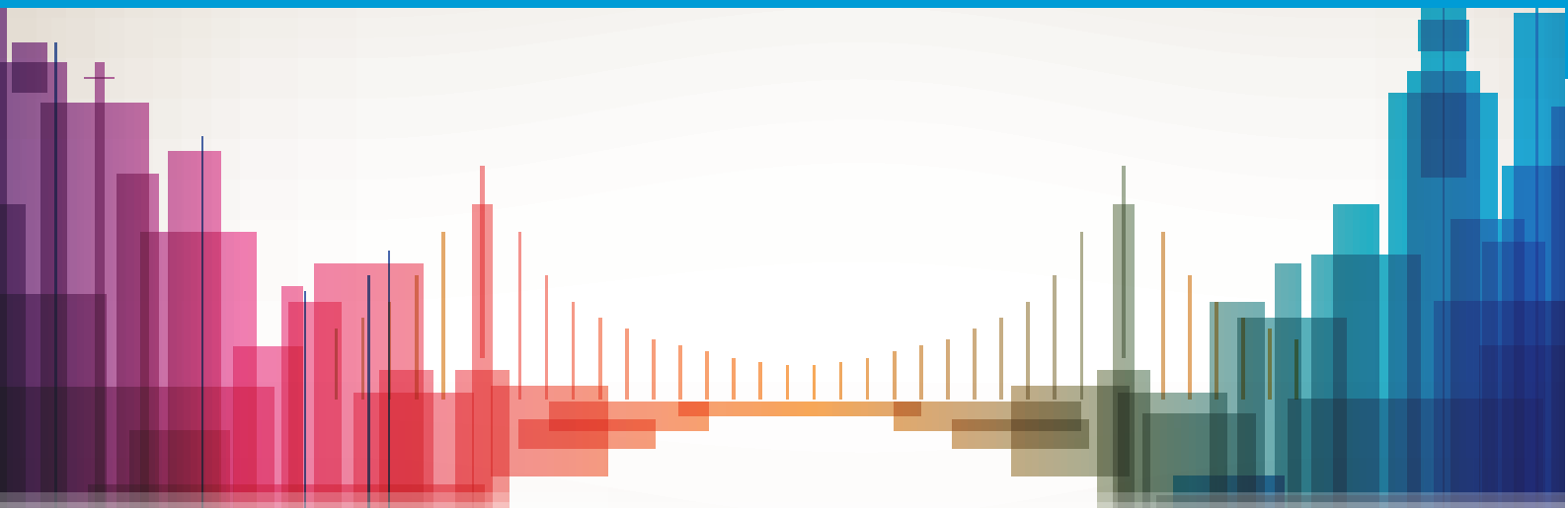
Smart tourism in action: How cities are managing destinations with data



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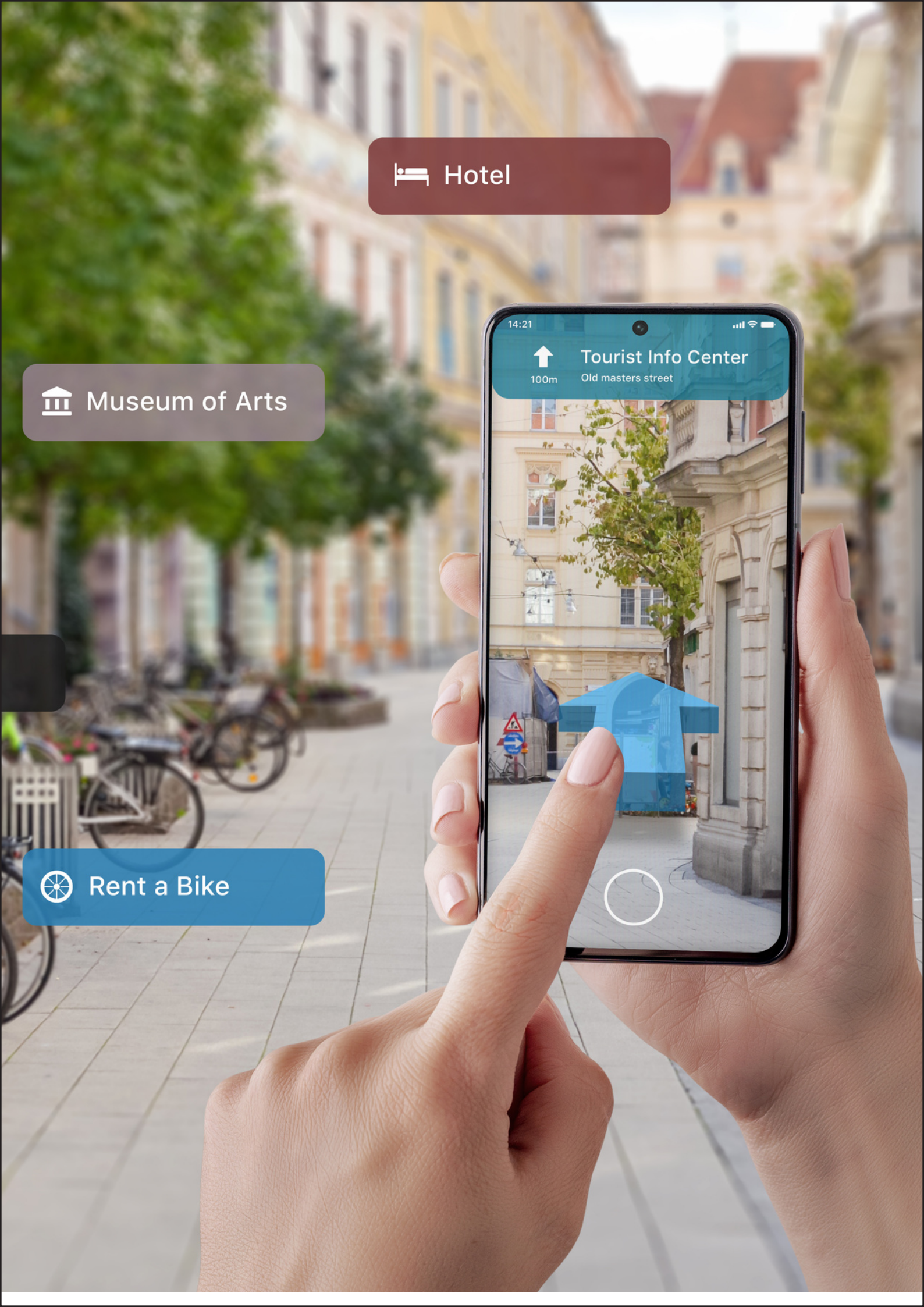
UNJSPF United Nations Joint Staff Pension Fund

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Smart tourism in action: How cities are managing destinations with data

Foreword

This publication was developed within the framework of the United for Smart Sustainable Cities (U4SSC) initiative.

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Disclaimer

The opinions expressed in this publication are those of the authors and do not necessarily represent the views of their respective organizations or U4SSC members. In line with the U4SSC principles, this report does not promote the adoption and use of Smart City technology. It advocates for policies encouraging responsible use of information and communications technologies (ICTs) that contribute to the economic, environmental and social sustainability as well as the advancement of the 2030 Agenda for Sustainable Development and the Pact for the Future and its Global Digital Compact.

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Abbreviations and acronyms

Abbreviation	Full form
AI	Artificial Intelligence
ANAC	National Civil Aviation Agency (Brazil)
ANTT	National Ground Transportation Agency (Brazil)
API	Application Programming Interface
AR	Artificial Reality
ASEAN	Association of Southeast Asian Nations
B2B	Business-to-Business
BI	Business Intelligence
CMS	Content Management System
CoE	Centre of Excellence
COMTUR	Municipal Tourism Council (Brazil)
CRM	Customer Relations Management
DMO	Destination Management Organization
DTI	Smart Tourist Destinations (Spain)
DX	Digital Transformation
ENI	National Interoperability Framework (Spain)
ENS	National Security Framework (Spain)
F&B	Food and Beverage
FTAS	Fukui Tourism Data Analyzing System
FToF	Fukui Prefecture Tourism Federation
GDPR	General Data Protection Regulation (EU)
GPS	Global Positioning System
IDT	Tourism Development Index (Spain)
IoT	Internet of things
ISO	International Standards Organization
IT	Information Technology
KPI	Key Performance Indicator
KTO	Korea Tourism Organization
LBS	Location-based Services
LLM	Large Language Model
MA	Mobile Accessibility
NFC	Near Field Communication
NLP	Natural Language Processing
OECD	Organisation for Economic Co-operation and Development
OTA	Online Travel Agency
OTM	Multimodal Transport Operator (Brazil)
OWL	Web Ontology Language

Abbreviation	Full form
PaaS	Platform-as-a-Service
PIA	Open Innovation Platform (Spain)
PID	Smart Destination Platform (Spain)
PoI	Point of Interest
PoS	Point of Scale
RDF	Resource Description Framework
RRF	Recovery and Resilience Facility
RTRP	Recovery, Transformation and Resilience Plan
SaaS	Software-as-a-Service
SDP	Smart Destination Platform
SEGITTUR	State Commercial Company for the Administration of Innovation and Technologies (Spain)
SETUR	State Secretariat for Tourism (Spain)
SIT	Tourism Intelligence System (Spain)
SME	Small and Medium Enterprises
SOC	Security Operations Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
VR	Virtual Reality
WBS	Work Breakdown Structure

Executive Summary – Smart Tourism in Action

Tourism destinations worldwide are undergoing a structural shift. Digital platforms, data spaces and AI are transforming tourism from a marketing function into a core system for managing cities, economies and public services.

This report brings together global use cases of Smart Destination Platforms and tourism intelligence systems from cities and countries across Europe, Asia, Latin America and the Middle East. They show how destinations are using shared digital infrastructures to connect public authorities, businesses, residents and visitors, turning tourism into a coordinated, data-driven ecosystem.

Spain is building a national platform linking hundreds of destinations through a shared data and services backbone. Incheon uses immersive technologies and real-time analytics to increase visitor engagement and local spending. Smaller municipalities such as Itamonte demonstrate that even resource-constrained cities can deploy tourism intelligence systems to guide policy and investment. Historic destinations like San Gimignano are using data to tackle overtourism and extend visitor stays, while initiatives in Japan and Saudi Arabia show how platforms can support SMEs, innovation and national competitiveness.

Across all cases, one message is clear: tourism platforms are becoming essential public digital infrastructure.

Destinations are moving:

- from fragmented pilots to shared platforms;
- from intuition to real-time intelligence;
- from visitor growth to balanced local value;
- from isolated tourism policies to integrated urban strategies.

These examples confirm that Smart Destination Platforms can help cities and governments:

- manage visitor flows and resources more efficiently;
- support local businesses and innovation ecosystems;
- improve visitor experience and resident wellbeing;
- strengthen sustainability, resilience and competitiveness.

This publication focuses on real-world use cases and lessons learned. It is complemented by the companion report:

Building Smart Destination Platforms: A Guide for Governments and Cities, which provides the governance models, architecture principles, roadmap and indicators needed to design and implement such platforms at scale.

Together, the two deliverables offer a complete picture:

- this report shows what is already working in practice;
- the companion guide explains how destinations can implement it.

They are intended to support ministers, mayors, city leaders and international partners in shaping a new generation of data-driven, sustainable and resilient tourism systems for the digital age.



1 Spain

Spain's Smart Destinations Platform (known as PID in Spanish) builds upon more than a decade of institutional commitment to digital transformation in tourism. It evolves directly from the national Smart Tourist Destinations (known as DTI in Spanish) model – an internationally recognised methodological framework developed and promoted by the State Secretariat for Tourism (known as SETUR in Spanish) through SEGITTUR, the Spanish State-owned company responsible for driving innovation and digital transformation in the tourism sector under the leadership of the State Secretariat for Tourism. The DTI model established a foundation of governance, innovation, technology, sustainability and accessibility that has structured the transformation strategies of more than 500 destinations across the country.

Now, with the support of the EU's Recovery and Resilience Facility (RRF) and Spain's Recovery, Transformation and Resilience Plan (RTRP), the country is taking a qualitative leap forward. Through Component 14 – Modernisation and Competitiveness of the Tourism Sector, SETUR is leading one of the most ambitious tourism digitalisation strategies in Europe.

At the heart of Component 14, Investment 2 – Project 1 funds the development of the Smart Destinations Platform (PID). This initiative consolidates the DTI framework into a national, cloud-based digital infrastructure designed to:

- Provide an interoperable backbone that connects public and private tourism services across Spain throughout the tourist travel cycle (see Figure 1).
- Scale the existing Tourism Intelligence System (SIT) into a real-time, AI-powered knowledge environment.
- Enable the creation of a tourism industrial data space to drive innovation, SME competitiveness, and evidence-based policymaking.
- Ensure that access is restricted to destinations formally recognized within the DTI Network, guaranteeing methodological consistency.

