

**Government of India
Ministry of Tourism
(IT Division)**

Transport Bhavan,
No.1 Parliament Street,
New Delhi 110 001.

Date : 03.03.2022

NOTICE

Subject: Setting up of National Digital Tourism Mission

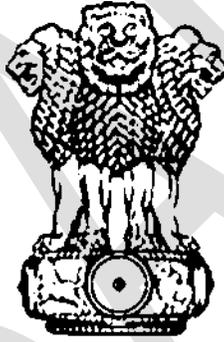
1. Ministry of Tourism had constituted an inter-ministerial task force for National Digital Tourism Mission on 23rd July, 2021 to undertake consultations with the tourism industry and domain experts, define the context, mission, vision, objectives, and overall scope of the National Digital Tourism Mission.
2. The Task Force has prepared a draft report on proposed National Digital Tourism Mission, which inter-alia lays down domain and technology principles, standards, digital stack, governance structure and plan for implementation of the envisaged National Digital Tourism Mission. A copy of the draft report is attached as Annexure-1.
3. In pursuance of the recommendations of the Task Force, a draft notification for the Mission has also been prepared, which is attached as Annexure-2.
4. The draft report and notification are uploaded on the website for comments / suggestions of the stakeholders and general public.
5. It is requested to forward the comments/suggestions, if any to the Ministry to the email address – pankaj.devrani@gov.in within 10 days so that the Draft report and notification could be finalized.

- Sd/ -

(Pankaj Kumar Devrani)

Under Secretary to the Government of India

Report
on
National Digital Tourism Mission



सत्यमेव जयते

February 2022

National E-Governance Division (NeGD)

Ministry of Tourism

DRAFT

Contents

Chapter 1 – Introduction	6
1.1. Digital India Program	6
1.2. National Digital Health Mission	6
1.3. Genesis of National Digital Tourism Mission.....	6
1.4. Digitalization and Tourism Sector.....	6
1.5. Inter-Ministerial Task Force for National Digital Tourism Mission.....	7
1.6. Constitution of Working Group	7
1.7. NDTM Report.....	7
Chapter 2 – Tourism Ecosystem and Stakeholders	8
2.1. Tourism – A complex ecosystem	8
2.2. Role of Ministry of Tourism	8
2.3. Strategic Objectives.....	8
2.4. Key Guiding Principles	8
2.5. Key Performance Indicators	9
2.6. Key Stakeholders	10
2.7. Areas of Co-operation and Collaboration with Central Ministries.....	10
2.8. Areas of Co-operation and Collaboration with State Governments	12
2.9. Industry Associations.....	14
2.10. Tourism Services Ecosystem.....	14
2.11. Lifecycle of a Tourist.....	15
2.12. Tourism Development – A dynamic process	16
Chapter 3 – Performance of Tourism Sector and SWOT Analysis	18
3.1. Introduction to India’s Tourism Sector.....	18
3.2. Performance of India’s Tourism Sector	19
3.3. SWOT Analysis	21
3.4. Targets set by SGOS by 2024	23
3.5. Challenges faced by Indian Tourism Industry.....	23
3.6. Current Status of Digitization in Tourism Sector	24
3.7. Efforts of the Ministry of Tourism	24
3.8. State Portals and Mobile Apps	25

3.9. ASI.....	25
Chapter 4 – Stakeholder Consultations	26
4.1. Stakeholder Consultations.....	26
4.2. Tour Operators	26
4.3. India Convention Promotion Bureau (ICPB).....	27
4.4. Federation of Indian Chambers of Commerce & Industry (FICCI).....	28
4.5. State & UT Governments & Central Ministries	29
4.6. Hotel Associations	30
4.7. Confederation of Hospitality, Technology and Tourism Industry (CHATT)	31
Chapter 5 – Standards and Regulations	33
5.1. Standards and Regulations governing travel, tourism and hospitality	33
5.2. IT Related Standards.....	33
5.3. Domain Standards	33
5.4. Regulations applicable for the tourism industry	33
Chapter 6 – Vision and Principles of National Digital Tourism Mission	35
6.1. Vision of NDTM.....	35
6.2. Principles of National Digital Tourism Mission.....	36
6.3. Domain Principles.....	36
6.4. Design and Architecture Principles.....	36
6.5. Technology Principles.....	38
Chapter 7 – Digital Stack of National Digital Tourism Mission	40
7.1. Digital Stack of NDTM.....	40
7.2. Layer 1: Cross Domain Generic Building Blocks	40
7.3. Layer 2: Tourism Domain Data	41
7.4. Layer3: Unified Tourism Interface.....	42
7.5. Layer 4: User Systems.....	43
7.6. Federated view of NDTM building blocks.....	45
7.7. Quick Wins.....	46
Chapter 8 – Governance and Institutional Structure	50
8.1. Need for Governance and Institutional Structure.....	50
8.2. Essential Elements.....	50
8.3. Envisaged roles and responsibilities of the institution:.....	51

8.4. Institutional structure.....	52
Chapter 9 – High Level Implementation Plan.....	55
9.1. High Level Implementation Plan	55
9.2. Envisaged Benefits and Case Studies	57
9.3. Glossary	60
9.4. References.....	63
Annexure 1 – OM for setting up of Task Force for National Digital Tourism Mission	65
Annexure 2 – Regulations applicable for tourism and hospitality sector	69

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Chapter 1 – Introduction

1.1. Digital India Program

Under the Digital India Program, the Government envisions to provide digital infrastructure as a utility to every citizen, governance & services on demand and, enable digital empowerment of citizens. In order to facilitate the same, a standardized data exchange mechanism needs to be enabled backed by appropriate data sharing policies. This seamless exchange of trusted digital data across a network of public and private stakeholders providing digital services to the users, can help in achieving their combinatorial values.

1.2. National Digital Health Mission

Accordingly, the Unified Health Interface (UHI) is being developed under the National Digital Health Mission (NDHM) to enable an open and interoperable health data interchange network. This interface will enable both private and public solutions and apps to plug in and be a part of the health digital eco-system¹ and allow users to search, book and avail quality health services.

1.3. Genesis of National Digital Tourism Mission

Hon'ble Prime Minister, while reviewing the progress of National Digital Health Mission suggested a similar initiative be taken up for Tourism Sector. The efforts are accordingly being made by Ministry of Tourism and MeitY to collaboratively explore the possibilities of developing a Unified Tourism Interface, for seamless exchange of information amongst the stakeholders of the tourism ecosystem. Such a Unified Tourism Interface would enable an open and interoperable network for search, discovery, information exchange and digital transactions which can herald the next generation tourism services. This interface is envisaged to enable both private and public solutions and applications to become a part of the tourism eco-system.

1.4. Digitalization and Tourism Sector

Digitalization in tourism sector presents opportunities for tourism enterprises to expand their market reach, increased growth, improved operational efficiencies, and sharpen

¹ A digital ecosystem is a distributed, open socio-technical system with properties of self-organisation, evolution, scalability and sustainability inspired from natural ecosystems connected by a shared Vision and a set of shared digital platforms. An ecosystem may comprise organizations, developers, service providers, people, data, processes and things.

their competitive edge. At a collective level, it will help to develop and customize product offerings, improve destination connectivity, generate data to track performance, and help to improve destination management. Over the long term, digital transformation can unlock innovation and ensure the competitiveness of India's tourism sector.

1.5. **Inter-Ministerial Task Force for National Digital Tourism Mission**

Accordingly, an inter-ministerial task force for National Digital Tourism Mission (NDTM) was constituted on 23rd July, 2021 to undertake consultations with the tourism industry² and domain experts, define the context, mission, vision, objectives, and overall scope of the initiative, identify actors, domain and technology principles, study standards and regulations governing travel, study the current status of digitization, identify architecture building blocks³, and identify strategy, governance structure and plan for implementation of the envisaged National Digital Tourism Mission. (Refer OM placed as Annexure I).

1.6. **Constitution of Working Group**

Further, a working group was constituted, under the chairmanship of Joint Secretary, Tourism consisting of representatives from Ministry of Tourism and NeGD, MeitY to prepare the NDTM project report, to pave the way for digitalization of tourism sector across the country. Stakeholder consultations and secondary research was taken up by the working group to analyze schemes and services of MoT, existing digital systems in the Tourism space and areas of improvement.

1.7. **NDTM Report**

This report attempts to elaborate the concept of National Digital Tourism Mission, which would attempt to set principles, standards, specifications and policies enabling information exchange amongst actors of the tourism ecosystem (i.e. tourist, accommodation providers, transport providers, food & beverage providers, entertainment providers and connected industries) while protecting privacy. NDTM endeavors to establish a level playing field to promote healthy competition and cooperation amongst the stakeholders of the tourism ecosystem for delivery of new-generation digital services.

² Tourism Industry refers to all activity related to the short-term movement of people to locations away from where they usually reside for leisure, business etc.

³ Building Block is a package of self-contained, functionality defined to meet business needs through a set of services made available via APIs and optionally via reference solutions. Building blocks have to interoperate with other building blocks within the same system or across systems.

Chapter 2 – Tourism Ecosystem and Stakeholders

2.1. Tourism – A complex ecosystem

Tourism is a complex ecosystem covering a wide range of activities spread across several Ministries and involving the State Governments, Local Governments and Private Sector. While tourism industry is led by private sector, the Government has a crucial role in enabling tourism by developing cultural and natural resources, physical and social infrastructure. Keeping in view that tourism is impacted by multiple sectoral policies, tourism requires a whole of Government approach. Effective governance will be key to prioritize and mainstream Tourism sector at National and State level.

2.2. Role of Ministry of Tourism

Ministry of Tourism is responsible for coordination, facilitation and implementation of various policies for development of tourism sector in the country. The Ministry of Tourism has to work in partnership with Central, State and Local Governments and Industry Stakeholders to improve framework conditions for tourism in the Country, support tourism industries, strengthen tourism support functions and develop various tourism sub sectors.

2.3. Strategic Objectives

The key strategic objectives of developing tourism in the country are:

- (i). To enhance the contribution of tourism in Indian economy by increasing the visitation, stay and spend
- (ii). To create jobs and entrepreneurial opportunities in tourism sector and ensure supply of skilled work force
- (iii). To enhance the competitiveness of tourism sector and attract private sector investment
- (iv). To preserve and enhance the cultural and natural resources of the country
- (v). To ensure sustainable, responsible and inclusive development of tourism in the country

2.4. Key Guiding Principles

The key guiding principles for development of Tourism sector are

- (i). To promote sustainable, responsible and inclusive tourism
- (ii). To promote digitalization, innovation and technology in tourism sector

- (iii). To follow a whole of Government approach
- (iv). Private Sector led growth
- (v). To promote Ek Bharat Shreshtha Bharat
- (vi). To follow a destination centric approach
- (vii). To follow a tourist centric approach

2.5. Key Performance Indicators

Following key performance indicators are used to measure the progress in tourism sector at national, state and destination level.

Demand	<ul style="list-style-type: none"> International Tourist arrivals Average expenditure Average stay Market diversification Segment diversification Geographical spread of tourists Loyalty/ share of return visitors Occupancy rate Visitor satisfaction Domestic tourist visits
Supply	<ul style="list-style-type: none"> Accommodation/ bed capacity Product diversification Development of Tourism infrastructure Community based development/ local involvement Transport and communications Number of tour operators Quality standards/ regulations and voluntary certifications Quality tourism professionals
Investment and finance	<ul style="list-style-type: none"> Investment Public investment Private investment Foreign direct investment Finance mechanisms SMEs and entrepreneurship
Employment	<ul style="list-style-type: none"> Direct/ total employment

	Human resources and skilled professionals
Sustainable tourism	Alignment with the 2030 Agenda and the SDGs Biodiversity conservation and sustainable land-use Energy and water use efficiency GHG emissions and waste reduction
Inclusive growth and local communities	Engagement of local residents and communities Integration of local businesses in the tourism value chain
Increase competitiveness	Digitalization and new technologies Smart destinations: an approach towards competitiveness, sustainability and governance

2.6. Key Stakeholders

Tourism development and promotion requires engagement with a very diverse set of stakeholders. The Stakeholder engagement is essential for development of tourism in the country. The key stakeholders are:

- (i). Central Government Ministries
- (ii). State Governments
- (iii). Destination Management Organizations
- (iv). Key Tourism Industry leaders
- (v). Industry Associations in Travel and Tourism
- (vi). Private Sector Players in Travel and Tourism
- (vii). Reputed Government or other Institutions in any area of Tourism Development
- (viii). Academic Institutions
- (ix). Development Agencies
- (x). Civil Society

2.7. Areas of Co-operation and Collaboration with Central Ministries

Ministry of Tourism coordinates with various central government ministries for promotion & development of tourism in the Country. The broad indicative areas of collaboration are given in the table below:

Sno.	Name of Ministry	Areas of Co-operation and Collaboration
1	Ministry of External Affairs	VISA,

		Inbound promotion, Air connectivity with the source markets
2	Ministry of Home Affairs	Border Entry/ Exit, Immigration, e-Tourist VISA, Foreigner registration, Tourist Safety, Island development authority, Border tourism
3	Ministry of Civil Aviation	Air connectivity with the source markets Domestic air connectivity Welcome at the arrival
4	Ministry of Road Transport and Highways	Road Connectivity Wayside Amenities Tourist Transport Ropeway
5	Ministry of Railways	Improving the service standards Luxury Tourism Products Other Tourism Products Partnership with IRCTC
6	Ministry of Ports, Shipping and Waterways	Ocean Cruise Tourism, Port Development, SOPs and marketing River Cruise Tourism, Development and marketing
7	Department of Revenue	Custom clearances Taxation issues
8	Ministry of Environment and Forest	Eco-tourism projects, Sustainable development
9	Ministry of Rural Development	Rural Tourism Homestays Skill Development
10	Ministry of Culture	ASI monuments Fairs and festivals
11	Ministry of Petroleum and natural gases	Setting up of public conveniences at fuel stations
12	Ministry of Skill Development and Entrepreneurship	Skill development Entrepreneurship
13	Department of Economic Affairs	Infrastructure Status

14	Department of Expenditure	Approval of Schemes Provision of budget
14	Ministry of IT	Digital Tourism Mission
15	Department of Commerce	Export promotion Medical Value Travel
16	Department of Promotion of Industries and Internal Trade	Ease of Doing Business Incentives for hospitality industry
17	Department of School Education	Sensitizing school children about tourism, Excursions
18	Department of Higher Education	Ek Bharat Shreshtha Bharat Synergy between Higher Education Institutes and Tourism
19	Ministry of Development of North East Region	Development of Tourism in North East Region
20	Ministry of Health and Family Welfare	Food Safety and Hygiene COVID-19 SOPs Medical Value Travel

2.8. Areas of Co-operation and Collaboration with State Governments

2.8.1. National Standards for Quality of Service

Ministry of Tourism works with stakeholders to define national standards for quality of service for various segments such as hotels and restaurants, tour operators, other service providers. The Ministry is also working on sustainable tourism criteria of India. The Ministry engages with the State Governments to advocate, facilitate and collaborate in the implementation of national standards for quality of service.

2.8.2. Safety, Cleanliness, Hygiene and Public Conveniences

State Governments and Local Governments have a key role in ensuring Safety of tourists at the destinations and during the travel. Similarly, cleanliness, hygiene and public conveniences are required to be provided by the State Government and Local Governments. The Ministry of tourism works with the States and Destinations towards assessment and ranking of the destinations on these parameters and encourage healthy competition amongst the States/ destinations.

2.8.3. State Perspective Plan and Destination Master Plans

The Ministry of Tourism works with the States in preparing a perspective plan for the States, master planning of destinations and their development. The Ministry lays down framework for preparing perspective plans and master plans.

2.8.4. Cooperative Marketing and Promotion

Ministry of Tourism will engage and jointly work with the States for marketing and promotion of tourism particularly in overseas markets. The participation at major national and international travel marts will be coordinated for greater synergy.

2.8.5. Engagement of State Tourism Department with other State Departments

Tourism development requires support of a number of departments and authorities of the State Government. State Department of Tourism have to engage and coordinate with other Departments and agencies to ensure their support:

Sno.	Name of Department	Areas of Co-operation and Collaboration
1	Administrative Department in-charge of municipal administration	Cleanliness Public conveniences Other civic services Building controls
2	Administrative Department in-charge of urban development	Planned development and expansion of urban areas, housing and urban transport
3	Administrative Department in-charge of Civil Aviation	Direct connectivity to important source markets Direct connectivity from other States Development of Heliports for remote areas
4	Administrative Department in-charge of Public Works	Major roads connecting the destination Last mile connectivity to the destination and various attractions
5	Administrative Department in-charge of police	Safety of tourists Disasters and Emergency Operations
6	Administrative Department in-charge of Skill Development	Skill development in tourism and hospitality sector
7	Administrative Department in-charge of industrial promotion	Incentives and single window clearance
8	Administrative Department in-charge of Excise and Taxation	Excise permits Taxation

9	Administrative Department in-charge of culture and archaeology	Monuments Fairs and Festivals
10	Administrative Department in-charge of Forests and Environment	Eco-tourism Environment clearances

2.9. Industry Associations

Ministry of Tourism is in constant dialogue with Industry associations namely:

- (i). Federation of Indian Chambers of Commerce and Industry (FICCI),
- (ii). PHD Chamber of Commerce & Industry (PHDCCI),
- (iii). Associated Chambers of Commerce & Industry of India (ASSOCHAM),
- (iv). Confederation of Indian Industry (CII),
- (v). Travel Agents Association of India (TAAI),
- (vi). Indian Association of Tour Operators (IATO),
- (vii). India Convention Promotion Bureau (ICPB),
- (viii). Indian Tourist Transport Association (ITTA),
- (ix). Association of Domestic Tour Operators of India (ADTOI),
- (x). Adventure Tour Operators of India (ATOI),
- (xi). Federation of Hotel & Restaurant Association of India (FHRAI),
- (xii). Hotel Association of India (HAI),
- (xiii). Indian Heritage Hotel Association (IHHA),
- (xiv). Federation of Associations of Indian Tourism and Hospitality (FAITH)

2.10. Tourism Services Ecosystem

The tourism services ecosystem comprises of various actors i.e.

(i). Accommodation Services

Hotels/ guesthouse/ lodge/ motels/ legacy vintage/ heritage hotels, shared accommodation, hostels, camping, bed & breakfast, cruises, home stay, house boats, farmhouse accommodation and agri-tourism, time share accommodations and resorts.

(ii). Transport Services

Airlines, car rental, bus transport, water transport, coach services, railways, space-craft etc.

(iii). Food & Beverage Services

Restaurants, catering, bars & café's, nightclubs, local eateries etc.

(iv). Entertainment Services

Shopping, casino, fun parks, adventure, circus, multi-purpose cultural complexes, theatre, spas, folk dances, events, festivals and online / offline information regarding tourist attractions.

(v). Tourism Service Providers

Travel agents, tour operators, online travel aggregators (OTAs), tourist drivers, waiters, chefs, tourist guides, destination wedding managers, Professional Congress Organizer (PCO)⁴, Association Management Company (AMC)⁵, Destination Management Company (DMC)⁶ and Event Management Company (EMC)⁷, managers of historical monuments, temples, excavation sites, sanctuaries, convention halls, auditoriums, Zoos, museums etc.

(vi). Connected Industries-

Financial services (currency exchange, insurance), religion, sports, film, health and wellness, education (conference, exhibition) and business (MICE).

2.11. Lifecycle of a Tourist

A tourist may be inbound or ourbound, foreign or domestic, however three distinct time phases in the life cycle of a holiday may be identified as:

⁴ PCO provides full service to meeting planners. Sometimes a PCO may engage a DMC for services in a destination like excursions, dinners etc. or an EMC for themed events. Very often, a PCO organizes all those happenings itself providing it has got the in-depth knowledge of the destination.

⁵ AMC provides management and specialized administrative services to trade associations and professional societies running them like businesses. If it has the knowledge and resources, AMC may also act a PCO or may engage a PCO to organize a meeting.

⁶ DMC provides ground services based on understanding and familiarity of the destination possessing extensive local knowledge, expertise and resources, specializing in the design and implementation of events, activities, tours, transportation and program logistics.

⁷ EMC provides services in a variety of areas including corporate events, marketing programs and special hospitality events like concerts, award ceremonies, film premieres, launch/release parties, fashion shows, commercial events, private (personal) events such as weddings etc.

(i). Pre-holiday Period

During this time the tourist searches for information on various tourist destinations, identifies suitable destinations where it would want to visit, prepares budget, prepares itineraries, creates expectations, packs bags, makes suitable arrangements at home (e.g. leave pet at another place), arranges for Visa (if required), buys tickets and related loans / insurance policies.

(ii). Holiday Period-

During this period, the tourist undertakes various activities like liaising with service providers, ticketing, transportation, laundry, accommodation, catering, shopping, entertainment and creates memorabilia.

