Mastering Data: A Toolkit for Tourism Destinations

SMART TOURISM DESTINATIONS

European Commission

This toolkit was prepared for the European Commission - DG GROW by

Smart Tourism Destinations | SI2.843962

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January 2023

How to use this toolkit: your journey towards smart tourism

From exploring to implementing a smart tourism approach

Along the journey leading to a smart tourism approach, the toolkit identifies four main steps, from exploring smart tourism as a concept to its concrete implementation.
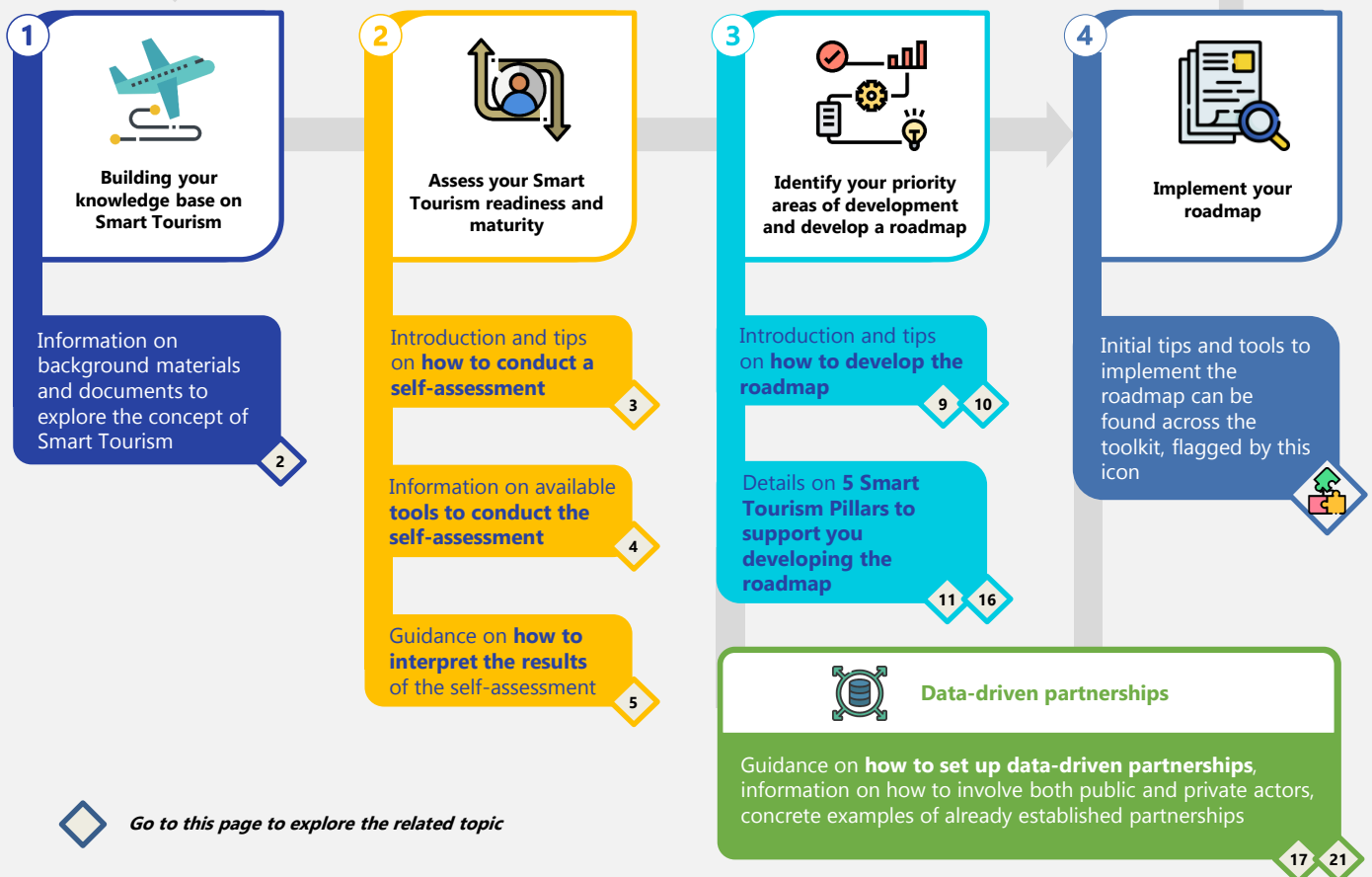
The figure below provides a concise visualisation of this journey, from step one to four, and indications in the box below on how to use this toolkit and where to find relevant information, guidance, and tips.