Led by SETUR and coordinated technically by SEGITTUR, the PID's mission is to strengthen the competitiveness and resilience of Spanish tourism through high-quality, shared digital services. Its vision is to position Spain as a global benchmark for data-driven, sustainable, and inclusive smart destinations.

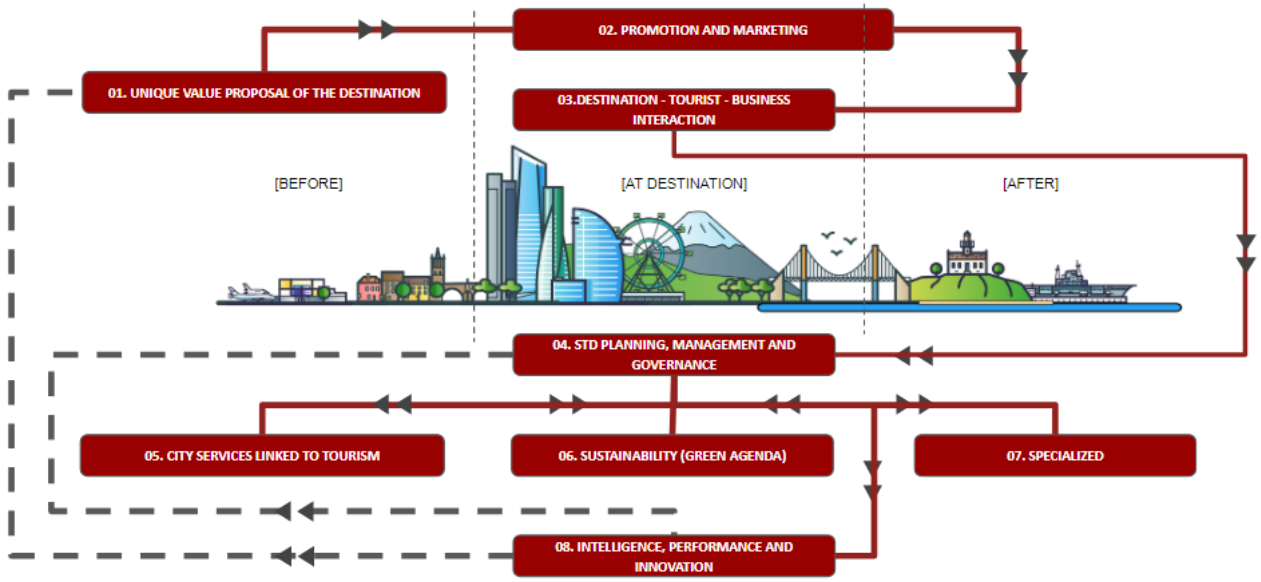
Strategically, the PID responds to the systemic challenges identified: data fragmentation, digital maturity gaps, lack of standardization and limited coordination across stakeholders. To address these, the platform deploys:

- A federated governance model that balances national coordination with local autonomy.
- A semantic framework based on the SEGITTUR Tourism Ontology and UNE 178503, aligned with future European Data Spaces.

- Cross-cutting training and support services aimed at DMOs, SMEs and administrations.

As a national digital infrastructure, the PID is designed to operate at scale – integrating hundreds of destinations and thousands of companies, accelerating innovation, improving experience quality, and enabling smarter, more sustainable tourism management across Spain.

Figure 1: Smart Destinations Platform throughout the tourist travel cycle



Source: Provided by SEGITTUR, 2025.

1.1 Governance model

The governance model of the Smart Destinations Platform (PID)[1,2,3] is an evolution of the collaborative structure developed under Spain's Smart Tourist Destinations (DTI) framework. The initiative is led by the State Secretariat for Tourism (SETUR), which ensures its strategic alignment with national tourism policy and broader public digital transformation objectives. SEGITTUR assumes the role of technical coordinator, having also acted as the driving force behind the conceptualization, design and pilot deployment of the platform.

The design of the PID was defined through a structured co-creation process involving two rounds of consultation with key stakeholders: DTI destinations, municipal networks, business and technology associations, and tourism sector representatives. This participatory process led to the identification of the platform's key functions, use cases and enabling conditions.

1 https://www.segittur.es/plataforma-inteligente/proyectos-plataforma-inteligente/plataforma-inteligente-de-destinos/
2 https://www.segittur.es/plataforma-inteligente/
3 https://www.segittur.es/en/digital-transformation/digital-transformation-projects/smart-destinations-platform/

In order to ensure the sustainability, legitimacy and continuity of this collaborative model, a dedicated Infrastructure Governance Body (known as Ente Gestor in Spanish) will be established. This body will assume responsibility for the strategic oversight and operational coordination of the PID, giving continuity to the role played by the Promoting Entity (known as Ente Promotor in Spanish) during its formulation phase. The Governance Body will be structured to ensure the participation of all relevant actor groups and stakeholder categories in key decisions, including:

- National and regional public administrations.
- DTI local destination nodes.
- Tourism sector SMEs and business associations.
- Technology providers and service developers.
- Research and innovation centres.

This federated governance model is a structured framework that allocates roles and responsibilities across institutional, technical, business and knowledge domains. It is designed to guarantee multilevel coordination, subsidiarity, transparency, and shared responsibility in platform evolution and service delivery.

Moreover, the model is conceived to facilitate alignment with other European and national data and service platforms, ensuring the PID's compatibility with emerging governance structures in the European Tourism Data Space and other sectoral ecosystems.

1.2 Technological innovation

The Smart Destinations Platform (PID) is designed as a service-oriented, cloud-native and semantically interoperable infrastructure. Its technical architecture follows a modular, layered structure aligned with the UNE 178511 and UNE 178501 standards, both based on standards ITU-T Y.4200 and ITU-T Y.4201, enabling flexible deployment, interoperability, and long-term scalability for destinations with varying levels of digital maturity.

Layered architecture of the central node

The PID is structured into six functional layers that enable secure, efficient and intelligent service provision:

1) **Collection Layer**: Integrates data from IoT devices, public infrastructure, social media, third-party systems, and edge computing environments deployed at the destination level.
2) **Data Acquisition Layer**: Performs large-scale ingestion and harmonization of structured and unstructured data using big data pipelines and classification engines.
3) **Knowledge Layer**: Transforms raw data into meaningful information through semantic enrichment, historical contextualization, and model adaptation.

4) **Interoperability Layer**: Provides secure and standardized APIs, promoting bidirectional integration with other platforms, transparency portals, and external systems.

5) **Service Layer**: Hosts modular applications, analytical tools, dashboards, and user interfaces, facilitating access to services for destinations, companies, and tourists.

6) **Support Layer**: Ensures cybersecurity, monitoring, traceability, and reporting functions, reinforced by an integrated Security Operations Centre (SOC) and a Centre of Excellence (CoE) for platform governance and evolution.

In parallel with this architectural layering, the platform is composed of six fundamental components as defined in its technical specifications:

- A **Shared Services Platform**, enabling the orchestration of functional modules and core infrastructure.
- A **Catalogue of Common Services**, tailored to different user profiles and grouped by functional purpose.
- A **Tourism Intelligence System (SIT)** that delivers advanced analytics, forecasting and real-time monitoring.
- A **Knowledge Platform**, acting as the semantic and contextual engine of the PID, as well as a data management and governance node.
- A **Cloud Infrastructure Environment (PaaS)**, which supports elastic scaling, multitenant deployment, and secure data processing.
- A **Centre of Excellence and Operations**, which ensures quality assurance, security oversight, and platform evolution.

The Knowledge Platform

The Knowledge Platform is the central cognitive and semantic engine of the Smart Destinations Platform (PID). It is responsible for transforming raw data into contextualized, interpretable and actionable knowledge. The platform integrates semantic interoperability mechanisms with advanced artificial intelligence (AI) capabilities, enabling structured knowledge representation and intelligent inference from heterogeneous data sources.

From a semantic perspective, the platform builds on the SEGITTUR Tourism Ontology (UNE 178503) and incorporates:

- A **semantic repository and governance module** to manage ontologies, vocabularies and taxonomies.
- **Semantic enrichment and annotation pipelines** for aligning incoming data with standardized models.

- **Multilingual support and concept mapping**, ensuring consistency across languages and domains.
- A **reasoning engine** for logic-based inference and cross-domain relationship detection.

Beyond semantics, the Knowledge Platform integrates machine learning and AI **modules** that enable dynamic analysis and prediction. These include:

- **Supervised and unsupervised learning algorithms** for clustering, classification and behavioural segmentation.
- **Natural Language Processing (NLP)** components for text analysis, intent detection, and sentiment analysis across open feedback and social media streams.
- **Large Language Models (LLMs)** to support conversational agents, virtual cognitive assistants and semantic search refinement.
- **Recommendation engines** trained on user interaction and context patterns.
- **Anomaly detection algorithms** for identifying deviations in tourism flows, environmental conditions, or service delivery metrics.
- **Forecasting models** based on temporal series and scenario simulation (e.g., demand trends, saturation risk, sustainability thresholds).

All these capabilities are exposed through dashboards and APIs that support human decision-making and machine-to-machine communication. They also feed the Tourism Intelligence System (SIT), enabling destinations to operate with real-time awareness and predictive capacity.

As a whole, the Knowledge Platform acts as the intelligent core of the PID, bridging semantic structure with adaptive, AI-driven insights to enable advanced service delivery, personalized interaction and informed policy design.

Semantic interoperability and standardization

A central innovation of the PID is its semantic foundation. The platform incorporates the SEGITTUR Tourism Ontology,[4] developed under the UNE 178503 standard, which enables consistent interpretation of data across domains and systems. This allows the PID to operate as a semantic backbone that ensures machine-readable, interoperable data exchange and contextual adaptation across services.

The semantic layer also aligns with international standards such as RDF, OWL and schema.org, and ensures compatibility with broader data ecosystems, including Smart City platforms and future European Data Spaces.

[4] https://ontologia.segittur.es/turismo/def/core

Cloud-based service model: PaaS & SaaS

The PID is deployed in a hybrid cloud environment, offering a Platform-as-a-Service (PaaS) layer that supports shared infrastructure and interoperability, and a Software-as-a-Service (SaaS) layer for the delivery of modular services and applications.

Each destination node accesses a secure, logically isolated instance of the platform. This multitenant configuration ensures compliance with the **Spanish** National Security Framework (ENS), the National Interoperability Framework (ENI) and GDPR regulations, while preserving data sovereignty and contextual customization.

Platform integration logic

The PID is designed as a meta-platform, capable of integrating third-party applications, public and confidential data sources, and operational tools from other systems. It is an open, API-based architecture that facilitates:

- Progressive onboarding of new services and applications.
- Bidirectional interoperability with regional, national, and EU-level platforms.
- Continuous enrichment of its knowledge base through dynamic data flows.

This design allows the PID to evolve in step with technological advances and policy objectives, so consolidating Spain's leadership in the development of intelligent, interoperable and inclusive tourism infrastructures.

Applicable standards and regulatory alignment

The platform complies with a robust framework of national and international technical standards, including:

- **UNE 178104**: Requirements for smart city platforms.
- **UNE 178502**: Data quality and management for smart destinations.
- **UNE 178503**: Semantic models in the tourism domain.
- **UNE 178511**: Layered architecture for smart destination platforms.
- **ITU-T Y.4201**: Reference architecture for smart sustainable cities data platforms.
- **OGC and ISO 19100 series**: Geographic information standards.
- **INSPIRE**: European directive for spatial data infrastructure.
- **GAIA-X** principles: for federated, sovereign and interoperable cloud data ecosystems.
- **ENS and ENI**: Spanish national frameworks for cybersecurity and digital interoperability.
- **GDPR**: Full compliance with EU data protection regulation.

These standards provide the foundation for secure integration, semantic harmonization, legal compliance and cross-border interoperability, ensuring the PID's scalability and long-term sustainability.

1.3 Services and applications

At the core of the Smart Destinations Platform (PID) lies a catalogue of 20 shared digital services, designed to address critical gaps in tourism management, improve data-driven decision-making, and ensure broad access to innovation across the tourism ecosystem. These services are structured into functional domains and are made available through a multitenant, modular architecture, enabling personalised usage by four primary actor groups: destination managers, residents, tourists and SMEs.

Services for destination managers (DMOs)

Destinations are the primary orchestrators of the platform, and access a suite of services focused on governance, intelligence and performance management. Among the most relevant services are:

- **DTI Governance Dashboard**: integration of KPIs aligned with the DTI methodology.
- **Tourism Intelligence System (SIT)**: advanced analytics, real-time monitoring and forecasting tools.
- **Reputation and perception modules**: analysis of resident sentiment and tourist satisfaction.
- **Planning and simulation engines**: tools for predictive modelling of flows, mobility, and service demand.
- **Semantic CMS and location intelligence**: for context-aware content publishing and territorial insight.