(iii). Post-Holiday Period

In this period, the tourist may give feedback to various service providers, clear dues if any, unpacks bags, laundry, grocery shopping and readies the home for daily activities.

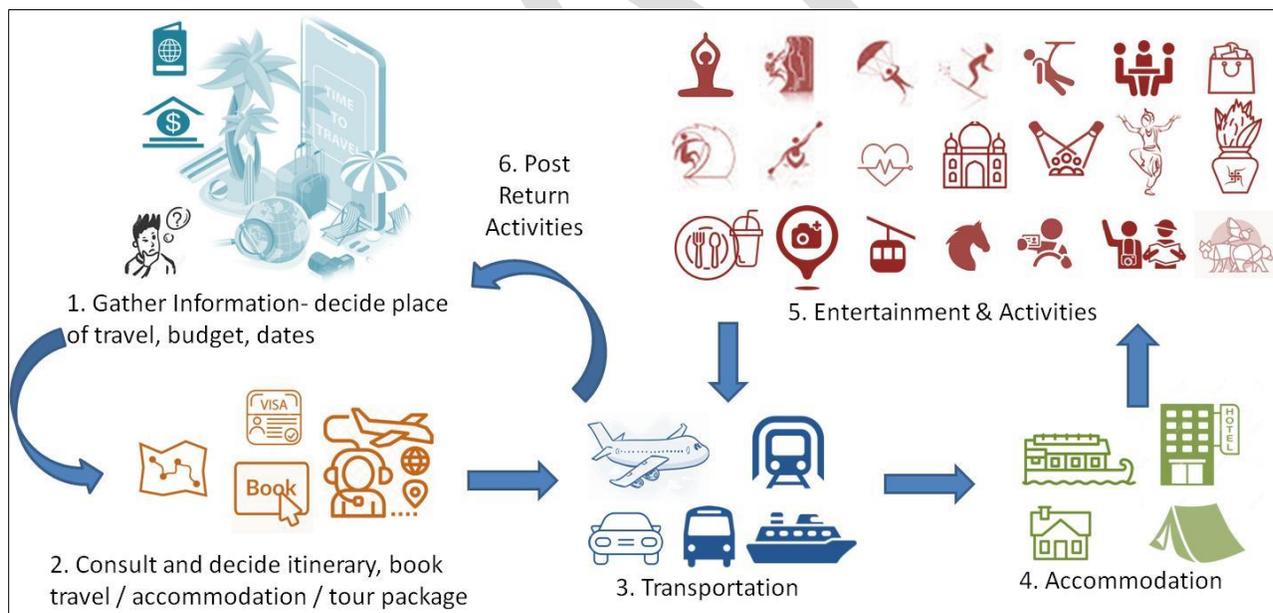


Figure 1: Lifecycle of a Tourist

2.12. Tourism Development – A dynamic process

Tourism development, is not a static process. It experiences change. Changes happen for many reasons- growth in tourism numbers, changes in taste, marketing and the media, external influences such as natural disasters or terrorism.

Butler described the lifecycle stages of a tourist destination as

(i). Exploration

During this stage, tourism is limited, socio-economic benefits are small, tourist attractions are likely to be focused on nature or culture.

(ii). Involvement

During this stage, accommodation units come up, Govt. invests in infrastructure.

(iii). Development

During this stage, building of transport, new tourist attractions, hotels is carried out. There is increase in marketing and promotion of the destination.

(iv). Consolidation

During this stage, tourism growth slows intentionally or unintentionally.

(v). Stagnation

Carrying capacity is reached, the destination may no longer be desirable or fashionable.

(vi). Followed by rejuvenation or decline

Re-investment to re-launch the destination will result in rejuvenation of the destinations or there will be decline of the destination with visitors preferring other new places.

Thus, he said that new must-see facilities need to be built around tourist destinations to rejuvenate tourist destinations when carrying capacity is reached.

Chapter 3 – Performance of Tourism Sector and SWOT Analysis

3.1. Introduction to India's Tourism Sector

3.1.1. India's Cultural and Natural Heritage

India has 40 UNESCO World Heritage sites, more than 70% of the Himalayas, 10 biogeographic zones, 10 blue flag beaches, 8 national parks, 441 sanctuaries, islands and plenty of other natural assets. Besides that, India's achievement in tiger population conservation has led to a rise in the tiger population to 2,967 in 2018 making India home to 75% of the world's tiger population. India has an inherent competitive advantage as it offers a diverse portfolio of niche tourism products - business, MICE, cruises, adventure, medical, wellness, sports, eco-tourism, film, rural and religious tourism. This competitive advantage can help India become a tourism hub in the world.

3.1.2. India ranked 34th in WEF's TCI ranking 2019

India ranked 8th on cultural resources and business travel, 13th on price competitiveness and 14th on natural resources in World Economic Forum's Travel & Tourism Competitiveness Report 2019. However, India's overall rank was 34th out of 140 countries. This reveals that there is further potential to develop India's tourism sector.

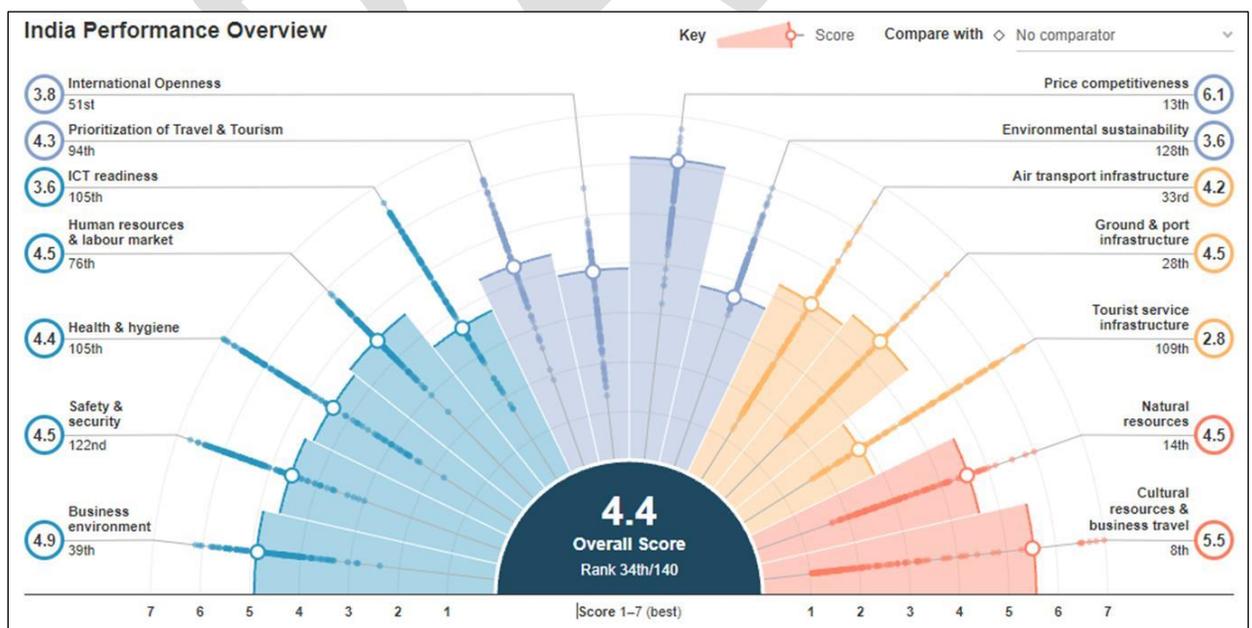


Figure 2: Travel and Tourism Competitiveness Index 2019

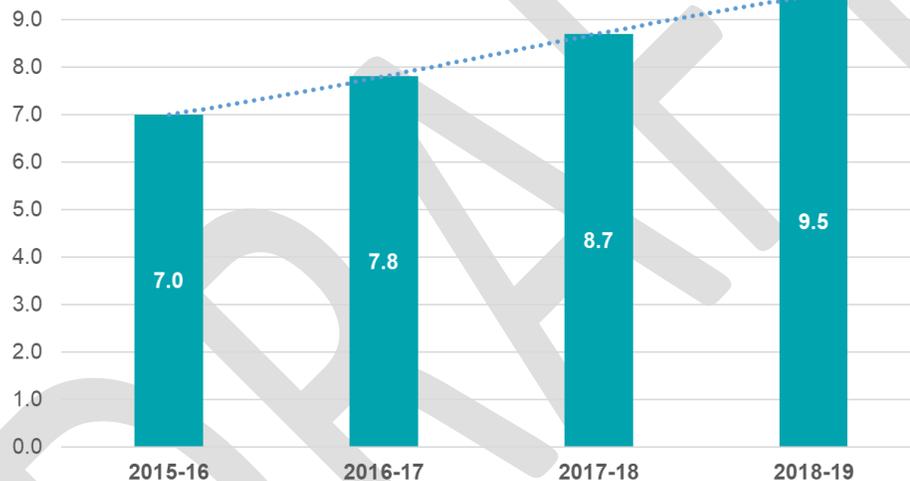
3.1.3. India ranked 3rd in WTTC's power ranking 2018

India came third place only next to US and China, in the Power Ranking of the 2018 report of World Travel & Tourism Council (WTTC). It evaluates the performance of 185 countries over a seven-year period (2011-17). Countries were ranked using WTTC's annual economic impact data across four main indicators – total contribution to GDP, visitor exports (international tourism spend), domestic spending and capital investment.

3.2. Performance of India's Tourism Sector

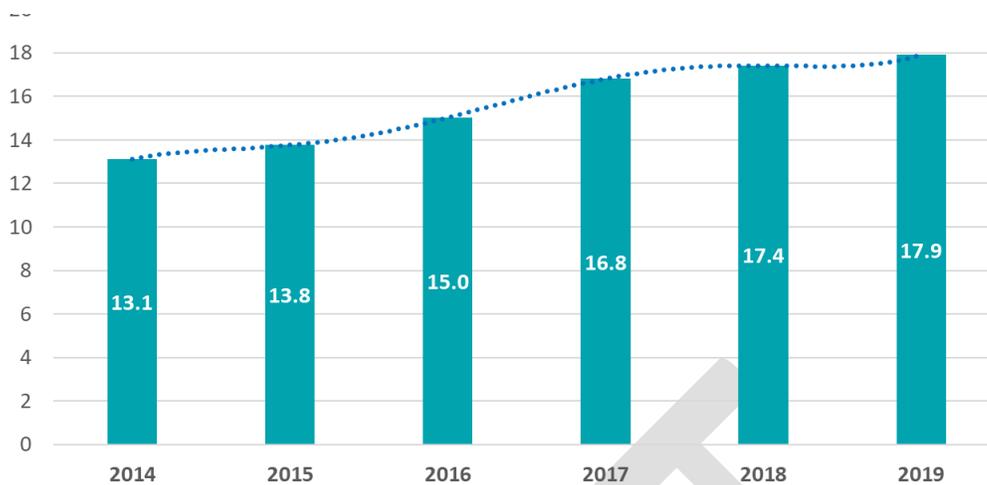
3.2.1. Contribution to GDP

Direct and indirect contribution of Tourism in GDP is approximately 5% in 2018-19. The GDP has grown at CAGR of 10.7% over 2015 to 2018 period.



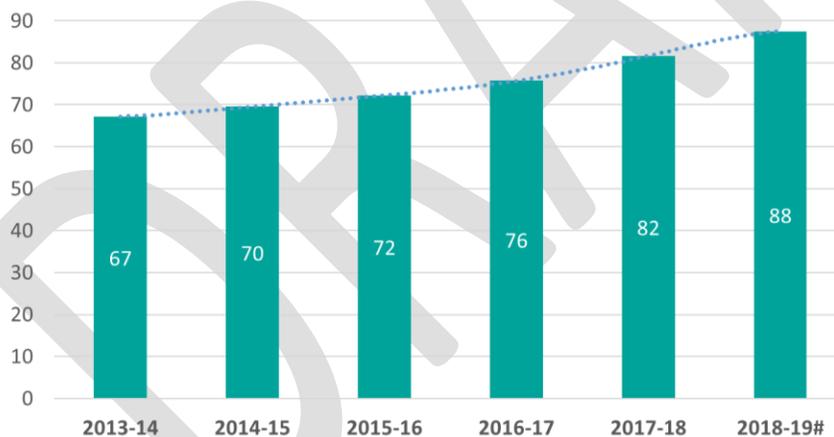
3.2.2. International Tourist Arrivals (ITAs)

With 17.9 million ITAs in 2019, India is at 23rd position in the world in terms of ITAs. ITAs have grown with a CAGR of 6.4% over 6 years from 2014 to 2019.



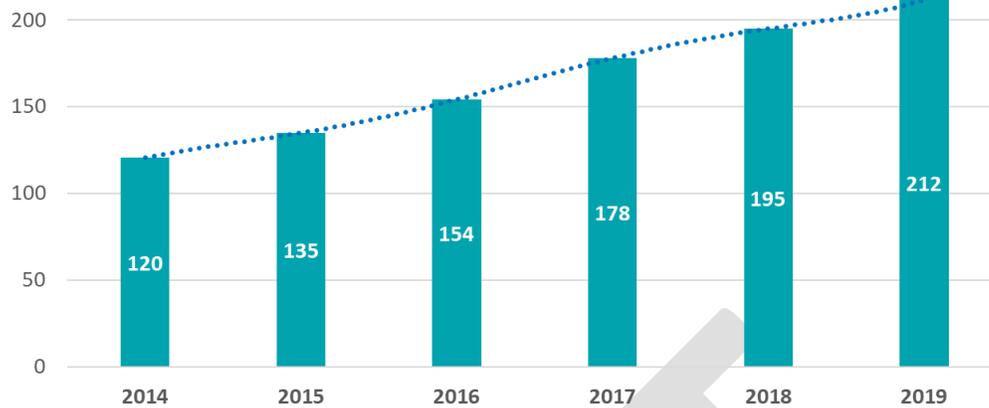
3.2.3. Contribution to Employment

Both direct and indirect jobs in tourism sector contributed to 12.5% of total jobs in the country in 2019. The total jobs in the tourism sector both direct and indirect have grown with a CAGR of 5.6% over 5 years from 2013-14 to 2018-19.



3.2.4. Contribution to Foreign Exchange Earnings (FEE)

With 2.12 lac crore FEE in 2019, India is at 12th position in the world. Foreign Exchange Earnings from Tourism have grown with a CAGR of 12.1% CAGR over 6 years from 2014 to 2019.



3.3. SWOT Analysis

3.3.1. Strengths

- (i) Rich Cultural and Natural Heritage
- (ii) Diverse Tourism Products
- (iii) Robust Economy
- (iv) Ease of travel through E-Visa
- (v) Home to Yoga and traditional system of medicine
- (vi) Enhanced air connectivity and infrastructure
- (vii) Thriving Private Sector
- (viii) Large English-speaking population
- (ix) **Natural Heritage**
 - 7000 km of coastline,
 - 75% of the Himalayas,
 - 9th largest desert of the world spread across 0.2 million sq ft area,
 - 4000 kilometres of Sunderbans mangrove forests,
 - 175+ rivers which have a runoff of ~ 1900 kilometres of volume,
 - 1000s of caves which are almost 1000 years old,
 - 100s of waterfalls some going upto a height of almost 1500 feet and
 - 150 million acres of Forest covering ~25% of India

3.3.2. Weaknesses

- (i) Long haul destination for the key source markets
- (ii) Perceptions related to safety and security
- (iii) Low standards of cleanliness & hygiene
- (iv) Inadequate wayside amenities and facilities

- (v) Lack of good quality budget accommodation
- (vi) Menace of touts at tourist destinations
- (vii) Inadequate international language speaking guides
- (viii) Inadequate facilities for the differently able
- (ix) **Structural Weaknesses**
 - No National Law or Regulation
 - Informal / Unorganized Industry
 - Engagement between Central and State Government is weak and not well defined
 - Lack of Strategic Directions – No policy or strategy
 - Lack of capacity for Destination Planning, Development and Management
 - Lack of capacity for Public Private Partnerships
 - Lack of capacity to promote Investments in the Sector

3.3.3. Opportunities

Demand Side

- (i) India's increasing recognition at the international level
- (ii) Repeat visitors from established markets
- (iii) Focus on emerging markets
- (iv) Potential short haul markets – ASEAN countries
- (v) Huge Indian Diaspora
- (vi) Huge potential for domestic tourism

Supply Side

- (vii) Rapid expansion in connectivity and urban infrastructure
- (viii) Emerging opportunities in niche sectors Adventure, Eco, Wellness, MICE etc
- (ix) 100 percent FDI in the automatic route available
- (x) Digitalization of Tourism Sector
- (xi) Sustainable and Responsible Tourism
- (xii) Public investment in Tourism Infrastructure
- (xiii) Private Sector Participation

3.3.4. Threats

- (i) COVID-19 pandemic
- (ii) Safety risks
- (iii) Harassment of tourists by touts, beggars etc at tourist places

- (iv) Natural calamity – disasters
- (v) Travel Advisories by various countries
- (vi) Over-tourism
- (vii) Unregulated and haphazard development

3.4. Targets set by SGOS by 2024

Sectoral Group of Secretaries (SGOS) in its report in February 2020 had set the target of INR 8.5 lac crore as direct contribution to GDP, 125 million direct and indirect jobs, FEE of 54 Billion USD and 33 million ITAs to be achieved by 2024. However, due to pandemic, these targets are now being reworked and the Ministry is working on a new vision and policy keeping India@2047 in mind.

3.5. Challenges faced by Indian Tourism Industry

The Tourism industry continues to face challenges like lack of formalization, inadequate access to timely finance, fluctuations in currency exchange, seasonal dependence, lack of infrastructure, security issues, skill deficit (limited multi-lingual guides, limited local awareness and understanding of benefits and responsibilities involved etc.), compliance overhead, unavailability of freely available IT systems, lack of social media promotion campaigns, travel blogging and need for more marketing opportunities.

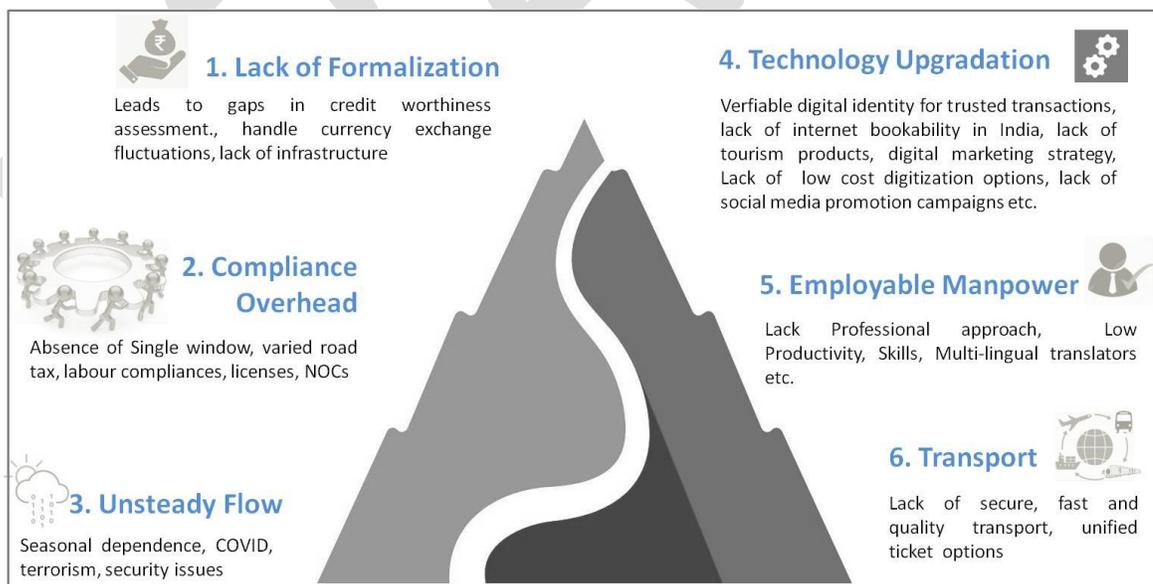


Figure 3: Challenges faced by the Indian Tourism Industry

In order to address the pain areas of the tourism industry, the Government has taken many steps, as elaborated in the section below.

3.6. Current Status of Digitization in Tourism Sector

3.6.1. Widespread use of technology in travel and tourism

Digitalization has left no segment of travel segment untouched. Advances in technology are spurring innovation, growth and globalization in the tourism industry and redefining notions of travel altogether. Digital disruptors like social media, mobile devices and accessible information enable destination marketers to engage with consumers and stakeholders on a larger scale than ever before.

3.6.2. Development of travel portals and platforms

Leveraging technology such as high-speed internet connectivity, search and geolocation technologies, mobile payments and social platforms, there has been explosion of the sharing economy. Large digital platforms have come up in the private sector, which cater to various needs such as transport, accommodation, tour package booking, ordering and delivery of food etc.

3.6.3. Hyper-personalization

By capturing personal data from customers and learning more about their behavioural patterns, companies are increasingly optimising services across the customer journey. Tourists worldwide now have a bounty of localised and personalised options for where to stay, what to do and how to get around.

