European Data Space for Tourism

**Deliverable D4.1**

# Roles and Dynamics of the Tourism Industry in the EU

30/03/2023

## PROJECT INFORMATION

| Project Number | 101084007 |
|---|---|
| Project Acronym | DATES |
| Project Full title | European Data Space for Tourism |
| Project Start Date | 1 November 2022 |
| Project End Date | 31 October 2023 |
| Project Duration | 12 months |
| Funding Instrument | Digital Europe |
| Funding Scheme | CSA – Coordination and Support Action |
| Topic | DIGITAL-2021-PREPACTS-DS-01-TOURISM |
| Contract | 101084007 |
| Coordinator | AnySolution S.L. |

## DELIVERABLE INFORMATION

| Deliverable No | D4.1 |
|---|---|
| Deliverable Title | Roles and Dynamics of the Tourism industry in the EU |
| Work-Package No | WP4 |
| Work-Package Title | Governance and Business Framework |
| WP-Leader (Name and Short Org. Name) | Nuria de Lama - IDC |
| Tasks No | T4.1 |
| Tasks Title | Roles and Interactions in a European Tourism Data Space |
| Task Leader (Name and Short Org. Name) | Dolores Ordóñez - ANYSOL |
| Main Author (Name and Short Org. Name) | Dolores Ordóñez - ANYSOL |
| Other Authors (Name and Short Org. Name) | Nuria de Lama (IDC) Marco Codastefano (Intellera) Daniel Iglesias (NECS), Tayrne Butler (AnySol) |
| Reviewers (Name and Short Org. Name) | Juan Ortells (AnySol) Lüdek Kühr (DIHT4.0) Eric Pol (aNG) |
| Status | Draft ☒ Final ☐ |
| Deliverable Type | Report ☒ Data ☐ Demonstration ☐ Data ☐ |
| Dissemination Level | Public (PU) ☒   Sensitive (SEN) ☐   EU Classified (EUC) ☐ *PU: fully open (automatically posted online on the Project Results platforms) SEN: limited under the conditions of the Grant Agreement EUC: WU-RESTRICTED, EU-CONFIDENTIAL., EU-SECRET under Decision 2015/444.* |

| Date Approved by Coordinator | 30/03/2023 |
|---|---|

## DOCUMENT REVIEW HISTORY

| Date | Version | Reviewer Name (Short Organisation Name) | Summary of main changes |
|---|---|---|---|
| 09/03/2023 | V0.1 | Dolores Ordóñez(AnySol), Nuria de Lama (IDC), Daniel Iglesias (NECS) | Review of trends, alignment with WP2 deliverables and glossary |
| 17/03/2023 | V0.2 | Lüdek Kukr(DIHT4.0) Eric Pol (aNG) | Other countries' perspectives contribution European Data legislation and its relation with the member States |
| 28/03/2023 | V1 | Juan Ortells (AnySol) | Additional paragraph on data sharing initiatives |
| 30/08/2023 | V1.1 | Dolores Ordóñez(AnySol) | Changes according to reviewers comments: - Chapter 5.2 inclusion AI Act |

## FINAL ACCEPTANCE BY COORDINATOR: 30/08/2023

| DATES CONSORTIUM | | | |
|---|---|---|---|
| Part. No | Participant organisation name | Short Name | Country |
| 1 | ANYSOLUTION SL | ANYSOL | ES |
| 2 | FUNDACION TECNALIA RESEARCH & INNOVATION | TECN | ES |
| 3 | IDC ITALIA SRL | IDC | IT |
| 4 | MINISTERO DEL TURISMO | MITUR | IT |
| 5 | INTELLERA CONSULTING SRL | INTELLERA | IT |
| 6 | AMADEUS SAS | AMAD | FR |
| 7 | INTERNATIONAL DATA SPACES EV | IDSA | DE |
| 8 | ARCTUR RACUNALNISKI INZENIRING DOO | ARCTUR | SI |
| 9 | NETWORK OF EUROPEAN REGIONS FOR COMPETITIVE AND SUSTAINABLE TOURISM ASBL | NECS | BE |
| 10 | OUTDOORACTIVE AG | OUTD | DE |
| 11 | DIH TOURISM 4.0, ZU | DIHT | CZ |
| 12 | AVORIS RETAIL DIVISION SL | AVOR | ES |
| 15 | ANEWGOVERNANCE | ANG | BE |

## LEGAL DISCLAIMER

The information and views set out in this deliverable are those of the author(s) and do not necessarily reflect the official opinion of the European Union. The information in this document is provided "as is". Neither the European Union institutions and bodies nor any person acting on their behalf may be held

responsible for the use which may be made of the information contained therein. The DATES Consortium members shall have no liability for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials subject to any liability which is mandatory due to applicable law.

# INDEX

# List of Figures

# List of Tables

| List of Abbreviations and Acronyms | |
|---|---|
| API | Application Programming Interface |
| B&B | Bed and Breakfast |
| B2B | Business to Business |
| B2C | Business to Consumer |
| B2G | Business to Government |
| BLOTF | Business, legal, Operational, Functional, and Technical Framework |
| BSO | Business Support Organization |
| CB | Certification Body |
| CRM System | Customer Relationship Management System |
| CSA | Cyber Security Act |
| CX | Customer Experience |
| DA | Data Act |
| DAMA | Data Management Association |
| DG | Directorate General |
| DGA | Data Governance Act |
| DMA | Digital Markets Act |
| DMO | Destination Management Organization |
| DSA | Digital Services Act |
| DSI | Data Space Instance |
| DSSC | Data Spaces Support Center |
| DATES | Data Space for Tourism |
| DX | Digital Transformation |
| EC | European Commission |
| EF | Evaluation Facility |
| EHDS | European Health Data Space |
| ESS | European Statistical System |
| EU | European Union |
| EU | End User (depending on the context) |
| FAIR principles | Findable, Accessible, Interoperable and Re-usable |
| FFD | Free Flow of Data |
| FREEMIUM | A business model, especially on the internet, whereby basic services are provided free of charge while more advanced features must be paid for. |
| GDI | Governance for Data Space Instance |
| GDP | Gross Domestic Product |
| GDPR | General Data Protection Regulation |
| GDSI | Governance-for-data-space-instances |
| Horeca | Hotels, restaurants and catering |
| HVD | High Value Datasets |
| ICC | Intelligence Cities Challenge |
| ICT | Information and Communication Technologies |

| | |
|---|---|
| **IDS** | International Data Space |
| **IDSA** | International Data Spaces Association |
| **IDS-CB** | International Data Spaces Certification Body |
| **IDS-SO** | International Data Spaces Support Organisation |
| **IoT** | Internet of Things |
| **IRTS** | International Recommendations for Tourism Statistics |
| **IT** | Information Technologies |
| **MS** | Member State |
| **NSIs** | National Statistics Institutes |
| **OEF** | Organisation Environmental Footprint |
| **OPENDEI initiative** | Aligning Reference Architectures, Open Platforms and Large-Scale Pilots in Digitising European Industry |
| **OTA** | Open Travel Alliance / Open Travel Agency |
| **OTDA** | Open Tourism Data Alliance |
| **PEF** | Product Environmental Footprint |
| **PMS** | Property Management System |
| **PoC** | Proof of Concept |
| **POI** | Point of Interest |
| **PPP** | Public Private Partnership |
| **PSI** | Public Sector Information |
| **SME** | Small and Medium Enterprise |
| **SO** | Support Organization |
| **SP** | Service Provider |
| **STR** | Short Term Rentals |
| **TDS** | Tourism Data Space |
| **UN** | United Nations |
| **UNWTO** | United Nations World Tourism Organization |
| **WP** | Work Package |

# EXECUTIVE SUMMARY

This report, through a desk research analysis and processing of data gathered through several activities run with tourism stakeholders, provides an overview of major elements that will need to be considered when defining suitable governance models for the Tourism Data Space. In particular, we include an overview of the trends that the tourism industry is going through and specifically the so-called Digital and Data-driven transformation using both a qualitative and quantitative approach. We also identify the stakeholders and typologies of organizations to be involved in the data space and the (multiple) roles they may play. This is then followed by an analysis of the needs and elements for the Governance of the data space and a more detailed approach to the state of play of some of those elements. Specifically, DATES provides through this deliverable a summary of the Regulatory Framework that could affect this data space (including both data-related regulations but also those defined for the operations of the tourist sector) as well as different approaches for governance that have been proposed or are being applied by data sharing initiatives, including both cross-sectorial and sectorial ones.

Three major areas of work for the Governance and Business Framework of the data space can be distinguished, in line with the Data Spaces Support Center recommendations: a) Legal framework, b) Organizational aspects of the data space, and c) Contractual or transactional dimension of the data space. Through them, requirements around **data ownership, data privacy, data security, transparency, collaboration including data quality and interoperability** should be fulfilled. The analysis provided by this document is a starting point for the **co-creation and validation of the DATES proposal for a suitable Governance and Business Framework** of a common European Data Space for Tourism that enables reaching the full benefits of the data economy in a fair and inclusive way.

# 1 INTRODUCTION

This document is the first of a series of four reports that will comprehensively provide the **business and governance perspectives of the Data Space for Tourism** (also referred to as DATES in the following pages). D4.1 provides the basis for subsequent work by identifying the **stakeholders involved in the data space, their roles** and interactions in such ecosystem and by deriving initial requirements and **needs in terms of governance**. This document also includes an **analysis of the baseline** in terms of elements of the **regulatory and policy landscape** that need to be taken into consideration as well as other elements of relevance for the governance of the data space. Thus, it constitutes a starting point to **understand what is needed and what is available**. The document proposes a **methodological approach for the selection of the governance model(s) based on the state-of-the-art analysis** that creates the link with the following deliverable, D4.2, where such selection will be carried out in a collaborative approach with major actors of the data space. D4.3 will provide the roadmap to operationalize the model while D4.4 will complement the governance approach of the data space with a compilation of works around data-driven business models that will pave the way towards the creation of fair value out of the data space.

DATES focuses specifically on data sharing for the tourism industry and as such, contents revolve around that sector; however, some elements and considerations are common to other sectors and that is why this project keeps an eye and tightly collaborates with the project portfolio around data spaces funded by the Digital Europe Program (DEP) and in particular with the Data Space Support Center (DSSC), acting as central point for the coordination, harmonization and support for the set-up and deployment of data spaces as instrument to realize the potential of the data economy in Europe in line with the European Data Strategy[1].

The DSSC, in its recently published *Starter kit for Data Space Designers*, proposes a checklist that may be followed by any data space operating in a vertical or several domains. The checklist according to the BLOFT framework[2] includes 15 questions that fall under the categories of i) business, ii) legal, iii) operational, iv) functional and v) technical. Out of the 15 questions, 8 of them refer to business models and governance/legal aspects of the data space and 2 of them focus on operational aspects related to the runtime phase of the data space, but still associated to the governance and business relationships in the data space. A weight of 10/15 shows that **most of the challenges for data spaces today are not technical, but of governance and business nature**; according to the DSSC "*proper functioning of multi-sided business models (as data spaces are) is more an organizational than a technical challenge, as to create substantial value it requires efforts to achieve*

---

*adoption by multiple users and organizations*". It is not by chance that we tend to link the two terms (*governance* and *business*) in this work, since, even though we acknowledge they refer to different concepts, they are closely related, as also recognized by the DSSC.

# 2 METHODOLOGICAL APPROACH

The DSSC suggests two approaches that have proven helpful in the design of data space governance: (1) The data sharing "use case blueprint" (Data Sharing Coalition), and (2) The templates for data space governance agreements from the Rulebook for a fair data economy (Sitra). They are combined in a methodological approach that will provide support along three major pillars of the legal aspects of data governance:

- **Cross-cutting legal frameworks:** this pillar includes elements like data protection, contract law, intellectual property, competition law or cybersecurity. The DSSC will help to navigate through them by means of the so-called **Legal Compass**.
- **The organisational aspects**: cover decision-rights of the stakeholders involved in the data space and accountability, which will be translated into a **Data Governance Matrix.**
- **The contractual (or transactional) dimension**: will add models, templates and architectures for data exchange, resulting into a catalogue of contractual modules offering guidelines, **modular model agreement templates** and **checks on how to set out general terms and conditions for data sharing agreements.**

The following picture depicts the areas where DSSC is expected to release the aforementioned tools and guidance.
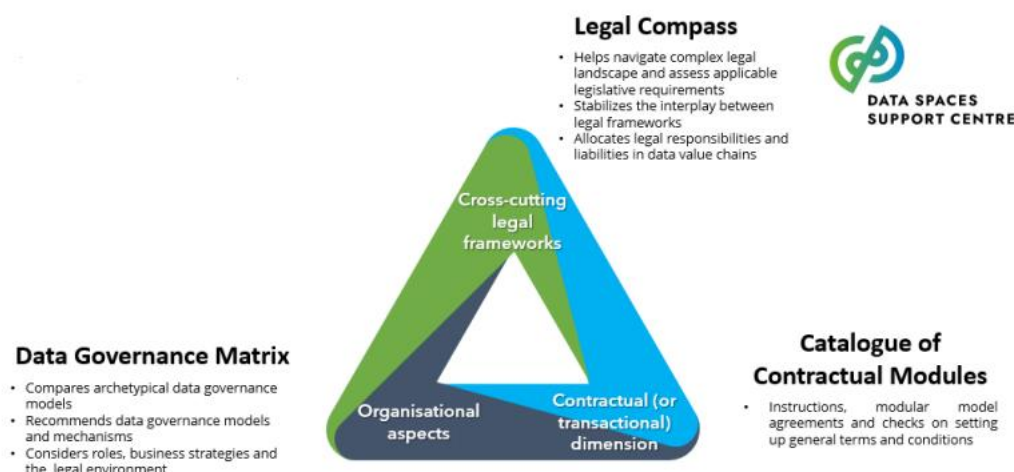


*Figure 1 Legal Framework of data governance and the user-centric instruments to be developed by the DSSC (source. Starter Kit for Data Space Designers, DSSC)*

DATES will build upon those ones but due to the different timing of the projects, we cannot afford just focusing on a partial view of these governance elements and wait until that

complete analysis is available. Therefore, D4.1 anticipates a twofold analysis: i) **legal and regulatory frameworks of relevance to DATES**, including cross-sectorial aspects derived from data-related regulations but also legislation and regulation specifically created for the tourism industry and ii) **governance models and mechanisms in practice in other data-sharing initiatives** operating in sectors of relevance for us (because of similarities in players, interest or behaviour) or directly used in tourism. The insights from the analysis of all these elements will provide the basis for the co-creation process with the stakeholders of DATES that will follow in the next months. The stay of play of the Legal and Regulatory landscape and the governance models suggested by different initiatives complements two additional chapters in this document, one of them identifying the stakeholders that should be involved in the tourism data space and the roles they may play in this context and the other addressing a broader picture of the trends in the Tourism sector, with special emphasis on the digital and data-driven transformation, addressed from both qualitative and quantitative perspectives.