These services empower local authorities to deliver better policy outcomes, increase transparency, and respond more effectively to dynamic changes in demand and supply.

Services for tourists

Tourists interact with the platform through intelligent digital channels designed to accompany them across the full travel cycle. These include:

- **Destination portals and apps**: tailored interfaces offering real-time content, guidance and recommendations.
- **Virtual cognitive assistants**: AI-based tools for interaction, help and itinerary customization.
- **Online booking and participation tools**: integration with public service reservations, event agendas and local activities.

By combining service personalization, contextualization, and feedback capture, the PID enhances the overall visitor experience and supports satisfaction and loyalty before, during and after the trip.

Services for residents

Residents benefit from services designed to mitigate negative tourism externalities and promote civic participation. These include:

- **Citizen perception dashboards**: which inform local leaders about the social acceptance of tourism.
- **Digital data integration**: including mobility, security, energy, or waste data, to improve coexistence and public resource efficiency.

By integrating tourism and urban service data, the PID supports a more harmonious balance between visitors and residents in shared spaces.

Services for tourism SMEs

SMEs access the PID through simplified interfaces that provide value-added insights and interaction opportunities:

- **Digital maturity index**: tools to assess and plan digitalization efforts.
- **Access to destination intelligence**: dashboards with visitor patterns, spending data and promotional performance.
- **Professional portals**: to publish, manage and promote local products, experiences and events.

These services aim to democratize access to data and digital channels, increasing visibility, competitiveness, and resilience for small enterprises.

The Open Innovation Platform (PIA)

The PID is extended and enriched by the Open Innovation Platform (also known as PIA in Spanish), a framework that fosters experimentation, collaboration, and scaling of new digital services. The PIA is composed of three strategic components:

1) **Tourism Data Space**: A secure, sovereign and interoperable environment for sharing, federating and valorizing tourism-related data among destinations, companies and other stakeholders.
2) **Innovation Sandbox**: A controlled test environment where start-ups, tech providers and public entities can prototype and validate innovative solutions using real or synthetic data.
3) **Marketplace solutions**: A platform for the dissemination and adoption of validated services, enabling destinations to access a catalogue of plug-and-play tools and reducing time-to-deployment.

The PIA thus bridges institutional innovation and market-driven development, creating a virtuous cycle of service co-creation, testing and adoption.

This integrated service ecosystem ensures that the PID is not just a digital platform, but a strategic public infrastructure that provides shared value across the tourism value chain, while strengthening governance, competitiveness, and territorial cohesion.

1.4 Data management

Data are the strategic asset at the core of the Smart Destinations Platform (PID). The platform defines a comprehensive and secure data management model that covers the full data lifecycle – from ingestion and semantic structuring to exploitation, visualization, and re-use – aligned with the principles of interoperability, sovereignty, security, and purpose-driven intelligence.

End-to-end data lifecycle

The PID orchestrates a complete and traceable data lifecycle, structured into the following phases:

- **Ingestion**: collection and capture of heterogeneous data from IoT devices, third-party APIs, municipal platforms, user interaction channels, and tourism information systems.
- **Normalization and validation**: application of data quality rules, format harmonization, and real-time integrity checks.
- **Enrichment**: semantic annotation based on the SEGITTUR Tourism Ontology (UNE 178503), as well as cross-domain contextualization with mobility, environment, or urban data.
- **Storage and access**: secure, multitenant data environments in the PID cloud infrastructure, with governance rules adapted to each destination.
- **Analysis and exploitation**: integration with the Tourism Intelligence System (SIT), enabling dashboards, alerts, forecasts, and strategic indicators.
- **Sharing and re-use**: access via APIs and services under controlled permissions, ensuring conformance with FAIR principles and reusability across domains and levels of governance.

Legal, ethical and normative alignment

The PID ensures compliance with a robust framework of national and international standards, including:

- **ENS** (Security National Framework also known as Esquema Nacional de Seguridad in Spanish) and **ENI** (Interoperability National Framework, known as Esquema Nacional de Interoperabilidad in Spanish).
- **GDPR** for personal data protection and user consent management.
- **INSPIRE** directive and **ISO 19100** for geospatial information.

- **RDF**, **OWL**, and **schema.org** for semantic web interoperability.

In addition, the data architecture is designed to support upcoming requirements under the European Data Governance Act and Data Act, ensuring future-proof compliance and cross-border scalability.

Transparency, traceability, and quality

All data processes within the PID are auditable, and the platform provides:

- Automated logging of data access and processing operations.
- Quality scoring mechanisms and data freshness indicators.
- Anomaly detection and control dashboards.
- Open-access interfaces for publishing data to transparency portals, in line with public sector information regulations.

These elements reinforce trust in the system, support evidence-based policy, and enhance the operational capacity of public and private tourism stakeholders.

1.5 Impacts and outcomes

The Smart Destinations Platform (PID) represents a structural evolution in the digitalization of tourism policy in Spain. Building on the foundation of the Smart Tourist Destinations (DTI) framework, it operates a new model of public digital infrastructure that enhances the capacity of destinations to manage tourism based on data, evidence and coordination.

Through its deployment, the PID consolidates the institutional progress achieved by the DTI methodology – such as the incorporation of more than five hundred destinations into a shared governance and diagnostic model – and translates this maturity into a shared operational ecosystem. The result is a measurable improvement in:

- The **strategic intelligence** of destinations through real-time monitoring, predictive analytics, and KPI dashboards.
- The **efficiency** of public services via modular digital solutions that reduce duplication and accelerate deployment.
- The **competitiveness** of tourism SMEs, by offering access to common platforms, data insights, and open innovative environments.
- The **territorial cohesion** of tourism policy, thanks to a shared infrastructure that levels the playing field across regions.

One of the key impacts of the PID is the redefinition of data as a public asset. Through its architecture and semantic layer, the platform enables destinations and businesses to generate, manage and re-use data under controlled, secure and standardized conditions. This facilitates not only internal decision-making, but also the development of new services and business models based on data valorization.

The PID also empowers tourism SMEs by reducing entry barriers to digitalization. By offering services under a SaaS model, companies can access destination intelligence, promotion tools, and interaction channels without the need for individual infrastructure. Moreover, through its Open Innovation Platform (PIA) – which includes a sandbox, a tourism data space and a marketplace – the PID activates a cycle of experimentation, validation, and scaling of digital services, bridging public and private innovation.

The platform enhances the citizen and visitor experience by enabling destinations to design more contextualized, responsive and participatory policies. It allows for the measurement of resident perception, the monitoring of social and environmental thresholds, and the delivery of services through intelligent interfaces and digital channels.

From a public policy perspective, the PID provides an instrumental foundation for evidence-based management. It integrates strategic and operational KPIs, supports the evaluation of tourism policies, and provides transparency and accountability mechanisms aligned with national and European digital agendas.

Finally, the modular, scalable, and interoperable nature of the PID amplifies the return on public investment. It enables service re-usability, accelerates time-to-service, and reduces the cost and risk of local deployments, generating long-term sustainability for the public digital infrastructure.

1.6 Future plans

The Smart Destinations Platform (PID), promoted by the State Secretariat for Tourism (SETUR) and technically coordinated by SEGITTUR, is currently entering a phase of progressive operational consolidation and territorial expansion. In the immediate term, efforts are focused on completing the full deployment of its six core components, strengthening its governance through the establishment of the Infrastructure Management Entity, and stabilising service provision in early adopter destinations.

The PID is not a standalone system, but the digital operational arm of the Smart Tourist Destinations (DTI) framework. Its future development remains firmly anchored to this methodology, which continues to provide strategic alignment, diagnostic structure, and coherence for all participating nodes.

The key objective of this new phase is to promote the integration of city-level data and public services into the platform. This will enable the creation of a comprehensive, unified and real-time territorial intelligence model, offering a shared view of everything happening within the destination,

benefitting public managers, residents, visitors, local businesses, and the broader city ecosystem. This vision reinforces the PID's positioning not only as a tourism system, but as a central enabler for intelligent, people-centred, sustainable urban governance.

The platform will also scale across Spain by onboarding new DTI-certified destinations and by reinforcing interoperability with regional, national, and European digital infrastructures. The PID is a key building block for Spain's contribution to the European Tourism Data Space, and future interconnections are foreseen with national open data hubs, digital identity systems, and cloud-based sectoral platforms.

Another strategic line of development is the internationalization of the PID model, led by SETUR and articulated by SEGITTUR. Spain aims to share its governance logic, co-creation experience, semantic architecture and service portfolio with other countries and institutions.

To ensure replicability and technical maturity, the PID's key assets – such as the SEGITTUR Tourism Ontology, governance frameworks, and service models – are being standardized through the development of UNE technical standards, with a view to eventual convergence with European normative frameworks.

Ultimately, the future of the PID lies in its ability to generate measurable impact, foster systemic innovation, and consolidate Spain's position as an international benchmark in the responsible and intelligent digital transformation of tourism.

2 Incheon, Republic of Korea

Incheon, Republic of Korea, pioneered the nation's first Smart Tourism City project in 2020, investing KRW 7 billion to transform the Jung-gu district (Open Port Area) into a Smart Tourism testbed.[5] Chosen from 21 cities, it set a benchmark and became a model for 13 subsequent Smart Tourism Cities across the country.

The project centres on three key pillars:

1) The Incheon-easy app: The Incheon-easy app integrates four core Smart Tourism elements, smart experiences, convenience, accessibility and platforms, into one interface. It offers innovative AR/VR content, including the "AR Ghost Docent" that revives historical figures, AR Panoramic Views comparing past and present landscapes, and immersive VR dramas. My Pass provides personalized itineraries and location-based navigation ensures seamless travel.
2) The smart infrastructure: the infrastructure includes 63 free Wi-Fi access points (APs) and interactive kiosks, creating an optimal O2O environment.
3) A data platform: a big data platform collects, analyses, and visualizes tourism data in real-time, supporting strategic decisions through openly available APIs that foster innovation among tourism start-ups and local businesses.

Since its launch in 2021, the Incheon-easy app has secured more than 20 000 users, won the "2023 PATA Gold Award", as shown in Figure 2, and featured in global forums, including UN Tourism, ASEAN-Korea, and Korea-Spain Tourism Forum. Now in its fourth year (2021–2025), it continues to evolve as a leading tourism app, integrating mobile stamp tours and reward coupons to support local businesses and enhance regional tourism competitiveness.

Figure 2: Achievements of the Incheon-easy app since its launch



Source: Incheon Tourism Organization, 2025.

[5] An investment of circa 4.5 million EUR.

2.1 Governance model

Governance approach

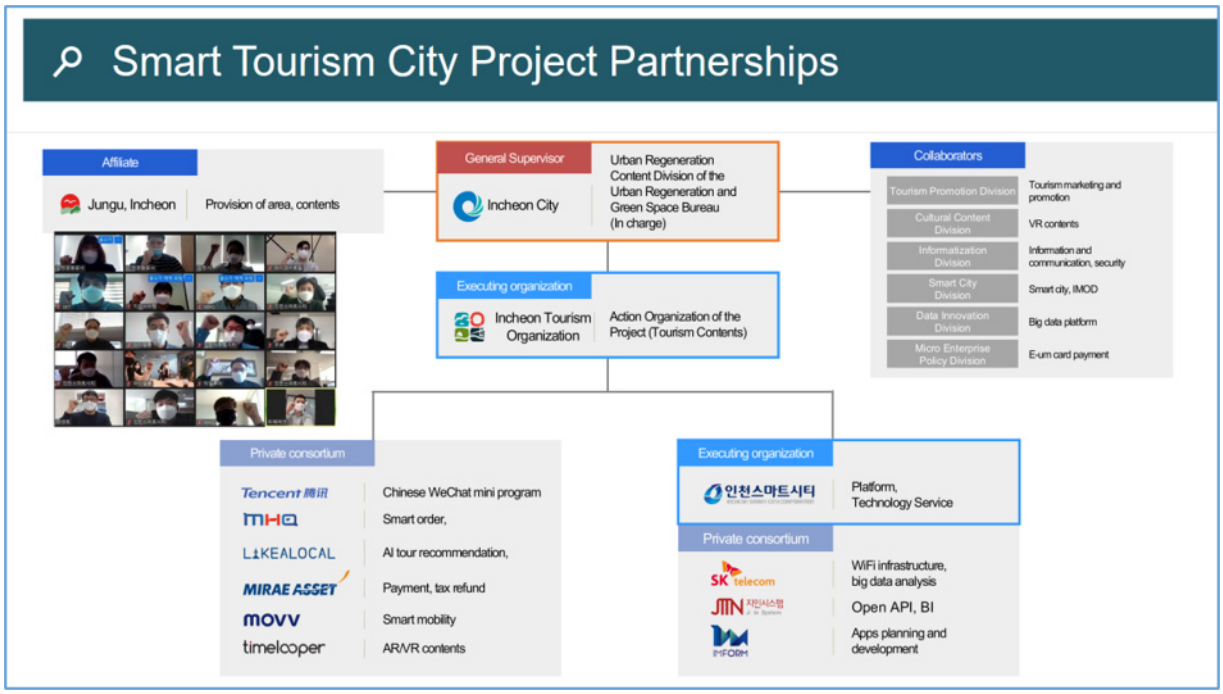
The Incheon Smart Tourism Project is implemented through a consortium of twelve public and private entities, fosters a collaborative governance framework. Key stakeholders include four public institutions, Incheon Metropolitan Government, Incheon Tourism Organization, Jung-gu Office, and Smart City (a government-funded institution) – along with the Korea Tourism Organization (KTO). Additionally, nine private companies from the Republic of Korea and abroad, specializing in frontier technologies such as AI, fintech, AR/VR, and smart mobility, contribute their expertise.

