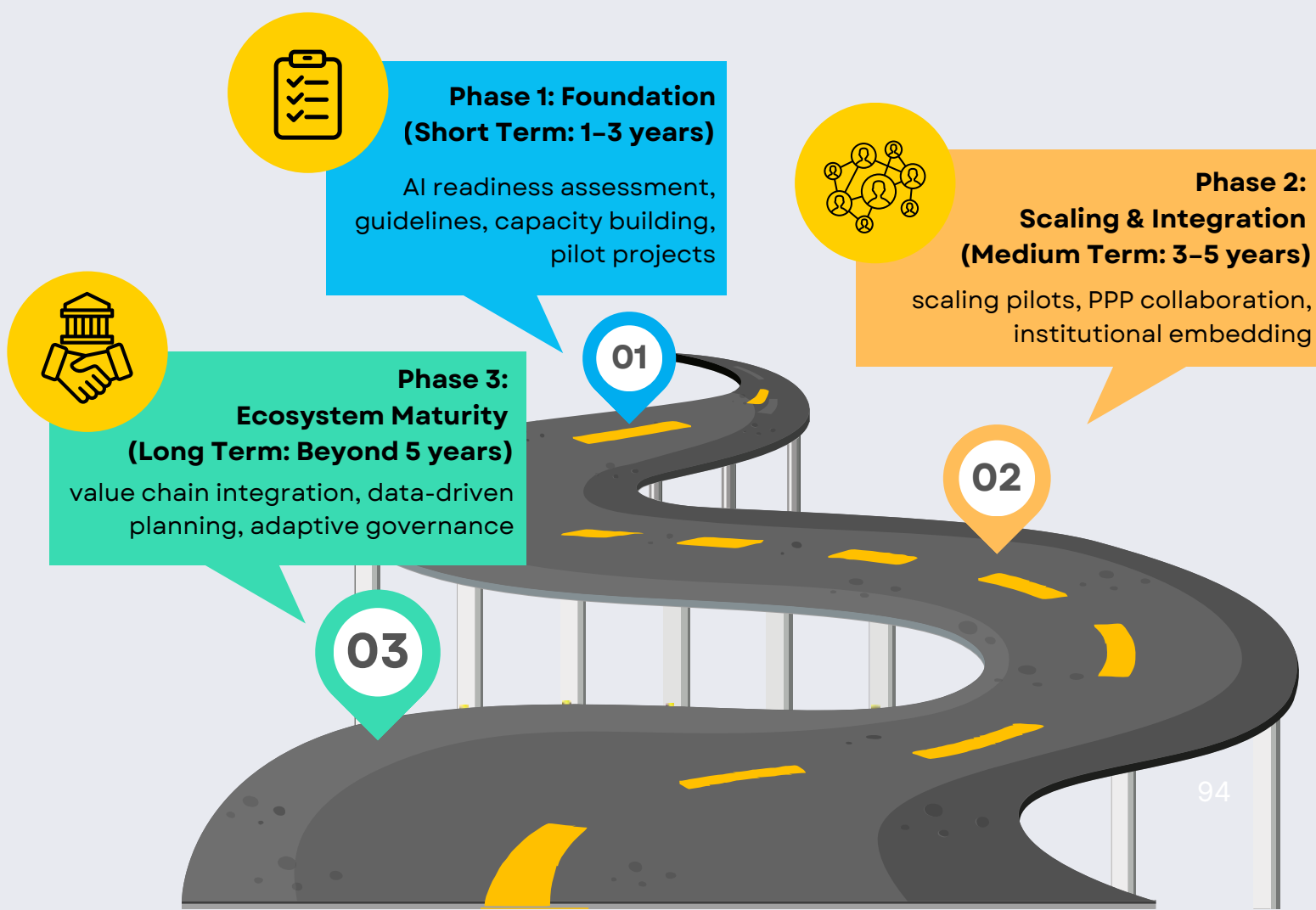


Figure 4.1 - Best Practices for AI Adoption in Tourism across APEC Economies

# APPROACHES FOR APEC ECONOMIES: PHASED PATHWAYS WITH ILLUSTRATIVE MINI-EXAMPLES

To support practical implementation, this section presents phased pathways for AI adoption in tourism across APEC economies. These pathways recognise that economies vary in their starting points, institutional capacities, and development priorities, while offering shared insights to inform their progression over time. The phases outlined below are indicative rather than prescriptive and are intended to support adaptive implementation in line with economy and sub-economy contexts.

Figure 4.2 - Phased Approaches for AI Adoption in Tourism across APEC Economies





In the **short term**, typically encompassing the initial one to three years of engagement, priorities should focus on establishing foundational capabilities. Key actions include conducting baseline assessments of AI readiness within the tourism sector, developing tourism-specific AI guidelines, and initiating targeted capacity-building programmes for tourism MSMEs, women entrepreneurs, and youth. Early-stage pilot initiatives at selected destinations or subsectors can play a critical role in generating practical evidence, building stakeholder confidence, and demonstrating the relevance of AI applications to operational challenges such as marketing, visitor engagement, and basic analytics.

