DATES

European Data Space for Tourism

Deliverable D5.2

RESULTS AND IMPACT OF THE DISSEMINATION AND STAKEHOLDER ENGAGEMENT ACTIVITIES

Funded by the European Union

31/10/2023

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	D5.2
Deliverable Title	Results and impact of the dissemination and stakeholders' engagement activities v0.1
Work-Package No	5
Work-Package Title	Community Engagement
WP-Leader (Name and Short Org. Name)	ANYSOL
Tasks No	T5.1. – T5.2. – T5.3. – T5.4.
Tasks Title	T5.1. Communication, dissemination and engagement strategy T5.2. Outreach, awareness and engagement T5.3. Community Building and Ecosystem Development T5.4. Validation of outputs through a coalition of key stakeholders
Task Leader (Short Org. Name)	T5.1. ARC T5.2. ANYSOL T5.3. ANYSOL T5.4. INTEL
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Reviewers (Name and Short Org. Name)	Olga Veiga (ANYSOL)
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	31/10/2023

DOCUMENT HISTORY

Date	Version	Reviewer Name (Short Organisation Name)	Summary of main changes
	v0.1	Tayrne Butler (AnySol), Dolores Ordóñez (AnySol)	Template, document structure and general information
9/10/2023	V0.2	Tayrne Butler (AnySol), Dolores Ordóñez (AnySol), Dr Urška Starc Peceny (ARCTUR), Katarina Ceglar (ARCTUR), Ginevra Bianco (INTELLERA), Marco Codastefano (INTELLERA), Beatrice Dorenti (INTELLERA)	Content added by Anysolution, Arctur and Intellera
27/10/2023	V0.3	Tayrne Butler (ANYSOL), Dolores Ordóñez (ANYSOL), Nuria de Lama (IDC), Lúdek Kühr (DIHT), Daniel Iglesias (NECS), Martin Soutschek (OUTD), MITUR	Contributions from partner NECS in section 2. Information added by MITUR section 2.3 Addition of information on DATES website from ANYSOL, section 3.9. General information added by DIH and IDC, first reading by OUTD
30/10/2023	V1.0	Tayrne Butler (ANYSOL)	Addition of the latest information from the DATES social media channels and annexes

FINAL ACCEPTANCE BY COORDINATOR: 31/10/2023

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

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CSA	Coordination and Support Action
DIH	Digital Innovation Hub
DSSC	Data Space Support Centre
EU	European Union
KPI	Key Performance Indicator
SME	Small and medium Size Enterprise
WP	Work package

EXECUTIVE SUMMARY

Data Spaces have the potential to become a key tool for promoting and accelerating the data sharing economy across different industries. Tourism, as one of the largest and most cross-sector connected industries in Europe, can greatly benefit from increased data exchange by improving the sustainability, resilience and competitiveness of the tourism ecosystem and its stakeholders.

One of the main objectives of the DATES project was to introduce the idea of a European Tourism Data Space (ETDS) to tourism stakeholders and involve the community in open discussions about their data sharing needs, required regulations, governance questions, semantic interoperability standards, technical aspects and expected added values. Following the collaborative networking approach outlined in the Communication and Engagement Plan, the project succeeded in establishing new connections between key stakeholders in tourism and across other sectors, and in spreading the multi-faceted benefits of an ETDS among community members.

The composition of the DATES consortium partners and their respective network contacts facilitated pan-European communication activities and enabled the direct involvement of stakeholders from many different regions in Europe. It became apparent that there were significant differences in awareness of the importance of the data space concept in the Digital Europe vision for a people-centric, sustainable digital society and the motivation to support the tourism twin transition. Especially in the final phase of the project, it became clear that progress in adopting and implementing data space concepts will vary widely. There is a large gap between pioneer countries such as Spain, Austria and Germany, where industry players and institutional stakeholders have already started to set up official structures for the management and implementation of pilot applications at different levels, and countries where it is still necessary to convince people of the key benefits of the data space concept in general and the ETDS in particular.

The intensive and transparent exchange with stakeholder representatives from government organisations, SMEs, larger corporations and NGOs in the tourism industry at many different events during the project was important for gaining insights and identifying critical success factors for the blueprint document. In addition, continued engagement with stakeholders at all levels in Europe helped to inspire more players to take an active leadership role in promoting and implementing the ETDS idea as a shared vision for the entire industry. The community connections built through the DATES and DSFT projects and the trust that has developed beyond the boundaries of the consortiums and their associated partner networks represent the best conditions that the development of the European Tourism Data Space will be a success.

This document provides details about the stakeholder engagement process, dissemination activities and summarises the results and impacts achieved through the initiative.

Key highlights of the achievements:

1) **Data Spaces for Economic Growth**: DATES was and still is a key initiative to accelerate the data sharing economy across various sectors, with a particular focus on the thriving European tourism industry.

2) **Enhancing Tourism Competitiveness**: By developing a blueprint for the European Tourism Data Space in close collaboration with tourism ecosystem stakeholders, DATES contributed to making Europe an even more attractive and competitive global destination.

3) **Inclusive Ecosystem Collaboration**: DATES engaged extensively with the entire tourism ecosystem, collaborating to lay the foundations for a resilient and sustainable European Tourism Data Space (ETDS).

4) **Effective Communication and Knowledge Transfer**: The Communication and Engagement Plan provided a clear framework for sharing information within the DATES consortium and with the broader EU tourism community. It was achieved through a set of KPIs covering social media communication, in person events, workshops, press releases and other activities.

5) **Multi-Layered Community Engagement**: The engagement of tourism stakeholders from all administrative levels, geographic regions and organisational backgrounds in combination with cross-sector knowledge exchange activities ensured that inter- and cross-sector user needs and requirements could be considered for the development of the blueprint.

6) **The DATES project's KPIs:** all KPIs have been more than achieved and the table of final achievements can be found in section 4.1 KPIs.

In summary, the **results and impact of the dissemination and stakeholder engagement activities** for DATES were an essential part of the project's mission to develop a Blueprint for a Data Space for Tourism. The continuous engagement with local, national, regional and EU stakeholders helped to promote data sharing and strengthen the European tourism industry's competitive edge. It was achieved with effective communication, stakeholder engagement, and knowledge transfer within the community.

1. INTRODUCTION

1.1 Project Summary

To turn the vision of a **European Tourism Data Space** into reality, DATES brings together key actors of the tourism and data ecosystems and their wide public, business and research partner networks. Convinced that tourism data are crucial for the **data economy in a European Single Digital Market**, DATES has developed a measurable contribution for the digital transformation of the services sector that will significantly strengthen European competitiveness.

The project outcomes provide a basis for **governance and policymaking** to foster innovation powered by tourism data and will enable society to make Europe the most desired sustainable space for living. Starting from a mapping of the EU and non-EU tourism data landscape (with a focus on the European environment), and leveraging on initiatives on data sharing, DATES will reach out to relevant stakeholders to collaboratively develop a shared **strategy roadmap** for building a sustainable tourism data space. The process defines clear objectives and key results to inspire, support and motivate all stakeholders to contribute and use high quality tourism data as a basis for innovation.

DATES provides **recommendations for governance and digital business models**, and it highlights how benefits for society can be created. Key success factors have been identified, and outlined on how a tourism data space can create added benefits for the tourism industry and all sectors that tourism is interlinked with. In addition, it also provides a comprehensive inventory of existing platforms sharing relevant data, **blueprints** for addressing technical and organisational challenges will be created to spark and fuel usage of interoperability standards and participation in a tourism data space to foster the digital transformation of SMEs in tourism and relevant cross-sector industries. DATES is a kick-start for the implementation of a European Tourism Data Space that involves all players on the supply and demand side through the strong ecosystem representatives of the DATES project.

1.2 Objectives of the dissemination and stakeholder engagement activities

- Define the **dissemination, network building and cooperation strategy** for the further development of the broad tourism data community including ecosystem, partnerships, stakeholders, other data spaces, tourism, and data initiatives, as well as citizens.
- Maintain an **active and inclusive ecosystem** for all relevant tourism and data stakeholders.

- Cooperate with all existing **data sharing initiatives** related with data and tourism at local, national and EU level.
- Develop and implement an overarching effective **communication strategy** and **awareness raising activities** to keep an open and vibrant ecosystem.
- Design and operate an **Agile Stakeholder Management Strategy** as dynamic engagement framework, making sure to enlarge both in size and diversity the community of all relevant tourism and data stakeholders.
- Set up a **Coalition of key stakeholders** to validate the main outputs of the project.
- Increase stakeholders' interest and commitment in the initiative.
- Build key messages centred on stakeholders' information needs, interests and expectations.
- Enhance public awareness and engagement of all targeted actors in the tourism value chain (in close collaboration with WP2 and WP4).
- Secure wide acceptance and uptake of the project's outputs.

The engagement of the Coalition has been ensured through the organisation of four collaborative workshops - opened to the attendance of other stakeholders reached by the project, on a case-by-case basis - to support the development and the validation of the project outputs. Input and feedback from the Coalition has been requested via survey, email and one-to-one conf-calls. More information is available in chapter 2 of this document.

1.3 Target groups of the dissemination and stakeholders' engagement activities

Several European networks related to tourism and digital innovation already established or under development:

1. Digital Innovation Hubs: In recent years, a wide network of DIHs has been growing, as multi-level innovation incubators and catalysers, also in the field of tourism. INTELLERA has worked with a vast network of DIHs: e AI DIH Network, DIH-World, DIH4AI as well as VISION and ETAPAS. AnySolution representing DIHBAI-TUR has also involved iSLANDIHS network.
2. Sector stakeholders, with a focus on associations acting at EU/multi-country level, as well as on SMEs.
3. National and regional tourism public administration: DMOS and national institutes of statistics
4. Other Data Space communities, including both the DSSC and the sectorial data space projects and the wide umbrella provided by associations like BDVA, IDSA, FIWARE and GAIA-X, all of them grouped under the DSBA.
5. International organisations (UNWTO, OECD, World`s Bank through Climate 4 Change initiative, etc)
6. International standards authorities
7. Data Centre

8. All actors of the tourism value chain

1.4 Scope of the document

This document presents the guidelines, activities implemented and synergies with other initiatives as well as updated information relevant to the initial communication and engagement plan including final results and achievements.

1.5 Roles and responsibilities of partners

All partners were actively engaged in implementing communication and dissemination activities.

ANYSOLUTION led WP5 and was supported by ARCTUR to track the project's dissemination and communication activities.

AnySolution has implemented a really intense and awesome role in disseminating the DATES Project at national and European level. Thanks to this intense activity, the DATES project is now very well-known at all levels of the whole data and tourism community:

- Events: bringing DATES to the most important events related to tourism and DATA. Organisation of the high-level event.
- Social Networks: AnySolution set up the social networks for the project and was then in charge of managing them, Twitter (X) and LinkedIn, and they have greatly surpassed all foreseen KPIs (as can be seen in the relevant section below) and have acted as a bridge to explain the project and its day to day achievements.
- Webpage: The webpage was designed and set up by AnySolution and has been constantly updated. A really important section of the webpage is its "Events" section that has been a great tool to keep everyone always perfectly informed of what has been happening in the world of data spaces.
- Newsletters: Five newsletters have been written and published and sent out to nearly 1000 subscribers.
- Community engagement: meetings and contact with associations, different national ministries and other projects.

It is important to note that although the project officially finishes now in October 2023, we will continue to disseminate the project after its end with multiple events organised and attended in November and December.

Relevant Horizon Europe projects DATES has been importantly linked to due to their relevance with data spaces on tourism and agritourism are for example:

- TANGO: Digital Technology for Secure and Trustworthy Data Flows
- CYCLOPS: Automated end-to-end data life cycle management for FAIR data integration, processing and re-use

- DATA4FOOD2030: Discovering the value of data economy in European food systems.

TECNALIA

TECNALIA, as leader of WP3 (Technical Framework and Design), specifically contributed to the dissemination of the technical issues, taking advantage of its participation in IDSA (being IDS Competence Center), Gaia-X AISBL and the Gaia-X Spanish hub (leading the Working Group of enabling technologies).

ARCTUR

ARCTUR played a vital, multifaceted role within the WP5. Their standout performance was in crafting and executing a highly successful social media strategy for the project. This strategy featured several distinctive social media threads, each perfectly capturing the essence of the DATES project mission. These included:

- **Glossary of Terms:** ARCTUR developed a dedicated glossary to explain key concepts related to the tourism data space, using the #DatesGlossary for easy reference.
- **Short Videos:** ARCTUR coordinated the creation of a series of short videos, where project consortium members discussed their motivations, anticipated outcomes, long-term impacts, and post-DATES plans.
- **#DatesTourism Consortium Members:** A specific post thread was created by ARCTUR to introduce each consortium member individually.

In addition to their role in designing various project dissemination materials, ARCTUR also equipped the project's social media strategy efforts with designs that harmonised with the project's visual identity. Furthermore, ARCTUR played a pivotal role in coordinating project partners to produce the necessary dissemination materials specified in the WP5.

INTELLERA CONSULTING

Intellera Consulting assumed a multifaceted role in ensuring effective stakeholder engagement and orchestrating the coalition workshops. The Coalition, comprising stakeholders with expertise in tourism and data, served as the cornerstone for validating the project's main outcomes. Intellera meticulously constructed this diverse group, leveraging its extensive network and partner connections to include critical contributors. Following a mid-term review, Intellera strategically expanded the Coalition to encompass stakeholders from various countries, particularly Eastern and Northern Europe, enhancing its diversity and representation.

Throughout the project's duration, Intellera spearheaded four crucial validation and co-creation workshops, each addressing different project facets. These workshops, designed to actively engage the Coalition, provided a platform for thorough scrutiny and authentication of project themes across multiple work packages. By fostering active engagement in validation and co-creation workshops, Intellera played a pivotal role in shaping the project's successful outcomes and fostering collaboration with a broad spectrum of stakeholders.

MITUR

The Italian Ministry of Tourism was in charge of creating the Interministerial Committee with the support of AnySolution.

OUTDOORACTIVE

Outdooractive was highly engaged with the German speaking tourism stakeholder community in Central Europe. Besides countless mentions of the DATES Data Space for Tourism initiative in bilateral meetings and conversations with influencers and representatives of key organisations such as the AlpineBits Alliance, Austrian Tourism Board, BAYERN TOURISMUS Marketing, German National Tourism Board, Open Data Tourism Alliance (ODTA), Tourism Impact Alliance (TIA), Tourism Tech Alliance and many others, Outdooractive participated in two Global Sustainable Tourism Council conferences to urge the market need for a global data standard to share sustainable tourism certification data. As a result of the ongoing stakeholder engagement and dissemination activities, the European Tourism Data Space idea has become more well-known in the market. In addition, a working group was formed to develop a common semantic interoperability standard for sustainable tourism certifications of destination management organisations (DMOs), accommodation providers and tour operators. The standard will become available for adoption by the European Tourism Data Space in the future.

DIH TOURISM 4.0

DIH T4.0 has mainly engaged with stakeholders in the CEE region, particularly in the Czech Republic and Slovakia, and to a lesser extent in Poland and Hungary. The Czech Republic and Slovakia represent regions with a very low level of support for the tourism industry, which is mainly focused on marketing at national level and at the level of certified destinations. The understanding of the importance of innovation and digitalisation in the tourism industry, especially at the level of SMEs, is relatively low. Neither is knowledge of the Data Space concept.

The main part of the communication was the evangelisation of the DATA SPACE concept and the importance of Data Space for tourism towards the stakeholders on governmental, institutional and regional level (and destinations) and the collection and presentation of use cases for the industry.

At a later stage, the DIH T4.0 team started to establish links with the natural partners in the Central European tourism landscape. Especially with Austrian stakeholders who can be presented as good or best practice examples and who also showed their willingness to participate in initiatives and projects of knowledge, technology and innovation transfer in the implementation of the Data Space.

IDC

IDC, as leader of WP4 activities (business and governance) has contributed to create awareness about the contents generated in that part of the project, opening channels for contributions and feedback from stakeholders and supporting validation and endorsement. In particular, IDC has contributed to several validation workshops, notably the ones focused on validating WP2 and WP4 results around the middle of the project, where initial concepts on roles, stakeholders, regulation and governance were presented, and the one focused on validation of final results of WP3 and WP4, where more developed contents on business models were exchanged with the participants. IDC has also contributed to some major dissemination events, including the final event held in Brussels with the sister project or the leadership of a specific track on tourism (including a session to present the outcomes of DATES) in the context of the 2023 session of the European Big Data Value Forum. IDC, because of its presence in the data spaces community, has followed up and represented DATES in a high number of workshops and meetings within the communities of BDVA (including Data Week and EBDVF events), the ecosystem led by DSSC and in particular participation in the Thematic Working Groups of Governance and Business respectively and the Data Spaces Stakeholder Group. IDC leads the Green Deal Data Space project (GREAT) and is partner in the Manufacturing Data Space project (EU DataSp4ce) and through them synergies have been created (through workshops and ad-hoc meetings) with some of the sectorial communities. Some findings have been communicated through blog posts and webinars.

2 COORDINATION WITH STAKEHOLDERS

2.1 Leveraging the partner's networks and initiatives

The DATES project consortium was composed of 13 partners, each one bringing in their own network of stakeholders and experiences from participating in different projects and initiatives. Throughout the project, DATES has generated interesting synergies and complementarities by building a large tourism data space community network:

- Digital Innovation Hubs
  - AnySolution as founder and technical office of the Digital Innovation Hub of the Balearic Islands in Artificial Intelligence in tourism and Agro
  - Italian TDH (Tourism Digital Hub) presented as a use case by the Italian Ministry of Tourism
  - Intellera was involved in several projects in the area of DIHs, including AI DIH Network, DIH4AI and DIH-World
- Smart Tourism Destinations
  - Intellera was leading this initiative to improve data-driven strategies in 50 European Destinations
  - Dolores Ordóñez (AnySolution) and Urska Starc-Peceny (ARCTUR) were selected as European experts for this programme.
- Intelligent Cities Challenge
  - AnySolution is expert for this project and the coordinator of the Green and Digital Transition in Tourism track. The ICC is a programme addressing digital transformation for more than 100 cities, in which data became a key issue.
- Tourism 4.0 Ecosystem
  - As the Tourism 4.0 initiators and lead organisation, Arctur brought in a network of 220+ worldwide partners from academia, research institutions, SMEs, DMOs and other international organisations, offering a wide target group for the demonstration of the use of data space for tourism. In addition, the Tourism 4.0 yearly publishes 4 Tourism 4.0 newsletters with 1000+ recipients worldwide. Tourism 4.0 is a member of NECSTouR, Climate4Change (World`s Bank Initiative), Research Innovation Partnership for Sustainable Tourism Slovenia, Blockchain Alliance Europe, Europeana, Tourism From Zero partners, etc., also networking with CPMR, BSEC, Slovenian Tourist Board, Slovenian Ministries, European Space Agency (in the field of tourism), DG Grow and others.
- Med Community,
  - The MED Sustainable Tourism Community[1] is the second generation of a horizontal project aiming to find solutions for the protection and promotion of natural and cultural resources in the Mediterranean area through a coherent strategy of Community Building, Communication and Capitalisation. NECSTouR permanent secretariat is one of the new partners in the community, leading the work package aiming for the capitalisation of the knowledge generated by the modular projects into tourism and cohesion policies at different level of decision (local, regional, national and European).

[1] https://sustainable-tourism.interreg-med.eu/

- Multi-level associations of relevant stakeholders
  - NECSTouR unites more than 45 Regional Authorities specializing in Tourism at the NUTS I and II levels, alongside 30 academic institutions, sustainable tourism industry associations, and networks, collectively representing over 21 European countries. NECSTouR has significantly increased its efforts to promote awareness and foster engagement among its members, particularly those deeply committed to leveraging data for better policymaking. NECSTouR has provided information to all its members about the DATES project through its newsletter, website and in different internal meetings. In particular, NECSTouR through its department, the Tourism of Tomorrow Lab, has presented the DATES project to its members trying to facilitate their adoption of the future European Tourism Data Space.
  - Thinktur (Spanish Tourism Technology Platform) is the grouping of technicians, scientists and industry interested in applying technology to strategically important tourism sector's contribution to the goals of competitiveness, economic growth, sustainability and employment. Tecnalia and AnySolution, as members of Thinktur, have promoted the DATES project through this Platform.
  - Hotel Technological Institute (ITH-Spain). ITH is the hotel sector's response to the challenges that technological advances suppose for entrepreneurs in the tourism industry. Tecnalia and AnySolution have promoted the DATES project through ITH.
- Other Data Spaces initiatives with which DATES has generated synergies thanks to their partners, apart from the Data Space Support centre:
  - Sister project, DSFT, with which DATES has been collaborating closely organising events and drafting the final Blueprint
  - DS for mobility, in which Amadeus and IDSA are involved
  - DS Cultural heritage, represented by our partner ARCTUR
  - DS Green Deal, represented by IDC
  - DS Energy, represented by Tecnalia
  - DS for Smart and Sustainable Cities and Communities, thanks to the involvement of IDC in its stakeholder group
  - EONA-X in which Amadeus is involved
  - Feasibility study for a media dataspace, where Intellera Consulting was involved
  - The Austrian Data Intelligence Offensive which is strongly engaged in the tourism industry. DIH Tourism 4.0 is cooperating with DIO and creates a cooperative knowledge hub for V4 countries (CZ, SK, HU, PL).

2.2 [T5.4] Validation and co-creation of outputs through a coalition of key stakeholders

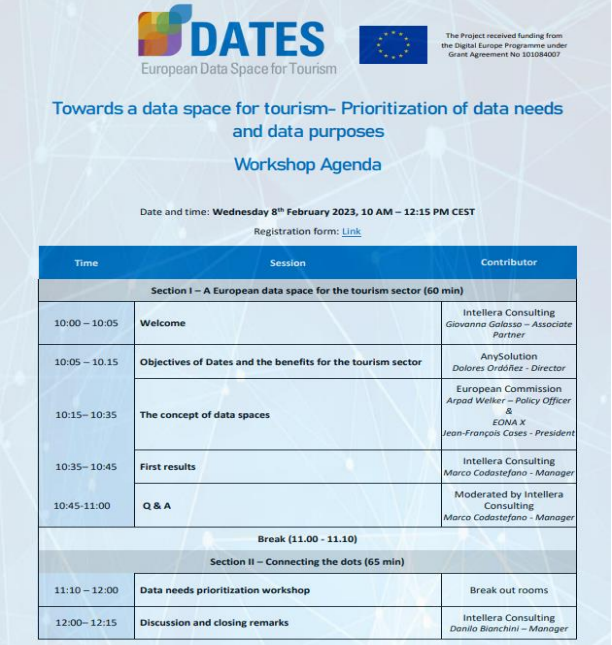
The Coalition is defined as a group of stakeholders with key competences in tourism and data, consulted to collect evidence and validate the project's main results during the project's timeline. The meticulous construction of the Coalition group involved gathering stakeholders with critical competencies in both the tourism and data sectors, all of whom have willingly agreed to participate in validation activities. This diverse assembly of contributors comprises members sourced from the project's network committee and

associated partners. Furthermore, additional essential stakeholders have been included in the coalition as a result of various interactions and project-related activities.

Significantly, following the project's mid-term review, the Coalition underwent expansion to become even more inclusive, incorporating stakeholders from a multitude of additional countries, with a particular focus on Eastern and Northern Europe. This expansion was a strategic move to enhance diversity and broaden the Coalition's representation.

Throughout the project's timeline, four validation and co-creation workshops were conducted, each contributing to different aspects of the project:

1. **The first workshop**, titled 'Towards a Data Space for Tourism - Prioritization of Data Needs and Purposes,' took place on the 8th of February. In the context of work package 2, this workshop focused on identifying and prioritizing data needs in the tourism sector, identifying gaps in accessing data, and outlining the main business problems. Below can be found the agenda of the workshop.



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European Data Space for Tourism

The Project received funding from the Digital Europe Programme under Grant Agreement No 101084007

Towards a data space for tourism- Prioritization of data needs and data purposes

Workshop Agenda

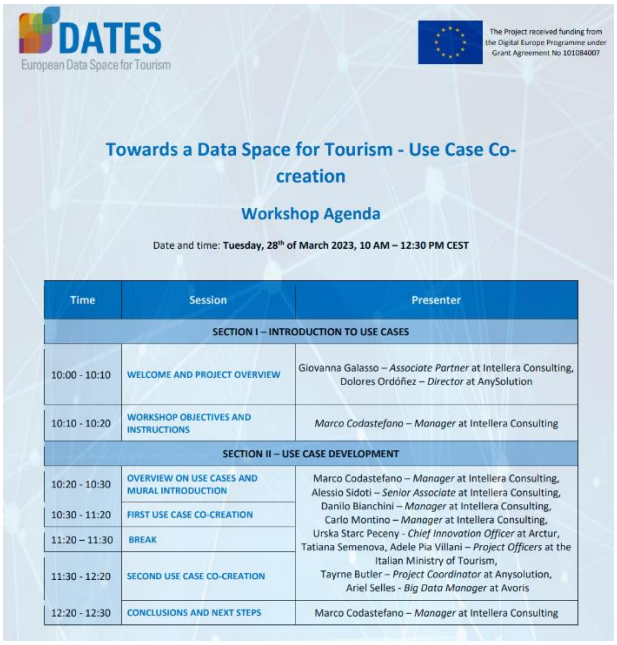
Date and time: **Wednesday 8th February 2023, 10 AM – 12:15 PM CEST**

Registration form: Link

Time	Session	Contributor
Section I – A European data space for the tourism sector (60 min)		
10:00 – 10:05	**Welcome**	Intellera Consulting *Giovanna Galasso – Associate Partner*
10:05 – 10.15	**Objectives of Dates and the benefits for the tourism sector**	AnySolution *Dolores Ordóñez - Director*
10:15– 10:35	**The concept of data spaces**	European Commission *Arpad Welker – Policy Officer* & *EONA X Jean-François Cases - President*
10:35– 10:45	**First results**	Intellera Consulting *Marco Codastefano - Manager*
10:45-11:00	**Q & A**	Moderated by Intellera Consulting *Marco Codastefano - Manager*
Break (11.00 - 11.10)		
Section II – Connecting the dots (65 min)		
11:10 – 12:00	**Data needs prioritization workshop**	Break out rooms
12:00– 12:15	**Discussion and closing remarks**	Intellera Consulting *Danilo Bianchini – Manager*

Figure 1 First coalition workshop agenda

2. **The second workshop**, named 'Towards a Data Space for Tourism - Use Case Co-Creation,' occurred on the 28th of March, also within the context of work package 2. This workshop aimed to co-create a set of use cases for the development of a Tourism Data Space. Below can be found the agenda of the workshop.



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European Data Space for Tourism

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Towards a Data Space for Tourism - Use Case Co-creation

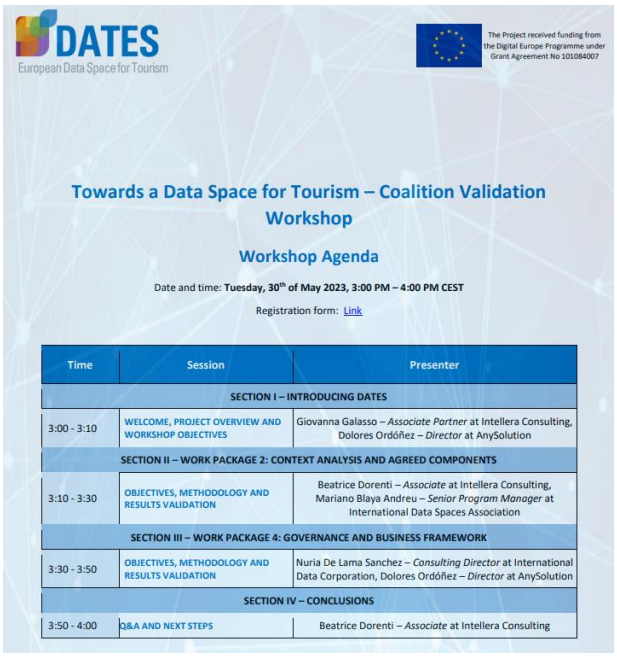
Workshop Agenda

Date and time: **Tuesday, 28th of March 2023, 10 AM – 12:30 PM CEST**

Time	Session	Presenter
SECTION I – INTRODUCTION TO USE CASES		
10:00 - 10:10	WELCOME AND PROJECT OVERVIEW	Giovanna Galasso – *Associate Partner* at Intellera Consulting, Dolores Ordóñez – *Director* at AnySolution
10:10 - 10:20	WORKSHOP OBJECTIVES AND INSTRUCTIONS	*Marco Codastefano – Manager* at Intellera Consulting
SECTION II – USE CASE DEVELOPMENT		
10:20 - 10:30	OVERVIEW ON USE CASES AND MURAL INTRODUCTION	Marco Codastefano – *Manager* at Intellera Consulting, Alessio Sidoti – *Senior Associate* at Intellera Consulting, Danilo Bianchini – *Manager* at Intellera Consulting, Carlo Montino – *Manager* at Intellera Consulting, Urska Starc Peceny - *Chief Innovation Officer* at Arctur, Tatiana Semenova, Adele Pia Villani – *Project Officers* at the Italian Ministry of Tourism, Tayrne Butler – *Project Coordinator* at Anysolution, Ariel Selles - *Big Data Manager* at Avoris
10:30 - 11:20	FIRST USE CASE CO-CREATION	
11:20 – 11:30	BREAK	
11:30 - 12:20	SECOND USE CASE CO-CREATION	
12:20 - 12:30	CONCLUSIONS AND NEXT STEPS	Marco Codastefano – *Manager* at Intellera Consulting

Figure 2 Second coalition workshop agenda

3. **The third workshop**, held on the 30th of May, was dedicated to validating the findings of work package 2 and the initial findings of work package 4. Below can be found the agenda of the workshop.



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European Data Space for Tourism

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Towards a Data Space for Tourism – Coalition Validation Workshop

Workshop Agenda

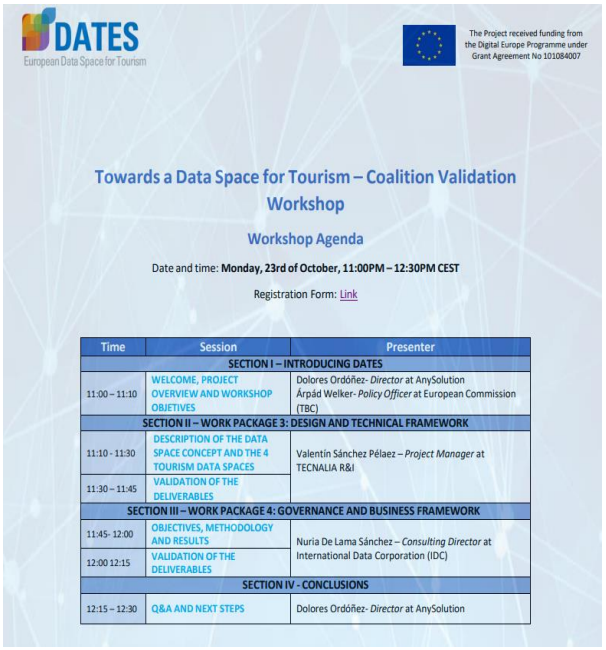
Date and time: **Tuesday, 30th of May 2023, 3:00 PM – 4:00 PM CEST**

Registration form: Link

Time	Session	Presenter
SECTION I – INTRODUCING DATES		
3:00 - 3:10	WELCOME, PROJECT OVERVIEW AND WORKSHOP OBJECTIVES	Giovanna Galasso – *Associate Partner* at Intellera Consulting, Dolores Ordóñez – *Director* at AnySolution
SECTION II – WORK PACKAGE 2: CONTEXT ANALYSIS AND AGREED COMPONENTS		
3:10 - 3:30	OBJECTIVES, METHODOLOGY AND RESULTS VALIDATION	Beatrice Dorenti – *Associate* at Intellera Consulting, Mariano Blaya Andreu – *Senior Program Manager* at International Data Spaces Association
SECTION III – WORK PACKAGE 4: GOVERNANCE AND BUSINESS FRAMEWORK		
3:30 - 3:50	OBJECTIVES, METHODOLOGY AND RESULTS VALIDATION	Nuria De Lama Sanchez – *Consulting Director* at International Data Corporation, Dolores Ordóñez – *Director* at AnySolution
SECTION IV – CONCLUSIONS		
3:50 - 4:00	Q&A AND NEXT STEPS	Beatrice Dorenti – *Associate* at Intellera Consulting

Figure 3 Third coalition workshop agenda

4. **The fourth workshop** took place on the 23rd of October and focused on reviewing the outcomes of WP 3, which encompasses the technical foundations and tourism data space-specific characteristics. Additionally, it examined the findings of WP 4, including its objectives, methodology, and results. Below can be found the agenda of the workshop.



Time	Session	Presenter
SECTION I – INTRODUCING DATES		
11:00 – 11:10	WELCOME, PROJECT OVERVIEW AND WORKSHOP OBJETIVES	Dolores Ordóñez- *Director* at AnySolution Árpád Welker- *Policy Officer* at European Commission (TBC)
SECTION II – WORK PACKAGE 3: DESIGN AND TECHNICAL FRAMEWORK		
11:10 - 11:30	DESCRIPTION OF THE DATA SPACE CONCEPT AND THE 4 TOURISM DATA SPACES	Valentín Sánchez Pélaez – *Project Manager* at TECNALIA R&I
11:30 – 11:45	VALIDATION OF THE DELIVERABLES	
SECTION III – WORK PACKAGE 4: GOVERNANCE AND BUSINESS FRAMEWORK		
11:45- 12:00	OBJECTIVES, METHODOLOGY AND RESULTS	Nuria De Lama Sánchez – *Consulting Director* at International Data Corporation (IDC)
12:00 12:15	VALIDATION OF THE DELIVERABLES	
SECTION IV - CONCLUSIONS		
12:15 – 12:30	Q&A AND NEXT STEPS	Dolores Ordóñez- *Director* at AnySolution

Figure 4 Fourth coalition workshop agenda

These workshops served as critical junctures for actively engaging the Coalition. They facilitated the validation of various project themes, ensuring that all work packages were thoroughly scrutinized and authenticated. To maximize stakeholder participation and responses during the last two workshops, a deliberate decision was made to group the work packages together. This strategic approach aimed to alleviate the potential burden on stakeholders, as we recognized that requesting their involvement in numerous separate workshops could have imposed unnecessary pressure. Instead, by consolidating work packages, we aimed to provide a more cohesive and unified vision, fostering a supportive atmosphere for collaboration and consensus-building. This approach not only reduced the risk of disruptions that might deter stakeholders from actively contributing but also ensured that their support was sought in a manner that respected their time and expertise. Furthermore, it is worth noting that while these workshops each focused on specific themes, they played a crucial role as inputs for other deliverables and tasks within the project. This interconnectivity ensured that every aspect of the project was aligned and contributed to the overall success and coherence of the project.

The Coalition ultimately encompasses 29 stakeholders hailing from 12 different EU countries[2], spanning a range of categories, including NGOs and associations, travel agencies and tour operators, data spaces and data sharing platforms, public authorities, HORECA (Hotel, Restaurant, and Café), academia and research, destination management organizations, digital/data private/consulting organizations, and booking platforms. This careful composition and inclusive approach have been guided by the intent to represent the European tourism ecosystem as comprehensively as possible, including diverse geographical coverage.

To foster a deeper understanding of the Team's collaborative efforts, the Team is pleased to share a visual record of the validation and co-creation workshops that have played an integral role in shaping the

[2] 1 The countries include Austria, Estonia, France, Greece, Netherlands, Ireland, Italy, Latvia, Lithuania, Slovakia, Slovenia and Spain. The Coalition further includes 5 stakeholders from EU organizations.

project's outcomes. Below can be found the screenshots from these webinars, which allowed the Team to actively engage with the diverse group of stakeholders and ensure their participation in the project's success.

These webinars, in conjunction with the Team's inclusive approach to Coalition formation, have collectively contributed to the rich tapestry of perspectives and expertise that define the project's strength and its representation of the European tourism ecosystem.

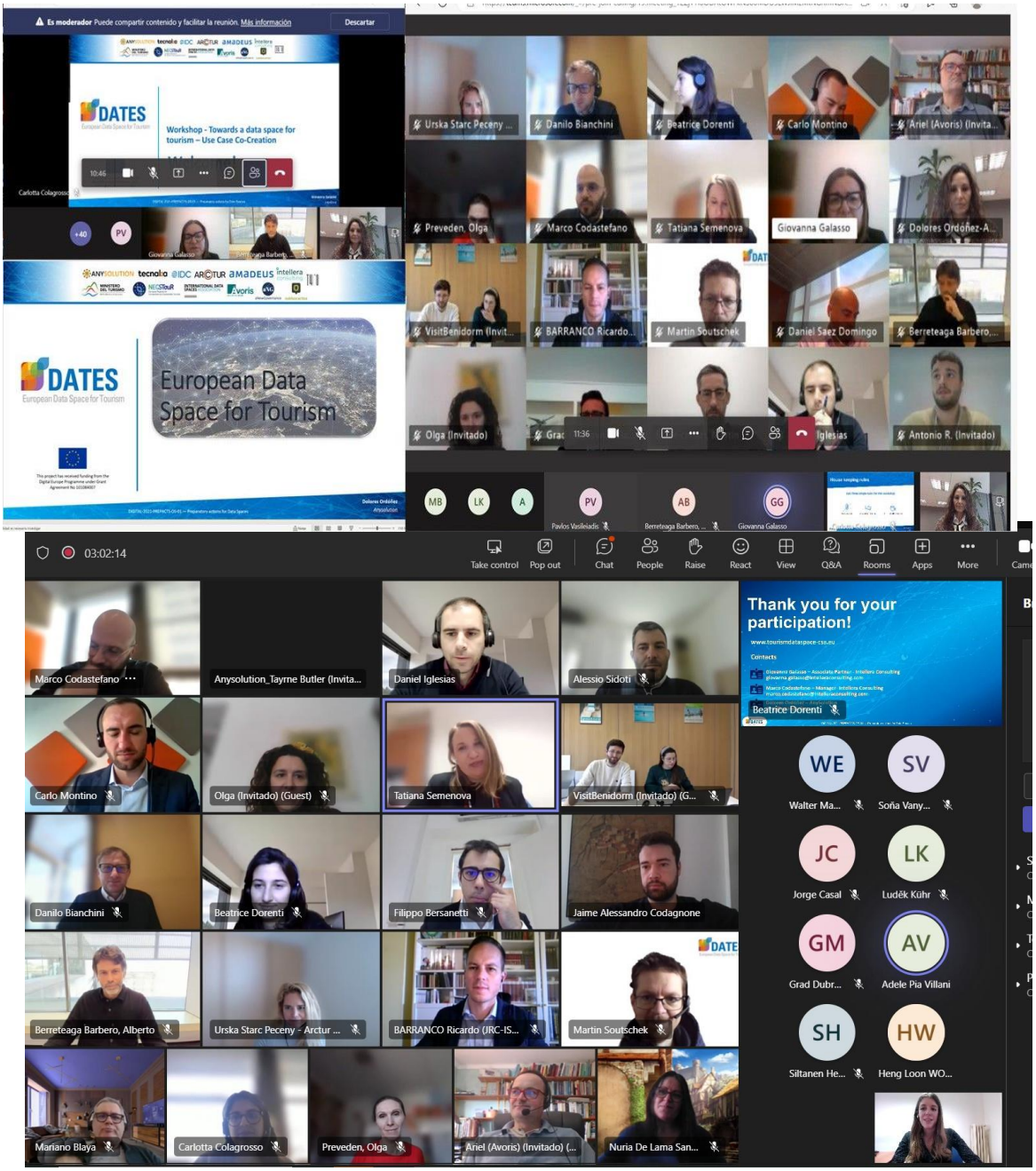


Figure 5 Screenshots from the Coalition workshops

2.3 Interministerial Committee

The Ministry of Tourism, acting as a partner of the project, together with the Spanish State Secretariat for Digitalization and Artificial Intelligence, as a co-coordinator, was entrusted by the Consortium to establish an Interministerial Committee, comprising different public entities for Tourism and Digital Transformation from various EU Member States.

The primary objective was to harness the power of data for the benefit of the stakeholders and, more broadly, to contribute to Europe's leadership as a digital, resilient, and sustainable tourism destination. With attention to the aspects of privacy, data protection and sovereignty, to allow fair access to data and their use, to all actors in the value chain of the tourism industry, which includes public and private entities and in which SMEs are about 85%.

A total of 15 EU Member States have joined the committee with enthusiasm and dedication: namely, Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Greece, Hungary, Lithuania, Malta, Poland, Portugal and Spain, and Italy.

A comprehensive report on the activities and findings was shared with the Committee members, and a survey on the outcomes was launched, in order to ensure that our actions align with the interests and priorities of the participating Member States.

In this light, a Joint Statement that underscores the benefits of the European Tourism Data Space, was prepared, in synergy with the adhering partners; it aims to be a unified voice, emphasizing the transformative potential of data in the tourism sector. The document was finalized by Italy and Spain, on the basis of the valuable insights received from the stakeholders at all levels. The main objective of the document is to encourage a responsible and ethical use of the EU Tourism Data Space in order to boost the development of a European digital policy for tourism.

3 DISSEMINATION AND ENGAGEMENT ACTIVITIES

3.1 KPIs

All the projects KPIs set at the beginning of the project have been achieved and, in many cases, surpassed.

Below one can see the general table of planned and achieved KPIs, and in further sections a more detailed vision of such KPIs.

KPI	PLANNED	ACHIEVED
Events and campaigns	+50	+50
Online workshops	8	10
Policy recommendations	1	Blueprint for the ETDS (included as an annex to this deliverable)
Conference contributions	+50	+50
Joint press releases and statements	2	2
Website	1	1
Social media and accounts	2	2
Coordinated materials (poster, brochures, fact sheet)	3	DATES posters DATES Factsheet DATES brochure
Roll-up	1	1
Blog posts	4	4
Videos	4	7
LinkedIn posts and reposts	+500	**On DATES LinkedIn channel:** 246 posts 442 post shares **On partners' LinkedIn channels (registered in the DATES D&C planning internal document):** 244 posts and reposts

Twitter tweets and retweets	+500	**On DATES Twitter (X) account:** 234 Tweets 326 retweets **On partners' Twitter (X) accounts (registered in the DATES D&C planning internal document):** 256 Tweets and retweets
Press releases	+15	16
Speeches and interviews (TV/radio)	5	7
Featured articles in magazines	3	4

Table 1 Planned and achieved KPIs

3.2 Dissemination material

3.2.1 Status and achievements

As stated in Deliverable 5.1, the DATES project has its own logo in different colours and different working templates (PowerPoint presentations and deliverables) have been used throughout the project, and the following dissemination materials have been produced:

Dissemination Activity Name	Author(s)	URL	Short description
DATES Tourism Data Space roll-up	Arctur	*Viewed in the images below*	Modern design, highlighting the nature of upcoming data spaces and the transversality of the tourism industry
DATES Tourism Data Space poster/end of April 2023	Arctur	*Viewed in the images below*	Modern design, highlighting the nature of upcoming data spaces and the transversality of the tourism industry
DATES Tourism Data Space fact sheet	AnySolution	https://www.tourismdataspace-csa.eu/wp-	Fact sheet, describing the DATES Tourism

		content/uploads/2023/10/DATES-Fact-Sheet.pdf	Data Space project
DATES Tourism Data Poster/End of the project	Arctur	*https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/10/DATES-brochure-1698234679974.pdf*	Modernly designed brochure, showcasing the benefits of the European Tourism Data Space to the general public

Table 2 Dissemination material

Figure 6 Dates roll-up seen in the left on the photo by NECSTouR above

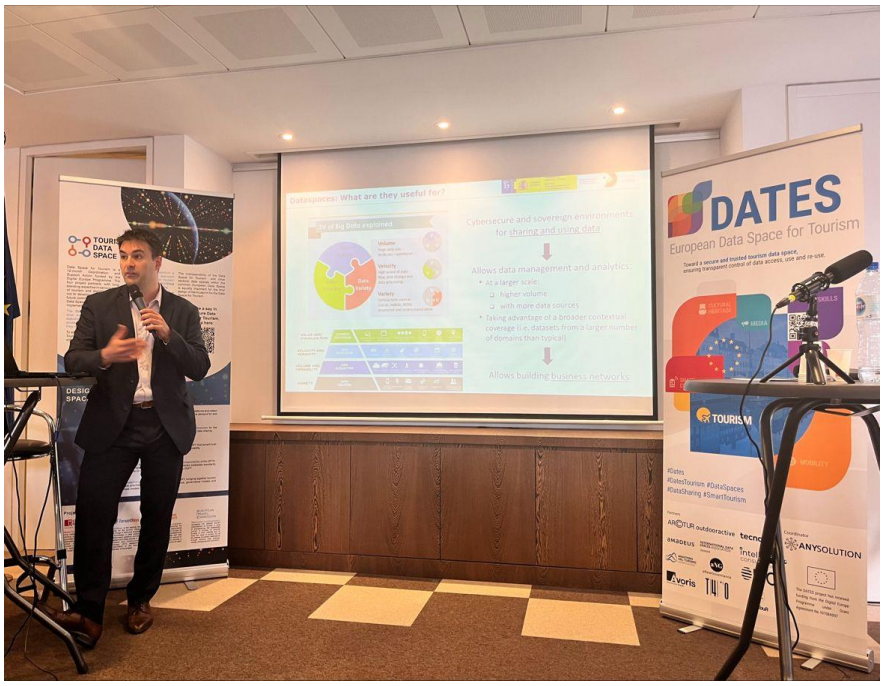


Figure 7 Dates roll-up seen in the right on the photo above

Figure 8 DATES Tourism Data Space poster, designed by Arctur

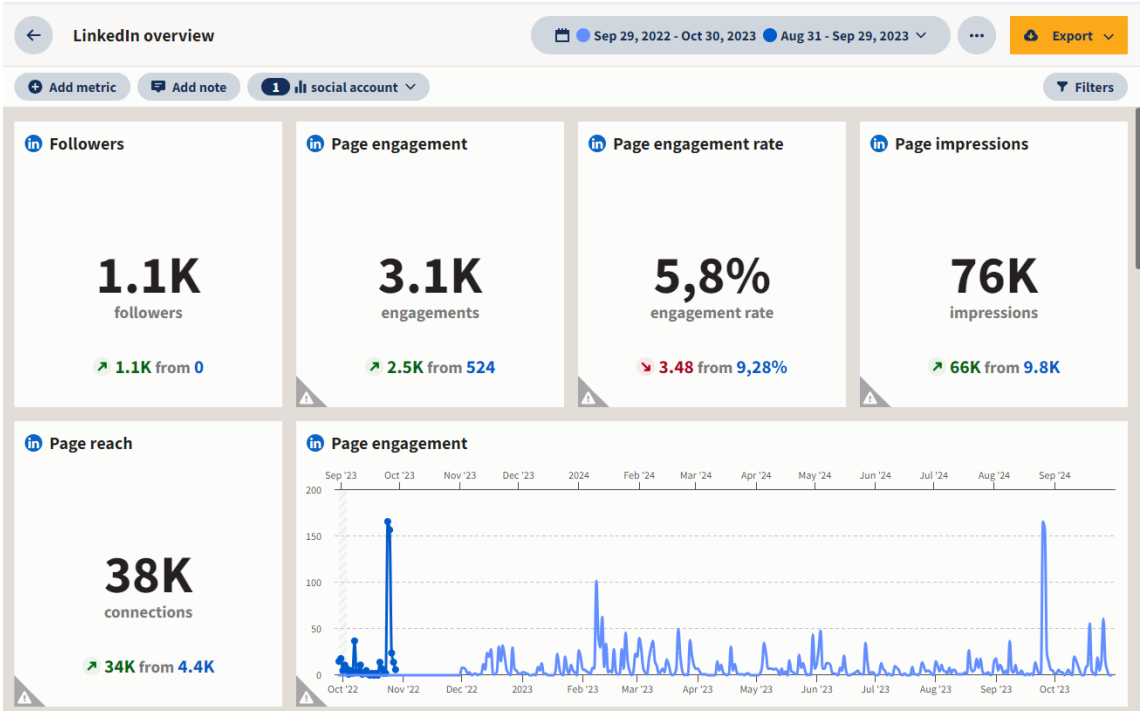
Figure 9 DATES Tourism Data Space project Fact sheet, designed by AnySolution, showcasing the DATES Tourism Data Space project achievements.