Incheon City (Incheon Tourism Organization) leads project planning and overall coordination, while Smart City oversees platform and technology development, ensuring the effective integration of consortium members' contributions. The core governance principle is to align all technological innovations with the vision of the Incheon Smart Tourism Platform (Incheon-easy Mobile App). The first phase of the project was executed between October 2020 and July 2021, focusing on the seamless integration of tourism experiences before, during and after the journey.

Decision-making process

The decision-making process prioritizes transparency and inclusiveness, with weekly consortium meetings held to discuss project progress. Even during the COVID-19 pandemic, online meetings via Zoom ensured continuous collaboration and oversight. A structured Work Breakdown Structure (WBS) was employed to define functional requirements and manage development timelines efficiently. To ensure accountability and coordination, three rounds of simulation tests, unit tests, and integrated system tests were conducted six months before the platform launch. A pre-launch user testing phase was also implemented to refine the platform based on user feedback.

Figure 3: Smart Tourism City Project Partnerships



Source: Incheon Tourism Organization, 2025.

2.2 Technological innovation

Platform architecture

Built on Korea's Smart Tourism Framework–Smart experience, Convenience, Accessibility, Platform, the Incheon-easy mobile platform enhances visitor experiences and provides convenience for tourists. It follows open data standards, offering an Open API for free POI & user data access.

Key technologies

- Experience (AR/VR): Enhancing cultural and historical engagement through: AR/VR "Time Travel" experiences at heritage sites:
    - Interactive AR Ghost Docent system featuring historical figures.
    - Panoramic AR overlays comparing past and present views.
    - Real-time VR drama experiences immersing visitors in historical events.
- Smart Convenience (Coupon, AI): Optimizing visitor services with:
    - Digital coupon and points system supporting seamless transactions.
    - Real-time tourist information services via AI-powered assistants.

- Smart Accessibility (Mobility, LBS service): Improving mobility & ease of travel:
    - AI-driven personalized tour route recommendations.
    - Specialized local mobility services for optimized transport connections.
- Smart Platform Infrastructure (Wi-Fi, Kiosk, Big Data Platform):
    - Developing a unified data collection and analysis system.
    - Deploying a public Wi-Fi network with 63 access points across key sites.
    - Expanding the Open API ecosystem for cross-sector data sharing.

Integration

The Incheon-easy platform enhances tourism mobility by offering AI-powered walking tours with personalized routes and real-time navigation, connecting visitors to local transportation options like City Tour Buses, Sea Train, and on-demand limousines through the Incheon-easy App. It also integrates with parking system, providing real-time availability and reducing traffic congestion.

2.3 Services and applications

Core services

The Incheon-easy platform offers a wide range of services tailored to different parties.

- For visitors: A seamless smart tourism experience through AI-driven recommendations, AR/VR interactive experiences, real-time tourist information, and integrated digital payment and coupon systems.
- For residents: Participation in tourism-related economic activities through partnerships with local businesses, smart mobility solutions, and cultural engagement opportunities.
- For local authorities: Data-driven tourism insights, including visitor analysis, economic impact assessments, and participation in service provision through the Partners Page.
- For private companies: Open API access for third-party service integration, promoting innovation and expansion of smart tourism-related businesses.

User engagement

To create an interactive and user-friendly experience, the platform employs various engagement tools. The Incheon-easy mobile app serves as the central hub, offering real-time updates on attractions, transportation and events, along with AI-powered virtual assistance and immersive AR/VR experiences. A gamification system encourages participation by rewarding users with digital coupons and points for interacting with local businesses, completing walking tours, and exploring AR-based activities. Additionally, a feedback and co-creation mechanism allows tourists

and residents to contribute insights and suggestions, fostering continuous improvement and a more user-centric approach.

Enhancements to visitor experience

The platform connects with smart mobility reservation services of Incheon City Tour Bus, Gaehang-easy Tour" (Local Electric Mobility) and Wolmi Sea Train, offering seamless access to extended exploration. In addition, the "My Pass itinerary system" enhances the visitor experience by integrating with Incheon's tourism infrastructure. It provides AI-powered personalized recommendations and real-time navigation for optimized walking routes, guiding visitors through a location-based map. Gamification features further engage visitors by rewarding participation in themed tours, with digital coupons redeemable at local businesses. By combining smart technology with existing infrastructure, MyPass delivers a personalized, seamless and engaging tourism experience that supports visitors and the local economy.

Figure 4: My Pass (walk) and Smart Mobility (transport)



Source: Incheon Tourism Organization, 2025.

2.4 Data management

Data collection and processing

The Incheon Smart Tourism Platform collects critical data from diverse sources, including the Incheon-easy app (user data, GPS, User Information, etc.), Wi-Fi data and external telecom data. At the inception of the smart tourism project, a large-scale data platform was developed to handle the collection, refinement and integration of data. This platform was designed to be open for tourism businesses and citizens through an Open API, enabling easy access to valuable tourism insights.

Data governance

A comprehensive data protection system was established during platform development to ensure the security and privacy of user data. Data protection consultations were conducted to identify threats and improve measures. Given the multipartner nature of the platform, privacy management practices were essential for each service's flow. Users are required to agree to privacy terms, so ensuring transparency, while administrators are responsible for access logs, authorization and clear role definitions. Furthermore, data collection terms and entities differ by service, necessitating thorough wording checks. Finally, Incheon Tourism Organization manages ownership and acquisition of necessary data providers (e.g., personal data, location-based data providers) and conducts annual data protection reviews for system updates.

Insights and decision-making

Based on annually collected data, Incheon Tourism Organization publishes the Incheon Smart Tourism City Data Report, analysing the impact of tourism on the region. In 2022, clustering analysis of visitor GPS data collaborated with academia helped identify movement patterns, leading to the optimization of routes and content in the app. Additionally, by integrating external data (telecom, credit card data), valuable insights on economic impact were generated, supporting tourism development decisions for local businesses, communities, and policymakers.

Figure 5: Incheon Smart Tourism City Data Report



Source: Incheon Tourism Organization, 2025.

2.5 Impacts and outcomes

Economic impact

Incheon has made significant contributions to revitalizing the local economy. Through mobile coupon functionality alone, local businesses achieved total coupon sales of KRW 262 million in 2024, marking a 71.2 per cent growth.[6] Also, Incheon smart tourism city attracted 95 000 tourists, generating a total visitor economic impact of 7 KRW billion in economic benefits. Additionally, according to the credit card data, the average monthly spending in the Jung-gu area showed a consistent upward trend, increasing by 19.2 per cent in 2022, 11.5 per cent in 2023, and 8.8 per cent in 2024.

Social benefits

The Incheon Smart Destination Platform (SDP) plays a crucial role in enhancing regional tourism competitiveness. Collaboration with local business districts has increased by 67 per cent compared with the previous year. Last year's implementation of a dedicated web page for partner management improved merchant convenience, achieving a 96 per cent satisfaction rate. App-specific features (such as stamp tours) and rewards have created a virtuous cycle of local spending, increasing the regional spending by 8.8 per cent last year. Notably, accessibility improvements for socially vulnerable groups have led to the opening of 197 barrier-free POI (points of interest) with information on wheelchair access, entrances, and ramps. The mobile app has received Mobile Accessibility (MA) certification last year.

Environmental sustainability

The shift to mobile tourism information has reduced paper usage. Also, co-campaign with Korean Sustainable Development Council, 2 800 people participated in a mobile-based carbon-neutral practice challenge promoting low-carbon/eco-friendly travel.

2.6 Challenges and lessons learned

Project management

As the first initiative of its kind, coordinating among 12 stakeholders was essential for success. Aligning goals and maintaining clear communication were major challenges. To address this, Incheon emphasized the project's overall benefits and worked to identify win-win solutions for each party. For instance, one of consortiums (Mirae Asset) used the project to pilot its NFC payment service, while Timelooper, an AR/VR company from New York, utilized it to establish a subsidiary in Korea and expand into educational content.

[6] Around 165 000 EUR in coupon sales.

Digital resistance by the local community

Many local businesses and residents were hesitant to adopt digital solutions. Bridging this digital divide required ongoing education, engagement, and incentives. To help, we launched the "Incheon Smart Tourism Youth Committee", which provided business support and training to young entrepreneurs. The committee also acted as a bridge to help older business owners transition into digital technologies.

Sustainability

Ensuring long-term value beyond the initial three-year government funding was a major concern. By using data-driven analysis to demonstrate the project's effectiveness and regional impact, we secured continued funding from the local government. This has allowed the platform to evolve and become a collaborative tool for regional partnerships, extending its use beyond tourism.

Advice for other destinations

Engaging key stakeholders from the beginning ensures alignment and smoother execution. Clearly defining shared benefits fosters commitment and collaboration, as seen in our case, where industry partners leveraged the project to pilot new services and expand their market presence. Overcoming digital resistance among local businesses and residents requires ongoing education, support and incentives. Establishing intermediary groups, such as youth committees, can facilitate digital adoption and bridge generational gaps, as demonstrated by the "Incheon Smart Tourism Youth Committee". Ensuring sustainability beyond initial funding demands a long-term strategy. Developing revenue models, assessing impact, and securing regional partnerships help maintain relevance and financial support.

2.7 Future plans

Incheon's Smart Tourism Platform will enhance the Incheon-easy app to create a sustainable tourism ecosystem. Key strategies include developing themed routes based on Points of Interest (POI) and implementing a rewards system that boosts the local economy by allowing tourists to earn and redeem vouchers at partner businesses. To ensure efficiency, the platform will streamline services by integrating external APIs and adopting a generative AI chatbot for personalized visitor assistance. This technology will highlight Incheon's identity as Korea's first modern cultural city through innovative visualization techniques.

Expansion plans include extending services beyond Jung-gu to all of Incheon, positioning Incheon-easy as the city's leading travel app with a focus on public service, barrier-free tourism, and eco-friendly routes. As Korea's first smart tourism city, Incheon will also serve as a model for other cities, setting standards for sustainable smart tourism and fostering a national knowledge-sharing network. Through these initiatives, the platform will continue to enhance visitor experiences while driving regional tourism development.

3 Itamonte, Brazil

Itamonte, located in the south of Minas Gerais, stands out for its nature-based tourism. However, the Municipal Tourism Authority (OTM) faced significant challenges in keeping data on tourism supply and demand up to date. Conducting the Tourism Supply Inventory and visitor surveys was costly and time-consuming.

The problem worsened when performance reports on the tourism supply or visitor profiles were needed. These reports were frequently requested by business owners and the OTM team when planning public sector initiatives to improve local tourism activities. Promoting tourism within and outside the municipality was also a challenge. In addition to the lack of information about tourism offerings and difficulties in communicating with business owners, the OTM had no official channel for distributing tourism-related information.

Given these methodological and technical challenges, Itamonte realized that the OTM needed a Tourism Intelligence System.

The Itamonte Tourism Intelligence System (SITUR) was developed to enhance the planning, management and promotion of the municipality. It currently helps collect tourism supply and demand data, as well as regulatory and institutional data, at necessary intervals. Additionally, it provides a virtual environment (tourism observatory) with smart indicators and reports, along with a modern tourism portal that is integrated with the tourism database and easy to manage.

3.1 Governance model

Governance approach

SITUR operates under a collaborative governance model that involves the public sector, private sector and community stakeholders. The Itamonte City Hall, through the Department of Culture and Tourism, leads the implementation and management of the platform, while tourism entrepreneurs and civil society representatives actively contribute to defining strategies and continuously improving the system.

Decision-making process

SITUR governance is based on transparency and active stakeholder participation. Decision-making occurs through periodic meetings of the Municipal Tourism Council (COMTUR), which evaluates data generated by the platform to guide public policies and promotional actions. Additionally, the platform allows business owners to directly update the system with information about their businesses and products, promoting them quickly and in a decentralized manner on the official tourism portal.