3.7. Efforts of the Ministry of Tourism

3.7.1. Incredible India Website and Mobile App

Ministry of Tourism has taken up various ICT initiatives for digitization of the tourism sector. A multi-lingual 'Incredible India' website and mobile application assist international and domestic tourists to access information about various tourism destinations and attractions in the country.

3.7.2. National Integrated Database for Hospitality Industry

Ministry of Tourism has set up a platform namely National Integrated Database of Hospitality Industry (NIDHI) for registration and classification of tourism service providers namely Tour Operators, Hotels and other Tourism Service Providers. It also provides for classification and approval of hotels and other tourism service providers.

3.7.3. Digitization of Swadesh and PRASHAD Schemes

Ministry is implementing two flagship schemes namely SWADESH and PRASHAD and scheme data has been digitized and progress monitored through portal and dashboards.

3.7.4. Toll Free Helpline

The Ministry of Tourism houses a 24x7 Toll Free Multi-Lingual Tourist Info-Helpline on the toll-free number 1800111363/ short code 1363 in 12 Languages including Hindi and English to facilitate and assist domestic and foreign tourists in terms of information relating to Travel in India and to provide a sense of safety and security.

3.8. State Portals and Mobile Apps

States have also set up their tourism portals and mobile apps for showcasing tourist attractions, tourist guides, hotels, adventure activities etc.

3.9. ASI

ASI is working on an India heritage app prototype for geo-mapping of heritage monuments and creation of a tourist

Chapter 4 – Stakeholder Consultations

4.1. Stakeholder Consultations

Stakeholder consultations were organized by working group in the months of September and October, 2021, to seek their suggestions and feedback on digitalization of Tourism Sector. The following observations w.r.t. the needs of the stakeholder were identified.

4.2. Tour Operators

Association of Domestic Tour Operators of India (ADTOI), Indian Association of Tour Operators (IATO) and Travel Agents Association of India (TAAI) on 20th Sept, 2021- About 1,106 tour operators are approved by MoT. Whereas unofficially, more than 1 lakh tour operators and travel agents may be participating in the tourism ecosystem. It was discussed that apart from providing package holidays and booking services they maintain quality checks and design packages to reduce the time wasted on transitions.

Motivations	Pain Points
<ul style="list-style-type: none">• NDTM shall enable increased visibility and trust by enabling digital verification of tour operator credentials. A federated workflow for verification of Tours Operators/ Agents was suggested• Increased opportunities to liaison with other tourism actors through dynamic and open rate cards.• Geo-mapping of all major tourism actors and attractions shall be beneficial.• UTI should seamlessly integrate with State platforms• Need to introduce a neutral rating system of all actors involved in the tourism ecosystem was discussed.	<ul style="list-style-type: none">• With the advent of OTAs, including, Tour operators are experiencing increased competition. Tour Operators face low visibility, lack of funds, lack of digitization and low advertising budget while competing with OTAs. NDTM shall help the operators to gain visibility and access to low-cost digital reference applications.• Lack of financial clout to offer discounts and competitive pricing.• Lack of training sessions and examinations to regularize unlicensed guides.• The tour operators expressed concern regarding the authenticity of ratings provided by OTAs.

Motivations	Pain Points
<ul style="list-style-type: none"> • Need for agreement with primary service providers to make a portion of the price commissionable to tour operators is required. 	

4.3. India Convention Promotion Bureau (ICPB)

Meeting was held with India Convention Promotion Bureau (ICPB) on 22nd Sept, 2021 and the suggestions and discussions are summarized below.

Motivations	Pain Points
<ul style="list-style-type: none"> • Information related to Government rules affecting travelers should be available in an integrated form e.g. restrictions on carriage of satellite phones, cameras, foreign exchange centers etc., marriage registration rules for destination weddings, information to customs for clearance of goods related to exhibitions (MICE) etc. • There is a need to study the tourism models of Australia and UK wherein real time information regarding availability is exchanged across the tourism ecosystem. • Government can work on an appropriate single window clearance platform for immigration seekers. • Hassle free Visa on arrival may be extended for more countries • Use of aggregate telecom data to study tourism trends and crowds in various 	<ul style="list-style-type: none"> • 30 thousand international tourists were cheated by fake websites in 2020. Appropriate mechanisms need to be established in order to monitor, report and remove such fake websites. • Appropriate modification of rules can be taken up to discourage faulty-reporting for travel purpose. e.g. 90% of medical tourist are camouflaged as tourist due to the multiple levels of Government approvals required, car permits are often issued in the names of bogus people. • Aggregator platforms usually depend on other libraries to source electronic data whose reliability is disputable. • For MICE event world over separate nomenclatures are used for service providers such as PCO, AMC, DMC and EMC. Parallels should be drawn for

Motivations	Pain Points
<p>parts of the country may be taken up by MoT.</p> <ul style="list-style-type: none"> Usage of tourist ids for tracking tourists was suggested. 	<p>existing stakeholders in line with international nomenclatures.</p>

4.4. Federation of Indian Chambers of Commerce & Industry (FICCI)

Meeting was held with Federation of Indian Chambers of Commerce & Industry (FICCI) on 23rd Sept, 2021 and the suggestions and discussions are summarized below.

Motivations	Pain Points
<ul style="list-style-type: none"> The envisaged tourism ecosystem can be visualized as a part of Open Network for Digital Commerce which allows overseas and Indian tourists to avail digital services in an assisted or non-assisted manner. Appropriate mechanisms need to be put in place to enable participation of States, State Tourism Boards and associations for federated verification of NDTM repositories. Implementation of NDTM shall require institutionalization of an independent semi-government company, constituting of both public and private sector participants who can collaboratively work to populate and maintain the NDTM repositories. Use of Rapid Assessment System (RAS), can be explored by the Tourism 	<ul style="list-style-type: none"> In order to establish India as an international tourist destination all the tourist trip needs are required to become internet bookable. Appropriate adoption of vernacular language translation services needs to be factored in the proposed NDTM architecture A relook into RBI and FEMA regulations with the vision to enable Indian Tour Operators to service tourists worldwide can help in identification of required regulatory reforms. The unique placement of India on the globe may enable India to become the tourist service provider for the APAC region. Attempts can be made to allow exchange of digital tourist information at various points of contact, after

<p>ecosystem to collect feedback from the tourists</p> <ul style="list-style-type: none"> • After the NDTM repository is set up, ecosystem engagements in the form of hackathons, app challenges etc. can be initiated. • The Government may consider collaborating with private players such as google, who already have a rich library of APIs • A meeting with GDSs⁸ who have been using NDC (New Distribution Capability)⁹ protocol for exchange of airline related data can be held. Similar standards for data exchange can be devised for other sectors. 	<p>explicit tourist consent to capture the purpose, source and destination of travel. This shall enable better understanding of the tourist needs.</p>
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4.5. State & UT Governments & Central Ministries

Meeting was held with the identified State Governments on 29th Sept, 2021 & concerned Central Ministries on 30th Sept, 2021 and the suggestions and feedback is given below.

Motivations	Pain Points
<ul style="list-style-type: none"> • A directory of Tourism activities should also be prepared. • A repository of tourism related, location and purpose specific permission 	<ul style="list-style-type: none"> • A repository of souvenirs, handicrafts and shopping centers may also be prepared for the benefit of tourists.

⁸ GDS is a computerised network system owned or operated by a company that enables transactions between travel industry service providers, mainly airlines, hotels, car rental companies, and travel agencies. The GDS mainly uses real-time inventory from the service providers through APIs. (<https://youtu.be/xF1OGj2MIew>)

⁹ NDC is a travel industry-supported program launched by IATA for the development and market adoption of an XML-based standard for the exchange of data between airlines and travel agents. It connects travel agents to airline systems and gives them access to differentiated content that is often only available through the airlines' direct channels.

<p>requirements of the Government need to be prepared.</p> <ul style="list-style-type: none"> • Inclusion of a rating and feedback mechanism is desirable. • Integrated calendar of events like cultural and tourism festivals may be of interest to the tourists • Geo-mapping of local cuisine centers may also be of interest to the tourists. 	<ul style="list-style-type: none"> • The tourism value chain should be captured starting from the origin to the destination, along with identification of possible pain points. • Need for data exchange with GDS for air ticketing, railways, FRRO (Foreign registration system), and MSME (Udyam) were discussed. • To ensure a seamless tourist transportation experience, standardization of all interstate road taxes can be taken up and made payable at a single point which will facilitate the ease of doing business.
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4.6. Hotel Associations

Meeting with Hotel Association of India (HAI) and Federation of Hotel and Restaurant Association of India (FHRAI) was held on 1st Oct, 2021 and the suggestions and feedback are given below.

Motivations	Pain Points
<ul style="list-style-type: none"> • Study of aggregate telecom data should be taken up to observe the movement of tourists at various destinations and plan accordingly. • Bus operators like RedBus and State Buses Corporations should also be included in the NDTM ecosystem. • Australia and UK have enabled information exchange amongst various tourism service providers and distribution channels. It has enabled these countries 	<ul style="list-style-type: none"> • The hotel rating systems adopted by OTAs lack transparency, and hence become a source of contention for hoteliers. Government rules for providing ranking hotels/ ratings may be useful. • Considering that the hotel inventory is perishable, room rates change every day, most of the large hotels use

<p>to exchange real time information regarding tourism services inventory. Their cases may be studied further.</p> <ul style="list-style-type: none"> • There is need to publish common protocols to share room availability and rates with the end users. • Need for an emergency government helpline/grievance center for tourist was discussed. • In order to aid road mobility across India, an initiative for display of digital sign boards in a PPP model was suggested. • The Government may consider tourism infrastructure projects, viz., hotels, resorts, equipment, parks, etc., as infrastructure sector so that long term funds are accessible at suitable interest rates to increase the intensity of high-quality hotel accommodation in India which is low compared to global tourism leaders. 	<p>channel managers¹⁰ to manage their room prices. However, channel managers are expensive and unaffordable for small hotels.</p> <ul style="list-style-type: none"> • Large OTAs are charging upto 15% commission for listing rooms, which puts pressure on hotel margins. • The need for geo-mapping of public utilities for the convenience of tourists was recommended. • Need for publishing standard government range of rates for most of the tourist services, was recommended.
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4.7. Confederation of Hospitality, Technology and Tourism Industry (CHATT)

Meeting was held with Confederation of Hospitality, Technology and Tourism Industry (CHATT) and Online Travel Agents (OTAs) on 4th Oct, 2021. The suggestions and feedback is given below.

Motivations	Pain Points
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¹⁰ A hotel channel manager is a software solution, which allows hotel owners and other individuals working in hotels to manage their property across various distribution channels from a single place. This provides the option to adjust pricing on third-party hotel booking websites, without having to visit each individual platform.

<ul style="list-style-type: none">• The One Ticket concept (e.g. OCTOPUS card in Hong Kong, DigiYatra in Bangaluru) can be envisaged for India. It shall help in seamless mobility for travelers and provide aggregate data for analysis.• The possibilities of using face recognition for contactless travel were discussed. The same may be explored by the Government for railway stations and airports.• Usage of crowd sourcing verification mechanisms to verify key data sets were suggested.	<ul style="list-style-type: none">• The OTAs agreed that standard API protocols shall lead to a reduction in time involved to integrate with various players• Integration with NCRB for incident management was discussed• Need to map the various Govt. approvals required by various tourism actors and provisioning of single window for them was discussed.• Need to reduce the skilling gaps amongst tourist service providers was discussed. In this regard Government may launch LMS courses for the hospitality sector.
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Chapter 5 – Standards and Regulations

5.1. Standards and Regulations governing travel, tourism and hospitality

Standards streamline seamless flow of information across the entire ecosystem instantaneously as per need. A large, intensive and coordinated effort is needed in standards setting in the tourism sector. The standards maybe domain specific or IT related.

5.2. IT Related Standards

5.2.1. Protocols and Micro-services

The micro-services pertaining to standardized open data and other domain apps shall need to be exposed following open API specifications / protocols pertaining to the tourism ecosystem. A committee consisting of technical representatives from different Ministries, States, experts, academia and industry may collaborate with BIS for ratification of these open protocols.

5.2.2. Data Governance Policy

In order to ensure data protection, data quality, data security, data privacy, data sharing obligations, portability and interoperability and compliances under the applicable laws, a data Governance policy needs to be framed specifying roles and responsibilities of various ecosystem actors towards maintaining and facilitating reliable data exchange. This will allow data sharing while respecting ownership, privacy and compliance requirements ensuring that only the authorized candidates can get tokens to access the private/protected data and ensure data access policies specified by the Data Fiduciary are enforced.

A committee consisting of functional representatives from different Ministries, States, experts, academia and industry can get institutionalized for the same.

5.3. Domain Standards

Some of the domain standards for the tourism may be star ratings of accommodation units, classification of transport as luxury, standard or local, badges for tourist agents and tourist drivers, classification of tour operators etc.

5.4. Regulations applicable for the tourism industry

5.4.1. Labour Laws Applicable for Tourism Industry

Labour legislations are aimed at achieving congenial relationship between employer and workmen. Both should endeavour to improve the standard of living of the workers, giving room for labour harmony. A large number of labour laws are applicable to tourism sector.

5.4.2. **Environmental Laws Compliance for Tourism Industry**

India has an elaborate legal framework with number of laws relating to environmental protection. Various environmental laws, regulations and guidelines are applicable to tourism sector particularly for constructions and operation of accommodation units such as hotels.

5.4.3. **GST (Goods and Services Tax)**

GST is one indirect tax for the whole nation, which is a single tax on the supply of goods and services, right from the manufacturer to the consumer.

5.4.4. **Hospitality and Hotels**

The majority of the legislations governing the hospitality and hotels industry can be divided into three main sectors.

- (i). legislation for the construction and commissioning of hotels, restaurants, guest houses and other establishments
- (ii). legislation for the operation, maintenance and management of establishments, food and hygiene standards
- (iii). rules regarding taxation, employment and other contractual relationships

5.4.5. **Travel and Tourism**

The central legislations include matters related with foreigners, monuments and archaeological sites, antiquities and art treasures etc. There are also a number of guidelines framed by Ministry of Tourism for classification and registration of hotels and travel trade.

5.4.6. **State Laws**

Many of the States have enacted laws for regulating travel and tourism. A list of the same is given in Annexure.

Chapter 6 – Vision and Principles of National Digital Tourism Mission

6.1. Vision of NDTM

- 6.1.1. The tourism sector is highly fragmented. Subsectors of tourism such as transport, accommodation, restaurants and catering, and personal services are all subject to very different challenges and opportunities. The National Digital Tourism Mission envisages to achieve the objective of harnessing the full potential of digitization in tourism sector by facilitating exchange of information and services in tourism sector spreading across national and state tourism organizations, tourism service providers, tourism destinations, products and experiences and tourists.
- 6.1.2. As most of the tourism systems belonging to central government, state government, public sector and private sector function in silos, the tourism ecosystem is unable to harvest the combinatorial benefits of information exchange. Data systems currently don't interact with each other using a common language, thereby curtailing data analytics and resultant policy-making. This in turn makes the technology systems and individuals vulnerable and often result in inconsistent handling of data. In order to overcome the same there is need for seamless standardized data exchange amongst various stakeholders
- 6.1.3. The **vision of National Digital Tourism Mission** is to bridge the existing information gap amongst different stakeholders of tourism ecosystem through **digital highways**.

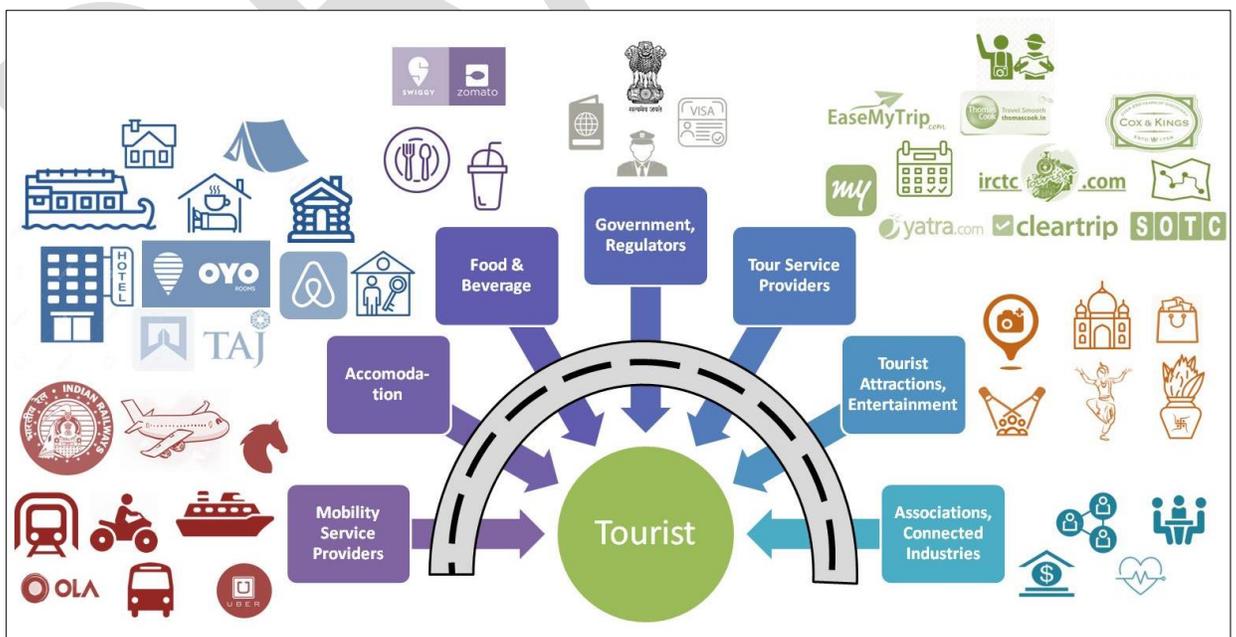


Figure 4: Vision of National Digital Tourism Mission

6.2. Principles of National Digital Tourism Mission

The Tourism Ecosystem and its ICT services may comply with the following relevant principles of India Ecosystem Architecture.

6.3. Domain Principles

6.3.1. Value-driven

The interests of the beneficiaries and users for whose benefit the digital infrastructure and solutions will be developed must be a central focus. Depending on the context and solution, beneficiaries and users can be the tourists, tour service providers, mobility service providers, accommodation service providers, food and beverage service providers, entertainment service providers and service providers of connected industries.

6.3.2. Unifying Services

Identify, design, and deliver integrated services that cut-across agency boundaries, to realize the goal of a connected ecosystem.

6.3.3. Outcome-driven

Define service levels and outcomes benchmarking with the best, and then build services around such outcomes. Define, design, deliver and measure services by adopting the methods suggested in the Digital Service Standard.

6.3.4. Affordable choices

Availability of affordable choices in solutions (localized, customized, multilingual), access (anyone, anytime, anywhere) and agency.

6.3.5. Diversity and Inclusion

Diversity and inclusion across device types, linguistic barriers, geography and accessibility compliant.

6.4. Design and Architecture Principles

6.4.1. Ecosystem Thinking

All digital initiatives to be designed as ecosystems, spanning across Centre and States, public and private, composed of several autonomous, interoperable and federated systems. Drive participatory design, ecosystem and end-user engagement at all stages of the digital initiative.

6.4.2. **Building Block approach**

Architect and design systems and ecosystems in terms of minimal and reusable Building Blocks, categorized as Core¹¹, Common¹² and Reference Building Blocks¹³ which are loosely coupled and combinable.

6.4.3. **Assured Service levels**

The ecosystem members should define promise based inter-relationships and set-up quality control processes to achieve assured service levels for all participating stakeholders.

6.4.4. **Federated Architecture**

Adopt a Federated Architecture model for designing digital ecosystems- build around the constructs of Single-Source-of-Truth and System-of-Records. While a central system can speed up adoption, it should be a choice, and bringing interoperability across many federated systems through common specifications is necessary.

6.4.5. **Be open and inter-operable**

¹¹ Core building blocks are necessarily built and managed as public goods and not given to the ecosystem to build. These are typically created and maintained at National/State/Agency Level (in a federated structure). These building blocks enable interoperability and act as glue between the rest of the building blocks and various solutions built on top. Core building blocks such as electronic registries, identities, etc also act as Single Source of Truth and/or System-of-Record (SoR). Core building blocks are offered as hosted services/applications at appropriate administrative levels.

¹² Common building blocks are built and offered as a choice to all of the NDTM ecosystem. Like other building blocks these may also be created and maintained either at Centre or at State/Agency levels. Similar to core building blocks Common building blocks are also offered as a hosted services/application at appropriate administrative level, except that these are offered as an option and ecosystem may build alternative/enhanced versions of these to provide further choice.