The work produced in D4.1 following the aforementioned approach is based mainly on: a) Desk Research, to capitalise existing knowledge, reports and knowledge bases (e.g. Code of Conduct on Data sharing in Tourism, Transition Pathway for Tourism…), b) analysis of the state of the art, based on the analysis of governance frameworks that could be applied in practice, and c) gathering of additional information as primary research data through the organisation of workshops and interviews.

**WP4 has worked tightly with and built upon WP2 results**. **180 initiatives were analysed** and mapped by the project partners and through a survey that was launched at EU level (as explored in D2.1). Moreover, to better identify and understand the characteristics of these initiatives, a cluster analysis was performed (D2.2). The cluster analysis was based on 4 dimensions: business, data, governance and geographical. Regarding the data governance dimension, "the cluster analysis revealed that there is not a high correlation between how initiatives collect data and how data is shared. However, predominant evidence is that initiatives with an open data strategy collect data mostly through authorized/certified partners and internally. These data sharing initiatives are mostly led by public partners. Moreover, a second insight concerns the combination of initiatives that share data on demand and collect data through private contributions and through authorized/certified partners". To complement this analysis of the state of the art, T2.4 has identified a shortlist of the most representative use cases that will be also analysed from the governance perspective aligned with the activities implemented in WP4. A glimpse of this work is provided in section 3.4.

The primary research data captured through workshops and interviews has allowed us to deepen the knowledge on data sharing initiatives and better understand the business model, governance and technical structures. From the inventory of data sharing initiatives, a selection has been done to conduct around of **26 specific and specialised interviews** to gather data in 4 main areas, namely: Use cases, Benefits and bottlenecks, technical requirements and Governance.

# 3 TRENDS AND DIGITAL TRANSFORMATION IN TOURISM: MOTIVATION FOR DATA SHARING

## 3.1 Trends and digital transformation in Tourism

The tourism industry went through radical changes with the Internet and mobile technologies some decades ago. However, the need for increased competitiveness, affordability of other digital technologies and macro-economic factors such as COVID-19 have accelerated a new wave of transformations. We would like to highlight specifically three areas of changes:

- **Digitalization of the sector**: the path that started with the emergence of online booking platforms and mobile applications has been followed by an explosion of data as a result of IoT systems, social media and data generated by such platforms. Technologies like Data analytics and AI enable the use of such data to improve efficiency, generate new revenue sources and increase customer satisfaction thanks to more personalized services. Digital twins or the metaverse will soon add new disruptive elements in tourism that have incipiently started through advanced and extended reality applications.
- **Sustainability**: there is an urgent call for protecting the environment and supporting local communities due to many years of exploitation of resources without limit that have led to shortage of resources. Nowadays reducing carbon emissions, minimizing waste, and supporting local businesses and communities are priorities shared by most actors of the value chain. Conscious travellers also value sustainability as one of the factors that influence the choice of a product.
- **Change in consumer behaviour**: traditional packages created by tour-operators are evolving towards customized experiences that respond to more diverse preferences and habits, with niche tourism markets around adventures, gastronomy and wine, culture and even health. This relationship with other sectors opens new avenues for collaboration with players in other industries where mutual benefit could be generated and as such, anticipates the need to create synergies with datasets created in domains other than tourism itself.

Other more specific and detailed aspects could be added to these trends, but we think that these ones clearly point out areas where DATES could have a great impact.

If we go deeper into the **digital transformation of the tourism sector**, we may highlight specifically the following enablers of change: online bookings (online platforms where travellers can easily search and compare prices for flights, hotels, and activities),

personalization (recommendations; customized services and activities for tourism based on profiles and preferences as well other criteria), mobility (mobile applications provide customers with real-time information about their destinations, activities, and accommodations while at the same time tourists are also able to feed such applications with their own customer-generated data in real time), social media (as channel for brand awareness, to improve customer satisfaction, and generate new business) and big data analytics (that enables organizations to take informed decisions about pricing, marketing, and customer service).

As it can be seen, data appears as a key enabler and in many cases we could say that digital transformation becomes a data-driven transformation. In this context, one of the major challenges is the availability and access to data in machine-readable format that will feed the development of next generation AI-based applications.

**Benefits of data sharing in the Tourism industry** include:

- **Improved collaboration:** more effective collaboration through better understanding of the overall market, identification of new opportunities, and data-driven decisions.
- **Enhanced customer experience:** data enabling the creation of more personalized and seamless experiences for customers as hotels and airlines do nowadays for activities and attractions in a particular destination.
- **Improved efficiency**: sharing data can lead to reduce the duplication of effort and improve overall efficiency, including increase in sustainability.
- **Better market insights:** more comprehensive understanding of the tourism market to identify trends, opportunities, and challenges and react accordingly.

Data is already being shared by some stakeholders in the tourism industry, with major trends around **open data**, use of **collaborative platforms**, **real-time data sharing** (this is very typical in the context of transport and accommodation), **AI and machine learning** (ML algorithms are used to analyse customer reviews and sentiment to identify areas for improvement in tourism services) and **personalization** (including both preferences of customers as well as using data from past experiences, interactions and ratings). A number of data sharing initiatives already operate in the tourism industry, with some players heavily investing in technological solutions to promote data sharing, as described by WP2 (D2.1).

Use of data analytics goes hand in hand with the deployment of AI solutions to improve **customer experiences, optimize business processes, and enhance decision-making**. Current use of AI in tourism is characterized mainly by **chatbots and virtual assistants**, **personalized recommendations**, **revenue management**, **marketing and advertising** and **translation services**.

## Quantification of the digitization of the Tourism industry

While the previous section includes a qualitative and descriptive analysis of major trends in the tourism industry with special emphasis on the digital and data-driven transformation

of the sector, this section depicts a more quantitative approach to better understand the strategy and **related investments by major actors in Tourism** so that a more in-depth understanding can be used for future planning of the deployment of the tourism data space. Figures included in this report belong to the "*IT Spending and Business Objectives Focus on Resiliency and Adaptability*" developed by IDC for Hospitality, Dining, and Travel.

Throughout 2021 and into 2022, hospitality and travel organizations concentrated on 5 macro priorities: Digital Innovation (and continued resiliency), Cost efficiency (revenue growth and profitability), Customer experience (loyalty and retention), employee productivity and operational efficiency. According to IDC data, **worldwide total ICT spending for the travel industry was estimated to be $90.7B in 2020 and is expected to grow to ~113B in 2025**. 63% of hospitality and travel organizations are very **concerned with the growing amount of technology investments required to remain competitive**. In fact, generally speaking, **sharing investments in infrastructure and technology is one of the motivations that has been pointed out by companies to invest in data spaces.**

The following pictures illustrate the reasons that have led some tourism companies to increase their IT budget as well as the overall improvements achieved as a result of investments in Digital Transformation. According to IDC, **38% of hospitality and travel organizations say they have a longer-term investment plan** in place and the enterprise strategy is to use DX to transform markets and customers by creating new business.

| | | |
|---|---|---|
| **34.6%**<br>Infrastructure updates needed to support innovation and processes | **24.1%**<br>Keeping pace with guests' expectations | |
| **31.5%**<br>Updating and replacing outdated technology | **22.4%**<br>Enhancing contactless options | |
| **31.5%**<br>Investments to counter effects resulting from pandemic | **22.4%**<br>Migrating systems to the cloud | |
| **31.2%**<br>Increasing in-house IT development | **22.1%**<br>New projects from new/additional business models | |
| **28.5%**<br>Supporting new operational needs such as remote workforce | **18.2%**<br>Automating workflows for efficiency | |

*Figure 2 Reasons for IT budget increases; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=192*
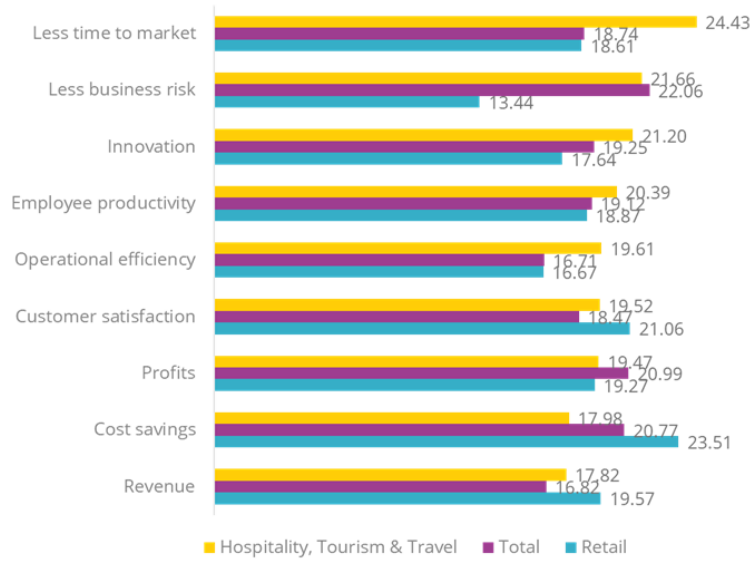
*Figure 3 Improvements Achieved as Result of DX Investments; Source: Future Enterprise Resiliency & Spending Survey, IDC, Wave 10, October, 2021, Total n=789, Hospitality & Travel n=96*

When looking at the top challenges faced by industry, we see that there is a wide range of them, with some directly associated to the potential benefits of data spaces, such as **availability of data across the value chain** or **compliance with security standards and regulations**; many others could be highly impacted by the suitable use of data for internal and external processes. The picture showcases challenges for different sub-sectors in tourism like dining, hospitality and travel and for different geographies.



*Figure 4 Top challenges; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=603, Dining n=270, Hospitality n=272, Travel n=61*

For the sake of simplicity, we continue this analysis by focusing on two specific areas of investments that have a direct relationship with the usage of data and thus will serve us to design the data space considering the real priorities of industry: a) **customer experience applications** and b) **marketing analytics**. For each of them we depict the overall status of the implementation of different applications and the benefits achieved so far.

*Figure 5 Implementation Status of Customer Experience Applications; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=369*



*Figure 6 Business Benefits Achieved as a Result of CX Applications Implementation; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=602 Dining 270, hospitality 271, travel 61)*

We can derive that the five top priorities in the case of CX applications have a strong data component, since they try to address the opportunity of personalization and advanced recommendations for increased customer satisfaction. The use of AI solutions is prominent, requiring access to different typologies of data, ranging from preferences and identity of customers to analysis of past experience and real time data from IoT systems. Resulting benefits revolve around customer satisfaction. The figure above specifies the degree of impact of such solutions on performance indicators like reduced time to market, increased customer lifetime value, increased profitability, increased forecast accuracy or increased revenue growth, among others for each of the common CX applications like reservation management, personalised offers and recommendations or content optimization, to name a few. Figures highlighted on the picture reflect those areas where the impact has been the highest one according to each of the benefits described; for example, CX applications aimed

to augment customer self-service have led to the highest benefits in terms of reduced time to market as well as with respect to increase of revenue growth.
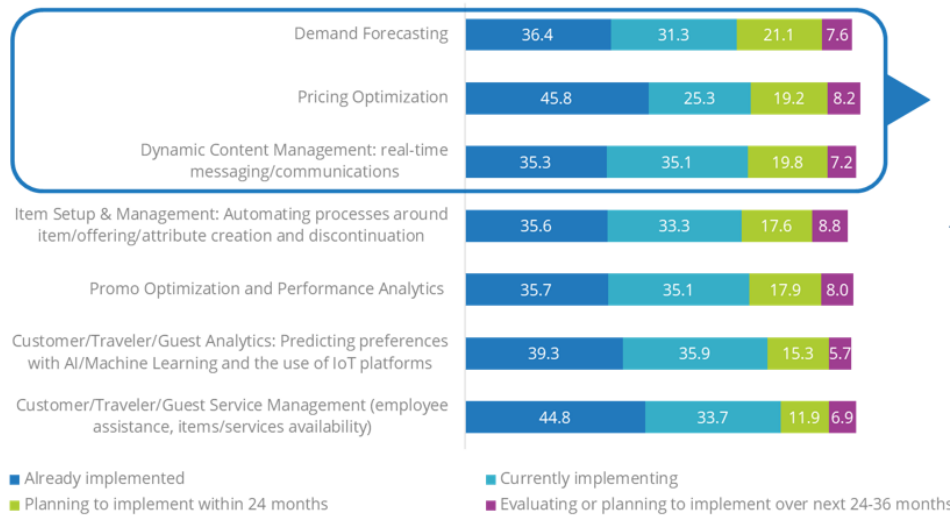