Technological tools for governance

The platform utilizes technological tools to ensure efficient collaborative management. Customized dashboards allow real-time monitoring of tourism indicators, while predictive analytics systems help identify trends and opportunities. This integrated approach strengthens governance and fosters data-driven tourism management, enabling agile and well-informed decision-making.

3.2 Technological innovation

Platform architecture

SITUR was developed with a modular and scalable architecture, ensuring interoperability with other municipal and regional systems. The platform employs open standards to facilitate the integration of new services, such as the distribution of business, products, and event information to external systems. It also features robust security protocols to protect sensitive users and business data.

Key technologies

SITUR technology incorporates big data analysis to monitor and forecast tourism supply behaviour. External data sources, including social media and official databases, enable real-time mapping of tourism dynamics. Additionally, a machine learning-based recommendation system generates business opportunity reports, empowering entrepreneurs and enhancing their competitiveness.

Integration

The platform is integrated with Itamonte's Official Tourism Portal, enabling decentralized updates to keep the portal current and expand the promotion of local businesses and tourism products. Currently, SITUR in Itamonte is not yet integrated with other municipal systems.

3.3 Services and applications

Core services

- **Online registration system**: Incorporating advanced big data technologies, this system collects and processes vast amounts of tourism-related information, facilitating the management of the Municipal Tourism Registry while reducing costs associated with updating inventories and demand studies.
- **Tourism observatory**: An interactive dashboard that enables municipal managers to monitor the Tourism Development Index (IDT) in real time. This panel includes indicators that highlight areas for improvement, providing valuable insights for developing more effective public policies and supporting local businesses.

- **Tourism promotion**: The platform features a modern tourism portal integrating real-time data on local tourism. This portal enhances the municipality's visibility among tourists and tourism operators (B2B), showcasing tourism offerings to visitors and strategic information to professionals and investors. It also provides training content for managers, COMTUR members, and business owners to foster continuous improvement of the municipal IDT.

Stakeholders benefitting

Tourism entrepreneurs, policymakers, and visitors benefit from SITUR's insights and promotional capabilities.

3.4 Data management

Data collection and processing

SITUR combines official data sources to collect and process tourism-related information. These sources include data from the Brazilian Federal Revenue Service, ANTT, ANAC, OTA platforms, and other public and private databases. Advanced big data technologies process this information, cross-referencing different sources to generate valuable insights into tourism supply and demand. This reduces reliance on manual data entry and ensures accurate and up-to-date information about the sector.

Data governance

The system employs rigorous practices to ensure data security and privacy. Ethical data use is enforced through security protocols such as encryption and compliance with data protection regulations. Furthermore, data governance is managed by specialized teams who ensure that only relevant data are collected and are used transparently and lawfully.

Insight and decision-making

SITUR provides insights such as:

- The average daily rate of accommodation in the municipality, compared with similar tourism destinations, to equip local business owners with strategic information.
- Reliable projections on beds and lodging capacity for monitoring tourism infrastructure and ensuring a clear understanding of visitor accommodation capacity.
- Comparative analysis between formal accommodations and short-term rentals, aiding in the planning of more effective public policies.

3.5 Impacts and outcomes

Economic impact

Between 2014 and 2024, SITUR contributed to doubling the city's hospitality infrastructure.[7]

Social benefits

SITUR provides free access to a tool that promotes tourism businesses and products.[8] In Itamonte, for instance, the Souvenir Design Project was implemented to train women in crafting artisanal products using the city's tourism brand. SITUR serves as a bridge connecting these entrepreneurs to major tourism markets worldwide.

3.6 Challenges and lessons learned

Technical and organizational challenges

Among the main challenges were technical issues such as integrating different data sources and ensuring cybersecurity. Organizationally, fostering collaboration between various municipal and private sector entities was also challenging. Financially, the project's sustainability relies on ongoing partnerships and investments.

Recommendations for other destinations

For other destinations looking to implement a similar system, it is essential to invest in stakeholder digital education and ensure transparency in data governance processes.

3.7 Future plans

Integration with security cameras

We are working on integrating SITUR with the city's security cameras to analyse anonymized vehicle flow data. This would generate a feature called "Live Tourism Destination", providing real-time visitor count data. This information would help restaurant owners and other businesses better plan for peak and low-traffic times.

7 Source: Brazilian Federal Revenue Service.
8 https://youtu.be/izVYM6Zu1F0

Expansion to other cities

Itamonte was the pilot municipality for SITUR and today, the system is used in seven other Brazilian cities,[9] including the renowned Campos do Jordão in São Paulo state.[10]

[9] https://www.abet.tur.br/club-situr/
[10] https://destinocamposdojordao.sp.gov.br/

4 Fukui, Japan

A brief overview of the Fukui prefecture and Japan's tourism landscape

The Japanese government has been promoting tourism digital transformation (Tourism DX) as part of its Sustainable Tourism Development Strategy, which is one of the comprehensive and systematic measures outlined in the Basic Plan for the Promotion of a Tourism-Oriented Nation, enacted in 2023. To achieve this goal, the government has funded pilot projects for Tourism DX across various regions since 2021.

Fukui Prefecture[11] is one of the leading registered Destination Management Organizations (DMOs) in Japan that is advancing Tourism DX with financial support from the national government. It is noteworthy that related case study from Fukui Prefecture was featured in the G7/OECD policy paper Artificial Intelligence and Tourism published in December 2024.[12]

Fukui Prefecture is one of Japan's 47 prefectural-level administrative regions. Located near the centre of Japan, it has a population of approximately 738 000 people and covers an area of 4 189 km^2. It is about 300 km north of Tokyo and can be reached in just under three hours by the Shinkansen bullet train.

Fukui is characterized by diverse natural landscapes, including Tojinbo, a coastal cliff formation extending for approximately 2 km, known for its well-developed columnar joints. The prefecture also boasts an abundance of marine and mountain resources, as well as traditional crafts such as Echizen Washi (Japanese paper) and Echizen lacquerware, reflecting its rich history, traditions, and cultural heritage.

As Japan continues to experience population decline, Fukui Prefecture also faces challenges such as economic stagnation and concerns over the declining quality of life for its residents. Against this backdrop, regional revitalization through tourism has become a key policy agenda like other local areas in Japan.

Outline the motivation behind implementing a Smart Destination Platform

The Hokuriku Shinkansen, which had been operating between Tokyo and Kanazawa, was further extended on 16 March 2024, allowing the bullet train to stop within Fukui Prefecture. As a result, the Tokyo–Fukui route (approximately 546 km) is now directly connected without transfers, with the shortest journey taking 2 hours and 51 minutes.

The opening of this extension directly links the Tokyo metropolitan area, which has a population of approximately forty million (one-third of Japan's total population), with Fukui Prefecture. This

11 https://enjoy.pref.fukui.lg.jp/en/

12 OECD (2024-12-18), "Artificial Intelligence and Tourism: G7/OECD Policy Paper", OECD Tourism Papers, 2024/02, OECD Publishing, Paris. p.17, http://dx.doi.org/10.1787/3f9a4d8d-en.

connection is expected to stimulate the movement of people and significantly impact regional tourism development. Fukui Prefecture has regarded the opening of the Shinkansen station as a once-in-a-century opportunity to attract more visitors to the region.

To maximize this opportunity, Fukui Prefecture reorganized its existing tourism association, the Fukui Prefectural Tourism Federation (or FToF), into an officially registered Destination Management Organization (DMO) under the Japanese government in 2021. This restructuring aimed to promote a vital economy in the region. The DMO actively adopted digital technology by appointing dedicated managers from IT companies and marketing professionals from other regional DMOs.

One of its key initiatives was the development and implementation of the Smart Destination Platform "FTAS" (the Fukui Tourism Data Analyzing System), which utilizes open data with private sector-led efforts.[13] Some of cities in Fukui Prefecture have already been a leader in smart city policies. By leveraging these human resources, Fukui was able to advance Tourism DX faster and more effectively than other regions.

4.1 Governance model

Organizational structure of Fukui Prefectural Tourism Federation

FToF is structured as a Public Interest Incorporated Association (Kōeki Shadan Hōjin in Japanese). This is a type of non-profit organization in Japan that is certified by the government as serving the public interest. It is an upgraded version of another General Incorporated Association (Ippan Shadan Hōjin) but operates under stricter regulations while receiving additional benefits. As a government-certified non-profit organization, it enjoys tax benefits in exchange for ensuring that its activities contribute to the greater public good. While it is more regulated than a General Incorporated Association, it provides greater credibility and financial advantages. FToF is also officially registered as a Wide-Area Collaborative DMO under the Japanese DMO policy framework.

Japan's DMO registration system

Japan's DMO registration system is structured into three levels based on the management scope of tourism destinations:

- Wide-Area DMOs (10 registered organizations)
- Wide-Area Collaborative DMOs (115 registered organizations)
- Regional DMOs (187 registered organizations)[14]

[13] Kobayashi, H. (2024). Connectionisation in Tourism: Innovating Destination Management through Open Data by Private Sector – The Fukui Model – #84, CONFERENCE PROCEEDINGS THE INC 2024 Technology Enabled Competitiveness and Experiences in Tourism, Hospitality and Events, p.44.

[14] Data retrieved on 24 September 2024.

FToF is registered as a Wide-Area Collaborative DMO, covering nine cities and eight towns in Fukui Prefecture. Each municipality within the prefecture has its own DMO or tourism office, which serves as the primary driver of local tourism promotion efforts. FtoF's core mission is to address common challenges shared by these local towns/villages.

One of the key challenges for regional DMOs is marketing research activities. Previously, each region in Fukui conducted its own research independently. However, by integrating these efforts under FToF, it has been possible to consolidate costs, leading to an overall reduction of these costs. While some areas have yet to be fully integrated, the process is advancing progressively.

Tourism DX promotion through the Consortium

To facilitate the nationally funded Tourism DX project in Fukui, a private-sector-led working group called the Fukui Prefecture Tourism DX Promotion Marketing Data Consortium (hereafter referred to as the Consortium) was established in 2022.

The Consortium's secretariat is managed by Fukui Hitomono Design Co., Ltd., a company backed by Fukui Bank, one of the local banks in Fukui Prefecture. The company engages in tourism product planning and sales promotion, as well as regional product marketing and sales.

The Consortium is composed of IT and data service providers, newspaper companies, banks and other entities. In 2022, the Consortium comprised nine organizations, while in 2023, it comprised seven organizations.

4.2 Technological innovation

The platform is structured around the survey data from tourists and the data provided by accommodation facilities, which are automatically aggregated and stored as open data on GitHub. These datasets are then visualized using custom-developed applications and Business Intelligence (BI) tools; the Tableau Public (by Salesforce). The visualized data are published on the FTAS website, making it accessible for analysis and decision-making.

Key technologies include Generative AI (ChatGPT), GitHub, and big data.

4.3 Services and applications

Launch of FTAS (Fukui Tourism Data Analyzing System) and its ecosystem

- In March 2022, Fukui Prefecture launched the Fukui Tourism Data Analyzing System (FTAS).[15]
- FTAS leverages open data by integrating various tourism-related data sets, making them publicly accessible. It utilizes Google Data Portal to open access data from Fukui Prefecture's official

[15] https://www.fuku-e.com/FTAS

tourism information portal, "Fukui.com".[16] This allows anyone to view the portal's visitor access data. Additionally, aggregated survey data from tourists are published in a way that ensures individual privacy is protected.

- FTAS also collects and visualizes daily aggregated data obtained from QR codes placed in approximately one hundred locations across the prefecture. The system processes visitor responses, including demographic attributes, satisfaction levels, and comments, which can be analysed via twelve browser-based applications.
- Furthermore, FTAS publishes real-time aggregated data from various sources, including:
  - Accommodation data from four regions within Fukui Prefecture.
  - Reservation data from the Fukui Prefectural Dinosaur Museum located in Katsuyama.
  - Survey data on resident happiness.
  - Five additional datasets related to tourism trends.

FTAS as a tourism data ecosystem

- FTAS aims to function as a self-sustaining data ecosystem, facilitating the circulation of tourism data among stakeholders in Fukui.
  1) FTAS provides fundamental tourism open data to tourism stakeholders.
  2) Local tourism operators and government agencies utilize these data to develop high-value tourism products and experiences that enhance visitor satisfaction.
  3) The DMO supports them by offering assistance and promotional strategies to boost regional tourism.
- Through this ecosystem, FTAS contributes to evidence-based tourism management, fostering data-driven decision-making and regional tourism development.