¹³ Reference building block are built and offered only as “source code/data” to enable various ecosystem players (be it Government entities or private) to rapidly build their services/applications. These are to be seen as “accelerators” and unlike Core and Common building blocks these are not offered as a hosted service/application. Through NDTM Portal, these should be made available for download, use, enhancement, and customization by ecosystem players. Ideally, source code of most of the Common building blocks (since these are offered as a choice) should also be made available as reference. Code of most of the Common building blocks (since these are offered as a choice) should also be made available as reference to enable others to rapidly build diverse applications on top of NDTM. All reference building blocks should also be well architected and documented for better reuse.

Use and/ or build open standards, licenses, databases, APIs, etc. and promote interoperability. It helps realize inter-platform efficiencies, promotes competitive behaviour and guards against potential monopolies of unfair value capture.

6.4.6. **Resilient**

The building blocks should be orchestrated in a federated manner with no single point of failure. Design must allow the entire infrastructure to evolve on a continuous basis without needing massive big bang upgrades. Services must be built to withstand failures by building automated recoveries and adaptation. Similarly, all processes must be designed to allow flexibility and re-adaptation to handle disruptions.

6.4.7. **Minimal, Reusable, Unbundled and Shareable**

Building blocks must be minimal (both data and functional), atomic, and generalized allowing solution builders to “reuse and extend” them to build contextual and scalable solutions, preventing reinvention of the wheel. The paradigm of minimalistic approach should be applied through a minimum viable and micro-services based architecture, minimal documentation, agile procurement / resourcing and regulatory processes.

6.4.8. **Innovation**

Catalyze, energize and support (policies, infrastructure), ‘responsible’ deployment of emerging technologies.

6.5. **Technology Principles**

6.5.1. **Data is an asset**

Design data systems in a manner that creates, supports, maintains and enhances value to the enterprise specifically, and to the ecosystem in general. Promote establishment of **Data Marketplace(s)** that enable regulated exchange of data for public purposes, innovation and research, and for permitted commercial purposes.

6.5.2. **Data sharing**

Lay down clear policies specific to the relevant domain(s), that enable and regulate the sharing of data.

6.5.3. **Standards**

Specify the existing technology and data standards applicable to the ecosystem. Define methods to ensure compliance.

6.5.4. **Privacy-by-Design**

Design and publish a privacy policy that conforms to the principles of Privacy-by-Design.

6.5.5. **Secure and Trust Based**

Design to protect privacy of users and entities while inducing trust in every interaction.

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Chapter 7 – Digital Stack of National Digital Tourism Mission

7.1. Digital Stack of NDTM

In order to realize the vision laid out by the National Digital Tourism Mission, considering the recommendations of the tourism stakeholders and following the above laid NDTM principles, the digital stack of NDTM has been illustrated in figure below:

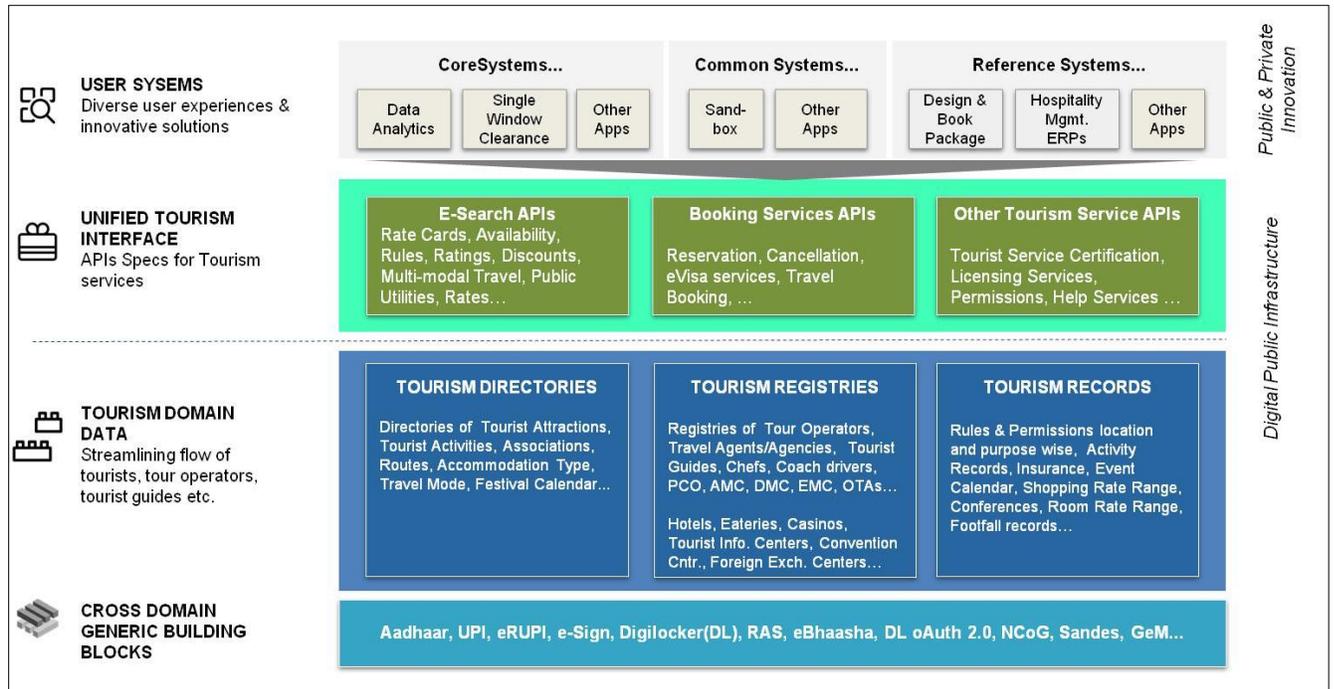


Figure 5: Digital Stack for National Digital Tourism Mission (NDTM)

7.2. Layer 1: Cross Domain Generic Building Blocks

This layer denotes the underlying digital infrastructure layer commonly available to all GoI Ministries, States and public at nominal or no cost. This digital infrastructure layer helps to achieve uniqueness of key data sets, economies of scale and facilitates all India portability for stakeholders of the ecosystem. Some of the key digital infrastructure are mentioned in the figure are:

- Aadhaar,
- DigiLocker,
- DigiLocker OAuth 2.0 services,
- UPI/BHIM payment gateway,
- eRUPI (eVouchers by UPI),
- National Center of Geo-Informatics (NCoG),

- MeitY empanelled cloud services,
- SMS and email gateway services,
- Open Forge for collaborative software development,
- Service Plus software for automating workflows,
- Rapid Assessment System (RAS) to obtain citizen feedback,
- eBhaasha - on the fly language translation and transliteration services,
- PAN, CIN and GSTN number for organizations etc.
- The National data exchange 'API Setu' consists of API directory, API Gateway, data exchange protocols, API monitoring tools and MoUs to facilitate data exchange.

7.3. **Layer 2: Tourism Domain Data**

The second layer consists of core domain data elements related to Tourism. The initial set of Core Master Data/Codes¹⁴ and Directories¹⁵, Repositories¹⁶ and Records are as follows.

7.3.1. **Tourism Directories**

Directories of tourist attractions, tourist activities, associations, routes, accommodation type, tourist transport facilities (e.g. ropeways), festival calendar, convention halls, public utilities etc.

7.3.2. **Tourism Registries**

Registries of tour operators, travel agents/ agencies, online travel aggregators (OTAs), waiters, destination wedding managers, tourist guides, chefs, coach drivers, PCO, AMC, DMC, EMC, OTAs, accommodation units, eateries, circus, fun parks, theatre, spas, events, casinos, tourist info. centers, convention centers, foreign exch. centers etc.

7.3.3. **Tourism Records**

¹⁴ Master codes are pre-assigned codes to data elements, so that the data entered into a system can be reliably read, sorted, indexed, retrieved, communicated and shared between systems. These master codes must be maintained in a single source at the central level in digital form (machine-readable) and made available via APIs for other blocks and applications to use.

¹⁵ Directories are public listing of various master data and codes in machine representable and API accessible way. Since data listed in directories have no link to any person, entity, or things (controlled in person/entity), directories are considered part of open data (master data) and do not require any consent mechanisms and access restrictions.

¹⁶ Registries are entity data sets belonging to ecosystem stakeholders and actors which must be designed for consent based access and reusability by other building blocks. These registries can be maintained in a single source at appropriate level (National or State) in digital form (machine-readable) and made available via APIs for other blocks and applications to use.

Tourism records will include rules & permissions location and purpose wise, activity records, travel insurance, event calendar, shopping rate range, conferences, room rate range, footfall records etc.

7.3.4. Ensuring Single Source of Truth

This will ensure sharing of single source of truth among departments and external agencies thereby providing opportunities for improved efficiency and effectiveness in Governance. It will also enable departments at various levels of Government to identify, discover, describe, manage, protect, and share the System of Records (SoR) for consistent reuse information within and across agencies and their business partners. The creation of these directories and registries shall enable digital verification tour operators, travel agents, licensed bars etc., can lead to increased trust amongst the tourist and ecosystem actors.

7.4. Layer3: Unified Tourism Interface

7.4.1. Data and information exchange amongst multiple ecosystem actors

The Unified tourism interface layers shall enable data and information exchange amongst multiple ecosystem actors and services. Depending upon the use case the information providers and information consumers may change.

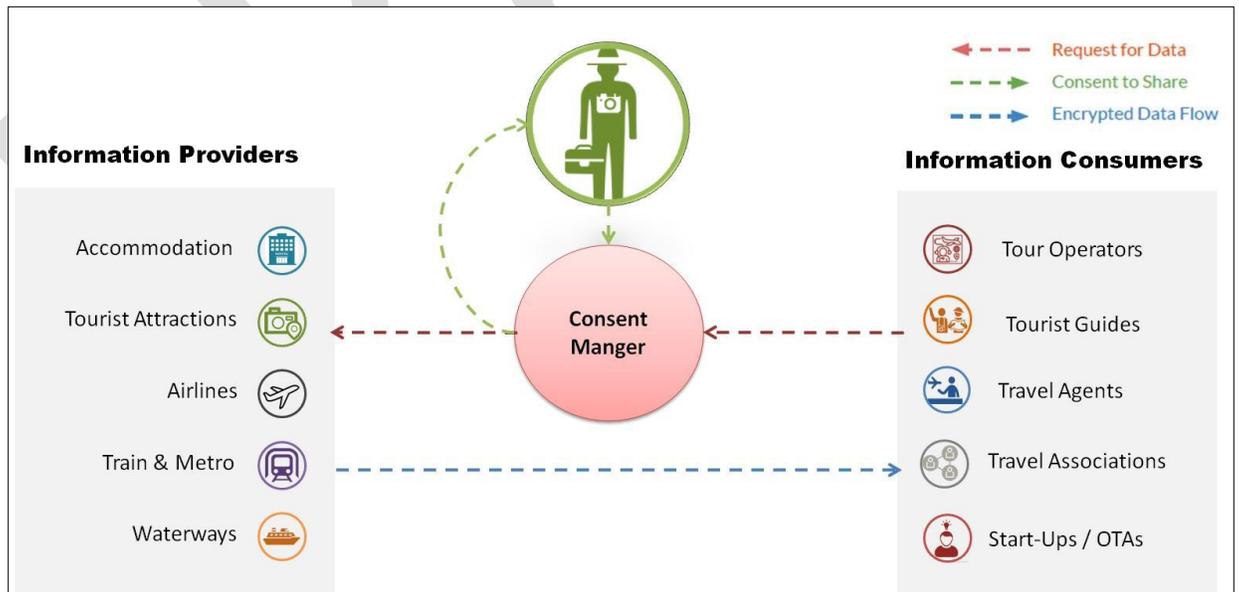


Figure 6: Unified Tourism Interface Enabled Data Exchange

7.4.2. APIs/ Micro services

The **third layer** of the tourism interface shall consist of services layer built on top of the data layer which shall enable various applications and systems. Actors of NDTM shall be encouraged to deploy their APIs/ micro-services as open APIs following API specifications/ protocols and standards of NDTM. These APIs shall be deployed on the NDTM eMarketplace / API exchange. Some of the identifiable services in the NDTM context are as below.

7.4.3. **Discovery APIs**

These API shall help the tourism ecosystem actors and tourists to connect with the ecosystem in a convenient and cost effective manner. The systems in the tourism domain would be able to share live rate cards, get tourist accommodations availability details, tourist travel availability details, know-how of required permissions, know-how of applicable rules, discount details, access to multi-modal search for travel and route planning, nearby public utilities etc.

7.4.4. **Booking APIs**

These APIs shall allow the ecosystem actors to reserve accommodations, restaurant tables, entertainment tickets, tourist coaches, tickets and cancel reservations, apply for eVisa services etc. for tourists who provide explicit consent for data sharing.

7.4.5. **Other Tourism APIs**

These APIs may relate to service rating, payment services, certification services, licensing services, permissions services, help services and other such services.

7.5. **Layer 4: User Systems**

7.5.1. **Core, Common and Reference Systems**

This layer shall consist of core, common and reference systems and aggregate platforms. Usage of the services available in the Unified Tourism Interface (UTI) shall enable emergence aggregator platforms in the tourism space. The following core applications may be envisaged.

7.5.2. **Single window compliance platform**

This platform shall provide a single window platform to gain knowledge about rules, regulations and compliance requirements for all actors of the tourism ecosystem. For example, tourist visitor timings, ticketing rules, special travel requirements, medical

requirements, conflict zone etc. shall be made available. For service providers, various license requirements, NOC requirements, compliance requirements etc.

7.5.3. **Data analytics platform**

The data analytics platform shall use aggregate anonymized data for research, planning and policy making etc. Aggregate data sources like telecom etc., can be used to understand the seasonality, movement patterns, trip length etc. of tourists.

7.5.4. **Common Applications**

Some Common applications which can be used by both public and private player like Sandbox environment, and API exchange gateway or eMarketplace shall also need to be provisioned.

- **Sandbox Environment-** to enable the various ecosystem actors to discover, understand, engage, experiment, innovate, and build on existing core data, infrastructure and exchange. The Sandbox encourages collaboration and development of various innovative applications and value added services. Test viability/response before a more expensive roll-out.
- **Tourism eMarketplace** - a National aggregate platform utilizing services from the National and State level to create a marketplace where customized tour packages may be available from authorized providers for domestic and international tourists.

7.5.5. **Reference Applications**

Apart from the above the Government may foray into building reference applications, which shall be built as open source and technology companies shall be encouraged to build upon these products.

- **Tour Planning** software for tour operators who do not have access to large aggregate digital platforms, but want to provide customized best deals to the client.
- **Hospitality Facility Management ERPs** may be rolled out as open source. Such that low-cost digital options may be made available for small hospitality service providers.

7.5.6. **Design and Technology principles to be followed**

The systems servicing various needs of the tourism ecosystem should follow the design and technology Principles laid out in the document, and non-functional requirements like performance, usability, UI/UX, availability, recovery, error handling & resolution etc.

7.6. Federated view of NDTM building blocks

7.6.1. The above-mentioned building blocks including registries etc., shall need to be built in line with the federated governance structure of India in partnership with the State Governments. The federated view of the building blocks discussed above is represented in the figure below.

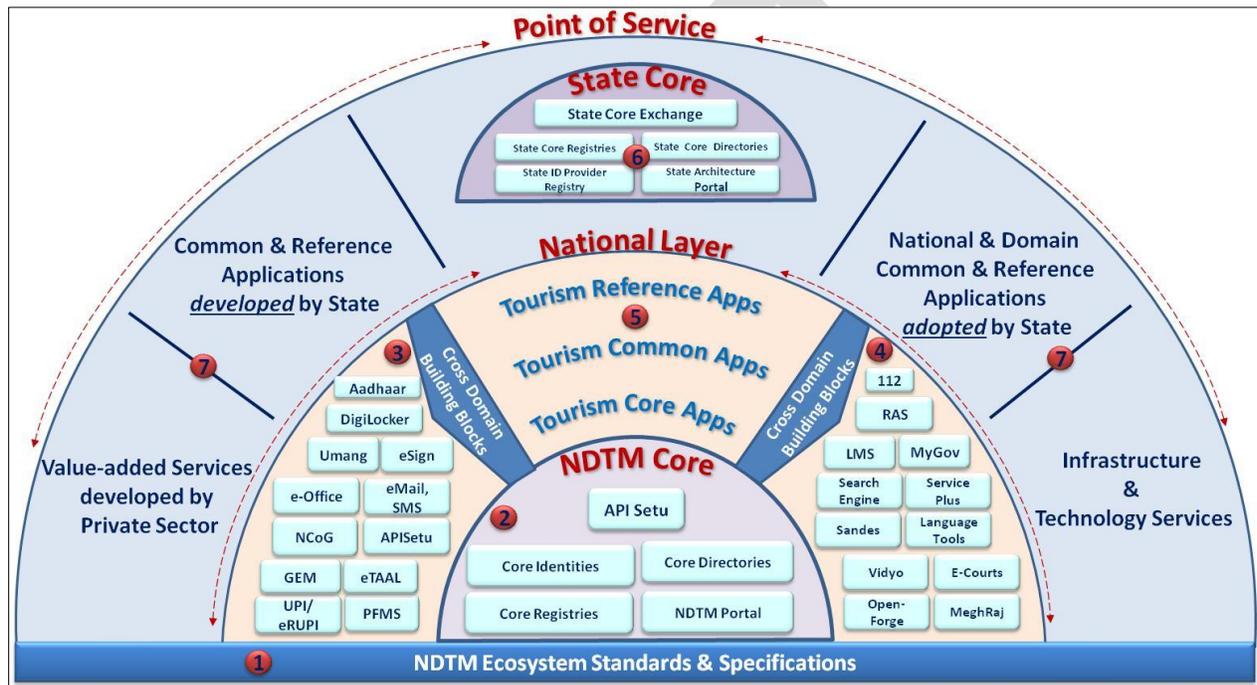


Figure 7: Federated View of NDTM Building Blocks

7.6.2. Thus, the Government shall need to come up with Core Registries such as accommodation registry, tourist guide registry, tour operator registry etc., in a federated manner i.e. in collaboration with States who may have already prepared such registries, such that rework is minimized and national uniqueness is maintained amongst the various actors who have enrolled in the registries.

7.6.3. Further, Core Directories of tour routes, associations, tourist attractions, tourist activities etc. shall need to be prepared along with weather and mobility protocols. These standard notations and API specifications / protocols need to be adopted by the Government organizations and agencies. Considering the federated orchestration of

governance, the State Governments and Central Government shall need to coordinate in a proactive manner to make NDTM a reality.

7.6.4. The distribution, method of capture and governance of the core building blocks shall be taken up in discussion with the States.

7.7. Quick Wins

7.7.1. After analyzing the challenges, and objectives of the Tourism Ministry and the list of building blocks elaborated in the National Stack for Tourism, the below list of quick wins promising a high impact for the tourism sector have been envisaged.

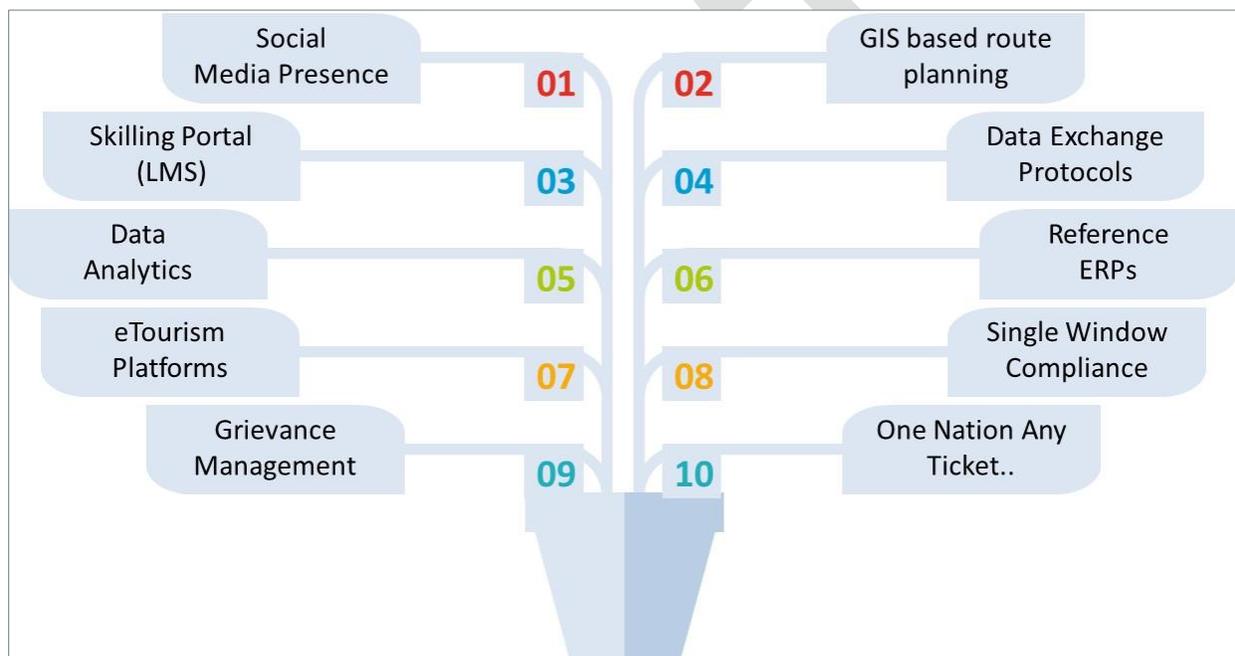


Figure 8: Recommendations reg. High Impact IT Interventions

7.7.2. In order to enhance the internet book ability of India as a tourist destination the following initiatives can be taken up on priority:

(i). Social Media Presence

Acclaimed travel bloggers may be encouraged to write about the various tourist routes and corresponding tourist attractions which promise a memorable holiday for the tourists.