In addition to guidance and tips related to these four steps, the toolkit includes a final chapter dedicated to data-driven partnerships

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and collaboration between public and private organisations. This is a transversal topic, intertwined both with the development of the a roadmap and its implementation.

Overall, the toolkit mainly focuses on providing guidance for steps 2 and 3 related to the smart tourism maturity assessment and development of a roadmap. Further materials developed in the context of the project, in particular regarding step 4, will be made available on the Smart Tourism Destinations project website.

Periodically review your status starting again from step 1

1 Building your knowledge base on Smart Tourism

Information on background materials and documents to explore the concept of Smart Tourism
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2 Assess your Smart Tourism readiness and maturity

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3

Information on available **tools to conduct the self-assessment**
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3 Identify your priority areas of development and develop a roadmap

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4 Implement your roadmap

Initial tips and tools to implement the roadmap can be found across the toolkit, flagged by this icon

Data-driven partnerships

Guidance on **how to set up data-driven partnerships**, information on how to involve both public and private actors, concrete examples of already established partnerships
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◇ **Go to this page to explore the related topic**

If you are seeking support for additional guidance, materials and tools on how to implement your roadmap and strengthen your smart tourism approach, we recommend you keeping an eye on the digital library and webinars sections of the Smart Tourism Destinations project website, where you can consult the materials developed and made available through our project, specifically targeted to supporting Smart Tourism Destinations along their journey.
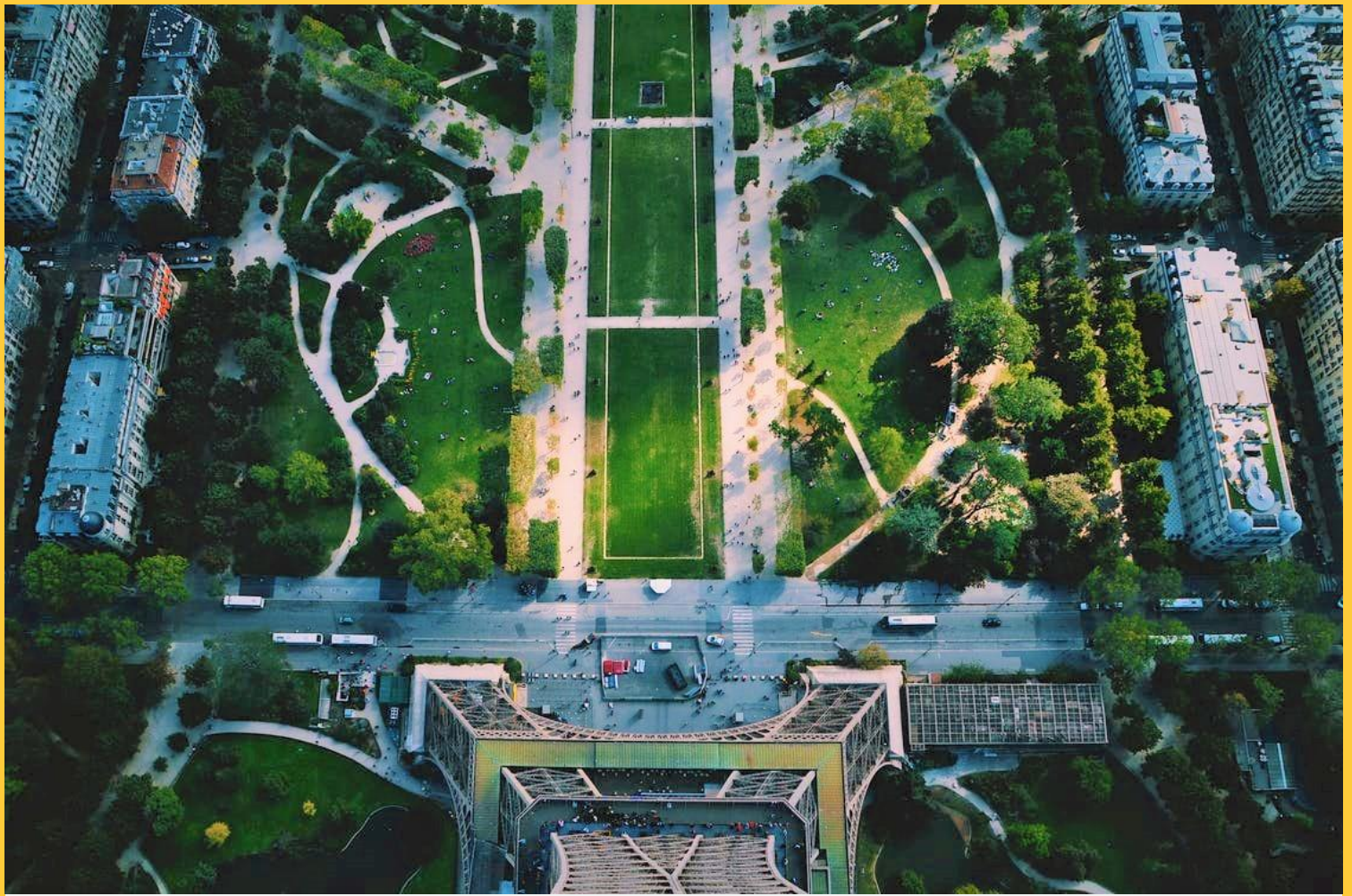
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About the project