4.4 Data management

Data collection and processing

The following datasets are collected continuously:

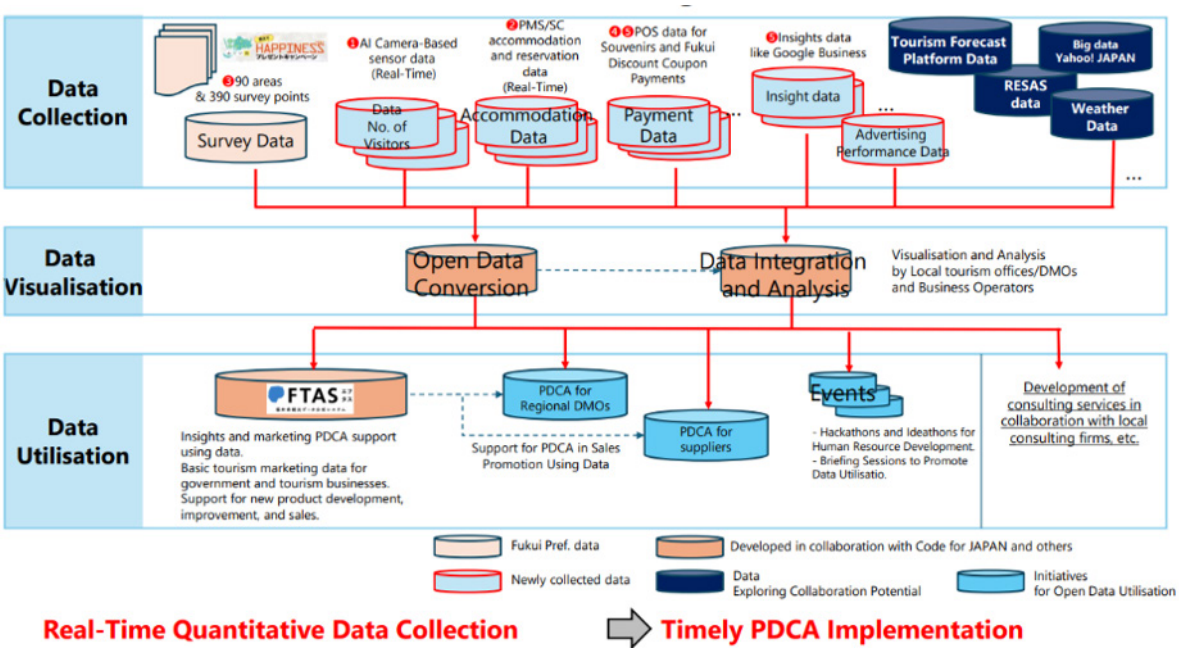
- Fukui Prefectural Dinosaur Museum reservation status.
- Accommodation reservation status across four regions.
- Website access data from "Fukui.com".

[16] https://www.fuku-e.com/

- Tourist survey data from the HAPPINESS Campaign.
- Survey results on resident happiness related to tourism in Fukui Prefecture.

Additionally, point-of-sale (POS) data from retail stores is collected during specific campaign periods. e.g., in 2023. These datasets are stored on GitHub as open data, ensuring public accessibility. A civic tech organization has developed custom applications, and Tableau Public is used to visualize and publish the data on FTAS.

Figure 6: Fukui SDP structure of data collection and usage for profitable tourism



Source: Fukui Prefectural Tourism Federation (FToF), 2025.

Insights and decision-making

The DMO promotes three core principles in its data-driven tourism initiatives:

- Open Data
- Open Source
- Open Logic

Tourism is a sector where it is difficult to grasp the current situation compared to industries such as manufacturing. Therefore, by collecting and sharing various types of data, the DMO aims to visualize tourism trends and enhance data-driven decision-making.

As part of this effort, the DMO and the Consortium conduct workshops in municipalities across Fukui Prefecture, teaching local stakeholders how to interpret and utilize data. For example, in Awara Onsen, the DMO initiated discussions with the Awara Onsen Ryokan Cooperative in March

2023, holding multiple briefing sessions to explain the importance of open data. By July 2023, the cooperative formally decided to participate in the initiative. As of now, ten out of fifteen member facilities are participating, allowing for the comprehensive tracking of booking data across the region.

Dynamic pricing based on real-time data

The public availability of accommodation booking data enables hospitality businesses to apply dynamic pricing strategies, adjusting prices based on demand.

- Accommodation providers can analyse area-wide average prices via FTAS and adjust their rates accordingly. They can also identify trends such as why neighbouring hotels are fully booked while their own property has vacancies.
- Restaurants and accommodation businesses' owners can anticipate high visitor numbers based on booking trends and adjust their inventory and staffing accordingly.
- The DMO can leverage these insights to optimize promotional strategies and introduce targeted marketing initiatives.

Policy and budget planning with FTAS data

Data from FTAS is also used for policymaking and budget allocation. It provides critical data for government discussions, such as:

- Assessing the economic impact of the Hokuriku Shinkansen extension.
- Determining the need for new tourism facilities and infrastructure.

Open data and industry-academia collaboration

The open data initiative has fostered collaborations between industry and academia. For instance, the DMO has partnered with a university to develop AI-powered recommendation engines. The research focuses on determining the optimal data inputs to improve the accuracy and relevance of AI-generated recommendations.

4.5 Impacts and outcomes

Economic impact

The primary objective of FTAS is to support small and medium-sized enterprises (SMEs) in the region. While local governments focus on generating economic spillover effects, individual businesses are primarily concerned with their own operations rather than regional economic impact.

The economic impact on the region is largely influenced by the opening of the Hokuriku Shinkansen extension, making it difficult to isolate the specific contribution of FTAS. However, the DMO sees

potential in collaborating with universities to conduct joint research on the economic effects before and after the Shinkansen launch.

Social benefits

The FTAS initiative places strong emphasis on the benefits for residents, particularly in terms of quality of life and social inclusion. As part of this effort, Fukui Prefecture launched the Resident Happiness Survey on Tourism in January 2024, which is conducted twice a year.

One key question in the survey asks residents: "Does the presence of tourists in Fukui Prefecture provide opportunities for you to feel a sense of attachment and pride in your community?" Among those who answered "Yes, frequently", an additional question was posed: "On a scale of 1 to 10, how happy do you feel living in Fukui Prefecture?" Of these respondents, 74.6 per cent (approximately three-quarters) rated their happiness at eight or higher out of ten.

These data highlight the positive correlation between tourism and residents' sense of well-being, reinforcing the importance of sustainable and community-driven tourism development.

Environmental sustainability

In general, Japanese DMOs have yet to implement policies focusing on resource optimization, pollution reduction, or other environmental impact mitigation efforts. FToF is no exception and acknowledges that addressing tourism-related environmental burdens remains a future challenge.

Moving forward, incorporating sustainable tourism strategies will be essential to balancing tourism growth with environmental responsibility.

4.6 Challenges and lessons learned

AI cameras for mobility data collection

To enhance tourist flow analysis, AI cameras have been installed. However, the sheer volume of collected data has made it challenging to process and release open data. Data compression methods will be a key challenge in the future.

Generative AI for tourism recommendations

Generative AI is currently being used to recommend tourist destinations to visitors. However, cost considerations for AI deployment are expected to become a challenge in the future.

At present, the user base is small and the costs remain manageable. However, as AI functionality improves and adoption increases, the volume of tokens consumed will rise, leading to higher costs. The paradox is that the more convenient AI becomes for travellers, the more expensive it gets.

For the time being, rather than offering AI services directly to travellers, the focus will be on consulting services for local tourism businesses to ensure sustainable implementation. In the long term, if the cost of AI usage decreases significantly or becomes free, as actually predicted, or if tourism spending and AI adoption increase a lot in parallel, it will become feasible for the DMO to expand AI-driven applications for tourism promotion.

Gaining support and comprehensive understanding from local legislatures

Efforts to foster sufficient understanding of the DMO's innovative initiatives within the local council were inadequate. Encouraging political stakeholders to recognize the value of data-driven tourism strategies remains an ongoing challenge.

Organizational strategy for SDP promotion

To accelerate the development of Smart Destination Platforms (SDPs), one potential approach is externalizing the IT department of local governments and outsourcing engineering tasks. This model has already been implemented in Tokyo, serving as a potential reference for regional adoption.

The importance of data-driven destination management for DMOs

Many DMOs struggle to clearly identify who their visitors are, where they come from, what they seek, and how they travel to their destinations, and so on. As a result, they often lack a well-defined target audience and a clear regional tourism concept, making it difficult to respond effectively to the tourism market.

To enhance decision-making, it is crucial to quantify tourism as much as possible, shifting from "intuition-based" strategies to data-driven approaches. By leveraging data analytics, DMOs can increase their success rates in attracting and satisfying visitors.

The key is to transition from relying on gut feeling ("Kan-putter" in Japanese) to using actual computers ("Computer"), ensuring that digital tools and data analytics drive tourism efficiency and performance evaluation.

4.7 Future plans

AI-driven tourism management and ecosystem development: AI cameras for visitor flow and demand forecasting

To analyse tourist movements and vehicle patterns, AI cameras have been installed across the region. Using historical data, AI-driven demand forecasting models predict:

- Visitor numbers at specific tourist sites.
- Revenue projections.

- Tourism demand trends based on accommodation data and weather conditions.

Encouraging repeat visits through CRM

A Customer Relationship Management (CRM) approach is being implemented to encourage repeat visits by engaging with travellers after their initial experience.

AI-powered survey analysis for regional and business consulting

AI is used to analyse survey data collected from visitors, providing consulting insights for local governments and businesses. A beta version of this AI-driven analysis tool is currently in operation.

Creating a tourism data ecosystem

- The initiative aims to build an ecosystem that integrates:
    - Fact-based tourism datasets.
    - Data on visitor preferences and behaviours.
- This ecosystem will enable:
    - Personalised recommendations for tourists.
    - Revenue growth consulting for businesses.
- By leveraging AI and data analytics, the system aims to enhance tourism management, drive economic impact, and optimise business performance.

5 San Gimignano, Italy

San Gimignano, a UNESCO World Heritage site, is celebrated for its iconic medieval towers and rich cultural heritage. As a popular destination on broader itineraries, the town faces significant challenges from day-tripper tourism, which puts considerable strain on its resources. In fact, despite being one of Italy's most well-known historic locations, over 90 per cent of San Gimignano's visitors were day-trippers in 2022, leading to overcrowding and reduced economic benefits for local businesses, particularly in the hospitality and commercial sectors. Additionally, most of these arrivals were concentrated into the summer months, which further amplified these issues.

To tackle this problem, the San Gimignano Tourism Consortium needed actionable insights into visitor behaviour. Their goal was to target overnight stays by using data to create more effective campaigns. By implementing the D/AI Destinations platform,[17,18] the town could leverage real-time data to improve tourism distribution, optimize resources, and boost the local economy throughout the year.

5.1 Governance model

Governance approach

San Gimignano collaborates constantly with the Province of Siena and the Tuscany Region. The public-private partnership is very strong and concerns tourism issues, linked to the governance of the destination, or cultural issues. The collaboration between the Municipality, the Tuscany Region and a private entity, for example, is allowing an investment of more than 20 million euros for the recovery of a cultural asset (former prison of San Domenico), which corresponds to approximately 10 per cent of the built area of the Historic Centre of San Gimignano, a World Heritage Site.

San Gimignano organizes and governs the destination in constant contact with the Valdelsa and Valdicecina tourism district and with the Tuscany Region Tourism Promotion Agency. San Gimignano manages tourist information and incoming through a dedicated office, according to regional laws. Community involvement occurs through multiple channels: from those implemented by the Municipality, to those implemented by the Tourist Information and Reception Office, to those implemented by the network of local associations.

Decision-making process

Decisions regarding the structure, strategies and future of the destination are taken in a collegial and inclusive way between the Administration and the various stakeholders, within the DMO. Decisions are supported by data collected on a dedicated digital platform that monitors the destination itself and its strengths and weaknesses.

[17] https://docs.datappeal.io/d-ai-destinations-help-center
[18] https://datappeal.io/destination-management/

5.2 Technological innovation

Platform architecture

- **Scalability**: The SDP is designed to handle growing volumes of data, delivering consistent performance across small cities or large regions. It adapts to increasing data needs without compromising speed or accuracy.
- **Interoperability**: The platform integrates seamlessly with a wide range of third-party systems, tools, and services. It supports various data formats and APIs, ensuring smooth data exchange and providing a unified view of destination data for all stakeholders.
- **Security**: Security is a priority, with advanced encryption, strict data protection protocols, and compliance with regulations such as GDPR. The platform features access control mechanisms, ensuring that data are shared only with authorized users and remains protected from unauthorized access.

The data in the dashboards come from direct data collection from online public sources, commercial deals with other companies, and open-source data. The data collected online are recovered through a process known as ethical scraping, which is an automatic data collection practice from web pages conducted in compliance with the laws and contractual agreements. It obtains public information for legitimate purposes, such as academic research or market analysis. Data are extracted without causing harm or violating user privacy and is 100 per cent GDPR-compliant.