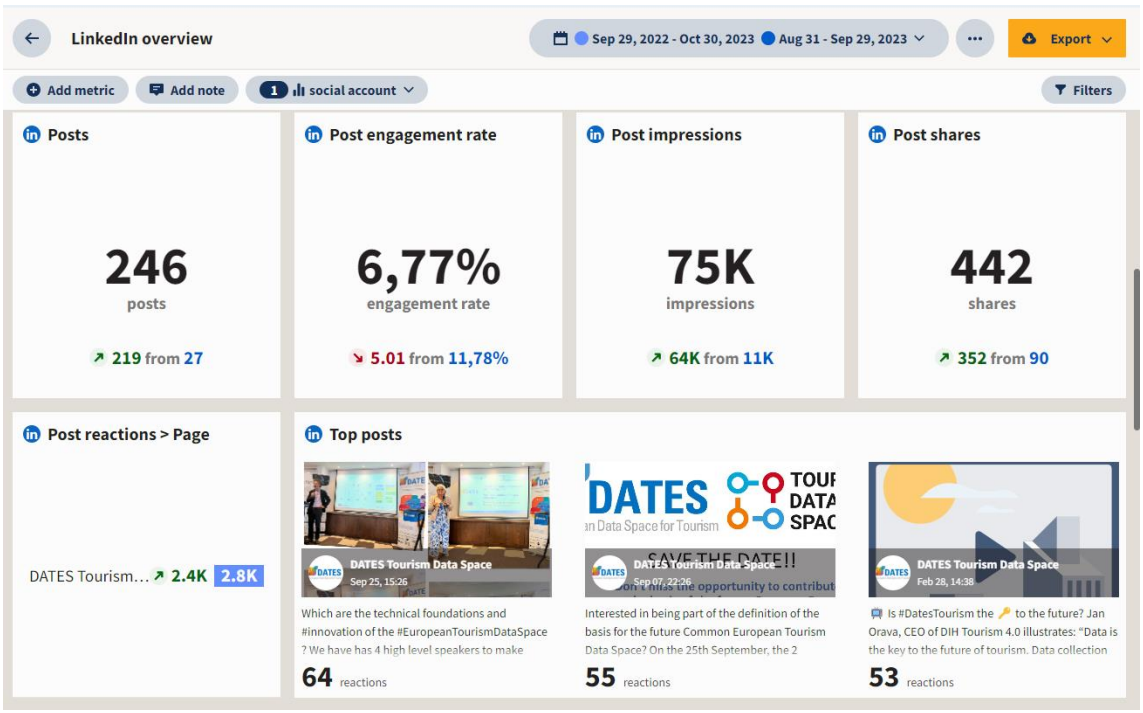
3.3 Social media

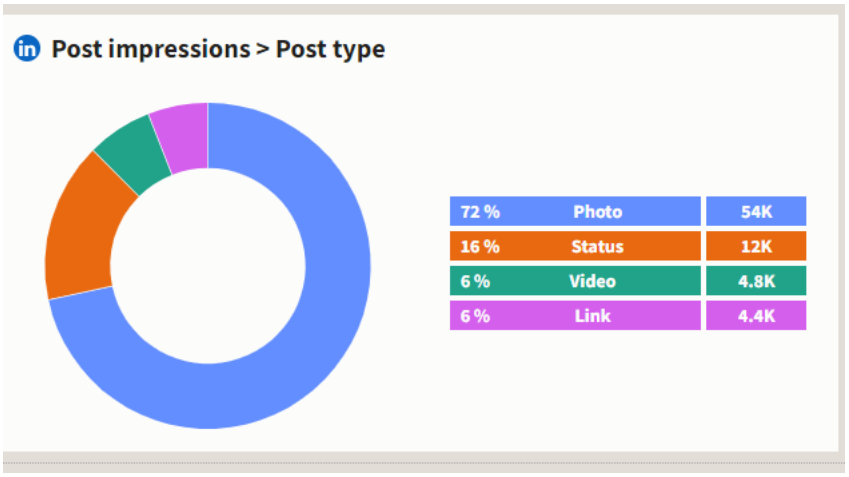
3.3.1 LinkedIn

The DATES own LinkedIn channel (DATES Tourism Data Space - https://www.linkedin.com/company/87975456/admin/feed/posts/) has produced the following results to date 28/10/2023 (figures taken from Hootsuite, Fedica and the LinkedIn page itself):

- 1.145 followers
- 3.100 engagements
- 76.000 impressions
- 38.000 connections
- 246 posts
- 442 post shares







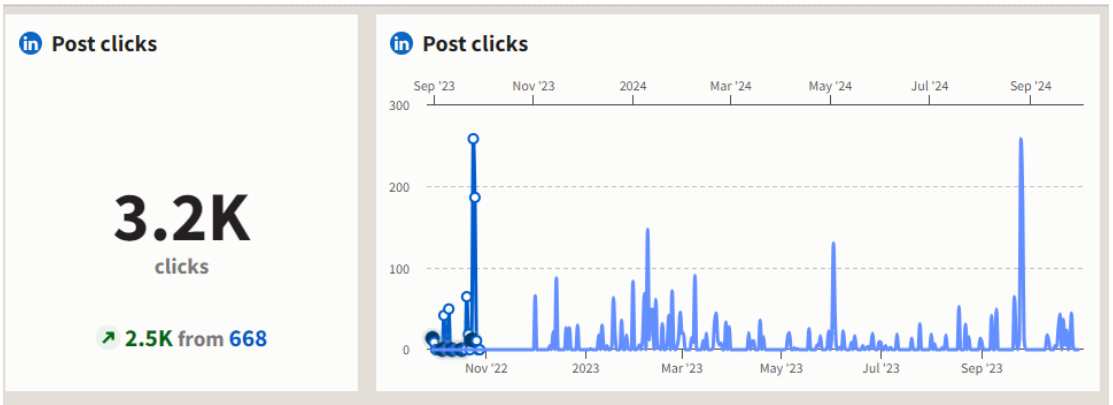


Figure 10 Screenshots from the DATES Tourism Data Space LinkedIn analytics from 29 September 2022 to 28 October 2023

3.3.2 Twitter - X

The DATES own Twitter - X account (@datestourism - https://twitter.com/datestourism) has produced the following results to date 30/10/2023 (figures taken from Fedica and analytics.twitter.com):

- 206 Followers
- 97 photos and videos
- 234 Tweets
- 3 Retweets
- 485 posts
- 30.928 engagements

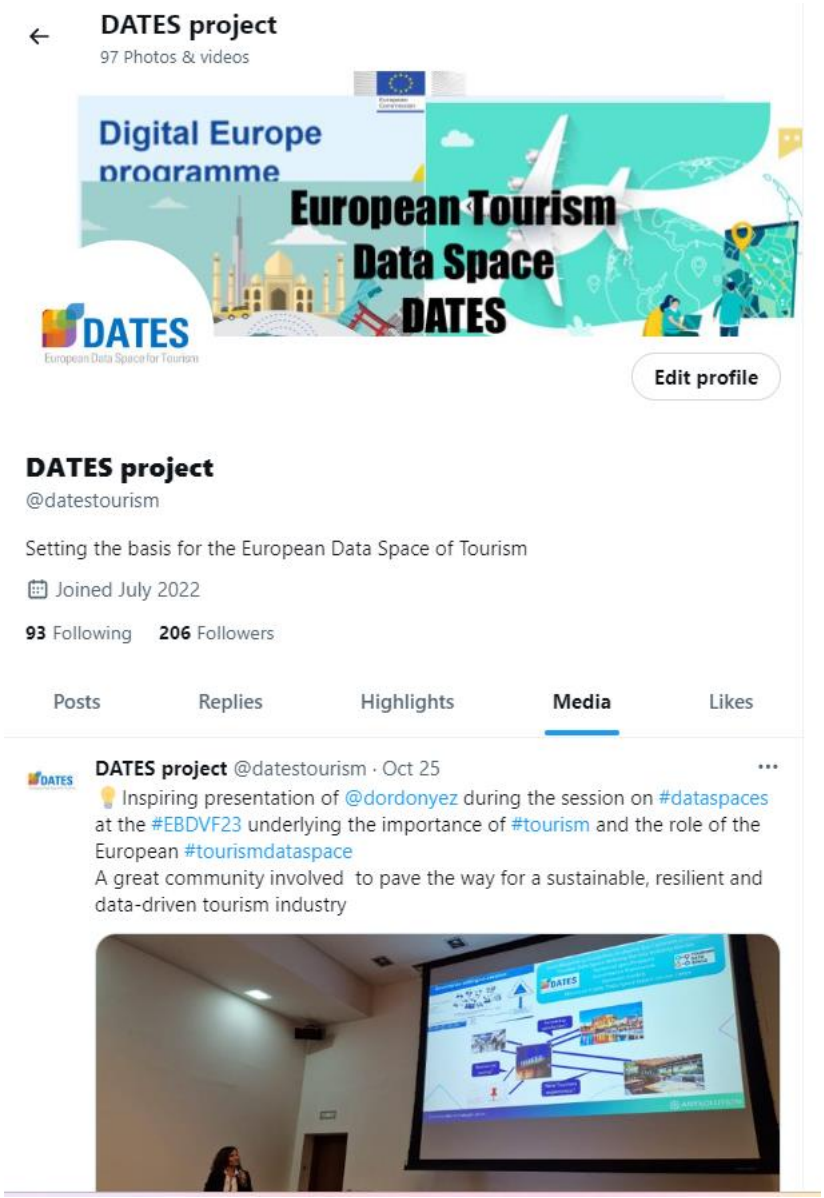


Figure 11 Screenshots from the @DATEStourism Twitter (X) account

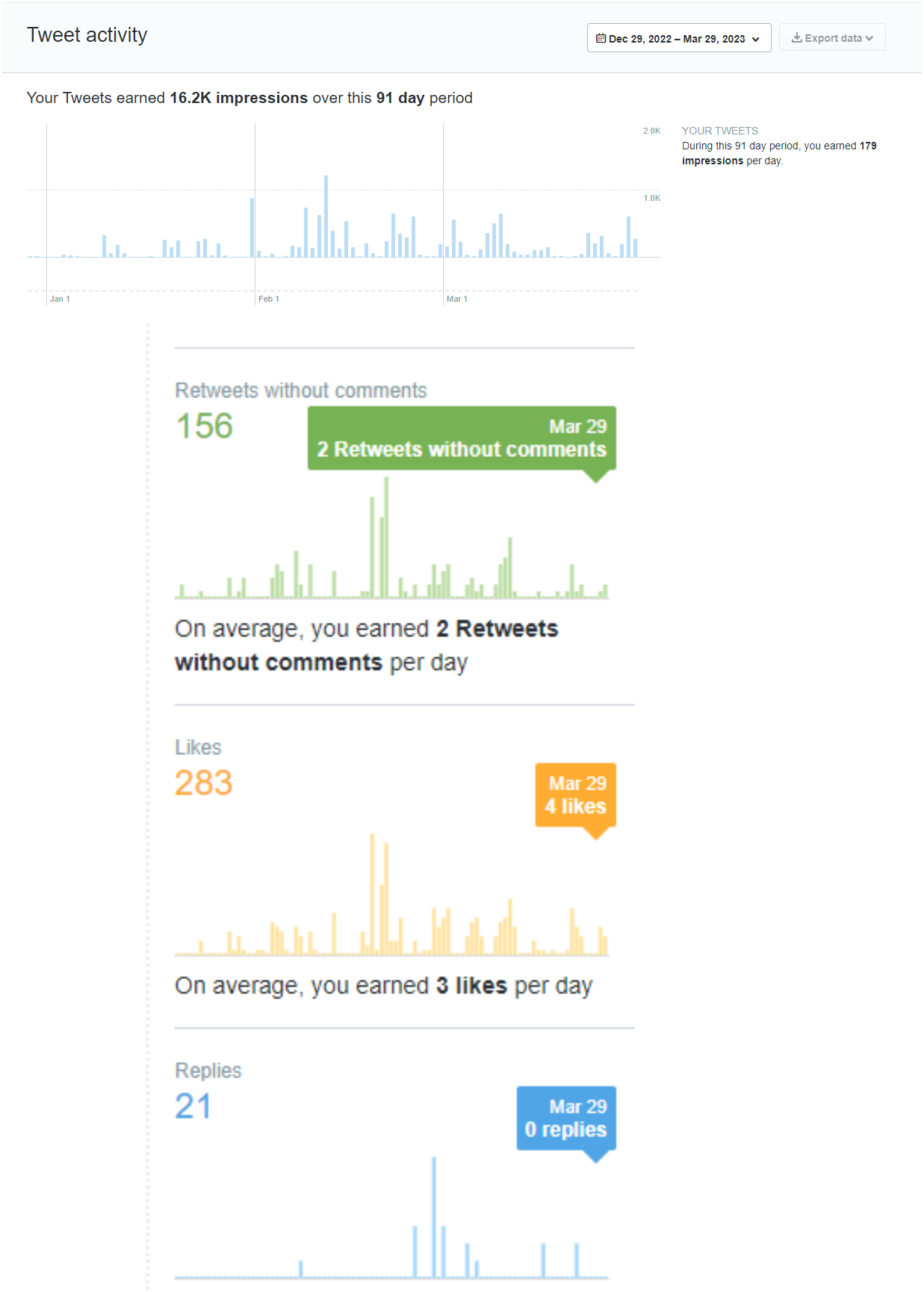


Figure 12 Screenshots from the @DATEStourism Twitter account's analytics from 29 December 2022 to 29 March 2023

3.3.3 Status and achievements

The results of the social media campaign indicate its overwhelming success (all social network activity contributions by the partners are registered in the DATES project's interna DATES D&C Planning document shared on the project DRIVE channel). All KPIs were not only met but, in some cases, significantly surpassed. The strong support of partners (using their own social media channels), coupled with the active participation of social media administrators AnySolution and Arctur, contributed to this achievement by immediate post of every event/project activity and by tagging all relevant stakeholders.

Together, we have made 310+ reshares of Twitter posts in 1 year, 256 Tweets on partner channels, 2500 reactions, 3900 profile views, 1100+ followers, visitors demographic - 16% business development, 10% operations, 9% education, programme and project management 6%, ICT 5%. Twitter also overachieved its activity with 500+ tweets and retweets.

The LinkedIn community and network demonstrated strong engagement, as evident from the high number of reshares, reactions, profile views, and the growth in followers. The distribution of visitors across various sectors further highlights the campaign's ability to reach a diverse and relevant audience.

Twitter activity also exceeded expectations, reinforcing the campaign's impact across different platforms.

In conclusion, the social media campaign was highly effective in achieving its goals and engaging a strong community and network. The results demonstrate the power of social media as a communication tool when executed with a well-thought-out strategy and active participation from all stakeholders. The social media`s sustainability will be achieved by using both channels in the D3Hub - Data driven Destinations Hub project.

3.4 Newsletters

3.4.1 Status and achievements

Five newsletters have been published for the DATES project and have been sent out to the following number of subscribers via email.

- DATES newsletter #1: 833 subscribers
- DATES newsletter #2: 889 subscribers
- DATES newsletter #3: 874 subscribers
- DATES newsletter #4: 924 subscribers
- DATES newsletter #5: 924 subscribers

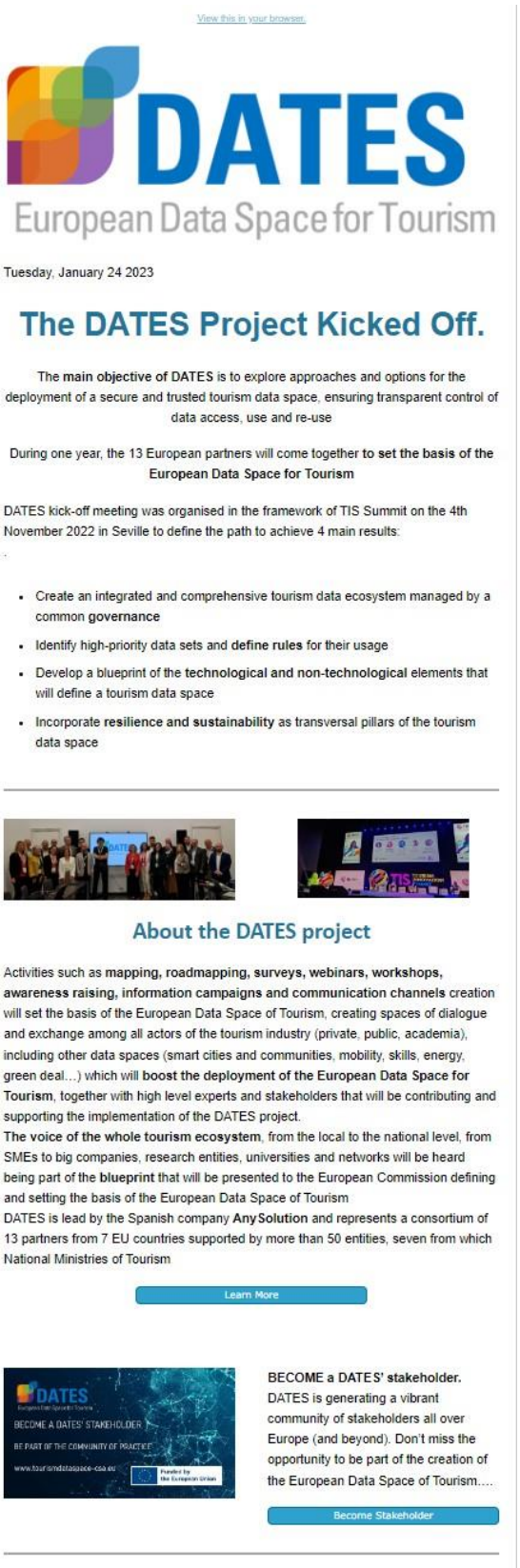
The newsletters are also published on the DATES website.

As well as the DATES newsletters, it is also important to point out a number of other newsletters published by partners where the DATES project has also been mentioned.

Dissemination Activity Name	Author(s)	URL
DATES Newsletter #1	All PPs	https://www.tourismdataspace-csa.eu/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzEsImIwYTRhY2Y5NDk2MiIsMCwwLDAsMV0
DATES Newsletter #2	All PPs	https://www.tourismdataspace-csa.eu/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzUsImVmZDFlMjZjYTlhYSIsMCwwLDQsMV0
DATES Newsletter #3	All PPs	https://www.tourismdataspace-csa.eu/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzgsIjYyY2U1YTIyZTU0ZCIsMCwwLDUsMV0
DATES Newsletter #4	All PPs	https://www.tourismdataspace-csa.eu/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzEwLCJjNjkzZjkzYTY0OTAiLDEsIjNmMDlmMCIsNiwwXQ
DATES Newsletter #5	All PPs	https://www.tourismdataspace-csa.eu/?mailpoet_router&endpoint=view_in_browser&action=view&data=WzExLCI2YzU0MTIwZDI2N2EiLDAsMCwwLDFd
Tourism 4.0 Winter 2022 Newsletter: ENG version	Arctur	https://mailchi.mp/794258f6b643/tourism-40-winter-news-2022
Tourism 4.0 Winter 2022	Arctur	https://mailchi.mp/9307c3f

Newsletter: SLO version		4ca66/turizem-40-zimske-novice-2022
Tourism 4.0 Spring 2023 Newsletter: ENG version	Arctur	https://mailchi.mp/72a66f391cd8/tourism-40-spring-news-2023
Tourism 4.0 Spring 2023 Newsletter: SLO version	Arctur	https://mailchi.mp/078b8ad64d0d/turizem-40-pomladne-novice
Tourism 4.0 Summer 2023 Newsletter: SLO version	Arctur	https://mailchi.mp/16e66531ec03/turizem-40-poletne-novice-2023
Tourism 4.0 Summer 2023 Newsletter: ENG version	Arctur	https://mailchi.mp/5ae8acaf68af/tourism-40-summer-news-2023
Live from Brussels Newsletter #1	NECSTouR	https://mailchi.mp/5e2910bc3315/weekly-news-from-necstour-hop-on-16895368?e=f2484b204d
Live from Brussels Newsletter #2	NECSTouR	https://mailchi.mp/d2d62fadb3b6/weekly-news-from-necstour-hop-on-16890244?e=f2484b204d
Live from Brussels Newsletter #3	NECSTouR	https://mailchi.mp/5e2910bc3315/weekly-news-from-necstour-hop-on-16895368?e=f2484b204d
Live from Brussels Newsletter #4	NECSTouR	https://mailchi.mp/dbcefc1599d6/weekly-news-from-necstour-hop-on-16898376?e=f2484b204d

Table 3 DATES and other relevant Newsletters



View this in your browser.

DATES
European Data Space for Tourism

Tuesday, January 24 2023

The DATES Project Kicked Off.

The **main objective of DATES** is to explore approaches and options for the deployment of a secure and trusted tourism data space, ensuring transparent control of data access, use and re-use

During one year, the 13 European partners will come together **to set the basis of the European Data Space for Tourism**

DATES kick-off meeting was organised in the framework of TIS Summit on the 4th November 2022 in Seville to define the path to achieve 4 main results:

- Create an integrated and comprehensive tourism data ecosystem managed by a common **governance**
- Identify high-priority data sets and **define rules** for their usage
- Develop a blueprint of the **technological and non-technological** elements that will define a tourism data space
- Incorporate **resilience and sustainability** as transversal pillars of the tourism data space

About the DATES project

Activities such as **mapping, roadmapping, surveys, webinars, workshops, awareness raising, information campaigns and communication channels** creation will set the basis of the European Data Space of Tourism, creating spaces of dialogue and exchange among all actors of the tourism industry (private, public, academia), including other data spaces (smart cities and communities, mobility, skills, energy, green deal…) which will **boost the deployment of the European Data Space for Tourism**, together with high level experts and stakeholders that will be contributing and supporting the implementation of the DATES project.
The voice of the whole tourism ecosystem, from the local to the national level, from SMEs to big companies, research entities, universities and networks will be heard being part of the **blueprint** that will be presented to the European Commission defining and setting the basis of the European Data Space of Tourism
DATES is lead by the Spanish company **AnySolution** and represents a consortium of 13 partners from 7 EU countries supported by more than 50 entities, seven from which National Ministries of Tourism

Learn More

BECOME a DATES' stakeholder.
DATES is generating a vibrant community of stakeholders all over Europe (and beyond). Don't miss the opportunity to be part of the creation of the European Data Space of Tourism....

Become Stakeholder

Figure 13 DATES Newsletter #1: Screenshot

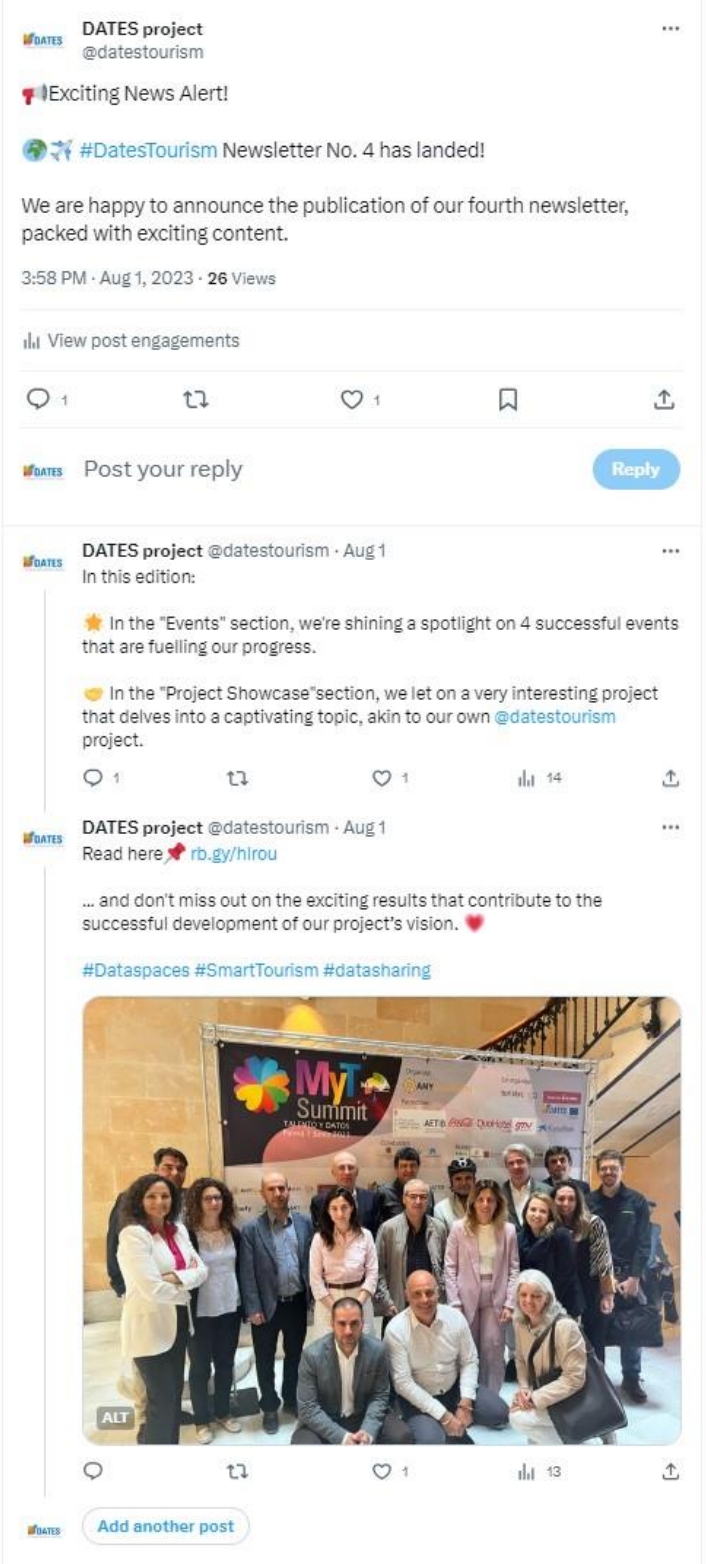
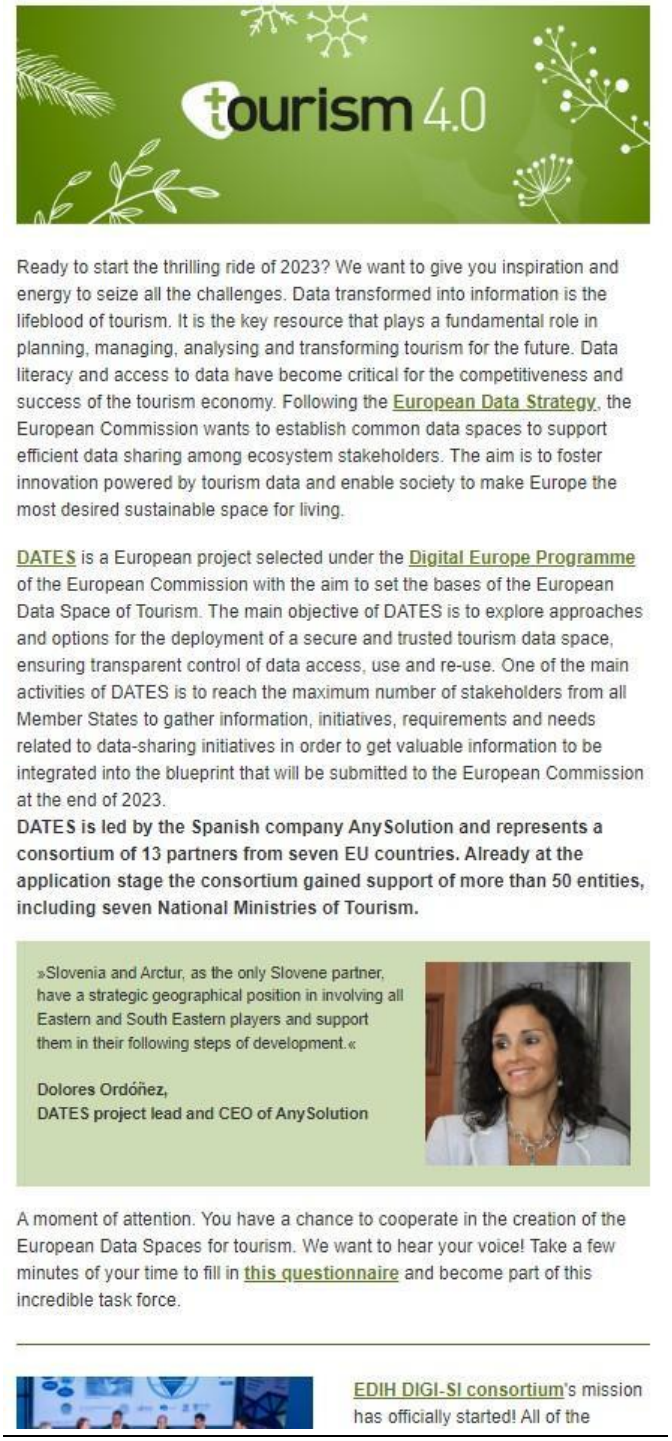


Figure 14 Sharing DATES Newsletter via Social Media



tourism 4.0

Ready to start the thrilling ride of 2023? We want to give you inspiration and energy to seize all the challenges. Data transformed into information is the lifeblood of tourism. It is the key resource that plays a fundamental role in planning, managing, analysing and transforming tourism for the future. Data literacy and access to data have become critical for the competitiveness and success of the tourism economy. Following the European Data Strategy, the European Commission wants to establish common data spaces to support efficient data sharing among ecosystem stakeholders. The aim is to foster innovation powered by tourism data and enable society to make Europe the most desired sustainable space for living.

DATES is a European project selected under the Digital Europe Programme of the European Commission with the aim to set the bases of the European Data Space of Tourism. The main objective of DATES is to explore approaches and options for the deployment of a secure and trusted tourism data space, ensuring transparent control of data access, use and re-use. One of the main activities of DATES is to reach the maximum number of stakeholders from all Member States to gather information, initiatives, requirements and needs related to data-sharing initiatives in order to get valuable information to be integrated into the blueprint that will be submitted to the European Commission at the end of 2023.
DATES is led by the Spanish company AnySolution and represents a consortium of 13 partners from seven EU countries. Already at the application stage the consortium gained support of more than 50 entities, including seven National Ministries of Tourism.

»Slovenia and Arctur, as the only Slovene partner, have a strategic geographical position in involving all Eastern and South Eastern players and support them in their following steps of development.«

Dolores Ordóñez,
DATES project lead and CEO of AnySolution

A moment of attention. You have a chance to cooperate in the creation of the European Data Spaces for tourism. We want to hear your voice! Take a few minutes of your time to fill in this questionnaire and become part of this incredible task force.

EDIH DIGI-SI consortium's mission has officially started! All of the

Figure 15 Tourism 4.0 Winter 2022 Newsletter: ENG version

3.5 Events and campaigns

3.5.1 Status and achievements

Nr.	Date	Dissemination Activity Name	Type of event	Participating PPs	Short description
1	17/10/2022	Project Tourbit co-creation workshop	Education and training online event	Arctur	Presentation of the Tourism 4.0 projects (incl. Dates) at the project Tourbit co-creation workshop with the tourism stakeholders
2	20/10/2022	Media data space info day Date	Education and training online event	Arctur	Presentation of the DATES Tourism Data Space project.
3	29/10/2022	ESA delegation, Future Earth Observation, Ljubljana	Meeting	Arctur	Presentation of Dates, discussing how space satellite data can be incorporated into data space for tourism, which tourism use cases are relevant for ESA.
4	9/11/2022	Erasmus +MINDS project Educational Event #1	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project.
5	10/11/2022	Web3 Metaverse Event, Nova Gorica, Slovenia	Education and training event	Arctur	#WEB3 Metaverse and business opportunities, brought by virtualisation, including presentation of Dates project.
6	13/11/2022	Blockchain for AGRI-FOOD educator project kick-off meeting, Nitra, Slovakia	Education and training event	Arctur	Presentation of the Tourism 4.0 projects (incl. Dates) at the project Blockchain for Agri-FOOD educators kick-off meeting.

7	14/11/2022	ERASMUS+ MINDS project Educational Event #2	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project.
8	15/11/2022	Meeting	Bilateral meeting with Mrs Šterban Bezjak, Regional research development Agency of Posavje, Slovenia	Arctur	Bilateral meeting: Discussing the requirements and the value of the Data space for Tourism (side activity under the event Slovenian Tourism days 2022).
9	18/11/2022	Meeting	Bilateral meeting with Mr Matevž Frangež, State Secretary; Ministry of Economic Development and Technology Slovenia	Arctur	Bilateral Meeting: DATES presentation/strategic planning for future cooperation
10	21-23/11/2022	European Big Data Value Forum, Prague, Czech Republic	Education and training event Participation in a panel organised by DSSC and MyData Global	IDC, AnySolution DIH T4.0	The workshop "Towards Data Spaces Interoperability" was dedicated to presenting Data Spaces Interoperability. Participation in a collaborative workshop organised by MyData Global in cooperation with Data Spaces Support Centre - panellist DIH T40
11	21/11/2023	Erasmus + MINDS Educational Event #3	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project.
12	21/11/2023	III Jornada Tecnológica, El futuro de la economía de los	Education and training online event	Tecnalia	Presentation of the DATES Tourism Data Space project

		datos, Madrid, Spain			
13	24/11/2022	#WEB3 Machine Learning and Artificial Intelligence, Nova Gorica, Slovenia	Education and training event	Arctur	#WEB3 Machine Learning and Artificial Intelligence implementation presentation, including presentation of Dates project.
14	24/11/2023	INTO Seminar, Mallorca, Spain	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project.
15	28/11/2022	Meeting	Bilateral meeting with Gordon Campbell, Director of Earth Observation Programmes at European Space Agency, Nova Gorica, Slovenia	Arctur	Bilateral meeting: Discussion about data spaces, connections with space satellite data
16	9/12/2022	DIGI-SI project kick-off meeting, Maribor, Slovenia	Education and training online event	Arctur	Kick off conference of the DIGI-SI project, including presentation of the Dates project
17	15/12/2022	Web3 Event: Collection and use of big data for start-up companies, Ljubljana, Slovenia	Education and training event	Arctur	#WEB3 collection and use of big data for start-up companies' presentation, including presentation of Dates project
18	15/12/2022	Strategy for Digitalisation Slovenia 2030, Slovenia	Education and training online event	Arctur	Co-creation of the Slovene Strategy for Digitalisation, by invitation only, including presentation of Dates project

19	16/12/2022	Meeting	Bilateral meeting with Mr Aleš Veršič, Head of Division for the data economy, Government Office for Digital Transformation, Ljubljana, Slovenia	Arctur	Bilateral Meeting: DATES presentation/strategic planning for future cooperation
20	19/01/2023	AIR Project Jour-fixe	Project meeting with partners of the AIR project, Germany	Outdooractive	Bilateral Meeting: Discussion about opportunities and impact of DATES for sustainable visitor management and tracking standard development
21	12-23/1/2023	"5D Culture" (Data space for Heritage; Digital Europe) kick-off meeting, Lindau, Germany	Education and training event	Arctur	Kick-off meeting of the 5d Culture project, including presentation of the Dates project
22	23-24/1/2023	BeyondSnow (Interreg Alpine Space) kick-off meeting, Bolzano, Italy	Education and training event	Arctur	Kick-off meeting of the BeyondSnow project, including presentation of the Dates project
23	3/2/2023	Open Data Tourism Alliance Meeting	Education and training online event	Outdooractive	Presentation of the DATES Tourism Data Space project
24	10/2/2023	Espacios de datos en Turismo, Valencia, Spain	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project
25	13-14/2/2023	CulturalDeTour(Creative Europe) kick-off meeting, Athens, Greece	Education and training event	Arctur	Kick-off meeting of the CulturalDeTour project, including presentation of the Dates project
26	16/2/2023	European Data Spaces for Sustainability	Education and training online	Outdooractive	Presentation of the DATES Tourism

		Workshop	event		Data Space project
27	28/2/2023	Digital Transformation Forum, Bilbao, Spain	Education and training event	Tecnalia	Presentation of the DATES Tourism Data Space project
28	8/3/2023	Artificial Intelligence for public sector and beyond, Algarve, Portugal	Education and training event	AnySolution	Discussing new models and solutions: Digital Twins, Artificial Intelligence and Big Data from research to applications evolution, including presentation of the DATES Tourism Data Space project
29	14/3/2023	TSI2023 technical support instrument with OECD and DG-Reform kick-off meeting	Education and training online event	Italian Ministry of Tourism	Presentation of the DATES Tourism Data Space project
30	31/3/2023	Lectures for students at Faculty for Tourism, University of Maribor	Education and training event	Arctur	Presentation of Dates, objectives, big picture, how local data is implemented in the national/EU data space. Discussion with the students about the IPR.
31	31/3/2023	Contemporary trends in the tourism industry, Brežice, Slovenia	Education and training event	Arctur	Katarina Ceglar was a guest lecturer at the University of Tourism. The main topic of the lecture was the presentation of the Tourism 4.0 paradigm with emphasis on innovations and current trends,

					including presenting the DATES project.
32	6/4/2023	MEDS (Erasmus+) kick-off meeting, online	Education and training event	Arctur	Kick-off meeting of the Meds project, including presentation of the Dates project
33	13/4/2023	Smart Tourism Destinations project meeting, Fuerteventura, Spain	Education and training event	AnySolution	Presentation of the DATES Tourism Data Space project
34	18/4/2023	Jornada Ciberseguridad y Turismo Workshop, Palma de Mallorca, Spain	Education and training event	AnySolution	Presentation of the DATES Tourism Data Space project
35	18/4/2023	Workshop for the High-level governmental representatives at the opening ceremony of the Swedish Presidency of the Council of Europe	Education and training event/Networking	Arctur	Presentation of Dates and complementarity with the data space for Cultural Heritage - cross-sector connections.
36	18/4/2023	BeyondSnow project meeting, Torino, Italy	Education and training event	Arctur	Presenting the DATES project within the context of the development of strategies to combat emerging problems of the winter season in the Alpine Space project area.
37	20/4/2023	Blockchain for Agri-FOOD educators 2nd project meeting	Education and training event	Arctur	Presentation of the Tourism 4.0 projects (incl. Dates) at the project meeting where the project partners analysed how to use blockchain in the

					agrifood industry, which is closely connected to the tourism industry.
38	27/4/2023	AlpineBits Day 2023, Bolzano, Italy	Education and training event	Outdooractive	Presentation of the DATES Tourism Data Space project. The AlpineBits Alliance supported the DATES project initiative with a support letter.
39	3-4/5/2023	Gaia-X Tech-X & Hackathon #6, Bilbao, Spain	Education and training event	Tecnaila	Presentation of the DATES Tourism Data Space project within the scope of the hackathon.
40	18/5/2023	AIOTI (Alliance for the Internet of Things Innovation) Meeting	Education and training online event/Webinar	AnySolution	Updating stakeholders of what was going on in the DATES project.
41	23-25/5/2023	Tourbit project 3rd consortium meeting, Reykjavik, Iceland	Education and training event	Arctur	The Reykjavík consortium, which was hosted by the Iceland Tourism Cluster, also offered partners the chance to participate in the Iceland Innovation Week and familiarize themselves with the Nordic tourism ecosystem. Finally, the Tourbit project was also presented to a wide range of stakeholders from the tourism and technology sectors as part of the Iceland Travel Tech 2023. The Arctur

					team presented the DATES project during the conference.
42	30.5.2023	Tourism 4.0 / Allianz in den Alpen & CIPRA meeting	Meeting	Arctur	Presenting Dates, data gathering, data management, using/reusing/sharing data. Connections with the Alpine area stakeholders and their needs for the overall support with data.
43	2/6/2023	Espacios de Datos Sectoriales y Transparencia en el sector público, Alicante, Spain	Education and training event/Congress	AnySolution	Presentation of the DATES Tourism Data Space project within the discussion of the data space for tourism.
44	8/6/2023	Hosteltur	Education and training online event	AnySolution Tecnalia NECSTouR	Presentation of the DATES Tourism Data Space project.
45	8/6/2023	Professional seminar: El Espacio Europeo de Datos de Turismo: Posicionando la industria turística Europeana	Education and training online event	AnySolution	Presentation of the DATES Tourism Data Space project within the discussion on how data sharing affects Spanish tourism.
46	26/6/2023	Governance for Data Spaces	Education and training online event/Webinar	AnySolution	Presentation of the DATES Tourism Data Space project within the scope of exploring governance models for data space for tourism.
47	13/6/2023	Creation of shared data spaces in industry	Education and training online	Tecnalia	Presentation of the DATES Tourism

		workshop, Madrid, Spain	event/Workshop		Data Space project within the discussion on the benefits of shared data spaces.
48	26/6/2023	Governance of data spaces" thematic group meeting, Brussels, Belgium	Education and training online event/Webinar	aNewGovernance AnySolution	Organised In the context of the Data Spaces Support Centre Insight series, the Governance of Data Spaces webinar aimed to bring together stakeholders from various domains to explore the governance approaches and share experiences in managing data spaces.
49	29/6/2023	4th Anban Data Online Congress for Industrial Companies	Education and training online event/Webinar	AnySolution	Presentation of the DATES Tourism Data Space project.
50	5/7/2023	REGINNA 4.0 project Summer School, Nova Gorica, Slovenia	Education and training event	Arctur	The DATES project was presented during the conference within the 'Data analytics and AI in Tourism 4.0" section.
51	15/7/2023	ToT Lab Premium Partner Meeting, Belgium	Education and training online event	NECSTouR	Presentation of the DATES Tourism Data Space project within the scope of the project consortium meeting.
52	26/7/2023	Expert Roundtables on the GAP between the provision & demand for Advanced Digital	Education and training online event	IDC	Presentation of the DATES Tourism Data Space project while addressing

		Skills in Europe			the topic of skills shortage in particular with respect to data analytics in the tourism sector.
53	13/9/2023	Presentation of the Tourism Ontology brochure, Madrid, Spain	Education and training online event	Tecnalia	Presentation of the DATES Tourism Data Space project and highlighting Ontology facilitating the collaboration and data sharing between public and private actors.
54	26-27/9/2023	Cross-Re-Tour project kick-off meeting, JS Breda, Netherlands	Education and training event	Arctur	Presentation of the Tourism 4.0 projects (incl. Dates) at the project Cross-Re-Tour kick-off meeting with the project trying to understand Tourism SMEs' challenges with regard to the green and digital transition.
55	28/9/2023	Data spaces and Governance online event	Education and training online event/Webinar	IDC	Governance and business approach of DATES shared with a community of experts on data space governance.
56	19/10/2023	Data Spaces Discovery Day, Vienna, Austria	Networking and informational Event	DIH T4.0	Event co-organised by DIO - Data Intelligence Offensive Initiative Austria and International Data Spaces Association (IDSA)
57	25-27/10/202	European Big Data Value Forum	Conference under the auspices of	AnySolution Tecnalia	Flagship event of the European Big

	3		the Spanish Presidency of the EU	IDC IDSA Intellera Amadeus	Data Value and Data-Driven AI Research and Innovation community

Table 4 Events and campaigns

3.6 Dates Online workshops

3.6.1 Status and achievements

Nr.	Date	Dissemination Activity Name	Type of activity	Participating PPs	Short description
1.	8/2/2023	DATES Workshop #1: Towards a data space for tourism - Prioritization of data needs and purposes	Education and training online event	AnySolution Tecnalia IDC MITUR Intellera Consulting Amadeus aNewGovernance IDSA Arctur NECSTouR Outdooractive DIH Tourism 4.0 Avoris	What are the needs and the role of each one of us - as tourists, tourist providers, academia, R&D organizations, public institutions, in the creation of the EU Data Space for tourism?
2.	3/3/2023	DATES Workshop #2: Tourism Working Group Meeting GAIA-X Spain	Education and training online event	AnySolution NECSTouR	Update of what is going on in the DATES project
3.	8/3/2023	Dates Workshop #3: Artificial Intelligence for public & tourism sectors - DATES BD4NRG	Offline and online education and training workshop	AnySolution	Presentation of the new digital models and solutions. Digital twins, artificial intelligence, Data Spaces, big

					Data and WeB3, from research to applications evolution.
4.	20/3/2023	Dates Workshop #4: European data space for tourism	Education and training offline event	DIH Tourism 4.0	Presentation of the DATES Tourism Data Space project.
5.	28/3/2023	Dates Workshop #5: Use cases workshop	Education and training online event	Intellera Consulting AnySolution IDC Min Tur Italiano Arctur NECSTouR Outdooractive Avoris DIH Tourism 4.0	Co-creation of a number of DATES use cases with the tourism ecosystem.
6.	20/4/2023	Dates Workshop #6: TRAVELCON conference	Education and training live event	DIH Tourism 4.0	Workshop on Data in Tourism and the benefits of Data Spaces
7.	April 2023	Dates Workshop #7: Interviews with Data spaces	Education online event	IDSA AnySolution IDC Amadeus Arctur Outdooractive MITUR NECSTouR Avoris	Conducting interviews with already established data spaces to explore use cases, to explore governance mechanisms and technical requirements and to explore data spaces building blocks specifications.
8.	30/5/2023	Dates Workshop #8: Coalition Validation Workshop	Education and training online event	All PPs	Validation of WP2 and WP4 deliverables

9.	23/10/2023	Dates Workshop #9: Coalition Validation Workshop	Education and training online event	ANYSOL Intellera IDC	Validating the findings of WP 3, including the technical foundations and tourism data space specific characteristics and the findings of WP 4 objectives, methodology and results
10.	26/10/2023	Dates Workshop #10: Data Space in Tourism	Education and training online event	DIH Tourism 4.0	Online seminar organised in cooperation with associated partner CzechTourism for Czech Stakeholders focused on presenting the results of the project, to re-explain to the representatives of the Czech tourism industry the importance of data spaces and to discuss the possibility of further steps in the implementation of this strategy in the Czech Republic.

Table 5 DATES online workshops

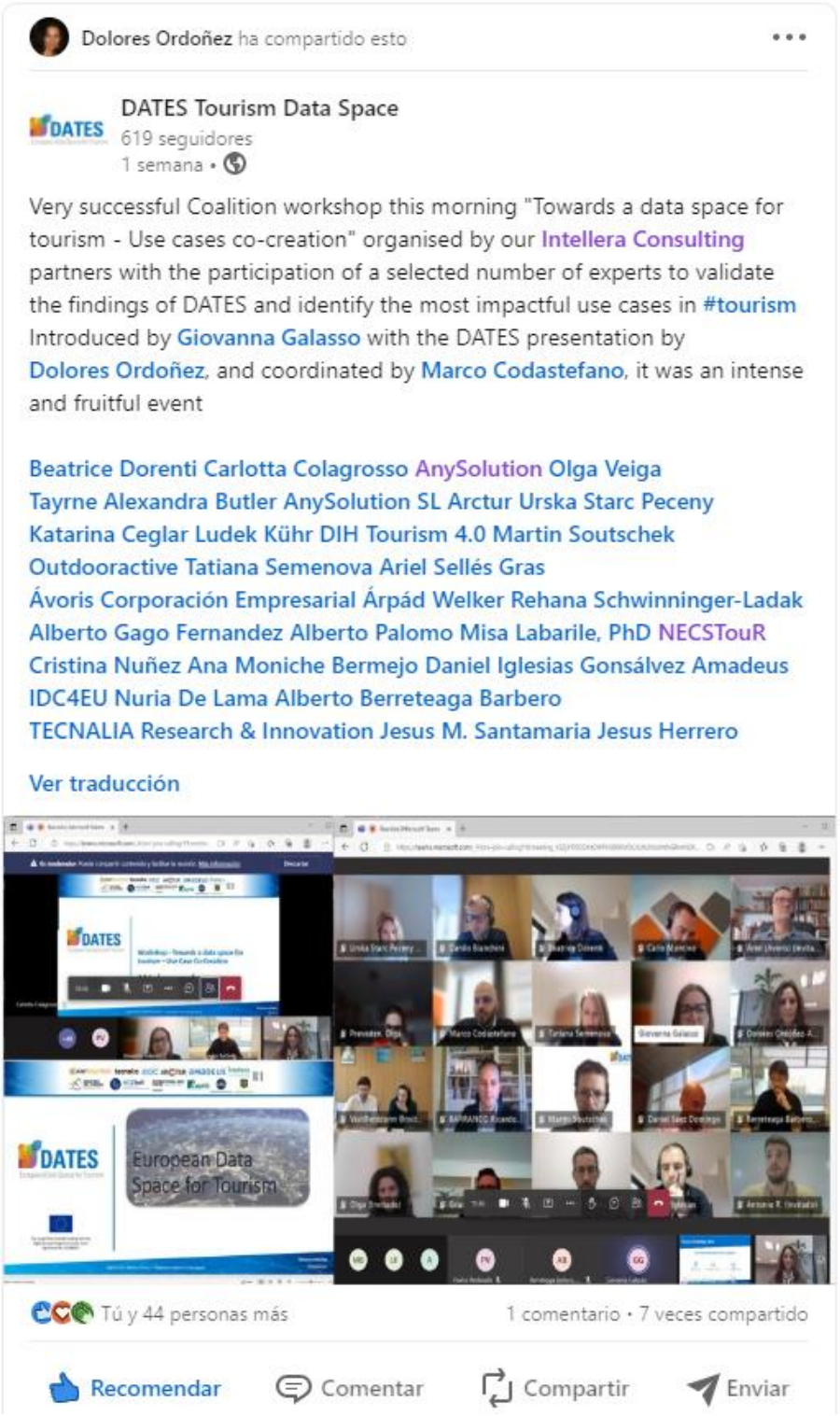


Figure 16 Highlight of the Dates Workshop #4: Use cases workshop

3.7 Conference contributions

3.7.1 Status and achievements

Nr.	Date	Dissemination Activity Name	Type of event	Participating PPs	Short description
1	28/9/2022	IDSA Data Spaces Discovery Day 2022, Barcelona, Spain	Conference	Tecnaila IDC IDSA	Presentation of the DATES Tourism Data Space project.
2	17/10/2022	AI and data-driven encounter, Valencia, Spain	Conference	AnySolution	Presentation of the DATES Tourism Data Space project.
3	18-20/10/2022	Smart Country Convention (SCC), Berlin, Germany	Conference	Arctur	Bilateral meetings/interviews with the various stakeholders at the Smart Country Convention (SCC)
4	8-10/11/2022	Tourism Innovation Summit, Seville, Spain	Conference	Arctur	Presentation of the DATES project at TIS - Tourism Innovation Summit 2022: The round table "Challenges and enablers for destinations to uptake digitalisation.
5	8-10/11/2022	Tourism Innovation Summit, Seville, Spain	Conference	Arctur	Presentation of the DATES project at TIS - Tourism Innovation Summit 2022: Panel "How to attract the ideal traveller? The role of data for destination marketing and management"
6	7-9/11/2023	World Travel Market Conference, London, UK	Conference	aNewGovernance	Bilateral meetings/interviews with the various stakeholders at the World travel Market.