(ii). GIS based route planning

Along with the theme based tourist circuits planned by the Government, there is a need to identify well connected circuits spanning multiple tourist attractions and geographies. Such tourist circuits shall enable better placement of India on the world tourism map and foster interstate coordination for tourism.



Figure 9: Route Planning

(iii). Skilling Portal (LMS)

It has been often observed that India has a small number of multilingual tourist guides or tourist drivers who can engage the tourist during the tour. Also, knowledge of history and interesting facts about a place needs study. Tour guides often need to practice oratory skills. Such skill sets can be provided online. Online examination shall enable tourist guides, tourist drivers, waiters etc. to develop suitable skills to provide quality services.

(iv). Data Exchange Protocols

With the development of registries and directories, trusted digital transactions amongst the actors of the digital ecosystem shall become a reality thus enabling formalization of this highly fragmented sector. This shall lead to bigger aggregate platforms and increased share of digital transactions. In order to accelerate the number of trusted digital transactions while providing sufficient powers in the hands of the last mile actors like accommodation units, tour guides, drivers etc. of the tourism ecosystem.

(v). Data Analytics

There is a need to understand the movement of tourists within India and across tourist attractions and seasons, so that the actors of the tourism ecosystem can prepare for supporting the tourists. Currently, the flow of tourists across the geography remains largely haphazard.

(vi). Reference ERPs

Most of the large tourist service infrastructure owners like accommodation providers, tour operators etc., have their own systems to manage their business functions like bookings, cancellation, payment, inventory, employee management etc. However, small businesses are unable to afford such solutions. Thus, it is proposed that open source community supported solutions may be built to support these service providers. These solutions are envisaged to enable small business to use low cost ERPs.

(vii). eTourist Platforms

Internet book-ability of India and the Asia Pacific region through the Indian tour and travel service providers can be enhanced by enabling hosting of tour packages through an eTourist Platform. The eTourist platform is envisaged to enable tourists to book their tour packages in a customized manner and engage with the service providers. The eTourist platform shall enable trusted servicing of tour packages by thousands of trusted tour service providers.

(viii). Single Window Compliance

This platform shall enable the tour service providers and tourists to know about the various rules and regulations they need to confirm with. Currently, the tourism industry has to comply with a large set of regulations (Refer **Annexure III**). Also, each of the tourist attractions and activities have their own set of rules. Thus, a single window compliance platform is envisaged to enable compliance to a large extent.

(ix). Grievance Management and Disaster Management

These services may be designed to enable tourists to share their experiences and emergency requirements with the Government and service providers, such that their requirements and concerns are taken care of. The Government may consider building a call center to handle such requests.

(x). One Nation Any Ticket

This initiative is envisaged to enable single swipe payments for all transport services within India including road, waterways and airways. The collaborative effort may include private transport providers as well. The idea is to enable the citizens to use a common digital wallet for payment across multiple transport providers and tourist attractions instead of carrying multiple cards and maintaining multiple wallets for the purpose.

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Chapter 8 – Governance and Institutional Structure

8.1. Need for Governance and Institutional Structure

- 8.1.1. The implementation of NDTM vision and principles will result in wide adoption by the ecosystem of Centre, State, public, non-profit, private as well other stakeholders. This needs clear definitions of the roles and responsibilities of various institutions for long term sustainability of NDTM institutional setup. This section explains and recommends an institutional framework that may be adopted for NDTM after study of several analogous digital infrastructures created in other sectors in India - GSTN, NPCI, UIDAI, National Health Authority etc.
- 8.1.2. Therefore, the objective of the institutional structure for NDTM would be “To orchestrate, catalyse and support the tourism and digital ecosystem in the development and adoption of a national digital tourism infrastructure to achieve the objectives of and fulfill the vision of NDTM”.
- 8.1.3. The institution structure should have a minimal footprint, be evolvable and agile, federated and inclusive (centre - state - public - private - unions) to enable and catalyse through multi-stakeholder ecosystem.

8.2. Essential Elements

A few essential elements that need to be carefully considered while designing the institutional framework for NDTM:

- (i). **Mandate** - The scope and vision of the entity.
- (ii). **Legal constitution** - The nature (statutory, autonomous, non-profit etc), ownership and autonomy of the entity.
- (iii). **Composition and Governance Structure** - The composition of the entity and representation of diverse stakeholders (with appropriate experience and skill sets) across leadership, advisory and functional verticals, such that it ensures that the entity is set up for success.
- (iv). **Roles and responsibilities/ services offered** - The roles and responsibilities charted out for the entity should reflect the mandate very clearly. The nature of responsibilities created in the first instance would be critical in ensuring that the NDTM organisation can easily take an agile approach and continue to adapt to the rapidly evolving world of technology as well as changing needs of the stakeholders.

- (v). **Funding** - The mechanism to fund the entity for its operations should be such that consideration is given to its independence in decisions and functioning to realize its vision as well as its long term sustainability, while financially supporting its formation and incubation till it reaches a steady state of operations.

8.3. **Envisaged roles and responsibilities of the institution:**

8.3.1. **Ecosystem – catalyze and energize the tourism ecosystem:**

- (i). To achieve the objectives of NDTM as articulated in the blueprint and as it evolves from time to time, and realize the vision of NDTM.
- (ii). To promote adoption of NDTM by GoI, States, Private/ NGO Sectors.
- (iii). By engaging the ecosystem through events, hackathons, innovations, fests and other such outreach, engagement and development programs.

8.3.2. **Building Blocks**

- (i). Enable and orchestrate the development, creation and evolution of the building blocks of NDTM.
- (ii). Identify and share best practices in use of NDTM compliant building blocks to create diverse solutions.
- (iii). Identify and share innovations and solutions compatible with NDTM building blocks, use of open data in tourism and improvements in efficient governance processes.

8.3.3. **Standards, Specifications and policies: Develop, Support, Publish, Curate, Frame**

- (i). Standards, specifications and policies in the areas of technology for tourism, open data and protection of data of individuals and for a thriving and innovative ecosystem.
- (ii). Specifications of core, common, reference and other building blocks.
- (iii). Setting up standards for establishment and management of registries which will be a single source of truth for tour operators, hoteliers, event managers etc.

- (iv). Rules and tools for fostering innovation and development of diverse solutions by energizing the tourism ecosystem of government, associations and the private sector.

8.3.4. **Innovations and Solutions**

Encourage, promote, incentivize, support, facilitate, support the development of:

- (i). Diverse solutions and innovations by leveraging emerging technologies for the tourism ecosystem including but not limited to AI/ML, AR/VR, etc.
- (ii). Reference solutions for NDTM by leveraging building blocks of the digital infrastructure.
- (iii). Ecosystem Sandbox along with engagement frameworks, rules, and tools.

8.3.5. **Capacity Building & Change Management**

In relation to NDTM Architecture, Ecosystem Architecture, Ecosystem Technologies, Content Development.

8.4. **Institutional structure**

- 8.4.1. Given the vision, evolvable nature and diverse expertise required for NDTM, the institution may be created as an autonomous entity under the aegis of the MoT as the parent body. The multi-stakeholder and ecosystem approach must be reflected in the institutional framework, with the involvement of non-profit and private sectors engaged to provide accommodation, food and beverage, transport, entertainment, online aggregators etc.
- 8.4.2. Strategic control may remain with the Government; diverse representation and participation will foster innovation and will help NDTM in staying ahead of the curve in many domains. Such involvement will augment the ecosystem approach of NDTM and will ensure wider adoption of NDTM, by the tourism ecosystem, which will include not only the Centre and State governments and their allied institutions but also other associations and private entities. It is also envisaged that the regulatory role should remain with MoT.
- 8.4.3. Therefore, a new autonomous body may be required to house NDTM and allow for a strong and diverse leadership. This will enable NDTM to establish a broad platform for supporting and interfacing with existing institutions and adapting to the emerging needs

of the ecosystem. The organization should have a dedicated board of directors/ governing council and CEO to handle operational responsibilities.

- 8.4.4. Like the ever-evolving nature of technology itself, NDTM would be an evolving ecosystem with multiple building blocks and will continue to develop and mature through efforts of multiple ecosystem partners. Continuous compliance with architectural principles and standards prescribed is also a challenge during implementation. Technology implementation, sustenance, upgradation, and knowledge transfer is a continuous process and can only be sustained with stable top level in-house expertise. Strategic control of the core technology that is used within the Government infrastructure is critical. Suitable organization of MeitY with experience in application of IT in different domains in Centre as well as State level, can be given responsibility to ensure the Government has strategic control of core technology, ensure its compliance with rules & regulations, particularly from an openness and data protection perspective.
- 8.4.5. The parent ministry (MoT) is to make provision of appropriate funds for realising NDTM's mandate and running day-to-day operations for the initial 4-5 years. In the long term, a phased transition can be planned for NDTM to move to a self-sustainable, revenue generating model (not-for-profit model). Potential revenue streams may include (but not limited to) monetizing reference applications and services it provides to other ecosystem players. Alternatively, it can also accept grants and aids from outside the parent ministry, and philanthropic contributions in funding or resources and assets for reduced dependence and increased sustainability. A self-financing model may also drive service orientation for NDTM and provide incentives to continuously innovate and respond to the needs of beneficiaries. This should ideally be accomplished without compromising the essential defining trait of NDTM building blocks being available as a public good.
- 8.4.6. Even as the larger institutional framework may take time to fully fructify, in order to roll out the vision of NDTM and also to set up demonstrative examples of what NDTM envisages to do, the MoT would like to proceed with projects and programmes under the NDTM framework with immediate effect.
- 8.4.7. To immediately start working on NDTM, a dedicated Program Management Unit (PMU) may be set up, staffed with specialized consultants for the development of a roadmap for NDTM implementation, identification & prioritization of work, budgetary estimation, design, monitoring and follow up the progress of NDTM implementation. PMU should also provide opportunities for volunteers from the industry to join for a stipulated time.

PMU shall initially work directly under the MoT until the NDTM institutional set up is ready.

- 8.4.8. A Project Steering Committee (PSC) should be set up to provide, review and monitor strategic direction and policy guidance to the PMU and other stakeholders. The PSC may provide direction to the efforts of the operations group, including the PMU, and will consist of representatives from Government, associations and private sector organizations. It should also have professionals from the fields of tourism technology, open source technologies, tourism, tourism programme implementation, data protection and privacy and other related areas, as decided by the PSC. The PSC in turn may work in coordination with the Inter-Ministerial Coordination Committee on Tourism Sector (IMCCTS) constituted under the Chairmanship of the Cabinet Secretary, which facilitates resolution of Inter- Ministerial issues involved in the development of tourism in the country.

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Chapter 9 – High Level Implementation Plan

9.1. High Level Implementation Plan

A high-level implementation plan to convert the blueprint into an actionable document through a series of deliverables pertaining to various building blocks has been worked out. It is an indicative 3-year action plan, which will be further deliberated once a professional program management is set up by the Ministry.

Activity	Plan of Action		
	Year 1	Year 2	Year 3
Approval of National Digital Tourism Mission (NDTM) and its operationalization	Preparation of SFC/ EFC note for budget sanction by Ministry of Tourism.	Budgetary planning and monitoring of physical and financial progress	Budgetary planning and monitoring of physical and financial progress
Design, development and adoption of registries and directories in a federated manner	<p>Directories- tourist attractions, accommodation type, tourist transport facilities (e.g. ropeways), festival calendar, public utilities etc.</p> <p>Registries- Accommodation Units, Associations, foreign exchanges, tourist information centers, convention centers, online travel aggregators (OTAs), Professional Congress Organizer (PCO), Association Management Company (AMC),</p>	<p>Directories- tourist activities, routes etc.</p> <p>Registries- Food and beverage units, circus, fun parks, theatre, spas, events, casinos, Hospitality Professionals - Waiters, Chefs, Entertainers, Dancers, tourist drivers, Hospitality Managers destination wedding managers, managers of historical monuments/ temples/ excavation sites/ sanctuaries/ convention halls/ auditoriums/ Zoos/ museums etc.</p>	Engagement with ecosystem stakeholders for adoption of directories and registries.

	<p>Destination Management Company (DMC) and Event Management Company (EMC), Hospitality Professionals-Tourist Guide, Travel Agents & Agencies, Tour Operators etc.</p>		
Tourism Protocols	<p>Engagement with MeitY, States, Open Source Community and Industry for development of accommodation protocols, mobility protocols, weather protocols, activity protocols, tourist attraction protocols etc. to enable interoperability amongst the tourism ecosystem.</p>	<p>Engagement with the ecosystem stakeholders for adoption of accommodation protocols, mobility protocols, weather protocols, activity protocols, tourist attraction protocols etc.</p>	<p>Engagement with the ecosystem stakeholders for adoption of accommodation protocols, mobility protocols, weather protocols, activity protocols, tourist attraction protocols etc.</p>
Regulatory Framework	<p>Engagement with State councils for normalization of regulatory framework-laws, rules, policies and guidelines impacting the tourism sector.</p> <p>Design and development of NDTM consent management and data exchange policies.</p>	<p>Notification of revised regulatory artefacts and rules.</p> <p>Engagement with stakeholders for adoption of normalized regulatory framework.</p>	<p>Engagement with stakeholders for adoption of normalized regulatory framework.</p>

Design and Development of Quick Win Applications	Design of Quick Win systems while adopting available IndEA Core building blocks like language translation, geo-informatics, RAS, DigiLocker and Oauth 2.0, eSign, UPI, etc. Quick Win rollout - social media presence enhancement	Development of Reference ERPs by engaging multiple vendors, open-source community etc., Quick Win rollout- Skilling Portal (LMS), eTourism Platform V 1.0, Grievance Management	Quick Win rollout- GIS based route planning, data analytics, Single Window Compliance etc.
Sandbox	Initiate Sandbox installation and prepare sandbox management guidelines	Enrich the sandbox with open data, tools and protocols while driving adoption	Drive sandbox adoption by the ecosystem.

9.2. Envisaged Benefits and Case Studies

9.2.1. NDTM to Bring Host of Benefits

The National Digital Tourism Mission is envisaged to bring about a host of benefits as summarized in the figure below. The implementation of NDTM shall have multifold benefits to various entities of the tourism ecosystem. Not only will it improve the efficiency and effectiveness, but it will also increase transparency and provide a boost to tourism economy by preventing data leakages.

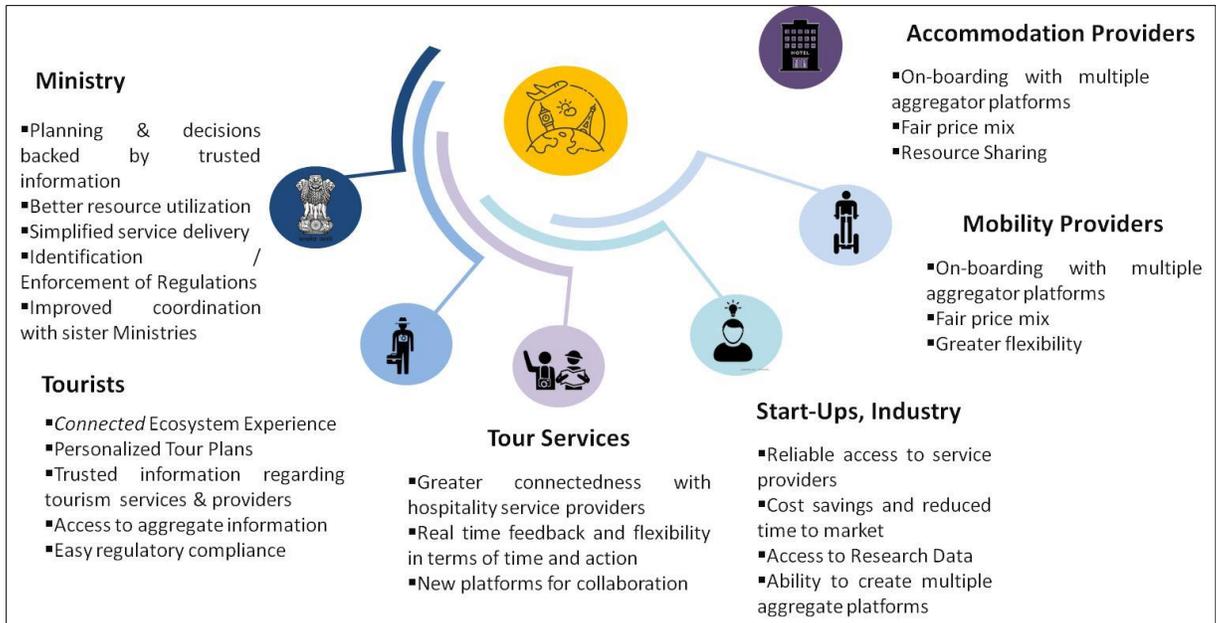


Figure 10: Envisaged Benefits of UTI

9.2.2. Information availability to tourists

Tourists are envisaged to receive a plethora of services, for which they may no longer visit multiple channels to design their travel plan. The tourist will be able to search for information on various tourist destinations/spots, identify suitable destinations, arranges for Visa (if required), book tickets for both local and outstation transportation (round trip), avail loans / insurance (if required), search and book accommodation and look for catering, shopping, entertainment in the vicinity of tourist spots.

9.2.3. Insights and personalized information

NDTM will give insights to the tourist about the travel time, cost and rating of the services to facilitate the tourist with multiple travel options. NDTM shall enable the tourist to securely store and access their previous activities, bookings, travel routes. Over the time, with data analytics, personalized tour plans and other suggestions will be provided to the user to further reduce the turnaround time.

9.2.4. Towards connected and smart tourist destinations

The mission shall empower the users with a connected government experience enabling easy and quick access to trusted aggregate information regarding tourism services & providers to enable informed decision making.

NDTM will provide the users both the options of accessing public as well as private services, facilitate compliance with regulatory guidelines and protocols, and improve accountability by displaying cost of tourism services.

9.2.5. Enabling and assisting Tourism Service Providers

NDTM shall assist Tourism service providers across all sectors a greater connectedness to their target user base by providing better access of tourist data for producing more efficient and user-friendly service. This cycle of using data and creating data shall strengthen the Tourism Ecosystem from within. The service providers shall also benefit from the Real time feedback facility allowing them to identify their gaps and improve on their services. This would also provide them with the flexibility in terms of time and action. Apart from their own websites and channels, the providers shall have a new national level platform for collaboration.

9.2.6. Support to Startups

NDTM will support the startups, new undertakings and industry by offering reliable access to open data, service providers and research Data. This shall help the new ventures to quickly integrate with the ecosystem and contribute to the system. Start-ups will be benefitted by authentic and ready data reducing their cost, effort and time to market allowing them to create multiple aggregate platforms.

9.2.7. Support to Enterprises in onboarding on multiple platforms

NDTM will also support both small and large accommodation providers, mobility service providers etc. with multiple platform on-boarding. Providers will also have various options for collaboration and attract tourists with exclusive offers. NDTM will provide them with interested tourist across the nation which would help them to expand their business. Providers can also share their resources to ensure better travel experience of tourists. NDTM will also ensure fair price mix which shall increase competitiveness between providers ensuring higher quality of service and helps regulate monopoly of service provider.

9.2.8. Data for Planning and Policy Making

Lastly, planning & decisions to be taken by policy makers and project managers shall be backed by trusted information from NDTM to study and evaluate the effectiveness of various programmes. NDTM would facilitate a comprehensive feedback loop between researchers, policymakers, and providers. High quality of data will enable effective

utilization of resource, enable advanced analytics and improve overall efficiency of Tourism sector. It will also simplify service delivery and ensure enforcement of regulations at grass-root level. NDTM will facilitate improved coordination and collaboration with sister Ministries strengthening implementation of various programmes and policies.