Key technologies

- **AI, big data, and sentiment analysis**: These tools track visitor flows, occupancy rates, and traveller sentiment by gathering information from various online channels. The focus is on generating timely insights that local authorities and businesses can use to gauge real-time performance indicators and make informed decisions about managing tourism.
- **Predictive analytics**: The D/AI Destinations platform includes innovative features like predictive analytics, which help forecast when and how many people will be booking, where they are coming from, and the level of saturation from OTAs as well as their average rates, for hotels and short-term rentals. This enables the Tourism Consortium to better manage visitor flow and plan for periods of higher demand.

Integration

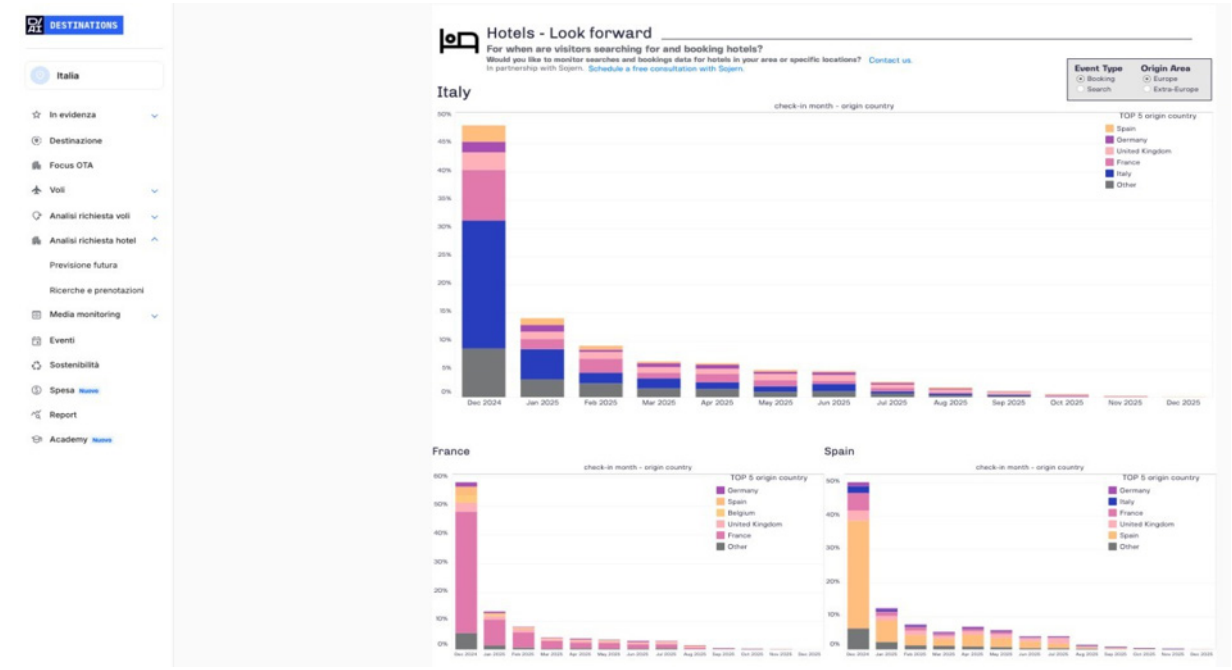
The local public transport system, integrated waste management, and public safety are all aspects also managed from a tourism perspective. For example, the public transport system is also designed with the tourist in mind, using APPs, real-time infomobility, intelligent electronic signs, and on-board payment systems with credit cards. The waste collection system is also supported by Apps, a bilingual website, and multilingual explanatory brochures.

5.3 Services and applications

Core services

Through Data Appeal's analytics platform, the municipality of San Gimignano and associated local stakeholders can access real-time and historical data related to tourism activities. These metrics cover visitor sentiment, occupancy levels, and the timing of peak arrivals, thereby offering valuable input for forecasting and resource planning. By having up-to-date information, local authorities and businesses can adjust operational strategies – such as staffing or opening hours – to respond effectively to changing visitor patterns.

Figure 7: OTA prediction retrieved from Data Appeal's analytics platform



Source: Municipality of San Gimignano, 2025.

Stakeholders benefitting

Tourists, local authorities, and businesses benefit from data insights, improving service efficiency and economic impact.

User engagement

San Gimignano uses APPs and plans to develop virtual assistants through AI.

Enhancements to visitor experience

As a result of the insights provided by the D/AI Destinations platform, San Gimignano can tailor its marketing efforts to target specific visitor profiles such as promoting off-peak travel to attract tourists during quieter months. By understanding booking patterns and visitor preferences, the destination can design campaigns that encourage longer stays, highlight lesser-known attractions, and reduce the pressure on popular areas.[19]

5.4 Data management

Data collection and processing

Data Appeal aggregates information from a large and diverse pool of more than 130 trusted sources, which include official tourism organizations, government bodies, research companies, booking platforms, geodata providers, online travel agencies and many others. Each head is carefully evaluated to ensure the reliability and quality of the information provided. The primary objective is to translate disparate data points into coherent metrics, such as traveller sentiment scores or occupancy trends. This continuous influx of information supports real-time monitoring and longer-term trend analysis.

Data governance

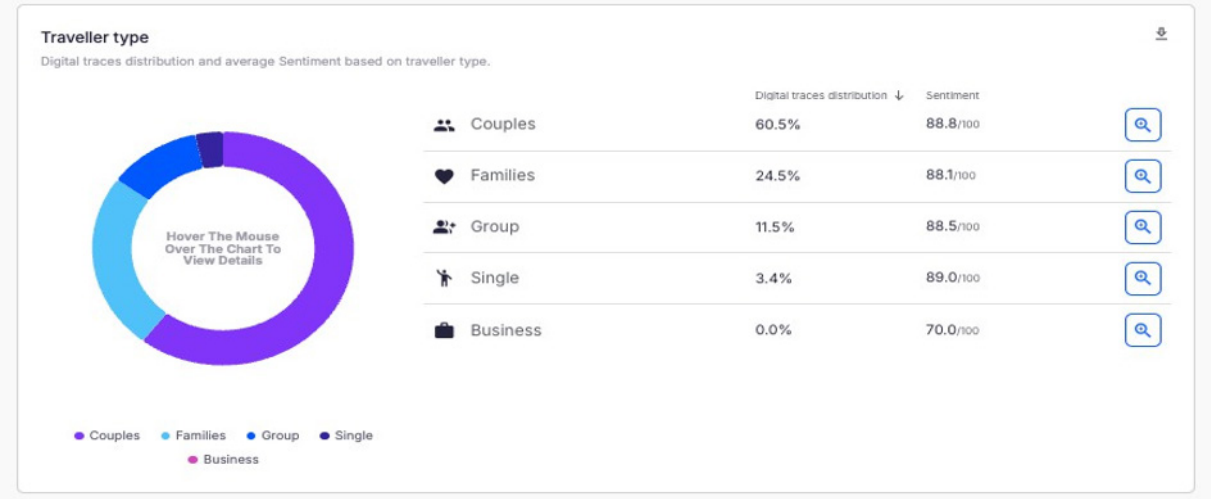
The available data comes from direct collection from online public sources, partnerships with specialized companies and open-source data. As mentioned above, the data collected online are recovered through a process known as ethical scraping, which is an automatic data collection practice from web pages conducted in compliance with the laws and contractual agreements. It obtains public information for legitimate purposes, such as academic research or market analysis. Data are extracted without causing harm or violating user privacy.

Insights and decision-making

One key insight derived from the data analysis is that the majority of tourists in San Gimignano are day-trippers, typically arriving late in the morning and leaving in the late afternoon. Armed with this knowledge, local authorities can better plan interventions aimed at reducing congestion and encouraging overnight stays. Such measures can help address overtourism, ensuring a smoother visitor experience and potentially higher economic returns for the community.

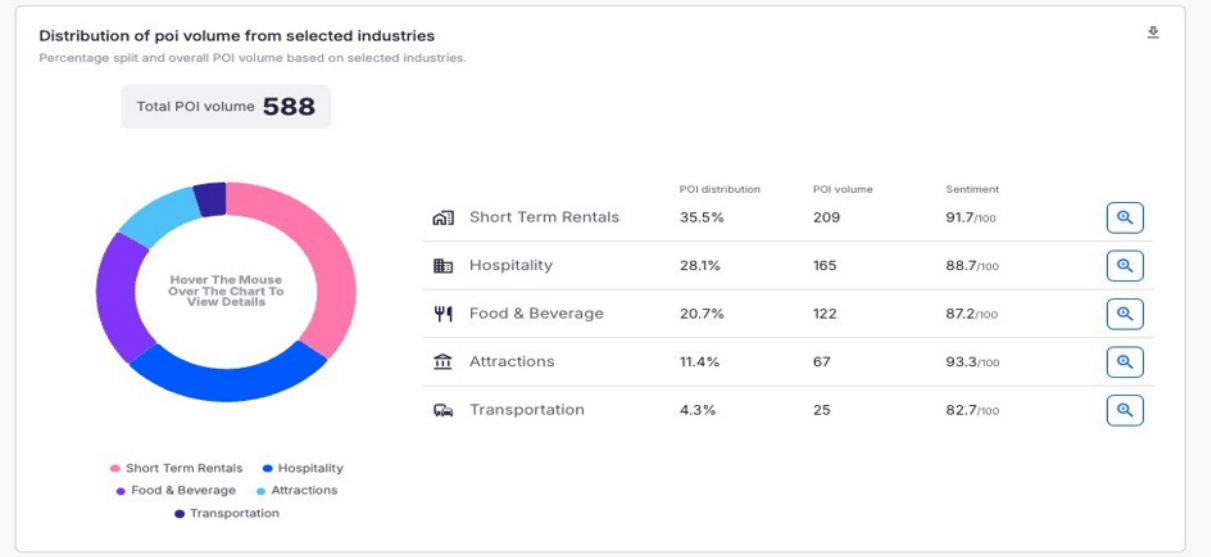
[19] https://datappeal.io/san-gimignano/

Figure 8: Insights retrieved from data analysis



Source: Municipality of San Gimignano, 2025.

Figure 9: Insights retrieved from data analysis [L1.1]



Source: Municipality of San Gimignano, 2025.

5.5 Impacts and outcomes

Economic impact

The Smart Destination Platform (SDP) has played a crucial role in supporting San Gimignano's local economy by fostering more sustainable and profitable tourism. By understanding visitor flow patterns, the municipality recognized that day-trippers contribute less economically than overnight visitors. Leveraging insights from D/AI Destinations, local decision-makers have modified strategies, including targeted marketing campaigns and event scheduling, to incentivize longer stays. As a

result, the town has seen a six per cent increase in hotel bookings, a seven per cent rise in short-term rentals, and a 20 per cent boost in hospitality rates. Additionally, the tourist season has been extended by 90 days, from April to November, allowing businesses to benefit from more consistent revenue throughout the year.

Social benefits

Managing tourism flows more efficiently and helps maintain the everyday quality of life for residents. Reduced crowding during peak hours can preserve the character of the medieval streets, fostering a more relaxed environment that benefits locals and visitors. By mitigating overtourism, San Gimignano aims to protect its cultural heritage and allow community members to remain actively engaged in shaping its future.

Environmental sustainability

San Gimignano is part of the Italian network of Sustainable Municipalities. The city's commitment to the environment ranges from soil protection and proper water management to an advanced waste sorting system (over 60% of RD), up to concrete actions for the reduction of plastic. San Gimignano has, in fact, eight public fountains for the supply of drinking water to citizens. San Gimignano is also developing an Urban Plan for Sustainable Mobility.

5.6 Challenges and lessons learned

The obstacles encountered are often related to limited financial resources and the difficulty of recruiting specialized personnel to develop and manage all planned projects. Although San Gimignano is internationally renowned, its small size means that human and financial capacity remain constrained, which makes our efforts particularly valuable.

For destinations considering the implementation of a Smart Destination Platform (SDP), it is important to understand your unique tourism challenges and objectives. You have to leverage data to gain insights into visitor behaviour and flow patterns, so enabling informed decisions that enhance experiences and optimize local resources. Ensure that the platform integrates with local businesses, government and stakeholders to foster collaboration and transparency. Tailor marketing strategies to encourage balanced visitor distribution, promote off-peak travel and extend the tourist season. While the benefits may take time, the long-term impact on tourism sustainability and local economies can be significant. Finally, stay agile – monitor data continuously, adapt strategies and innovate based on evolving trends. The success of an SDP is about creating a dynamic, collaborative environment that benefits visitors and locals alike.