7	15-17/11/2022	Smart City Expo, Barcelona, Spain	Conference	AnySolution	Presentation of the DATES Tourism Data Space project.
8	15-17/11/2022	European Tourism Forum, Prague, Czech Republic	Conference	NECSTouR	Presentation of the DATES Tourism Data Space project.
9	17-18/11/2022	Gaia-X Summit, Paris, France	Conference	AnySolution Tecnalia aNewGovernance NECSTouR Avoris	Presentation of the DATES Tourism Data Space project.
10	21-23/11/2022	III World Congress Smart Destinations	Conference	NECSTouR	Presentation of the DATES Tourism Data Space project.
11	18-20/11/2022	SME Assembly, Prague, Czech Republic	Conference	Arctur DIH Tourism 4.0	Presentation of the DATES Tourism Data Space project
12	29/11-1/12/2022	Final conference Amazing AOE project (Interreg Danube), Lenti, Hungary	Conference	Arctur	Final conference Amazing AOE project (Interreg Danube); presentation of the Tourism Impact Model results and the implementation to the Data space for Tourism (Dates)
13	12-15/12/2022	GSTC Conference, Seville, Spain	Conference	Outdooractive	Presentation of the DATES Tourism Data Space project
14	13-15/12/2022	OCDE Conference, Canary Islands, Spain	Conference	AnySolution Tecnalia	Presentation of the DATES Tourism Data Space project
15	18-22/1/2023	FITUR, International Tourism Fair, Madrid, Spain	Conference	AnySolution	Presentation of the DATES Tourism Data Space project
16	23/1/2023	AI-NURECC PLUS: High Level Conference	Conference	Arctur	Presentation of the DATES Tourism Data Space project

		"Sustainable Tourism", Skopje, North Macedonia			
17	7-9/3/2023	ITB, Berlin, Germany	Conference	Arctur	Presentation of the DATES Tourism Data Space project
18	14-15/3/2023	Market-X Conference & Expo by Gaia-X, Vienna, Austria.	Conference	AnySolution aNewGovernance	Presentation of the DATES Tourism Data Space project
19	14-15/3/2023	Empowering Destination Leaders to deliver Sustainability Conference, Lanzarote, Spain	Conference	NECSTouR	Presentation of the DATES Tourism Data Space project
20	16/3/2023	EU4BCC Conference Consórcio de Turismo, Seville, Spain	Conference	AnySolution	Presentation of the DATES Tourism Data Space project and talking about the tourism sector's challenges to boost cooperation between companies and stakeholders from EU and Eastern countries
21	17/3/2023	Travel Forum, Professional Tourism Conference, Prague, Czech Republic	Conference	DIH Tourism 4.0	Presentation of the DATES Tourism Data Space project
22	21-23/3/2023	Data Spaces Symposium, Hague, Netherlands	Conference	Amadeus Tecnalia aNewGovernance Outdooractive Intellera Consulting	Presentation of the DATES Tourism Data Space project via different panels
23	30-31/3/2023	Digital Tourist 2023 Conference,	Conference	Tecnalia	Mention of the aim of the DATES project to

		Benidorm, Spain			collaborate with the Spanish Destination Intelligent Platform defined by SEGITTUR.
24	3/4/2023	Mastercard 255 To The Moon Conference, Planica, Slovenia	Conference	Arctur	Dates presentation in connection to the modern EU trends and the future of the blockchain implementation.
25	20-21/4/2023	TravelCon, Professional Tourism Conference, České Budějovice, Czech Republic	Conference	DIH Tourism 4.0	Presentation of the DATES Tourism Data Space project Workshop for DMOs, tourism data providers etc.
26	20/4/2023	Africa Day 12th International Conference, Brdo pri Kranju, Slovenia	Conference	Arctur	The team presented the DATES project in multiple bilateral meetings during the conference.
27	5/5/2023	European Tourism Day 2023, Brussels, Belgium	Conference	AnySolution Arctur	This conference covered many aspects: from highlighting the creation of Data Space for Tourism, with Dolores Ordoñez and Jason Stienmetz to managing local data with Urška Starc Peceny (Arctur).
28	13-15/5/2023	GSTC Conference 2023, Antalya, Turkey	Conference	Outdooractive	Destinations, Tour Operators, Accommodation providers, sustainable tourism certifiers: follow-up and potential founding of a technical working group for a sustainable tourism certification standard.

29	18/5/2023	Sustainable and smart tourism conference, Ljubljana, Slovenia	Conference	Arctur	Arctur, invited as an important tourism stakeholder, actively participated in the workshop and presented the DATES in the midst of the debate for the preparation of a Roadmap for sustainable and smart tourism in Ljubljana.
30	1-2/6/2023	MyT Summit, Palma de Mallorca, Spain	Conference	All PPs	MyT Summit Conference and the DATES Consortium event within it.
31	7/6/2023	Mobilnost 2023: Re:INNOVATING Mobility conference, Ljubljana, Slovenia	Conference	Arctur	Tomi Ilijas, CEO, and Dr Urska Starc Peceny, CIO and lead of Tourism 4.0, represented Arctur at the conference and spoke at the panel discussion dedicated to the re-invention of work and smart use of space data. The DATES project was presented during the conference.
32	13-15/6/2023	Data Week 2023, Lulea, Sweden	Conference	IDC	Presentation of the DATES Tourism Data Space project while participating to several sessions on data spaces
33	15/6/2023	18th International Conference on Internet, Law and Politics - Computational Social Science	Conference	Intellera Consulting	Giovanna Galasso participated in a round table about tourism and data, presenting the DATES Tourism Data Space.
34	19-20/6/2023	Culture & Museums International Tech Forum, Malaga, Spain	Conference	Tecnalia	Presentation of the DATES Tourism Data Space project while discussing how culture can be shaped through

					technology.
35	19-22/6/2023	IoT Week, Berlin, Germany	Conference	IDSA	Presentation of the DATES Tourism Data Space project to the representatives of the European Commission and various R&D community-stakeholders.
36	30/6/2023	EONA-X: 1st Mobility, Transport and Tourism Dataspace Summit, Sofia Antiopolis, France	Conference	Amadeus AnySolution	Presentation of the DATES Tourism Data Space project within the Mobility, transport and Tourism Dataspace Summit, including participants like Prep4Mobility, DSFT, Themis, EU authorities like (Misa Labarile) etc.
37	6/9/2023	Smart Tourism Destinations project final event, Brussels, Belgium	Conference	AnySolution Arctur intellera Consulting	The event highlighted smart tourism best practices and use cases already adopted by tourism destinations, including data spaces, and the DATES project presentation.
38	11/9/2023	Transition Pathway for Tourism "Together for EU Tourism" conference, Brussels, Belgium	Conference	Arctur AnySolution	Key objectives of the event were to share recent developments in the EU tourism ecosystem, including the presentation of the DATES project within the context of the Communication from the Commission Towards a Common European Tourism Data Space: boosting data sharing and innovation across the tourism ecosystem.

39	12/9/2023	Luxembourg Business Forum	Conference	Arctur	During the visit of the Prime Minister of the Republic of Slovenia in Luxembourg, a business forum was held with a focus on the tourism and space sector, exploring ideas and presenting the possibilities of the use of satellite data in tourism, including data spaces.
40	13/9/2023	IN-COMM conference, Maribor, Slovenia	Conference	Arctur	Holding a lecture, Arctur presented the EU Data spaces as a concept, including the DATES project.
41	18/9/2023	28th International Conference on Urban Planning and Regional Development in the Information Society (REAL CORP 2023), Ljubljana, Slovenia	Conference	Arctur	Being a keynote speaker, Dr Urska Starc Peceny, CIO and lead of Tourism 4.0, represented Arctur, highlighted the DATES project within the topic of Data and Information Infrastructure – an Indispensable Prerequisite for Managing Cities and Regions.
42	21-22/9/2023	International Colloquium on Tourism Two days international colloquium organised by Masaryk University / Brno. attendees from CZ, AT, SK	Colloquium	DIH Tourism 4.0	Presentation of DST and findings of the DATES project. Use case presentations and discussion on the practical implementation of DST in CEE region.
43	25-26/9/2023	A two-day high-level conference for the European	Conference	All PPs	A two-day high-level event, bringing together both projects within the

		Tourism Data Space, Brussels, Belgium			European Data Space for Tourism, hosting many round tables and speeches, breakfast with MEPs etc.
44	25-26/9/2023	Technical session; a two-day high-level conference for the European Tourism Data Space, Brussels, Belgium	Conference	Italian Ministry of Tourism	The Italian Ministry of Tourism held a technical session, noting several important guests, within the scope of the two-day high-level conference for the European Tourism Data Space.
45	25-26/9/2023	High-level breakfast; a two-day high-level conference for the European Tourism Data Space, Brussels, Belgium	Conference	Italian Ministry of Tourism	The Italian Ministry of Tourism organised a very well visited breakfast with MEPs, noting several important guests, within the scope of the two-day high-level conference for the European Tourism Data Space.
46	26/9/2023	Research Global Connect and Learn: Data Spaces: From Vision to Reality	Conference	IDC	Business event internal to IDC on data spaces where DATES was presented to 100 people approx.
47	27-28/9/2023	Tourism Data sharing, Governance and Integration conference, Brussels, Belgium	Conference	AnySolution	Presentation of the DATES Tourism Data Space project within the two-day Data Sharing, Governance and Integration conference, carried out through the TAIEX instrument through the OEAC as implementing partner of the Technical Support Instrument projects.

48	29/9/2023	Chamber of Commerce and Industry of Slovenia, Smart Cities and Mobility conference	Conference	Arctur	The team presented the DATES project and its achievements in multiple bilateral meetings during the conference.
49	8-10/10/2023	Green Destinations Conference 2023, Tallin, Estonia	Conference	Outdooractive	The DATES Tourism Data Space project was mentioned in a presentation about sustainable digital visitor management to DMOs and other tourism stakeholders.
50	18-23/10/2023	Tourism Innovation Summit 2023, Seville, Spain	Conference	AnySolution	Presentation of the DATES Tourism Data Space and its achievements throughout the project.
51	23-25/10/2023	Turespaña Convention: The Sustainable Transformation of Tourism, San Sebastian, Spain	Conference	Tecnalia	Presentation of the DATES Tourism Data Space and its achievements throughout the project to the private sector with the aim of reinforcing the mechanisms of collaboration for the sustainable transformation of tourism.
52	25-27/10/2023	European Big Data Value Forum, Valencia, Spain	Conference	IDC AnySolution	Presentation of the DATES Tourism Data Space and its achievements throughout the project within the European Big Data Value Forum (EBDVF) bringing together industry professionals, business developers, researchers and policymakers from

					all over Europe.

Table 6 Conference contributions

3.8 Joint press releases and statement

3.8.1 Status and achievements

Dissemination Activity Name	Author(s)	URL	Short description
DATES joint press releases and statements #1	AnySolution, Spanish Ministry of Economic Affairs and Digital Transformation	https://portal.mineco.gob.es/RecursosNoticia/mineco/prensa/noticias/2022/220621_np_dates.pdf	Press release on the webpage of the Spanish Ministry of Economic Affairs and Digital Transformation - Spanish Government's First Vice Presidency presenting the DATES project
DATES joint press releases and statements #2	AnySolution	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/10/DATES-High-Level-Event_Press-Releasev2.pdf	A Press release, jointly shared by all the PPs, presenting the 'High-level event in Brussels', organised by DATES Tourism Data Space and Data Space for Tourism consortia.

Table 7 Joint press releases and statement

Figure 17 Press release on the webpage of the Spanish Ministry of Economic Affairs and Digital Transformation - Spanish Government's First Vice Presidency presenting the DATES project

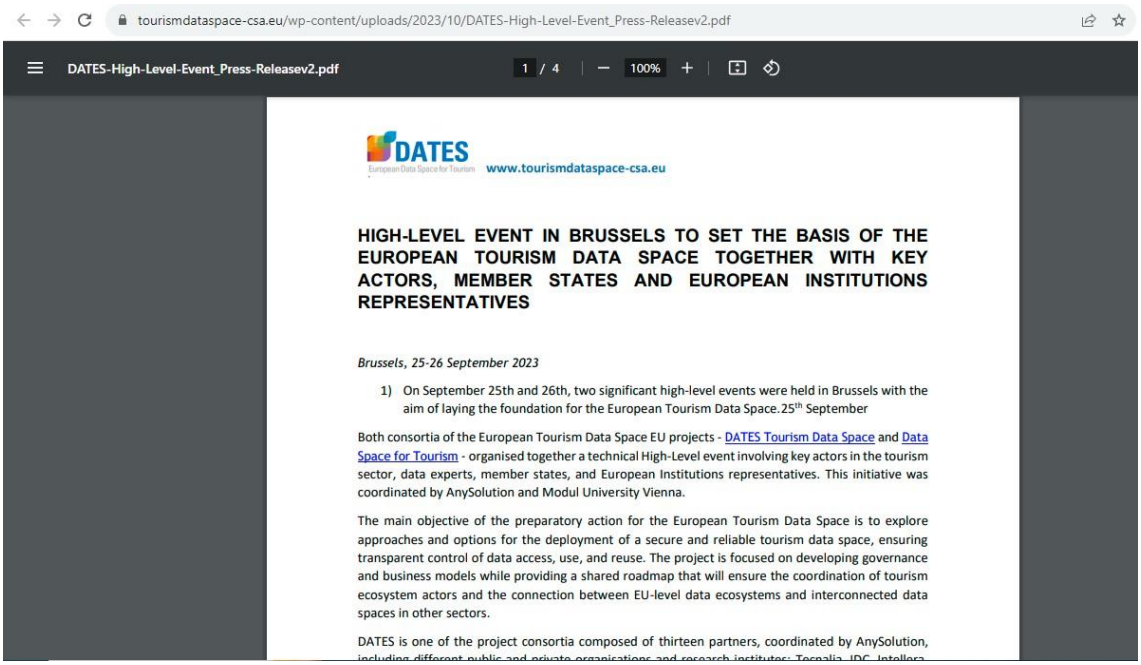


Figure 18 A Press release, jointly shared by all the PPs, presenting the 'High-level event in Brussels', organised by DATES Tourism Data Space and Data Space for Tourism consortia on the DATES website.

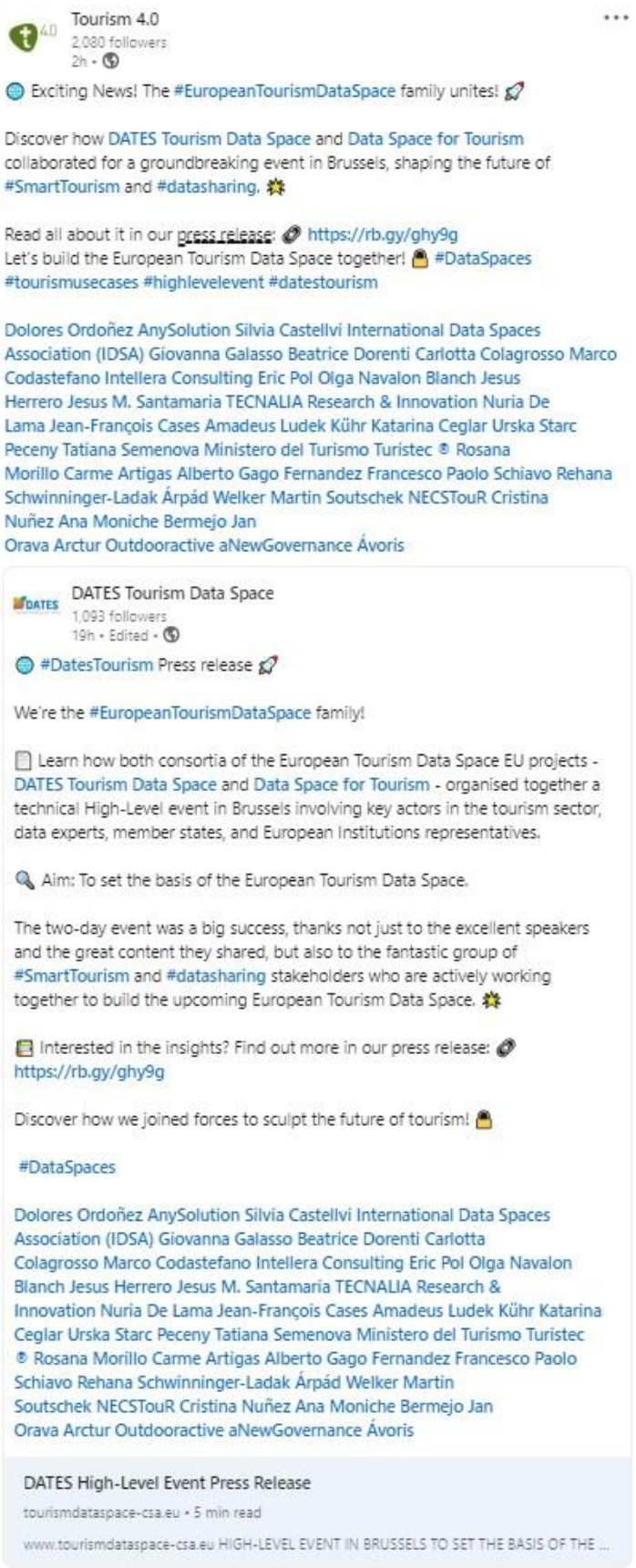


Figure 19 PPs jointly share the 'High-level event in Brussels' Press Release via their dissemination channels.

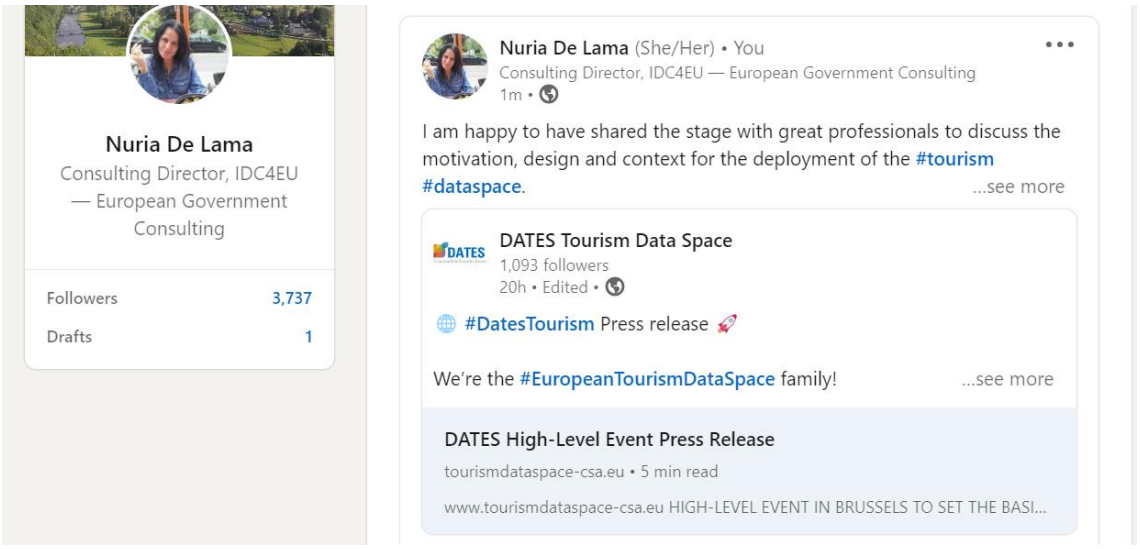


Figure 20 PPs jointly share the 'High-level event in Brussels' Press Release via their dissemination channels.

3.9 Website

3.9.1 Status and achievements

The DATES project website - https://www.tourismdataspace-csa.eu/- has had produced the following results from November 2022 to October 2023:

Figure 21 DATES website frontpage

DATES website in numbers:

- 3.2 thousand users
- 30,000 events
- 3.1 thousand new users

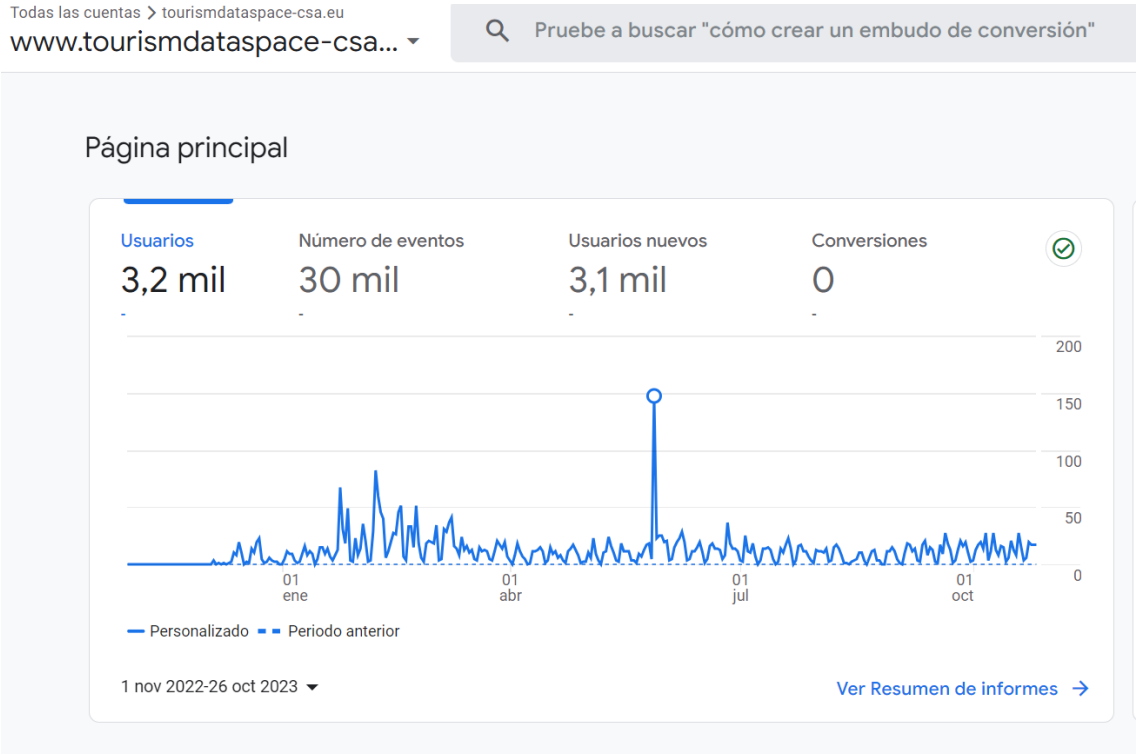


Figure 22 DATES website in numbers

In October 2023 the website registered:

- 269 new users

Users are from the following countries:

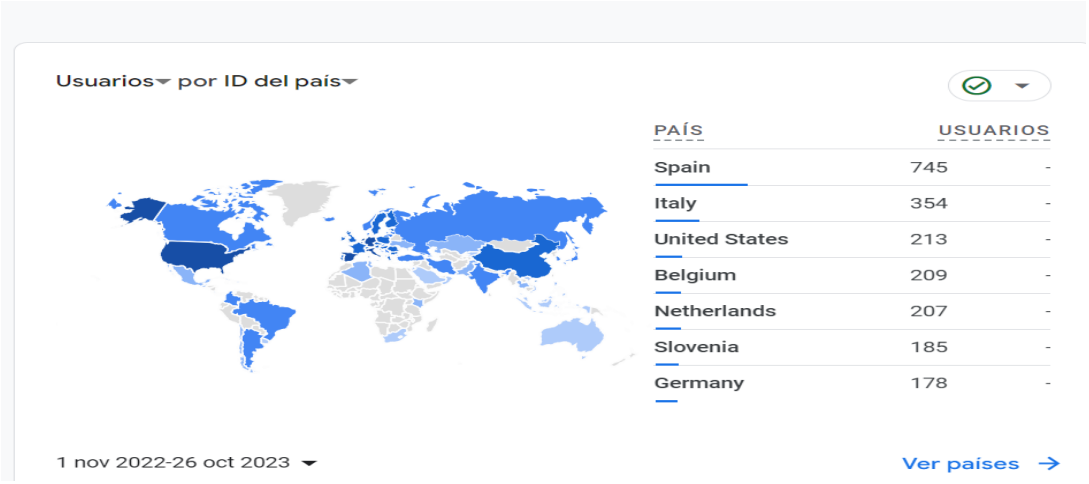


Figure 23 DATES website users by country

The general front page is the most visited followed, by the events page and the Data sharing initiatives:

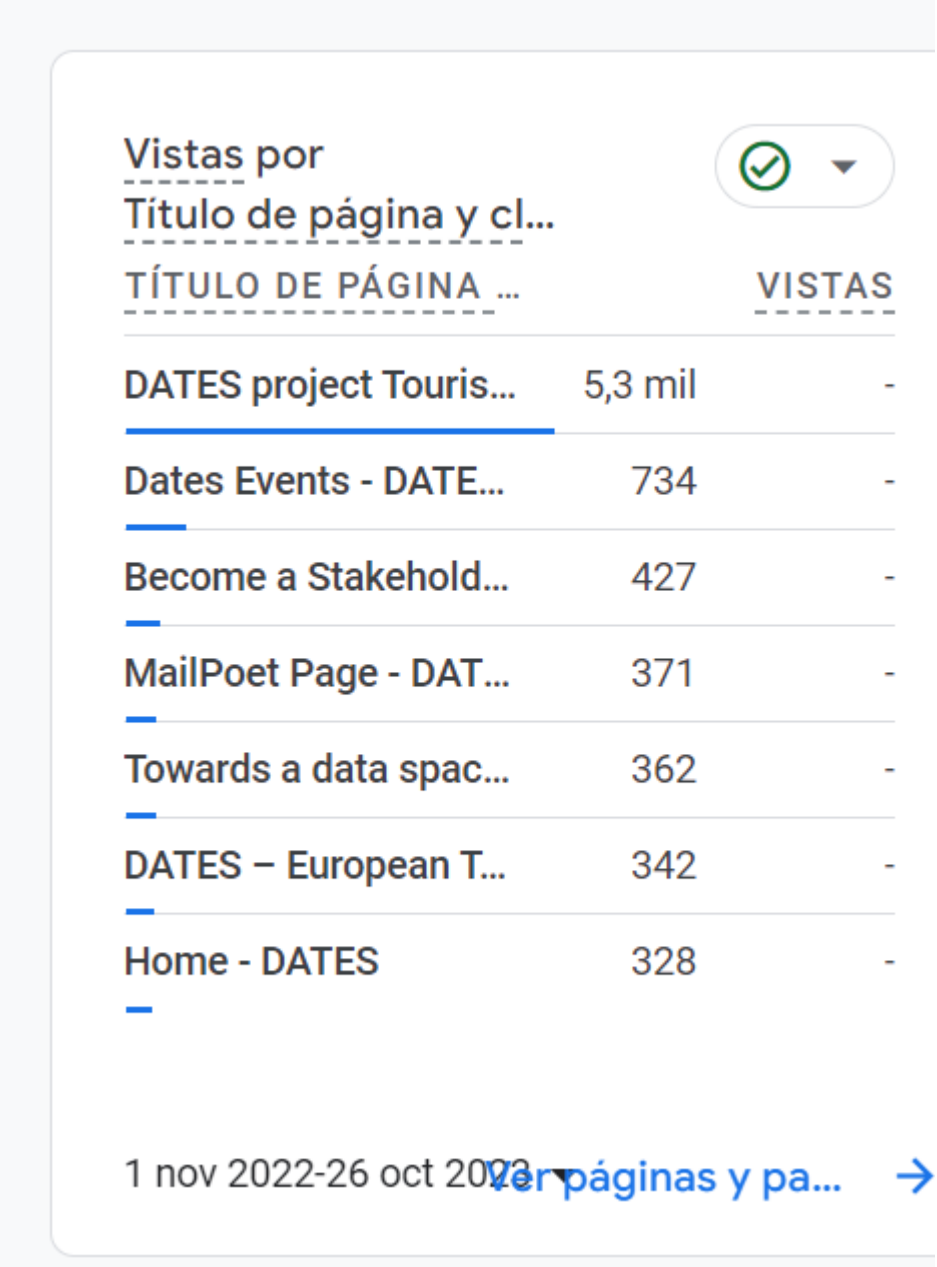


Figure 24 DATES website page visits

The following are the main events this last month:

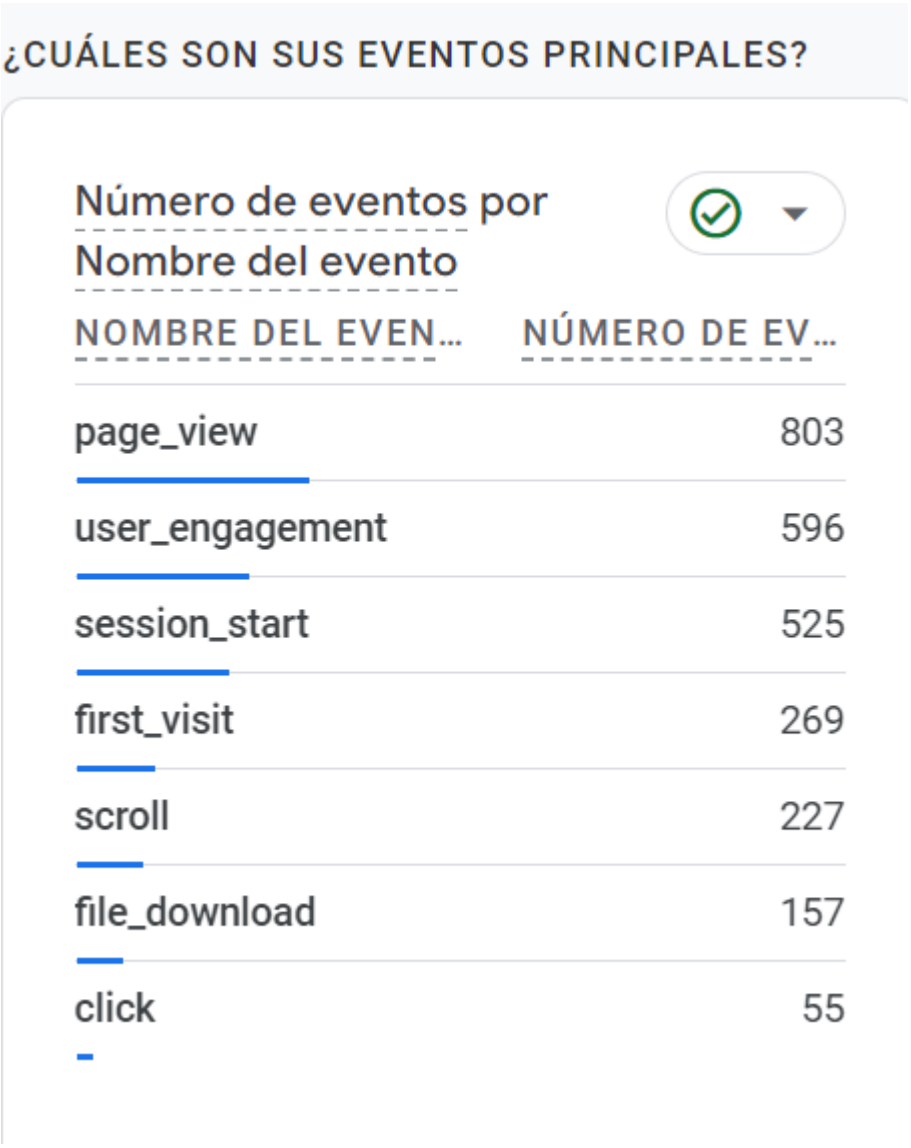


Figure 25 DATES website's main events in the last month of the project

3.10 Blog posts

3.10.1 Status and achievements

Dissemination Activity Name	Author(s)	URL	Short description
DATES Blog Post #1	Arctur	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/03/DATES-blog-1_Unpacking-the-	The main aim of this blog post was to provide a comprehensive understanding of the concept of the

		Transversality-of-the-Tourism-Industry.pdf	transversality of the tourism industry from the perspective of the DATES (Digital Europe) project.
DATES Blog Post #2	IDC	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/05/Dates-Newsletter_Article-Trends-and-DX-in-Tourism_NdL.pdf	This blog post explored the digital transformation of the tourism sector
DATES Blog Post #3	IDSA	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/DATES-blog-3_New-EU-Regulatory-Environment-for-Data-Spaces_IDSA-1.pdf	The blog post explored the new EU regulatory environment for Data Spaces
Dates Blog Post #4	Intellera Consulting	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/10/Issue-4-.-UNVEILING-USE-CASES-FOR-THE-EUROPEAN-TOURISM-DATA-SPACE.pdf	The blog post covering all Dates use cases

Table 8 DATES blog posts

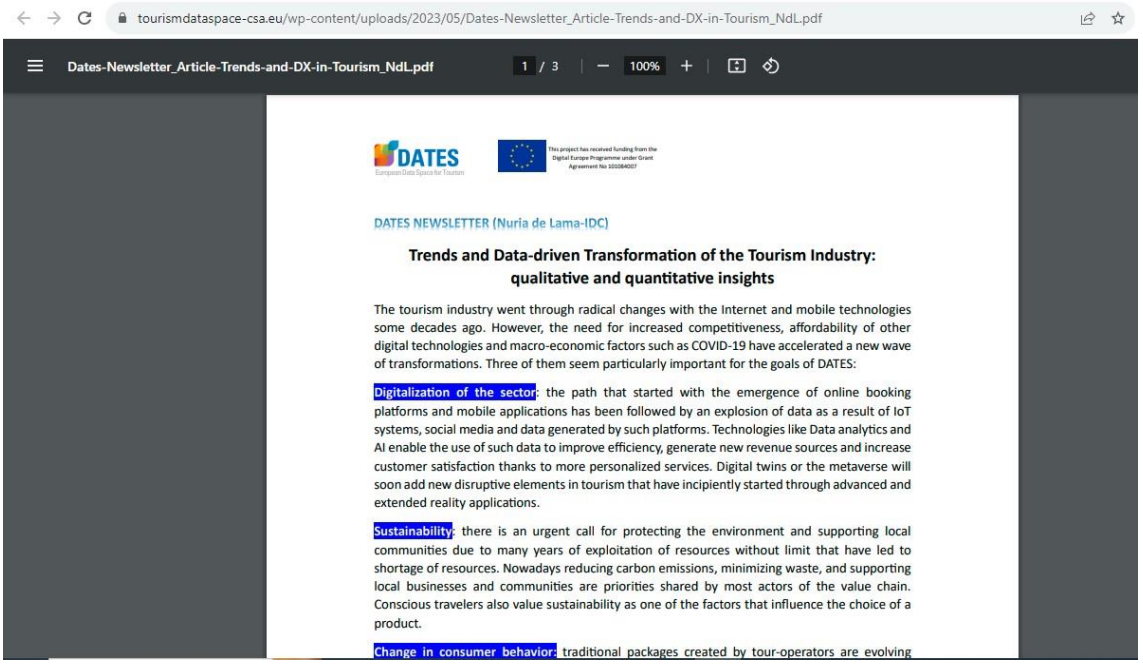


Figure 26 DATES Blog Post #2 on the Dates website, exploring the digital transformation of the tourism sector.

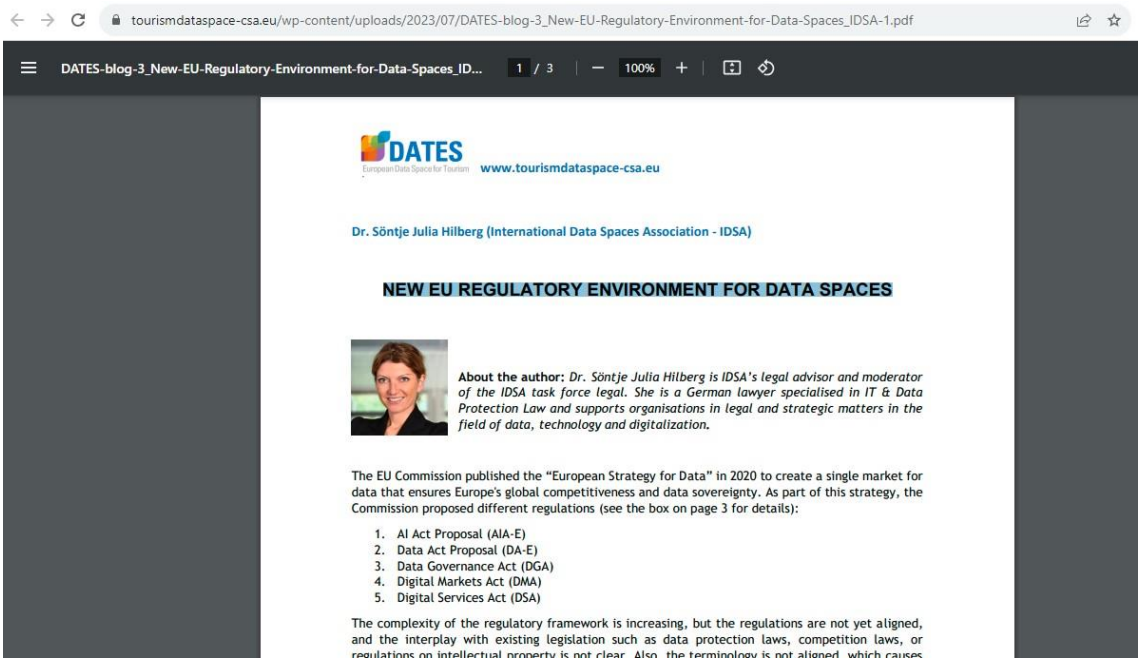


Figure 27 DATES Blog Post #3 on the Dates website, exploring the digital transformation of the tourism sector.

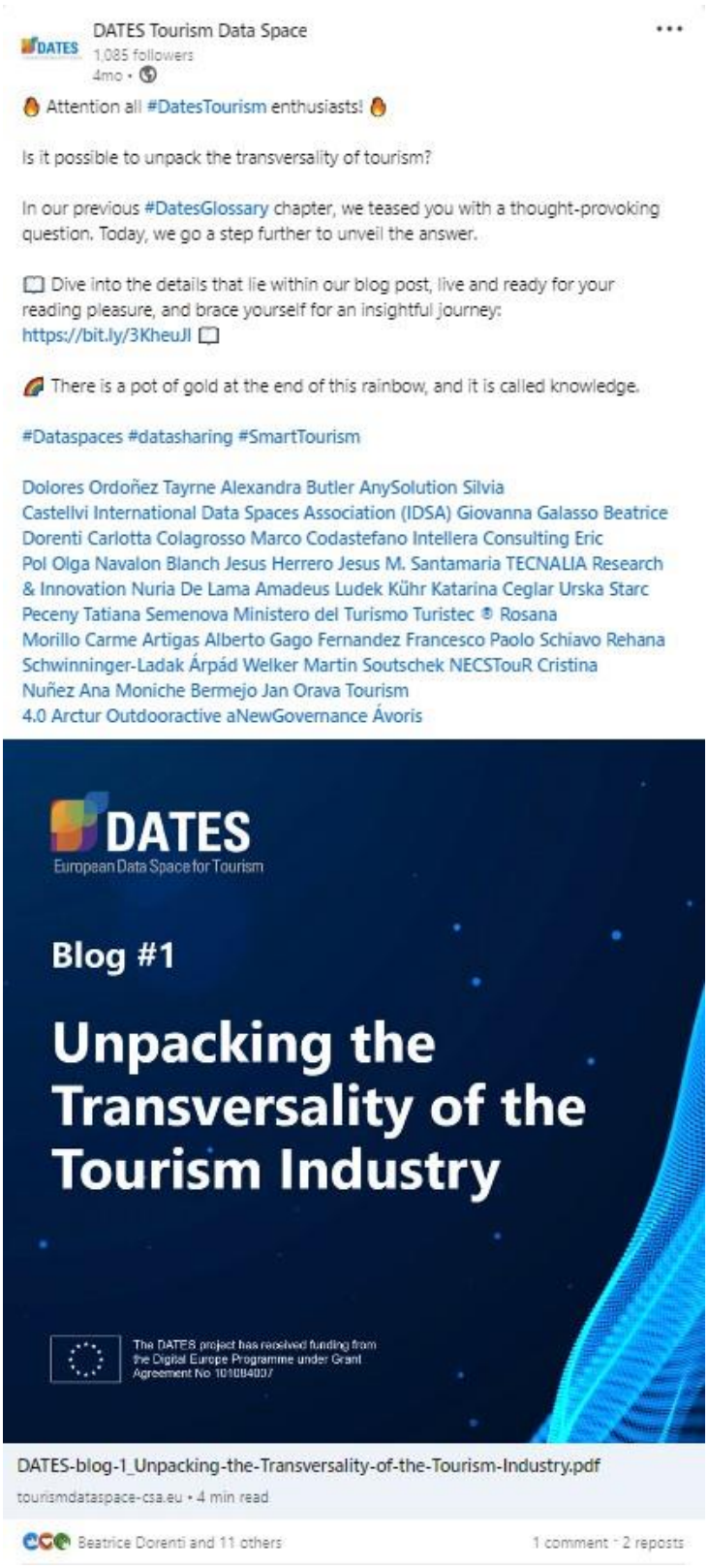


Figure 28 Sharing DATES Blog posts via Social Media, incorporating the project's visual image, generating a lot of interest

3.11 Videos

3.11.1 Status and achievements

Dissemination Activity Name	Participating project partner	URL	Short description
#DATES project video #1: project partners presenting Dates	AnySolution	https://www.linkedin.com/posts/dates-tourism-data-space_dolores-ord%C3%B3%C3%B1ez-dates-project-lead-and-ceo-activity-7033813875015700480-5oK_?utm_source=share&utm_medium=member_desktop	Dolores Ordoñez, CEO of AnySolution, presenting the DATES project in a short video
#DATES project video #2: project partners presenting Dates	DIH Tourism 4.0	https://www.linkedin.com/posts/dates-tourism-data-space_datestourism-dataspaces-smarttourism-activity-7036344053013049344-lgtl?utm_source=share&utm_medium=member_desktop	Jan Orava, CEO of DIH Tourism 4.0, presents the DATES project in a short video
#DATES project video #3: project partners presenting Dates	NECSTouR	https://www.linkedin.com/posts/dates-tourism-data-space_cristina-nu%C3%B1ez-cuesta-managing-director-activity-7038893530525659136-QeGV?utm_source=share&utm_medium=member_desktop	Cristina Nuñez, Managing Director of NECSTouR, presents the DATES project in a short video
#DATES project	Arctur	https://www.linkedi	Vesna Kobal, Chief

video #4: project partners presenting Dates		n.com/posts/dates-tourism-data-space_vesna-kobal-chief-technology-officer-tourism-activity-7041426149142327296-3lyj?utm_source=share&utm_medium=member_desktop	Technology Officer Tourism 4.0 at Arctur, presents the DATES project in a short video
#DATES project video #5: project partners presenting Dates	DIH Tourism 4.0	https://www.linkedin.com/posts/dates-tourism-data-space_ludek-k%C3%BChr-senior-specialist-at-dih-tourism-activity-7043956935078879233-tbre?utm_source=share&utm_medium=member_desktop	Ludek Kühr, Senior specialist at DIH Tourism 4.0, presents the DATES project in a short video
#DATES project video #6: project partners presenting Dates	Outdooractive	https://www.linkedin.com/posts/dates-tourism-data-space_martin-soutschek-director-of-research-development-activity-7051541849311715328-9P2v?utm_source=share&utm_medium=member_desktop	Martin Soutschek, Director of Research Development at Outdooractive, presents the DATES project in a short video
#DATES project video #7: project partners presenting Dates	Intellera Consulting	https://www.linkedin.com/posts/dates-tourism-data-space_giovanna-galasso-associate-partner-at-intellera-activity-7054079461146734	Giovanna Galasso, Associate Partner at Intellera Consulting, presents the DATES project in a short video

		593-DCDe?utm_source=share&utm_medium=member_desktop	

Table 9 Videos

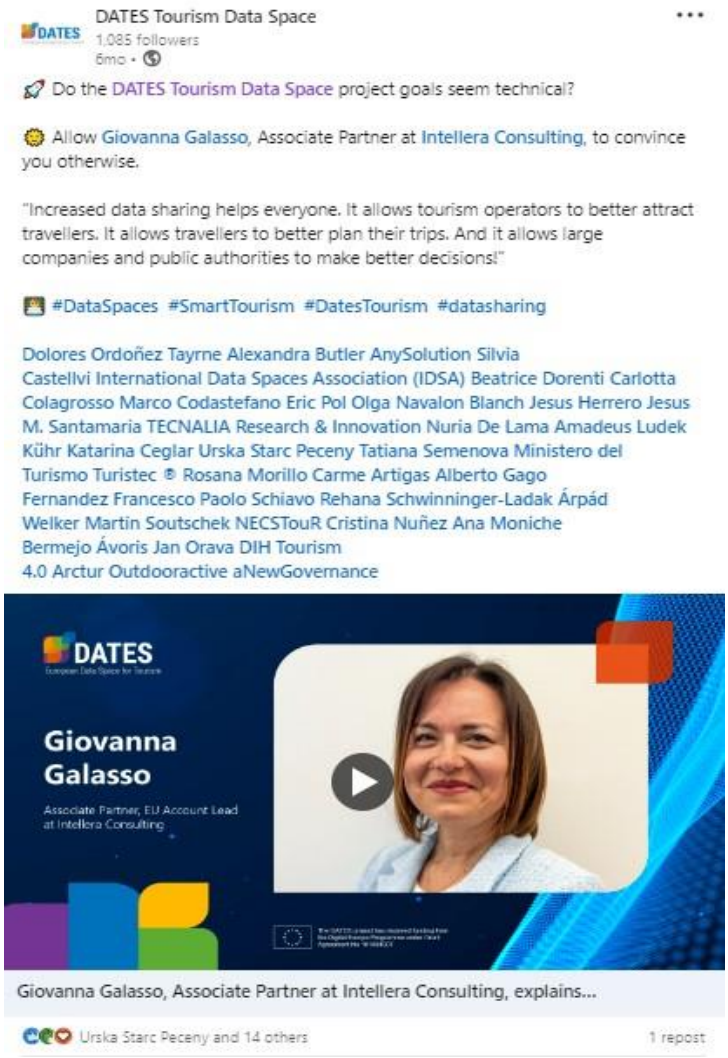


Figure 29 Giovanna Galasso, Associate Partner at Intellera Consulting, presents the DATES project in a short video

Figure 30 Martin Soutschek, Director of Research Development at Outdooractive, presents the DATES project in a short video

Figure 31 Cristina Nuñez, Managing Director of NECSTouR, presents the DATES project in a short video

3.12 Press releases

3.12.1 Status and achievements

Nr	Dissemination Activity Name	Author(s)	URL	Short description
1	Press release on the fibes.es website, Spain	AnySolution	https://fibes.es/blog/el-espacio-europeo-	Press release presenting the DATES Tourism Data

			de-datos-turisticos-un-instrumento-para-la-competitividad-y-sostenibilidad-del-sector/	Space project on the fibes.es website
2	Press release on the segittur.es website, Spain	AnySolution	https://www.segittur.es/blog/destinos-turisticos-inteligentes/espacio_datos_turismo_/	Press release presenting the DATES Tourism Data Space project on the segittur.es website
3	Press release #1 on the DATES project website	All PPs	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/03/DATES-Press-Release-1.pdf	#DATES project Press Release #1 on the DATES Tourism Data Space project website presenting the DATES project
4	Press release #2 on the DATES project website	Arctur, Intellera Consulting	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/03/DATES-workshop_Towards-a-data-space-for-tourism-Press-Release-2.pdf	#DATES project Press Release #2 on the DATES Tourism Data Space project website presenting the 'Towards a data space for tourism - Prioritization of data needs and purposes' Dates workshop
5	Press release on the webpage of the Spanish Ministry of Economic Affairs and Digital Transformation - Spanish Government's First Vice Presidency	AnySolution	https://portal.mineco.gob.es/RecursosNoticia/mineco/prensa/noticias/2022/220621_np_dates.pdf	Press release on the webpage of the Spanish Ministry of Economic Affairs and Digital Transformation - Spanish Government's First Vice Presidency presenting the DATES project
6	Press release #3 on the DATES project website	Intellera Consulting	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/06/Press-release-no-3-.-MyT-	#DATES project Press Release #3 on the DATES Tourism Data Space project website presenting the MyT Summit and the DATES

			Summit.pdf	Consortium event
7	Press release #4 on the DATES project website	AnySolution	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/06/Press-release-4-Dates.-INTERNATIONAL-CONFERENCE-SECTORIAL-DATA-SPACES-AND-TRANSPARENCY-IN-THE-PUBLIC-SECTOR.pdf	#DATES project Press Release #4 on the DATES Tourism Data Space project website presenting the round table "Sectoral data spaces: tourism" within the, the International Congress on Data Spaces and Transparency in the Public Sector where the Dates project has been presented
8	Press release #5 on the DATES project website	Intellera Consulting, AnySolution	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/06/Press-release-5-Dates.-MYT-SUMMIT-DATES-CONSORTIUM-MEETING-AND-EURACTIV-ARTICLE.pdf	#DATES project Press Release #3 on the DATES Tourism Data Space jointly authored by AnySolution and Intellera Consulting taking an in-depth look into the MyT Summit, the DATES Consortium event, and the EURACTIV article about DATES project
9	Press release #6 on the DATES project website	AnySolution	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/06/Press-release-n-6-DATES.-THE-EUROPEAN-TOURISM-DATA-SPACE-POSITIONING-THE-EUROPEAN-TOURISM-INDUSTRY.pdf	#DATES project Press Release #6 on the DATES Tourism Data Space project website presenting the event "The European Tourism Data Space: positioning the European tourism industry" organised by AnySolution
10	Press release #7 on the DATES project website	IDC	https://www.tourismdataspace-csa.eu/wp-	#DATES project Press Release #7 on the DATES Tourism Data

			content/uploads/2023/07/DATES-Press-Release-Validation-workshop_IDC.pdf	Space project website presenting the 'Towards a data space for tourism-First Coalition Validation' Dates workshop
11	Press release #8 on the DATES project website	Intellera Consulting	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/Press-Release-no-8-Use-case-co-creation-workshop.pdf	#DATES project Press Release #8 on the DATES Tourism Data Space project website presenting the 'Towards a Data Space for Tourism – Use Case Co-Creation' Dates workshop
12	Press release #9 on the DATES project website	Intellera Consulting	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/Press-Release-no-9-Survey-and-Interviews.pdf	#DATES project Press Release #9 on the DATES Tourism Data Space project website presenting the 'The survey and a round of interviews conducted with Dates WP2 partners'
13	Press release #10 on the DATES project website	DIH Tourism 4.0	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/Press-Release_The-Tourism-Forum-in-Prague_DIH-tourism-4.0.pdf	#DATES project Press Release #10 on the DATES Tourism Data Space project website presenting how the Dates project has been presented at the 'Tourism Forum in Prague'
14	Press release #11 on the DATES project website	DIH Tourism 4.0	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/Press-Release_TRAVELCON-2023-Conference_DIH-tourism-4.0.pdf	#DATES project Press Release #11 on the DATES Tourism Data Space project website presenting how the Dates project has been presented at the 'TRAVELCON 2023 conference'
15	Press release #12 on the DATES project website	AnySolution	https://www.tourismdataspace-csa.eu/wp-	#DATES project Press Release #12 on the DATES Tourism Data

			content/uploads/2023/10/DATES-High-Level-Event_Press-Releasev2.pdf	Space project website presenting the 'High-level event in Brussels', organised by DATES Tourism Data Space and Data Space for Tourism consortia.
16	Press release #13 on the DATES project website	DIH Tourism 4.0	https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/10/DATES-PROJECT-AND-DATA-SPACES-FOR-TOURISM-PRESENTS-ITS-OUTCOMES-IN-CZECH-REPUBLIC-press-release-13.pdf	#DATES project Press Release #13 on the DATES Tourism Data Space project website presenting the Coalition validation workshop which was organised in cooperation with associated partner CzechTourism for Czech Republic Tourism Stakeholders.