9.3. Glossary

Term	Definition
1. Digital Ecosystem	A digital ecosystem is a distributed, open socio-technical system with properties of self-organisation, evolution, scalability and sustainability inspired from natural ecosystems connected by a shared Vision and a set of shared digital platforms. An ecosystem may comprise organizations, developers, service providers, people, data, processes and things.
2. Tourism Industry	Tourism Industry refers to all activity related to the short-term movement of people to locations away from where they usually reside for leisure, business etc.
3. Building Block	Building Block is a package of self-contained, functionality defined to meet business needs through a set of services made available via APIs and optionally via reference solutions. Building blocks have to interoperate with other building blocks within the same system or across systems.
4. Tourist	A person travelling to another location, away from their usual social environment, for business, pleasure or social reasons for longer than 24 hours, but for no longer than one year; Exclusion: those who travel with the intention of making an income in the place that they travel to
5. MICE	The acronym stands for "Meetings, Incentives, Conferences and Exhibitions", and is essentially a version of business tourism.
6. Professional Congress	PCO provides full service to meeting planners. Sometimes a PCO may engage a DMC for services in a destination like excursions, dinners etc. or an EMC for themed events. Very often, a PCO

Term	Definition
Organizer (PCO)	organizes all those happenings itself providing it has got the in-depth knowledge of the destination.
7. Association Management Company (AMC)	AMC provides management and specialized administrative services to trade associations and professional societies running them like businesses. If it has the knowledge and resources, AMC may also act a PCO or may engage a PCO to organize a meeting.
8. Destination Management Company (DMC)	DMC provides ground services based on understanding and familiarity of the destination possessing extensive local knowledge, expertise and resources, specializing in the design and implementation of events, activities, tours, transportation and program logistics.
9. Event Management Company (EMC)	EMC provides services in a variety of areas including corporate events, marketing programs and special hospitality events like concerts, award ceremonies, film premieres, launch/release parties, fashion shows, commercial events, private (personal) events such as weddings etc.
10. GDS	GDS is a computerised network system owned or operated by a company that enables transactions between travel industry service providers, mainly airlines, hotels, car rental companies, and travel agencies. The GDS mainly uses real-time inventory from the service providers through APIs. (https://youtu.be/xF1OGj2MIew)
11. NDC	¹ NDC is a travel industry-supported program launched by IATA for the development and market adoption of an XML-based standard for the exchange of data between airlines and travel agents. It connects travel agents to airline systems and gives them access to differentiated content that is often only available through the airlines' direct channels.

Term	Definition
12. Hotel Channel Manager	A hotel channel manager is a software solution, which allows hotel owners and other individuals working in hotels to manage their property across various distribution channels from a single place. This provides the option to adjust pricing on third-party hotel booking websites, without having to visit each individual platform.
13. Core Building Blocks	Core building blocks are necessarily built and managed as public goods and not given to the ecosystem to build. These are typically created and maintained at National/State/Agency Level (in a federated structure). These building blocks enable interoperability and act as glue between the rest of the building blocks and various solutions built on top. Core building blocks such as electronic registries, identities, etc also act as Single Source of Truth and/or System-of-Record (SoR). Core building blocks are offered as hosted services/applications at appropriate administrative levels.
14. Common building blocks	Common building blocks are built and offered as a choice to all of the NDTM ecosystem. Like other building blocks these may also be created and maintained either at Centre or at State/Agency levels. Similar to core building blocks Common building blocks are also offered as a hosted services/application at appropriate administrative level, except that these are offered as an option and ecosystem may build alternative/enhanced versions of these to provide further choice.
15. Reference building blocks	Reference building blocks are built and offered only as “source code/data” to enable various ecosystem players (be it Government entities or private) to rapidly build their services/applications. These are to be seen as “accelerators” and unlike Core and Common building blocks these are not offered as a hosted service/application. Through NDTM Portal, these should be made available for download, use, enhancement, and customization by ecosystem players. Ideally, source code of most of the Common building blocks (since these are offered as a

Term	Definition
	choice) should also be made available as reference. Code of most of the Common building blocks (since these are offered as a choice) should also be made available as reference to enable others to rapidly build diverse applications on top of NDTM. All reference building blocks should also be well architected and documented for better reuse.
16. Master Codes	Master codes are pre-assigned codes to data elements, so that the data entered into a system can be reliably read, sorted, indexed, retrieved, communicated and shared between systems. These master codes must be maintained in a single source at the central level in digital form (machine-readable) and made available via APIs for other blocks and applications to use.
17. Directories	Directories are public listing of various master data and codes in machine representable and API accessible way. Since data listed in directories have no link to any person, entity, or things (controlled in person/entity), directories are considered part of open data (master data) and do not require any consent mechanisms and access restrictions.
18. Registries	Registries are entity data sets belonging to ecosystem stakeholders and actors which must be designed for consent based access and reusability by other building blocks. These registries can be maintained in a single source at appropriate level (National or State) in digital form (machine-readable) and made available via APIs for other blocks and applications to use.

9.4. References

- India Enterprise Architecture (IndEA) Framework
- Agile IndEA Framework
- Digital Service Standards
- National Digital Education Architecture (NDEAR) report
- National Digital Health Blueprint (NDHB)

- Annual Report of Ministry of Tourism 19-20
- 'Strategic Use of Information Technology in the Tourism Industry',
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- The Tourism of India, Ritvik Gupta
- Reinventing the Package Holiday Business, Karsten Karcher
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- International Tourism Highlights, UN World Tourism Organization, 2019

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Annexure 1 – OM for setting up of Task Force for National Digital Tourism Mission

F.No : IT-13/7/2021-IT

**Government of India
Ministry of Tourism**

Transport Bhavan,
No.1 Parliament Street,
New Delhi 110 001.

Date : 23.07.2021

Office Memorandum

Subject: Setting up of Task Force for National Digital Tourism Mission

Background

1. Digitalization in tourism sector presents opportunities for tourism enterprises to expand their market reach, increase growth, improve operational efficiencies, and sharpen their competitive edge. At a collective level, it will help to develop and customise product offerings, improve destination connectivity, generate data to track performance, and help to improve destination management. Over the long term, digital transformation can unlock innovation and ensure the competitiveness of India's tourism sector.
2. The tourism sector is highly fragmented, and subsectors such as transport, accommodation, restaurants and catering, and personal services are all subject to very different challenges and opportunities, when it comes to digitalisation. There are significant differences in human resource capabilities, varying levels of access to financial and non-financial resources, different levels of awareness, and variations in digital skills.
3. There is a need for a National Digital Tourism Mission to achieve the objective of harnessing the full potential of digitalization in tourism sector by facilitating exchange of information and services in tourism sector spreading across national and state tourism organizations, tourism service providers, tourism destinations, products and experiences and tourists.

Constitution of Task Force

4. The Ministry of Tourism hereby constitutes a taskforce comprising of the following:

Chairman and Co-Chairman

(i)	Secretary, Ministry of Tourism	Chairman
(ii)	Secretary, Ministry of Electronics and IT	Co-Chairman
Representatives of Ministries not below the rank of Joint Secretary looking after travel, tourism and hospitality in the Ministry		
(iii)	Ministry of Home (Foreigners Division)	Member
(iv)	Ministry of MSME	Member
(v)	Department of Promotion of Industries and Internal Trade	Member
(vi)	Department of Commerce	Member
Heads of Technical and Tourism Organizations		
(vii)	Director General, NIC	Member
(viii)	President and CEO, NeGD	Member
(ix)	Chairman and Managing Director, ITDC	Member
(x)	Director, Indian Institute of Travel and Tourism Management	Member
State Governments		
(xi)	Principal Secretary, Department of Tourism, MP	Member
(xii)	Principal Secretary, Department of Tourism, Odisha	Member
(xiii)	Principal Secretary, Department of Tourism, Assam	Member
(xiv)	Principal Secretary, Department of Tourism, Maharashtra	Member
(xv)	Principal Secretary, Department of Tourism, Andhra Pradesh	Member
Industry Associations		
(xvi)	President, Hotel Association of India	Member
(xvii)	President, Federation of Hotel and Restaurant Association of India	Member
(xviii)	President, Indian Association of Tour Operators	Member
(xix)	President, Association of Domestic Tour Operators	Member
Member Secretary		
(xx)	Joint Secretary, Tourism	Member Secretary

The Chairman may co-opt any other special invitee from Government or Private Sector as may be required.

The technical assistance will be provided by NeGD and IndEA division of Ministry of Electronics and Information Technology (MeiTY)

Terms of Reference

5. The terms of reference of the Task Force are as follows:
 - (i) Undertake consultation with the industry and domain experts
 - (ii) Describe the context of and justification for the National Digital Tourism Mission
 - (iii) Define the Mission, Vision, Objectives and overall scope of the initiative
 - (iv) Identify major stakeholders of Tourism Ecosystem for Digital Mission, Domain principles and Technology principles
 - (v) List domain areas of high priority and of high impact
 - (vi) Study the standards and regulations governing travel, tourism and hospitality
 - (vii) Study the current status of digitalization of tourism sector, inter-operability, data and meta-data
 - (viii) Proposed Architecture, principles, roadmap, strategies and shared platform for promoting digitalisation in the tourism sector
 - (ix) Set up working groups as may be required on various architectural, technical and domain related aspects
6. The task force will submit its report in three months.

(Pankaj Kumar Devrani)
Under Secretary (IT)

To

The Chairman / Co-Chairman of the constituted Task Force.

The Secretary, Ministry of Home, New Delhi
The Secretary, Ministry of MSME, New Delhi
The Secretary, Department of Promotion of Industries and
Internal Trade, New Delhi.
The Secretary, Department of Commerce, New Delhi.

} With a request to
forward the details
of the nominated
officers.

Members of the constituted Task Force.

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Annexure 2 – Regulations applicable for tourism and hospitality sector

1. Labour Laws Applicable for Tourism Industry

Labour legislations are aimed at achieving congenial relationship between employer and workmen. Both should endeavour to improve the standard of living of the workers, giving room for labour harmony. A large number of labour laws are applicable to tourism sector.

2. Environmental Laws Compliance for Tourism Industry

India has an elaborate legal framework with number of laws relating to environmental protection. Various environmental laws, regulations and guidelines are applicable to tourism sector particularly for constructions and operation of accommodation units such as hotels.

3. GST (Goods and Services Tax)

GST is one indirect tax for the whole nation, which is a single tax on the supply of goods and services, right from the manufacturer to the consumer.

4. Hospitality and Hotels

The majority of the legislations governing the hospitality and hotels industry can be divided into three main sectors.

- (i). legislation for the construction and commissioning of hotels, restaurants, guest houses and other establishments
- (ii). legislation for the operation, maintenance and management of establishments, food and hygiene standards
- (iii). rules regarding taxation, employment and other contractual relationships

5. Licenses required for opening Hotel

To open a hotel, there are various licenses that are required to be obtained. Such licenses include -

- (i). Police License / Registration.
- (ii). License under Shops & Establishments Act.
- (iii). License under Prevention of Food Adulteration Act.
- (iv). Registration under the Luxury Tax Act.
- (v). Registration under the Sales Tax Act.

- (vi). Registration under the Contract Labour Act.
- (vii). Registration under the Pollution Control Act.
- (viii). Registration under the Apprentices Act.
- (ix). Registration under the Provident Fund Act.
- (x). Registration under the ESI Act.
- (xi). Entertainment License on Festival Occasions.
- (xii). License for Chimney under the Smoke Nuisance Act.
- (xiii). Registration under the Weights & Measures Act.
- (xiv). Factory License for Laundry.
- (xv). Central Excise License for Bakery Products.
- (xvi). Registration & Permits under the Motor Vehicle Act for Tourist Coaches / Taxies.
- (xvii). Eating House License.
- (xviii). Municipal Beer Bar License.
- (xix). License for storage of Diesel Oil.
- (xx). License for storage of Kerosene & Compressed Gas (LPG).
- (xxi). Sign Board Directions, Neon Signs.
- (xxii). License to deal in Foreign Exchange under FEMA.
- (xxiii). Cold Storage License, (if over 25 cubic ft.).
- (xxiv). License for Boiler & Generators and Mixers and Grinders.
- (xxv). Bar License (Foreign Liquor).
- (xxvi). Mild Liquor License.
- (xxvii). Temporary License for Awnings & covering of Terrace during monsoon.
- (xxviii). Building Completion Certificate.
- (xxix). Copy Right License for Playing of Music.
- (xxx). Lodging House License
- (xxxi). Approval from the Department of Tourism, Government of India.
- (xxxii). Prevention of Food Adulteration Act
- (xxxiii). Food Safety and Standards Act
- (xxxiv). The Legal Metrology Act
- (xxxv). Copyrights Act
- (xxxvi). The Foreign Exchange Management Act (FEMA)
- (xxxvii). The State specific Shops and Establishments statutes
- (xxxviii). The Employees State Insurance Act
- (xxxix). The Provident Funds Act
- (xl). The Air (Prevention and Control of Pollution) Act, 1981
- (xli). The Water (Prevention and Control of Pollution) Act, 1974
- (xlii). Hotel Insurance Policies
- (xliii). Laws related to local land norms

(xiv). Other local laws

6. Central Tourism Laws

- (i). Foreigners Act, 1946
- (ii). FRRO (Foreigners Regional Registration Officers)
- (iii). Emigration Act, 1983
- (iv). Passport (Entry into India) Act, 1920
- (v). Registration of Foreigners Act, 1939
- (vi). Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- (vii). Ancient Monuments Preservation Act, 1904.
- (viii). Ancient Monuments and Archaeological Sites and Remains Rules, 1959
- (ix). Antiquities and Art Treasures Act, 1972
- (x). Ganges Tolls Act, 1867
- (xi). Tolls on Roads and Bridges Act, 1875

Foreign Exchange Laws

- (xii). Remittances of Foreign Exchange and Investment in Foreign Exchange bonds (Immunities and Exemptions) Act, 1991
- (xiii). Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974
- (xiv). Foreign Awards (Recognition and Enforcement) Act, 1961
- (xv). Foreign Contribution Regulation Act, 2010
- (xvi). Foreign Exchange Conservation (Travel) Tax Abolition Act, 1992
- (xvii). Foreign Exchange Management Act, 1999
- (xviii). Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976
- (xix). Smugglers And Foreign Exchange Manipulators (Receipt, Management and Disposal of Forfeited Property) Rules, 2006

7. Ministry of Tourism - Guidelines for -

- (i). Approval of Guest Houses
- (ii). Project Approval and Classification of Tented Accommodation.
- (iii). Time Share Resorts (TSR)
- (iv). Common national standards and guidelines for classification of Incredible India Bed & Breakfast Establishments and Incredible India homestay establishments.
- (v). Approval of Operational Motels.
- (vi). Approval of Motel Projects
- (vii). Approval of Standalone Air Catering Units.

- (viii). Approval of Guest Houses
- (ix). Project Approval and Classification of Tented Accommodation.
- (x). Approval of Online Travel Aggregators (OTA)
- (xi). Classification / Re- Classification of Legacy Vintage Hotels
- (xii). Approval of Convention Centers
- (xiii). Adventure Tour Operators
- (xiv). Approval and Registration of Incredible India Bed & Breakfast/ Homestay Establishments
- (xv). Domestic Tour Operators
- (xvi). Inbound Tour Operators
- (xvii). Recognition of Tourism Service Providers by the Ministry of Tourism
- (xviii). Assistance by the Ministry of Tourism to the Tourism, Travel and Hospitality Trade Associations for their various events in India and Abroad
- (xix). The Promotion of Wellness and Medical As Niche Tourism Products
- (xx). Promotion of Film Tourism
- (xxi). Marketing Development Assistance (MDA) - Active members of India Convention Promotion Bureau (ICPB)
- (xxii). Ministry of Tourism's support to promote Polo as Niche Tourism Product
- (xxiii). Empanelment of Private Bodies, Institutions, Organisations as training providers for hospitality trades under the Hunar Se Rozgar Tak programme of the Ministry of Tourism

8. State Laws

Andhra Pradesh Tourism Laws

- Andhra Pradesh Tourism, Culture and Heritage Board Act, 2017
- Andhra Pradesh Tourism Authority (Constitution, Functions and Powers) Rules, 2016

Assam Tourism Laws

- Foreigners (Tribunals for Assam) Order, 2006.
- Rules for Grant of Incentive for Promotion of Tourism in the State of Assam

Bihar Tourism Laws

Chhattisgarh Tourism Laws

Delhi Tourism Laws

- Delhi Prevention of Touting and Malpractices Against Tourists Act, 2010
- Delhi Urban Heritage Foundation Regulations, 1999

Gujarat Tourism Laws

Goa Tourism Laws

- Goa Tourist Places (Protection and Maintenance) Act, 2001

Goa, Daman and Diu Laws

- Goa, Daman and Diu Registration of Tourist Trade Act, 1982

Haryana Tourism Laws

Himachal Pradesh Laws

- Himachal Pradesh Registration of Tourist Trade Act, 1988
- Himachal Pradesh Tourism Development and Registration Act, 2002
- Himachal Pradesh River Rafting Rules, 2005
- Himachal Pradesh Heritage Tourism Policy, 2017
- Himachal Pradesh Aero Sports Rules, 2004
- Himachal Pradesh Home Stay Scheme, 2008
- Himachal Pradesh Sustainable Tourism Development Policy, 2013
- Himachal Pradesh Forest Department Re Revised Ecotourism Policy, 2017

Jammu and Kashmir Tourism Laws-

- Jammu and Kashmir, Registration of Tourist Trade Act, 1978
- Jammu and Kashmir Handicrafts (Quality Control) Act, 1978
- Jammu and Kashmir Heritage Conservation and Preservation Act, 2010

Jharkhand Tourism Laws-

- Jharkhand Tourism Development and Registration Act, 2015
- Jharkhand Tourist Places (Protection and Maintenance) Act, 2015

Karnataka Tourism Laws

- Karnataka Tourism Trade (Facilitation and Regulation) Act, 2015
- Chalukya's Heritage Area Management Authority Act, 2017
- Garden City University Act, 2013
- Hampi World Heritage Management Authority Act, 2002
- Sahyadri Heritage Development Authority Act, 2011

Kerala Tourism Laws

- Kerala Tourism (Conservation and Preservation of Areas) Act, 2005

Madhya Pradesh Tourism Laws

- M.P. Foreigners (Arrest and Conditions of Detention or Confinement) Order, 1974

- Madhya Pradesh Rajya Sadak Parivahan Seva (Bina Tikat Yatra Ki Rok) Adhiniyam, 1974

Maharashtra State Laws

- Champaner-Pavagadh Archaeological Park World Heritage Area Management Authority Act, 2006

Nagaland Tourism Laws

- Nagaland Registration of Tourist Trade Act 2000

Odisha Tourism Laws

Punjab Tourism Laws

Rajasthan Tourism Laws

- Rajasthan Tourism Trade (Facilitation and Regulation) Act, 2010
- Rajasthan Tourism Disposal of Land and Properties by DOT/RTDC Rules, 1997
- Rajasthan Conditions of Detention (Foreigners Act) Order, 1966

Tamil Nadu Tourism Laws

- Tamil Nadu Heritage Commission Act, 2012

Telangana Tourism Laws

- Telangana Heritage (Protection, Preservation, Conservation and Maintenance) Act, 2017

Uttarakhand Tourism Laws

- Uttaranchal Tourism Development Board Act, 2001

Uttar Pradesh Tourism Laws

West Bengal Tourism Laws

- West Bengal Heritage Commission Act, 2001

**Government of India
Ministry of Tourism
(IT Division)**

Notification

No. /

Subject: Setting up of National Digital Tourism Mission (NDTM)

1. Ministry of Tourism had constituted an inter-ministerial task force for National Digital Tourism Mission on 23rd July, 2021 to undertake consultations with the tourism industry and domain experts, define the context, mission, vision, objectives, and overall scope of the National Digital Tourism Mission.
2. The Task Force has prepared a report on proposed National Digital Tourism Mission, which inter-alia lays down domain and technology principles, standards, digital stack, governance structure and plan for implementation of the envisaged National Digital Tourism Mission.
3. In pursuance of the recommendations of the Task Force, the Ministry of Tourism hereby sets up National Digital Tourism Mission (NDTM) as per Annexure-1 to the notification.

Pankaj Devrani
Under Secretary to the Government of India
Ministry of Tourism

Government of India
Ministry of Tourism

National Digital Tourism Mission

1. The Context

- 1.1. Digitalization in tourism sector presents opportunities for tourism enterprises to expand their market reach, increased growth, improved operational efficiencies, and sharpen their competitive edge. At a collective level, it will help to develop and customize product offerings, improve destination connectivity, generate data to track performance, and help to improve destination management. Over the long term, digital transformation can unlock innovation and ensure the competitiveness of India's tourism sector.
- 1.2. The tourism sector is highly fragmented. Subsectors of tourism such as transport, accommodation, restaurants and catering, and personal services are all subject to very different challenges and opportunities. The adoption of digital technologies in tourism sector, which is dominated by MSMEs faces multiple challenges.
- 1.3. Most of the tourism systems developed by Central Government, State Governments, Public sector and Private sector function in silos. As a result, the tourism ecosystem is unable to harvest the combinatorial benefits of information exchange. Data systems currently don't interact with each other using a common language, thereby curtailing data analytics and resultant policy-making. In order to overcome the same, there is need for seamless standardized data exchange amongst various stakeholders
- 1.4. Ministry of Tourism had constituted an inter-ministerial task force for National Digital Tourism Mission on 23rd July, 2021 to undertake consultations with the tourism industry and domain experts, define the context, mission, vision, objectives, and overall scope of the National Digital Tourism Mission.
- 1.5. The Task Force has prepared a report on proposed National Digital Tourism Mission, which inter-alia lays down domain and technology principles, standards, digital stack, governance structure and plan for implementation of the envisaged National Digital Tourism Mission.
- 1.6. In pursuance of the recommendations of the Task Force, the Ministry of Tourism has set up National Digital Tourism Mission to be called NDTM hereinafter.