*Figure 7 Implementation Status of Marketing & Analytics Applications; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=292*
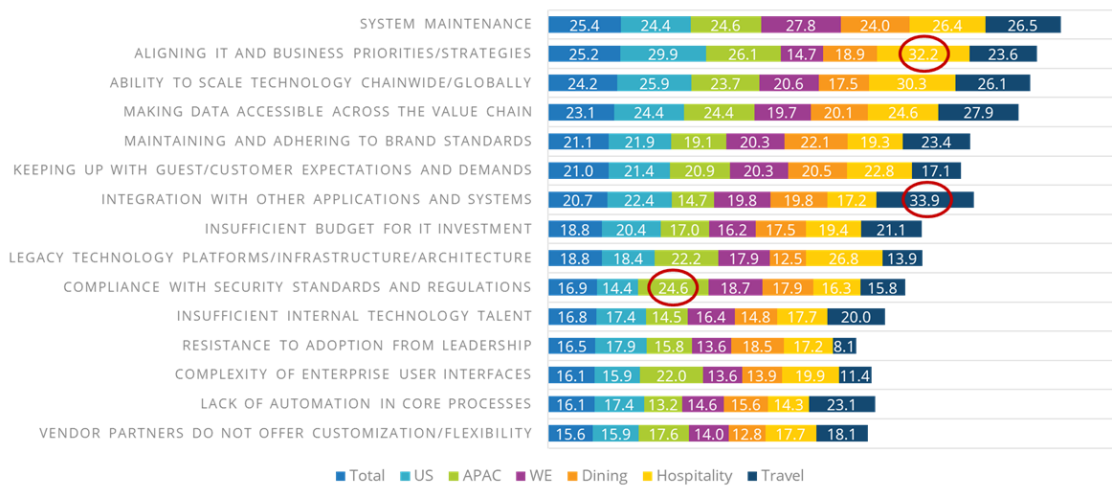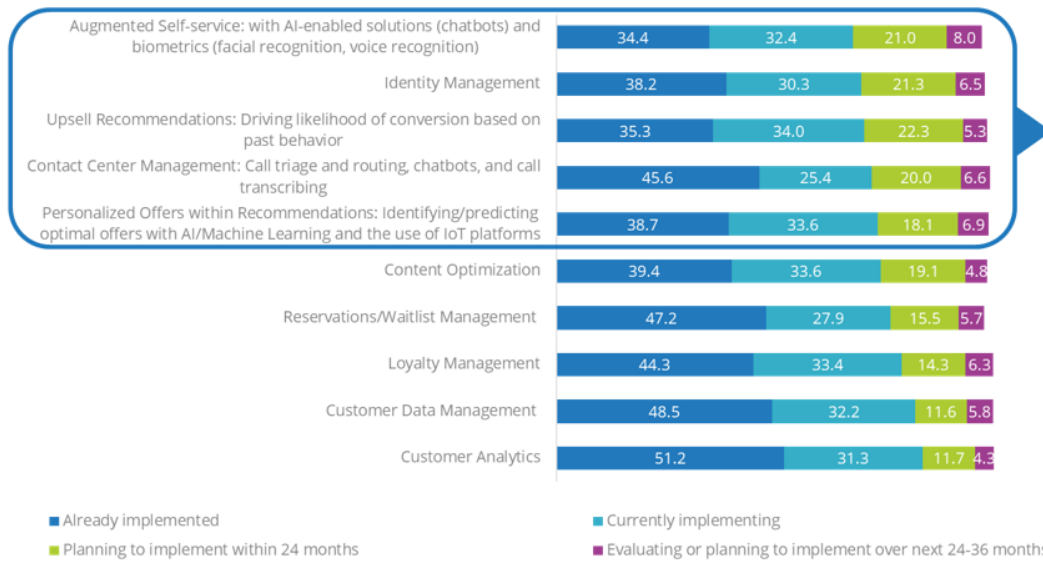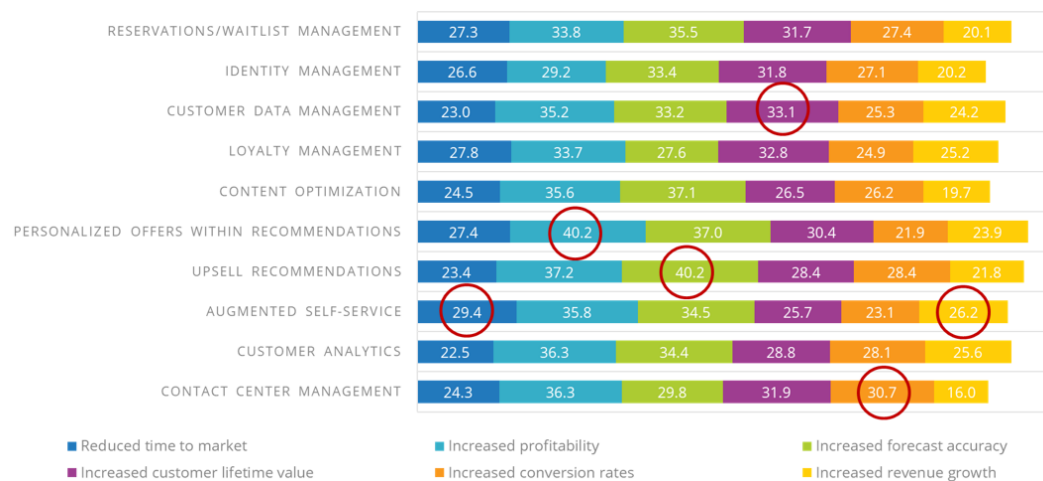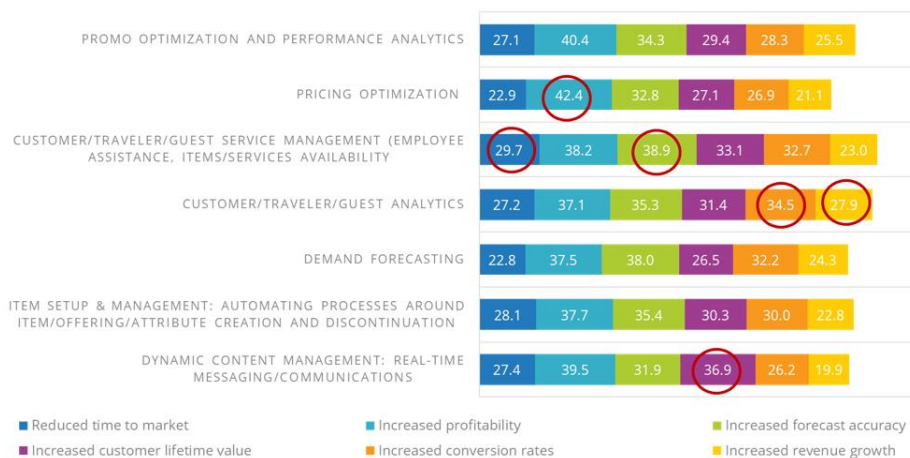


*Figure 8 Business Benefits Achieved as a Result of Marketing Analytics Implementations; Source: Hospitality and Travel Survey, IDC, August, 2021, Total n=602 Dining 270, hospitality 271, travel 61)*

When looking at market and analytics applications, there are three major areas where companies will focus on: **demand forecasting**, **pricing optimization** and **dynamic content management**, also considering real-time aspects. However, other applications included on the list present a high degree of implementation or to-be implemented plans and should not be neglected. As in the previous case, the second picture reflects the impact achieved by implementing such analytics applications on the different areas of identified benefit. In this case we see how customer/traveller/guest analytics lead to the highest impact on indicators like increased conversion rates and increased revenue growth, while the maximum profitability comes as a result of pricing optimization techniques.

We close this section with a summarized view of areas where data is expected to be mostly used by companies in the tourism industry as a reflection of where the value may reside for

the data spaces in the short term, which data sets may be relevant for the rump-up phase of the tourism data space and the way ecosystems should be enabled looking at the fact that strengthening partner networks is one of the key expected benefits from the usage of data, as illustrated in the figure below.
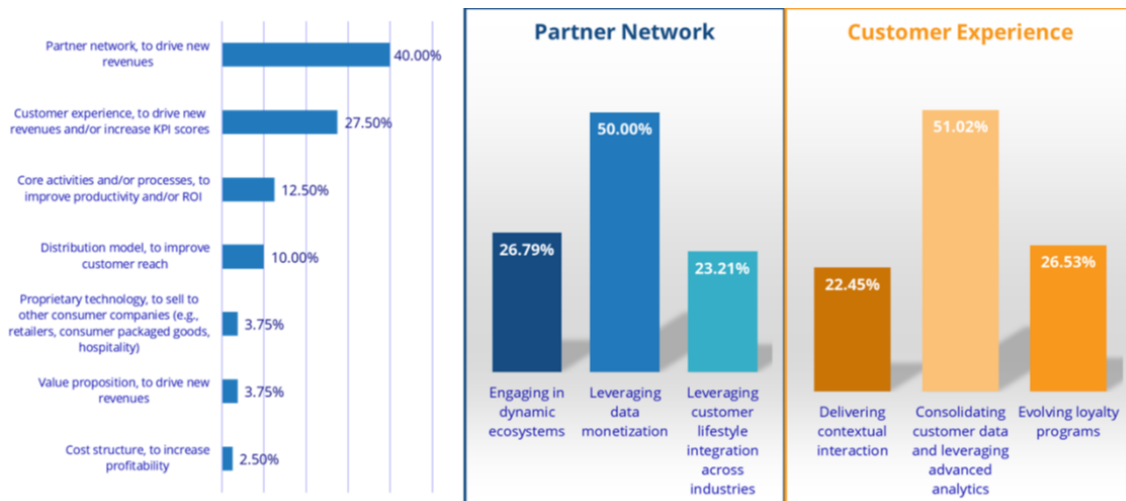


*Figure 9 Data-driven business transformation for hospitality; Source: IDC EMEA, Global Retail Innovation Survey, June 2020*

In the last years, a great awareness on sustainability is being observed in the tourism industry, both from the industry part and from the tourists/clients. This fact is generating a data sharing economy in the tourism industry related to the better use of resources (water, energy…), the reduction of the environmental footprint ($CO_2$ emissions, waste management, human pressure at destination level…), etc. This will have a great impact on the tourism data space since data sharing will not happen only at the level of the tourism ecosystem but also with other data spaces, as mobility, agriculture, energy, etc.

## 3.2 Existing data-driven Initiatives boosting Digital Transformation of Tourism in Europe

The analysis of trends and the quantitative approach towards digital and data-driven transformation -including related investments- of the previous section draw a picture of disruptive changes affecting the "what", "how" and "who" of the tourism industry. However, tourism is a sector characterized by very heterogeneous stakeholders, with relevant presence of SMEs (85%) and tight collaboration between private and public sector. Some of those stakeholders cannot afford big investments in such technologies and the associated business process transformation derived from their deployment. In this context, the EC is pushing forward some inclusive initiatives aiming at **supporting all players in the data transition**, as described below. For the sake of complementarity, just key ones with a focus on regional development and particularly on cities and smart tourism destinations have been selected.

**Smart Tourism Destinations**

Smart Tourism Destinations is a project launched by the European Commission DG GROW, and managed by Intellera Consulting, in partnership with Carsa, the University of Malaga, and PwC EU Services, throughout the period 2021-2023. Smart Tourism Destinations is a capacity building project aiming at raising awareness and improving EU destination management organisations' capabilities related to the use of data for managing destinations. The project's activities are grouped in three streams:

1. The publication of the *Study on mastering data for tourism by EU destinations*[3]. This research provides an overview of the features and challenges for using data for tourism, a comprehensive guide of good practices regarding destinations, and a presentation of future's smart tourism trends.

2. Capacity building activities for destinations. This stream includes the publication of an *EU guide on data for tourism destinations* and a *Mastering Data: A Toolkit for Tourism Destinations*. Based on the content of these materials, webinars and workshops for destinations have been organised on the topics of Strategy and Governance, Data collection, management and technological solutions, Human Capital and Skills, Knowledge Transfer, Ecosystem Management and Partnerships. Moreover, each participant destination is followed by an expert guiding it in its learning process and supporting the development of its roadmap towards Smart Tourism. Lastly, peer-learning events were organised to let participants learn from each other's "smart tourism projects"[4].

3. Recommendations for the European Commission, EU Member States, regional/local public administration, and destinations regarding the next steps for fostering smart destination management.

**Intelligent Cities Challenges**

The Intelligent Cities Challenge (ICC) is a programme launched by DG GROW, European Commission and managed by Technopolis Group in 2019, as a follow up of the Digital Cities initiative. It was implemented during the period 2020-2022 and a direct extension was approved until 2024. In this initiative, AnySolution is the coordinator of the Digital and Green Transition in the Tourism vertical.

The Intelligent Cities Challenge (ICC) supports European cities towards the green and digital transition of their local economies, through Local Green Deals. ICC helps cities harness the power of cutting-edge technologies, while improving their economic competitiveness, social resilience and the European citizens' quality of life.

---

[3] European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Galasso, G., Montino, C., Sidoti, A., et al., *Study on mastering data for tourism by EU destinations : main text*, Publications Office of the European Union, 2022, **https://data.europa.eu/doi/10.2873/23880**

[4] Smart Tourism Destinations Digital Library: https://smarttourismdestinations.eu/digital-library/

Within the Digital and Green Transition in Tourism, different perspectives to contribute to the transformation of the cities into smart destinations were recommended. The cities, together with the experts, were working in smart and green strategies in which each city involved their local stakeholders. Data was one of the thematic areas in which the destinations showed more interest, linked with Open Data and how to involve stakeholders in data-sharing initiatives to improve the decision-making mechanisms at local level.

## 3.3   Added value of data spaces in Tourism

According to the Fact Sheet published by the European Parliament in March 2022: "The EU's tourism industry in the strict sense of the term (traditional providers of holidays and tourism services) is made up of 2.3 million businesses, primarily small and medium-sized enterprises (SMEs), employing an estimated 12.3 million people. In 2018, the 'travel and tourism' sector directly contributed 3.9% to EU GDP and accounted for 5.1% of the total labour force (which equates to some 11.9 million jobs). When its close links with other economic sectors are taken into account, the tourism sector's figures increase significantly (10.3% of GDP and 11.7% of total employment, which equates to 27.3 million workers)."

It is important to emphasize that implementing a European Data Space would **not only impact the improvement of the tourism sector itself** but, due to its direct and close connection with other sectors, a **multiplier effect** would occur.

There are intricate **relationships between various industrial ecosystems** and their impact on the twin transitions and resilience of the tourism sector. Several areas overlap with related industrial ecosystems and support the competitiveness of the EU's tourism industry, including the "Aerospace," "Agri-food," "Construction," "Cultural and creative industries," and "Digital industries" sectors. The tourism ecosystem has a direct impact on several other ecosystems and vice versa. Therefore, it is essential to acknowledge the interconnections between them.

This is the reason why a European Tourism Data Space or DATES can have a multiplying impact by ensuring interactions with other ecosystems such as health, mobility, transport, automotive, social economy, security, and retail. All of them are vital in providing essential services and creating sustainable and high-quality experiences for tourists while contributing to the sustainability, resilience, and attractiveness of tourist areas.

Traditionally, **transactional data or data related to the economic activity of the tourism sector come from the private sector, while data related to the management of the territory comes from the public sector**. This has led to a separation between the two types of data. However, it has been demonstrated that both types of data need to complement each other. In this regard, it is worth highlighting the initiative launched by Eurostat, in collaboration with companies such as Airbnb, Booking, Expedia, or TripAdvisor, to provide data related to the short-stay accommodation offer present in these online platforms on an experimental basis.

The European Commission's Transition Pathway for Tourism[5], released in February 2022, aligns with a broad policy framework that emphasizes the importance of digitizing the tourism industry, as it has been widely analysed and justified in previous sections. It outlines specific actions to achieve this goal by 2030, with the necessary measures and outcomes required to expedite the green and digital transitions and bolster the resilience of the tourism ecosystem.