Table 10 Press releases

Figure 32 Press release presenting the DATES Tourism Data Space project on the segittur.es website

Figure 33 Press release presenting the DATES Tourism Data Space project on the fibes.es website

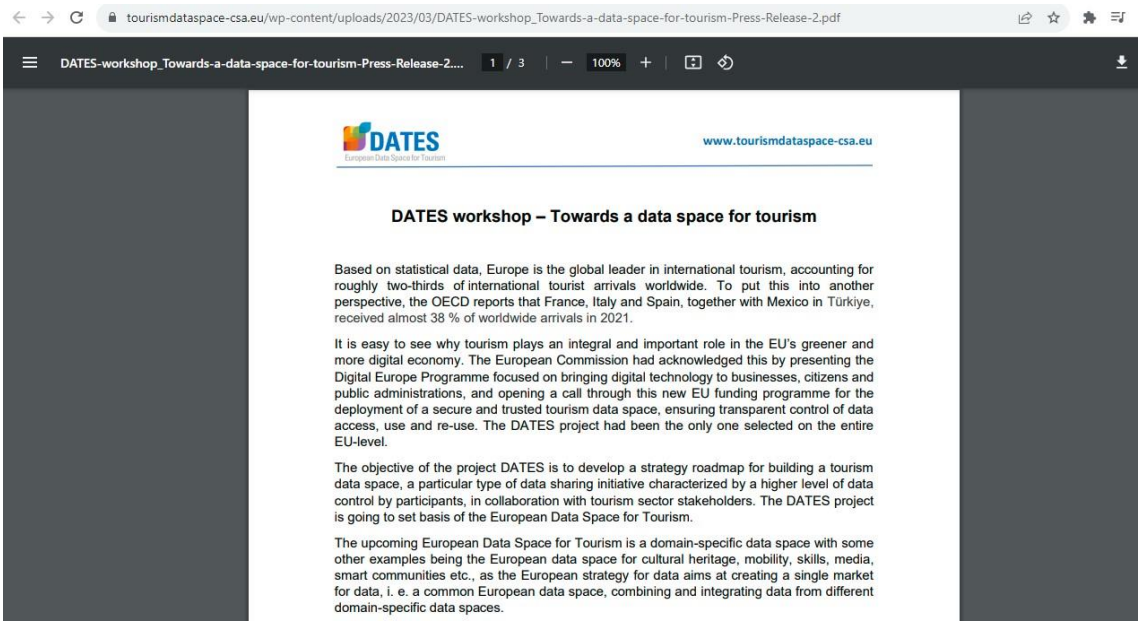


Figure 34 #DATES project Press Release #2 on the DATES Tourism Data Space project website presenting the 'Towards a data space for tourism - Prioritization of data needs and purposes' Dates workshop

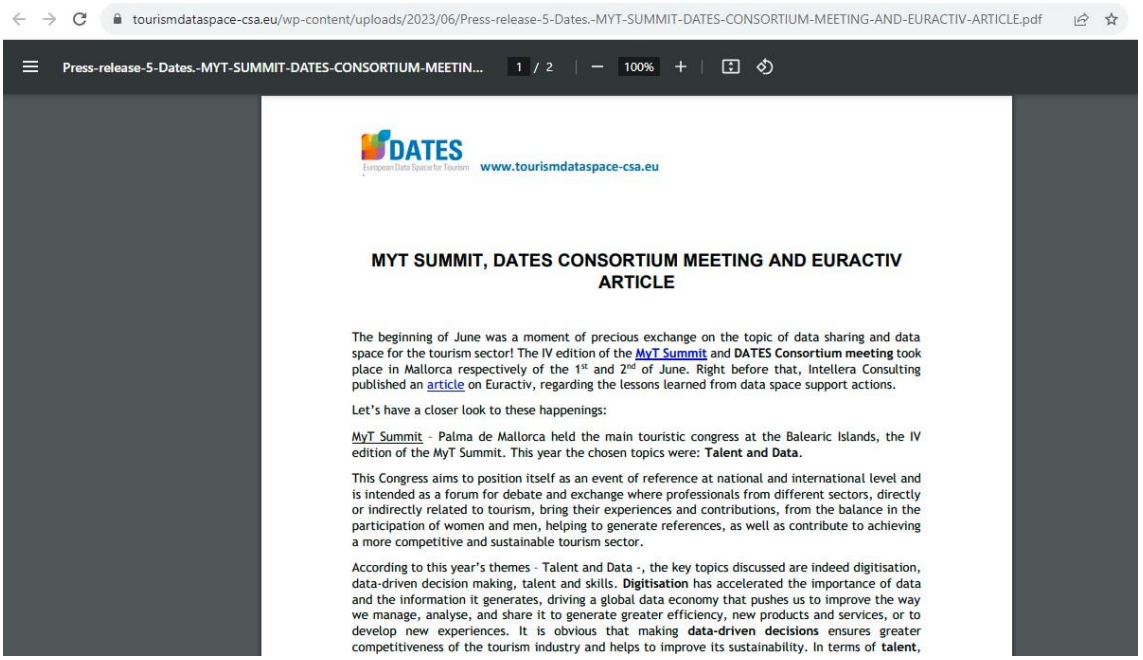


Figure 35 #DATES project Press Release #3 on the DATES Tourism Data Space jointly authored by AnySolution and Intellera Consulting takin an in-depth look into the MyT Summit, the DATES Consortium event, and the EURACTIVE article about DATES project

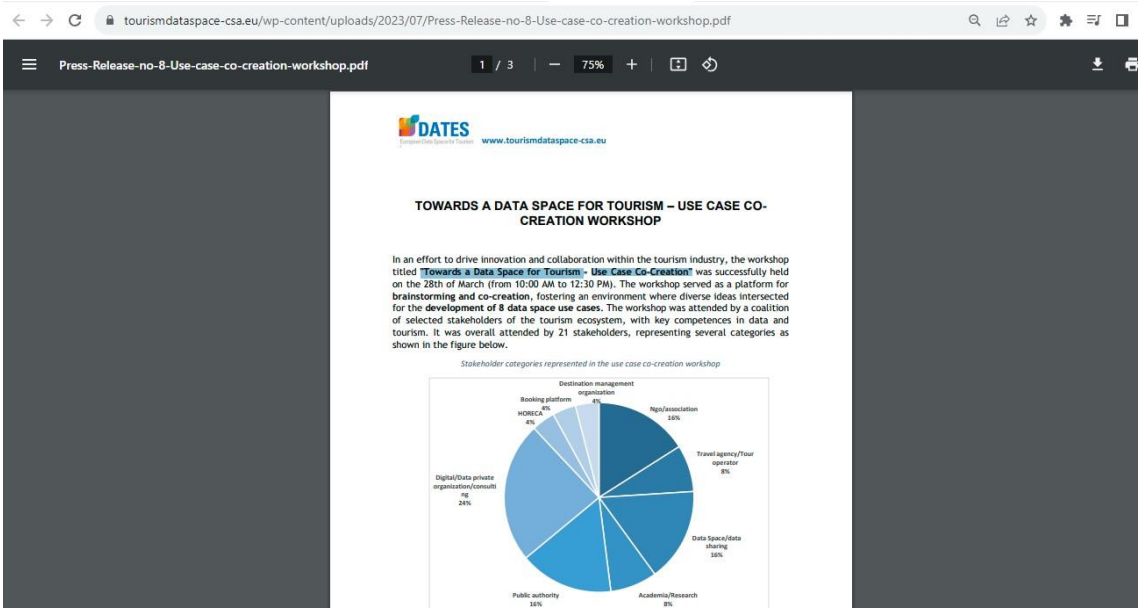


Figure 36 #DATES project Press Release #8 on the DATES Tourism Data Space project website presenting the 'Towards a Data Space for Tourism – Use Case Co-Creation' Dates workshop

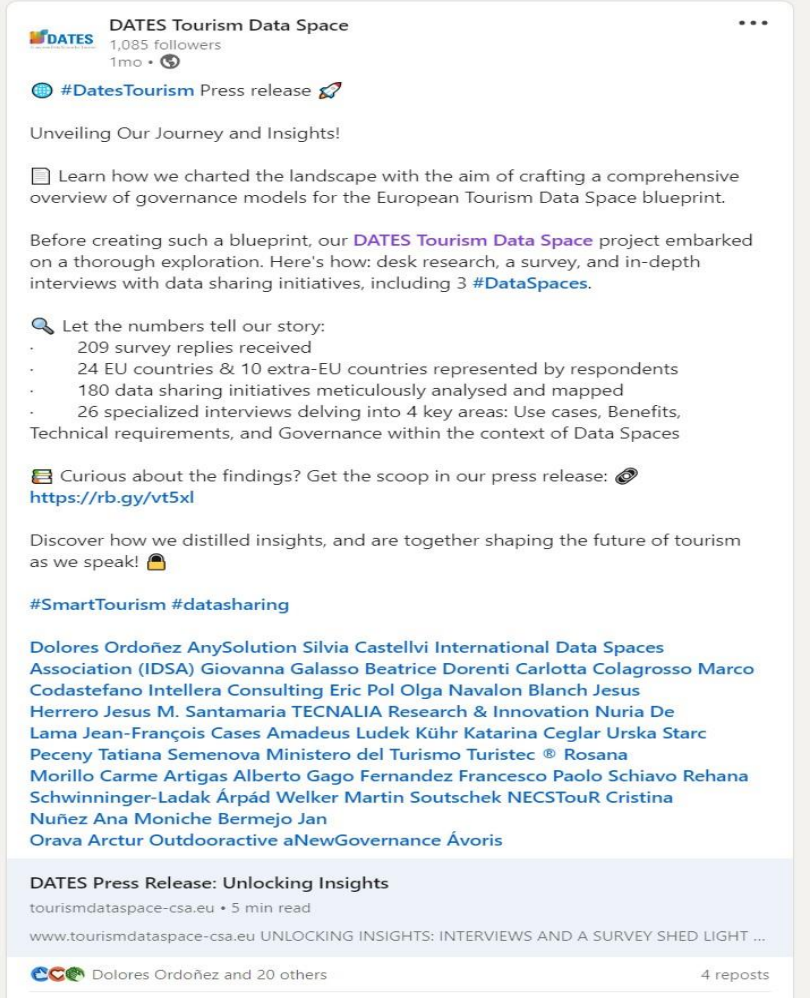


Figure 37 Sharing DATES Press Releases via Social Media

3.13 Speeches and interviews

3.13.1 Status and achievements

Dissemination Activity Name	URL	Communication channel	Outcome
Video interview at the Tourism Innovation Summit, Spain	https://youtu.be/waKcOzesFyQ?feature=shared	Video speech and interview on YouTube	Interview with Dolores Ordóñez from AnySolution (DATES project lead), Seville, Spain, at the Tourism Innovation Summit 2022 about Dates
Interview on Italian national television about the Dates	https://www.raiplay.it/video/2022/11/Casa-Italia-del-	National television interview	Interview on Italian national television about the Dates

project	16112022-6478e9ce-e02c-4fad-bf01-8627d09f8eb5.html?fbclid=IwAR07TWDgr5APXHLFhQ6NJ2vrNOyuhe7eHBD9L9CyHaV-c9XVVxODnPrRI-M		project with Daniela Santanchè, the Italian Minister of Tourism (MITUR)
Radio interview on the Radio Intereconomia, Spain	https://intereconomia.com/noticia/el-exceo-de-cellnex-tobias-martinez-se-incorpora-antin-infrastructure-partners-20231009-1338/	Radio interview	Speech and radio interview presenting the DATES Tourism Data Space project on the Radio Intereconomia
Video interview by Noray INN	https://www.youtube.com/watch?v=valX6mzMVb8	Video speech and interview on Youtube	30min long interview with Dolores Ordóñez from AnySolution presenting the DATES project
Spotify interview	https://open.spotify.com/episode/2Sc3SQEyQEZUQcYM20Zu15?si=b4519036fb844959&nd=1	Spotify	40min Spotify interview with Dolores Ordóñez from AnySolution, Seville, Spain, presenting the DATES project
Video interview by HOSTELTUR	https://youtu.be/nz8Kq7-Gr1g?feature=shared	Video speech and interview on Youtube	30min long Interview with Dolores Ordóñez from AnySolution, Seville, Spain, presenting the DATES project
Video round table discussion and speech	https://www.youtube.com/watch?v=mZXm1CKnrlw	Video on Youtube	3h long discussion and a video about the Dates project at the MyT Summit

Table 11 Speeches and interviews

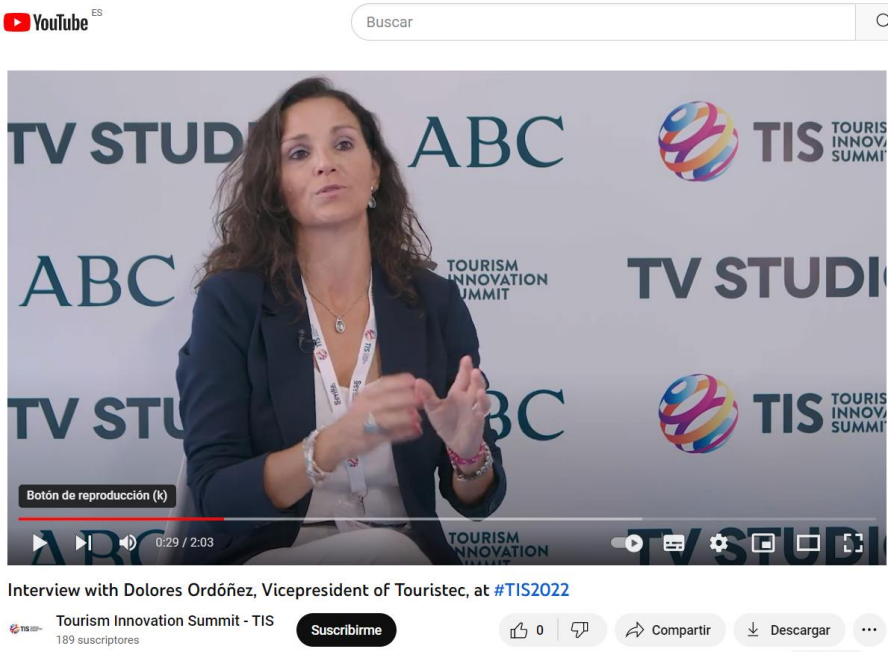


Figure 38 Interview with Dolores Ordóñez from AnySolution (DATES project lead), Seville, Spain, at the Tourism Innovation Summit 2022 about Dates

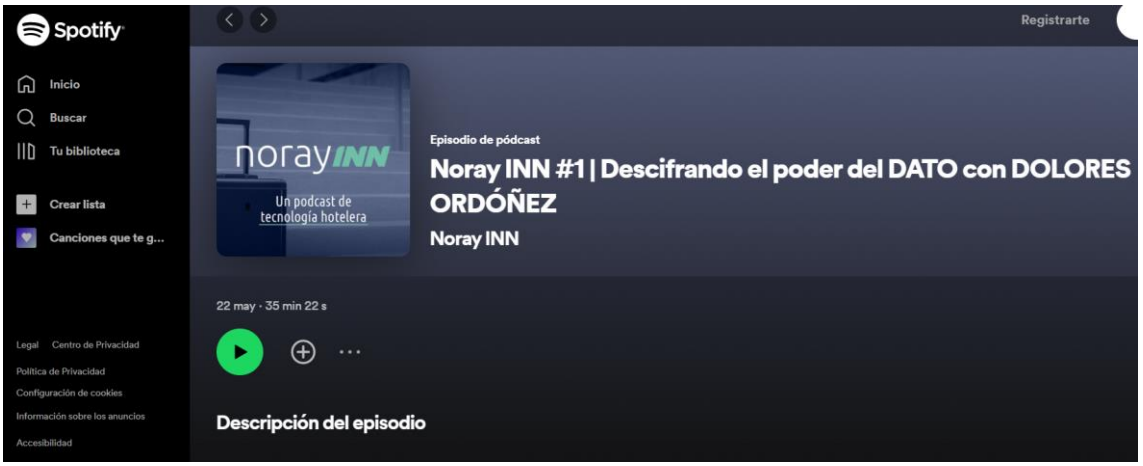


Figure 39 Spotify interview with Dolores Ordóñez from AnySolution, Seville, Spain, presenting the DATES project

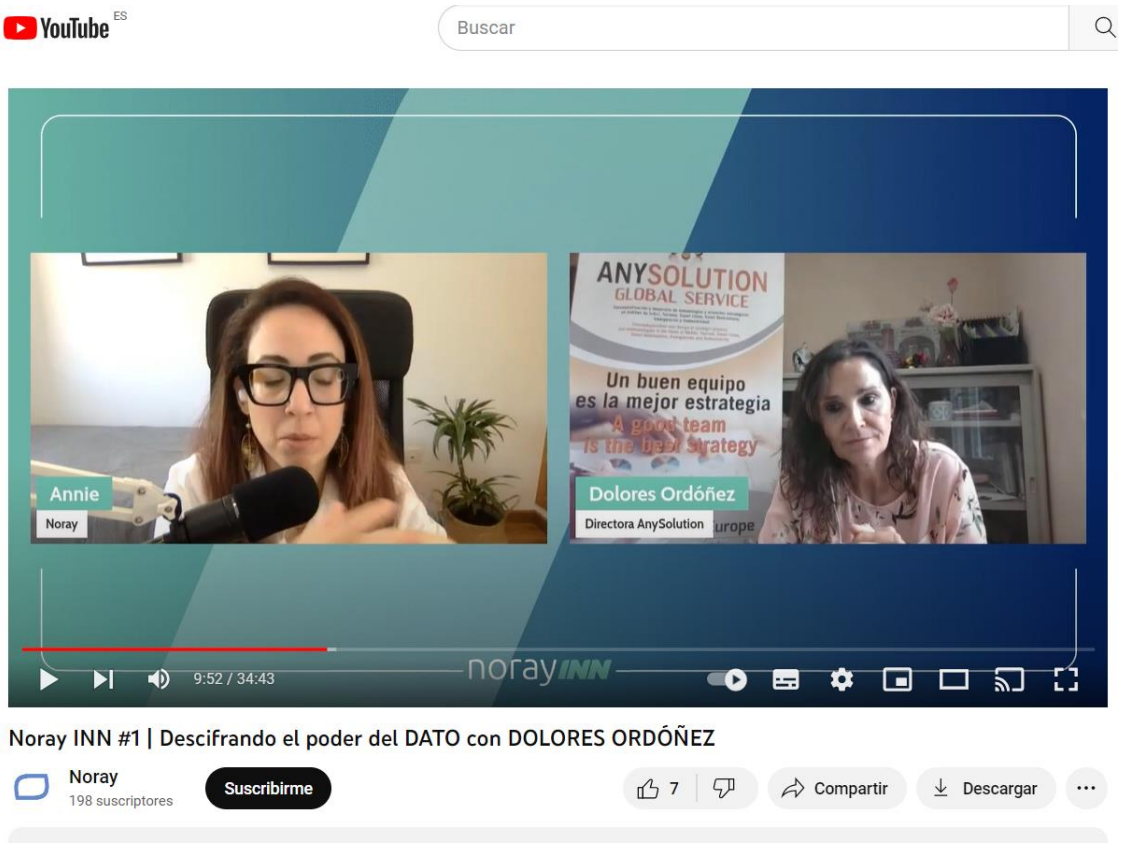


Figure 40 Video interview with Dolores Ordóñez from AnySolution presenting the DATES project

Figure 41 Video interview by HOSTELTUR with Dolores Ordóñez from AnySolution, Seville, Spain, presenting the DATES project

3.14 Featured articles in magazines

3.14.1 Status and achievements

Dissemination Activity Name	URL	Short description
Article featured in the Gran Hotel Turismo magazine, Spain	https://www.revistagranhotel.com/tis2022-abordara-como-la-economia-de-datos-y-la-tecnologia-promueven-un-turismo-inteligente/	Article featured in the Gran Hotel Turismo magazine presenting the DATES Tourism Data Space project
Article featured in the Spain Travel News by Turespaña magazine	https://spaintravelnews.co.uk/000849_dates-the-european-data-space-as-a-challenge-for-competitiveness.html	Article featured in the Spain Travel News magazine, including a video interview with Dolores Ordóñez, CEO of AnySolution
Article featured in Economia de Mallorca magazine	https://www.economiademallorca.com/articulo/innovacion/dolores-ordonez-necesitamos-talento-que-sea-capaz-adaptarse-mercado-cambiante/20230521150708082464.html	Article featured in the Economia de Mallorca magazine, including an in-depth interview Dolores Ordóñez, CEO of AnySolution
Article featured in IDSA blog	https://internationaldataspaces.org/data-spaces-a-participant-journey-perspective/	Article featured in the IDSA blog by Valentin Sanchez, Txetxu Santamaria and Alberto Berreteaga from Tecnalia, explaining DATES project and data spaces, from the perspective of a participant journey

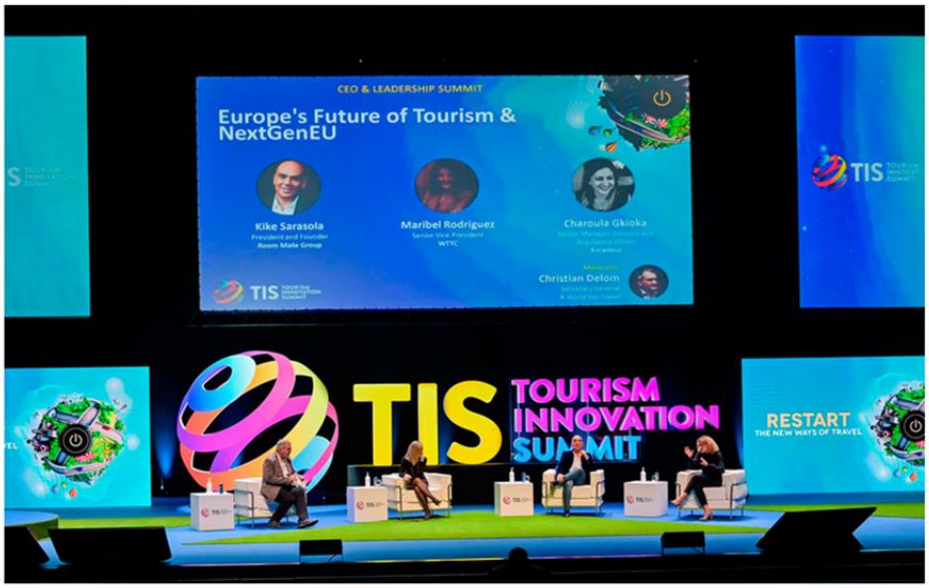
Table 12 Featured articles in magazines

Ferias y eventos

TIS2022 abordará cómo promover un turismo inteligente

20-octubre-2022

Tourism Innovation Summit 2022 vuelve a Sevilla del 2 al 4 de noviembre y congregará a más de 6.000 profesionales y 400 expertos internacionales.



Conocer las ratios de ocupación en tiempo real, aprovechar los datos compartidos para lanzar predicciones o aumentar la eficiencia en la toma de decisiones son elementos que ya forman parte del nuevo modelo de innovación turística liderado por los destinos inteligentes. La industria está transformándose a pasos agigantados gracias a la aplicación de tecnologías como Big Data, Inteligencia Artificial, Cloud o Data Spaces con el fin de dar respuesta a las exigencias de un turista conectado que utiliza los servicios digitales a la hora de viajar además de optimizar la experiencia del viajero con herramientas que ayuden en la toma de decisiones estratégicas y en tiempo real.

Figure 42 Article featured in the Gran Hotel Turismo magazine presenting the DATES Tourism Data Space project


Dolores Ordoñez: "Necesitamos talento que sea capaz de adaptarse a un mercado cambiante"

La organizadora del congreso Mytsummit que se celebra en Palma el 1 de junio explica que "Datos y talento en turismo serán los ejes del evento"

MARGA PROHENS Es hora de pagar menos impuestos VOTA PP 28 de MAYO

REDACCIÓN
21 DE MAYO DE 2023

¡Suscríbete a nuestra Newsletter! ¡clic aquí!

El congreso empezó llamándose **Mujer y Turismo**, como único evento nacional que ponía sobre la mesa el relieve de la mujer en el ámbito de la industria turística. Pero se ha consolidado en las sucesivas ediciones como un referente en turismo que, sin perder la primera idea de dar visibilidad a las profesionales de sector, es un punto de debate y reflexión sobre los aspectos que le afectan directamente.

Noticias de hoy

La mallorquina My Uniform lanza la 'uniformidad no

Figure 43 Article featured in the Economia de Mallorca magazine, including an in-depth interview Dolores Ordóñez, CEO of AnySolution

3.15 Press outreach

3.15.1 Status and achievements

Title of the article	Name of the media	Date of posting	URL
The Balearic Islands are leading a pioneering project to share tourism data in all of Europe	Ultima hora Newspaper	25/06/2022	https://www.ultimahora.es/noticias/local/2022/06/25/1750285/turismo-baleares-lidera-proyecto-para-compartir-datos-turisticos-europa.html?utm_source=twitter&utm_medium=web&fbclid=IwAR2ZIKHv16F8uUnzYp-I4VU95eSO7YV5UXDF8Z90IC4SqVe19xmJV_K4mcI

Il Ministero del Turismo tra i partner del progetto DATES per lo sviluppo del primo spazio dati europeo del turismo	Ministero del turismo website	03/10/2022	Il Ministero del Turismo tra i partner del progetto DATES per lo sviluppo del primo spazio dati europeo del turismo (ministeroturismo.gov.it)
TIS 2022: avanzando hacia el turismo inteligente	TUR 43	20/10/2022	https://tur43.es/bienestar/turismo-sostenible/tis2022-avanzando-hacia-el-turismo-inteligente.html
Nuevos horizontes para la tecnología turística en la cumbre TIS 2022, en Sevilla	Profesional Horeca	20/10/2022	https://www.profesionalhoreca.com/2022/10/27/nuevos-horizontes-para-la-tecnologia-turistica-en-la-cumbre-tis-2022-en-sevilla/
Tourism innovation summit 2022	Arctur Tourism 4.0 Website	7/11/2022	https://tourism4-0.org/tourism-innovation-summit-2022/
Turismo, Santanchè: Ministero promuove progetto DATES per rafforzare processo di trasformazione digitale	Ministero del turismo website	8/11/2022	Turismo, Santanchè: Ministero promuove progetto DATES per rafforzare processo di trasformazione digitale (ministeroturismo.gov.it)
Nace 'Dates', un proyecto europeo para la transformación digital y resiliente de la industria turística	SardegnaImpresa	16/11/2022	https://www.sardegnaimpresa.eu/es/news/nace-dates-un-proyecto-europeo-para-la-transformacion-digital-y-resiliente-de-la-industria
COP27 – Tourism 4.0 solutions presented in the Metaverse	Arctur Tourism 4.0 Website	23/11/2022	https://tourism4-0.org/cop27-tourism-4-0-solutions-presented-in-the-metaverse/
EDIH DIGI-SI Community Days	Arctur Tourism 4.0 Website	15/12/2022	https://tourism4-0.org/edih-digi-si-community-days/
DATES: TURNING THE VISION OF A EUROPEAN TOURISM DATA SPACE INTO REALITY	NECSTouR Website	19/12/2022	https://necstour.eu/public-news/dates-turning-vision-european-tourism-data-space-reality
DATES – European Data Space for Tourism	NECSTouR Website	19/12/2022	https://necstour.eu/projects/DATES

DATES – European Data Space for Tourism	Tourism 4.0 Website	4/1/2023	https://tourism4-0.org/dates-european-data-space-for-tourism/
DATES – European Data Space for Tourism	Outdooractive Website	14/1/2023	https://www.outdooractive.com/en/p/dates/801710377/
5d Culture project kick-off	Arctur Tourism 4.0 Website	9/2/2023	https://tourism4-0.org/5dculture-project-kick-off/
MYT Summit reunirá en Mallorca a expertos en datos y talento del ámbito turístico	Turistec website	22/5/2023	https://turistec.org/myt-summit-reunira-en-mallorca-a-expertos-en-datos-y-talento-del-ambito-turistico
Que datos serán útiles para el sector turístico el día de mañana?	Hosteltur	29/5/2023	https://www.hosteltur.com/157497_que-datos-seran-utiles-para-el-sector-turistico-el-dia-de-manana.html
España, referente del Espacio Europeo de Datos de Turismo	Smart Travel	29/5/2023	https://www.smarttravel.news/espana-referente-del-espacio-europeo-de-datos-de-turismo/
MYT Summit tratará sobre talento y datos este jueves en su IV edición	Hosteltur	31/5/2023	https://www.hosteltur.com/157632_myt-summit-tratara-sobre-talento-y-datos-este-jueves-en-su-4a-edicion.html
DATES: the challenge of creating a working data space	Spain Travel news	31/5/2023	https://spaintravelnews.co.uk/000828_dates-the-challenge-of-creating-a-working-data-space.html
MYT Summit	GMV	31/5/2023	https://www.gmv.com/es-es/comunicacion/eventos/myt-summit
Los productos de cooperativas agroalimentarias de Illes Balears presentes en el Congreso Turístico MyT Summit en el Caixaforum de Palma	Cooperativas agroalimentarias	1/6/2023	https://www.agroalimentaries.es/es/los-productos-de-cooperativas-agroalimentarias-de-illes-balears-presentes-en-el-congreso-turistico-myt-summit-en-el-caisaforum-de-palma/
Espacios de datos estratégicos para una	Hosteltur	1/6/2023	https://www.hosteltur.com/157592_espacios-de-datos-estrategicos-

economía más competitiva			para-una-economia-mas-competitiva.html
El control de los datos clave para empresas, países y la sociedad	Ultima hora newspaper	2/6/2023	https://www.ultimahora.es/noticias/local/2023/06/02/1949227/congreso-mallorca-control-datos-clave-para-empresas-paises-sociedad.html
MYT Summit	Quo Hotel patrocina MYT Sumit	5/6/2023	https://www.quohotel.com/quohotel-patrocinador-mujer-y-turismo-summit/
MYT Summit reunión en Mallorca a los expertos en talento y datos para el turismo	MURCIA	6/6/2023	https://www.murcia.com/empresas/noticias/2023/06/06-myt-summit-reunio-en-mallorca-a-expertos-europeos-en-datos-y-talento-para-el-turismo.asp
MYT Summit reunión en Mallorca a los expertos europeos en datos y talento para el turismo	Revista Negocios	6/6/2023	https://revistanegocios.es/myt-summit-reunio-en-mallorca-a-expertos-europeos-en-datos-y-talento-para-el-turismo/
MYT Summit reunión en Mallorca a los expertos europeos en datos y talento para el turismo	Diario de la Mancha	6/6/2023	https://diariodelamancha.com/myt-summit-reunio-en-mallorca-a-expertos-europeos-en-datos-y-talento-para-el-turismo/
MyT Summit reunió en Mallorca a expertos europeos en datos y talento para el turismo	El Confidencial Digital	6/6/2023	https://www.elconfidencialdigital.com/articulo/comunicados/myt-summit-reunio-mallorca-expertos-europeos-datos-talento-turismo/20230606105242583480.html
Espacio Europeo de datos en turismo: Los pilares del Proyecto DATES	Hosteltur	8/6/2023	https://www.hosteltur.com/157762_espacio-comun-de-datos-en-turismo-los-pilares-del-proyecto-dates.html
DATES: La industria turística aborda hoy el espacio de datos europeo	Hosteltur	8/6/2023	https://www.hosteltur.com/157606_dates-la-industria-turistica-posicionada-en-el-espacio-de-datos-europeo.html

Retos para la compartición de datos en Turismo	Hosteltur	9/6/2023	https://www.hosteltur.com/157772_retos-para-la-comparticion-de-datos-en-turismo.html

Table 13 Press outreach

4 CONCLUSIONS

During the one-year duration of DATES, all project partners carried out a wide range of dissemination and communication activities. In the initial months, WP5 focused on developing the overall plan for dissemination and communication, establishing the project's brand identity, and creating key communication materials and tools (leaflets, brochures, free material, etc.). Throughout the whole project duration, the WP5 leader, Anysolution, with the contribution from all partners actively promoted DATES, its progress and main activities. By the end of the year, the processes were solidified, and the various communication channels had been tested for their efficiency. Notably, the use of social media (with LinkedIn as the best performing channel), the communication of press releases and the organization and promotion of project-led events played a vital role in achieving a significant impact.

During this period, WP5 had the opportunity to offer support to all consortium members in their outreach efforts. One notable collaboration was the implementation of the coalition workshops and the high-level event in Brussels. A number of videos were created, and they were then shared with the help of WP5 on the project's LinkedIn account. These videos served as a user-friendly resource, allowing both consortium members and the target audience to easily access and understand DATES project objectives and outcomes. The collaborative nature of the project played a significant role in its success. **The strong partnership and effective collaboration among all consortium partners ensured a seamless flow of information, expertise, and resources**. This cohesive effort enabled the project to achieve its objectives and deliver impactful results. Each partner actively contributed their unique skills and knowledge, fostering an environment of mutual support and cooperation throughout the duration of the project.

Based on the achievements outlined above, four key conclusions can be drawn:

- Audience-oriented communication (clear communication, engaging visuals) proved highly effective in conveying the project's actions and results to the target audience and helped in the audience's continuous growth over time. This approach showcased the importance of tailoring messages to meet the audience's needs and preferences.
- Diversifying the communication material, incorporating various formats such as videos, visuals, and graphs, ensured that the information presented was engaging, visually appealing, and accurate.
- Clear and easy to use reporting tools, along with regular communication with the partners, were instrumental in keeping the project on track. The maintenance of open lines of communication, progress updates through WP-specific calls, and WP-leaders' meetings established a sense of collective ownership and commitment to the project's success.
- Disseminating important results and updates on time proved to be vital for the project's success. By ensuring that relevant information was readily available and accessible, DATES effectively engaged with the stakeholders and facilitated their active participation.

In conclusion, DATES strategic focus on audience-oriented communication, diversification of communication materials and timely provision of clear information contributed to its overall growth and evolution. The project communicated its achievements, disseminated its results, created a strong tourism

data community, and left a lasting impression on the tourism landscape. With this we have set the path for a successful deployment of the ETDS.

All of the projects KPI set at the beginning of the project have been achieved and, in many cases, surpassed as can be seen in section 4 above.

5 ANNEXES

5.1 Interministerial Committee Joint statement

High level event – 26th September 2023 Brussels

JOINT STATEMENT

Introduction

Representatives of the Interministerial Committee comprising Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Spain, together with representatives of Tecnalia, IDC, Intellera, Amadeus, IDSA, ARCTUR, NECSTOUR, DIH Tourism 4.0, Outdooractive, AVORIS, aNewGovernance, as partners of DATES coordinated by AnySolution, were consulted to discuss different initiatives related to the Tourism data Spaces and agreedon the following considerations, presented in Brussels on September 26th, 2023 for the Dates High level event.

Tourism is considered a strategic industry for the EU, exerting a significant direct and indirect impact on GDP and generating a multiplier effect across diverse economic sectors, including agriculture, manufacturing, construction, and transport. Moreover, tourism serves as a catalyst for job creation in both urban and rural areas, and it can stimulate infrastructure development and public services. Beyond its immediate economic contributions, the sector plays a pivotal role in fostering cultural understanding and a sense of shared European identity, as well as in promoting sustainable development.

In recent years, the digital revolution has profoundly transformed various facets of the tourism industry. The widespread availability of internet access, the prevalence of social media platforms, and the ubiquity of online booking systems have fundamentally altered how travellers plan and experience their journeys. Simultaneously, the copious amount of data generated by these digital interactions presents both new opportunities and challenges for stakeholders in the tourism sector.

The concept of a European Tourism Data Space has emerged as a framework to leverage extensive amounts of data within, not only the tourism sector, but also in other sectors that may impact tourism, such as mobility or sustainability. It encompasses data from multiple sources, including travel bookings, social media interactions, transportation systems, and tourist feedback.

Through the analysis and interpretation of tourism data, the tourism industry can gain valuable insights into tourist behaviour, preferences, and trends. These insights empower decision-makers to make informed choices regarding resource allocation, infrastructure development, and marketing strategies. Additionally, tourism data facilitates the delivery of personalized experiences, tailoring services to individual needs and enhancing overall tourist satisfaction.

While harnessing tourism data yields numerous benefits, it also raises significant considerations pertaining to privacy, data protection, and sovereignty. Given the intricate nature of the tourism industry's value chain, which encompasses both public and private entities, careful thought must be given to ensuring equitable access to and reuse of data, especially for SMEs, which constitute approximately 85% of the industry.

A European digital policy for tourism that ensures responsible data governance practices, safeguards individual privacy, and fosters equitable and competitive data-sharing frameworks, with a focus on empowering SMEs is particularly important for governments, businesses, and organizations.

Against the background of the evolving landscape of the tourism sector in the digital age, the benefits that can be derived from the European Tourism Data Space in three key areas: enhanced decision-making and planning, personalized business offerings, and sustainable tourism development.

Section I: Enhanced Decision-Making and Planning

The Tourism Data Space holds the potential to provide valuable insights and analytics, facilitating evidence-based decision-making and strategic planning. Through the analysis of data concerning visitor flows, preferences, and behaviour, policymakers and destination management organizations can optimize resource allocation, develop targeted marketing strategies, and enhance infrastructure planning.

Tourism-related data sourced from various outlets, including travel bookings, social media, and transportation systems, enables a comprehensive understanding of tourist patterns and trends. The data space should function as a "plug and play" interoperable environment. This would allow all entities within the public sector and the tourism industry, including SMEs, to seamlessly integrate their data and access data from other sources under specified conditions, on a voluntary basis.

Section II: Personalized and Value-Added Business Offers

The European Tourism Data Space will facilitate the creation of personalized and value-added business offerings catering to the needs of tourists. By collecting and analysing data, which includes visitor profiles, preferences, and feedback, providers within the tourism industry can customize their offerings to align with individual requirements, thereby elevating visitor satisfaction and fostering loyalty.

The EU tourism industry can gain significant benefits by unlocking the potential of data for tourism and embracing the digitalization of tourism SMEs. This can be achieved through reinforcing awareness and providing training in advanced digital skills, ensuring cross-border mobility for workers, and attracting international talent.

Equally important is the facilitation of the adoption of legal frameworks, particularly the Data Governance and Data Act, to provide entities within the data space with legal certainty when accessing and utilizing others' data. This can be accomplished by developing implementation guidelines throughthe Data Spaces Support Centre, with a specific focus on SMEs.

Section III: Sustainable Tourism Development

The European Tourism Data Space can play a pivotal role in fostering sustainable tourism development. By monitoring and analysing data related to resource consumption, waste management, and carbon emissions, both public and private sector entities can identify areas for improvement and implement targeted sustainability initiatives.

Integrating tourism data with environmental and social indicators can enable the measurement and evaluation of tourism's impact on local communities and ecosystems. This knowledge empowers stakeholders to adopt responsible practices, mitigate negative effects, and maximize the positive contributions of tourism toward sustainable development goals.

European Collaboration for Innovation in Tourism

The European Tourism Data Space acts as a catalyst for fostering innovation and collaboration withinthe tourism industries of Member States. By sharing anonymized and aggregated data across destinations, businesses, and research institutions, valuable insights can be derived. This, in turn, leads to the development of innovative products, services, and cross-border, scalable, and replicable marketing strategies.

Public-private partnerships and European cooperation are particularly significant in harnessing the potential of the European Tourism Data Space. Collaboration among stakeholders, including governments, tourism boards, technology providers, and academia, can cultivate data-sharing frameworks, standardization, and best practices. This ensures the responsible and effective use of tourismdata, contributing to the establishment of trust among stakeholders.

Conclusion

The participants acknowledged the benefits of the European Tourism Data Space and encouraged a responsible and ethical use of the European Tourism Data Space for the advancement of the tourismsector development of a European digital policy for tourism, along with targeted initiatives that fosterdata sharing, data sovereignty, and equitable access to tourism data.

Furthermore, the participants recognized the importance of supporting tourism businesses and destinations in their digital and green transitions. This includes knowledge sharing, upskilling, and reskilling of their workforce, as well as tailor-made digital solutions. These efforts aim to fully benefitfrom the potential of available tourism-related data from diverse sources, driving data-driven businessstrategies and enhancing competitiveness, sustainability, and resilience.

5.2 Blueprint for the ETDS

BLUEPRINT AND ROADMAP FOR DEPLOYING THE EUROPEAN TOURISM DATA SPACE

Draft 2.0

This document is a draft of the future ETDS Blueprint and has not yet been sanctioned/accepted in any way by the European Commission.

Blueprint and Roadmap for Deploying the European Tourism Data Space

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Preliminary draft pending final approval of the European Commission.

Funded by
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List of Abbreviations

AI	*Artificial Intelligence*
API	*Application Programming Interface*
BDVA	*Big Data Value Association*
CSA	*Coordination and Support Action*
DEP	*Digital Europe Programme*
DMO	*Destination Management Organisation*
DSBA	*Data Space Business Alliance*
DSSC	*Data Space Support Center*
DGA	*Data Governance Act*
EC	*European Commission*
EDC	*Eclipse Data Space Component*
EDIC	*European Digital Infrastructure Consortia*
EDIB	*European Data Innovation Board*
EDPB	*European Data Protection Board*
EEA	*European Economic Area*
EIF	*European Interoperability Framework*
ETDS	*European Tourism Data Space*
ETL	*Extract Transform Load*
EU	*European Union*
GDP	*Gross Domestic Product*
GDPR	*General Data Protection Regulation*
HORECA	*Hotels Restaurants Catering*
IDS	*International Data Space*
IDSA	*International Data Space Association*
IT	*Information Technology*
KPI	*Key Performance Indicator*
LAU	*Local Administrative Units*
MVDS	*Minimum Viable Data Space*
NUTs	*Nomenclature of Territorial units for Statistics*
ODTA	*Open Data Tourism Alliance*
OTA	*Online Travel Agency*
PoC	*Proof of Concept*
SGT	*Sector Group Tourism*
SME	*Small and Medium Size Enterprise*
SOLID	*Social Linked Data*

1 Executive Summary

In the future, the European digital single market will play a major role in Europe's digital sovereignty, competitiveness, and sustainable growth. For this reason, the European Commission laid out the European Data Strategy, envisaging the free flow of data within and across sectors in the EU supported by the establishment of Data Spaces for key sectors of the European economy, tourism being one of them. This blueprint provides the details for establishing an interoperable European Tourism Data Space (ETDS) that facilitates efficient cross-sector data sharing among all tourism stakeholders in Europe. The objective of the ETDS is to provide a trusted data sharing environment that will foster innovation by supporting collaboration and community building for data-driven value creation in tourism and its interconnected sectors. The expected outcomes will enhance visitor experiences, improve tourism management, and support the decision-making of stakeholders. The ETDS will also stimulate innovation and have a positive impact on the future of tourism by promoting the digital transformation of tourism SMEs and supporting the scaling of sustainable tourism practices.

This document is the collaborative effort of the DATES[1] and DSFT[2] projects, the two Coordination and Support Actions (CSAs) responsible for the preparatory actions for the data space for tourism. In addition to providing the blueprint for establishing the ETDS and a roadmap for its implementation, this document is also intended to serve as an entry point for understanding the core frameworks and building blocks upon which the data space concept is based. While the essential descriptions of the ETDS components are included, this blueprint is not meant to serve as an exhaustive reference. Instead, whenever possible links to additional resources are provided for those readers seeking greater detail.

The ETDS blueprint presents a conceptual framework that defines the core conditions for semantic interoperability, technical reference architecture components, governance principles, business models and data stewardship structures to facilitate efficient data sharing based on European values and rights.

The document provides guidance for:

- Creating the ETDS
- Onboarding ETDS participants
- Addressing additional requirements to ensure the success of the ETDS (e.g., an initiative/organisation and communication platform to coordinate semantic interoperability aspects and the standardisation process(es) on a European level, bringing national, regional, and local data sharing initiatives together and ideally consolidating them).

[1] European Data Space for Tourism. Retrieved in September 2023 from: https://www.tourismdataspace-csa.eu/

[2] Data Space for Tourism. Retrieved in Septembers 2023 from: https://dsft.modul.ac.at/about/

Key success factors for the ETDS have been identified:

- Before establishing the ETDS, the founding members should sign a **vision and mission statement for the data space** that clearly outlines why the data space is needed, describes how the data space will provide added value for real use cases, and what **governance and technologies** will be applied to ensure its operation.
- The ETDS should **align with the European Tourism Transition Pathway.**
- The ETDS should **increase the efficiency and reduce the complexity of the data-sharing process** for participants compared to sharing data bilaterally and independently outside the data space.
- The ETDS should provide clear guidance on **semantic interoperability standards** regarding data types, attributes, and value (e.g., OTA, AlpineBits, ODTA).
- The ETDS **value proposition** and **communication strategy** to potential participants should be based on **use cases** that will provide added value for data providers, data intermediaries, and data consumers.
- The ETDS should offer **coaching and training** support for participants (digitisation, data literacy, data analytics, and sustainable transformation).
- The ETDS should maintain **a set of standard licences/licence agreements** that can be implemented by participating data providers and data intermediaries.
- The ETDS should feature **easily installable software** (e.g., **Connector as a Service**) for participants with limited IT skills and resources.
- The ETDS should be flexible and inclusive to **support federation with other tourism data ecosystems and interoperability with other data spaces.**
- The ETDS should define **data quality requirements** and offer **data-sharing support services** (e.g., quality validation support, duplicate detection, global-ID-matching, data enrichment, etc.).
- The ETDS should align with the **building blocks of the Data Space Support Centre (DSSC)** and the **Code of Conduct for Data Sharing in Tourism** to foster trust and security among data space users.

2 Introduction

The vital role that the tourism industry plays in the European economy is indisputable. In the year 2018, its direct contribution to the EU's GDP amounted to 3.9%, providing employment to an estimated 12.3 million people. When other economic sectors closely linked with the tourism industry are taken into consideration, the impact of tourism rises to 10.3%, providing jobs for 27.3 million employees in the EU. At the same time, the European tourism sector is comprised of about 2.3 million individual businesses[3]. While some of these businesses are major players, such as international airlines or global hotel chains, 99% of all tourism companies active in the EU are small or medium-sized enterprises (SMEs)[4]. This very fragmented sector with diverse stakeholders is currently facing challenges in fostering the innovation and efficiency required to retain and improve its competitiveness in the global marketplace. Moreover, recent international crises (e.g., COVID-19, supply chain disruptions, wars in Ukraine and the Middle East) have highlighted its vulnerability and making clear the need for solutions to increase the European tourism sector's resilience. As tourism is currently responsible for about 8% of global carbon emissions (with a rising tendency)[5], supporting environmental sustainability and helping the tourism sector to realise its obligations to the European Green Deal is another major challenge that needs to be addressed.

To navigate the present challenges faced by European tourism, access to timely information based on reliable data is paramount. Data are now ubiquitous, reusable resources generated at unimaginable speed that can be shared, utilised in multiple contexts or combined to discover new insights and patterns. To fully realise the power of data, the European Commission has outlined the European Data Strategy[6], which envisions a single market for data where data flow within the EU and across sectors, tourism being one of them. The Transition Pathway for Tourism[7] also calls for investments in the digitalisation of the European tourism industry.

The European Commission identified the common ETDS as a key tool for achieving these strategic goals and supporting the transition of European tourism towards greater sustainability and higher digitalisation[8]. However, to implement this vision within the European tourism

[3] Davide Pernice and Ariane Debyse 2023: Fact Sheets on the European Union - Tourism. Retrieved in September 2023 from: https://www.europarl.europa.eu/factsheets/en/sheet/126/tourism

[4] European Commission, GROW and Joint Research Centre 2023: Annual Report on European SMEs 2022/2023: SME Performance Review 2022/2023. Retrieved in September 2023 from: https://single-market-economy.ec.europa.eu/smes/sme-strategy/sme-performance-review_en

[5] Sustainable Travel International: Carbon Footprint of Tourism. Retrieved in October 2023 from: https://sustainabletravel.org/issues/carbon-footprint-tourism/

[6] European Commission. European Data Strategy. Retrieved in September 2023 from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en

[7] Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (European Commission) 2022: Transition Pathway for Tourism. Retrieved in October 2023 from: https://op.europa.eu/en/publication-detail/-/publication/404a8144-8892-11ec-8c40-01aa75ed71a1

[8] Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (European Commission) 2023: C(2023)4787 Communication from the Commission - Towards a Common European Tourism Data Space: boosting data sharing and innovation across the tourism ecosystem, 20 July 2023. Retrieved in

industry several key challenges must be overcome including specifying an interoperable technical environment that is easy to access while also being as secure as possible, as well as developing business models and data governance schemes that can overcome participants' uncertainty and distrust[9]. Importantly, to be successful in its objectives, the ETDS must consider the specificities of the European tourism sector and the needs and wishes of its diverse stakeholders (i.e., SMEs, governmental agencies, research institutes, technology firms, and other tourism entities at the national, regional, and local scales of operation).