Step 1: Explore the Smart Tourism Approach

Why should I be interested in adopting a Smart Tourism Approach?

Smart Tourism can be a driving force for innovation and an important factor of competitiveness, sustainable development, quality of life, and resilience of tourism destinations.

Becoming a Smart Tourism destination should not be considered as the ultimate goal, but rather as an opportunity and effective mean to foster the well-being of local communities, enhance the competitiveness of the tourism sector, and lead to sustainable and resilient development.

Many destinations around the world have already adopted a Smart Tourism Approach and the impact of the COVID-19 pandemic has further highlighted the need to make the sector more resilient.

A Smart Tourism approach empowers destinations to achieve these goals with the help of technology, innovation, and cooperation.

Where can I find out more about Smart Tourism?

To know more about the basic ideas, opportunities and challenges of smart tourism, you can read the **EU Guide on Data for Smart Tourism Destinations.** This is a shorter introduction which can help you starting to build your knowledge base.

If you are already familiar with the concept of smart tourism and want to know more about the state of the art, foreseen trends, and good practices, you can read the **Study Mastering Data for Tourism.** This is a more comprehensive study including the analysis of good practices, cooperation cases, and a list of recommendations.

You can find the Guide and the Study available for download on the **website of the Smart Tourism Destinations project,** where you can also find additional resources and information on Smart Tourism together with the latest updates on the project. These documents will be published by the EC, including the translation of the Guide in all official the official languages of the European Union.
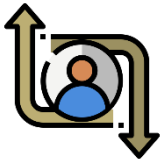
Step 2: Assess your Smart Tourism readiness and maturity

The purpose and benefits of conducting a self-assessment

Conducting an initial self-assessment provides destinations with an overview of their maturity levels in the different key pillars that enable and sustain the adoption of a Smart Tourism approach. An initial self-assessment can provide the groundwork for the development of a **roadmap** for the evolution of the destination into a smart destination. It also allows comparison with other similar destinations.

Destinations should consider the assessment and roadmap as effective and intertwined tools to establish a measurement framework based on their strategic objectives and governance mechanisms. Indeed, appropriate and measurable indicators can also help assess the impact of tourism and develop benchmarks for future tourism development.