The initiative also prioritizes sustainability, which it sees as a complement to the digitization and aligns with the sustainable priorities established by the Green Deal. The document identifies 27 areas where actions are needed to achieve the transition to more digitised, sustainable, and resilient tourism in Europe. The contributions of a European Tourism Data Space to these topics are summarized in the following table:

| Transition pathway topics | European Data Space contribution |
|---|---|
| **Topic 1: Fair measures for short-term rentals (STR)** | Promoting fair measures for short-term rentals by providing transparency, improving market access, supporting balanced policies, and enabling collaboration among stakeholders. Incorporate private players (online booking companies) to centralize booking data. |
| **Topic 2: Regulatory support for multimodal travelling** | Support regulatory measures and monitor their implementation to facilitate multimodal journey planning and ticketing through digital services. By promoting data sharing, standardization, interoperability, and policy support, a European tourism data space can help to create a more seamless and convenient travel experience for travellers across the EU. |
| **Topic 3: Improving statistics and indicators for tourism** | Revise data collection rules to include sustainability elements, improving data accessibility for official statistics, including sustainability indicators at the destination level, and data sources from the private sector. |
| **Topic 4: Comprehensive tourism strategies development or update** | Provide data insights, facilitating collaboration, supporting innovation, and enabling monitoring and evaluation |
| **Topic 5: Collaborative governance of tourist destinations** | Foster collaboration and alignment of tourism development with broader societal goals and priorities, collaborative governance can help ensure that tourism development is sustainable, resilient, and inclusive. |
| **Topic 6: Sustainable mobility** | Provide policymakers and stakeholders with data insights on mobility trends, visitor behaviour, and transportation performance. This can help inform the development of evidence-based policies and strategies |

---

[5]https://op.europa.eu/en/publication-detail/-/publication/404a8144-8892-11ec-8c40-01aa75ed71a1

| | |
|---|---|
| **Topic 7: Circularity of tourism services** | Provide information about different sustainable measures implemented by different stakeholders across Europe, and thus legislate measures to help in the adoption of those measures that are less implemented. |
| **Topic 8: Green transition of tourism companies and SMEs** | Provide tourism companies and SMEs with access to environmental performance metrics that enable them to track and analyze their resource consumption, waste generation, and carbon emissions. This information can help them identify areas for improvement and develop strategies to reduce their environmental impact. |
| **Topic 9: Data-driven tourism services** | Provide access to a data hub (historical and future projections) for companies not only in tourism but also in other sectors for the design of products and services that improve the user experience. Promote the formation of a hub of companies or technological startups that provide tools for tourism companies to improve their productivity |
| **Topic 10: Improving the availability of online information on tourism offer** | To constitute the main hub for collaborative tourist information, providing accurate, up-to-date information that preserves European interests in cultural, historical, and identity terms. |
| **Topic 11: Easily accessible best practices, peer learning and networking for SMEs** | Act as a meeting point to disseminate best practices with resources to help SMEs and other stakeholders to use data to improve their competitiveness |
| **Topic 12: Research and innovation projects and pilots on circular and climate-friendly tourism** | Develop methodologies and provide the necessary tools so that the different initiatives, projects and pilots are climate-friendly, PEF and OEF can be instrumentalized by sending their metrics and thus be able to cross-reference the data with other sources and analyse their impact in depth. |
| **Topic 13: Promoting the use of the PEF and OEF methodology and the development of sectorial category rules for the tourism ecosystem** | |
| **Topic 14: Technical implementation for tourism data space** | Agreement on the technical formats and standards to be used for a fully interoperable framework (within and cross-sector) so that data sharing and usage can be brought to their highest potential. Apply mechanisms for data sovereignty, enabling an ecosystem of trust. |
| **Topic 15: R&I for digital tools and services in tourism** | Creation of a digital ecosystem around tourism promoting the creation of data-based products (both for the tourism sector and other adjacent sectors). |
| **Topic 16: Support for digitalisation of tourism SMEs and destinations** | Provide training resources, tools, frameworks, and methodologies ready to be implemented in SMEs |

| | |
|---|---|
| **Topic 17: Seamless cross-border travelling** | Coordination with other data spaces or specialized mobility agents to provide real-time data relevant to cross-border travel (emergency systems, early warnings, recommendation of less crowded routes). |
| **Topic 18: Coordinated management and updated information on travelling** | Provide real-time information to optimize the user experience during their trip and help both local authorities and businesses to more efficiently manage their resources based on tourist flows |
| **Topic 19: Awareness raising on skills needs for twin transition in tourism** | See topics 21-24 |
| **Topic 20: Awareness raising on changes in tourism demand and the opportunities of twin transition for tourism** | Establish the bases to create a system for monitoring and discovering emerging trends in tourism at a European level. Discover interrelations between the evolution of different variables that can anticipate and forecast the appearance of new phenomena. |
| **Topic 21: Educational organisations to engage in developing and renewing tourism education** | To establish itself as a reference for training, upskilling, and reskilling in the field of new technologies and especially in the field of data analysis and its application in the improvement of processes, products, and services of tourism workers to improve the competitiveness of the sector, create new more qualified jobs. |
| **Topic 22: Pact for skills in tourism** | |
| **Topic 23: One-stop-shop for learning opportunities for tourism SMEs** | |
| **Topic 24: Fairness and equality in tourism jobs** | |
| **Topic 25: Enhancing accessible tourism services** | Incorporate information sources at a European level that provide accurate and updated information on accessibility. Allow accessibility to be embedded simply and transparently as one more attribute in the tourist offer |
| **Topic 26: Tourism services for visitors and residents alike** | Provide information endpoints that take into account the needs of residents and that help them mitigate the impact produced by visitors in their local area |
| **Topic 27: Support visibility of funding opportunities for tourism actors** | The impact generated by the tourism data space will show how important is tourism for the European economy and how digitalisation of the tourism actors will contribute to a more competitive European Union. Therefore new funding sources could be generated from the EC and also at national level to reach all tourism actors. |

*Table 1 Contributions of a European Tourism Data Space*

## 3.4 Preliminary analysis of Use Cases (business-governance viewpoint)

Use cases provide a solid basis to understand the potential benefits of data sharing going deeper into some of the areas mentioned above and to identify not only the impact but also challenges, involvement of stakeholders, their interactions and links with very concrete operational and business processes. Use Cases will be capitalized by DATES for a thorough analysis of requirements for the tourism data space from business, governance and technical perspectives. This work has been initiated by WP2/T2.3 through the selection of most relevant use cases and a series of participative activities to gather additional information from relevant actors. WP3 and WP4 will then be responsible to go through such use cases in depth for the analysis of needs, requirements, limitations and dependencies from the technical and governance viewpoints respectively. At this stage, we can only report the **initial analysis of the interviews with respect to governance aspects**, which is an interesting piece of work that reflects what the state of the art is in ongoing data sharing initiatives. **Detailed use case analysis for inference of governance requirements will be included in D4.2. As a complement to this, T4.4 addresses data-driven business models through the analysis of a set of complementary business cases.**

Within the consultation phase jointly done with WP2, a round of interviews has been conducted to deepen the knowledge on selected data sharing initiatives, allowing to understand better how they solve data needs/problems of the tourism ecosystem, their business model and governance structure. As it has been previously pointed out, these interviews will be a baseline for further analysis of the different conceptual components that enable business generation and fair governance of the operations of the data space. The interviews allow to analyse **existing governance structures and frameworks in data sharing initiatives and platforms of the tourism industry**. An overall analysis of the governance aspects of the 24 initiatives subject of study is presented in the following table.

| Questions | Answers |
|---|---|
| **How do you ensure data quality and validity while sharing (labels, ratings, processes, etc.)?** | The interviewed initiatives ensure data quality and validity through internal quality management processes and standard procedures. Common data quality tools used by data sharing initiatives include standard and technical rules, labels, quality interfaces, and content assessment when importing data |
| **Do you have processes/rules in place regarding data interoperability?** | Interoperability is mainly ensured through the adoption of official and standard definitions, such as the ones |

| | developed by Open Tourism Data Alliance (OTDA), schema.org and the Gaia-X framework. Moreover, data sharing initiatives, in order to ensure interoperability between data, use APIs and tools following open and widely used international standards; implement processes of homogenization and compatibility, internal ontology and rules. |
|---|---|
| **What rules do you use regarding your decision-making process to share or not a dataset? Do you have any private dataset that you are considering sharing, or you would not be against sharing?** | Since most of the interviewed initiatives share public and open data, basically no rules for decision-making processes are implemented. In case of sharing private data, rules can be applied to a specific dataset or to a specific data user. Restrictions can be applied on datasets concerning personal data or strategic data from the private sector. Moreover, sometimes access is given only to primary sources and then the sharing of other data is considered on a case-by-case basis. Lastly, rules can be applied also to data providers. |
| **Are you sharing data with other entities or consortia? With which typology of entities do you share data: public/private/consortia (here we can add a list)? What were the pain points?** | Initiatives mainly share data with members of consortium, private and public partners, public institutions, and between entities of the same initiatives. The sharing of data with these entities is mainly done for study, distribution and promotional purposes. |
| **Do you work with good practices/standards/models/tools coming from one of the following supporting organisations (DSSC/Gaia-X/IDSA/MyData/FIWARE/I4Trust)? What does this provide to you?** | Most of the initiatives do not have knowledge or do not use these frameworks. However, some initiatives consider integrating them and, in some cases, they have already included some tools that are compliant with the Data Management Association (DAMA) framework. |
| **Which EU regulations have you identified as relevant for your project (DGA/DA/DMA/DSA, Interoperability Act/IA Act/sectoral data regulations/national data regulations/competition regulations)?** | Most of the initiatives do not have knowledge in this area and have not identified regulations. However, a few EU regulations were identified as relevant to some initiatives, such as national data regulations, competition |

| | |
|---|---|
| | regulations, the European Data Governance Act (DGA) and AI Act. |
| **Do you have a business model associated with data sharing? Which one? How do you define your pricing model?** | Different business models are being studied, including freemium pay-per-use models, freemium models with charges applied based on the needs of customers. In cases where the institution provides public and open data, a free business model is sometimes used. Moreover, there are some initiatives that due to their legal nature, cannot adopt a business model associated with data sharing. |
| **Do you use external compliance mechanisms for assessing data quality (audits/labels/other)?** | Initiatives mainly use internal mechanisms for assessing data quality and do not rely on external compliance mechanisms. If they do so, the data quality is provided by authorised, registered and designated users. |
| **If you are a part of a data-sharing collective initiative/consortium/ecosystem/data space, what is the legal structure of the project (no legal structure/association/private company/cooperative/other)? Why did you make that choice?** | The interviews show that some initiatives are not part of data-sharing collective initiatives and therefore they do not have a legal structure. Regarding the initiatives that have declared to be a part of collective initiative/consortium, the predominant legal structures are association with SMEs and DMOs, non-profit associations and research consortia. The reason for choosing these structures is that they closely match the purpose of the initiative and facilitate participation. |
| **If you are a part of a data-sharing collective initiative/consortium/ecosystem/data space, have you defined a collective governance/legal/data charter setting the rules for sharing?** | Initiatives that are part of data-sharing collective initiative/consortium declared to be in the process of defining rules for governance and a code of conduct. |
| **If you are a part of a data-sharing collective initiative/consortium/ecosystem/data space, how are the data sharing rules (who can share what with whom?) defined (voting mechanism/other)?** | Initiatives that are part of a data-sharing collective initiative/consortium declared that data is only entered by verified and registered users. |
| **If you are a part of a data-sharing collective** | Most initiatives that are part of a data-sharing collective initiative/consortium |

| | |
|---|---|
| initiative/consortium/ecosystem/data space, how do you deal with competition and privacy issues? | declared that they apply legal requirements when dealing with competition and privacy issues. |
| If you are a part of a data-sharing collective initiative/consortium/ecosystem/data space, do you work at the sectoral level with other initiatives? If yes, how? Do you work on data-sharing standards and/or digital commons with them? | Only few initiatives work with other initiatives at the sectoral level, mostly official and unofficial bodies which are data providers. |

*Table 2 Overall analysis of the governance aspects of the 24 initiatives subject of study*

Below, a brief overview of the initial findings about the governance aspects of the selected data sharing initiatives is provided. The following findings will be further treated in the analysis of the use cases proposed in the deliverable D2.3. *Identification of data typology and priority list of datasets, potential use cases and common building blocks with other data spaces*" as well as in D4.2 as baseline for selection of the suitable governance models of the DATES.

- The interviews highlighted that there is a **strong awareness about procedures related to data quality and data interoperability**. However, due to the **fragmentation of the data landscape** – different formats in which data is produced and different providers from which data is spread – the major challenge is to **establish common data standards and structures that are suitable for most stakeholders**.

- Since most of the interviewed initiatives share public and open data, basically **no rules for decision-making (on sharing of private datasets) are implemented**. Therefore, in case of sharing private data, rules can be applied to a specific dataset or to a specific data user. Indeed, restrictions can be applied on datasets concerning personal data or strategic data from the private sector.

- The interviews show that **different business models associated with data-sharing are being considered**, including freemium-pay-per-use model, freemium model with charges applied based on the needs of customers.

- Regarding the legal structure of initiatives that are part of collective initiative/consortium, the **predominant structures** are associations with SMEs and DMOs, non-profit associations and research consortia. The reason for adopting these structures falls in the fact that these are the most suitable forms to the purpose of the initiative and make participation easier.

# 4 STAKEHOLDERS AND ROLES IN A TOURISM DATA SPACE

In order to facilitate the process to gather requirements about governance and business, we have created a three-layered model that classifies stakeholders as follows.

- **Role in the Tourism Value Chain**. The tourism value chain identifies the different stages and actors involved in the production and consumption of tourism products and services. It encompasses all the activities that contribute to the creation, marketing, and delivery of tourism experiences. Within each stage of the tourism value chain, there are various actors involved, including tourism boards, travel agencies, hotels, transportation providers, attractions, and tourists themselves. For the sake of simplicity, we will consider the following stages and actors:
  - ✓ **Destination planning and development**: This stage involves the planning and development of tourism infrastructure and attractions. Stakeholders include *airports, hotels, thematic parks, cultural sites (museums, monuments, etc), tourist destinations, tourism clusters and associations, governments.*
  - ✓ **Marketing and promotion**: This stage involves the promotion and marketing of tourism products and services to potential visitors, using various channels such as advertising, public relations, and digital marketing. Stakeholders include *online platforms, tourism associations, tourist destinations, destination marketing organizations.*
  - ✓ **Sales and distribution**: This stage involves the sale and distribution of tourism products and services to consumers. Stakeholders include *physical and online travel agencies, technological companies, tour operators, online booking platforms, associations, tourist destinations, agencies, public authorities, other channels.*
  - ✓ **Visitor experience**: This stage encompasses the actual tourism experience, including activities such as *accommodation (international hotel chains, hotels, B&B and other lodging varieties), transportation (airlines, cruise lines, trains, public transport, car rental companies), dining establishments, tourist attractions, tour operators, tourists.*
  - ✓ **Post-visit experience**: This stage involves the post-visit experience of the tourist, including feedback and reviews, and the potential for repeat visitation. Stakeholders include *tourist destinations, online booking platforms, public authorities* and a wide range of stakeholders listed under previous categories and gathering data from customers.
  - ✓ **Other**: some other stakeholders may be involved in some of the stages of the value chain such as *regulators and policy makers*, somehow included as part of planning and development and post-visit experience but of special importance due to the impact they may have in the development of all the

activities associated to the provision of tourist products and services. We could even extend this group with links to other actors that may not directly be considered as part of the tourist value chain but could be of relevance to the operations of the data space because of the synergies with other sectors and domains (eg. agriculture producers including vineyards, health service providers and others associated to niche tourism segments).