Currently, many data sharing initiatives are being created by tourism stakeholders throughout Europe. These include top-down approaches introduced by the EU and the tourism sector, such as smart destination projects initiated by cities or tourism projects initiated by Member States and tourism offices. There are also bottom-up approaches initiated by private stakeholders who have joined forces locally (e.g., EONA-X with Amadeus, Air France, SNCF, Aéroports de Paris, Accor Hotels, etc.). However, there is currently no solution with the potential to connect these initiatives, neither technically nor in the governance domain.

The common ETDS presented in this blueprint is designed to become an overarching infrastructure for existing, as well as new, tourism data sharing initiatives, being interoperable with as many existing sub-data spaces as possible through federation mechanisms. This ETDS blueprint shall guide the creation of a shared, trusted, transparent, and user-friendly data ecosystem where all European tourism stakeholders, private or public, irrespective of their size or geographic location within the EU, can participate, collaborate and exchange data. Furthermore, it is essential that the ETDS can connect to and facilitate the exchange of information with other sectoral data spaces such as mobility, health, finance, agriculture, cultural heritage, green deal, energy, media, etc.

The ETDS can foster innovation in tourism through data sharing, development of new data-driven products and the creation of new, high-value tourism jobs. By providing decision-makers with reliable information, the ETDS will enhance strategic planning within the tourism industry and create value through emerging new services, quality jobs, collaboration and the adoption of new business models, leading to increased competitiveness, sustainability and resilience.

It is important to note that the target audience for the ETDS blueprint at hand includes prospective data space participants with various roles: from policymakers, developers of the data space technology to data contributors and data consumers of varying sizes (e.g., corporate stakeholders, SMEs) and scope (e.g., national, regional, local). Consequently, the relevance of the following sections for the readers may vary depending on their ETDS role and the goal.

The remainder of this blueprint organised as follows. **Chapter Three** presents the state of the art of data sharing for the European tourism sector, providing a summary of the existing sources of tourism-related data and their basic characteristics, as well as existing data sharing initiatives. After establishing the European tourism sector's current data sharing practices and the gaps in data availability, this blueprint next follows the structure recommended by the Data Space

October 2023 from: https://single-market-economy.ec.europa.eu/publications/communication-commission-towards-common-european-tourism-data-space_en

[9] Klein & Verhulst 2017

Support Centre (DSSC)[10] and describes the requisite governance, technical and business building blocks of the common ETDS. **Chapter Four** presents in detail the governance requirements for the creation of the ETDS, followed by the technical requirements for the ETDS explained in **Chapter Five**. Then, in **Chapter Six** possible business models and requirements for ensuring the long-term sustainability of the ETDS are presented. **Chapter Seven** elaborates upon ETDS use cases and illuminates the importance of use cases as a fundamental starting point in shaping the development and implementation of the ETDS. **Chapter Eight** concludes the blueprint by outlining a roadmap for the deployment of the ETDS.

[10] Data Spaces Support Centre 2023: Conceptual Model of Data Spaces | Version 0.5 | September 2023, retrieved in September 2023 from: https://dssc.eu/space/CME/176554182/Conceptual+Model+of+Data+Spaces+%7C+Version+0.5+%7C+September+2023

3 Data within the European Tourism Industry: State of the Art

Before developing the ETDS blueprint and drafting recommendations, it is essential to understand the current data practices within the European tourism sector. Building upon the efforts of the two CSAs (DSFT WP 2[11], DATES WP 2[12]), this chapter provides an overview and analysis of the current state of data sharing within the European tourism sector, outlines tourism stakeholders' data needs and data sharing priorities.

3.1 Current EU Data Sharing Landscape

Over 900 tourism-relevant data sharing initiatives and data sources in the EEA, as well as relevant data sharing initiatives from other regions were identified through the desk research conducted by the two CSAs. These findings are summarised in the two separate data inventories that are available online: DATES Inventory[13], DSFT Tourism Data Inventory[14]. Together these inventories cover 27 EU countries, 3 European Free Trade Association countries, 8 non-European countries, as well as supranational data sources, both at the European and the multi-country level.

Analysis illustrated in Figure 1, reveals that most tourism-related data concern the economic impact of tourism (77.3%), while data describing social impact is less available (22.3%). Furthermore, data ae most prevalently available at frequency rates of annually or monthly, while data with a higher than daily frequency represent less than 5% of the overall data sources analysed. Another important observation is that most data (92.1%) are available in a processed format (i.e., manipulated to produce meaningful information) and characterised by a publication lag (95.6%). Also, analysis finds that tourism data are most commonly obtainable at national and local scales (i.e., NUTS 0 = 58.1% and LAU 1/2 = 54.3%), in part because not all intermediate data scales (i.e., NUTS 1/2/3) are defined for all EEA countries. In addition to the above, it is found that only 18.4% of the data are currently available in a remotely accessible format, for example via an Application Programming Interface (API). Regarding the geographical distribution of the tourism data sources, high levels of heterogeneity are observed among European countries in terms of data themes and data frequency rates, while there is more homogeneity between countries regarding the abstraction of data available, such as the level of detail to which the presented data is processed.

[11] DSFT 2023: Preparatory Actions for the Data Space for Tourism: Tourism Data Inventory and Stakeholder Questionnaire, Summary Report (D2.2). Retrieved in October 2023 from: https://dsft.modul.ac.at/wp-content/uploads/2023/03/TDI-Summary-Report.pdf

[12] DATES 2023: Data Sharing initiatives inventory (D2.1). Retrieved in October 2023 from: https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/10/DATES-D2.1-Data-sharing-initiatives-inventory-DEF.pdf; DATES 2023: Analysis of gaps and overlaps (D2.2). Retrieved in October 2023 from: https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/09/DATES-D2.2-Analysis-of-gaps-and-overlaps_v2.1.pdf

[13] DATES Data Sharing Initiatives. Retrieved in October 2023 from: https://www.tourismdataspace-csa.eu/data-sharing-initiatives/

[14] DSFT Tourism Data inventory. Retrieved in October 2023 from: https://dsft.modul.ac.at/tourism-data-inventory/

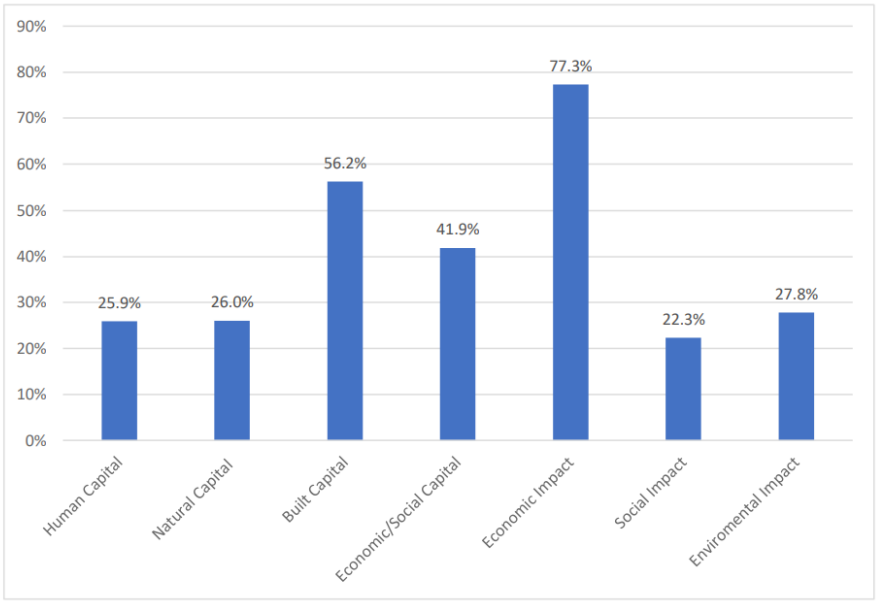

Figure 1 Share of European data sources by theme, n=810
(Source: DSFT 2023, Preparatory Actions for the Data Space for Tourism: Tourism Data Inventory and Stakeholder Questionnaire, Summary Report. Retrieved October 2023 from: https://dsft.modul.ac.at/wp-content/uploads/2023/03/TDI-Summary-Report.pdf)

Most of the data initiatives included in the inventory provide a combination of private business datasets (e.g., data on the number of airline passengers), statistics (e.g., datasets published by public authorities), and context-specific information (e.g., information on the history of a place) (Figure 2). These data are collected from authorised and/or certified partners and shared as open data in various formats (e.g., raw data, processed data, data-driven insights).

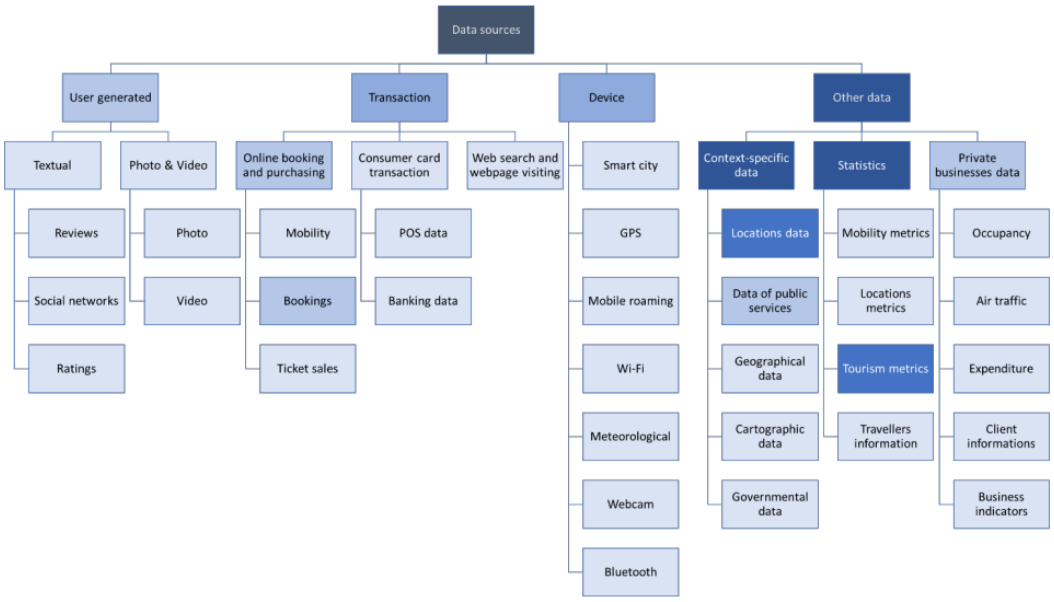

Figure 2 The taxonomy of data dimensions
(Source: DATES 2023, Analysis of gaps and overlaps. Retrieved October 2023 from: https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/09/DATES-D2.2-Analysis-of-gaps-and-overlaps_v2.1.pdf)

Based on the extensive analysis of current state of the data sharing initiatives within the European tourism industry, conducted by both CSAs within the respective work packages and published in above-mentioned reports, the following conclusions, relevant for the set-up of the ETDS, can be drawn:

1) Although the current data landscape is very heterogeneous, not all data themes or categories are equally available. Importantly, there is less data available regarding the social and environmental dimensions of tourism, and the ETDS should prioritise inclusion of these data sets in order to support sustainable tourism development solutions.

2) Data monetization is still a big challenge and currently an underexploited potential for future use of data in the European tourism sector. ETDS should help to overcome these challenges and help to facilitate future exploitation of the tourism-related data.

3.2 Data Sharing Needs of European Tourism Stakeholders

In addition to analysing the existing tourism-related data available, both CSAs engaged with European tourism stakeholders in order to understand what data are needed and what opportunities and obstacles are affecting data sharing both within the tourism sector and across other related sectors. Both projects identified important business challenges influencing the core data practices of European tourism stakeholders, challenges which could be alleviated through having access to safe and reliable data sharing opportunities.

The opinions of tourism experts from across Europe regarding the general categories of tourism data, data usages practices, budget available for data purchases, data accessibility, data offering opportunities, technical specifications and other relevant topics can be summarised as follows:

(1) Economic impact data (e.g., visitors flows, demand and offer data, tourist arrivals, bednights etc.) have the highest value and priority while natural capital data (e.g., size/surface area, climate, natural resources, etc.) has the lowest priority (See Figure 3).

(2) Data that relate to environmental impact and sustainability are perceived as highly valuable but at the same time are the most difficult to obtain (See Figure 3).

(3) Economic key performance indicators (KPIs), visitor flow/spatial/real-time data, and sustainability/climate change-related data are most frequently mentioned as currently inaccessible or have limited accessibility but desired data categories (See Figure 3).

(4) The data that are accessible are often incomplete, not interoperable, and not timely updated.

(5) Availability of time and financial resources, insufficient data analytics skills among the tourism workforce and the lack of the sector's cooperation and collaboration regarding data sharing are considered to be significant limitations for both data analysis and data sharing.

	Human Capital		Natural Capital		Built Capital		Economic/ Social Capital		Environmental Impact		Economic Impact		Social Impact	
	Mean	σ	Mean	σ	Mean	σ	Mean	σ	Mean	σ	Mean	σ	Mean	σ
Value	0.83	1.05	0.45	1.20	0.83	0.97	1.09	0.85	1.24	0.83	1.49	0.74	1.25	0.84
Priority	0.66	1.11	0.36	1.20	0.61	1.09	0.82	0.97	1.17	0.92	1.44	0.75	1.23	0.90
Access	-0.47	1.14	-0.03	1.25	-0.21	1.23	-0.53	1.13	-0.88	0.92	-0.05	1.24	-0.41	1.17
Analysable	-0.04	1.06	0.00	1.20	0.13	1.14	-0.04	1.10	-0.39	1.15	0.44	1.09	0.27	1.16
Shareable	-0.04	1.13	0.35	1.17	0.22	1.15	0.03	1.14	0.08	1.22	0.39	1.20	0.40	1.18

Figure 3 Perceptions for each theme of tourism data (means and standard deviations (σ)), n=201.
Note: Each dimension was measured using a five-point semantic differential scale, where -2 was "strongly negative" and +2 was "strongly positive". (Source: DSFT 2023, Preparatory Actions for the Data Space for Tourism: Tourism Data Inventory and Stakeholder Questionnaire, Summary Report. Retrieved October 2023 from: https://dsft.modul.ac.at/wp-content/uploads/2023/03/TDI-Summary-Report.pdf)

Regarding financial resources, nearly 75% of SMEs, which are a very important subgroup of tourism stakeholders, report an annual data budget of €5,000 or less. The analysis shows that tourism experts consider different business models for sharing/obtaining data. Close to 47% of European tourism stakeholders would consider partnership schemes or similar mechanisms for organisations to exchange data-for-data without payment, whereas the most popular fee-based business models for obtaining data are subscriptions (61.8%) and one-time payments (50.5%). Alternatively, freemium-pay-per-use models, and freemium models with charges applied based on customers' needs were also mentioned.

Regarding the ways in which the stakeholders will participate in data sharing, it is likely that the most needed data will be provided by Hotel, Restaurant and Catering (HoReCa) companies, public authorities, and private organisations. At the same time, it is likely that the stakeholders most interested in retrieving data from the data space will be public authorities, tourism service providers, and DMOs. Finally, the most frequently mentioned final users of the proposed use cases solutions are DMOs, HoReCa companies, and public authorities.

Regarding governance, there is a lack of maturity from the tourism stakeholders on possible operational ways to organise data sharing ecosystems in general. Concerning the legal entity of the analysed existing data sharing initiatives, most of them are associations of SMEs and DMOs, non-profit associations, and research consortia. The technical requirements adopted vary according to the nature of each initiative. However, many reported using the same formats in which data can be downloaded and use APIs for retrieving and exchanging data. The most advanced initiatives include additional features such as the automatization of data harmonisation, the handling of duplicate data, extract, transform, load (ETL) processing, scoring algorithm, and the integration of different applications, including chatbots, data lakes, and artificial intelligence[15].

Finally, is the analysis revealed a major concern among European tourism stakeholders regarding the General Data Protection Regulation (GDPR) compliance when using, accessing,

[15] DATES 2023: Identification of data typology and priority list of datasets, potential use cases and common building blocks with other data spaces. Retrieved in October 2023 from: https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/DATES-D2.3-Identification-of-data-typology-and-priority-list...V1.1.pdf

and sharing data. Most European tourism stakeholders ask for clear and transparent contracts, terms and conditions, and/or licences for data sharing. Another important finding is the recognition of the importance of standardisation and transparency in terms of IT systems, legal frameworks, methods for data collection, quality control measures, and definitions for key metrics, all of which also highlight the importance of risk reduction. Hence, the ETDS presents an opportunity to increase the adoption of European data standards, while keeping in mind the revealed gaps and preferences, need for transparency, ease of use, and equal opportunity for all prospective users.

4 Governance Requirements for the European Data Space for Tourism

Establishment of a clear governance structure for the ETDS is crucial. Clear governance helps overcoming distrust among data space participants, which was identified as one of the major barriers to data sharing. Therefore, setting up a clear compliance chain that is built upon data sharing rules will serve as a fundamental building block of the ETDS. Given the diversity among European tourism stakeholders, as well as the high proportion of SMEs, an "atomic level" of data space governance is essential.

Tourism is a key industry for Europe since it contributes to more than 10% of its GDP, but it is also distinct since 99% of its companies (2.5+ million) are SMEs and micro-enterprises. The deliverables of both CSAs have demonstrated that the ETDS is an opportunity for SMEs to digitise further, reduce their costs and develop new revenue streams. Therefore, it is crucial that the governance of the ETDS makes room for tourism SMEs as they will contribute to the wealth of the ecosystem when they innovate into niches too narrow for larger players. Thus, the expected result is a broadening of the offering of the European tourism sector. Several characteristics of the ETDS need to be taken into account when deciding on an optimal governance approach and developing a sustainable business model for its future operation (for more details on business models, see Chapter 6):

- Complexity of the data space system, including the stakeholder composition, variety of data types, formats, and data volume
- Data quality, reliability, and security
- Interoperability and standardisation of data through shared protocols, methodologies, and data vocabularies
- Legislation (including differences at the national level)
- Accessibility and ease of use of the data

This chapter provides an overview of the governance framework designed specifically for the future ETDS, based on the research carried out by the DATES and DSFT CSAs and validated through several rounds of consultations with European tourism stakeholders. It also tackles the main issues associated with the proposed framework and its components. The ETDS governance framework presents a comprehensive set of collectively determined rules and processes specific for this data space, aimed at defining and coordinating all stakeholders' roles, rights and obligations in the data space ecosystem. It tackles two levels: the governance of the data space initiative and governance of the ETDS.

Due to varying levels of maturity among stakeholders within the data sharing ecosystem and the unpredictable outcomes of individual data sharing rules, time must be allowed for observation, learning, and assessment of the effects of each rule. This process will enable the adaptation of regulations to align with the general public's best interests and the on-boarding of new technologies, including advancements in digital infrastructure, user interface, or artificial intelligence.

4.1 Building the governance of the ETDS initiative

Design of the ETDS governance framework requires decisions regarding the legal entity of the data space governance authority and the decision-making approach, as well as the design of the Rulebook.

4.1.1 Data governance authority legal entity and decision-making

There are multiple choices for setting-up the formal representation of the governance of a data space which among others include:

- Contractual arrangement with no formal entity
- Government agency (public)
- Association
- Private company
- Cooperative
- Others

While there is no one size fits all solution, the decision regarding the legal status of the data space governing body depends on:

- The mission statement of the ETDS (general/public interest, economic interest, etc.)
- The scope (national, regional, local, sector segment, etc.)
- Vision and preferences of the diverse data space participants.

Each option has drawbacks and advantages:

- **Contractual arrangement with no formal entity**: faster to put in place but complicated to deal with liabilities. This solution is not recommended.
- **Government agency:** large reach and political impact, but not best suited to private sector players.
- **Association:** This solution adapts well to public/private projects and allows for easy onboarding of new members but can present difficulties to raise funds and might need complementary structures (e.g., private operating companies) for dealing with more operational/financial aspects. Based on consultation with tourism experts and a validation survey (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire), an association is the stakeholders' preferences. As illustrated in Figure 4, European tourism stakeholders demonstrated strong preference for public or non-profit legal status of the ETDS.

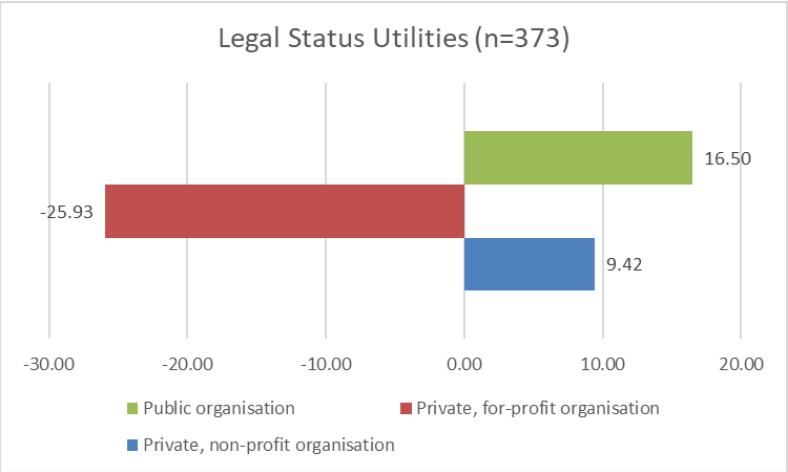

Figure 4 European tourism stakeholder attitude towards the legal status of the future ETDS governing organisation

- **Private company:** private actors might struggle to come to an initial agreement. Other challenges include complicated onboarding processes and difficulties to involve public sector stakeholders.
- **Cooperative**: governance constraints might be too stringent and may present difficulties to raise capital.

The next step is to define the internal decision-making processes, specifically who has the decision-making (voting) rights and how these should be cast. The choice include:

- One voting right per member.
- More voting rights for early members
- More voting rights for specific kinds of members (e.g., public players)
- Voting rights relative to capital ownership
- Voting rights relative to the members activity in the data space (e.g., how many data assets shared, etc.)
- Voting rights relative to the contribution to the data space (e.g., contribution to the technological infrastructure, etc.)

Recommendation 1: Legal Entity of data space governing body

- It is crucial the ETDS governance body has a legal entity.
- Format should be collegial (i.e., no founding members with favourable voting rights
- European cooperative form (SCE) can be considered as an option.
- A variety of business models (e.g., membership, subscription or access fees) should enable access to all.

Funded by the European Union

4.1.2 Designing a Data Governance Rulebook

The **data space governance authority** is the body responsible for creating, developing, maintaining, and enforcing a governance framework: the policies and rules of the data space, the so-called **data space governance framework or Rulebook**. The responsibilities of the ETDS governance authority include:

- According to the decision-making process of their choice, defining rules and policies (data space governance framework) for:
  - becoming a data space participant;
  - services;
  - resources; and
  - intermediaries.
- Define/implement the onboarding process (issuing membership credentials).
- Regulate the membership lifecycle (participant discoverability, verification).

The Rulebook represents all ETDS participants. Every entity taking part in the ETDS has to follow the compliance process defined by the data space governance authority.

These rules included in the Rulebook encompass:

- **Hard law**: EU and member state legislation that directly or indirectly relates to data or data sharing.
- **Soft law**: Standards, codes of conduct, guidelines, etc., that are not legally binding. Soft law rules cover a wide range of issues, including technical, business, ethical and security.
- **Internal rules**: Rules developed specifically between participants in a data space, such as business agreements/rules and context-specific data standards and policies.

The **data space governance authority** ensures that the Rulebook contains relevant regulations (hard law), helps the data space participants to agree on common standards and guidelines for implementation (soft law) and helps them to decide on internal rules.

Data spaces are innovative and complex projects that often move through unexplored terrains. As such, they are still in an open-ended development phase, often requiring pivoting and refinement. The governance of the data space initiatives needs to be flexible enough to allow for such iterative development.

4.1.2.1 How does the Rulebook ensure compliance?

Compliance with the ETDS Rulebook **creates trust** in data sharing among data space participants. It ensures that trust components, such as business agreements, contracts, authorisations and consents, are respected by all parties. When collaborating with external entities, assessing the compatibility of joint use cases with the rules of the different data spaces involved is crucial. Infrastructure providers that enable data sharing through technology must also comply with the rules detailed in the Rulebook. This approach prevents technology players from imposing their own policies without consultation with the communities involved.

4.1.2.2 Why are Rulebooks difficult to create and maintain?

The data sharing rules that will populate the Rulebooks of all data sharing initiatives can come from multiple places (regulations, guidelines, standards, etc.) and are formulated by multiple organisations all over Europe at many levels: EU level, Member State level, sectoral or cross-sectoral, regional, local, data space initiative level, etc.

It is hard for data space initiative operators to know precisely who does what, who decides on what, and to keep up to date with all the new regulations, standards, guidelines, etc. There are also multiple duplications, gaps, and overlaps that make the governance task of a single data space initiative cumbersome and costly.

Following the SITRA's Rulebook[16] for a Fair Data Economy, it is proposed:

- to create a dynamic mapping of who does what and who decides on what of the ETDS ecosystem, encompassing all levels, called a ETDS Rolebook.
- to federate all tourism data space initiatives all over Europe by creating a Tourism Data Space Coordinating body.

4.2 Legal and Regulatory Frameworks for the ETDS

Having a broad understanding of the legal context is crucial for maintaining the integrity of data sharing in tourism, as well as establishing the rights and obligations of both data holders and end-users. This understanding also promotes transparency, flexibility, and adaptability to changes, such as those brought about by unpredictable events like the COVID-19 pandemic.

Since the ETDS will specifically serve the European tourism industry, it is essential that it is aligned with the current European legal frameworks for data sharing. This blueprint maps the legal requirements for developing the ETDS at the EU-level while considering that some EU Member States may have more restrictive requirements and regulatory constraints that must be incorporated into the technical solution options for the development of the ETDS. Furthermore, having a clear legal reference framework will ensure that the governance structure of the ETDS can be updated whenever a change in the legal environment pertaining to data and their use will be made. Thus, the following sections review and analyse all relevant EU policies, regulatory frameworks, new initiatives, and Codes of Conduct that are available to date concerning data sharing.

This review should also allow identifying the pipeline of EU, national and regional initiatives to ensure that the ETDS is compatible with planned future investments. This task is essential to ensure that the ETDS will be able to grow organically within a fair, practical, and transparent legal framework[17]. This should help reduce risk and uncertainty among users around matters such as data privacy, data theft, and data ownership. To accomplish these goals, this chapter

[16] Pitkänen and Luoma-Kyyny (Sitra) 2022: Rulebook for a fair data economy, version 2.0. Retrieved in October 2023 from: https://www.sitra.fi/en/publications/rulebook-for-a-fair-data-economy/

[17] Force 11, The FAIR Data Principles. Retrieved in October 2023 from: https://force11.org/info/the-fair-data-principles/

first identifies the main legal issues in data sharing before providing the basic legal requirements for the development of the ETDS, followed by a concise list of relevant EU legislation.

When establishing the ETDS, it is crucial to consider existing regulatory and legal mandates to ensure its long-term sustainability and the secure management of data. Additionally, the Code of Conduct on Data Sharing in Tourism[18] outlines a set of fundamental guiding principles, including interoperability, data usage rights, value and remuneration for data, liability, competition, security, intellectual property, transparency, data limitation, privacy, and data quality.

A list of the key legal requirements that the ETDS must adhere to for successful development is provided below.

- **GDPR Compliance:** the ETDS must adhere to GDPR regulations, ensuring data collection transparency, user rights, and security measures.
- **Alignment with the Data Governance Act and Data Act:** the ETDS should align with EU strategies to create a single data market, increase trust in data sharing, and harmonise data access rules.
- **FAIR[19] Principles:** the ETDS should follow FAIR principles for findable, accessible, interoperable, and reusable data management.
- **EU IPR and Copyright Protection:** Respect EU Intellectual Property Rights to ensure data quality, origin, and proper agreements for data provision.
- **Data Security & Confidentiality:** Prioritise data security beyond GDPR compliance and define clear user security responsibilities.
- **Contractual Agreements:** Establish clear terms and conditions for data sharing through contractual agreements.
- **IDSA Rulebook:** Consult the IDSA Rule Book[20] for guidance on various data-sharing scenarios, including data ecosystems and marketplaces.
- **SITRA Rulebook:** SITRA's Rulebook[21] for a Fair Data Economy provides contractual templates and resources for establishing a data sharing network. It sets out legal, business, technical, and administrative regulations, along with ethical principles that organizations within data sharing networks must adhere to.

[18] European Travel Commission 2023: Code of Conduct on Data Sharing in Tourism. Retrieved in September 2023 from: https://etc-corporate.org/reports/code-of-conduct-on-data-sharing-in-tourism/#:~:text=The%20goal%20of%20the%20Code,partnerships%20in%20the%20tourism%20industry

[19] The FAIR data principles stipulate that such data should, in principle, be findable, accessible, interoperable and reusable. See Force 11, The FAIR Data Principles. Retrieved in October 2023 from: https://www.force11.org/group/fairgroup/fairprinciples

[20] International Data Spaces Association 2023: IDSA Rulebook. Retrieved in October 2023 from: https://docs.internationaldataspaces.org/ids-knowledgebase/v/idsa-rulebook/front-matter/readme

[21] Pitkänen and Luoma-Kyyny (Sitra) 2022: Rulebook for a fair data economy, version 2.0. Retrieved in October 2023 from: https://www.sitra.fi/en/publications/rulebook-for-a-fair-data-economy/

Other general legal aspects are also critical to guarantee compliance, data security, and ethical data management. These aspects encompass, but are not limited to the aspects summarised in the chart below (Figure 5):

Figure 5 Regulatory aspects of a data space governance

As anticipated in the European Strategy for Data, a number of legislative instruments have been developed to facilitate a governance framework within the EU and across sectors. This framework should enable a data-agile economy and help address common data sharing challenges. The Joint Research Center[22] identified several key non-functional requirements for data spaces: Inclusivity, Fairness, Sustainability, Trustworthiness, and Transparency. Appendices C, D, and E elaborate the aforementioned legislative instruments which are pertinent for the development of common European data spaces. While not meant to be exhaustive, this catalogue provides an overview compiled from EU policy documentation and strategies organised in the following way:

- Policy & Regulation (Appendix C: Catalogue of key EU-level policies and regulations affecting the ETDS).
- Programmes, initiatives, and resources (Appendix D: Catalogue of EU-level programmes, initiatives, and resources relevant to the ETDS).
- Structures (Appendix E: Catalogue of EU-level structures relevant to the ETDS).

[22] Data Spaces. Joint Research Centre. Retrieved September2023 from: https://joinup.ec.europa.eu/collection/semic-support-centre/data-spaces#:~:text=ask%20for%20support%3F-,What%20are%20Data%20Spaces%3F%C2%A0,-According%20to%20the

Although the European Data Strategy offers general guidelines and principles for governing and sharing data, specific legal frameworks for data spaces are envisioned to be created and put into effect gradually. The compilation of EU policy documentation and strategies in these catalogues should serve as a support for addressing a range of important legal matters concerning the ETDS, including data privacy, security, intellectual property, liability, and more when it comes to data sharing in a data space environment. A legal framework will ensure that data sharing and utilisation within data spaces align with existing laws and regulations.

In summary, a solid understanding of the legal framework in data spaces is paramount for safeguarding privacy, ensuring data protection, upholding legal compliance, and establishing a fair and transparent environment for data sharing and collaboration among stakeholders in the tourism industry. This legal foundation is crucial for the success and sustainability of the ETDS.

4.2.1.1 What are the legal issues in data sharing that ETDS should consider?

From a legal standpoint, various factors impact the creation and operation of the ETDS. These include data protection, competition law, contracts, and intellectual property rights. Navigating these complexities is crucial for the lawful and effective establishment of the ETDS and other European data spaces in the digital realm.

The development of the European Tourism Data Inventory and the consultations with stakeholders revealed common legal obstacles in using, accessing, and sharing data[23]. Many stakeholders are notably concerned about GDPR compliance. Other legal issues include defining data property, revenue-sharing models, unclear data ownership, and usage restrictions. Additionally, stakeholders face challenges in cross-institutional collaboration and have ethical concerns about data permissions and recognition for their contributions.

In the DSSC's Starter Kit for Data Space Designers[24], three main areas with potential legal issues were identified:

(1) Cross-cutting legal frameworks, encompassing contract law, data protection, intellectual property, competition law, and cybersecurity,

(2) Organisational aspects, involving mapping data governance systems and determining decision-making rights, and

(3) the Contractual dimension, focusing on developing models, templates, and architectures for data exchanges.

The essential issues are identified and elaborated upon in detail below:

- **Substantive rights and obligations related to data**: Data Protection is vital due to privacy concerns, with GDPR imposing strict requirements on data processing, storage,

[23] DSFT 2023: Preparatory Actions for the Data Space for Tourism: Tourism Data Inventory and Stakeholder Questionnaire – Summary Report. Retrieved in October 2023 from: https://dsft.modul.ac.at/wp-content/uploads/2023/03/TDI-Summary-Report.pdf

[24] Data Spaces Support Centre, 2023: Starter Kit for Data Space Designers | Version 1.0 | March 2023. Retrieved in July 2023, from: https://dssc.eu/space/SK/29523973/Starter+Kit+for+Data+Space+Designers+

and sharing. Intellectual property issues can arise when transferring or licensing data protected by copyright or other rights, potentially leading to ownership disputes.

- **Data contracts**: Legal issues in data contracts encompass contract law, data protection, intellectual property, competition law, cybersecurity, and enforcement regulations. Modular contractual terms and guidelines can ensure compliance.
- **Competition law**: Preventing anti-competitive behaviour is crucial, as data misuse can harm competition. Data sharing should avoid anti-competitive practices.
- **Organisational aspects**: These pertain to governance, operational agreements, and disputes over data ownership, confidentiality breaches, or contract violations. Clear governance frameworks and decision-making processes are necessary to address these issues.
- **Techno-legal interoperability**: This involves seamless coordination between technology and legal systems. Challenges include a lack of a common framework for data exchange and conflicting legal requirements, which hinder interoperability and data space implementation.

Additionally, fragmentation among Member States poses a significant risk to the realization of a common ETDS and the continued advancement of a truly unified single data market within the European Union. Hence, it is necessary for initiatives in different Member States related to data spaces to adhere to similar interoperability requirements, both in terms of technical specifications and regulatory compliance.

4.3 The holistic governance of the ETDS

4.3.1 Creating and using the ETDS Rolebook

The Rolebook is an open, transparent, and dynamic registry of roles and bodies involved in data sharing. Role refers to the set activities that the one performing the role is expected to do. Rights and duties (obligations) can be associated with the role. Bodies are formal or informal organisations participating in the data-sharing governance processes by creating, implementing, or enforcing the rules. The Rolebook would comprehensively document 'Who does what' and 'Who decides what' and establish an interconnected network of data-sharing decision-making entities.

The Rolebook aims to increase clarity and enable stakeholders at all levels (EU, member states, data spaces) to easily map the current data governance structures and their respective scope. Together with the Rulebook approach, it provides a comprehensive framework for European data governance. The roles and bodies presented in the Rolebook could be referenced from the Rulebook and vice versa. The Rolebook would also build a common understanding of the possible policy interventions needed to ensure the continuity of those roles and functions that are evaluated critically from the perspective of resilience and a functioning market.

The Rolebook will map all key players of the EU data sharing ecosystem at all levels, not only those related to the tourism sector. All the key documents containing rules they publish

(regulations, standards, guidelines, code of conducts, etc.) will be published in an open rulebook library, using the ODRL format.

Tourism data space initiatives will be able to reuse all elements of the open rulebook library, connected to the ETDS Rolebook, in order to build their own data space rulebook.

Figure 6 illustrates an example Rolebook and Open Rulebook library for the creation of the Rulebook of a mobility data space in Finland.

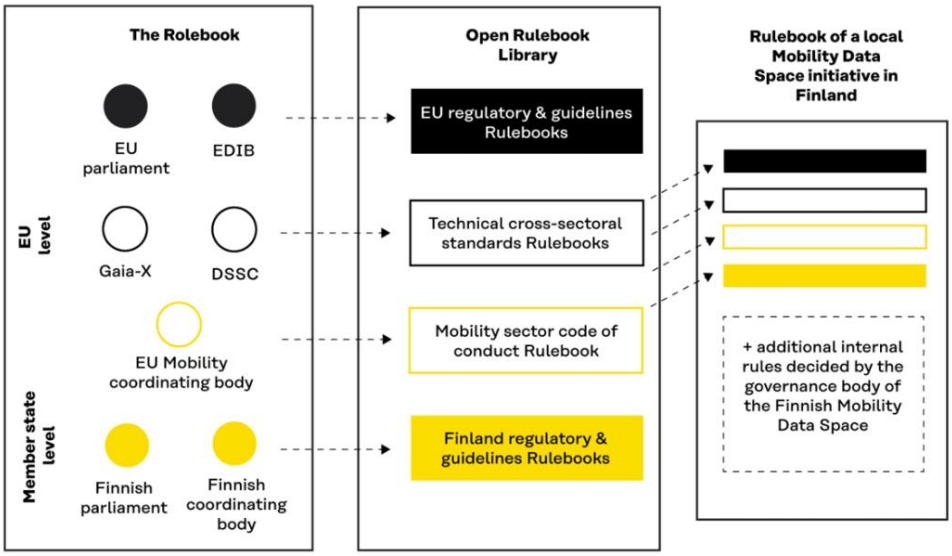

Figure 6 Example of a data space Rolebook and Rulebook
(Source: Sitra: Towards a Holistic EU Data Governance: Taking stock of the progress of the EU Data Strategy and proposals. Retrieved in October 2023 from: https://www.sitra.fi/en/publications/towards-a-holistic-eu-data-governance/)

4.3.2 Setting-up an EU level Tourism Coordinating body

The key organisations to be involved in the ETDS management include the European Commission, Eurostat, national statistics offices, research institutions, the DSSC, and non-governmental organisations. In the medium-term, an interface with the DSSC needs to be created to ensure seamless interoperability with other data spaces. It is also key to ensure representation of the private sector, including both large businesses and also SMEs and micro-enterprises. In the public sector, destinations also have a key role to play since most initiatives will materialise at the local level.

Recommendation 2: Membership of the European Tourism Data Space (ETDS)

- European Commission
- Eurostat and representatives of national statistics offices
- Sectoral research institutions
- Sectoral non-governmental organisations
- Representatives of destinations
- Representatives of the tourism industry
    - Large businesses
    - SMEs
    - Micro-enterprises
- Representatives of local, regional or national data spaces

As illustrated in Figure 7, none of these organisations should manage the ETDS alone. Instead, it should be governed by a consortium of experts from the aforementioned institutions and led by European-level organisation endorsed by the European Commission. Hence ETDS's governance is a two-tier model consisting of a **Data Space Governing body** overseeing the strategic development of the data space and the **expert working groups** managing the data space on the tactical and operational level. ETDS governance is best described as a participatory inclusive structure with strong involvement at the institutional level.

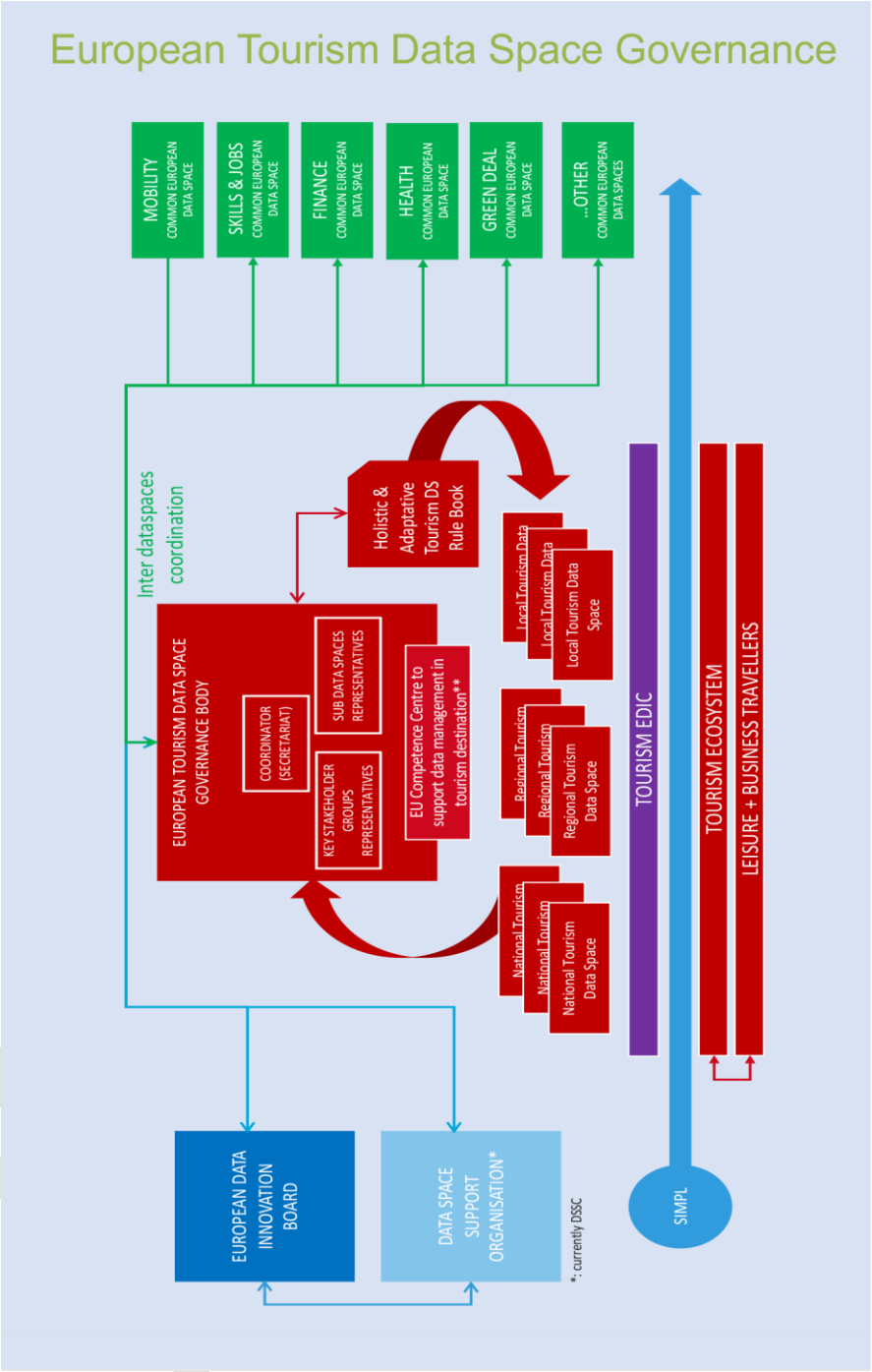

Figure 7 ETDS governance model

The **Data Space Governing body** should be a European-level institution structured as either a public body or a not-for-profit public private partnership endorsed by the European Commission, which **oversees** the ETDS **operation** and ensures **continuous monitoring** of the compliance with the standards and procedures for ETDS participants. These functions can be performed by a tourism specific **European Digital Infrastructure Consortia** (EDIC) initiated by

several Member States with the European Commission[25]. Accountability will be crucial, especially since trust is a clear requirement for the ETDS to gain traction. It is therefore recommended that the ETDS governing body be a legal entity. These recommendations are based upon consultations with tourism experts and a validation survey (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire) was used to determine stakeholders' preferences. Figure 8 shows the strong negative sentiment towards a privately funded ETDS.

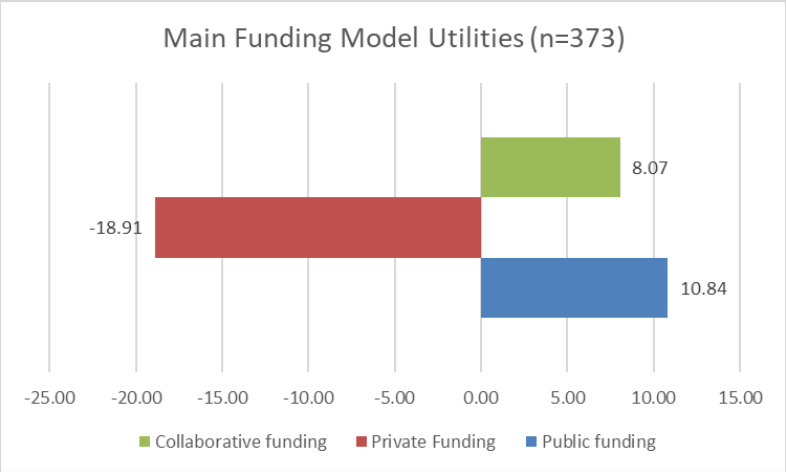

Figure 8 European tourism stakeholder attitude towards the funding model of the future ETDS governing organisation

4.4 Composition and tasks of the ETDS coordinating body

At the operational level, it is recommended that the ETDS coordinating body is supported by participatory working groups composed of tourism experts and ETDS participants representing a diverse range of public and private tourism stakeholders. The role of the expert working groups is to develop **data quality standards** and **methodologies, set up transparent** and **accessible data exchange processes**, **share** use cases and best practices, and **provide expert support and education** to the ETDS participants. This participatory structure would create a level playing field for the diverse tourism stakeholders (e.g., SMEs), promote democratic decision-making, and enable bi-directional communication between the data space governance and the participants. Importantly, openness and accessibility of the data space system should not compromise its stability. These recommendations are supported by findings from stakeholder consultations and the results of the validation survey (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire). Figure 9 indicates the perceived importance of coordinating task, with high priority placed on maintenance and innovation, and strategic decision making.

[25] European Commission 2023: Communication from the Commission - Towards a Common European Tourism Data Space: boosting data sharing and innovation across the tourism ecosystem. Retrieved in October 2023 from: https://single-market-economy.ec.europa.eu/publications/communication-commission-towards-common-european-tourism-data-space_en

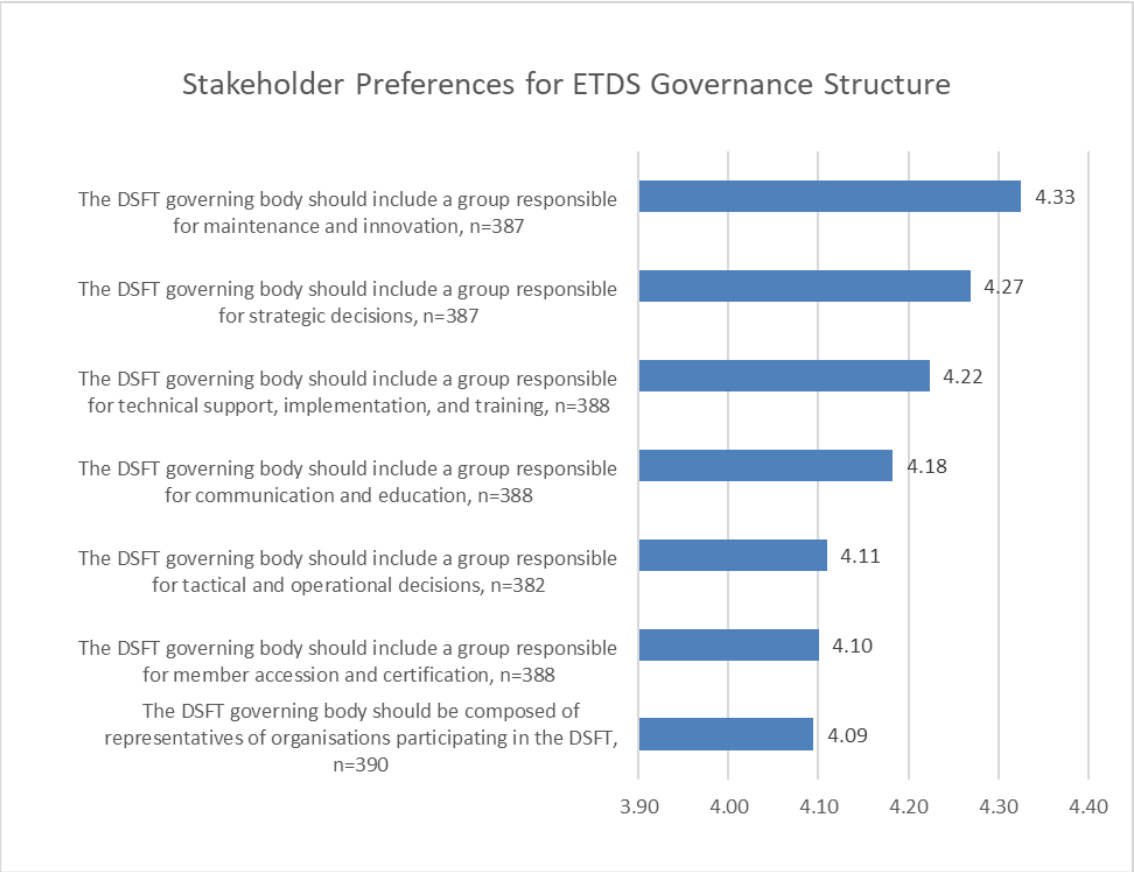

Figure 9 European tourism stakeholder preferences for a governance structure options for the ETDS

Institutions like ministries, EU bodies, research institutions, and other relevant entities can play important roles in supporting and participating in the governance structure of the ETDS. Here are some potential **roles** they can fulfil:

- **Policy Guidance:** Ministries and governmental bodies can provide policy guidance and regulatory support to the governance structure. They can contribute to the development of regulations, standards, and guidelines related to data management, privacy, and security in the tourism industry. Their involvement ensures alignment with national or regional strategies and legal frameworks.
- **Funding and Resources:** Institutions such as research institutions or EU bodies can provide funding opportunities, grants, or resources to support the activities of the governance body. This support can enable the implementation of projects, research initiatives, capacity-building programs, and technical infrastructure development within the data space. Funding and resources contribute to the sustainability and effectiveness of the governance structure.