Finally, regular self-assessments conducted on a yearly basis can enable the destination to monitor progress, revise policies, set targets or support mechanisms and provide integrated information. Such assessments also help to facilitate cross-sectoral dialogue on sustainable tourism development and promote coordinated, locally relevant decision-making (UNWTO, 2018). Statistical frameworks, in addition, can link data sources and data producers. Such frameworks are important because data sources — as well as policy themes, aspirations and targets — might change over time, while such frameworks ensure that data can be meaningfully linked to policy.

	Additional resources	• UNWTO: "Towards a Statistical Framework for Measuring the Sustainability of Tourism" • EU Tourism Dashboard

Tips and guidelines on how to conduct the self-assessment

Here below you can find a list of operational tips and guidelines to conduct the Smart Tourism maturity self assessment. On the next page of this toolkit, you will find information on an online tool you can use to conduct the self-assessment, while guidelines on how to interpret the results are presented on page 3.

1 Make sure you are **familiar with the key concepts behind Smart Tourism**. You can find useful materials to build your knowledge base in section 1 of this Toolkit and on the project website.

2 **Involve key stakeholders** to assess their interests, develop a common vision, and bring in their knowledge. In this way, the assessment process itself can also contribute to collaborative learning, mobilising stakeholder participation and empowering local decision-making. Consider organising a focus group at your premises, conducting one to one interviews, or simply adding the self assessment to the agenda of existing working groups that bring together your stakeholders**.**

3 For some destinations, it might be necessary to **define the geographical region** where the assessment tool is applied, by discussing which areas are to be included and why they have arrived at that decision. This step of defining geographical scope is crucial for data collection activities.

4 **Gather the necessary data and information** for the self-assessment. You might consult reports from Destination Management Organisations (DMOs), other associations and destination authorities, documents from project developers, annual reports from tourism companies, scientific research, marketing and promotional materials for the destination, and existing surveys of tourists, residents and local tourism businesses.

Finally, we recommend you make sure to allocate sufficient time to this phase. Depending on the location, scope and data availability, a typical assessment process and data collection **can take up to 10 days!**
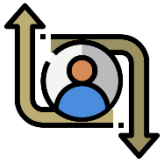
Step 2: Assess your Smart Tourism readiness and maturity

What tool can I use to conduct a Smart Tourism self assessment?

To conduct your self-assessment, you can use the **questionnaire and online tool** developed in the context of the Smart Tourism Destinations project.

This will ensure alignment between questions & results of the self-assessment and the analytical framework and additional information provided in this toolkit. The online self-assessment can be accessed through our project website by destinations selected to participate in the project since its beginning. Feedback and inputs from those destinations will allow to further fine tune and improve the model. The tool may be open to all interested destinations in the future. In the meantime, in case you wish to run the questionnaire offline, you can find the complete list of questions publicly available on our website.

The structure of the questionnaire

The structure and questions of the self assessment are closely linked to the contents of the toolkit and to the five pillars making up our Smart Tourism approach.

In addition, the assessment includes a set of general questions regarding your destination typology, size and general characteristics. These questions are there to help you reflecting on your specific context.

Key features of the online tool

The online tool includes explanatory texts and resources, and allows users to register an account, so that you can save your answers while ensuring data protection.

At the end of the assessment, an automatic report is generated and sent to users by email, providing you with initial recommendations on how to follow up on your results and an indication of your maturity level under each pillar and at overall level.

The results of the self-assessment

The automatic report generated by the online tool will include:

- a graphic visualization of your overall maturity results;
- your maturity results under each pillar, on a three stages scale;
- a summary of your answers and initial recommendations for improvement for each question

You can find more information on how to interpret your results on the next page.