- **Typology of entity** based on the **quadruple helix** approach: **Public entities** where we can also distinguish different categories of organizations and in particular *National Ministries, Regional Authorities and local destinations*, **Private or for-profit entities/Industry** including *large industry, SME and startups*, **Research and Academia** and **Society**, where we can distinguish both *associations* -in general non-profit associations- but also *individuals*). Of special interest is the role of **DIHs**, which can adopt different legal forms, and hence, be included under associations but also other categories depending on the legal structure.

- **Geographical area** of influence or operation, including **local-regional**, **national** or **European/pan-European**. Different legislation and regulations exist depending on such geographical operations and that is why this distinction is relevant for this exercise.

These generic entities are then instantiated in concrete names of organizations. The stakeholder group of DATES includes a representative sample of actors covering all the stages and stakeholders of the value chain with their diverse nature in terms of geographical operation and typology of organization (large vs small and startup companies, public vs private, etc). The list of organizations supporting the co-creation process of DATES is continuously updated, the project received 50 support letters when it was submitted and it counts with 2 third parties. Apart from that, a coalition group of around 30 stakeholders have been created by selecting a balanced geographically representation of different entities of the tourism value chain. New organizations willing to contribute to the process are welcome and can adhere to the group by registering in the section "Become a stakeholder" of the project website: https://www.tourismdataspace-csa.eu/

The second element of relevance for the subsequent phases of the planning of DATES is the **identification of roles of those stakeholders vis-à-vis the operations of the data space**.

Stakeholders in a data space are those who use, affect, or are affected by data. They may be upstream producers, gatherers, or acquirers of information, downstream consumers of information, those who manage, transform, or store data, or those who set policies, standards, architectures, or other requirements or constraints.

For the roles in DATES, we have identified the following categories that are aligned with the DSSC to foster interoperability (as such, we include the definitions adopted by the DSSC glossary that have been validated by stakeholders in the various vertical data spaces). Notice that **a stakeholder may assume several roles in the data space** (e.g., the same

entity could act as data provider and data consumer, as also specified by the definition of a data space member).

- **Partner of a data space initiative**: A data ecosystem party that formally commits to contribute to a particular data space initiative.
- **Data space member**: A data ecosystem party that has committed to the governance framework of data space and may have one or more roles in it.
- **Transaction participant**: A data space member that directly participates in a data transaction in a data space by providing data, providing permissions related to the data or by receiving data and/or permissions to use the data.
- **Data space enabler (role):** A data space member that provides a (technical or non-technical) service enabling data transactions for the transaction participants while not directly participating in that transaction itself. Examples of enabling services include identity provisioning, vocabulary provisioning, interconnecting, clearing, etc.
- **Data rights holder (role):** A transaction participant that has the legal right to use, grant access to or share certain data.
- **Data provider (role):** A transaction participant that, in the context of a specific data transaction, technically provides data to the data receivers that have a right or duty (granted by the data rights holder) to access and/or receive that data.
- **Data receiver (role):** A transaction participant to whom data is or is to be technically supplied by a data provider in the context of a specific data transaction.
- **Data user (role):** A transaction participant that has been granted (lawful) access and the right to use data as the result of a specific data transaction. Also known as data rights receiver.
- **Data intermediary (role):** A data space enabler that (technically and legally) connects one or more data space members to the data space, thereby enabling them to establish relationships and execute data transactions with other members in the data space.

# 5 ELEMENTS FOR THE GOVERNANCE OF A TOURISM DATA SPACE

In an attempt to get a better understanding of the **baseline for the design of the governance of DATES**, this section provides an **analysis of the state of play with respect to two major elements: a) the legal and regulatory frameworks affecting data operations** as well as **b) the revision of some governance approaches adopted by exiting data sharing initiatives.** For both of them we apply a twofold perspective: a) a **general overview**, i.e., without a specific focus on tourism, since many elements may be valid and could be extrapolated to tourism, and b) **tourism-focused analysis**. This should not be considered an exhaustive and complete study but a guidance for the suitable formulation of the governance of DATES, facilitating the awareness of **what is needed,**

**what already exists**, what seems to work better and in which contexts. These insights should be complemented with information provided in WP2 and will be exchanged, expanded and validated through the co-creation approach that will be carried out by DATES in the upcoming months.

## 5.1 Main elements of the Governance of a Data Space

According to the DSSC, "*Governance models in the context of data-driven applications and data sharing involve multiple choices that must be made in coherence by multiple organisations, such as* **data sources, access conditions, algorithms, interfaces, onboarding rules, and service levels**. *It is too complex for a single person to make the correct choices for all available options and expect this to yield the desired outcomes and impacts, supported by all organisations involved*".

Key governance aspects identified by DATES include:

- **Data Ownership:** while in some cases this could be a straightforward issue, data ownership can be complicated when data is generated by multiple parties. In this context, the data space should have procedures to **establish clear ownership rights** to avoid disputes and to ensure that data is shared ethically. Data spaces should go beyond existing platforms in the implementation of **data sovereignty** so that individuals and organizations trust that their data are used in a way they control, for the usage they authorize, and they can revoke at any time.

- **Data Privacy**: tourism is a sector where there is a high degree of personal data. As such, compliance with regulations such as the **General Data Protection Regulation (GDPR) in the EU** is key. Due to the transnational nature of the sector, some other privacy regulations applicable in other regions of the world (e.g. California Consumer Privacy Act (CCPA) in USA) may be considered at the design phase to facilitate standardized processes of international players. For this, clear **guidelines for the collection, use, and sharing of personal data** should be defined that ensure compliance with these regulations to protect individuals' privacy.

- **Data Security**: given the sensitive nature of some data, such as personal information or financial data, data security is a key concern. Data space members should have adequate measures in place to **protect data from unauthorized access, disclosure, or theft** following guidelines of DATES.

- **Transparency**: Data space members should follow transparency guidelines **about their data collection practices, how data will be used, and with whom it will be shared**. This will help build **trust** with other members of the data space.

- **Collaboration:** as widely repeated along this document, collaboration is a pre-requisite to successful data sharing. This should be materialized through **standards and protocols for data sharing** that ensure that data is shared **efficiently, ethically, and securely**. This point builds upon some of the former concepts.

For the analysis, discussion and selection of these aspects, DATES will follow the three pillars depicted in section 2 (methodology) and proposed by DSSC to navigate through some of the existing elements as preparation for the design process of the business and governance model, whose main steps are described in section 6 (next steps) and whose development and outcomes will be reflected in D4.2.

**Legal Framework**: revision of major regulatory and legal aspects that need to be considered by the tourism data space and that in this case include the data-related aspects that could affect any other data space independently on the operating sector such as contract law, data protection, intellectual property, competition law and cybersecurity, as well as regulatory and enforcement aspects recently introduced to regulate data and data spaces, but also some specificities of the Tourism industry. Section 5 of this document anticipates a brief analysis of the data-related legal and regulatory framework, which will be updated accordingly based on the legal compass of the DSSC as well as regulation specifically focused on tourism or other sectors of potential influence on the operations of the tourism data space.

**Organizational aspects of the data space**: composed by decision rights and accountabilities for information-related processes (see former list of key governance aspects). As pointed out by the DSSC, operationalization of the data space requires careful consideration of the different roles in the data space, as well as business strategies. An anticipatory analysis of stakeholders and roles has been provided in section 4, to be enhanced by a business model analysis as part of T4.4. These inputs will feed the co-creation process of the selection of the right governance model, which will also be built upon the analysis of some relevant governance models of data sharing initiatives, as included in this section.

**Contractual or transactional dimension of the data space**: it addresses models, templates and architectures relating to data exchanges, for which the DSSC will provide a catalogue that will complement the analysis carried out by DATES about resources that are already available specifically for the tourism sector.

## 5.2 Legal and regulatory Framework

While in the past we used to say that technology was much faster than regulation, the situation has slightly changed, with a very active involvement of regulatory bodies in the development, deployment and adoption of some technologies and notably in the field of data and AI. In the case of DATES we also need to consider specific legislation and regulation that affects providers of tourist products and services, and here is where the complexity increases, since regulations exist at European, national and regional-local levels. That is why the **geographical area of operation is of relevance in the context of DATES.**

## The Data and AI Regulatory Landscape

The European Commission has implemented [a regulatory framework](#)[6] for data sharing, whose main elements are briefly described in this chapter and for which we have taken advantage of previous efforts in compiling and analysing regulations (such as those by the EUH4D project[7] or the Code of Conduct on Data Sharing in Tourism, March 2023).

**Data Governance Act**[8] adopted on May 30, 2022, aims to foster the availability of data for use by increasing trust in data intermediaries and by strengthening data sharing mechanisms across the EU. The Regulation addresses the following situations:

- The re-use of certain categories of protected data held by public sector bodies[9]
- Fostering the emergence of neutral data intermediaries that facilitate data sharing by connecting the supply and demand of data.
- Creating an harmonised framework for fostering data altruisms, which is about individuals and companies giving their consent or permission to make available data that they generate –voluntarily and without reward – to be used for objectives of general interest.
- Setting up the European Data Innovation Board, a consultative body which will assist the Commission on all matters related to the Regulation.

The proposal for the **Data Act**[10], adopted by the Commission on 23 February 2022, aims to ensure a fair allocation of value in the data economy by establishing new data access and use rights in B2B, B2C and B2G data sharing contexts. The proposed measures will empower individuals and businesses with regard to the data they contribute to produce by using IoT objects. The Data Act also proposes a **framework for efficient data interoperability**. It sets out essential requirements on interoperability that stakeholders in the common European data spaces must comply with and it empowers the EC to step in when interoperability needs to be strengthened.

The **Europe Interoperability Act** proposal was submitted by the Commission on 18 November 2022. The Interoperable Europe Act[11] will ensure a consistent, human-centric EU approach to interoperability from policymaking to policy implementation. It introduces a structured and co-owned EU cooperation framework that enables public administrations

---

[6] https://www.sitra.fi/en/news/the-eus-new-data-regulations-will-bring-benefits-to-companies-and-society-four-recommendations-for-seizing-the-opportunities/

[7] https://euhubs4data.eu/

[8] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R0868

[9]

"Data the use of which is dependent on the rights of others" or "data subject to the rights of others" covers data that might be subject to data protection legislation, intellectual property, or contain trade secrets or other commercially sensitive information

[10] https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113

[11] https://ec.europa.eu/commission/presscorner/detail/%20en/ip_22_6907

to build together a seamless and secure cross-border exchange of data for public services and agree on shared interoperability solutions.

The **AI Act**[12], was proposed in April 2021, . The Council agreed the EU Member States' general position in December 2021. Parliament voted on its position in June 2023. The proposed legal framework focuses on the specific utilisation of AI systems and associated risks. The Commission proposes to establish a technology-neutral definition of AI systems in EU law and to lay down a classification for AI systems with different requirements and obligations tailored on a 'risk-based approach'. Some AI systems presenting 'unacceptable' risks would be prohibited. A wide range of 'high-risk' AI systems would be authorised, but subject to a set of requirements and obligations to gain access to the EU market. AI and generative AI models (as ChatGPT) are started to be used in the tourism sector, so this regulation will be of high relevance for the tourism data space.

The **Directive on open data**[13] and the re-use of public sector information, also known as the Open Data Directive, entered into force on 16 July 2019, replacing the **Public Sector Information (PSI) Directive**[14]. The Open Data Directive strengthens the existing rules on formats, enabling diverse re-use scenarios, including dynamic data provided in real-time. More recently, the EC has also released a list of specific **high-value datasets (HVDs)** and the arrangements for their publication and re-use[15]. This means that Public Sector entities will have to make those HVDs available free of charge, in machine-readable format, via Application Programming Interfaces (APIs). The specific themes and data sets include geospatial, earth observation and environment, meteorological, statistics, companies and company ownership and mobility[16]. As it can be seen, a sub-set of those data sets is of high relevance to the tourism data space.

Other regulatory pieces of interest include **General Data Protection Regulation (GDPR)**[17] for personal data privacy, but also **Regulation on the free flow of non-personal data (FFD)**[18] and the **Cybersecurity Act (CSA)**[19].

Beyond a pure focus on data, there are regulations of high relevance for the DATES, such as the **Digital Content Directive**[20], highlighted as major contribution to empowering individuals by introducing contractual rights when digital services are supplied to

---

[12]

https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698792/EPRS_BRI(2021)698792_EN.pdf

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561563110433&uri=CELEX:32019L1024

[14] http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32003L0098

[15] Commission Implementing Regulation (EU) 2023/138

[16] Full list of HVD can be checked here: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2023.019.01.0043.01.ENG

[17] Regulation (EU) 2016/679

[18] Regulation (EU) 2018/1807

[19] Regulation (EU) 2019/881

[20] Directive (EU) 2019/770

consumers who provide access to their data, but also the **EU Regulation on platform-to-business relations (P2B Regulation)**[21], The **Digital Services Act (DSA)**[22] and the **Digital Markets Act (DMA)**[23].

The P2B regulation entered into force on 12 July 2020, targeted at commercial issues engaged in by online platforms, or online intermediation services, as well as by online search engines. In particular, the P2B Regulation aimed at ensuring a more transparent and predictable trading environment for online business users. While it does not oblige platforms to share data with their business users, it requires them to be transparent about their data sharing practices with business users and third parties.

DSA was submitted by the Commission on 15 December 2020, and adopted on 19 October 2022, and it expands and clarifies responsibilities and accountability for online businesses providing services in the EU. It goes deeper into the responsibilities of platforms for online content (including collaborative economy platforms) and the conditions for liability exemptions for online intermediaries. The DSA also establishes a common framework for the supervision of digital service providers and enforcement through an EU-cooperation mechanism. These new rules should bring legal certainty, foster innovation, growth and competitiveness, and facilitate the scaling up of smaller platforms, SMEs and start-ups by opening up new opportunities to provide digital services across borders.