However, to ensure sustainability of ETDS and its governance body, a business model for the data space can be an option to consider:

- **Research and Data Expertise:** Research institutions can bring their expertise in data analysis, modelling, and research methodologies to the governance structure. They can contribute to data-driven insights, market analysis, and evaluation of the impact of data

initiatives in the tourism industry. Research institutions can also collaborate on joint research projects to advance knowledge and practices in tourism data management.

- **Technical Expertise and Standards Development:** Institutions with technical expertise, such as standardisation bodies or technology research centres, can support the governance structure by providing guidance on technical aspects of data management. They can contribute to the development of industry-specific data standards, interoperability frameworks, or data exchange protocols relevant to the tourism sector.
- **Collaboration and Networking:** Institutions can facilitate collaboration and networking opportunities for the governance body. For instance, EU bodies may organise events, conferences, or workshops where stakeholders from the tourism industry and relevant institutions or other industries can connect, exchange knowledge, and share best practices. These collaborative platforms foster partnerships, facilitate knowledge exchange, and contribute to the credibility and visibility of the governance structure.
- **Advisory and Consultative Roles:** Institutions can serve in advisory or consultative roles within the governance structure. They can provide expert advice, guidance, and strategic insights on emerging trends, technological advancements, and policy developments in the tourism industry. Their input ensures that the governance body remains informed, up-to-date, and aligned with the broader industry and regulatory landscape.
- **Evaluation and Impact Assessment:** Institutions can contribute to evaluating the effectiveness and impact of the data space governance initiatives. They can conduct independent assessments, impact studies, or audits to assess the outcomes, benefits, and challenges associated with the governance structure. This evaluation helps ensure accountability, transparency, and continuous improvement of the data space governance efforts.

Some of the aforementioned roles (e.g., advisory, collaboration) can be fulfilled by data intermediaries – data space actors that connect the dispersed segments of the data space ecosystem and help create efficient and ethical conditions for data sharing. The Data Governance Act specifies that these data intermediaries will function as **neutral third parties** that connect individuals and companies with data users. The services they could provide include the following:

- **Data aggregation**: ensuring standardisation and aggregation tourism-related data from various sources.
- **Harmonization:** harmonizing data across regions, ensuring that diverse data sources align with standardized concepts, taxonomies, and classifications.
- **API Integration for Travel Agents**: developing APIs (Application Programming Interfaces) that allow travel agencies and operators to seamlessly integrate standardized tourism data into their systems. This could well be the case of a data space connector provider.
- **Data Analytics and Insights**: offering analytics tools and insights derived from standardized data to help tourism stakeholders make informed decisions.

- **Educational Services**: providing trainings and educational resources to tourism stakeholders on how to effectively use standardized data for accurate estimations.

One specific kind of Data Intermediary is the Personal Data Intermediary (PDI). The PDI will play a very important role in the ETDS as it will allow travellers to share their personal data seamlessly and with control between their multiple tourism digital services. The trust in PDI relies for the most part on the notion of consent. Following the Data Governance Act all Data Intermediary services will be required to notify themselves to their national regulator and will have to assess their neutrality regarding data sharing practises. In October 2023, the notification process is in its very early phase and there remains multiple issues to address within the community of practise including:

- What does neutrality for a Data Intermediary entail?
- Which tools involved in the data spaces are or are not considered Data Intermediaries (e.g., is a marketplace always considered a Data Intermediary)
- Will the different national regulators be coherent?

It is recommended the ETDS considers encouraging private entities to provide data intermediary services and to act as facilitators for SMEs and micro-enterprises in order to enable them to easily locate relevant data or implement solutions.

Figure 10 below summarizes the building blocks of the governance of ETDS. More information on the key ones is listed in the recommendation box underneath.

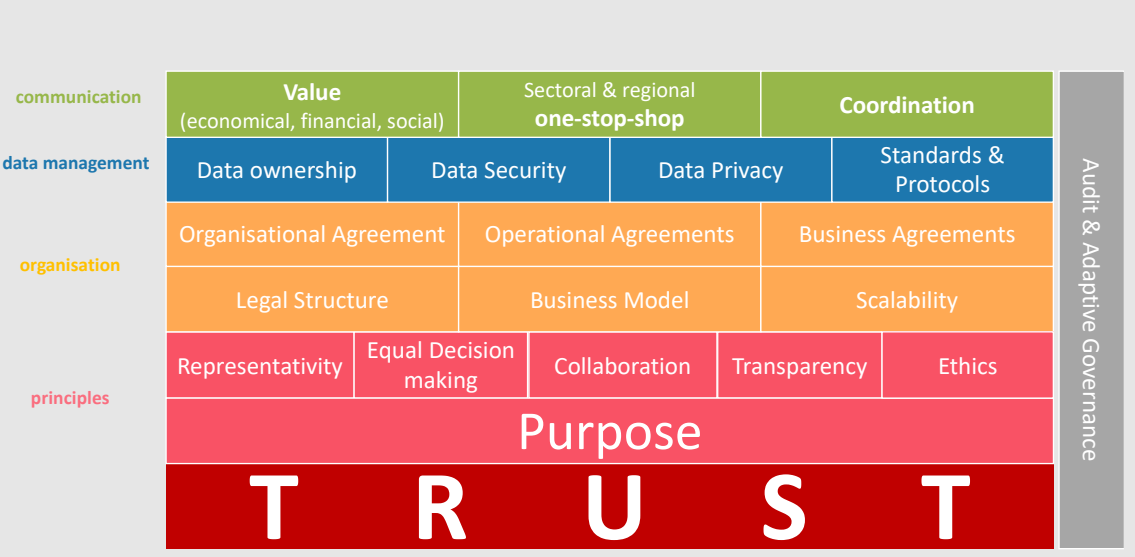

Figure 10 Key building blocks to establish a working ETDS

Recommendation 3. Building an operational governance for the ETDS

- Draw a purpose/mission statement for what ETDS wants to achieve, and what it is not.
- Set decision making, transparency principles and how ethical questions will be addressed (when relevant). In that case, ETDS may want to establish an external Ethics committee to avoid any conflict of interest.

It is critical the value of ETDS is assessed and measured, to help it develop and to attract new members. Value generated by the data space should be measured and communicated:

- Measure continuously the value created by ETDS.
- ETDS may consider asking aspiring members to report on specific KPIs to gain access.
- Regularly audit the efficiency and development of ETDS, referring to the initial purpose to ensure the right governance is applied.
- If differences are identified, the governance body should take action. This can be through adaptation to the governance rules, ensuring however the purpose is followed.

5 European Tourism Data Space technical specifications

The core function of a data space is to broker trust between participants and to negotiate available data contracts. A data space enables control over data sharing and creates value for all involved parties. A data space is both a multi-organizational agreement and a supporting technical infrastructure for data sharing.

5.1 ETDS technical context

This initial section provides basic information about current initiatives relevant to data spaces and their expected evolution in the near future, with focus on those deemed most influential: DSSC, IDSA, Gaia-X, the Data Space Business Alliance (DSBA), SOLID, and SIMPL. Following this short overview, recommendations about their possible adoption during ETDS deployment are provided.

5.1.1 DSSC

The **DSSC** has been actively involved in shaping the Data Space Blueprint[26], placing particular emphasis on the DSSC Glossary[27], the data space Conceptual Model[28], a first description of the technical Building Blocks[29] as well as an initial Landscape of Technical Standards[30]. Detailed explanations of the DSSC and its implications for the ETDS are provided in **Appendix F**.

5.1.2 IDSA

The **IDSA** has taken a distinctive path by publishing the IDSA Rulebook 2.0.[31] This publication offers a comprehensive understanding of the data space concept along with guidelines for its implementation across diverse technical strategies. Additionally, the IDSA takes the lead in the development of the IDS dataspace protocol, which is being implemented by some of the most advanced data space connectors[32]. Detailed explanations of the IDSA and its implications for the ETDS are provided in **Appendix G**.

[26] Data Spaces Support Centre 2023: Conceptual Model of Data Spaces | Version 0.5 | September 2023, retrieved in September 2023 from: https://dssc.eu/space/BPE/179175433/Data+Spaces+Blueprint+%7C+Version+0.5+%7C+September+2023

[27] Data Spaces Support Centre 2023: DSSC Glossary | Version 2.0 | September 2023. Retrieved in October 2023 from: https://dssc.eu/space/Glossary/176553985/DSSC+Glossary+%7C+Version+2.0+%7C+September+2023

[28] Data Spaces Support Centre 2023: Conceptual Model of Data Spaces | Version 0.5 | September 2023, retrieved in September 2023 from: https://dssc.eu/space/BPE/179175433/Data+Spaces+Blueprint+%7C+Version+0.5+%7C+September+2023

[29] Data Spaces Support Centre 2023: Building Blocks | Version 0.5 | September 2023. Retrieved in October from: https://dssc.eu/space/BBE/178421761/Building+Blocks+%7C+Version+0.5+%7C+September+2023

[30] Data Spaces Support Centre 2023: Collection of Standards and Technologies landscape | Version 1.0 | October 2023: Retrieved in October 2023 from: https://dssc.eu/space/SE1/185794561/Collection+of+Standards+and+Technologies+landscape+%7C+Version+1.0+%7C+October+2023

[31] International Data Spaces Association 2023: IDSA Rulebook. Retrieved in October 2023 from: https://docs.internationaldataspaces.org/ids-knowledgebase/v/idsa-rulebook/front-matter/readme

[32] International Data Spaces Association 2023: Data Connector Report. Retrieved in September 2023 from: https://internationaldataspaces.org/wp-content/uploads/dlm_uploads/IDSA-Data-Connector-Report-92-No-8-September-2023-3.pdf

5.1.3 Gaia-X

The **Gaia-X**[33] initiative distinguishes itself with the most mature trust framework, a rigorous compliance process along with the required software infrastructure to operationalise the onboarding process. Detailed explanations of Gaia-X and its implications for the ETDS are provided in **Appendix H**.

5.1.4 DSBA

The **DSBA**'s mission is dedicated to fostering technical convergence among the main data space initiatives. It strives to define a common data space framework while defining the roles that each initiative can fulfil. The result of this analysis is included in the Technical Convergence Discussion Document (v2.0)[34].

5.1.5 SOLID

SOLID is an emerging solution that explores the potential of other decentralised architectures such as Web 3.0, envisioning a future where users, or in the case of tourism, the travellers themselves, have much greater control over their data, driving a paradigm shift towards self-sovereignty. This approach has been explored by initiatives such as the Europeana Aggregators' Forum[35], underlining a shift towards more user-centric and decentralised data governance. Detailed explanations of SOLID and its implications for the ETDS are provided in **Appendix I**.

5.1.6 SIMPL

SIMPL is an EU-funded initiative under the Digital Europe Programme[36], focusing on streamlining cloud-to-edge federation within major EU data spaces. The introduction of SIMPL (Smart Middleware) marks a significant advancement in technological infrastructure. In particular, its main goal is to provide data space operators with a common denominator technical foundation that will ensure adequate levels of trust, security, ease of access, adaptability, and interoperability. SIMPL is positioned as a mandated requirement for all European sectoral data spaces, which underscores its critical role in facilitating efficient data processing and management. This project closely aligns with the DSSC and is committed to implementing DSSC compliance software in line with their specifications and recommendations. It holds significant promise within the data spaces domain. However, given that the project is yet to commence, and its initial outcomes are not anticipated until the final quarter of 2024, it is unfeasible to provide detailed analysis in relation to the ETDS.

[33] Gaia-X. Retrieved in October 2023 from: https://gaia-x.eu/what-is-gaia-x/about-gaia-x/

[34] Data Space Business Alliance 2023: Unleashing the Data Economy: Technical Convergence: Discussion Document Version 2.0. Retrieved in October from: https://data-spaces-business-alliance.eu/wp-content/uploads/dlm_uploads/Data-Spaces-Business-Alliance-Technical-Convergence-V2.pdf

[35] SOLID-based Decentralised Aggregation Task Force 7 30. Retrieved in July 2023 from https://pro.europeana.eu/project/solid-based-decentralised-aggregation-task-force

[36] The DIGITAL Europe Programme – Work Programmes. Retrieved in October 2023 from: https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital

5.2 Data Space Intermediaries

Data space Intermediaries provide some common technical functionality to the whole data space, including:

- Identity management
- Trust anchors (accreditation authorities, notary services)
- Federated Resource Catalogue of accessible offered data
- Logging and auditing (these services are usually grouped in what is known as Clearing House)
- Vocabulary provider (ontologies, reference data models, etc.)
- Other:
  - Contract negotiation service
  - Personal data intermediary
  - App Store, Service Catalogue

5.3 Data space Connectors

Data space connectors facilitate and orchestrate the sharing of data assets, while enforcing requirements set by the data provider. A connector includes policies, configuration and other metadata artifacts that can run on any cloud infrastructure, on premises or on an edge device. The existing connectors can be classified under two main categories: connectors based on the previous IDS specifications and connectors following the new IDS specifications[37]: The main characteristics of the new protocol include:

- Reliance on well-known standards to define the data product and data usage policies: **DCAT** (Version 3.0) and usage control expressed as **ODRL** Policies.
- Decoupling of control and data planes in data transfer technologies, making it possible to use any transfer protocol or technology available.

There are two main connectors following the principles of the new IDS protocol: the Eclipse Data Space Connector and the FIWARE Data Space Connector. Regarding connectors, the Eclipse Data Space Connector is a specific technology component used within the IDS ecosystem. It helps organisations connect to and participate in the IDS network. It plays a crucial role in enabling data sharing, access control, and data security while adhering to the IDS principles. On the other hand, the FIWARE Connector within the context of IDSA allows for the integration of FIWARE technologies with the IDS ecosystem. This integration ensures that data and services provided by FIWARE can be securely shared and accessed within the IDS framework.

5.3.1 Eclipse Data Space Components (including the connector)

The Eclipse Dataspace Components (EDC) is a comprehensive framework (concept, architecture, code, samples) providing a basic set of features (functional and non-functional) that data space implementations can re-use and customize by leveraging the framework's defined APIs and

[37] International Data Spaces Association 2023: Dataspace Protocol - Working Draft. Retrieved in October 2023 from: https://docs.internationaldataspaces.org/ids-knowledgebase/v/dataspace-protocol/overview/readme

ensure interoperability by design. It is powered by the specifications of the **Gaia-X AISBL Trust Framework** (See Appendix H) and the **IDSA Data space** protocol (See Appendix G).

Several initiatives implementing data spaces are using the Eclipse Data Space connector, including EONA-X and CATENA-X. Furthermore, this connector has been selected by several Gaia-X proof of concepts.

Recently Gaia-X announced the plans for integrating Gaia-X related features with EDC (Eclipse Data Components) to simplify the utilization of Gaia-X Verifiable Credentials for Participant Compliance in contract negotiations and access control within this ecosystem. This integration aims to enhance the accessibility of Gaia-X Verifiable Credentials for participants, enabling service providers to exclusively grant access to their services to Gaia-X compliant participants. In simpler terms, this means that service providers can limit access to their services solely to Gaia-X compliant participants.

5.3.2 FIWARE Data Space Connector

Recently FIWARE has announced the development of a new Data space connector that follows the principles, requirements and specifications included in the second version of the DSBA convergence document[38]. The information about this new connector is based solely in the public documentation provided by FIWARE since it there has been no time to test it.

The FIWARE Data Space Connector is an integrated suite of components every organization participating in a data space should deploy to "connect" to a data space. Following the DSBA recommendations, it allows to:

- Interface with Trust Services aligned with EBSI specifications[39]
- Implement authentication based on W3C DID[40] with VC/VP standards[41] and SIOPv2[42]/OIDC4VP[43] protocols
- Implement authorization based on attribute-based access control (ABAC) following an XACML P*P architecture[44]
- Provide compatibility with ETSI NGSI-LD[45] as data exchange API

[38] Data Space Business Alliance 2023: Unleashing the Data Economy: Technical Convergence: Discussion Document Version 2.0. Retrieved in October from: https://data-spaces-business-alliance.eu/wp-content/uploads/dlm_uploads/Data-Spaces-Business-Alliance-Technical-Convergence-V2.pdf

[39] EBSI: Retrieved in October 2023 from: https://api-pilot.ebsi.eu/docs/apis

[40] W3C 2022: Decentralized Identifiers (DIDs) v1.0 Core architecture, data model, and representations. Retrieved in October 2023 from: https://www.w3.org/TR/did-core/

[41] W3C 2022: Verifiable Credentials Data Model v1.1. Retrieved in October 2023 from: https://www.w3.org/TR/vc-data-model/

[42] OpenID 2023: Self-Issued OpenID Provider v2. Retrieved in October 2023 from: https://openid.net/specs/openid-connect-self-issued-v2-1_0.html#name-cross-device-self-issued-op

[43] OpenID 2023: Self-Issued OpenID Provider v2. Retrieved in October 2023 from: https://openid.net/specs/openid-4-verifiable-presentations-1_0.html#request_scope

[44] Oasis Open: OASIS eXtensible Access Control Markup Language (XACML) TC. Retrieved in October 2023 from: https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=xacml

[45] ETSI 2023: Industry Specification Group (ISG) Cross Cutting Context Information Management (CIM). Retrieved in October 2023 from: https://www.etsi.org/committee/cim

- Supports the TMForum APIs[46] for contract negotiation

5.4 ETDS-specific requirements

Based on the Current EU Data Sharing Landscape and state of the art data practices identified in Chapter 2, the following specific issues and recommendations must be taken into account in the process of creating the ETDS.

- **Personal data management**: People are at the centre of the ETDS, so privacy protection and compliance with data protection legislation and initiatives play a very important role.
- **SMEs:** Most companies in the tourism sector are SMEs. Both the process to onboard in a data space and the technology required to participate in it are too complex, at the moment too costly, and very far from their usual business. They have neither the technical nor operational skills to handle the complexities of a data space. Some approaches, both in the context of IDS and Gaia-X, could be very useful for SMEs, like **Connector-as-a-Service** and more **Tourism Data Spaces**.
- **Public and private actors**: Tourism sector stakeholders include both public administrations and private companies with different strategies and objectives regarding data sharing. Open data public administrations' strategy should be aligned with data protection, value generation and monetisation strategies of private companies.
- **Interoperability with other data spaces:** The tourism sector is directly related to other sectors such as transport, mobility, environment, energy, cultural heritage and construction. In this way, data from these sectors should also feed the ecosystem of the ETDS. Inter and intra data space interoperability is a critical issue for tourism data spaces.
- **Geographic data**: Almost every tourism related data has a geographic scope, that can be a region, a specific geographic address, or a set of addresses forming a line or a path. Also vector and raster data are used. The geographic data can be organised in layer of different types that facilitates geographic based reasoning and analysis. Geographic data uses some specific models and standards.
- **Local vs regional vs national vs international scope**. The geographic scope mentioned before might also induce a tendency to set up local, regional and/or national tourism data spaces. The implementation of such should be thoroughly controlled, in order to avoid a too fine-grained substructure of the European tourism data ecosystem on one hand, which will inevitably challenge interoperability, and might reduce the cross-border data visibility. On the other hand, a certain degree of decentralisation facilitates resilience by avoiding single points of failure. It may be a task for EDIB and the future EDIC for Tourism to define the right equilibrium of (de)centralisation taking into account both strategic and technical arguments.

[46] TMForum. Retrieved in October 2023 from: https://www.tmforum.org/oda/open-apis/

5.4.1 ETDS-specific requirements technical challenges: Personal data

The importance of personal data to data sharing

The EU Data Strategy's success relies heavily on sharing personal data, which is expected to drive adoption across various sectors such as health, administration, education, and mobility, and tourism. GDPR compliant personal data sharing will also help ensure that the EU's values, principles, and regulations are fully implemented. As the EU digital single market is grounded in human-centricity, it aims to give back value to citizens by creating decentralized alternatives to the Big Tech platforms and their lock-in effect. By prioritizing the needs and interests of citizens, the EU can foster a more transparent and equitable digital landscape that benefits everyone.

For the tourism sector

For the tourism sector tourists will need to be able to share data across multiple organizations from different sub sectors like mobility, hospitality, and tourism activities, through a seamless user experience (tourist identity tools), while protecting their privacy (GDPR consent).

The challenges of personal data sharing

Human-centricity represents a paradigm shift in how we think about managing data and its potential. It stands in stark contrast to the prevalent "organization-centric" approach by placing the focus on the individuals involved in generating the data, rather than the organization responsible for capturing it, such as a company or government agency. Human-centricity encompasses concepts such as (self-)sovereignty, self-determination, self-governance, autonomy, and agency, which derive from the notion of human rights. At its core, a human-centric approach acknowledges that individuals have the right to determine, without coercion or compulsion, what happens to their personal data.

But human-centricity also comes with several challenges: technical issues (identity management, standardization, user experience, etc.), business issues (costs, IP strategy, etc.), legal issues (compliance with GDPR, DGA, etc.), as well as psychological factors like trust and digital resignation. Given this complexity, few existing data spaces today are actually processing personal data, despite personal data-sharing being a priority for most of them.

Addressing these challenges will require collaboration between stakeholders from a variety of levels and domains, including technical experts, legal professionals, business leaders, and psychologists. Only through such cross-disciplinary efforts can we hope to realize the full potential of a human-centric approach to data management. Given the coming widespread use of AI models in data spaces for purposes such as recommendation or personalization, it is crucial that individuals have effective means to maintain control over their personal data, which may be stored and processed by multiple organizations.

In most data spaces (e.g., mobility, agriculture), the data are generated by industrial applications. Instead, in the ETDS the tourist takes centre stage as the primary generator of data. Hence, the ETDS is distinctively human-centric. This makes the ETDS akin to health or education data spaces, where individuals (patients or students) play a leading role in generating data through their activities and interactions.

Given this human-centric nature, it becomes essential to adapt how data are accessed and processed. Tourists generate information by consuming services offered by private companies and public authorities, making data sovereignty and privacy paramount considerations. The design of the ETDS takes inspiration from the broader global community of data spaces, but it is uniquely tailored to address the specific needs and challenges that arise from managing human-generated data in the context of tourism.

By emphasizing privacy, data sovereignty, and the centrality of the tourist in data generation, the ETDS aims to create a secure and trusted environment for data sharing and collaboration. This approach ensures that data are used responsibly and ethically, empowering tourists while also fostering innovation and providing valuable insights for stakeholders in the tourism ecosystem and other cross-sectorial data spaces as well.

Personal data sharing and regulation

The Data Governance Act (DGA) introduces the concept of data intermediaries' tools that will allow the sharing of data within a data space, and that need to be notified to competent authorities. A subset of the data intermediaries will enable the management of personal data: the *personal data intermediaries (PDI)*. Beyond facilitating personal data-sharing, the personal data intermediaries will also provide data subjects with standard mechanisms to protect data subjects' privacy and rights (GDPR): right to be informed, right of access, right to rectification, right to erasure, right to restrict processing, right to data portability, right to object.

Tools for sharing personal data

The issue of personal data sharing is particularly complex due to specific concerns around privacy and GDPR compliance, and also given the fact that the individual is, in this case, the central point of data integration, not the organizations controlling data. The individual can potentially interact with data spaces of all locations and all sectors. Since he/she does not bear technical capabilities in itself the individual has 2 options:

- the individual authenticates to organizations controlling his/her data separately, and gives consent separately each time, which can be cumbersome.
- the individual uses dedicated tools, personal data intermediaries (PDI) for managing his/her identity and data, that aggregate data and simplify identity and consent management.

There exist different approaches/paradigms to design PDI tools in Europe, here are some of the major ones:

> ***MyData operators***[47] *that are tools for GDPR consent management and personal data stores respecting the MyData declaration and label. MyData is a prominent movement advocating for human-centricity. Originally emerging from open data activism in Finland, it has since expanded into an international movement that is now run by "MyData Global," a non-profit organization. MyData provides guiding principles aimed at giving individuals greater control over the data trails they leave behind in their everyday activities. The goal is to enable*

[47] MyData: MyData Operators. Retrieved in October 2023 from: https://archive.mydata.org/mydata-operators/

individuals to see what happens with their personal data, specify who can use it, and modify those decisions over time. The MyData operator concept (see Figure 11Figure 11 MyData operator concept

1)) is not solely focused on individuals' perspectives, but also aims to serve commercial interests by promoting business opportunities for personal data. The MyData Principles strive to make privacy, data security, and data minimization standard practices in application design. The movement also seeks to empower individuals to understand privacy policies and to give, deny, or revoke their consent to share data based on a clear understanding of why, how, and for how long their data will be used. The Declaration of MyData Principles outlines ethical principles for personal data management and has been endorsed by over a thousand organizations and individuals worldwide.

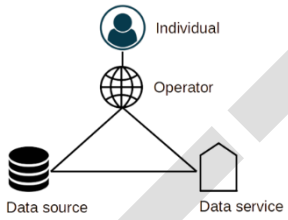

Figure 11 MyData operator concept

2) **SOLID PODS** are tools following the SOLID specification/protocol (See Appendix I) that let people store their data securely in decentralized data stores. The Social Linked Data project (SOLID) is a web decentralization initiative led by Sir Tim Berners-Lee, the inventor of the World Wide Web, and developed collaboratively in an open-source project consisting of multiple commercial and independent contributors. It aims at realizing Tim Berners-Lee's original vision for the internet as a medium for the secure and decentralized exchange of data. SOLID is at its core a specification/protocol that lets people store their data securely in decentralized data stores called PODS (personal online data stores)[48]. Apart from a focus on separation between the application, identity provider and data storage as three interconnected entities (See Figure 12), SOLID has a strong focus on machine-readable linked data to ensure interoperability between different applications that reuse the same data source. The Linked Data architecture also helps to create (quite literally) links between one data set and another, including links between personal data and public data from various semantically related data spaces.

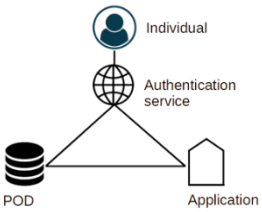

Figure 12 Solid POD concept

[48] See Buyle et al. 2020

3) **POTENTIAL EU Wallets**[49] would allow all European citizens to store and manage personal data in an ecosystem of standard wallets. POTENTIAL unites 148 participants from 19 EU member states from Northern, Western, Eastern, Central, and Southern Europe – representing more than 70% of the European population. POTENTIAL's pilots drive European digitalization and ease numerous administrative as well as tedious identification processes in everyday situations. The aim is to vividly illustrate the possibilities, functionalities, and added value of a European Digital Identity Wallet. By involving relevant market players, POTENTIAL quickly scales solutions which build on existing market-relevant national solutions.

Within the context of the ETDS, a PDI must be interoperable (the user can switch from one to another); however, discussions about interoperability are still at a very early stage. The two main topics to address regarding interoperability for personal data in the data spaces will be about federating the individual's identity and consent. Some standardization discussions are happening now in organizations like Decentralized Identity Foundation[50], Kantara[51] (consent receipt standards that inspired ISO), and MyData. At this stage, Gaia-X, IDSA, FIWARE and other related data space support organizations all explore IAA (Identity, authentication & authorization) capabilities, but they do not consider personal data apart and to not address the question in depth.

Focus on consent

Explicit consent is a cornerstone of personal data sharing, as it is the lawful basis (GDPR) of personal transfers between independent data controllers in a wide range of use-cases. When it comes to data sharing, GDPR requires that individuals are informed about the data being shared, the purpose/finality for which it will be used, and the recipients of the data. Additionally, the individual must provide their explicit consent for their data to be shared for that specific purpose. Explicit consent means that the individual must take a clear and affirmative action, such as checking a box or signing a form, to indicate their consent. Consent must be freely given, meaning that individuals cannot be forced or coerced into giving their consent, and they must be informed of their right to withdraw their consent at any time. It's important to note that GDPR applies to any organization that collects or processes personal data of individuals residing in the EU, regardless of whether the organization is based in the EU or not. Failing to obtain explicit consent for data sharing can result in significant fines and other legal consequences. The major hurdle for consent management within the data spaces landscape now is the variety of consent formats and the lack of interoperability. In the tourism context, it should be assumed that an individual may share data across borders, which will be complex if consents are incompatible.

[49] Idemia 2023: The POTENTIAL Consortium selected by the European Commission to pursue its journey to digital European identity. Retrieved in October 2023 from: https://www.idemia.com/news/potential-consortium-selected-european-commission-pursue-its-journey-digital-european-identity-2023-01-11
[50] Decentralised Identity Foundation. Retrieved in October 2023 from: https://identity.foundation/
[51] Kantara Initiative. Retrieved in October 2023 from: https://kantarainitiative.org/

5.4.2 ETDS-specific requirements technical challenges: SMEs

For most SMEs the process to on board in a data space and the technology needed to participate are too complex and very far from their usual business. They do not have the technical nor operational skills to deal with data spaces. Some approaches both in the IDS and Gaia-X context could be very useful for SMEs: **Connector as a service** and the more ambitious **Data Space as a service**. The objective of both approaches can be summarized by the slogan used recently by Sovity[52]: "Setting up data space technology in minutes instead of months".

The strategy is to provide the SMEs with consultancy services and the software needed to share (both provide and consume) data. The software includes a user interface that hides the technical and operational complexity of data spaces showing the final user a high-level overview of the available data, the data contracts and the data transfer processes taking place, facilitating the connection with the internal applications used to produce or consume data.

Figure 13 below shows an example of the Eclipse data space components data dashboard, an example developer frontend application for the EDC Data Management API.

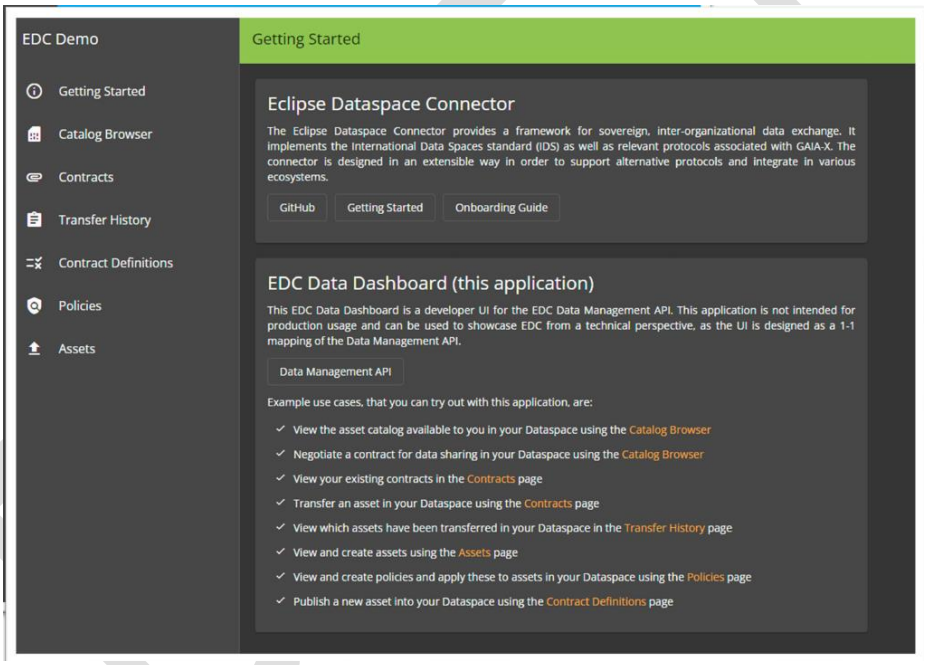

Figure 13 Eclipse Data Space components data dashboard

To better demonstrate the possibilities of data spaces and their management, the Eclipse data space components project has created under the minimum viable data space the so-called **Vision Demonstrator** to showcase a possible user interface that would enable end-to-end interaction - all the way from joining a data space to being able to publish a new data asset for others to consume. Figure 14 shows the main window of the vision´s mock-up.

This vision was based on seven tasks essential to managing a data space:

1. Managing data spaces

[52] Sovity. Retrieved in October 2023 from: https://sovity.de/about/

2. Discovering data shared by others
3. Negotiating a data contract
4. Creating a new policy
5. Creating a new data asset
6. Creating a data contract
7. Reviewing existing data contract and manage notifications

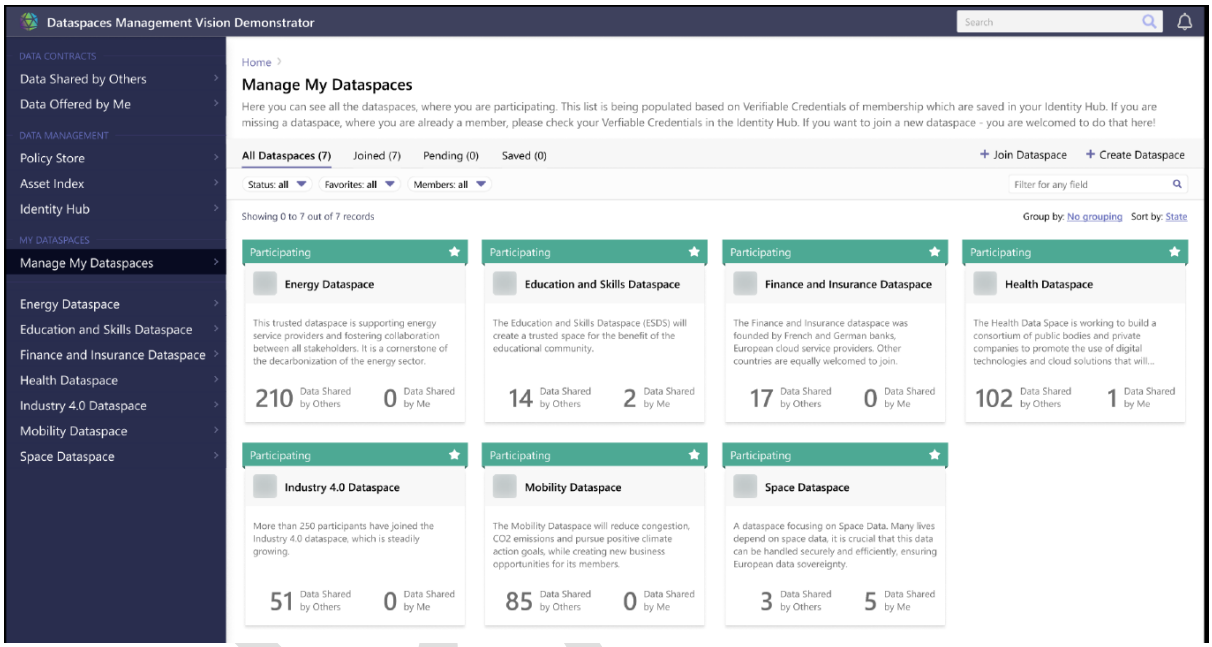

Figure 14 Data Space Vision mock-up

Gaia-X and SIMPL go a step forward offering cloud infrastructure needed to run the software, data products that encapsulate data sets or access to data APIs, applications and services providing data-based applications or algorithms and the orchestration functionality needed to define specific services composition and workflows.

The data space as a service concept includes all the steps needed to participate in a data apace.

- Participant on boarding
- Compliance and certification (data and services)
- Catalogue registration
- Data sharing functionalities and dashboard
    - Search for data products/infrastructure/applications or services
    - Use or provide data products/infrastructure/applications or services
    - Monitor data spaces

The adoption of this kind of technology by SMEs depends highly on the perceived added value of data management, both internal data and external sources participating in a data space.

5.4.3 Tourism specific requirements technical challenges: Public and private actors

Tourism sector stakeholders include both public administrations and private companies with different strategies and objectives regarding data sharing.

Public administrations' concern is about improving tourism destinations, improving users' experience (both tourists and people living in the destination) and assuring tourism sustainability in the long-term both from the economic, social and environmental points of view.

Regarding data, the main objective of public administrations is to make data as open and available as possible, so open data is the main approach. An example of this strategy is the recently approved EU Commission Implementing Act on High-Value Datasets[53]. This regulation is set up under the Open Data Directive, which defines six categories of such high-value datasets: geospatial, earth observation and environment, meteorological, statistics, companies, and mobility. The datasets will be available in machine-readable format, via an Application Programming Interface and, where relevant, as bulk download. Some of this high-value datasets are very relevant for the tourism sector.

Many public administrations provide open-data portals and open-data based applications based on public data, also including private data from companies when possible. The current data sharing initiatives discussed in Chapter 2 include many examples of this kind of "open data lake" style approach. However, public administrations are not allowed to include commercial data or include data products for profit. Besides, public administration data sharing approaches do not facilitate B2B data sharing, which is one the main data space goals.

The public administration strategy and the technology used for implementation are not aligned with two of the main characteristics of a data space: data monetization and valorisation and data sovereignty.

- Regarding data transfer, since business is at the core of the current data space initiatives, these initiatives include contract negotiation as a mandatory step, that is not needed in an open data context.
- Open data access normally has a very low security requirements, just download files or a rest interface with no security is enough.

Datahub.tirol[54] has both open data and commercial data in its catalogue, though only the open data are monetised. The only example of merging both open and proprietary data (for profit) in the same platform is the FIWARE monetization architecture.

One possible approach could be to adapt the current open data initiatives to the data space initiatives requirements, constraints, and compliance rules, becoming a participant in the data space.

[53] Commission Implementing Regulation (EU) 2023/138 of 21 December 2022 laying down a list of specific high-value datasets and the arrangements for their publication and re-use C/2022/9562. Retrieved in October 2023 from: https://eur-lex.europa.eu/eli/reg_impl/2023/138/oj

[54] datahub.tirol. Retrieved in October 2023 from: https://www.datahub.tirol/

The public administration managing the open data portal should follow the data space on-boarding process and all the data sets/products included should be defined and certified according to the trust framework defined in the data space.

Furthermore, another channel to get the data should be added to the current ones, a data connector compliant with the data space requirements.

5.4.4 Tourism specific requirements technical challenges: Interoperability with other dataspaces

The strong interconnection between the ETDS and other European sectoral data spaces holds immense significance due to several compelling reasons. Firstly, data sharing among these data spaces is imperative because datasets are inherently linked, but value comes from specific data semantics on each particular data space. For example, in the relationship between the mobility and tourism domains, it's crucial to not only track people moving between countries using any transportation medium but also to discern who among them are tourists. Identifying the origin and destination of tourists as well as the purpose for travel is vital for understanding the economic impact and environmental footprint of the tourism sector.

Tourism is intricately intertwined with various other data spaces such as mobility, healthcare, sustainability, and smart cities. The interactions between these domains are profound as tourists' movements and activities have wide-ranging implications. Their healthcare needs, influence on urban infrastructure, and contributions to sustainability practices all rely on data from these interconnected spaces.

To facilitate effective interoperability and data exchange among these spaces, the establishment of standardised protocols and formats is paramount. These standards serve as a compatibility layer, enabling data from diverse sources to harmonise while preserving the unique tourism-specific aspects of each dataset. This approach fosters data sharing and collaboration, facilitating insights, innovation, and a comprehensive understanding of the tourism ecosystem within the broader context of interconnected data spaces.

In this context, **data intermediaries** play a pivotal role. They bridge the gap between data producers and consumers, enriching and standardising tourism data while facilitating seamless data exchange. These intermediaries bring valuable analytics, predictive models, and actionable insights, empowering tourism stakeholders to make informed decisions, optimise operations, and enhance traveller experiences. Their adaptability and transformation capabilities are critical for ensuring compatibility and integration across data spaces, thus maximising the potential of these interconnected ecosystems.

These are some examples of the connection between tourism and these other sectors:

- **Transport:** The volume of air passengers and the reservation forecasts are very useful indicators for any tourism manager.
- **Telecommunication**: Data from mobile phone operators are used to measure the flow of tourists and tourist profiles at a specific destination or point of interest.
- **Environment**: Tourism activity data is used to monitor the carbon footprint of a destination.

- **Energy:** Monitoring of energy consumption data (e.g., resort) should optimise energy efficiency systems.
- **Cultural and environmental heritage**: In protected natural resources it is essential to identify the maximum carrying capacity to preserve the original conditions and usually maximum entry quotas are established.

In this way, **data from these sectors should also feed the ecosystem** of a tourism data space. The current approach in Europe is to build separate data spaces for each sector or domain or in some cases even more than one depending on the data space scope and characteristics. Therefore, inter- and intra- data space interoperability is a critical issue for tourism data spaces.

The technical challenge to solve is: What happens if one company needs data from a company in another participating in other data space? The key topics to address regarding inter data spaces interoperability are:

- Legal
- Technical
- Business
- Semantic
- Onboarding processes
- Monitoring

Two main strategies can be applied:

- **Participate in several data spaces**. The company needs to follow several on-boarding processes. This strategy probably implies to use different data models, identity providers, connectors, etc. This approach is not scalable, but nowadays is the more pragmatic one.
- **Federation among data spaces**. With this strategy the participation in several data spaces is transparent for the companies. However, this approach is not feasible from the technical point of view unless the data spaces use the same data space governance framework.

5.5 Recommendations for the ETDS from the technical perspective

This section presents key recommendations regarding the technology and technical building blocks. The recommendations are based in the current state of the main data space initiatives in Europe, particularly the Gaia-X initiative, which is the more advanced from the point of view of the technical governance framework/Rulebook and the onboarding process.

When defining the technical blueprint for the ETDS, the first step is to identify the main technical issues and challenges that need to be solved to implement the concept of a data space. Next, it is necessary to analyse the state of the art of existing initiatives and how these issues are being tackled. The main technical issues are identity management, self-description, trust framework, on-boarding, data and services discoverability, data sharing, data space monitoring and observability.

Several ongoing initiatives are now running in parallel to design and implement the data space concept. Gaia-X and SIMPL provide by now the more comprehensive data space architectures and specifications including infrastructure, data and services in the same framework while IDSA and FIWARE provide solutions dealing with more specific aspects of the data space technology landscape.

The DSBA convergence effort and SIMPL project add even more complexity to the data space scenario. However, even with this complex scenario some solutions and approaches to specific aspects of the data spaces architecture are common or quite similar in all the initiatives, emerging as the most promising ones:

- The concept of Data Space Governance Authority defining and implementing the rules to be part of a data space is paramount to generate trust. These rules should include the Tourism specific criteria.
- The need for a decentralized solution for identity management. Self-sovereign identity solutions along with verifiable presentation and verifiable credentials for self-descriptions. The use of verifiable credentials signed by trusted organizations to describe the entities participating in a data space provides an additional level of trust, very important in an open data sharing framework.
- Decoupling of control and data planes in data transfer technologies, making it possible to use any transfer protocol or technology available.
- Use common and well-established standards if available, both for generic (sector agnostic) models as well as tourism specific domain models.
    - DCAT for data product
    - ODRL for data usage policies
    - W3C DQV for data quality (based on ISO).

Next, based on these specific aspects, some recommendations regarding technical building blocks and the main technical issues are presented:

5.5.1 Recommendation on Data Space Governance Framework/Rulebook and Data Space Governance Authority

The Gaia-X Governance framework (Figure 15) is being adopted widely as the base for mandatory compliance criteria. It is a good starting point because of its maturity and flexibility, adopting Gaia-X will allow the future ETDS to gain interoperability with a wide range of data spaces initiatives while maintaining a non-opinionated strategy for adopting connectors and other components into the implementation. Gaia-X Compliance process is composed by the Trust Framework, and the Policy Rules & Label document.

In addition, Gaia-X explicitly encourages adopting domain specific compliance criteria, that could improve the coverage of the specific challenges presented in this blueprint such as the policies to ensure GDPR compliant when dealing with PDI within the use cases or the integration of traceability practices when accessing personal data.

Also, Gaia-X federation and decentralisation architecture will allow an inclusive strategy to onboard different regional tourism data space initiatives into a shared implementation of the ETDS.

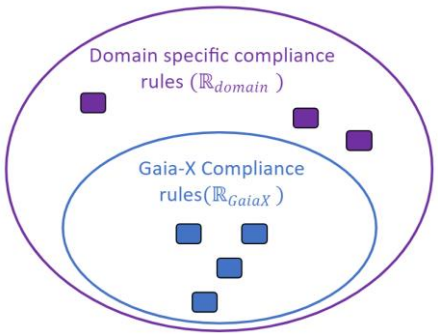

Figure 15 Gaia-X Governance framework as a base for mandatory and optional criteria with additional Tourism specific criteria
Source: Gaia-X 2022: Gaia-X Trust Framework – 22.10 Release. Retrieved in October 2023 from: https://docs.gaia-x.eu/policy-rules-committee/trust-framework/latest/

5.5.2 Recommendation on data space infrastructure/intermediaries

5.5.2.1 Clearing house (GXDCH)

According to Gaia-X The GXDCH is the necessary element to operationalize Gaia-X in the market. The Gaia-X Framework describes functional specifications, technical requirements, and assets necessary to be Gaia-X compliant.

The GXDCH are a network of execution nodes for the compliance components that Gaia-X has developed. This safeguards the distributed, decentralised ways of running the Gaia-X compliance, not operated centrally by the Association, and where anybody can benefit from the open, transparent, and secure federated digital ecosystem.

Currently there are three clearing houses up and running, and several organizations are working to became new clearing houses all over Europe (Figure 16).

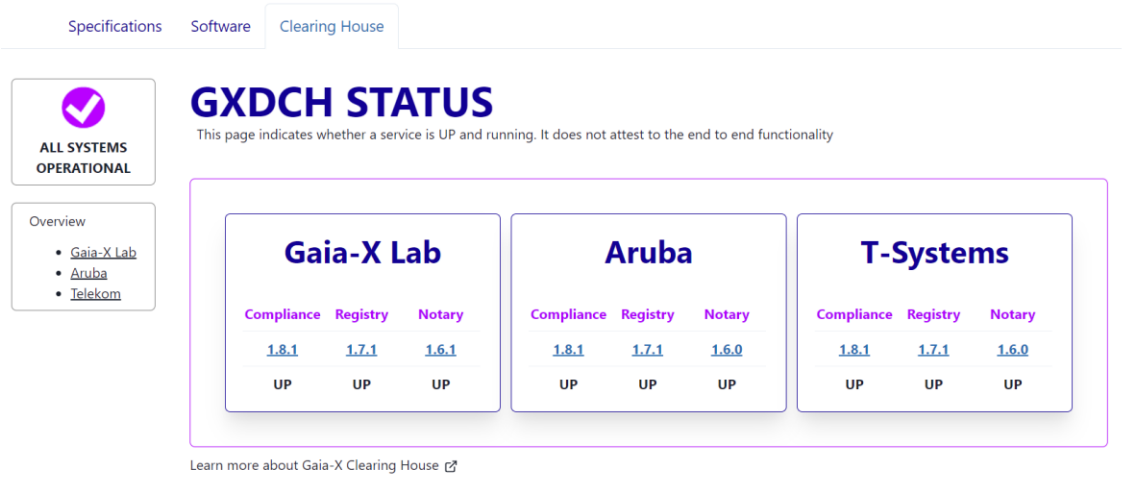

Figure 16 Current Gaia-X clearing houses.

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One interesting feature of the clearing house is the Gaia-X wizard that will facilitate the companies, especially the SMEs the onboarding process (Figure 17).

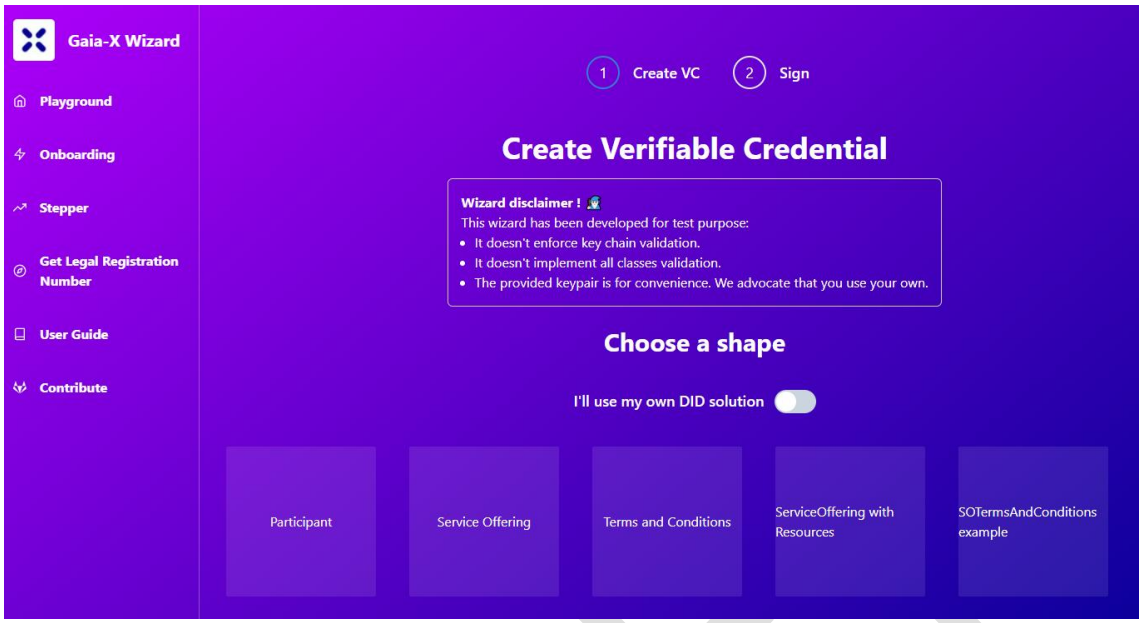

Figure 17 Gaia-X wizard

5.5.2.2 Services discoverability

In order to provide service discoverability, all the data spaces initiatives include the Catalogue Federation Technology. This technology is used to create a unified, federated catalogue of available data and services across different entities within the data space. It allows Data Space Entities to discover, access, and utilize resources and data assets across the network easily. The IDS architecture includes the Meta Data broker and Gaia-X is defining and developing a federated catalogue. The Gaia-X federated catalogue technology is still being developed and the IDS metadata broker is not compatible with the Gaia-X data product model. Therefore, services discoverability is still an open issue.