You can access the online self-assessment tool and consult the questionnaire at the following link: https://smarttourismdestinations.eu/digital-library/
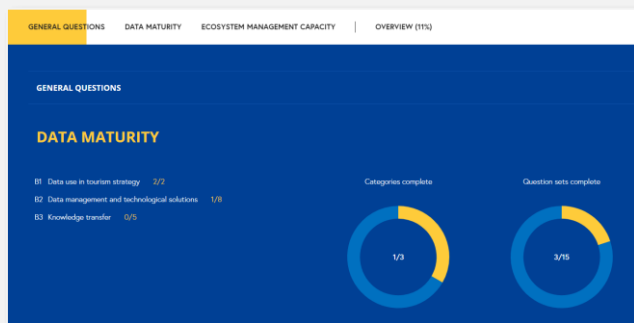
Overview of questions completed

Graphic illustration of maturity results under a specific topic
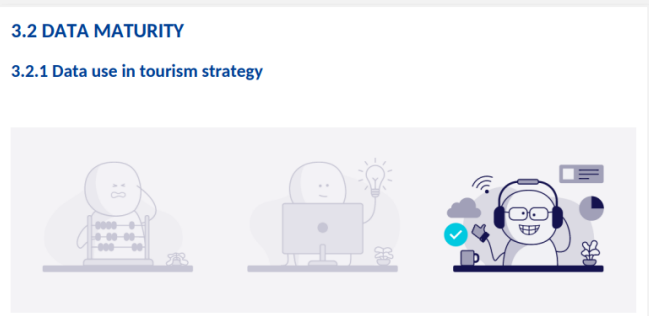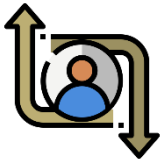
Step 2: Assess your Smart Tourism readiness and maturity

How should I interpret my results?

The results of the self-assessment provide insights on where destinations are positioned considering the three main stages of Smart Tourism maturity. Each stage corresponds to an increasing set of capacities and resources which progressively allow destinations to expand their goals and activities. Here below we provide a short description of the three stages of maturity you can identify through the self-assessment:

- **Stage 1 – Smart marketing:** at low maturity levels, destinations shall focus on using data to increase their visitor volumes, fostering economic development through marketing, promotion, and branding activities.

- **Stage 2 – Smart management:** greater maturity allows destinations to gather insights and take decisions on the value of tourism, crowd management functions, and proactively disperse flows of visitors across time and space.

- **Stage 3 – Smart stewardship:** most mature destinations can leverage a Smart Tourism approach to use tourism responsibly to make destinations better places to live for inhabitants, and more welcoming for tourists. Doing so, stakeholder participation and collaboration is fostered, as well as the development of new governance models.

The self-assessment will help destinations to assess their maturity level and reflect on which areas to improve and which goals and activities could already be within their reach.

The self assessment results will also provide insights on how the destination performs under each of the five pillars composing our approach to Smart Tourism, illustrated below.