Finally, DMA, submitted by the Commission on 15 December 2020, and adopted on 14 September 2022, ensures fair position between large and small online platforms in digital markets. It aims to guarantee the proper functioning of the internal market by way of harmonised rules to ensure contestable and fair markets in the digital sectors across the EU. It addresses the unfair practices of certain undertakings (designated as "gatekeepers") and the practices that undermine the contestability of markets in the digital sector and that are most damaging for business users and end users.

This is just a sample of the complex landscape of regulations to be considered. In fact, there are so many new pieces of legislation that it can be overwhelming for smaller companies to navigate. Many new and existing EU-level bodies, such as the **European Data Innovation Board** and the **European Data Protection Board**, give guidance related to data sharing. Some existing or new authorities will oversee EU-level data laws at the national level. Eventually, data-sharing between different parties will also require subject specific rules, architectures, standards etc. to complement legislation (soft infrastructure).

---

[21] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150
[22] https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package
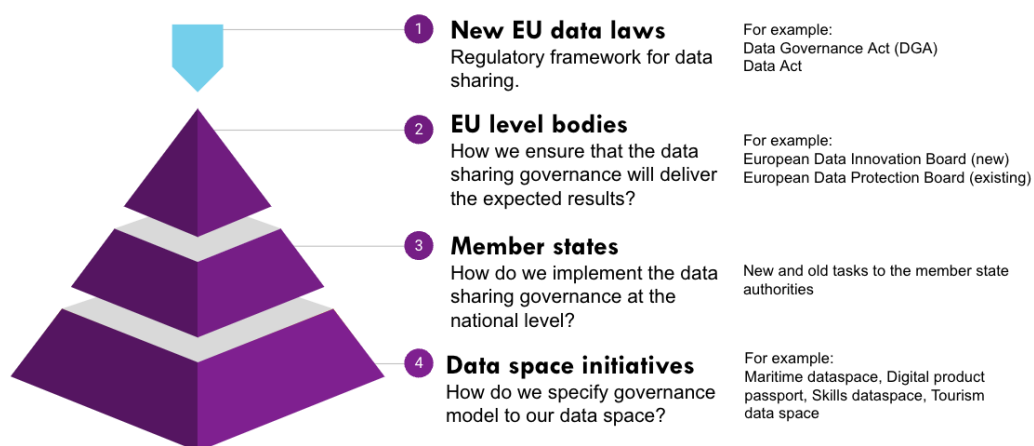[23] https://eur-lex.europa.eu/eli/reg/2022/2065/oj

*Figure 10 Complexity of the emerging Data Regulatory Landscape in the EU*

This means that rules for data sharing will be developed on many levels at the same time. The regulatory framework alone gets even more complicated when the other levels are included. For businesses wishing to participate in data sharing it shouldn't be necessary to understand all the complexities. Ideally, complying with the data-sharing rules should be effortless, if not automated.

The EU level data regulations will bring about new tasks for national authorities. **EU has decided to legislate using Acts, that is, directly applicable law in the Member States**. Still implementation will be needed by them, in particular in setting up the competent national authorities. Many questions are to be solved by the national authorities during implementation. This creates a risk of non-harmonised interpretations of the regulations in different Member States and a higher burden for organisations wishing to share data or operate in multiple Member States. At the time of writing this document, Member States are struggling against the time to implement the first of the new pieces of data legislation, the Data Governance Act, before the transition period ends in September 2023.

As per the **Data Governance Act,** each Member State needs to:

✓ Appoint competent authorities to register and supervise the data intermediation services (Art. 13) and data-altruism organisations (Art. 23). These authorities will represent the Member State in the European Data Innovation Board (Art. 29).
✓ Establish a single information point to receive requests to re-use public sector data (Art. 8).
✓ Designate supporting bodies to help public agencies to manage data re-use requests (Art. 7).

Should one or more agencies handle these tasks? Should some entirely new bodies be established, or can the new functions be carried out by, for example, the competition agency, telecom authority or data protection authority? While implementing the Data Governance Act, Member States should also look at the requirements of the other new laws.

When it comes to the proposed **Data Act**[24], Member States have to:

- ✓ Designate one or more competent authorities to apply and enforce the new rules (Art. 31/1). One must be chosen as the coordinating authority if multiple authorities are involved.
- ✓ Designate a competent authority to apply and enforce the rules for switching between data processing services (Art. 31/2).
- ✓ Certify dispute settlement bodies to assist parties that disagree on the compensation or other conditions regarding data sharing.
- ✓ In addition, under the data act, the authorities also have a separately regulated obligation to mutual assistance and cross-border cooperation (Article 22).

DATES will keep an eye on the evolution of this process and will use the data space as an instrument to ease the understanding of the regulatory landscape and guarantee the compliance of data sharing in the context of the DATES with the aforementioned regulations. While this should be of benefit for all the actors involved in the data space, it is ultimately a very relevant added value for smaller organizations (SMEs, startups, individuals) that may be left out of the data sharing economy because of lack of knowledge or resources to follow up legislation and regulation such as Data and Data Governance Acts.

## The Tourism Regulatory Landscape

Data operations in specific verticals must consider sector-specific legislation. In this context, the Code of Conduct on data sharing in tourism points out some specific regulations that may be useful in this respect. In particular, it mentions initiatives on data access for concrete domains (automotive, payment service providers, smart metering information, electricity network data, or intelligent transport systems). For simplicity, this document tackles mainly the tourism area.

While European legislation affects all European citizens and businesses, depending on the type of legislation, it can affect people or organizations directly (by its binding nature) and, in other cases, indirectly (with the recommendations or legislative trends that it marks). The EC does not impose legislative trends, but it does shape them with a variety of legal procedures. It is therefore important to know the European legislative process and the types of legislation drawn up by the EU.

Tourism is, by definition, about free movement, globally but also mostly within the EU. This is why, although Tourism is generally a regional competency, it is critical that it is facilitated at EU level and distortions can be ironed out as much as possible. It must be noted that the implementation of a tourism data space will further contribute to this goal.

Key pieces elaborated by the EU of relevance to the tourism data space include:

---

[24] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022PC0068&from=EN

- **Passenger rights** aptly named since it defines people rights when travelling in the EU. It means passengers who have experienced delays or cancellations by air, rail, ship or bus, can activate their rights and claim compensation.

- **Directive (EU) 2015/2302 on package travel** and linked travel arrangements. It clarifies the law surrounding travel services sold online. It therefore regulates the sale of package holidays. Its goal was to respond to the changes in traditional travel distribution chains, while enhancing transparency and increasing the legal certainty for travellers and traders. It involved a change for both consumers and the intermediary subsector.

- **Directive 2011/24/EU on the application of patients' rights in cross-border healthcare** is intended to facilitate access to safe and high-quality cross-border healthcare in the EU. This clearly has an impact, not just during Covid, and represents an important **potential collaboration between Tourism Data Space and Health Data Space.**

- **Directive 2011/83/EU on consumer rights** aims to achieve a real business-to-consumer (B2C) internal market, with a high level of consumer protection and a competitive environment for businesses. It maintains a high level of consumer protection across the EU and has contributed to the proper functioning of the internal market, particularly concerning contracts concluded between consumers and traders.

- **Directive 2005/29/EU concerning unfair business-to-consumer commercial practices in the internal market**. Its objective is to boost consumer confidence and make it easier for businesses, especially small and medium-sized enterprises, to trade across borders. It means that under EU rules, unfair commercial practices enable national enforcers to curb a broad range of unfair business practices. This includes untruthful information given to consumers, or aggressive marketing techniques designed to influence their choices.

- **Regulation (EC) Fairness in platform-to-business relations Platform-to-business trading practices.** Its objective is to promote fairness and transparency for business users of online intermediation services. It has led to concrete actions on unfair contracts and trading practices in platform-to-business relations, which safeguards a fair, predictable, sustainable and trusted business environment in the online economy. It will probably need to be considered when designing smart contracts that will automate data sharing within the Tourism Data Space.

- **Regulation (EC) No 66/2010 on the EU Ecolabel with the Tourism Accommodation** Criteria is the only sign of environmental quality that is both certified by an independent organisation and valid throughout Europe. It satisfies the tourism industry's demand for more environmentally friendly resorts and accommodation. It helps tourism accommodations to implement measures that make their operation more environmentally friendly by setting technical, measurable criteria on specific aspects such as water and waste management, energy consumption, etc. The EU Ecolabel is well known by customers, therefore

certified accommodations displaying the "green leaf" label get more visibility towards environmentally conscious customers. This regulation will help the **interface between Tourism Data Space and Green Deal Data Space**.

## 5.3 Organizational aspects of the data space: Governance models and mechanisms of relevance in existing data sharing initiatives

### Data Sharing Governance Models

Current data sharing practices in Europe apply a diversity of organizational structures, such as:

- **Public-Private Partnership (PPP) model**: This model involves collaboration between public and private entities for the development and sharing of data. In this model, the government provides funding and support for data sharing initiatives, while private companies provide expertise and resources.
- **Open Data model**: This model involves the release of government data to the public for free use and reuse. This model aims to increase transparency and encourage innovation.
- **Federated model**: This model involves the creation of a network of organizations that share data through a common platform. In this model, each organization maintains control over their own data, while also participating in a broader network for data sharing.
- **Centralized model:** This model involves the creation of a central authority that governs data sharing activities. In this model, the central authority sets rules and standards for data sharing and manages access to data.
- **Decentralized model**: This model involves the use of blockchain technology to facilitate data sharing. In this model, data is stored in a decentralized network of nodes, and transactions are verified by consensus among network participants.

It's worth noting that these are not the only data sharing governance models used in Europe, and different initiatives may use a combination of different models or a unique model that is tailored to their specific needs. Additionally, the success of these models can depend on a variety of factors, including the level of trust between participating organizations, the availability of funding and resources, and the regulatory environment in which the initiative operates. Selection of one of them, a new one or a combination of several models has implications on the elements comprised by the governance of the data space.

**Governance elements proposed by OPEN DEI**

The position paper of "Design principles for Data Spaces"[25] created by OPEN DEI, as one of the frontrunner initiatives to promote data spaces, specifies the areas that should be covered in terms of governance, which comprise the **framework for management and innovation** as well as the **framework for adoption** that includes implementation, support and communication. While the first includes **maintenance** and **innovation** and **accession** and **certification**, the second focuses on **technical and implementation support** as well as **communication** and **education**.
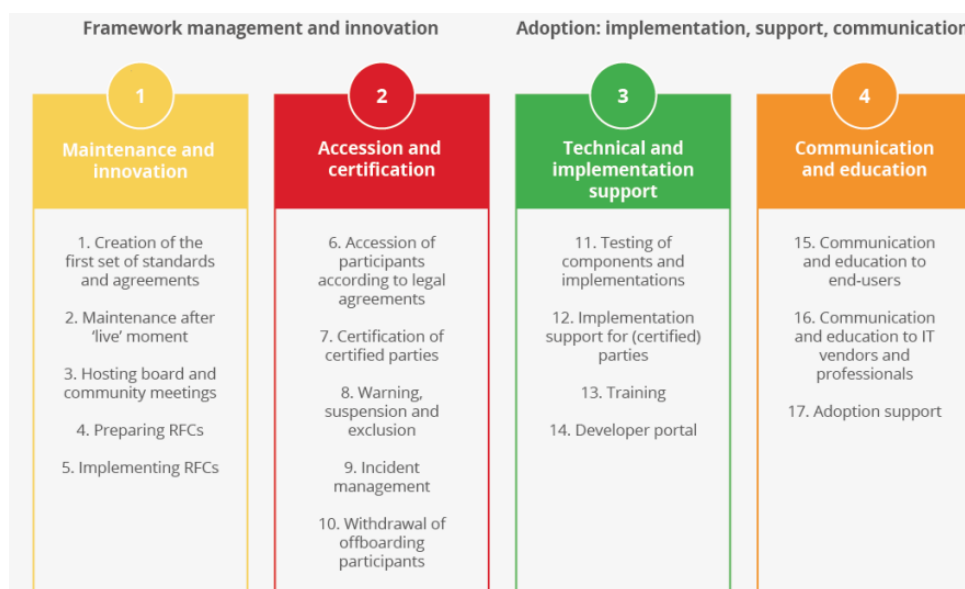


*Figure 11 Overview of activities per area of governance; Source: Design Principles for Data Spaces, OPEN DEI project.*

OPEN DEI also suggests a potential structure for the governance of the data space with governance roles and major functions.
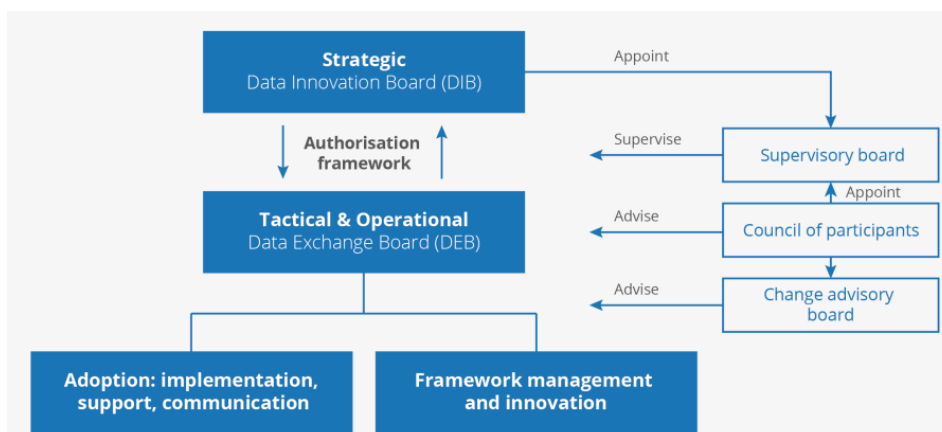


*Figure 12 Overall governance structure for soft infrastructure and the data spaces; Source: Design Principles for Data Spaces, OPEN DEI project.*

**Governance for Data Space Instances (IDSA-based model)**

---

[25] https://design-principles-for-data-spaces.org/

The Governance-for-Data-Space-Instances (GDSI)[26] model is a framework for governing data sharing and collaboration within a data ecosystem. The main characteristics of the GDSI model are as follows:

- **Decentralization**: this model promotes decentralized governance of data spaces, meaning that decision-making and control are distributed across multiple stakeholders rather than being centralized in a single entity.
- **Collaboration**: the model emphasizes collaboration and cooperation among stakeholders, including data providers, data consumers, and data stewards.
- **Interoperability:** the GDSI model supports the interoperability of data spaces, enabling data to be shared and exchanged seamlessly across different domains, platforms, and systems.
- **Trust**: this places a strong emphasis on trust-building mechanisms, such as data quality assurance, data privacy and security, and transparency.
- **Flexibility**: designed to be flexible and adaptable, accommodating different governance structures, policies, and practices depending on the needs of different data spaces and domains.
- **Accountability:** emphasizes accountability, with clear roles, responsibilities, and mechanisms for ensuring compliance with relevant regulations, standards, and ethical principles.