2. Vision of NDTM

- 2.1. The National Digital Tourism Mission envisages to achieve the objective of harnessing the full potential of digitization in tourism sector by facilitating exchange of information and services in tourism sector spreading across national and state tourism organizations, tourism service providers, tourism destinations, products, experiences and tourists.
- 2.2. The vision of **National Digital Tourism Mission** is to bridge the existing information gap amongst different stakeholders of tourism ecosystem through a digital highway.



Figure 1: Vision of National Digital Tourism Mission

3. Strategic Objectives

The key strategic objectives of NDTM are:

- (i). To enhance the competitiveness of tourism sector in the Country
- (ii). To create smart destinations with the help of digital technologies
- (iii). To bring about digital transformation of business processes and models
- (iv). To cultivate markets through digital transformation
- (v). To help MSMEs in adopting digital technologies
- (vi). To promote digital skills in the work force

4. Key Stakeholders

NDTM under the aegis of the Ministry of Tourism will work with a diverse set of stakeholders. The key stakeholders are:

- (i). Central Government Ministries
- (ii). State Governments
- (iii). Destination Management Organizations
- (iv). Key Tourism Industry leaders
- (v). Industry Associations in Travel and Tourism
- (vi). Private Sector Players in Travel and Tourism
- (vii). Reputed Government or other Institutions in any area of Tourism Development
- (viii). Academic Institutions
- (ix). Development Agencies
- (x). Civil Society

5. Tourism Services Ecosystem

The tourism services ecosystem comprises of various actors i.e.

(i). Accommodation Services

Hotels/ guesthouse/ lodge/ motels/ legacy vintage/ heritage hotels, shared accommodation, hostels, camping, bed & breakfast, cruises, home stay, house boats, farmhouse accommodation and agri-tourism, time share accommodations and resorts.

(ii). Transport Services

Airlines, car rental, bus transport, water transport, coach services, railways, space-craft etc.

(iii). Food & Beverage Services

Restaurants, catering, bars & café's, nightclubs, local eateries etc.

(iv). Entertainment Services

Shopping, casino, fun parks, adventure, circus, multi-purpose cultural complexes, theatre, spas, folk dances, events, festivals and online / offline information regarding tourist attractions.

(v). Tourism Service Providers

Travel agents, tour operators, online travel aggregators (OTAs), tourist drivers, waiters, chefs, tourist guides, destination wedding managers, Professional Congress Organizer (PCO), Association Management Company (AMC), Destination

Management Company (DMC) and Event Management Company (EMC), managers of historical monuments, temples, excavation sites, sanctuaries, convention halls, auditoriums, Zoos, museums etc.

(vi). Connected Industries

Financial services (currency exchange, insurance), religion, sports, film, health and wellness, education (conference, exhibition) and business (MICE).

6. Lifecycle of a Tourist

NDTM will encourage digital support throughout customer journey. A tourist has three distinct time phases in the life cycle of a holiday, which may be identified as:

(i). Pre-holiday Period

During this time the tourist searches for information on various tourist destinations, identifies suitable destinations to visit, prepares budget, prepares itineraries, creates expectations, packs bags, makes suitable arrangements at home (e.g. leave pet at another place), arranges for Visa (if required), buys tickets and related loans / insurance policies.

(ii). Holiday Period

During this period, the tourist undertakes various activities like liaising with service providers, ticketing, transportation, laundry, accommodation, catering, shopping, entertainment and creates memorabilia. The tourist also shares his experience on social media.

(iii). Post-Holiday Period

In this period, the tourist may give feedback to various service providers, clear dues if any, unpacks bags, laundry, grocery shopping and readies the home for daily activities.

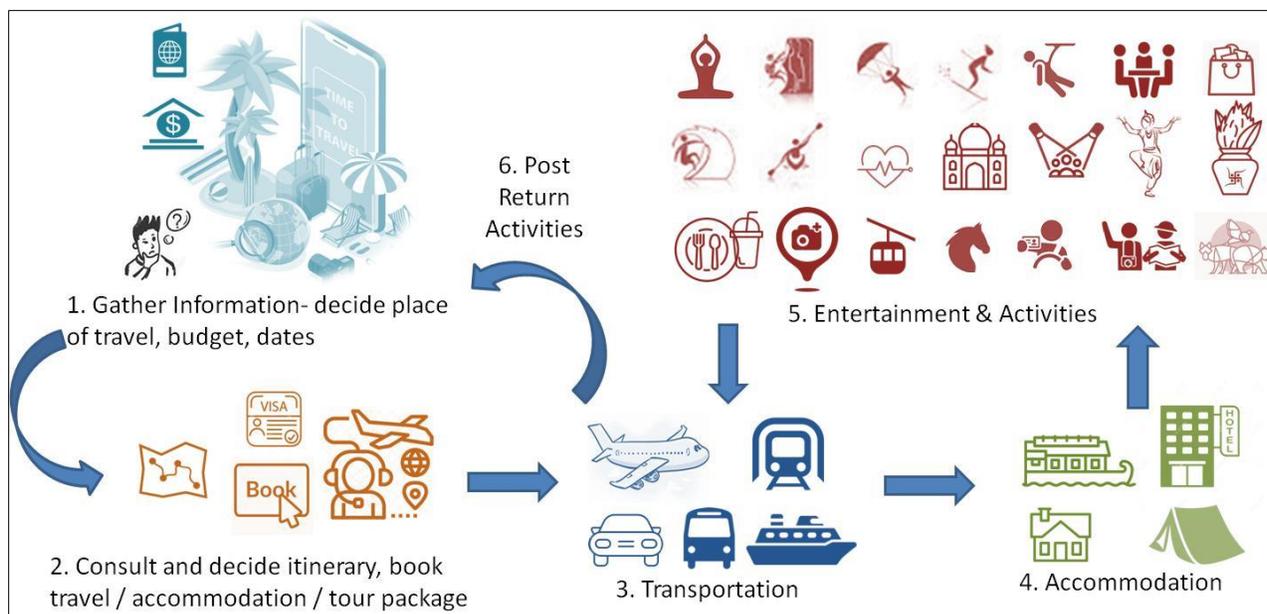


Figure 2: Lifecycle of a Tourist

7. Setting up Standards for Tourism Sector

NDTM will work towards promotion of industry wide standards in the tourism sector both domain specific and IT related.

(i). Protocols and Micro-services

The micro-services pertaining to standardized open data and other domain apps shall need to be exposed following open API specifications/ protocols pertaining to the tourism ecosystem. A committee consisting of technical representatives from different Ministries, States, experts, academia and industry may collaborate with BIS for ratification of these open protocols.

(ii). Data Governance Policy

In order to ensure data protection, data quality, data security, data privacy, data sharing obligations, portability and interoperability and compliances under the applicable laws, a data Governance policy will be framed specifying roles and responsibilities of various ecosystem actors towards maintaining and facilitating reliable data exchange.

(iii). Domain Standards

Some of the domain standards for the tourism may be star ratings of accommodation units, classification of transport as luxury, standard or local, badges for tourist agents and tourist drivers, classification of tour operators, sustainable tourism criteria of India etc.

8. Streamlining Regulations for the tourism industry

There are a large number of regulations across Central and State Governments and NDTM will encourage rationalization, simplification and uniformity in these regulations across States. NDTM will work towards complete digital enablement of implementation of regulation ensuring transparency and reducing the burden of compliance.

9. Principles of National Digital Tourism Mission

NDTM will follow the relevant principles of Indian Enterprise Architecture for Tourism Ecosystem and its ICT services. It will cover domain principles, design and architecture principles, technology principles briefly described below.

10. Domain Principles

(i). Value-driven

The interests of the beneficiaries and users for whose benefit the digital infrastructure and solutions will be developed must be a central focus. Depending on the context and solution, beneficiaries and users can be the tourists, tour service providers, mobility service providers, accommodation service providers, food and beverage service providers, entertainment service providers and service providers of connected industries.

(ii). Unifying Services

Identify, design, and deliver integrated services that cut-across agency boundaries, to realize the goal of a connected ecosystem.

(iii). Outcome-driven

Define service levels and outcomes benchmarking with the best, and then build services around such outcomes. Define, design, deliver and measure services by adopting the laid down standards.

(iv). Affordable choices

Availability of affordable choices in solutions (localized, customized, multilingual), access (anyone, anytime, anywhere) and agency.

(v). Diversity and Inclusion

Diversity and inclusion across device types, linguistic barriers, geography and accessibility compliant.

11. Design and Architecture Principles

(i). Ecosystem Thinking

All digital initiatives to be designed as ecosystems, spanning across Centre and States, public and private, composed of several autonomous, interoperable and federated systems. Drive participatory design, ecosystem and end-user engagement at all stages of the digital initiative.

(ii). Building Block approach

Architect and design systems and ecosystems in terms of minimal and reusable Building Blocks, categorized as Core, Common and Reference Building Blocks which are loosely coupled and combinable.

(iii). Assured Service levels

The ecosystem members should define promise based inter-relationships and set-up quality control processes to achieve assured service levels for all participating stakeholders.

(iv). Federated Architecture

Adopt a Federated Architecture model for designing digital ecosystems- build around the constructs of Single-Source-of-Truth and System-of-Records. While a central system can speed up adoption, it should be a choice, and bringing interoperability across many federated systems through common specifications is necessary.

(v). Be open and inter-operable

Use and/ or build open standards, licenses, databases, APIs, etc. and promote inter-operability. It helps realize inter-platform efficiencies, promotes competitive behaviour and guards against potential monopolies of unfair value capture.

(vi). Resilient

The building blocks should be orchestrated in a federated manner with no single point of failure. Services must be built to withstand failures by building automated recoveries and adaptation. Similarly, all processes must be designed to allow flexibility and re-adaptation to handle disruptions.

(vii). Minimal, Reusable, Unbundled and Shareable

Building blocks must be minimal (both data and functional), atomic, and generalized allowing solution builders to “reuse and extend” them to build contextual and scalable solutions, preventing reinvention of the wheel. The paradigm of minimalistic approach should be applied through a minimum viable and micro-services-based architecture, minimal documentation, agile procurement / resourcing and regulatory processes.

(viii). Innovation

Catalyze, energize and support (policies, infrastructure), ‘responsible’ deployment of emerging technologies.

12. Technology Principles

(i). Data is an asset

Design data systems in a manner that creates, supports, maintains and enhances value to the enterprise specifically, and to the ecosystem in general. Promote establishment of **Data Marketplace(s)** that enable regulated exchange of data for public purposes, innovation and research, and for permitted commercial purposes.

(ii). Data sharing

Lay down clear policies specific to the relevant domain(s), that enable and regulate the sharing of data.

(iii). Standards

Specify the existing technology and data standards applicable to the ecosystem. Define methods to ensure compliance.

(iv). Privacy-by-Design

Design and publish a privacy policy that conforms to the principles of Privacy-by-Design.

(v). Secure and Trust Based

Design to protect privacy of users and entities while inducing trust in every interaction.

13. Digital Stack of NDTM

In order to realize the vision laid out by the National Digital Tourism Mission, considering the recommendations of the tourism stakeholders and following the above laid NDTM principles, the digital stack of NDTM has been illustrated in figure below:

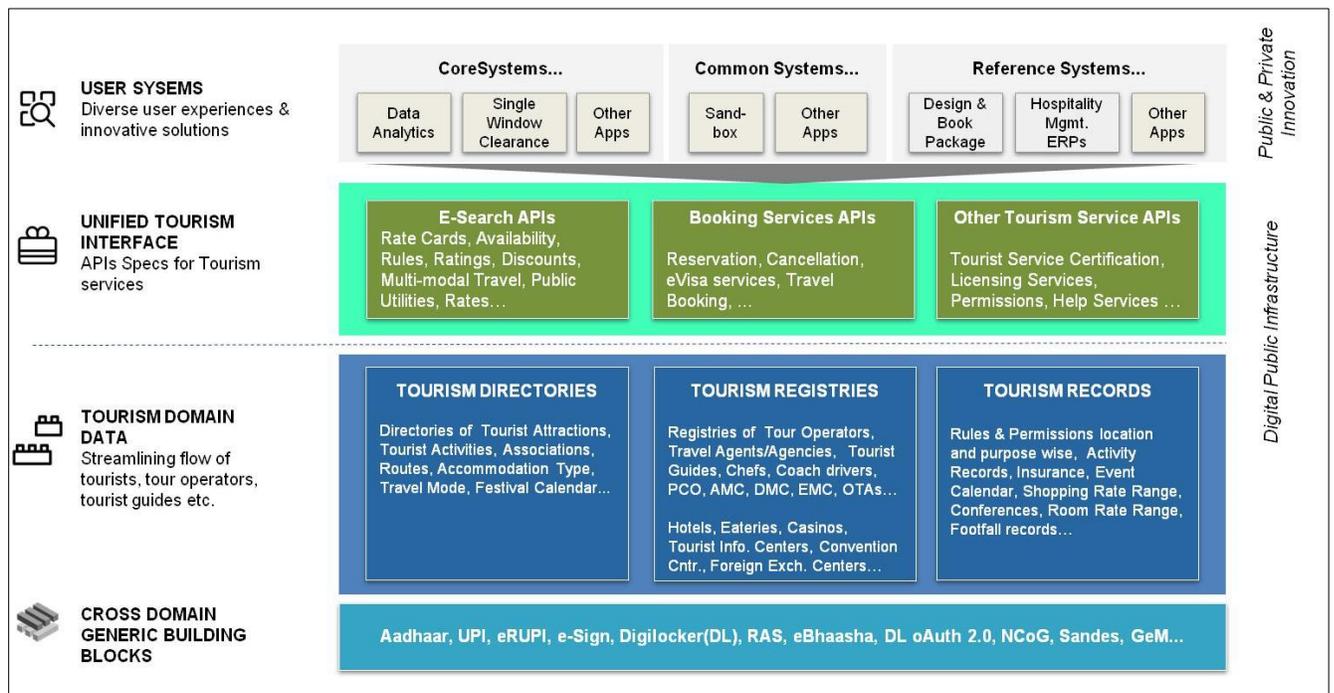


Figure 3: Digital Stack for National Digital Tourism Mission (NDTM)

13.1. Layer 1: Cross Domain Generic Building Blocks

This layer denotes the underlying digital infrastructure layer commonly available to all GoI Ministries, States and public at nominal or no cost. This digital infrastructure layer helps to achieve uniqueness of key data sets, economies of scale and facilitates all India portability for stakeholders of the ecosystem. Some of the key digital infrastructure are Aadhar, DigiLocker, UPI/BHIM etc.

13.2. **Layer 2: Tourism Domain Data**

The second layer consists of core domain data elements related to Tourism. The initial set of Core Master Data/Codes and Directories, Repositories and Records are as follows.

(i) Tourism Directories

Directories of tourist attractions, tourist activities, associations, routes, accommodation type, tourist transport facilities (e.g. ropeways), festival calendar, convention halls, public utilities etc.

(ii) Tourism Registries

Registries of tour operators, travel agents/ agencies, online travel aggregators (OTAs), waiters, destination wedding managers, tourist guides, chefs, coach drivers, PCO, AMC, DMC, EMC, OTAs, accommodation units, eateries, circus, fun parks, theatre, spas, events, casinos, tourist info. centers, convention centers, foreign exch. centers etc.

(iii) Tourism Records

Tourism records will include rules & permissions location and purpose wise, activity records, travel insurance, event calendar, shopping rate range, conferences, room rate range, footfall records etc.

(iv) Ensuring Single Source of Truth

This will ensure sharing of single source of truth among departments and external agencies thereby providing opportunities for improved efficiency and effectiveness in Governance. It will also enable departments at various levels of Government to identify, discover, describe, manage, protect, and share the System of Records (SoR) for consistent reuse information within and across agencies and their business partners. The creation of these directories and registries shall enable digital verification tour operators, travel agents, licensed bars etc., can lead to increased trust amongst the tourist and ecosystem actors.

13.3. **Layer3: Unified Tourism Interface**

(i) Data and information exchange amongst multiple ecosystem actors

The Unified tourism interface layers shall enable data and information exchange amongst multiple ecosystem actors and services. Depending upon the use case the information providers and information consumers may change.

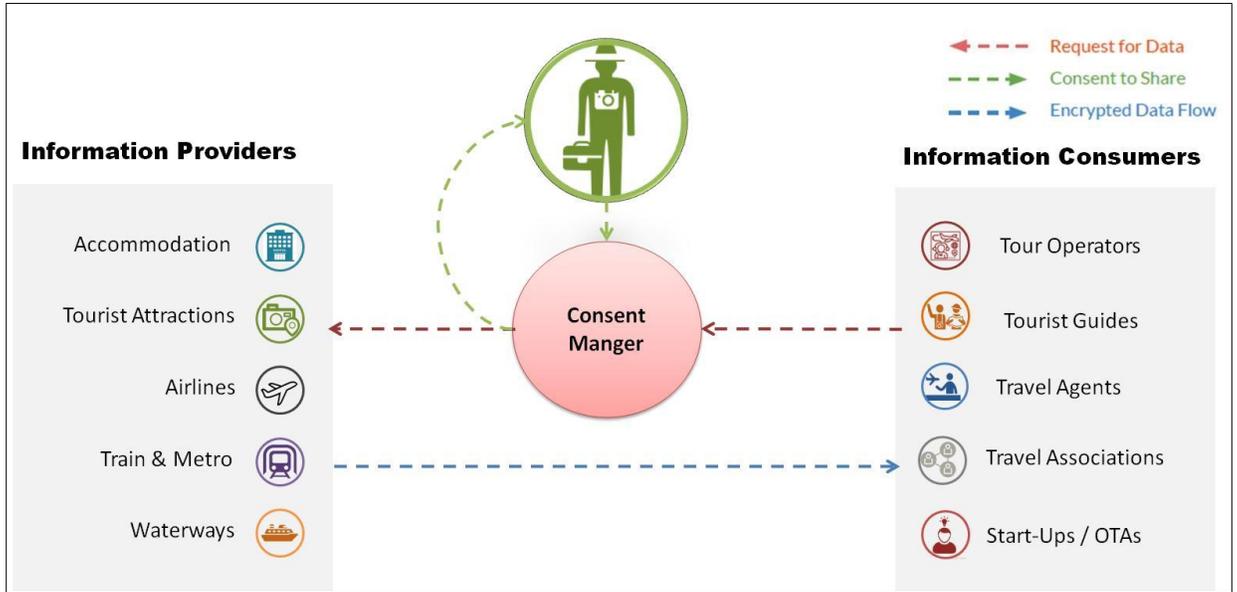


Figure 4: Unified Tourism Interface Enabled Data Exchange

(ii) APIs/ Micro services

The **third layer** of the tourism interface shall consist of services layer built on top of the data layer which shall enable various applications and systems. Actors of NDTM shall be encouraged to deploy their APIs/ micro-services as open APIs following API specifications/ protocols and standards of NDTM. These APIs shall be deployed on the NDTM eMarketplace / API exchange. Some of the identifiable services in the NDTM context are as below.

(iii) Discovery APIs

These API shall be help the tourism ecosystem actors and tourists to connect with the ecosystem in a convenient and cost effective manner. The systems in the tourism domain would be able to share live rate cards, get tourist accommodations availability details, tourist travel availability details, know-how of required permissions, know-how of applicable rules, discount details, access to multi-modal search for travel and route planning, nearby public utilities etc.

(iv) Booking APIs

These APIs shall allow the ecosystem actors to reserve accommodations, restaurant tables, entertainment tickets, tourist coaches, tickets and cancel reservations, apply for eVisa services etc. for tourists who provide explicit consent for data sharing.

(v) Other Tourism APIs

These APIs may relate to service rating, payment services, certification services, licensing services, permissions services, help services and other such services.

13.4. Layer 4: User Systems

(i) Core, Common and Reference Systems

This layer shall consist of core, common and reference systems and aggregate platforms. Usage of the services available in the Unified Tourism Interface (UTI) shall enable emergence aggregator platforms in the tourism space. The following core applications may be envisaged.

(ii) Single window compliance platform

This platform shall provide a single window platform to gain knowledge about rules, regulations and compliance requirements for all actors of the tourism ecosystem. For example, tourist visitor timings, ticketing rules, special travel requirements, medical requirements, conflict zone etc. shall be made available. For service providers, various license requirements, NOC requirements, compliance requirements etc.