5.7 Future plans

San Gimignano intends to leverage the insights gained from Data Appeal's analytics to refine its tourism strategies further. In particular, the municipality aims to develop initiatives that could disperse visitor arrivals across wider time frames, encouraging more overnight stays and potentially introducing events or promotions outside of peak hours. By doing so, the local government hopes to improve visitor satisfaction while bolstering economic benefits for its residents and businesses.

Our goal is to consolidate the platform and make it more usable and available to an increasingly wider audience, starting with its correct functioning and use by public decision makers.

6 Saudi Arabia

The Saudi Arabia tourism sector is experiencing rapid growth, driven by ambitious plans to diversify the economy under the Vision 2030 initiative. The country is focusing on attracting international tourists by capitalizing on its rich cultural heritage, natural wonders and modern infrastructure. Key tourism pillars include:

- **Sun and sea**: With the Saudi Red Sea's pristine environment, unspoiled coastline, and vibrant coral reef system, visitors can experience the natural beauty, with sun, sea and sand.
- **Authentic culture and heritage**: Home to eight UNESCO sites, including Hegra in Al Ula and At-Turaif in Diriyah, Saudi Arabia is preserving and promoting its historic landmarks and showcasing its rich culture.
- **World class entertainment and events**: A dynamic and expanding calendar of activities for everyone, from family-friendly fun and international sporting events, like Formula 1 Saudi Arabian Grand Prix and the Spanish and Italian football Super Cups, to music, cultural experiences, and more.
- **Religious tourism**: Saudi Arabia hosts millions of Muslim visitors annually for Hajj and Umrah pilgrimages to Makkah and Madinah. Saudi Arabia is home to the holiest sites in Islam, with millions of Muslims visiting for Hajj and Umrah annually.

With the government's focus on modernizing and expanding the sector, Saudi Arabia is positioning itself as a world-class destination for cultural, adventure and leisure tourism.

The motivation for implementing Saudi Partner aligns with global best practices in tourism technology, aiming to enhance the visitor experience by empowering the private sector and boosting the economic impact in the Saudi economy. The key motivations include:

- **Enhancing personalization and customization for tourists**: Saudi Partner is designed to allow visitors to create custom itineraries, selecting activities from trending spots in Saudi Arabia. By integrating this feature, Saudi Partner caters to the growing demand for personalized experiences, making it easier for tourists to explore the country based on their unique preferences.
- **Streamlining access to marketing materials for trade partners**: Saudi Partner provides tourism businesses with a ready collection of images and videos for marketing purposes. This makes it simpler for local businesses to promote attractions, resorts, and experiences, helping them reach a broader international audience.
- **Fostering collaboration between businesses**: Saudi Partner allows businesses to list their services and connect with other tourism-related entities. This fosters collaboration and synergy within the tourism ecosystem, enabling smoother operations and mutual growth across the sector.
- **Knowledge sharing and capacity building**: Saudi Partner offers a range of knowledge and resources, and learning courses, that empower tourism professionals to upgrade their skills

and stay informed about the latest trends and developments. By offering learning paths and certificates, it ensures that businesses are equipped with the right knowledge to cater to the evolving demands of global travellers.

- **Facilitating event engagement**: Saudi Partner offers a comprehensive hub for trade and tourist events across Saudi Arabia. It enables businesses and visitors to stay informed about upcoming events and register for activities, ensuring that no opportunities are missed for promoting and attending key tourism events.
- **Promoting Saudi Arabia as a leading destination for religious tourism**: Saudi Partner facilitates the promotion of Umrah tourism, providing a platform for trade partners to market tailored packages, resources, and experiences aimed at religious travellers. This helps attract more pilgrims while supporting the infrastructure of religious tourism.
- **Making Saudi bookable**: The Tourism Exchange, part of Saudi Partner, empowers local providers to manage offerings and expand reach locally and globally, while providing local and international distributors seamless access to a broader selection of Saudi products.
- **Improving business decision making**: Saudi Partner enables businesses to access actionable insights, track performance, and make informed decisions on marketing, customer engagement, and product offerings. This contributes to more effective strategies and stronger growth in Saudi Arabia's competitive tourism sector.

6.1 Governance model

Governance approach

The governance framework for Saudi Arabia's tourism sector, particularly as it relates to the Saudi Partner Initiative involves a multistakeholder approach that includes government bodies, private businesses, and local communities working together to create a unified, sustainable, and resilient tourism ecosystem. This model is built upon the concept of Public-Private-Community Partnerships (PPCPs), in which each group plays a distinct yet collaborative role.

Decision-making process

The decision-making process in Saudi Arabia's tourism sector is designed to be transparent, inclusive and collaborative, with the active involvement of local governments, tourism boards, businesses, residents, and other stakeholders. This approach ensures that all voices are heard and decisions are data-driven, equitable, and aligned with the national goals of Vision 2030.

Inclusive decision-making

- **Multistakeholder involvement**: Various stakeholders, including public entities, businesses, and local communities, provide input, ensuring decisions reflect diverse perspectives.

- **Collaborative workshops**: Regular consultations ensure feedback is gathered from tourism providers and residents.
- **Data-driven insights**: Tools like the Saudi Partner platform allow decision-makers to make informed choices based on real-time data.

Transparency in decision-making

- **Clear communication**: Policies and strategies are communicated openly to all stakeholders, with updates on key projects and campaigns.
- **Public engagement**: Platforms like Saudi Partner facilitate public access to information and provide opportunities for feedback and suggestions.
- **Resource allocation**: Transparency in funding allocation for tourism projects ensures accountability.

Collaborative governance tools

- **Saudi Partner Platform**: A central digital space for sharing resources and collaborating on marketing, events and services.
- **Event coordination**: The Calendar tool helps businesses and local communities align their activities with government events.
- **Networking**: The Business Directory fosters collaboration between businesses to create synergies.
- **Tourism products quality auditing and campaign**: The tourism exchange enables collaborative space for the suppliers and Saudi Tourism Authority's marketing and experience design experts to review and enhance the experience to ensure its appeal and reach to global standards.
- **Data sharing**: Integrated platforms allow stakeholders to share data, which helps guide decisions on tourism development and management.

Overall, the governance framework promotes a collaborative, data-driven and inclusive approach to ensure the sustainable growth of Saudi Arabia's tourism industry.

6.2 Services and applications

Core services

The Saudi Partner platform offers a range of core services to visitors, residents, public authorities and private companies:

- **For visitors**: Personalized itineraries through the Digital Concierge, access to Visual Assets for trip planning, and curated collections to highlight key attractions and activities. The Umrah+

collection is tailored to support religious tourism. In addition, they can browse tourism products (experience, accommodation, flights, retail, F&B) to buy and enjoy.

- **For residents**: Opportunities to engage in local tourism promotions and participate in community-driven experiences.
- **For public authorities**: Tools to monitor tourism trends, manage events via the Calendar, and assess tourism impact through real-time analytics.
- **For private companies**: Marketing support via Visual Assets, Business Directory, access to resources through Knowledge & Resources, and tools for partnership development.

User engagement

Engaging tourists and residents is supported by tools like:

- **Responsive websites**: Allow easy access to personalized itineraries, event details, and real-time recommendations.
- **Virtual assistants**: Enhance user experience by offering instant answers to questions and personalized suggestions.
- **Feedback platforms**: The Satisfaction Surveys allow visitors to share experiences, guiding continuous service improvements.

Enhancements to visitor experience

Key features to improve the visitor experience include:

- **Personalized recommendations**: The Tourism Exchange and Digital Concierge suggest tailored activities based on user interests and preferences.
- **Real-time navigation**: Integration of maps and location-based services to guide visitors to nearby attractions and help them navigate efficiently.

6.3 Data management

Data governance

To ensure data security, privacy, and ethical use, Saudi Partner follows strict practices:

- **Data encryption**: All user data are encrypted during transmission and storage to protect privacy.
- **Privacy policies**: Clear privacy policies govern how user data are collected, used, and shared, ensuring compliance with international data protection regulations.
- **Ethical use**: Data are used to enhance the user experience while ensuring it aligns with ethical standards for transparency and consent.

Insights and decision-making

Data insights are vital for planning and managing tourism:

- **Visitor behaviour analysis**: Real-time data helps identify popular locations and times, allowing tourism authorities to manage crowds and optimize resources.
- **Tailored marketing**: Insights from visitor preferences enable personalized marketing campaigns and the promotion of relevant attractions or events.
- **Sustainability planning**: Data on environmental impacts supports sustainable tourism strategies, such as limiting visitor numbers at sensitive locations.

6.4 Impacts and outcomes

Economic impact

The Saudi Partner platform has significantly supported local economies by fostering the growth of SMEs and boosting tourism revenue:

- **Support for SMEs**: Through the Business Directory, local businesses, including SMEs, can gain visibility, network and connect with tourists and other businesses, thereby enhancing their market reach and promoting growth.
- **Tourism revenue**: The platform's Tourism Exchange, Curated Collections and personalized itineraries encourage tourists to explore diverse attractions and services, driving increased revenue for businesses, hotels, tour operators and local service providers.

Social benefits

For residents, the SDP offers numerous social benefits:

- **Improved quality of life**: By promoting local culture and offering residents the chance to showcase their heritage and crafts, the platform boosts community pride and involvement in tourism.
- **Social inclusion**: The platform promotes inclusive tourism by ensuring that residents can actively participate in the tourism economy, providing employment and skill-building opportunities, particularly in underserved communities.

Environmental sustainability

Saudi Tourism Authority is committed to environmental sustainability by:

- **Resource optimization**: The platform helps manage visitor numbers at popular sites using real-time data, ensuring resources like water, electricity and staff are used efficiently.

- **Pollution mitigation**: Sustainable tourism practices such as promoting eco-friendly tours and reducing carbon footprints, are integrated into the platform's recommendations and event planning, helping mitigate the environmental impact of tourism.

6.5 Challenges and lessons learned

Advice for other destinations considering SDP implementation include:

1) **Start small and scale gradually**: Begin with pilot projects that focus on key areas, such as user experience or data collection, before expanding the scope of the digital strategy. This allows for flexibility in adjustments and minimizes risk.
2) **Engage stakeholders early**: Involve all relevant stakeholders early in the process. This can include local governments, tourism boards, businesses, and community leaders. Their buy-in is crucial for ensuring the strategy's success and long-term sustainability.
3) **Invest in workforce development**: Prioritize training and development to ensure that staff members are equipped with the necessary skills to manage and operate new digital tools effectively.
4) **Focus on user-centric solutions**: A successful SDP should prioritize the needs and experiences of tourists, enhancing the ease of access to information, services and experiences. A user-centric design will drive engagement and ensure adoption.
5) **Ensure data security and privacy**: Build trust by prioritizing data protection and ensuring compliance with international standards for cybersecurity and privacy regulations. This will help foster confidence among users and partners.
6) **Secure funding and partnerships**: Collaborate with public and private sectors to secure funding and resources, ensuring the long-term viability of the digital strategy. Consider international partnerships and grants that support digital innovation in tourism.

By understanding these barriers and addressing them proactively, other destinations can ensure a smoother implementation of their SDP, ultimately fostering a more connected, efficient and sustainable tourism ecosystem.

6.6 Future plans

The platform has been revamped recently and all B2B services are now under the umbrella of Saudi Partner, it works as the one-stop shop for all trade partner needs and B2B services, with one user profile/business profile and a unified place to access all content/information.

Furthermore, Saudi Arabia intends to scale the platform, according to the following milestones:

1) **Expand content reach**: Localize content for international markets through translations and culturally tailored materials. Form global partnerships with tourism boards to increase content diversity and platform exposure.
2) **Enhance user engagement**: Integrate AI-driven personalized content recommendations, helping users discover relevant learning courses, curated collections and itineraries. Offer customizable user dashboards for easy tracking of learning progress and upcoming events.
3) **Broaden business engagement**: Grow the Business Directory by onboarding local and international tourism-related businesses. Foster connections through networking opportunities, creating collaboration within the tourism ecosystem.
4) **Boost tourism promotion**: Leverage Umrah+ content and curated collections in targeted marketing campaigns for international audiences, increasing tourism to Saudi Arabia. Highlight trade and tourism events on the platform to drive user engagement.
5) **Strengthen learning programmes**: Expand global learning opportunities by offering international certifications and collaborating with universities. Develop specialized courses to cater to different tourism sectors.
6) **Advanced tech integration**: Introduce AR/VR experiences to showcase Saudi Arabia's destinations and improve the Digital Concierge with AI, offering real-time, personalized itinerary suggestions. In addition, adding global distribution channels to Increase sales.
7) **Increase accessibility**: Develop mobile apps for easy access, integrate voice search for smoother navigation, and ensure all features are user friendly.
8) **Sustainability impact**: Promote sustainable tourism content and collaborate with NGOs and local communities to ensure the platform supports eco-friendly and socially responsible tourism.

These goals will drive the platform's growth, boosting its reach and impact in the global tourism market.





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