Overall, the GDSI model provides a comprehensive framework for governing data spaces, enabling stakeholders to collaborate effectively while maintaining trust, accountability, and flexibility. Major governance roles of IDS-stakeholder for intra and inter data space development include:

- **Data Space Instance (DSI):** Role in intra data space development. To coordinate the operational activities within the data space, ranging from providing technical support, to marketing, to legal aspects.
- **International Data Spaces Association (IDSA):** Role in intra data space development. To provide and to promote generic technical standards which can be used across the various DSI. Moreover, the IDSA can provide standardized processes and procedures to manage a DSI as well contribute to general marketing and communication activities, which can be an important input for setting up a DSI.
- **International Data Spaces Support Organization (IDS-SO):** Role in intra data space development. To support the (technical) integration of the provided standards as part of IDSA's responsibilities. The Support Organization is mostly concerned about providing support to (1) DSI, (2) EF, (3) Service Providers, and are therefore not directly concerned about the end-users.
- **International Data Spaces Certification Body (IDS-CB)**: Role in intra data space development. To standardize the certification process of implementation in the DSI.

---

[26] https://internationaldataspaces.org/wp-content/uploads/IDSA-Position-Paper-Governance-for-Data-Space-Instances-Aspects-and-Roles-for-IDS-Stakeholders.pdf

- **Service Provider (SP):** Role in intra data space development. To develop, integrate, deploy, and support the solutions developed in the DSI. The Service Providers are the main contact point for the End-users and facilitate the (technical) onboarding of the End-users in the DSI.
- **End-user (EU):** Role in intra data space development. To make use of the developed solutions
- **Evaluation Facility (EF):** Role in intra data space development. To certify, under supervision of the CB, the usage and implementation of the solutions developed by the Service Providers and used by the End-users.
- **Contributor (C):** Role in intra data space development. To further contribute to the development of the DSI solution and to the IDS Reference Architecture Model

In order to understand the way different sectors are addressing the governance aspect in their data sharing approaches, we provide here an overview of the approaches by verticals that may inspire or be additional references for the DATES.

**Governance models for the European Health Data Space**

TEHDAS project[27] provides additional details on the four proposed governance models for the European Health Data Space (EHDS):

- **Decentralized model**: this one presents a distributed governance approach that involves multiple actors, including national health systems, research organizations, and patient organizations. It aims to facilitate data sharing across borders while promoting local autonomy and flexibility. Key characteristics include a bottom-up approach to governance, the use of common technical standards, and the establishment of a network of national data hubs.
- **Centralized model**: proposes a centralized governance approach that places decision-making power in a single entity, such as a European Health Data Agency. It aims to promote standardization and harmonization across different health systems while ensuring accountability and oversight. Key characteristics include the use of common technical standards, the establishment of a central governance body, and the development of a legal and regulatory framework for data sharing.
- **Hybrid model**: This model proposes a shared governance approach that involves both a central entity and national entities, such as national health data agencies. It aims to balance the benefits of standardization and harmonization with the need for local autonomy and flexibility. Key characteristics include the establishment of a central governance body and a network of national data hubs, the use of common technical standards, and the development of a legal and regulatory framework for data sharing.

---

[27] https://tehdas.eu/app/uploads/2023/01/tehdas-options-for-governance-models-for-the-european-health-data-space.pdf

- **Platform model:** This model suggests a governance approach focused on the development and operation of a data-sharing platform. It aims to facilitate data sharing and collaboration across different stakeholders while ensuring data protection and privacy. Key characteristics include the use of common technical standards, the establishment of a central governance body for the platform, and the development of a legal and regulatory framework for data sharing.

Overall, the TEHDAS report emphasizes the importance of patient-centeredness, data protection, and transparency in all of the proposed governance models. It also highlights the need for a common framework for data governance that takes into account the diverse legal and regulatory environments across Europe while ensuring that the EHDS governance models are adaptable to future developments in health technology and data science.

**Data governance model for manufacturing data**

The Open DEI project[28] proposes a data governance model for manufacturing data that aims to facilitate data sharing and collaboration across different stakeholders in the manufacturing sector. Some of the main characteristics of this governance model include:

- **Data ownership**: this one emphasizes the importance of data ownership and the need for clear rules and agreements around data ownership, sharing, and usage.
- **Data privacy and security**: the model prioritizes data privacy and security and includes mechanisms for ensuring that data is handled securely and in compliance with relevant regulations, such as the General Data Protection Regulation (GDPR).
- **Standardization**: Standardization is a key characteristic of the Open DEI manufacturing data governance model, with a focus on developing common standards and guidelines for data sharing, interoperability, and data quality.
- **Collaboration**: The data governance model for manufacturing data promotes collaboration among different stakeholders, including manufacturers, suppliers, and customers, to facilitate data sharing and innovation.
- **Transparency and accountability**: this one includes mechanisms for ensuring transparency and accountability in data sharing, including clear roles, responsibilities, and decision-making processes, as well as oversight and enforcement mechanisms.
- **Flexibility:** is designed to be adaptable to different manufacturing contexts and to support the integration of new technologies and data sources.
- **Data lifecycle management**: includes a data lifecycle management approach that covers the entire data lifecycle from data acquisition to data archiving, ensuring that data is managed efficiently and effectively throughout its lifespan.
- **Data quality management**: this concrete model includes mechanisms for ensuring data quality, such as data cleansing, data validation, and data verification, to ensure that data is accurate and reliable.

---

[28] https://www.opendei.eu/

The Open DEI manufacturing data governance model prioritizes data ownership, privacy, security, standardization, collaboration, transparency, accountability, and flexibility to facilitate data sharing and innovation in the manufacturing sector.

## Data Sharing models in Tourism

In tourism, data governance models also vary according to the way tourism is managed and financed at national levels, which is often due to historical developments, the importance of the tourism industry in terms of national economic benefits, or the level of perceived relevance of the industry at institutional level. As an example, we can use the comparison of the data sharing governance models in tourism in Spain, Italy, Czech Republic, Austria and Slovenia, where we see leadership focused on government (public sector) or private sector respectively.

### Spain

Spain is a decentralized country. For that reason, although there is a Ministry of Commerce, Industry and Tourism, the competences of tourism are transferred at regional level, and, in some particular cases (like in Balearic Islands, at Island level)

The Ministry through Segittur(Sociedad Mercantil Estatal para la Gestión de la Innovación y las Tecnologías Turísticas, S.A.M.P, under the Ministry of Industry, Trade and Tourism), is leading the Smart Smart Tourist Destination project, a pioneering international initiative aimed at implementing a new model to improve competitiveness and the development of a tourism based on governance and co-responsibility. Segittur is also generating different initiatives related to data. One of them is DATAESTUR, which provides information on Spain´s tourism industry, a selection of the most significant Spanish tourism data for consultation and study as well as a presentation of the main sources of information and results, constantly expanded and improved.

The Ministry is implementing a called "country platform" which aims to aggregate all data from all destination. All of them are aligned with the Smart Touristic Destination strategy and supported by the UNE 178 standard (where a specific semantic rule has been developed)

Besides, in Spain the data space competences, including tourism, fall under another Ministry, namely, the Ministry of Economic Affairs and Digital Transformation. Assigned to it, is the National Statistics Institute, that is a legally independent administrative autonomous institution. It has among other functions the relations on statistics with specialised International Institutions and in particular, with the European Union Statistics Office (EUROSTAT)

### Italy

Italia Domani is changing Italy. Italia, through the National Recovery and Resilience Plan includes important support measures to help relaunch this sector, among which the optimisation of services through a digital hub, connecting the entire tourism industry. This

measure, involving an investment of EUR 114 million, aims to create a digital tourism hub that can be accessed via a dedicated web platform, allowing the entire tourism ecosystem to enhance, supplement and promote the services on offer. This investment will be used to finance digital infrastructure, artificial intelligence models for data analysis and basic digital services for tourism businesses.

There are three action areas:

• optimising the Italia.it portal promoted by 'ENIT' (Italian National Tourism Board), by improving its user interface, adding more sources of information and expanding the range of services available to both tourists (e.g, healthcare assistance and information) and tourism operators (e.g., tour guides);

• adopting artificial intelligence models to analyse data on tourist flows in the areas of most and of least interest;

• developing an IT system to promote and manage tourism businesses, supporting its adoption and providing training for small and medium-sized operators in the country's most underdeveloped areas.

## Czech Republic

In the Czech Republic, the government has taken a leading role in statistical data-sharing initiatives in the tourism industry. The Ministry of Regional Development supports the National Tourism Data Platform which is being maintained and developed by the NTB CzechTourism. The aim is to collect and share data on tourism demand, supply, and performance across the country. The key Stakeholders in this platform are Czech Statistical Office (CZSO), Czech National Bank (CNB), Ministry of Regional Development (MRD) and NTA CzechTourism. Data collected and provided by the Czech Statistical Office (CZSO) are designed to be compatible with the European Tourism Data Warehouse (ETDW), EUROSTAT, which allows Czech Republic to share data with other European Union Member States.

Actually, main centrally managed digitisation initiative is the "eTurista" project, which aims to deliver a system that allows accommodation providers to perform all duties from one place online; data on residents will be entered only once, the system will replace several tasks that the accommodation provider must carry out, the data entered will be 'distributed' to the relevant authorities and will create an overview of accommodation providers; aggregated data on visitor arrivals to destinations will be available in real time, and in a clear form to different stakeholder groups with specific details. Data will also be available for the individual accommodation segment facilities (including accommodation platforms).

## Austria

As the predecessor of the current initiative, the data hub in Austria was collecting and presenting tourism data on a centralised platform. This tourism data initiative was launched as a proof of concept. During the process and as a result of the PoC, it was decided to change the concept and head towards a data space for Austrian tourism. The initiative which took over is called **"Data Intelligence Offensive"** established by the Austrian

National Tourism Organisation (ANTO), with strong involvement of the private sector. The initiative involves collecting and analyzing data from various sources, including public authorities, industry associations, and private companies. ANTO is also working on developing a tourism data hub, which will serve as a data space platform for data sharing. The chosen solution is Gaia-X compliant.

In general, the situation we see in most European MS is an attempt to collect and analyse data from different tourism stakeholders for statistical purposes and better knowledge and forecast of the sector. Nevertheless, no solid initiatives exist that combine public and private forces enabling new data-driven business models in compliance with the evolving regulation, where data sovereignty is guaranteed and where openness and fairness is enforced for players in all the stages of the tourism value chain independently on their typology, promoting extended data sharing and enabling the high potential of the data economy in the sector. The Slovenian example included below is a good representation of this situation. A more thorough consideration of national structures will be considered in the next phase of DATES, when stakeholders from most MS directly contribute to the co-creation process of an agreed governance model for the Common European DATES.

### Slovenia

In Slovenia, there are several sources of tourism data. The most important one is the **Slovenian Tourist Board (STO),** which offers an interactive view of statistical data on tourism. A public tender has been launched for gathering requirements and designing the national information portal by STO, which aims to provide access to various datasets related to tourism in Slovenia. The portal will be an important source of information for policy makers, researchers, and other stakeholders, and will allow for better monitoring and management of the tourism industry.

The **Statistical Office of the Republic of Slovenia (SURS)** releases monthly statistics that cover topics such as tourist arrivals, overnight stays, and other related indicators. Additionally, the mandatory **registry of tourist accommodation providers** (RNO), is managed by the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES). The **eTurizem** reporting system requires accommodation providers to report on the number of guests, overnight stays, and the average length of stay – the aggregated data is available to SURS, the Police and municipalities.

The OPSI portal (Open data of Slovenia) provides multiple data sets at the municipal level, including information on tourist accommodation facilities, tourist guides, hiking trails, tourism tax collectors, and tourist attractions and associations etc.

We have identified some public private data sharing initiatives (i.e. Mountaineering 4.0 – collecting and combining real time data about visitors of hiking trails with relevant data sources for data visualisations, Smart Soča Valley collecting various real time, historical, local, global and satellite data for data visualisations). Also, the City of Ljubljana offers real time data in the application "moment in Ljubljana.

## 5.4 Contractual/Transactional dimension of the Data Space

As it was pointed out at the beginning of this document, DSSC plans to provide a set of agreements and templates for the contractual part of data spaces together with checklists. This part will come a bit later on in DATES when we have to formalize the corresponding contractual relationships, rights and obligations of the members of the tourism data space. Meanwhile, a good reference for DATES is the code of conduct on data sharing in tourism, signed by major stakeholders in the sector, which specifies a checklist for data sharing agreements.

**Which data is concerned**

1. Are the type of data to be shared and the data format clearly delineated?

2. Are there any provisions on the quality, accuracy and consistency of the data?

**Essential aspects about the agreement**

3. How the data will be used and for what purpose?

4. What is the duration of the agreement?

5. Do the remuneration terms of the agreement reflect the value of the data?

6. Can the data be further shared with third parties? Does resharing require the permission of the data holder?

7. Is the consent of the data holder required in case of incorporation of the data into new datasets?

8. Is the shared data to be interoperable with relevant systems? Can involved parties facilitate interoperability?

**Legal framework and obligations**

9. Do the provisions comply with the requirements of legislation applicable to data sharing?

10. Should any EU and/or national competition authorities be notified of the agreement?

11. In case the shared data include personal data, are all data protection and privacy rules being respected?

12. Do the terms on intellectual property avoid potential infringements?

**Security and confidentiality**

13. In case of misuse, erroneous supply, disruption or unlawful loss/destruction of the data, does the agreement clarify which party could be held liable for any potential damages?

14. Is the issue of data security addressed?

15. What are the terms of confidentiality?

16. Will the data be deleted from the system once the agreement is terminated

# 6 NEXT STEPS

This document provides a baseline analysis of the elements that should be considered when designing the Governance and Business framework of the DATES. We have reviewed a relevant number of sources that provide indications on which models are already in place. The solution will probably be a combination of those models, adapting elements that fit with the needs of stakeholders in this industry. The next step in DATES will be the detailed discussion of a set of potential governance models with a **representative sample of stakeholders**, including all the stages of the Tourism value chain, different typologies or organizations and heterogeneous level of operation from a geographical point of view. With them we will **co-create the basis of the major elements** that will compose the model proposed by DATES, which will then go through an extensive **validation and endorsement process** by all the parties. We will take as reference the design process suggested by the DSSC for the organizational governance of the data space (some variations or extensions may be applied to this process based on the needs of the tourism industry and its players).