5.5.2.3 Data space monitoring and observability

Observability refers to the capability to monitor, log, and analyse system activities and performance. In Gaia-X, a logging service is used to provide transparency and visibility into the data-sharing processes, ensuring that the ecosystem is operating securely and efficiently. This is crucial for compliance, auditing, and issue resolution. However, the Gaia-X logging service[55] has not been developed by Gaia-x and it is not clear if it will be finally part of the official Gaia-X software.

5.5.2.4 Recommendation on data models

One of the general trends for data models is to use common and well-established standards if available, both for generic (sector agnostic) models as well as tourism specific domain models.

[55] GitLab: Data Exchange Logging. Retrieved in October 2023 from: https://gitlab.eclipse.org/eclipse/xfsc/del

In the case of generic data models, the following ones are being adopted by Gaia-X and are necessary to follow the onboarding process.

- **Data product model**
    - DCAT 3.0 for data product
    - ODRL 2.0 for data usage policies and Rulebooks
- **Participant model.**
- **Service offering model.**

However, the definition of the generic Data product is one of the main ongoing processes in Gaia-X and in other data space initiatives.

5.5.2.5 Tourism data models.

At present, there is no single common European ontology in tourism that has been universally adopted and standardized across all European countries. Nevertheless, serious efforts have been made to develop ontologies and standards that can be used as common reference points for tourism-related data and interoperability within Europe.

Notable initiatives in this regard have been carried out by organizations like the World Tourism Organization (UNWTO) to promote interoperability and data sharing in the tourism sector. For example, they promoted the multilingual "Thesaurus on Tourism & Leisure Activities". This thesaurus can be used as a guide to tourism terminology, as well as for the standardization and normalization of a common indexation and research language, at an international level.

It is not recommended to create a new tourism data model but use the current national initiatives. In case there is not a national initiative in place, it is advised to select and adapt an existing tourism ontology from other country. These are some examples of these ontologies include **Digital Tourism Hub** in Italy[56]**, Ontology DATAtourisme** in France[57]**, Segittur Tourism Conceptual Reference Model** in Spain[58], and the **Open Data Tourism Alliance (ODTA)** in Germany, Austria and South Tyrol[59].

5.5.2.6 Recommendation on connectors

The current trend regarding data space protocols is Decoupling of control and data planes in data transfer technologies, making it possible to use any transfer protocol or technology available. According to the DSSC blueprint, it is important to distinguish between a control plane and a data plane. The control plane is responsible for deciding how data is managed, routed and processed. The data plane is responsible for the actual moving of data.

[56] Digital Tourism Hub. Retrieved in October 2023 from: www.italiadomani.gov.it/en/Interventi/investimenti/hub-del-turismo-digitale.html

[57] Datatourisme. Retrieved in October 2023 from: www.datatourisme.fr

[58] Segittur: Foro de Inteligencia Turística y datos claves de la sostenibilidad. Retrieved in October 2023 from: www.segittur.es/transformacion-digital/proyectos-transformacion-digital/modelo-conceptual-de-referencia-para-el-desarrollo-de-una-red-de-ontologias-del-sector-turistico/

[59] GitHub 2023: odta schema. Retrieved in October 2023 from: https://github.com/ODTA/schema

For example, the control plane handles the identification of users and the handling of access and usage policies. The data plane handles the actual exchange of data.

Therefore, it is recommended to use one of the connectors using this approach and the one being used by the main data space implementations is the Eclipse Data Space connector.

6 Business Models for the European Tourism Data Space

Participation in a data space opens up a lot of opportunities for companies to improve their decision-making based on data. The value of the ETDS will be enhanced by the ability to attract a critical mass of participants (the so-called network effect). Organisations, that already see the value of data, are expected to become early ETDS adopters. However, it is essential for ETDS to remain inclusive and cater convincing message about the ETDS value to a wide range of actors, those who might still underestimate the value of the data economy. In any case, understanding the benefits, costs, efforts, risks of sharing data and the potential benefits of sharing data is the key to decisions to be made by data space users.

The starting point in conveying the value of the ETDS and data economy is to view **data as assets.** This has been facilitated by technologies like IoT, analytics or AI. Understanding, categorising, and managing data will help companies defining value of the data assets they hold, and consequently, taking appropriate actions to protect, share or sell these data or the associated data assets. It is evident that most of the companies will only be inclined to share data when the value of sharing is higher than the cost of making data available (e.g., preparation of data, curation, etc.).

Importantly, the value of the data is not only linked to the price of a dataset but is also associated with the **benefits or opportunities and risks incurred**: both of financial (e.g., monetary costs, revenue) and non-financial (e.g., partnerships) nature Hence, it is possible that the same data asset could have a different value and price depending on the context of the exchange or use. This is similar to how hotels and airlines use dynamic pricing to decide the price of a room or flight based on supply and demand.

ETDS creates multiple business opportunities for its participants, such as:

- **Market Growth**: access to a wider range and more diverse customer segments due to an increased number of channels to sell data or data services. For instance, the ETDS will allow access to data for SMEs and destinations.
- **Diversification**: new roles and business opportunities within the market, starting with data monetization. Currently most companies are not using data as an additional revenue stream.
- **Revenue Streams**: generation of innovative products and services, which can include selling valuable datasets, evolving AI services (trained with richer datasets), and developing cross-sectorial services focused on personal data management.
- **Cost Savings**: ETDS will allow organizations to share the costs of technical infrastructures as well as other data-sharing services, implying cost savings and enhancing overall profitability.
- **New Partnerships**: Easier access to data from other tourism stakeholders as well as other ecosystems/domains: The ETDS will allow data sharing with mobility, energy, health and other industries and tourism industry will get additional data insights.

To effectively convey these business opportunities, it is important to develop metrics that can demonstrate the tangible benefits and advantages of the data space. The recommendations described below will be useful for quantifying and illustrating the Return on Investment for participating in the ETDS.

Cost Savings:

- Reduction in **Data Storage Costs**: Measure the decrease in data storage expenses as Data Spaces allow for efficient organization, compression, and elimination of redundant data.
- Lower **Infrastructure Cost**s: Quantify the savings from not needing to invest in as much hardware or cloud resources due to optimized data management.

Efficiency:

- Time Savings in **Data Access**: Measure the time users save in locating and accessing relevant data due to improved organization and search capabilities of Data Spaces.
- Increased **Productivity**: Quantify the boost in productivity as teams spend less time on data preparation and more time on analysis and decision-making.

Data Quality and Accuracy:

- **Error Reduction**: Quantify the decrease in data errors or inaccuracies due to improved data governance, validation, and maintenance within Data Spaces.
- Enhanced **Decision-Making**: Measure the impact of improved data quality on making more accurate and informed business decisions.

Collaboration:

- **Collaboration** Efficiency: Quantify the reduction in time and effort required for collaborative data projects due to streamlined sharing, version control, and commenting features.
- **Cross-Team** Synergy: Measure the increase in cross-functional collaboration as teams can easily access and utilize each other's data assets.

Data Monetization:

- **Revenue** Generation: If applicable, quantify the direct revenue generated from sharing or selling high-quality data assets within Data Spaces to external parties.

Security and Compliance:

- Data Breach Avoidance: Estimate the potential cost savings from preventing data breaches or unauthorized access to sensitive data through enhanced security features.
- Regulatory Compliance: Measure the reduction in compliance-related fines or legal risks by adhering to data governance and protection standards within Data Spaces.

Innovation and Insights:

- Faster Insights: Quantify the speed at which insights are generated from data, leading to quicker identification of trends and opportunities.
- Innovation Rate: Measure the increase in innovative projects and solutions as teams have easier access to diverse datasets for experimentation and analysis.

Scalability:

- Scalability Gains: Quantify the ease of scaling up data operations without significant increases in complexity, allowing for business growth without major setbacks.

Risk Mitigation:

- Risk Reduction: Measure the decrease in business risks associated with data loss, downtime, or inadequate data governance due to the robust features of Data Spaces.

User Satisfaction:

- User Feedback and Engagement: Collect feedback from users about their experience with Data Spaces and quantify improvements in user satisfaction scores.

6.1 ETDS Value Capture

Benefits can be diverse, as seen above, and the ETDS should allow users to identify the potential value of ETDS participation and provide flexible mechanisms to capture that value. Business models define the revenue channels for data space actors with different levels of ETDS engagement. It is important to distinguish between the business models for **data assets providers**, **data consumers,** actors both **sharing and consuming the data** and **data intermediaries or service providers**.

Table X presents the most feasible business models identified by the tourism experts during the research undertaken by the two CSAs. The provided examples indicate applicability of the business models for each of the four data space actor types.

Table 1 ETDS business models per data space actors' roles

1. Freemium Access	Free access to a basic version or limited volume of standardized tourism-related data. A fee is applied to access more detailed or extensive datasets.		
Data/data assets provider *A travel agency shares the basic information about demand volumes across regions for free but may charge a fee for detailed data, including specific breakdowns by tourists' origin, type, etc.*	**Data/data assets consumer** *A travel agency can access basic information about accommodation capacities across regions for free but may need to subscribe for detailed data, including specific breakdowns by type, such as hotels, short-term rentals, etc.*	**Data/data assets provider and consumer** *A travel agency shares basic the information about demand volumes across regions for free and can access respective information in the data space, more in-depth information may be exchanged for a fee.*	**Data intermediary/ data service provider** *Data intermediary may charge for facilitating identification of the relevant datasets and accessing those data, e.g., customization fees.*

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2. Freemium Access with Paid Data-Based Products/Services	Stakeholders get free access to a basic version or limited volume of standardized tourism-related data. A fee is applied when stakeholders use data to create customized products or services, such as analytics reports, insights, personalized data sets or tailored recommendations.		
Data/data assets provider	**Data/data assets consumer**	**Data/data assets provider and consumer**	**Data intermediary/ data service provider**
A tour operator shares basic data for free but charges a fee when for providing custom reports that analyse travel demand trends for a specific region.	*A tour operator can access basic data for free but pays a fee when requesting custom reports that analyse accommodation capacities, popular attractions, and travel trends for a specific region.*	*A tour operator shares and can access basic data for free but charges a fee/pays a fee for custom reports for a specific region.*	*Data intermediary may charge for added-value services: consultation fees, project-based fees for data harmonization services, API-access or licensing fees, ongoing support fees, certification and quality assurance fees.*
3. Participation-Based Reductions	Stakeholders who actively contribute data or insights to the ETDS receive incentives such as discounts, tax cuts, or redeemable points.		
Data/data assets provider	**Data/data assets consumer**	**Data/data assets provider and consumer**	**Data intermediary/ data service provider**
A hotel sharing detailed occupancy data may receive tax benefits or discounts on premium features of the data space.	*N/A*	*A hotel sharing detailed occupancy data may receive tax benefits or discounts on premium features of the data space.*	*May provide some services as a benefit for stakeholders sharing their data.*
4. Partnership-Based Agreements	Form partnerships with tourism-related entities (e.g., DMOs, hotels, transportation services) to encourage data sharing and collaboration. Partnerships can involve joint projects, co-branded initiatives, or shared data contributions.		
Data/data assets provider	**Data/data assets consumer**	**Data/data assets provider and consumer**	**Data intermediary/ data service provider**
A data platform collaborates with a regional tourism board to create a comprehensive dataset that includes both official statistics and real-time data from local businesses. All partners can share and access data within those agreements.			*Data intermediary can facilitate collaboration or offer service withing the established agreements.*
5. Yearly subscription fees	A fixed annual subscription fee.		
Data/data assets provider	**Data/data assets consumer**	**Data/data assets provider and consumer**	**Data intermediary/ data service provider**
N/A	*Annual payment to access datasets throughout the year. Access may include regular updates, customer support, and additional features.*	*Annual payment to access datasets throughout the year. Access may include regular updates, customer support, and additional features.*	*May charge some of its service as a part of the yearly subscription fee: e.g., continuous analytics service, custom analytics projects etc.*

6. Membership fees	A fee for becoming a member of the ETDS. It is important that the size of the fee is accessible for organizations of different sizes (e.g., corporate players and SMEs)
7. Technical fees	could be levied on each transaction undertaken through the data space. This fee should not be based on value (as this would take away added value from members and would be counterproductive) but be fixed per transaction. Thus, it remains democratic since heavy users pay more than smaller users. A similar model has been adopted for a few decades by SWIFT [60]

As shown in Figure 18 below, insights from a widespread consultation with the tourism stakeholders (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire) indicate that the preferred consumer business models would include models that reduce the monetary cost of data, such as the previously discussed fee reduction schemes or partnership agreements.

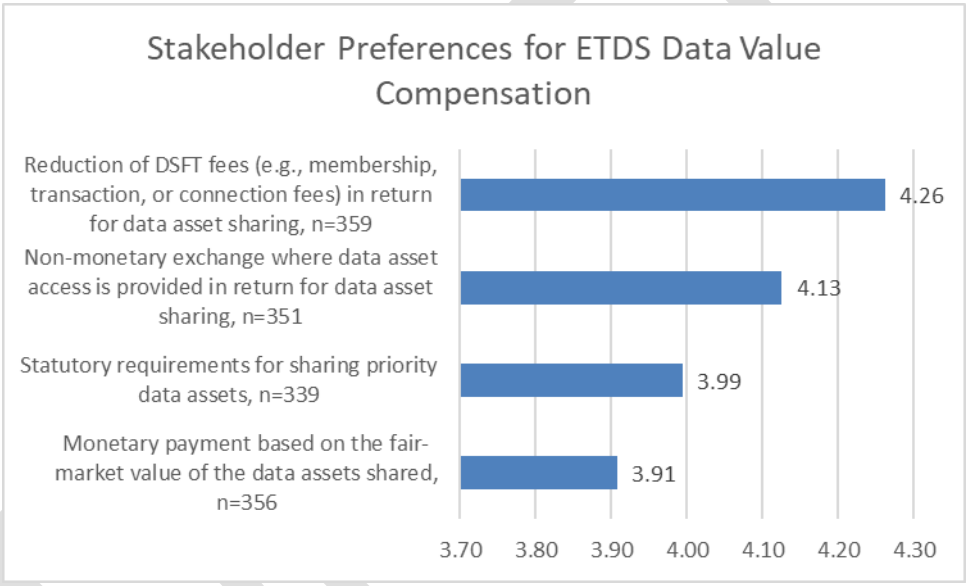

Figure 18 European tourism stakeholder preferences for data value compensation

6.2 ETDS Governance Body business models

It is expected that several business models will be enabled by the ETDS and that new roles in the value chain will be created as the data space infrastructure takes shape. In addition to the three profiles described above, business models have to be defined for the sustainability of the data space itself, hence the business model of a data space governance authority must also be considered. Monetization in this case could happen through membership fees, percentage of revenues resulting from specific activities, in-kind contributions or payments based on the number of transactions or processes facilitated by the data space.

Expert consultation and the stakeholder validation survey (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and

[60] Swift. Retrieved in October 2023 from: www.swift.com

Validation Survey Questionnaire) reveal that to maintain financial support for the ETDS governance body, membership fees would be the most preferred revenue source, followed by one-time connection fees (Figure 19). However, transaction fees were identified as an option which would negatively impact ETDS participation.

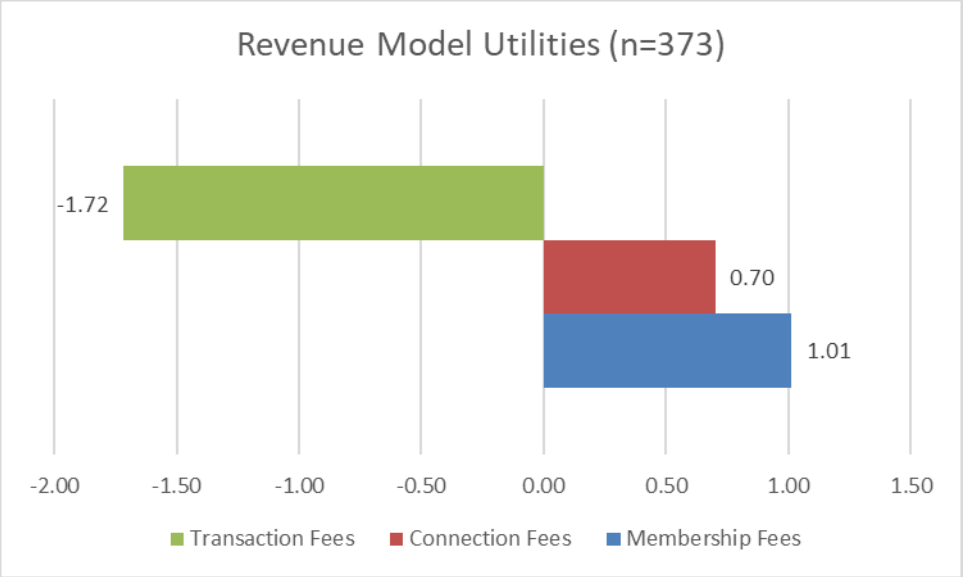

Figure 19 European tourism stakeholder preferences for ETDS governing body revenue models

6.3 ETDS expected impacts on the tourism data market

It is important to acknowledge that there is already a vibrant market for tourism-relevant data and data services, and that data providers, data consumers, and data intermediaries are continuously developing new value creation propositions and business models within this market. When established, the ETDS will be a new entrant within the tourism data market, and it is important to consider how the ETDS may reshape the forces of competition within the market. The development and facilitation of ETDS business models should take these shifting forces of competition into consideration.

One the one hand, there is expected be an increase in the bargaining power of data providers and data intermediaries. Firms should be attracted to participate in the ETDS in part for the access to a larger number of data asset/service buyers. The ETDS will enable data providers and data intermediaries to bring high quality, differentiated, and valuable data products and services to market, for which they can charge premium prices. The ETDS should also catalyse the development of data product and service innovations which could substitute existing products or services.

On the other hand, an increase in the bargaining power of data consumers should also be expected. The ETDS, by making the tourism data market more accessible (and larger), will magnify the bargaining power of buyers where the offers of data providers and data intermediaries are not significantly differentiated. Furthermore, if the ETDS vision for an easy to use and accessible data ecosystem is realised, then the potential for new data asset/service providers to enter the market will increase, which should again result in a positive benefit for data consumers.

7 Defining the Minimum Viable Data Space for the European Tourism Data Space: Use Cases

To define the Minimum Viable Data Space (MVDS), both CSAs have based their work on the analysis and development of use cases. Use cases serve as a fundamental starting point in shaping the development and implementation of the ETDS. Use cases illustrate specific scenarios that address real-world challenges, enabling stakeholders to understand the benefits of data sharing and participating in the ETDS. The presentation of these cases is pivotal for contextualising the potential impact of applications and value-added services built on top of a data space and by doing so, attracting diverse stakeholder participation in the data space. At the same time, use cases are helpful instruments for designing some of the features of the ETDS, identifying the datasets to be exchanged, the parties involved in the data sharing, and their roles. Reasoning on use case scenarios and relationships also help design the governance policies regulating the data space and its technological features.

The following set of principles and criteria has been created to guide the identification and selection of use cases during the initial deployment of the ETDS:

- Stakeholders' consultation is key, especially in two moments: to identify the needs that could be addressed through the data space and to develop the use case (i.e., defining the datasets to be exchanged, the stakeholders involved in data sharing and their roles)
- Distinguishing datasets containing personal data from those without personal data
- Involving various stakeholder groups
- Involving other sectors directly or indirectly related to tourism (climate, health, communication and technology, cultural heritage, risk management, etc.)
- Consider that at least one dimension of sustainable tourism is being addressed or is benefiting from the use case

In order to ensure a coherent structure and scope, the ETDS should catalogue use cases encompassing, at a minimum, the elements below:

- **Title**: a concise and descriptive title that captures the essence of the use case.
- **Problem(s)/need(s)**: explain the key stakeholders' need(s) or problem(s) that could be addressed by the use case, paying particular attention to resilience and sustainability.
- **Desired solution**: describe the application/use of the data space conceived to address the aforementioned problem(s)/need(s).
- **Needed data types**: macro-categories of the data needed to solve the aforementioned problem(s)/need(s).
- **Needed datasets per data type**: main needed datasets grouped by data type and mentioning the level of granularity needed.
- **Stakeholders and roles**: main stakeholders' categories involved in data sharing and their roles as data provider, data consumer, and final user.

- **Stakeholders' relations and type of data exchanged**: which datasets are provided and consumed by which category of stakeholders within the context of the use case.
- **Application of the solution**: specification on whether the same use case could be adapted to a different context or purpose and whether it can be scalable at different geographical levels.

Both CSAs identified and analysed numerous potential use cases for the ETDS. Detailed descriptions of those use cases can be found in the following reports completed by DATES[61] and DSFT[62]. Based on both CSA's findings, a new aggregate use case "**Enhancing tourism sustainability and resilience through data**" is presented below. This comprehensive use case has been formulated in alignment with the guiding principles and criteria mentioned above. The objective of this use case is to demonstrate the potential of the ETDC in addressing real-world issues.

Table 2 New use case based on previous sustainability/resilience use cases

Use Case Title
Enhancing tourism sustainability and resilience through data
Problem(s) / need(s) *Explain the key need(s) or problem(s) that should be addressed*
Despite its positive impacts, tourism may pose environmental, socio-cultural, and economic threats. For instance, an excessive number of tourists may damage or destroy fragile natural and cultural sites and contribute to the mounting waste and pollution. Moreover, residents may suffer from **overtourism** and see local services being increasingly devoted to tourists. At the same time, visitors' experience worsens when the number of tourists exceeds the destination's carrying capacity. Tourism seasonality also affects many destinations, meaning that tourism and its impacts (overtourism and economic effects) are highly concentrated in specific periods throughout the year. In recent years, Europe has faced various crises impacting tourism, including economic downturns, conflicts and wars, pandemics, and extreme weather. Effective crisis response and consequential **resilience of the European tourism sector** depend on access to reliable, timely, and diverse data about the situation at hand. In contrast, insufficient data exchange can hinder crisis response, leading to information gaps, coordination issues, and the potential spread of misinformation. Resilience of the European tourism sector can be achieved by acting upon endogenous elements (e.g., heavy reliance on tourism to support local jobs and businesses, seasonality, market dependence and product dependence), determining destinations' vulnerability to (unexpected) shocks (e.g., inflation, oil prices, supply-chain shortages, societal shifts, climate change, pandemics, etc.) and developing strategies to address those shocks.

[61] DSFT 2023: Identification of data typology and priority list of datasets, potential use cases and common building blocks with other data spaces, 21-51. Retrieved in October 2023 from https://www.tourismdataspace-csa.eu/wp-content/uploads/2023/07/DATES-D2.3-Identification-of-data-typology-and-priority-list...V1.1.pdf

[62] DSFT 2023: Technical Report, 62-76. Retrieved in October 2023 from: https://dsft.modul.ac.at/wp-content/uploads/2023/08/Technical-Report.pdf

Desired solution *Describe key aspects that could / should improve the use case problem/challenge, mentioning the possible solution.*
The above-mentioned problems could be addressed through an enhanced use of the data made available through the ETDS. The solution may be composed of three different parts, which could be individually or complementarily adopted by final users. The solution components are: 1. Development and monitoring of indicators through dashboards. 2. Data analytics tools for specific objectives. 3. Decision-making recommendations system. The first component focuses on the **development and monitoring of indicators through dashboards.** According to the problems mentioned, indicators should focus on environmental, socio-cultural, and economic sustainability. For instance, environmental indicators can measure tourists' waste production and energy and water consumption; sociocultural ones can measure residents' satisfaction towards local tourism and the incidence of tourism on residential housing; finally, economic ones can measure tourism's contribution to local employment and economy. Dashboards developed based on the final users' needs, could be useful for monitoring such impacts. These tools may be complemented with "alarms" (e.g., notifications via email) to be activated once the indicator's values reach critical thresholds. Specific indicators and monitoring systems can also be developed for emergency response, integrating real-time crisis management data with tourism data. The second component focuses on **data analytics tools for specific objectives.** Once raw data and indicators are available, they can be monitored and analysed to produce new knowledge and forecasts to inform decision-making. For instance, DMO can use historical data to predict when a Point of Interest's (POI) carrying capacity will be under stress. Similarly, tourism service providers and HoReCa companies may be able to estimate their potential market in specific periods and thus design more effective marketing campaigns. Finally, building on these two components, the third focuses on **decision-making recommendations**. Once specific thresholds are met or are about to be met, an AI recommender system based on nudging approaches may be developed to provide suitable alternatives to reach the final users' objectives. For instance, AI-based procedures can be implemented to predict POI under stress. Based on nudging approaches, a recommender system will be developed to provide DMOs with alternative options to enhance visitors' experience and to ensure residents' satisfaction. The same concept can be translated into a mobile app for visitors, recommending alternative itineraries based on forecasts of the number of people present in a POI at specific moments.
Needed data types *What are the main data types that need to be considered?*
Local/Residents' sentiment and satisfaction; tourist flows, industry data, purchase habits, behaviour of tourists; mobility data, demand, and supply data; tourists' sentiment and

satisfaction, typology of tourists, economic data, non-tourism data (e.g., health, mobility, weather-related data, etc.).

Stakeholders and roles

Who are the relevant stakeholders involved in this use case? *With which role(s)?*

Data provider: HoReCa, travel agencies, public authorities, private companies[2], NGOs/associations, tour operators, tourism service providers.

Data consumer: DMOs, HoReCa, travel agencies, tourism service providers, tour operators, public authorities, private organisations, media, research institutes

Final user: DMOs, public authorities, residents, tour operators, travel agencies, tourism service providers, HoReCa, tourists, NGOs/Associations

Examples of stakeholders' relations and type of data exchanged

How do stakeholders interact with the data space, the proposed solution and within each other? What type of data do they share between them?

HoReCa:

- Provides data on the accommodation capacities and occupancy rate.
- Consumes a list of all attractions in the destination and customer profile.

Travel agency:

- Provides bookings of flights towards the destination.
- Consumes a list of all attractions in the destination.
- Consumes data on the schedule of activities for tourists.

Public authority:

- Provides statistics on tourism impact.
- Provides datasets on tourists spending per capita vs local spending per capita.
- Provides data on the CO2 footprint of an average tourist.
- Provides weather data and forecasts.
- Consumes forecasts of expected visitors to a destination.

Destination management organisation:

- Provides a list of all attractions in the destination.
- Provides a schedule of activities for tourists.
- Provides behavioural data of tourists (e.g., tourist guest cards).
- Consumes reviews on the destination.

Private organisations:

- Provides weather data and forecasts.
- Provides behavioural data of tourists.

- Consumes a list of preferences and satisfaction rates of tourists.
- Provides sector-related performance data (e.g., bookings or ticket sales).

Tourism service providers:

- Provides data on individuals' time spent in a POI, time of visit, opening hours.
- Provides information on visitor profiles.
- Consume data on tourists' geolocalisation, visitor forecasts.

Tour operator:

- Provides a list of booked activities and the number of people for each booking.
- Provides visitor demographics in a POI.
- Consumes data on the schedule of activities for tourists.
- Consumes a list of all attractions in the destination.
- Consumers visitor forecasts.

NGOs/Associations:

- Provides datasets on the list of itineraries to enjoy destinations and POIs by walking.
- Provides datasets on the CO2 footprint of an average tourist.
- Consumer statistics, visitor forecasts, tourist activity data.

7.1 The Participant Journey

One of the main challenges the ETDS will face is to explain to potential participants, especially those without technical skills, the data space concept and how the data spaces paradigm is different from previous data sharing approaches. Furthermore, it must be clearly demonstrated what are the real benefits of using the data space approach and how it can improve data valorisation both inside the company and externally.

The conceptual model and building blocks approach provide a good and detailed overview of the main concepts like trust, data sovereignty, interoperability, business models and data governance but they do not provide a non-technical overview of the data space processes, i.e., the steps a company must follow to participate in a data space either as a data provider or as a consumer. Main concepts are easily understood but the operational level, the way in which they apply to the data sharing processes, is not so clear.

When combined with the contextualisation of use cases, explaining the data space concept as a "participant journey" is very helpful technique for illustrating how the building blocks cooperate to provide the whole experience of sharing data in an interoperable and standardized way.

The main steps of this journey, that can be considered as the main phases of the data space engagement life cycle, are the following:

- **Onboarding**
    - Participant

    - Data product/service
- **Publish/search/purchase**
    - Data
    - Services
    - Applications
- **Data products/services**
    - Provider (offers the data/service through the catalogue)
    - Consumer (accesses the data/service from the catalogue)
    - Owner (the holder of the rights to access and use the data/service)
- **Monitoring**
    - Tracking the data exchanges and contract fulfilment

While the potential ETDS participant follows the necessary steps, the difficulties and challenges of each step are revealed, in addition to understanding how the concepts of sovereignty, trust and valorisation are reflected in each of the steps.

8 Recommendations for the European Tourism Data Space (including roadmap for its deployment)

The ETDS will enable the digitisation of a critical mass of European tourism stakeholders, particularly local authorities and SMEs that would otherwise take years to achieve their digital transformation, with tourism destinations acting as the main triggers to boost the digital transformation journey of their territory.

The ETDS will represent a secure ecosystem for data from hundreds of destinations and thousands of SMEs connected and monitored, which will be implemented on three main axes:

- Destination-travellers-companies interaction, omnichannel communication, and personalised communication with travellers to attract them, make their stay profitable, improve their satisfaction and build their loyalty.
- Technological and management capabilities of Smart and Sustainable Tourism Destinations to integrate tourism management with local management, improving business strategy and employment, and anticipating, managing, and mitigating negative impacts.
- Tourism data economy, increasing data generation capabilities at the local level and data aggregation and intelligence at the country level to activate a new knowledge-based competitive advantage.

The results of the validation survey (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire) reveal that there are positive intentions for ETDS participation among tourism stakeholders. Figure 20 shows that the ability to access data and data assets is of greatest interest. There is also a lesser, but still significant, intention among stakeholders to share their data and data assets available via the ETDS.

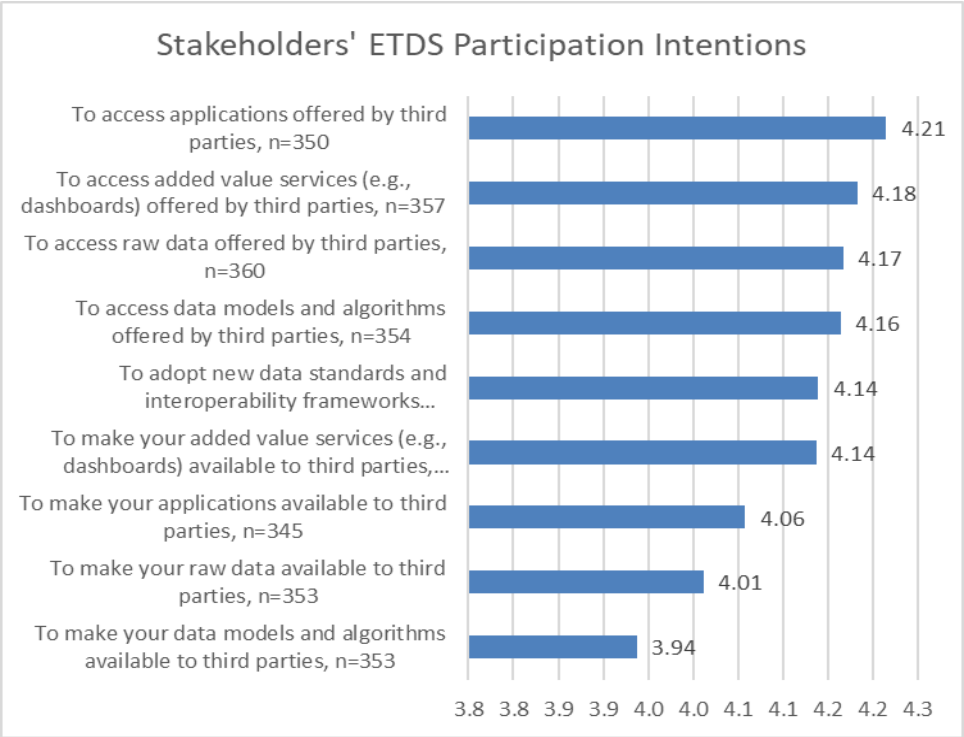

Figure 20 European tourism stakeholder ETDS participation intentions

Based on the affordances described in Figure 20 above, the ETDS will accelerate the digitalisation of European tourism and allow stakeholders, particularly SMEs, to access and use versatile data to inform management decisions. Thus, the ETDS will enable increasing competitiveness, boosting the relevance of offerings and personalising value propositions. Apart from the technical know-how, ETDS will serve as a knowledge exchange and relationship-building platform.

For Smart and Sustainable Tourism Destinations, the ETDS will represent an ecosystem of common services that deploys its own and third-party applications, integrates third-party operations and interoperates bi-directionally with data from other data spaces and third-party applications.

In order to deploy the ETDS it is imperative to adhere to the key design principles: trust, data sovereignty, federation, participatory governance, interoperability, flexibility, security and quality control, and openness. These principles address the existing mistrust toward data sharing while allowing access to data products located in any member state of the European Union.

The architectures currently being developed by Gaia-X, IDSA, FIWARE and DSSC will allow the common pillars of Data Spaces in Europe to be established, not forgetting the Sovereign Cloud Stack and SIMPL initiatives that will provide the middleware for their deployment.

However, the particularities of the ETDS, with the high involvement of SMEs, the responsible handling of personal data, and the necessary public-private collaborations imply considering stricter governance aspects than in other data spaces, while facilitating their access and use for

organisations of smaller size and with smaller budgets. Data intermediaries and service brokers will also play an essential role in these ecosystems.

The analysis of different use cases has generated important insights to define the ETDS. However, since tourism is a complex industry and the concept of data spaces is still evolving, the implementation of future use cases, will allow adaptations in light of new information as well as to gather best practices for the ETDS.

Important priorities for a minimum viable ETDS include:

- **Lowering the cost of data access** by creating a competitive data marketplace should be a core objective of the ETDS.
- The ETDS should **enable open data models** (suited to public administrations and other actors) while also **enabling data monetization** by private actors.
- **Provide use case description** templates that follow a standardised structure to collect relevant use cases that are intended to be addressed by data space participants.

Following the widespread consultations with tourism industry stakeholders, a roadmap for the ETDS deployment has been developed (see Figure 21). In line with OpenDEI[63] and concepts from the BDVA[64], the recommended actions should be supported along five activity streams within the suggested time frame. The suggested activity streams are not mutually exclusive and may be implemented in parallel.

[63] OpenDei 2021: Design Principles for Data Spaces. Retrieved October 2023 from: https://h2020-demeter.eu/wp-content/uploads/2021/05/Position-paper-design-principles-for-data-spaces.pdf

[64] BDVA November 2020: Towards a European-governed Data Sharing Space, Enabling data exchange and unlocking AI potential. BDVA Position Paper v2. Retrieved in October 2023 from: https://www.bdva.eu/sites/default/files/BDVA%20DataSharingSpaces%20PositionPaper%20V2_2020_Final.pdf

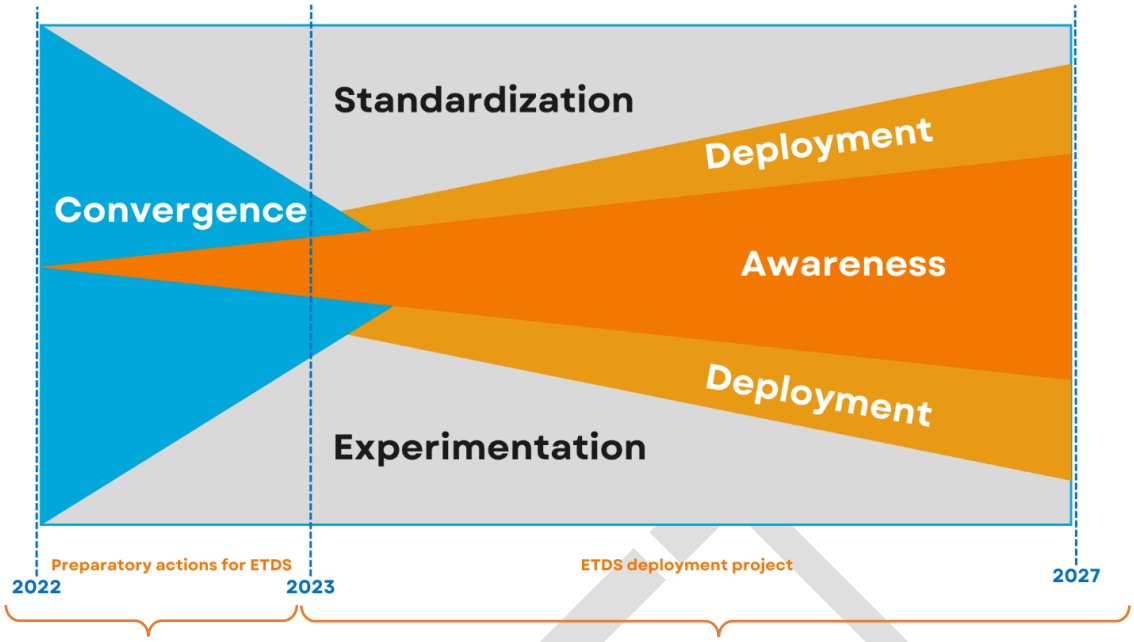

Figure 21 Roadmap for the development of the ETDS: activities and timeframe
(Source: OpenDei 2021, Design Principles for Data Spaces. Retrieved October 2023 from: https://h2020-demeter.eu/wp-content/uploads/2021/05/Position-paper-design-principles-for-data-spaces.pdf)

8.1 Convergence.

The phase of convergence brings together two main streams of input, first the systematic review of data initiatives, policy and legislative frameworks and, second, the stakeholder's perceptions, resources, skills and expertise.

1. Systematic review of **the European data initiatives, policy and legislative framework** for data access and use at the local, regional, national and European level from the tourism sector and beyond. These efforts allow determining the use cases and identifying important touchpoints between the ETDS and the other sectorial data spaces (e.g., culture, mobility, etc.). The latter are essential for establishing connections and building the future pan-European data space. This activity has partially already been undertaken by the two CSAs. The analysis and the status quo have been presented in the preceding sections of this blueprint. However, given its fast-paced development, continuous survey and analysis of the data space environment is instrumental also at later stages (e.g., pre-deployment phase).
2. Review of the **stakeholders' perceptions, resources, skills and expertise** which should highlight the potential costs and challenges associated with joining the ETDS. In order to achieve long-term sustainability, the ETDS must consider switching costs which must be overcome. Different users (data holders, data intermediaries, data consumers, etc.) will have different needs which must be addressed within the ETDS when creating a deployment strategy. The foreseen costs may include:
    - **Procedural switching costs –** uncertainties related with the economic risks associated with joining the ETDS; evaluation; set-up and learning costs.

- **Financial switching costs** associated with the direct monetary loss (e.g., fees and investment in the ETDS infrastructure and training) or the loss of other (non-monetary) benefits (e.g., performance costs).
- **Relational switching costs** may include the loss of the relationships on a personal or brand level (e.g., partnerships, common projects).

These costs could be overcome by:

- clear and transparent **communication of the relative advantage** (value proposition) of the ETDS;
- improved **technical functionality** and network externalities compared to existing tourism data products/services currently in use by European tourism stakeholders;
- **expert support and education** for the new and existing ETDS members (e.g., trainings, online and on-site workshops, training materials); and
- transparent **governance structure** and flexible governing approaches**.**

3. **Establishment of the governance structure,** including organizational, data governance and business model frameworks described in Chapters 4 and 6. Upon agreement on the optimal governance structure, decisions must be made about the composition of the governing bodies at every level, regarding their responsibilities, eligibility and the selection process.
4. **Systematic review and development of the blueprint of the optimal technical solution** in line with ETDS design principles.

8.2 Deployment

The ETDS must build upon the output of the convergence stage. The critical first step is the establishment of a solid **governance structure and funding mechanisms**. Figure 22 below also shows that among European tourism stakeholders (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire) it is of relatively minor importance whether the ETDS governing body is newly created or an already established organisation, though there is negligible preference towards the formation of a new legal entity for the purpose. However, the insights from a widespread consultation with the tourism stakeholders indicate a strong preference for the public non-profit form of the ETDS governing body which is at least partially sustained through public funds (see Figure 18 and Figure 19 in the Chapter 4).

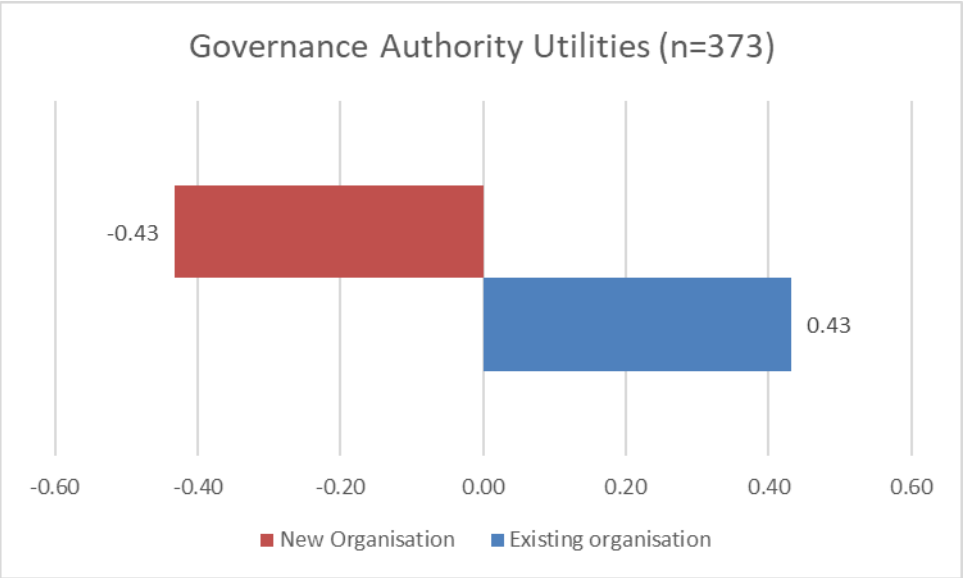

Figure 22 European tourism stakeholder preferences on new vs. existing ETDS governing authority

The ETDS must create additional value via network externalities. In essence, the more ETDS users there are, the more potential benefit there is for others to use the ETDS. Therefore, deployment strategies and EU policy should consider making **onboarding** as easy as possible and **reducing the costs** for participating as much as possible to create a critical mass of participants (particularly data holders and intermediaries). For this reason, the roadmap also calls for the **prioritisation of compatibility** with other sectoral data spaces. In particular, the efforts of the preparatory actions CSA's have determined that connectivity and compatibility with the Mobility, Cultural Heritage, Green Deal, /Energy, etc. Data Spaces would generate significant value for ETDS users.

The ETDS deployment must also address organisational considerations which will influence adoption. Among these are the social capital and skillsets of ETDS users, as well as external considerations especially governmental support and pressure from both competitors and partners. When looking at skills, it is worth mentioning that readiness of organizations to capture the value of data, and hence, to maximize the potential of data spaces, will also depend on having appropriately skilled employees. That is why education and training services have been mentioned frequently as facilitators for successful adoption and use of the ETDS. However, Digital Transformation of public and private institutions should come together with strategic skill development plans, supported by data spaces as needed.

The struggle to attract tech talent is evident globally and affects all economic sectors. However, the tourism sector is particularly challenged as most technological professionals such as mathematicians, engineers, architects, or programmers do not recognize the tourism sector as a viable option when developing their professional careers. Therefore, it is necessary to develop an "employer branding strategy" in which the different stakeholders (public sector, private companies, and academia) work together to convince these technological professionals that the tourism sector presents great opportunities for professional development. Otherwise, the rest of the initiatives, which are intensive in time and resources, such as the design and delivery of education and training programs or the design of reskilling or upskilling strategies customized

to the tourism sector's needs, may fail since the participating professionals may leave the tourism sector. The public sector, which has traditionally had professionals accustomed to the creation, analysis, and publication of statistical and econometric data sources, deserves special mention. These professionals primarily take part in reskilling and upskilling activities to be able to deal with the new trends associated with data analysis. However, conversely the public sector continues to suffer from a lack of flexibility, and in this case, it is clearly manifested in its difficulty in hiring technological profiles. Even in those cases in which analytical know-how necessary to interact with the future ETDS is acquired through outsourcing processes (typically subcontracting), these processes are slow and time-consuming. This deprives the tourism sector of the agility that would be desirable for positioning itself as an active agent and driver of the tourism sector. Having the necessary technological talent internally in the public sector is especially important due to the role that it has also played as "glue" with the private sector, made up mainly of SMEs that operate in destinations. Therefore, efforts to gain public sector support may act as a driving force that would accelerate the adoption of the ETDS.

Deployment of the ETDS must also be in-line with and synergise with the myriad initiatives that answer the calls for the Transition Pathway for Tourism and the European Strategy for Data which are in parallel development. These initiatives include:

- The Data Space Support Centre
- The EU Tourism Data Competence Center
- National and Regional Tourism Data space initiatives
- Code of Conduct for Data Sharing in Tourism
- Smart European Capital of Tourism/Intelligent Cities
- EU Tourism Dashboard
- European Digital Innovation Hubs (EDIH)
- Enterprise Europe Network SEctor Group Tourism (SGT)

8.2.1 ETDS deployment process.

This section outlines the ideal process of defining and implementing the ETDS from the technical point of view.

1. Define the data space mission statement
2. Define the data space governance authority.
3. Define the data governance framework or Rulebook.
    a. Compliance process (from the technical perspective)
        i. Mandatory and optional criteria
        ii. Sector specific criteria
    b. Define data models needed to implement the compliance processes

i. Generic models to describe Data products, natural and legal persons, services, contracts and so on

ii. Tourism specific

4. Operationalize the on-boarding process.
    a. Define and deploy the on-boarding services.
5. Deploy the needed data intermediaries:
    a. Catalogue
    b. Identity provider(s)
        i. For natural and legal persons
    c. Personal data intermediaries
    d. Logging service
        i. Observability and audit
6. Define and deploy the standard “connector” for the data space, with the following features:
    a. Secure identification and authorization
    b. Secure data transfer
    c. Data sovereignty enforcement

8.3 Awareness

Creating awareness about the ETDS, communicating the long-term vision and the expected benefits of participating in the data space is key to engaging and maintaining a critical mass of ETDS users. Furthermore, the rate upon which the ETDS is adopted by the tourism sector will be based upon:

Relative advantage – the extent to which the ETDS is a “better” solution for accessing and sharing data. ETDS can provide a number of benefits to the stakeholders. These are summarized in a value proposition in

- Figure 23Figure 23.
- Compatibility – how consistent the EDTS is with existing practice, values, expectations of potential users.
- Complexity – the more difficult the EDTS is to use and understand, the less likely it will be adopted.
- Trialability – the degree to which the EDTS can be tested and experimented with on a limited scale.
- Observability – the use and benefits of usings the EDTS must be visible to European Tourism Stakeholders.

Funded by the European Union

The ETDS deployment must also address organisational considerations which will influence adoption.

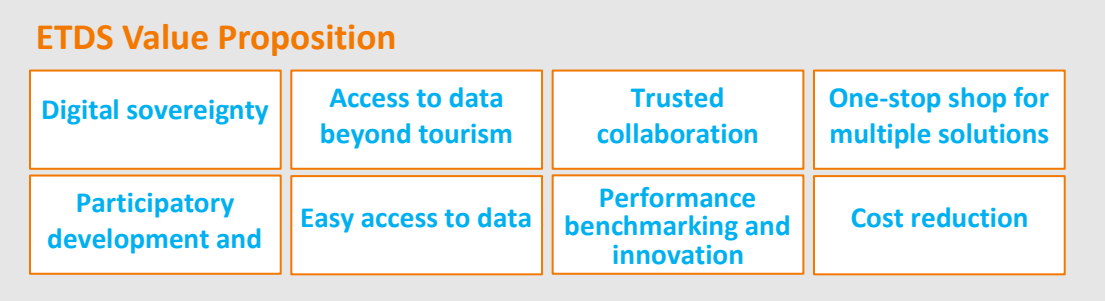

Figure 23 ETDS value proposition

8.4 Standardisation

In the versatile reality of data forms, types and modes of data collection, standardisation is critical for the widespread deployment of the ETDS. The ETDS Rulebook should define these standards. The latter must ensure interoperability and connectivity with other sectorial data spaces. Appropriateness and applicability of the standards must be continuously evaluated in line with market trends and technological developments. Fortunately, there is currently strong interest and good will among tourism stakeholders (see Appendix A: ETDS Design Experiment and Validation survey Methodology and Appendix B: ETDS Design Experiment and Validation Survey Questionnaire) regarding the adoption of new interoperability standards, as shown in Figure 24 below.