The **medium-term phase**, often extending over approximately three to five years, emphasises scaling and institutional integration. During this phase, successful pilot initiatives can be expanded across regions and tourism subsectors, supported by improvements in digital infrastructure and strengthened coordination mechanisms. Governments and tourism authorities can act as catalysts by formalising public–private–academic partnerships, establishing tourism innovation platforms, and embedding AI adoption within broader tourism development strategies. This phase is particularly important for moving AI initiatives beyond isolated experimentation toward more systematic and sustained application.

In the **longer term**, extending beyond the initial scaling phase, APEC economies may work towards more integrated AI-enabled tourism ecosystems. This involves mainstreaming AI applications across the tourism value chain, integrating AI with complementary digital technologies, and embedding data-driven approaches into destination planning, experience design, and sustainability management. At this stage, the emphasis should remain on contextual adaptation rather than replication, ensuring that advanced applications are aligned with local governance arrangements, workforce capabilities, and social priorities.

Across all phases, the pathways underline the importance of flexibility and balanced implementation. Progression through the phases should be guided by continuous learning, stakeholder engagement, and evidence-based adjustment, rather than rigid timelines or uniform benchmarks. In doing so, APEC economies can advance AI adoption in tourism in ways that enhance competitiveness and innovation while supporting economic growth and sector resilience.

# RISK MANAGEMENT AND RESPONSIBLE AI-POWERED TOURISM

While AI offers substantial opportunities for tourism development, unmanaged risks can undermine public confidence, social acceptance, and long-term sustainability. Key risk areas include data privacy and information protection, algorithmic bias and exclusion, over-reliance on automated decision-making, and the uneven distribution of benefits across economies and social groups. Addressing these risks requires proactive governance frameworks that support the responsible development and use of AI.

Consistent with the APEC Artificial Intelligence Initiative (2026–2030), effective AI adoption should promote secure, accessible and reliable AI ecosystems for all. In the tourism context, this includes strengthening data governance, ensuring responsible data collection and use, and aligning with domestic regulatory frameworks. Mechanisms for addressing risks and grievances, alongside clear communication on how AI systems operate, are essential to support public confidence and responsible adoption.

Trust is a key enabler of AI adoption in the tourism industry. Tourists and tourism operators are more likely to engage with AI-enabled services when they understand how systems function and how data is used. Transparent communication, visible safeguards, and accessible redress mechanisms help build confidence. Experiences such as Indonesia's highlight the importance of tailored communication and stakeholder engagement, particularly in contexts where digital literacy levels vary.

Clarifying stakeholder roles and responsibilities is critical for effective AI governance. Governments play a central role in establishing policy frameworks and oversight. Technology providers are responsible for the design and deployment of AI systems in a safe, secure and reliable manner. Tourism enterprises are responsible for ensuring appropriate and responsible use in operational contexts, while users play a role in informed engagement with AI-enabled services. Clearly articulating these roles helps strengthen accountability and reinforce confidence in AI adoption across the tourism ecosystem.



Capacity-building is essential to support meaningful participation in AI adoption. This includes strengthening digital and AI literacy, supporting workforce development, and enabling tourism stakeholders, particularly MSMEs, to effectively adopt and use AI technologies. Public awareness initiatives can further support responsible use and enhance confidence in AI applications.

Finally, strengthening cooperation across stakeholders and economies is key to addressing shared risks and advancing common standards. Knowledge-sharing, policy exchange, and collaboration across the public and private sectors can help build resilient, inclusive, and sustainable AI ecosystems in tourism.





# CONCLUSION & CALL TO ACTION

AI presents a transformative opportunity for tourism across APEC economies, but its successful adoption depends on strategic intent, governance, and sustained collaboration. This chapter synthesises the empirical evidence and stakeholder insights presented in earlier chapters into a comprehensive and policy-oriented pathways that strike a balance between ambition and realism, innovation and responsibility, and efficiency. The way forward for APEC is clear. AI adoption in tourism must be firmly anchored in coherent best practices and knowledge sharing and aligned with domestic development objectives, while remaining responsive to the operational realities of tourism enterprises. It must prioritize full participation so that all communities are active beneficiaries of digital transformation rather than passive observers. At the same time, it must be governed responsibly, with due attention to reliability, risk management, and trust, in order to sustain public confidence and long-term legitimacy.

In acting collectively, strengthening cross-economy collaboration, and investing in long-term capacity building, APEC economies can harness AI to shape a tourism sector that is competitive, resilient, and sustainable. The strategic pathways outlined in this chapter provides a shared direction for that journey, supporting APEC's broader vision of economic growth and digitally enabled prosperity for present and future generations.





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