(iii) Data analytics platform

The data analytics platform shall use aggregate anonymized data for research, planning and policy making etc. Aggregate data sources like telecom etc., can be used to understand the seasonality, movement patterns, trip length etc. of tourists.

(iv) Common Applications

Some Common applications which can be used by both public and private player like Sandbox environment, and API exchange gateway or eMarketplace shall also need to be provisioned.

(a) **Sandbox Environment-** to enable the various ecosystem actors to discover, understand, engage, experiment, innovate, and build on existing core data, infrastructure and exchange. The Sandbox encourages collaboration and

development of various innovative applications and value added services. Test viability/response before a more expensive roll-out.

- (b) **Tourism eMarketplace** - a National aggregate platform utilizing services from the National and State level to create a marketplace where customized tour packages may be available from authorized providers for domestic and international tourists.

(v) Reference Applications

Apart from the above the Government may foray into building reference applications, which shall be built as open source and technology companies shall be encouraged to build upon these products.

- (a) **Tour Planning** software for tour operators who do not have access to large aggregate digital platforms, but want to provide customized best deals to the client.
- (b) **Hospitality Facility Management ERPs** may be rolled out as open source. Such that low-cost digital options may be made available for small hospitality service providers.

14. Design and Technology principles to be followed

The systems servicing various needs of the tourism ecosystem should follow the design and technology Principles laid out in the document, and non-functional requirements like performance, usability, UI/UX, availability, recovery, error handling & resolution etc.

15. Federated view of NDTM building blocks

The above-mentioned building blocks including registries etc., shall need to be built in line with the federated governance structure of India in partnership with the State Governments. The federated view of the building blocks discussed above is represented in the figure below.

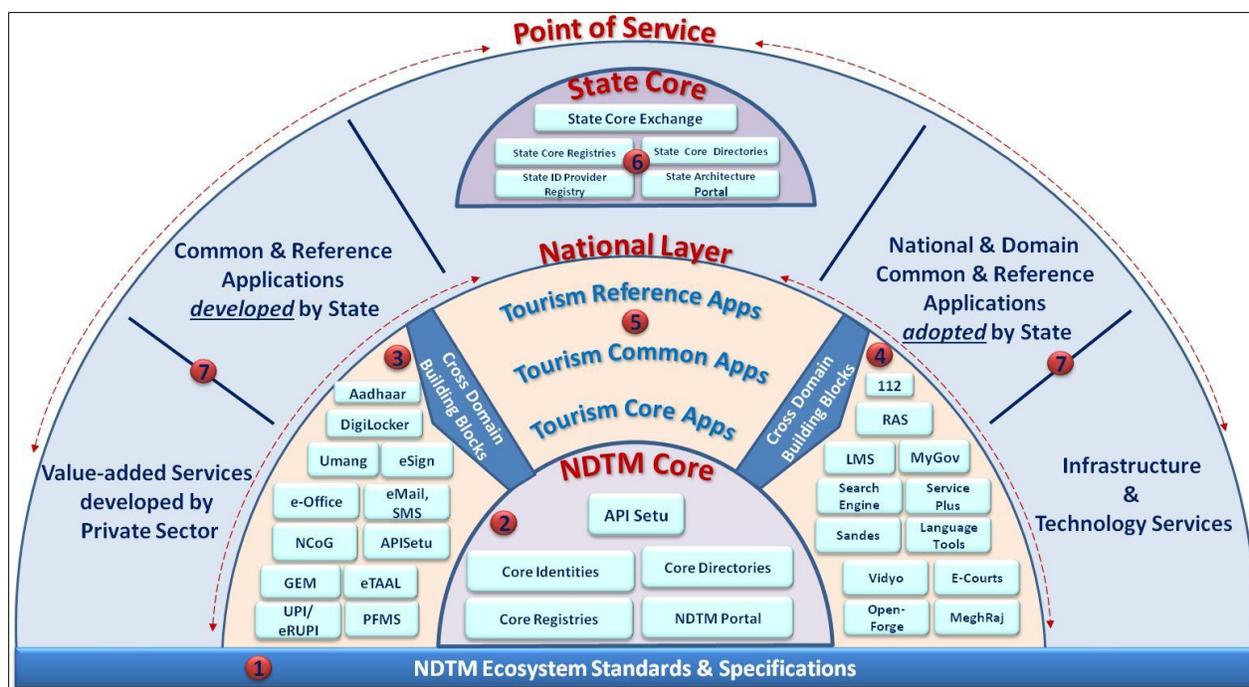


Figure 5: Federated View of NDTM Building Blocks

16. Collaboration between Central and State Governments for implementation

Considering the federated orchestration of governance, the Central Government and State Governments shall need to coordinate in a proactive manner to make NDTM a reality:

- (i) NDTM will set up Core Registries such as accommodation registry, tourist guide registry, tour operator registry etc., in a federated manner i.e. in collaboration with States who may have already prepared such registries, such that rework is minimized and national uniqueness is maintained amongst the various actors who have enrolled in the registries.
- (ii) Further, Core Directories of tour routes, associations, tourist attractions, tourist activities etc. shall need to be prepared along with weather and mobility protocols. These standard notations and API specifications/ protocols need to be adopted by the Government organizations and agencies.
- (iii) The distribution, method of capture and governance of the core building blocks shall be taken up in discussion with the States.

17. Quick Wins

NDTM envisages following quick wins after analyzing the challenges, and objectives of the Tourism Ministry and the list of building blocks elaborated in the National Stack for Tourism, which can have high impact on tourism sector.

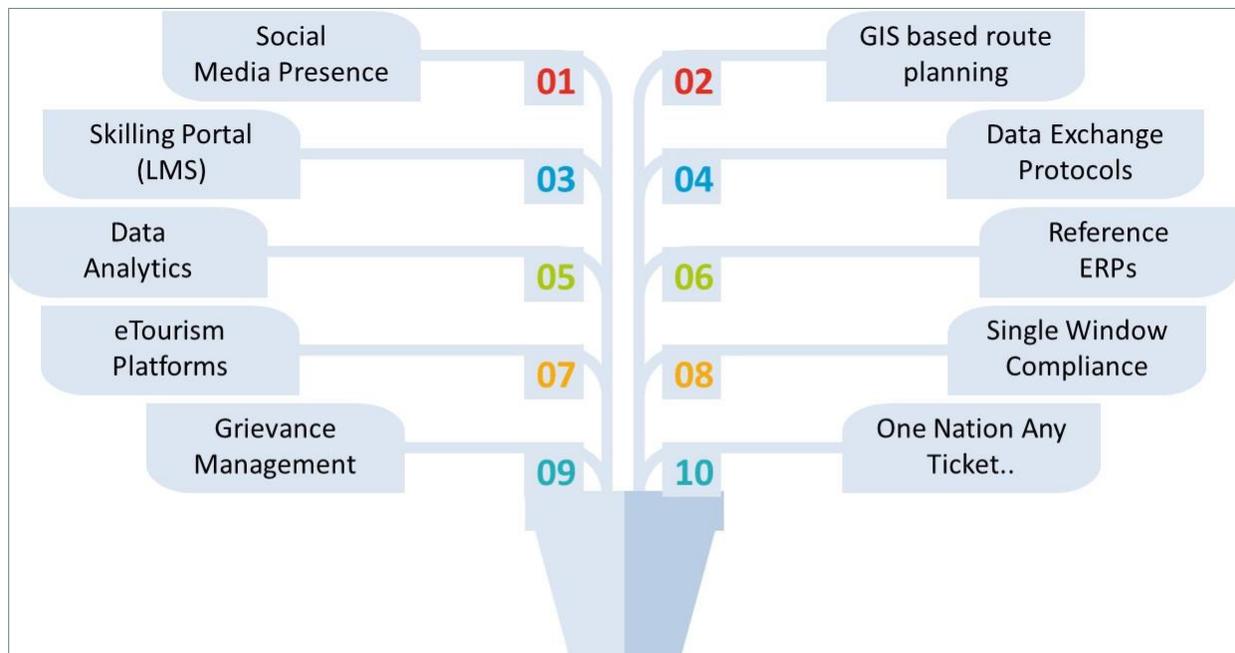


Figure 6: Recommendations reg. High Impact IT Interventions

18. Governance and Institutional Structure

The implementation of NDTM vision and principles will result in wide adoption by the ecosystem of Centre, State, public, non-profit, private as well other stakeholders. The Mission will adopt institutional structure after study of several analogous digital infrastructures created in other sectors in India - GSTN, NPCI, UIDAI, National Health Authority etc.

The objective of the institutional structure for NDTM would be “To orchestrate, catalyse and support the tourism and digital ecosystem in the development and adoption of a national digital tourism infrastructure to achieve the objectives of and fulfill the vision of NDTM”.

19. Essential Elements

The institution structure should have a minimal footprint, be evolvable and agile, federated and inclusive (centre - state - public - private - unions) to enable and catalyse

through multi-stakeholder ecosystem. A few essential elements that need to be carefully considered while designing the institutional framework for NDTM:

- (i). **Mandate** - The scope and vision of the entity.
- (ii). **Legal constitution** - The nature (statutory, autonomous, non-profit etc), ownership and autonomy of the entity.
- (iii). **Composition and Governance Structure** - The composition of the entity and representation of diverse stakeholders (with appropriate experience and skill sets) across leadership, advisory and functional verticals, such that it ensures that the entity is set up for success.
- (iv). **Roles and responsibilities/ services offered** - The roles and responsibilities charted out for the entity should reflect the mandate very clearly. The nature of responsibilities created in the first instance would be critical in ensuring that the NDTM organization can easily take an agile approach and continue to adapt to the rapidly evolving world of technology as well as changing needs of the stakeholders.
- (v). **Funding** - The mechanism to fund the entity for its operations should be such that consideration is given to its independence in decisions and functioning to realize its vision as well as its long term sustainability, while financially supporting its formation and incubation till it reaches a steady state of operations.

20. Envisaged roles and responsibilities of the institution

20.1. Ecosystem – catalyze and energize the tourism ecosystem

- (i). To achieve the objectives of NDTM as articulated in the blueprint and as it evolves from time to time, and realize the vision of NDTM.
- (ii). To promote adoption of NDTM by GoI, States, Private/ NGO Sectors.
- (iii). By engaging the ecosystem through events, hackathons, innovations, fests and other such outreach, engagement and development programs.

20.2. Building Blocks

- (i). Enable and orchestrate the development, creation and evolution of the building blocks of NDTM.

- (ii). Identify and share best practices in use of NDTM compliant building blocks to create diverse solutions.
- (iii). Identify and share innovations and solutions compatible with NDTM building blocks, use of open data in tourism and improvements in efficient governance processes.

20.3. Standards, Specifications and policies: Develop, Support, Publish, Curate, Frame

- (i). Standards, specifications and policies in the areas of technology for tourism, open data and protection of data of individuals and for a thriving and innovative ecosystem.
- (ii). Specifications of core, common, reference and other building blocks.
- (iii). Setting up standards for establishment and management of registries which will be a single source of truth for tour operators, hoteliers, event managers etc.
- (iv). Rules and tools for fostering innovation and development of diverse solutions by energizing the tourism ecosystem of government, associations and the private sector.

20.4. Innovations and Solutions

Encourage, promote, incentivize, support, facilitate, support the development of:

- (i). Diverse solutions and innovations by leveraging emerging technologies for the tourism ecosystem including but not limited to AI/ML, AR/VR, etc.
- (ii). Reference solutions for NDTM by leveraging building blocks of the digital infrastructure.
- (iii). Ecosystem Sandbox along with engagement frameworks, rules, and tools.

20.5. Capacity Building & Change Management

In relation to NDTM Architecture, Ecosystem Architecture, Ecosystem Technologies, Content Development.

21. Institutional structure

21.1. Autonomous Entity under the aegis of Ministry of Tourism

Given the vision, evolvable nature and diverse expertise required for NDTM, the institution may be created as an autonomous entity under the aegis of the Ministry of Tourism. The multi-stakeholder and ecosystem approach must be reflected in the institutional framework, with the involvement of non-profit and private sectors engaged to provide accommodation, food and beverage, transport, entertainment, online aggregators etc.

21.2. Strategic Control with the Government and allow diverse representation

While strategic control may remain with the Government; diverse representation and participation will foster innovation and will help NDTM in staying ahead of the curve in many domains. Such involvement will augment the ecosystem approach of NDTM and will ensure wider adoption of NDTM, by the tourism ecosystem, which will include not only the Centre and State governments and their allied institutions but also other associations and private entities. It is also envisaged that the regulatory role should remain with MoT.

21.3. A separate dedicated body to be set up

A new autonomous body will be required to house NDTM and allow for a strong and diverse leadership. This will enable NDTM to establish a broad platform for supporting and interfacing with existing institutions and adapting to the emerging needs of the ecosystem. The organization should have a dedicated board of directors/ governing council and CEO to handle operational responsibilities.

21.4. Strategic control of core technology

Like the ever-evolving nature of technology itself, NDTM would be an evolving ecosystem with multiple building blocks and will continue to develop and mature through efforts of multiple ecosystem partners. Continuous compliance with architectural principles and standards prescribed is also a challenge during implementation. Technology implementation, sustenance, upgradation, and knowledge transfer is a continuous process and can only be sustained with stable top level in-house expertise. Strategic control of the core technology that is used within the Government infrastructure is critical. Suitable organization within Government with experience in application of IT in different domains in Centre as well as State level, can be given responsibility to ensure the Government has strategic control of core technology, ensure its compliance with rules & regulations, particularly from an openness and data protection perspective.

21.5. Provision of funds

Ministry of Tourism will make provision of appropriate funds for realizing NDTM's mandate and running day-to-day operations for the initial 4-5 years. In the long term, a phased transition will be planned for NDTM to move to a self-sustainable, revenue generating model (not-for-profit model). Potential revenue streams may include (but not limited to) monetizing reference applications and services it provides to other ecosystem players. Alternatively, it can also accept grants and aids from outside the Ministry of Tourism, and philanthropic contributions in funding or resources and assets for reduced dependence and increased sustainability. A self-financing model may also drive service orientation for NDTM and provide incentives to continuously innovate and respond to the needs of beneficiaries. This should ideally be accomplished without compromising the essential defining trait of NDTM building blocks being available as a public good.

21.6. PMU to be set up immediately

Even as the larger institutional framework may take time to fully fructify, in order to roll out the vision of NDTM and also to set up demonstrative examples of what NDTM envisages to do, the MoT would like to proceed with projects and programmes under the NDTM framework with immediate effect.

To immediately start working on NDTM, a dedicated Program Management Unit (PMU) may be set up, staffed with specialized consultants for the development of a roadmap for NDTM implementation, identification & prioritization of work, budgetary estimation, design, monitoring and follow up the progress of NDTM implementation. PMU should also provide opportunities for volunteers from the industry to join for a stipulated time. PMU shall initially work directly under the MoT until the NDTM institutional set up is ready.

21.7. NDTM Task Force

The Task Force for National Digital Tourism Mission will continue to review and monitor strategic direction and policy guidance to the PMU and other stakeholders. The Task Force will provide direction to the efforts of the operations group, including the PMU.

22. Envisaged Benefits of NDTM

22.1. NDTM to Bring Host of Benefits

The National Digital Tourism Mission is envisaged to bring about a host of benefits as summarized in the figure below. The implementation of NDTM shall have multifold benefits to various entities of the tourism ecosystem. Not only will it improve the

efficiency and effectiveness, but it will also increase transparency and provide a boost to tourism economy by preventing data leakages.

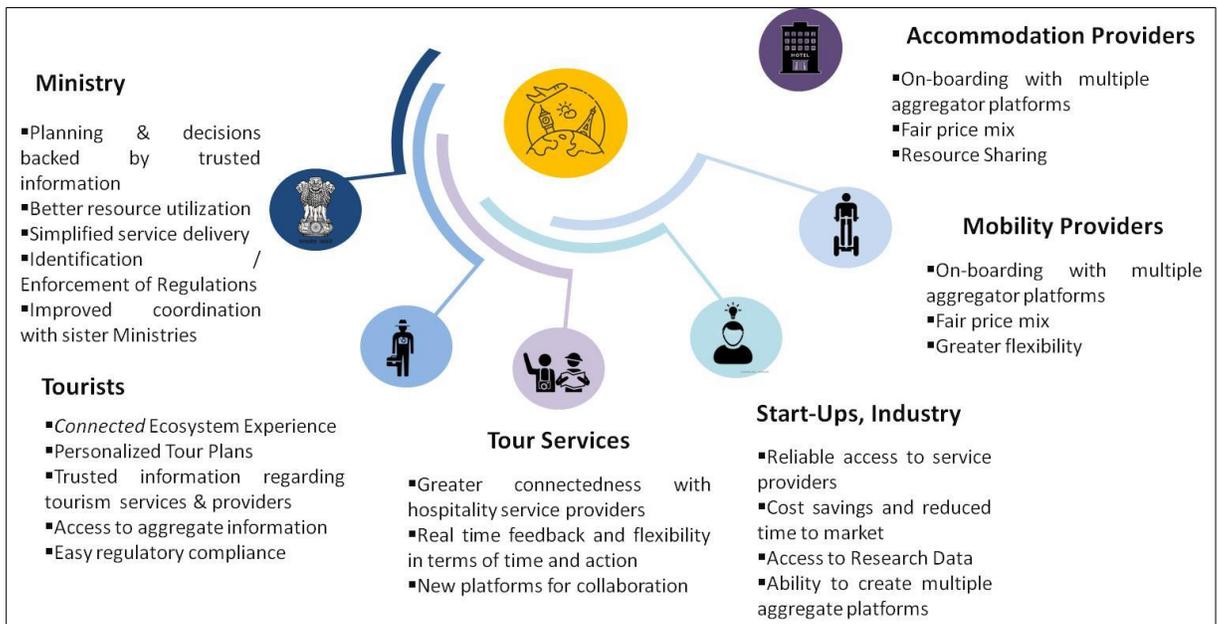


Figure 7: Envisaged Benefits of UTI

22.2. Information availability to tourists

Tourists are envisaged to receive a plethora of services, for which they may no longer visit multiple channels to design their travel plan. The tourist will be able to search for information on various tourist destinations/spots, identify suitable destinations, arrange for Visa (if required), book tickets for both local and outstation transportation (round trip), avail loans / insurance (if required), search and book accommodation and look for catering, shopping, entertainment in the vicinity of tourist spots.

22.3. Insights and personalized information

NDTM will give insights to the tourist about the travel time, cost and rating of the services to facilitate the tourist with multiple travel options. NDTM shall enable the tourist to securely store and access their previous activities, bookings, travel routes. Over the time, with data analytics, personalized tour plans and other suggestions will be provided to the user to further reduce the turnaround time.

22.4. Towards connected and smart tourist destinations

The mission shall empower the users with a connected government experience enabling easy and quick access to trusted aggregate information regarding tourism services & providers to enable informed decision making.

NDTM will provide the users both the options of accessing public as well as private services, facilitate compliance with regulatory guidelines and protocols, and improve accountability by displaying cost of tourism services.

22.5. Enabling and assisting Tourism Service Providers

NDTM shall assist Tourism service providers across all sectors a greater connectedness to their target user base by providing better access of tourist data for producing more efficient and user-friendly service. This cycle of using data and creating data shall strengthen the Tourism Ecosystem from within. The service providers shall also benefit from the Real time feedback facility allowing them to identify their gaps and improve on their services. This would also provide them with the flexibility in terms of time and action. Apart from their own websites and channels, the providers shall have a new national level platform for collaboration.

22.6. Support to Startups

NDTM will support the startups, new undertakings and industry by offering reliable access to open data, service providers and research Data. This shall help the new ventures to quickly integrate with the ecosystem and contribute to the system. Start-ups will be benefitted by authentic and ready data reducing their cost, effort and time to market allowing them to create multiple aggregate platforms.

22.7. Support to Enterprises in onboarding on multiple platforms

NDTM will also support both small and large accommodation providers, mobility service providers etc. with multiple platform on-boarding. Providers will also have various options for collaboration and attract tourists with exclusive offers. NDTM will provide them with interested tourist across the nation which would help them to expand their business. Providers can also share their resources to ensure better travel experience of tourists. NDTM will also ensure fair price mix which shall increase competitiveness between providers ensuring higher quality of service and helps regulate monopoly of service provider.

22.8. Data for Planning and Policy Making

Lastly, planning & decisions to be taken by policy makers and project managers shall be backed by trusted information from NDTM to study and evaluate the effectiveness of various programmes. NDTM would facilitate a comprehensive feedback loop between researchers, policymakers, and providers. High quality of data will enable effective utilization of resource, enable advanced analytics and improve overall efficiency of Tourism sector. It will also simplify service delivery and ensure enforcement of regulations at grass-root level. NDTM will facilitate improved coordination and collaboration with sister Ministries strengthening implementation of various programmes and policies.