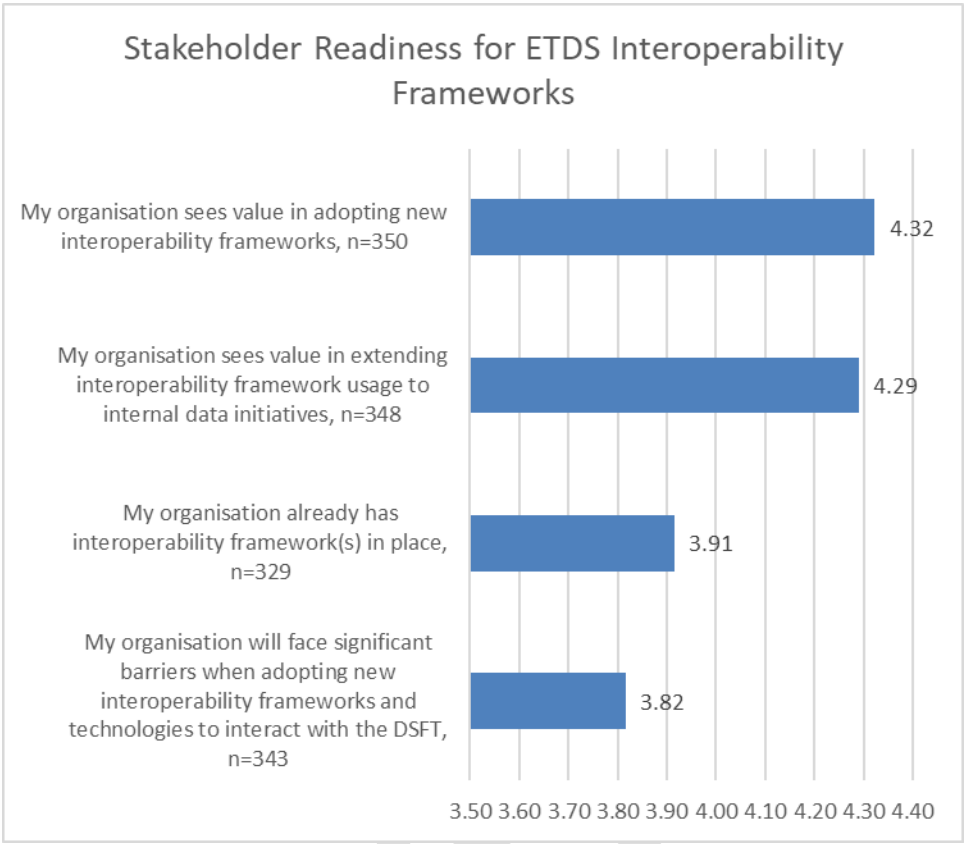

Figure 24 Stakeholder readiness for ETDS interoperability frameworks

8.5 Experimentation

A successful and sustainable data space must be treated as a dynamic system that adapts in response to the environmental and technological trends and evolving users' needs. The ETDS has to keep up the experimentation spirit to continuously identify and test promising use cases and explore market capabilities for business innovation. Indeed, one of the stated goals of the ETDS is to foster innovation within the European tourism sector. The opportunity of creating new use cases and adding experimentation sandboxes should not be neglected.

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Appendix A: ETDS Design Experiment and Validation survey Methodology

Based on the findings obtained from preliminary activities of the CSA's (e.g., stakeholder workshops, interviews, online questionnaires, desk research identifying potential EDTS technical building blocks) a research activity was conducted to in order to identify the EDTS's ideal business models and governance models. An experiment was conducted to assess the desirability of different DSFT design option combinations using conjoint analysis, which is an advanced quantitative technique (Green, Krieger & Wind, 2001) for understand how users would value the individual features of the ETDS. The part-worth utility, or preference score, of each "feature" of the EDTS was estimated using statistical analysis as well as the relative importance of ETDS attributes. Understanding stakeholders' reactions to the feasible business models, governance models, and technical specifications were used to determine the most desirable combination of characteristics for the ETDS among European tourism stakeholders and guide further recommendations.

The complete questionnaire is presented below. Between August 31 and September 20, 2023, the questionnaire was distributed to 271 tourism stakeholder organisations that previously volunteered to participate in this study, of which 153 responded (56.5% response rate). Questionnaire links were also distributed using the social media of both CSAs, which yielded an additional 246 responses. Finally, an additional 260 responses specifically from European tourism SMEs were collected through collaboration with the online panel company OvationMR. After data cleaning and validation, a total of 392 responses were retained for analysis.

As reported in Table 3 below, the sample (n=392) is representative of European tourism stakeholders based upon operational scope, organisation type, and number of employees.

Table 3 Organisation type, scope, and size of ETDS Design experiment sample, n=392.

		Organisation Type*							
		Priv.E.	**Priv.A.**	**DMO**	**PPP**	**GOV**	**RES**	**NGO**	**Total**
Organisation Scope	Multinational	9.1%	3.8%	2.5%	1.1%	1.1%	3.0%	1.1%	21.7%
	National	22.8%	6.9%	5.8%	3.8%	3.0%	1.9%	0.3%	44.5%
	Regional	7.4%	1.6%	2.2%	3.0%	0.0%	0.3%	0.5%	15.1%
	Local	8.5%	1.6%	2.2%	1.6%	4.1%	0.3%	0.3%	18.7%
	Total	**47.8%**	**14.0%**	**12.6%**	**9.6%**	**8.2%**	**5.5%**	**2.2%**	**100.0%**
Number of Employees	1	1.6%	0.3%	0.0%	0.3%	0.0%	0.3%	0.0%	2.5%
	2-9	3.3%	1.1%	0.3%	0.0%	0.0%	0.3%	1.1%	6.0%
	10-49	9.3%	2.7%	3.0%	2.5%	1.9%	0.8%	0.0%	20.3%
	50-99	15.7%	4.4%	2.5%	3.0%	3.0%	0.3%	0.3%	29.1%
	100-499	16.5%	5.5%	5.8%	3.8%	2.5%	1.6%	0.3%	36.0%
	500+	0.5%	0.0%	0.3%	0.0%	0.8%	0.3%	0.3%	2.2%
	Total	**0.8%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**	**1.9%**	**0.3%**	**3.8%**

*Note: Priv.E.= Private enterprise, Priv.A.= Private association representing tourism stakeholders, DMO = Public administration or governmental body managing tourism, PPP = Public-private partnership organisation in tourism, GOV = Local, regional, or national government authority, RES = Research institute/University, NGO = non-governmental organisation

Funded by the European Union

Appendix B: ETDS Design Experiment and Validation Survey Questionnaire

Thank you for accepting the invitation to participate in this survey.

The European Union has commissioned our consortium to undertake a Preparatory Actions for the Data Space for Tourism. Our goal is to create the blueprint for a secure and trusted Data Space for Tourism that enables all tourism organizations to share and access data as easily as possible. The Data Space for Tourism is taking a "bottom-up" approach to meeting stakeholder needs. Therefore, we invite you to share your opinions on data space issues by completing this survey by **September 20, 2023**.

This survey will take approximately 15 minutes for you to complete.

The data you provide will not be shared with third parties and will be treated in accordance with the GDPR. Please do not hesitate to reach out to us at dsft@modul.ac.at in case you have any questions.

Best regards,

Consortium Partners: Modul University Vienna, City Destinations Alliance, European Travel Commission, and ForwardKeys

Consent:

I have reviewed the Participant Information Sheet for this project, and I agree to participate in this study.

Definitions What is a Data Space?

Before you proceed with the questions, we want to clarify the key concepts related to the Data Space for Tourism project.

A data space is a **decentralized** system that enables easier data asset sharing among a network of different organisations, such as SMEs, public authorities, private enterprises, NGOs, and research institutes. Data spaces usually provide both organisational and technological resources for participants.

A **governing body** creates the standards, policies, and practices that define how the data space operates and how decisions are made. It provides a structure for the management of the data space and outlines the roles, responsibilities, and accountabilities of participants. A key principle of data spaces is that shared data assets remain under the control of the original "data holder".

In terms of **technology**, data spaces use open-source standards to implement mechanisms of trust, security, and connectivity among participants in order to control external "data user" access to the data.

A few examples of how the Data Space for Tourism can create value for the European tourism sector are as follows:

- **Fostering transnational tourism cooperation** by combining various data sources and providing an overview of the multi-destination travel patterns of tourists within Europe.

- **Enhancing residents' sentiment** by enabling an exchange of information to facilitate the understanding of tourism performance both from business and local residents' perspectives.
- **Optimising the European tourism sector's response in crisis situations** by expediting the exchange of crucial data among stakeholders, aiding in the dissemination of accurate information while minimising misinformation.
- **Empowering travellers' journeys** by using shared data to develop advanced recommendation systems.

For more information about data spaces and related concepts, please review the Data Spaces Support Centre glossary. More information about data space requirements and use cases for the European tourism sector can be found at the DSFT project website.

Instructions

Based upon previous work conducted by this project, a number of different design options for the future Data Space for Tourism (DSFT) have been identified. The following questions ask you to rate the importance of different potential features of the DSFT and to indicate your preferences among different combinations of features.

How much do you agree or disagree with each of the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not sure/not applicable
The DSFT governing body should include a group responsible for **strategic decisions**						
The DSFT governing body should include a group responsible for **tactical and operational decisions**						
The DSFT governing body should include a group responsible for **maintenance and innovation**						
The DSFT governing body should include a group responsible for **member accession and certification**						
The DSFT governing body should include a group responsible for **technical support, implementation, and training**						
The DSFT governing body should include a group responsible for **communication and education**.						
The DSFT governing body should be composed of **representatives of organisations participating in the DSFT**						

Please rate the following **Revenue** options in terms of how desirable they are.

	Not desirable	Somewhat Desirable	Very Desirable	Extremely Desirable
DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees).				
DSFT participants will be charged **connection fees** (one-time charges related to initial access to DSFT services).				
DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions).				

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Please rate the following **Main Funding Model** options in terms of how desirable they are.

	Not desirable	Somewhat Desirable	Very Desirable	Extremely Desirable
The DSFT will be **publicly funded** (funded by government or public sector sources).				
The DSFT will be **privately funded** (funded by private investors for returns or ownership stakes).				
The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool).				

Please rate the following **Governing Body** options in terms of how desirable they are.

	Not desirable	Somewhat Desirable	Very Desirable	Extremely Desirable
The DSFT will be governed by an **already existing** organisation.				
The DSFT will be governed by a **newly established** organisation.				

Please rate the following **Legal Status** options in terms of how desirable they are.

	Not desirable	Somewhat Desirable	Very Desirable	Extremely Desirable
The DSFT governing body will be a **private, non-profit** organisation.				
The DSFT governing body will be a **private, for-profit** organisation.				
The DSFT governing body will be a **public** organisation.				

If two DSFT designs were acceptable in <u>all other ways</u>, how important would <u>this difference</u> be to you?

	Not Important	Somewhat Important	Very Desi Important	Extremely Important
The DSFT will be governed by an **already existing** organisation.				
---instead of---				
The DSFT will be governed by a **newly established** organisation.				
The DSFT governing body will be a **private, non-profit** organisation.				
---instead of---				
The DSFT governing body will be a **public** organisation.				
The DSFT will be **publicly funded** (funded by government or public sector sources).				
---instead of---				
The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool).				
DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees).				
---instead of---				
DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions).				

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool). The DSFT governing body will be a **public** organisation.	or	The DSFT will be **privately funded** (funded by private investors for returns or ownership stakes). The DSFT governing body will be a **private, non-profit** organisation.

Strongly Prefer Left	Somewhat Prefer Left	Indifferent	Somewhat Prefer Right	Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT governing body will be a **private, for-profit** organisation. The DSFT will be governed by an **already existing** organisation.	or	The DSFT governing body will be a **public** organisation. The DSFT will be governed by a **newly established** organisation.

Strongly Prefer Left	Somewhat Prefer Left	Indifferent	Somewhat Prefer Right	Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be governed by a **newly established** organisation. DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions).	or	The DSFT will be governed by an **already existing** organisation. DSFT participants will be charged **connection fees** (one-time charges related to initial access to DSFT services).

Strongly Prefer Left	Somewhat Prefer Left	Indifferent	Somewhat Prefer Right	Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be **publicly funded** (funded by government or public sector sources). DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees).	or	The DSFT will be **privately funded** (funded by private investors for returns or ownership stakes). DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions).

Strongly Prefer Left	Somewhat Prefer Left	Indifferent	Somewhat Prefer Right	Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool). The DSFT will be governed by a **newly established** organisation.	or	The DSFT will be **publicly funded** (funded by government or public sector sources). The DSFT will be governed by an **already existing** organisation.

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT governing body will be a **private, for-profit** organisation. DSFT participants will be charged **connection fees** (one-time charges related to initial access to DSFT services). The DSFT will be **privately funded** (funded by private investors for returns or ownership stakes).	or	The DSFT governing body will be a **private, non-profit** organisation. DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees). The DSFT will be **publicly funded** (funded by government or public sector sources).

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT governing body will be a **public** organisation. The DSFT will be governed by a **newly established** organisation. DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions).	or	The DSFT governing body will be a **private, for-profit** organisation. The DSFT will be governed by an **already existing** organisation. DSFT participants will be charged **connection fees** (one-time charges related to initial access to DSFT services).

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool). DSFT participants will be charged **connection fees** (one-time charges related to initial access to DSFT services). The DSFT will be governed by a **newly established** organisation.	or	The DSFT will be **publicly funded** (funded by government or public sector sources). DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees). The DSFT will be governed by an **already existing** organisation.

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be governed by a **newly established** organisation. The DSFT will be **collaboratively funded** (stakeholders contribute data and resources in exchange for access, creating a shared funding pool). The DSFT governing body will be a **public** organisation.	or	The DSFT will be governed by an **already existing** organisation. The DSFT will be **privately funded** (funded by private investors for returns or ownership stakes). The DSFT governing body will be a **private, non-profit** organisation.

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

If the DSFT design was identical in all other ways, which would you prefer?

The DSFT will be governed by an **already existing** organisation. DSFT participants will be charged **membership fees** (e.g., monthly or annual subscription fees). The DSFT governing body will be a **private, non-profit** organisation.	or	The DSFT will be governed by a **newly established** organisation. DSFT participants will be charged **transaction fees** (e.g., flat per-use charges or commissions from data sales transactions). The DSFT governing body will be a **private, for-profit** organisation.

Strongly Prefer Left | Somewhat Prefer Left | Indifferent | Somewhat Prefer Right | Strongly Prefer Right

Please share your opinions about the DSFT by answering a few additional questions.

How appealing to your organisation are each of the following **incentives** for sharing data assets via the DSFT?

	Very unappealing	Somewhat unappealing	Neither appealing nor unappealing	Somewhat appealing	Very appealing	Not sure/Not Applicable
Monetary payment based on the fair-market value of the data assets shared.						
Non-monetary exchange where data asset access is provided in return for data asset sharing.						
Statutory requirements for sharing priority data assets.						
Reduction of DSFT fees (e.g., membership, transaction, or connection fees) in return for data asset sharing.						

Interoperability is the ability of different systems, devices, applications, or products to connect and communicate with each other. How much do you agree or disagree with each of the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Not sure/Not Applicable
My organisation will face **significant barriers** when adopting new interoperability frameworks and technologies to interact with the DSFT.						
My organisation sees **value in adopting** new interoperability frameworks.						
My organisation sees **value in extending** interoperability framework usage to internal data initiatives.						
My organisation **already has** interoperability framework(s) in place.						
If you are **paying attention**, please select "Disagree" for this question.						

How likely is your organisation to use the DSFT for each of the following activities?

	Very unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Very likely	Not sure/Not Applicable
To adopt new **data standards** and interoperability frameworks recommended by the DSFT.						
To access **raw data** offered by third parties.						
To access **data models and algorithms** offered by third parties.						
To access **added value services** (e.g., dashboards) offered by third parties.						
To access **applications** offered by third parties.						
To make your **raw data** available to third parties.						
To make your **data models and algorithms** available to third parties.						

	Very unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Very likely	Not sure/Not Applicable
To make your **added value services** (e.g., dashboards) available to third parties.						
To make your **applications** available to third parties.						

What do you think will be the most important keys to successfully establishing the Data Space for Tourism? What recommendations would you give the European Union for developing the Data Space for Tourism? (Optional)

Please tell us about your organisation.

Organisation type:

1 Private enterprise
2 Private association representing tourism stakeholders
3 Public administration or governmental body managing tourism
4 Public-private partnership organisation in tourism
5 Local, regional, or national government authority
6 Research institute/University
7 Non-governmental organisation
8 Other (please specify)

Scope of your organisation's actions:

1 EU-wide/multinational
2 National
3 Regional
4 Local
5 Other (please specify)

Where is your organisation headquartered?

How many full-time equivalent (FTE) employees currently work for your organisation?

Thank you very much for taking the time to complete this survey. We truly appreciate your feedback. More information about the Data Space for Tourism project is available at the DSFT project website.

Appendix C: Catalogue of key EU-level policies and regulations affecting the ETDS

POLICY & REGULATION	DESCRIPTION
EUROPEAN STRATEGY FOR DATA	*The European strategy for data aims at creating a single market for data that will ensure Europe's global competitiveness and data sovereignty. Creating a single market for data will allow it to flow freely within the EU and across sectors for the benefit of businesses, researchers, and public administrations. The strategy contributes to a comprehensive approach to the data economy that aims to increase the use of, and demand for, data and data-enabled products and services throughout the Single Market.*
COMMON EUROPEAN DATA SPACE	*Common European data spaces will ensure that more data becomes available for use in the economy and society while keeping the companies and individuals who generate the data in control.*
DATA GOVERNANCE ACT (DGA)	*A key pillar of the European strategy for data is the Data Governance Act, which aims to increase trust in data sharing, strengthen mechanisms to increase data availability and overcome technical obstacles to data reuse.* *The Data Governance Act will also support the set-up and development of common European data spaces in strategic domains, involving both private and public players in sectors such as tourism, health, environment, energy, agriculture, mobility, finance, manufacturing, public administration, and skills.* *The Data Governance Act entered into force on June 23, 2022, and, following a 15-month grace period, will be applicable from September 2023.*
DATA ACT	*The Data Act should ensure fairness in the digital environment, stimulate a competitive data market, open opportunities for data-driven innovation and make data more accessible for all. It will lead to new, innovative services and more competitive prices for aftermarket services and repairs of connected objects.*

POLICY & REGULATION	DESCRIPTION
GENERAL DATA PROTECTION REGULATION	*The General Data Protection Regulation (GDPR) sets the minimum standards for data protection across the European Union (EU) member states. Although implemented by the EU, it applies to organisations anywhere in the case that they target or collect data related to EU citizens. Through this piece of legislation, the EU aims to take a firm stance on privacy and security with regard to the collection, processing, and sharing of personal data at a time when an increasing amount of people make use of cloud services.*
E-PRIVACY DIRECTIVE & PRIVACY REGULATION	*The E-privacy Directive was implemented in 2002 and amended in 2009. It is most commonly known as the 'Cookie Law', as it resulted in the requirement of providing consent to the collection of 'cookies. The law supplements the GDPR in dealing with the confidentiality of electronic communication, though the scope of the GDPR is limited to personal data, and the E-privacy directive includes non-personal data. The E-privacy Regulation is set to replace the E-privacy Directive, although approval has been delayed, and it is yet to be put into effect.*
CODE OF CONDUCT ON DATA SHARING IN TOURISM	*The goals of the Code of Conduct for Data Sharing in Tourism are to:* *Build trust between relevant tourism stakeholders and provide strategic support on how to capitalise on mutually beneficial data-sharing partnerships in the tourism industry.* *Foster data sharing in the tourism sector within the EU while contributing to an EU-wide architecture for data exchange by supporting a set of common principles and guidelines for relevant tourism stakeholders.* *Foster in the tourism sector, the EU's global endeavours to gradually create, with the implementation of the 2020 European data strategy, a genuine single market for data.* *Ensure a level playing field whereby the public and private sectors and relevant stakeholders have equal chances and opportunities in the use and sharing of data in tourism, notably by supporting a set of principles on data exchanges.*

POLICY & REGULATION	DESCRIPTION
THE OPEN DATA DIRECTIVE	*The Open Data Directive regulates the reuse of publicly/available information held by the public sector. However, the public sector also holds vast amounts of protected data (e.g., personal data and commercially confidential data) that cannot be reused as open data but that could be reused under specific EU or national legislation. A wealth of knowledge can be extracted from such data without compromising its protected nature, and the DGA provides rules and safeguards to facilitate such reuse whenever it is possible under other legislation.* *On January 20, 2023, the EC published a list of high-value datasets that public sector bodies will have to make available for reuse, free of charge, within 16 months.*
THE DIGITAL SERVICES ACT	*The Digital Services Act aims to foster innovation, growth and competitiveness and facilitates the scaling up of smaller platforms, SMEs and start-ups. The responsibilities of users, platforms, and public authorities are rebalanced according to European values, placing citizens at the centre. The rules are designed to:* • *Better protect consumers and their fundamental rights online,* • *Establish powerful transparency and a clear accountability framework for online platforms, and* • *Foster innovation, growth and competitiveness within the single market*
DIGITAL MARKETS ACT	*The Digital Markets Act (DMA) establishes a set of narrowly defined objective criteria for qualifying a large online platform as a so-called "gatekeeper". This allows the DMA to remain well-targeted to the problem that it aims to tackle regarding large, systemic online platforms.*

Funded by the European Union

POLICY & REGULATION	DESCRIPTION
NIS2 DIRECTIVE	*The Network and Information Systems Directive (NIS2 Directive) or Directive (EU) 2022/2555 is an EU legislation aimed at improving the security and resilience of network and information systems in the EU. It establishes requirements for the management of cybersecurity risks, including the identification of critical infrastructure, risk management measures, and incident reporting. The NIS2 is an update to the NIS Directive that expands its scope to include new sectors and services, introduces harmonised security requirements for operators of essential services and digital service providers, enhances cooperation and information sharing, and introduces stronger enforcement measures and sanctions for non-compliance.*
REGULATION ON THE FREE FLOW OF NON-PERSONAL DATA	*Regulation (EU) 2018/1807 on the free flow of non-personal data aims to remove barriers to the free flow of non-personal data within the EU. It applies to all non-personal data stored or processed electronically, regardless of the sector. The Commission has published informative guidance to offer businesses greater clarity on how to manage data across borders.*
EUROPEAN INTEROPERABILITY FRAMEWORK (EIF)	*The European Interoperability Framework (EIF) is issued by the European Commission and offers principles and recommendations to improve the quality, accessibility, and efficiency of public services while promoting innovation and competitiveness within the EU. The EIF has been updated several times since its initial publication in 2004 to reflect changes in technology and to respond to new challenges and opportunities. A full text on the EIF is available here.*
FRAMEWORK FOR THE FREE FLOW OF NON-PERSONAL DATA	*The Regulation on the Free Flow of Non-Personal Data seeks to promote the development of the European data economy by removing restrictions on the location of data storage and processing. The regulation allows businesses to store and process data anywhere within the EU rather than having to keep it within the borders of individual member states.*

Appendix D: Catalogue of EU-level programmes, initiatives, and resources relevant to the ETDS

PROGRAMMES, NITIATIVES & RESOURCES	DESCRIPTION
DIGITAL EUROPE PROGRAMME	*The Digital Europe Programme aims to bring digital technology to businesses, citizens and public administrations. The Digital Europe Programme will provide strategic funding to answer these challenges, supporting projects in five key capacity areas: supercomputing, artificial intelligence, cybersecurity, advanced digital skills, and ensuring a wide use of digital technologies across the economy and society, including through Digital Innovation Hubs.*
EUROPEAN DIGITAL IDENTITY FRAMEWORK	*The Framework for a European Digital Identity is an initiative by the European Commission aimed at creating a secure and interoperable digital identity for EU citizens, residents, and businesses. The framework was introduced in June 2021 and is part of the European Commission's broader vision of a European Digital Single Market. The European Digital Identity Framework is established on Regulation (EU) 2021/694. The regulation aims to enable individuals and businesses to easily and securely access online services, regardless of their country of origin.*
COMMUNICATION "TOWARDS A COMMON EUROPEAN DATA SPACE"	*With this Communication, the Commission proposes a package of measures as a key step towards a common data space in the EU - a seamless digital area with a scale that will enable the development of new products and services based on data.*
GUIDANCE ON SHARING PRIVATE SECTOR DATA IN THE EUROPEAN DATA ECONOMY	*Drawing from the principles identified in the communication "Towards a Common European Data Space", this Staff Working Document aims to provide a toolbox for companies that are data holders, data users, or both. For this purpose, it contains a How To guide on legal, business, and technical aspects of data sharing that can be used in practice when considering and preparing data transfers between companies coming from the same or different sectors.*

Appendix E: Catalogue of EU-level structures relevant to the ETDS

STRUCTURES	DESCRIPTION
DATA SPACES BUSINESS ALLIANCE (DSBA)	*The Data Spaces Business Alliance (DSBA) is an initiative that unites industry players to realise a data-driven future in which organisations and individuals can unlock the full value of their data. It is formed by are Gaia-X European Association for Data and Cloud AISBL, the Big Data Value Association (BDVA), FIWARE Foundation, and the International Data Spaces Association (IDSA).*
EUROPEAN DATA INNOVATION BOARD (EDIB)	*A group of experts that work together to facilitate the sharing of best practices, particularly on data intermediation, data altruism and the use of public data that cannot be made available as open data, as well as on the prioritisation of cross-sectoral interoperability standards. This group is expected to advise and support the European Commission on data sharing within the Union. More details are specified in the Data Governance Act (Chapter VI).*
EUROPEAN DATA PROTECTION BOARD (EDPB)	*The European Data Protection Board (EDPB) is an independent body that provides guidance and recommendations on the implementation of data protection rules in the EU. It has issued numerous guidelines on various topics, such as data subject rights, transparency, and the use of cookies. EDPB is also responsible for resolving disputes between national supervisory authorities.*

Appendix F: Data Space Support Centre

The DSSC has started a collaborative process with the different beneficiaries of European-funded initiatives responsible of the preparatory actions for various sectorial data spaces (e.g., mobility, health, finance, agriculture, cultural heritage, green deal, energy, media, etc.). The DSSC's primary objective is to lead the co-creation of the DSSC Data Spaces Blueprint in collaboration with the relevant initiatives and stakeholders of the European sectorial data spaces. Importantly, the two tourism CSAs are actively contributing to the DSSC by offering their expertise to ensure that the Data Spaces Blueprint incorporates the specific requirements of the tourism industry.

According to the DSSC, the Data Space Blueprint is ***"...a consistent, coherent and comprehensive set of guidelines*** *to support the implementation, deployment and maintenance of data spaces. The blueprint contains the* ***conceptual model of data space, data space building blocks, and recommended selection of standards, specifications and reference implementations*** *identified in the data space technology landscape."*[65]

Figure 25 offers a graphical representation of the current scope of the DSSC Data Space Blueprint. The first official version (v0.5) of this general data space blueprint was released in September 2023. As can be seen in the Figure 25, this version encompasses a multifaceted array of components.

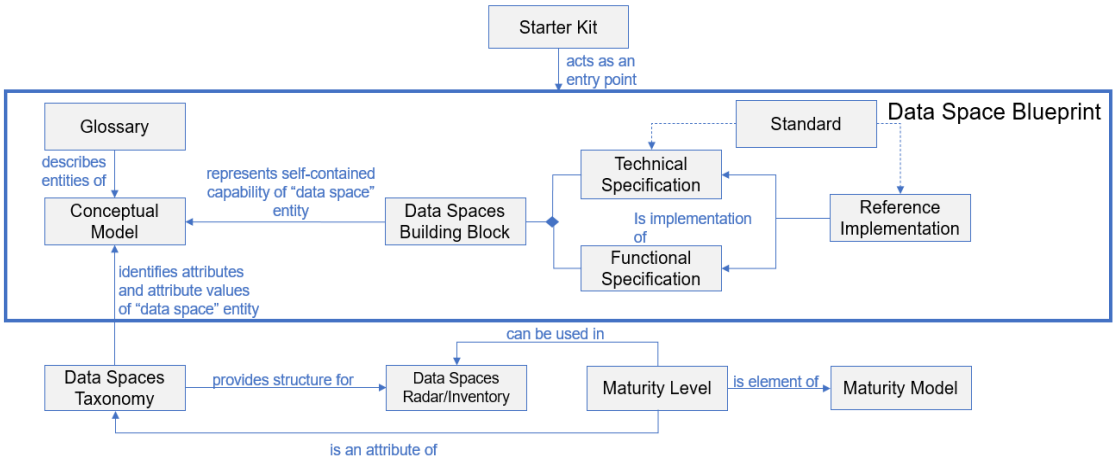

Figure 25 Scope of the DSSC blueprint

(Source: Data Spaces Support Centre 2023, Data Spaces Blueprint | Version 0.5 | September 2023. Retrieved October 2023 from: https://dssc.eu/space/BPE/179175433/Data+Spaces+Blueprint+%7C+Version+0.5+%7C+September+2023)

The DSSC blueprint remains under development and Figure 26 provides a visual representation of the differences between the content already included in version 0.5 (highlighted in green colour) and the additional elements planned for version 1.0 (highlighted in orange colour).

[65] Data Spaces Support Centre 2023: Data Spaces Blueprint | Version 0.5 | September 2023. Retrieved in October 2023 from: https://dssc.eu/space/BPE/179175433/Data+Spaces+Blueprint+%7C+Version+0.5+%7C+September+2023

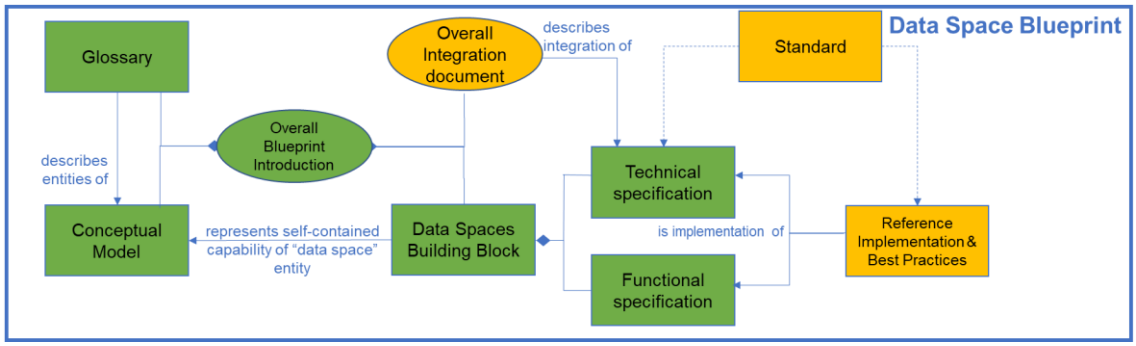

Figure 26 Scope of the Blueprint version 0.5 and 1.0

(Source: Data Spaces Support Centre 2023, Data Spaces Blueprint | Version 0.5 | September 2023. Retrieved September 2023 from: https://dssc.eu/space/BPE/179175433/Data+Spaces+Blueprint+%7C+Version+0.5+%7C+September+2023)

The DSSC Data Space Blueprint contains detailed information about the data space roles and concepts along with the technical, governance, business and legal building blocks and their implementations in real data space deployments. However, this blueprint does not address the specific characteristics and modules required for specific sectors, such as tourism. Furthermore, the DSSC Blueprint presently does not incorporate a participant journey perspective, which outlines the steps and experiences organisations go through when engaging with a data space. These details are needed before offering guidance to ETDS participants (i.e., data providers, intermediaries and consumers). Therefore, the present ETDS Blueprint endeavours to complement the general DSSC Data Space Blueprint by offering specific guidelines, conceptual models, building blocks and specifications that are tailored to the particular needs and requirements of the tourism sector.

In this context, there are two documents produced by the DSSC that serve as references for the ETDS blueprint:

- **Glossary 2.0**[66]: This glossary establishes a consistent and coherent terminology for DSSC communication and publications. Beyond the DSSC, this glossary also supports information sharing and co-development between the different data space initiatives and people involved and working with the DSSC. We hope that terminology from the glossary naturally spreads to the community of practice around data spaces, and we hope to get feedback and change requests from the community when needed.
- **Conceptual model Level 1**[67]: The conceptual model of data spaces provides a set of well-defined concepts and relationships between them, as well as a set of terms to refer to them. By relying on the conceptual model, the authors of the data spaces blueprint and the broader community of practice can clearly express data space related topics. Figure 27

[66] Data Spaces Support Centre 2023: DSSC Glossary | Version 2.0 | September 2023. Retrieved in October 2023 from: https://dssc.eu/space/Glossary/176553985/DSSC+Glossary+%7C+Version+2.0+%7C+September+2023

[67] Data Spaces Support Centre 2023, Conceptual Model of Data Spaces. Retrieved October 2023 from: https://dssc.eu/space/CME/176554182/Conceptual+Model+of+Data+Spaces+%7C+Version+0.5+%7C+September+2023#Conceptual-Model-Level-1

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shows the DSSC conceptual model Level 1, which contains the basic terminology and key concepts of the data space environments. The description of its main elements can be found on the DSSC website[68].

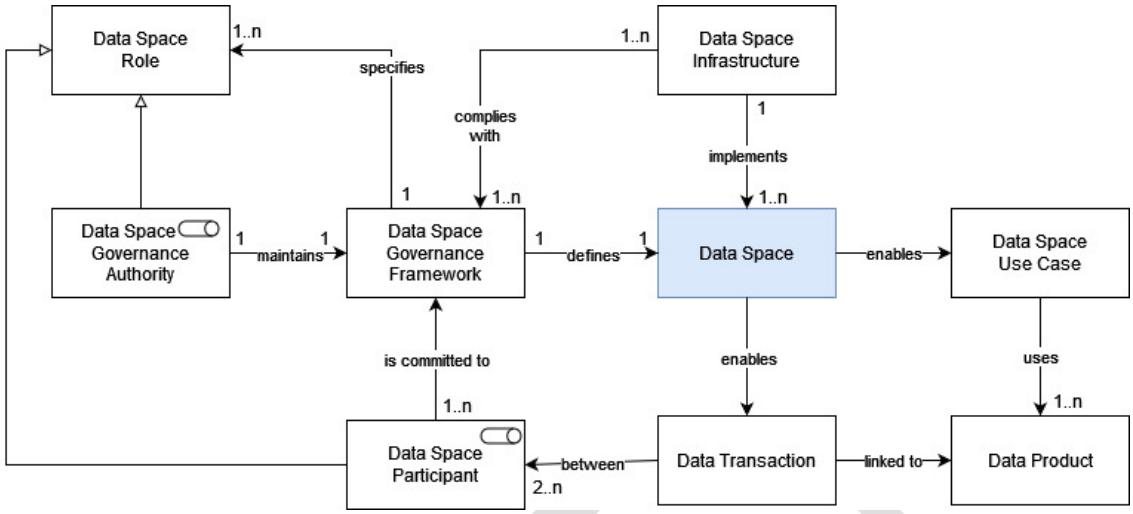

Figure 27 Conceptual model Level 1

(Source: Data Spaces Support Centre 2023, Conceptual Model of Data Spaces. Retrieved October 2023 from: https://dssc.eu/space/CME/176554182/Conceptual+Model+of+Data+Spaces+%7C+Version+0.5+%7C+September+2023)

[68] Data Spaces Support Centre 2023, Conceptual Model of Data Spaces. Retrieved October 2023 from: https://dssc.eu/space/CME/176554182/Conceptual+Model+of+Data+Spaces+%7C+Version+0.5+%7C+September+2023

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Appendix G: IDSA

The IDSA is an organization that promotes secure and sovereign data sharing, and it provides the Rulebook 2.0 as a foundational guideline for data spaces. The IDS Data Space Protocol, Eclipse Data Space Connector, and FIWARE Connector are technical components that facilitate data exchange within the IDS ecosystem. According to the IDSA Rulebook 2.0, the foundational concepts of a data space, shown in Figure 28, are the following: (i) establishing trust, (ii) data discoverability, (iii) data contract negotiation, (iv) data sharing & usage, (v) observability, (vi) vocabularies and semantic models. Additional elements that support these main functions of a data space are also represented as optional.

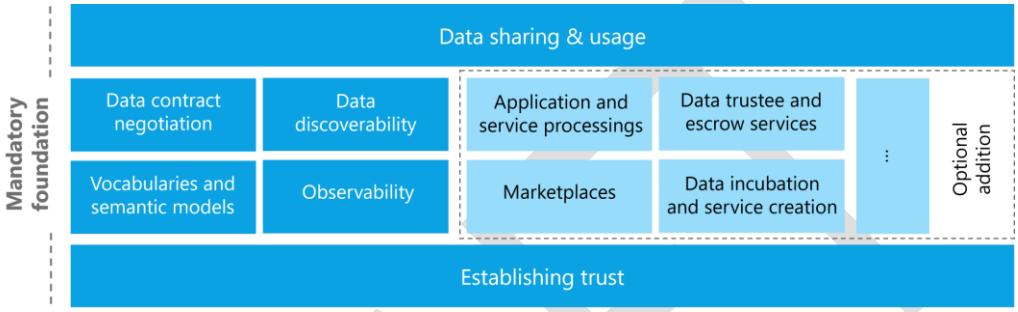

Figure 28: Foundational concepts in Data Spaces according to the IDSA Rulebook 2.0

The IDS data space protocol is a set of specifications designed to facilitate interoperable data sharing between entities governed by usage control and based on Web technologies. These specifications define the schemas and protocols required for entities to publish data, negotiate usage agreements, and access data as part of a federation of technical systems termed a dataspace. The Dataspace Protocol defines how this metadata is provisioned:

- How data assets are deployed as DCAT Catalogues and usage control is expressed as ODRL Policies.
- How contract agreements that govern data usage are syntactically expressed and electronically negotiated.
- How data assets are accessed using data transfer protocols.

These specifications build on protocols located in the ISO OSI model (ISO/IEC 7498-1:1994)[69] layers, like HTTPS. The purpose of this specification is to define interactions between systems independent of such protocols but describing how to implement it in an unambiguous and extensible way. To do so, the messages that are exchanged during the process are described in this specification and the states and their transitions are specified as state machines, based on the key terms and concepts of a data space.

Apart from that, IDSA includes the vocabulary provider for sector data models, playing a pivotal role in fostering standardisation, interoperability, and common understanding within a specific industry or sector. This contributes to better data quality, integration, collaboration and

[69] ISO/IEC 7498-1:1994, 2000: Information technology: Open Systems Interconnection: Basic Reference Model: The Basic Model. Retrieved in October 2023 from: https://www.iso.org/standard/20269.html

compliance, ultimately facilitating data sharing and interoperability among organisations within that sector.

Appendix H: Gaia-X

Gaia-X aims to create a federated, and open, data infrastructure based on European values regarding data and cloud sovereignty. The mission of Gaia-X is to design and implement a data sharing architecture that consists of common standards for data sharing, best practices, tools, and governance mechanisms.[70] From the technical point of view, Gaia-X aims to connect the data and infrastructure ecosystems and relies on three conceptual pillars (see Figure 29).

- **Gaia-X Compliance**: Decentralized services to enable objective and measurable trust.
- **Data Spaces/Federations**: Interoperable and portable (cross-)sectoral datasets and services.
- **Data Exchange**: Anchored contract rules for access and data usage.

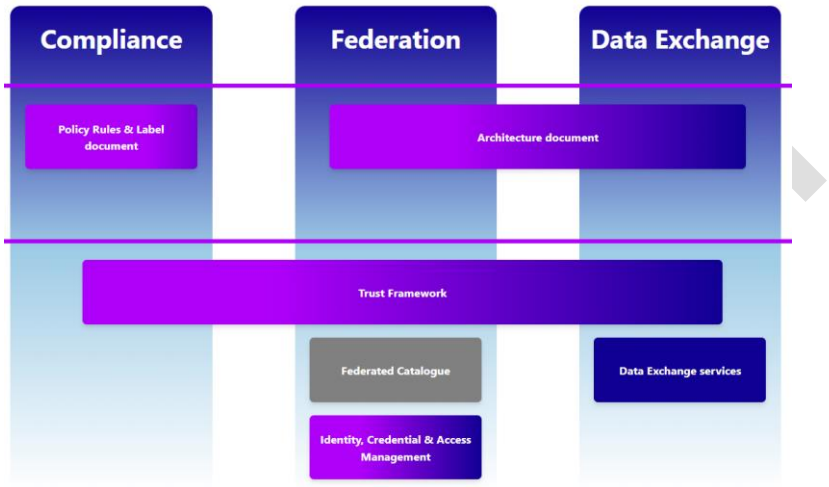

Figure 29 Conceptual pilars of Gaia-X for connecting the data and infrastructure ecosystems

In concrete terms, for each of these pillars there are three types of deliverables: functional specifications, technical specifications and software.

The **Gaia-X European Association for Data and Cloud AISBL** is an international non-profit association founded to develop the technical framework and operate the Gaia-X Federation services. In the context of Gaia-X, Gaia-X AISBL plays the role of the data space governance authority defining the data space governance framework for the Gaia-X based data spaces. This data space governance framework corresponds with the Gaia-X Compliance pillar. Gaia-X compliance rules are split in two main subsystems:

1. The **Trust Framework** verifies the existence and veracity of any service's characteristics. The mandatory criteria are the following:
   a) serialization format and syntax;
   b) cryptographic signature validation and validation of the keypair associated identity;

[70] Gaia-X. Retrieved in October 2023 from: https://gaia-x.eu/what-is-gaia-x/about-gaia-x/

c) attribute value consistency; and

d) attribute veracity verification.

2. The **Policy Rules and Label Document** is optional and allows to verify adherence to rulesets that fulfil specific market needs.

Based on three levels of compliance, further Gaia-X Labels can be created to fit new needs, in particular using extension profiles for country and **domain specific requirements**. Extension profiles can also leverage the labelling criteria by adding and defining on-top requirements for particular purposes. To ensure impact and consistency of Gaia-X Labels, new labels and extensions have to be authorized by the Gaia-X Association's Board of Directors. An additional subsystem can be added to include some sector specific rules and policies, as is shown in Figure 30. Therefore, this model would allow the ETDS to add any specific criteria valid for tourism stakeholders.

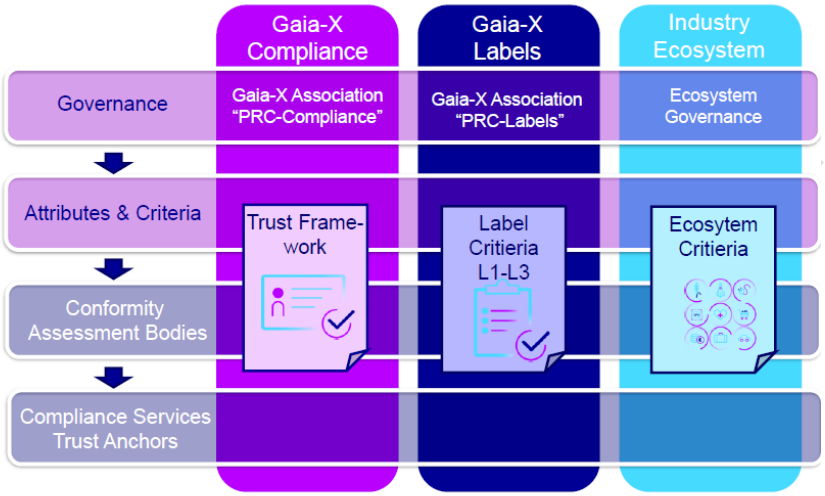

Figure 30 Gaia-X compliance model

The current version of the **Policy Rules & Label Document** contains criteria only for cloud providers. Gaia-X anticipates that additional rules will be defined for the participants in data spaces and data sharing ecosystems. This is currently work-in-progress and relevant objectives and guidelines will be elaborated and provided in a future version.

Other concepts of the Gaia-X framework are also key to understand the overall data spaces ecosystem:

- **Clearing house:** Within the data governance framework, it serves as a pivotal component for operationalising data management (
- Figure 31). It involves a Participant and Trust Anchor Registry, a compliance service and a notarization service.

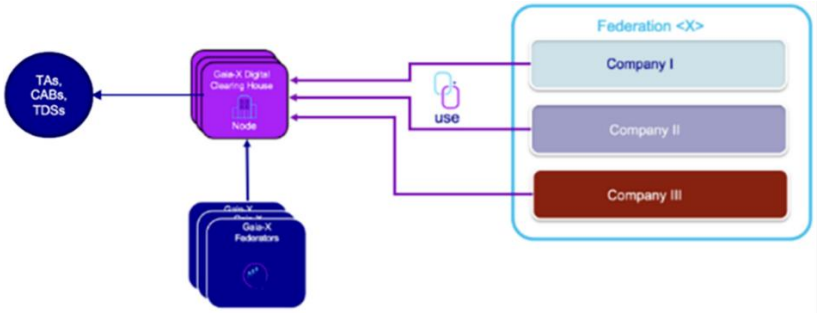

Figure 31 GXDCH Gaia-X Digital Clearing House diagram
Gaia-X Hub Austria2022: The Digital Clearing Houses. Retrieved in October 2023 from: https://www.gaia-x.at/en/application/gaia-x-the-digital-clearing-houses/

- **Data Space Entity**: In Gaia-X, a "Data Space Entity" refers to an organization or entity that participates in the Gaia-X ecosystem. These entities can be businesses, public organizations, or other stakeholders that share and manage data within the Gaia-X infrastructure. The idea is to provide a standardized way for various organizations to participate in data sharing and collaboration.
- **Decentralized Identity (SSI)**: SSI stands for "Self-Sovereign Identity". It is a digital identity model that empowers individuals to have control over their own identities without the need for a central authority. In Gaia-X, SSI principles are used to ensure that each entity within the ecosystem can have secure, self-managed digital identities, enhancing data security and privacy.
- **Verifiable Credentials**: Verifiable credentials are a key component of SSI. These are digital statements that attest to the truth of certain claims. In Gaia-X, verifiable credentials are used for self-descriptions of entities, allowing them to prove their identity and attributes without revealing unnecessary personal information during data interactions.
- **Data Transfer Architecture**: Gaia-X includes a data transfer architecture that governs how data is exchanged between Data Space Entities. It encompasses mechanisms for contract negotiation, personal data management, and secure, standardized data transfer protocols to ensure privacy, security, and interoperability.
- **Catalogue Federation Technology**: This technology is used to create a unified, federated catalogue of available data and services across different entities within the Gaia-X ecosystem. It allows Data Space Entities to discover, access, and utilize resources and data assets across the network easily.
- **Observability (Logging Service)**: Observability refers to the capability to monitor, log, and analyse system activities and performance. In Gaia-X, a logging service is used to provide transparency and visibility into the data-sharing processes, ensuring that the ecosystem is operating securely and efficiently. This is crucial for compliance, auditing, and issue resolution.

Gaia-X has recently announced the adoption of the Eclipse Data Space Connector Technology. Eclipse Data Space Connector technology is a part of the Gaia-X ecosystem, designed to facilitate

data exchange between different entities. It ensures that data can be shared and accessed securely and in a standardized way, aligning with the goals of Gaia-X for data sovereignty and control.

Appendix I: SOLID

The SOLID protocol is already in use by governmental bodies such as the Flemish and Swedish governments and some major companies in order to provide an interconnected digital landscape.

The protocol is based on PODS leveraging the technology to uphold data sovereignty (ownership) and interoperability in digital spaces. The set of solutions were implemented by pivotal player, Digita[71].

Existing projects confirm that the technology has made advances and is being deployed. For example, Netwerk Digitaal Erfgoed (NDE) – Netherlands that enables heritage institutions to securely store, share, publish and visualise objects semantically by leveraging chosen ontologies. Publiq - Flanders, a subsidiary of the Department of Culture, Youth and Media, has projects focused on digital transformation allowing developing a culture profile to offer recommendations on cultural activities by using Solid Pods. Media Consortium - Wallonia & Brussels initiate federated preference engine preserving individual privacy but facilitating personalised media and cultural experiences. The application of a Solid Data Vault to end-users for seamless access to media operators and granular data sharing is an example of preserving privacy while sharing data at the same time. The referenced architecture can be seen in Figure 32 below. The example is applied to Culture & Media but the transformation to Tourism should be possible.

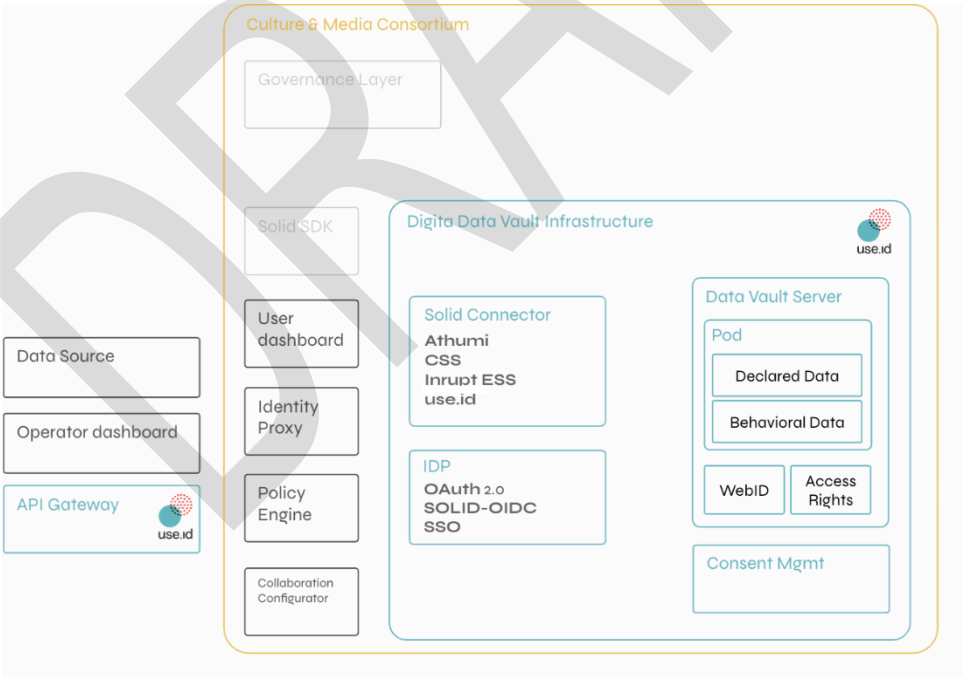

Figure 32 Solid Data Vault reference architecture

[71] Digita. Retrieved in October 2023 from https://www.digita.ai/

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