**Phases of the design process**
- Onboarding: building trust among the participants in the design process
- Exploration: what is already known about the governance topics and what is in and out of scope (using as basis the insights provided in D4.1)
- Design: find answers to the many topics included in governance.
- Evaluation/Experimentation: find additional answers to open parts.
- Finalisation: All stakeholders agree.
- Formalization: The governance can be formalized in agreements. Governance agreements suggested by the Rulebook include:

*Figure 13 Governance agreements for the formalization phase of the data space (source: Starter kit for data space designers v1.0, DSSC, March 2023)*

# 7 CONCLUSION

**Tourism is a complex sector that is closely connected with many industries**. The European tourism industry is highly dynamic, characterised by its diversity and constantly evolving. Influenced by economic, political, and environmental factors it is also continually challenged by changing consumer preferences and the geographical and structural differences in urban areas and rural regions. **Collaboration between a wide range of actors is crucial for the creation of competitive tourism products and attractive tourism service offers**. Around 85% of the economic actors are SMEs, ranging from small family-run guesthouses, bed and breakfasts, hotels and tour operators to travel agencies, restaurants and souvenir stores, and more. Although these businesses constitute the backbone of the industry and are important players in the tourism supply chain that add significant value to authentic tourism experience for visitors in Europe, **a lot of the economic potential and opportunities for innovation remain untapped for SMEs**. This is largely due to the fact that the tourism market is dominated by large companies and global platforms. Big players, such as Google or Booking.com have established powerful communication channels with consumers and become the matchmakers that sit between tourism demand and supply. In this role, they capture a large portion of the value creation that leads to a **problem with leakage of revenues from the tourism destinations and their local communities** to large global corporations and economies, which are often located far away from the places where the revenue is generated. Since SMEs play a crucial role for the European tourism industry, supporting SMEs through a democratic data exchange is an important pillar for the future success of the European tourism industry and its employees.

In recent years, digitalisation and the **growing demand for sustainable tourism experiences** on the consumer side together with increasing **pressure for climate action** on the supply side have set in motion one of the most **far-reaching and comprehensive transformation processes** the industry has ever faced - the green and digital twin transition challenge. The flexibility, adaptability and entrepreneurial thinking of SMEs are the cornerstones for developing new innovations to develop and drive a more sustainable and responsible tourism industry of tomorrow. The research undertaken identified major differences in the levels of digitalisation, the adoption of data driven processes and the participation in data sharing initiatives. Since **digital literacy and data competence** are of key importance for all tourism stakeholders to efficiently and effectively participate in data governance processes and start working with data spaces, destination management organisations (DMOs) and business support organisations (BSOs) will need to take roles for **capacity building and knowledge transfer**. The Tourism sector has a **complex regulatory framework** that involves local, regional, national and European authorities. This reinforces

the need to have a clear data governance model that takes all relevant regulatory requirements into account. In addition, the relationships and interactions between all stakeholders will also need clear rules.

Stakeholder consultation activities during the project have highlighted that particular attention should be placed on **data quality and data interoperability**, as the data landscape in tourism is fragmented and different formats are used by the many different data providers. A major challenge resulting from this situation is the **establishment of common semantic data standards and structures** that are suitable for the majority of stakeholders.

In order for the European tourism industry to harness the power of data for driving innovation and growth of sustainable tourism experiences and for contributing to regenerative action, a new governance for tourism data federation and stewardship is needed. This will build on existing hard law (regulations) and soft law (Industry initiatives, be they tourism- or data sharing-driven). Policies for open data sharing by default by public authorities, a managed process for developing semantic interoperability standards, and a European Data Space that provides **equal cross-sector access to high priority data, built on the principles of trust and sovereignty,** will put the tourism sector in Europe in a leadership role to meet the major environmental, economic and social challenges of our time and ensure that valid information from trusted sources is being shared. But ultimately, this Governance will have to be an enabler: building trust and fairness within the ecosystem to **facilitate new services and business models**. It will also benefit from **data sharing with other data spaces**, thus creating further value. Mobility is an obvious one, but also Health, Finance or Green Deal.

To turn the vision of a vibrant, innovative and highly competitive sustainable tourism industry in Europe into reality, an organisation for tourism data federation and stewardship may need to be established (or this role should be taken by an established, still neutral organization). It will fill the role of a caretaker for semantic interoperability standards and data sharing within the tourism sector and across sectors to support the bidirectional data needs with related industries. The proposed organisation will act in the interest of the European tourism industry to create positive impacts with measurable social, economic and environmental **benefits for the predominantly small-scale tourism industry** and the many international and inbound tourists that visit Europe for its famous attractions, the rich cultural heritage and the remarkable natural scenery, **contributing a large share of value to the European economy**.

D4.1, through a desk research analysis and processing of data gathered through several activities run with tourism stakeholders, provides an overview of major elements that will need to be considered when defining suitable governance models for the Tourism Data Space. In particular, D4.1 includes an overview of the trends that the tourism industry is going through and specifically the so-called Digital and Data-driven transformation using both a qualitative and quantitative approach. It also identifies the stakeholders and typologies of organizations to be involved in the data space and the (multiple) roles they

may play. This is then followed by an analysis of the needs and elements for the Governance of the data space and a more detailed approach to the state of play of some of those elements. Specifically DATES provides a summary of the Regulatory Framework that could affect this data space (including both data-related regulations but also those defined for the operations of the tourist sector) as well as different approaches for governance that have been proposed or are being applied by data sharing initiatives, including both cross-sectorial and sectorial approaches.

All in all, three major areas of work for the Governance and Business Framework of the data space can be distinguished, in line with the DSSC recommendations: a**) Legal framework, b) Organizational aspects of the data space, and c) Contractual or transactional dimension of the data space**. For the legal framework the set of regulations already included in this document should be taken into consideration and be extended and completed as needed (the legal compass of the DSSC should be instrumental to this purpose when addressing cross-sectorial and data-related aspects). For the organizational aspects of the data space we will further analyse, discuss and confront the models depicted in this document and their impact on some of the requirements identified for the DATES (**data ownership, data privacy, data security, transparency, collaboration including data quality and interoperability**); the Governance matrix of the DSSC seems promising if available on time for the design of the DATES, where we will add the specificities of the tourism industry. Finally, when coming to the contractual part of the data space, we will formalize major decisions into a set of agreements and templates for contracts that should reflect the design aspects of the governance and business framework. Besides we reach that step, an intensive period of **collaboration with stakeholders in Tourism** will take place for the **co-creation and validation of the DATES proposal for a suitable Governance and Business Framework** of a common European Data Space for Tourism that enables reaching the full benefits of the data economy in a fair and inclusive way.

# 8  ANNEX A: TOURISM DATA SPACE GLOSSARY

## 8.1  DSSC glossary

The data space for Tourism uses a specific terminology that includes concepts from the data and tourism worlds. From the data world, we will refer to the glossary created by the Data Space Support Center which is a living document to be completed during the project's life. This glossary can be found under this link: https://dssc.eu/wp-content/uploads/2023/03/DSSC-Data-Spaces-Glossary-v1.0.pdf.

## 8.2 Tourism specific glossary

There are several glossaries related to tourism. One of the most widely known and accepted at worldwide level is the one produced by United Nations World Tourism Organisation (UNWTO). However, this glossary does not cover all the terminology that is being used in the Data Space for Tourism. This is why we are using other sources such as GST Council, private companies and also our own definitions that will help to get a complete, comprehensive and understandable picture of major concepts in this data space for reference by all the stakeholders.

Some glossaries to be taken into account are the following ones:

| Entity | Web |
|---|---|
| United Nations World Tourism Organisation (UNWTO) | https://www.unwto.org/glossary-tourism-terms |
| Statistics UN | https://unstats.un.org/unsd/publication/Seriesm/SeriesM_83rev1e.pdf#page=21 |
| Visit Britain | https://www.visitbritain.org/sites/default/files/vb-corporate/business-hub/resources/england_export_tourism_guide_tourism_talk_glossary.pdf |
| GST Council | https://www.gstcouncil.org/gstc-criteria/glossary/ |

*Table 3 Tourism specific webs*

All the terms gathered in the table below are the most commonly used. This glossary will be updated during the DATES project lifetime and will be available on the project website. This glossary will be also shared with the sister project and the DSSC in order to generate a common understanding about the terminology used in the Data Space for Tourism so that other sectorial data spaces can refer to it in a proper way.

| TERM | DEFINITION | SOURCE |
|---|---|---|

| | | |
|---|---|---|
| Tourist | *A visitor (domestic, inbound or outbound) is classified as a tourist (or overnight visitor), if his/her trip includes an overnight stay, or as a same-day visitor (or excursionist) otherwise* | UNWTO<br><br>*UN Statistics* |
| Visitor | *A visitor is a traveller taking a trip to a main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited (IRTS 2008, 2.9). A visitor (domestic, inbound or outbound) is classified as a tourist (or overnight visitor), if his/her trip includes an overnight stay, or as a same-day visitor (or excursionist) otherwise (IRTS 2008, 2.13).* | UNWTO<br><br>*UN Statistics* |
| One day visitor (Excursionist) | *A visitor without at overnight stay* | *UNWTO* |
| Traveller | *A traveller is someone who moves between different geographic locations for any purpose and any duration* | UNWTO<br><br>*UN Statistics* |
| Tourism destination | *The main destination of a journey is the place which was a decisive factor in making the decision to travel. If such place cannot be determined, the place where the visitor spent most of the trip is considered the tourism destination* | *UNWTO* |
| Smart tourism destination | *A destination facilitating access to tourism and hospitality products, services, spaces and experiences through ICT-based (Information and communications technology) tools* | *EU* |
| Smart Tourism | *Smart tourism refers to the application of information and communication technology (ICT) to develop innovative tools and solutions that enhance tourism activities and experiences, and facilitate sustainable destination management and marketing* | *UNWTO* |

| | | |
|---|---|---|
| Sustainable Tourism | *sustainable tourism as tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future. Rather than being a type of product, it is an ethos that underpins all tourism activities. As such, it is integral to all aspects of tourism development and management rather than being an add-on component. The objective of sustainable tourism is to retain the economic and social advantages of tourism development while reducing or mitigating any undesirable impacts on the natural, historic, cultural or social environment. This is achieved by balancing the needs of tourists with those of the destination.* | *UNWTO* |
| Point of interest (POI) | *Any place or location that someone can be interesting or useful.* | *Own source* |
| Tourism experience | *An individual's subjective evaluation and undergoing (i.e. affective, cognitive, and behavioural) of events related to his/her tourist activities which begins before (i.e. planning and preparation), during (i.e. at the destination), and after the trip (i.e. recollection)'.* | *Tung and Ritchie (2011, p. 1369)* |
| Travel journey | *It includes all the experiences experimented by the tourist during their travel* | |
| Travel cycle | *The travel cycle is each of the stages that a tourist follows to start their travel journey. This cycle includes the before (dream, plan and book) , during(experience, share) and after(remember) stages of the journey* | *Own* |
| Tourism Resilience | *It describes specific things destinations can do, and are already doing, to learn from recent and ongoing stress and shock events, to prepare for the next catastrophic event, and ensure the long-term sustainability of their evolving tourism activities* | |
| Hiking track, path, road | *Specific route designed to facilitate hiking or walk activities* | |

| CRM | *Customer relationship manager. It's a technology used to manage interactions with customers and potential customers. A CRM system helps organisations build customer relationships and streamline processes so they can increase sales, improve customer service, and increase profitability.* | *Salesforce* |
|---|---|---|
| PMS | *Property management system. Hotel property management systems (PMS) manage all aspects of hotel business operations, including the delivery of superior guest experiences. Traditionally, a hotel PMS was defined as software that enabled a hotel or group of hotels to manage front-office capabilities, such as booking reservations, guest check-in/checkout, room assignment, managing room rates, and billing. A hotel PMS replaced time consuming, paper-intensive processes. Today, hotel PMS technology has evolved well beyond the front desk. A hotel PMS is now a critical business operations system that enables hoteliers to deliver amazing guest experiences.* | *Oracle* |
| Receptive agency | *A receptive operator's role is to help with group tours as a liaison and concierge to the destination. They might provide step on services and spend a day with the group, or set up a special itinerary for a group that a tour operator wouldn't be able to do on their own* | *Groups Today* |
| Booking engine | *A software tool that enables travel companies to manage and automate their online booking processes, including reservations, payments, and cancellations.* | |
| DESTINATION MANAGEMENT COMPANY (DMC) | *A business that promotes a destination and provides tourists with advanced knowledge of local offerings. They may resell local tours and activities or act as a marketplace.* | |

| DESTINATION MANAGEMENT ORGANISATION (DMO) | *Destination management consists of the coordinated management of all the elements that make up a tourism destination. Destination management takes a strategic approach to link-up these sometimes very separate elements for the better management of the destination. Joined up management can help to avoid overlapping functions and duplication of effort with regards to promotion, visitor services, training, business support and identify any management gaps that are not being addressed.* <br> *Destination management calls for a coalition of many organizations and interests working towards a common goal, ultimately being the assurance of the competitiveness and sustainability of the tourism destination. The Destination Management Organization's (DMO) role should be to lead and coordinate activities under a coherent strategy in pursuit of this common goal.* | *UNWTO* |
|---|---|---|
| DISTRIBUTION CHANNEL | *A tourism distribution channel is a network of intermediaries that facilitates the sales and delivery of products and services specifically related to tourism from suppliers to consumers (Buhalis and Laws 2001; Kracht and Wang 2010; Longhi 2009). Tourism distribution channels can be distinguished from the ones of tangible goods in that goods are conveyed to consumers whereas tourists, in most cases, are conveyed to the products and/or services they purchase and consume (Buhalis and Laws 2001).* | *Encyclopedia of Tourism* |
| ONLINE TRAVEL AGENT (OTA) | *An online travel agency (OTA) is a web-based marketplace that allows consumers to research and book travel products and services, including hotels, flights, cars, tours, cruises, activities and more, directly with travel suppliers* | *Expedia group* |
| Channel Manager | *A Channel Manager allows you to manage your inventory in different distribution channels from the same place. This way you can offer all kinds of tourism products in an easy manner without having to access your suppliers' platforms one by one, saving time and creating new business opportunities. The Channel* | *Travelgate* |

| | | |
|---|---|---|
| | *Manager also allows you to have perfect control of your product inventory and all your reservations, modify prices in real time and always have an up-to-date version of the tourism services you offer. This way you can segment your business niches and offer your customers more specialised products according to each type of demand without having to multiply your efforts and costs.* | 58 |

*Table 4 Tourism specific glossary*