The 3 stages and the increasing degree of Smart Tourism maturity
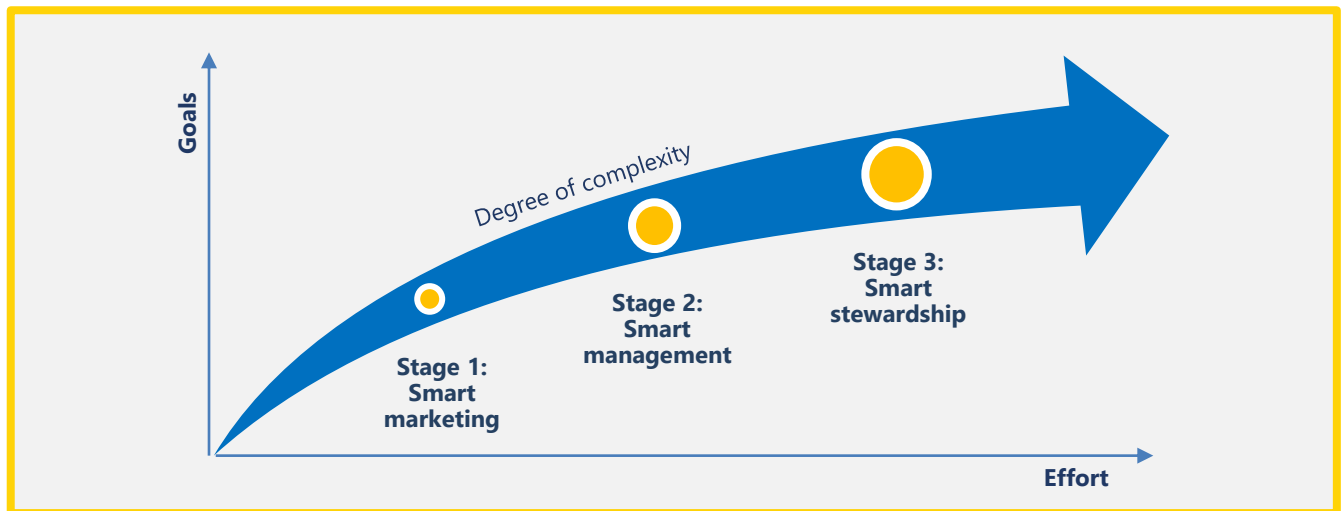
The 5 pillars at the basis of a Smart Tourism approach and defining a destination Smart tourism maturity
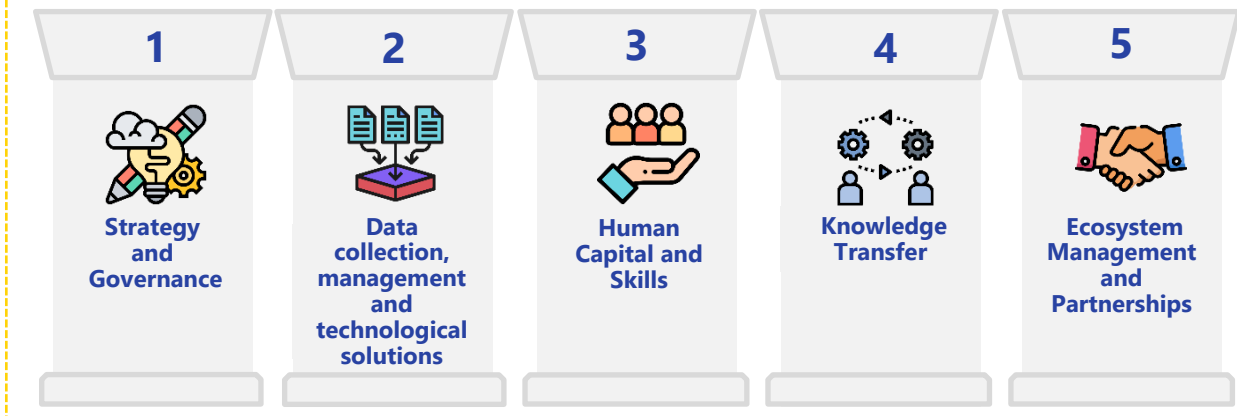
Step 3: Developing a roadmap towards Smart Tourism

Introducing the roadmap

At minimum, a roadmap should include:

- A set of **objectives**, which can be further detailed and broken down in smaller goals;
- For each objective, a **description of the changes needed** to reach these goals compared to the as is situation;
- For each identified change, a list of **actions** to be implemented to generate these changes;
- Finally, **details on timing, roles and responsibilities** for the implementation of the actions.

These different elements can be visualised as the progressive answers to the questions "why", "what", and finally "how/who".

Final objectives	💡	**Why are we embarking in this journey?**
What needs to change	↱	**What will be different compared to now?**
Actions leading to desired changes	🧰	**How can we achieve these changes?**
Details on timing and roles	👥	**Who should be involved and how?**

Tips and guidelines to develop a roadmap

When developing a roadmap, you will start from the top, setting your goals, and then move down one step at the time. Every time you add new elements to the roadmap, it is recommended you also review the previous ones, to ensure overall coherence. Here below you can find some initial tips on how to develop each element composing the roadmap.

Final objectives

- **Dream big**: Do not be afraid of including ambitious goals, you can further break them down as you develop the roadmap. These objectives will give you a strategic direction and can help you engage stakeholders and gain political endorsement.
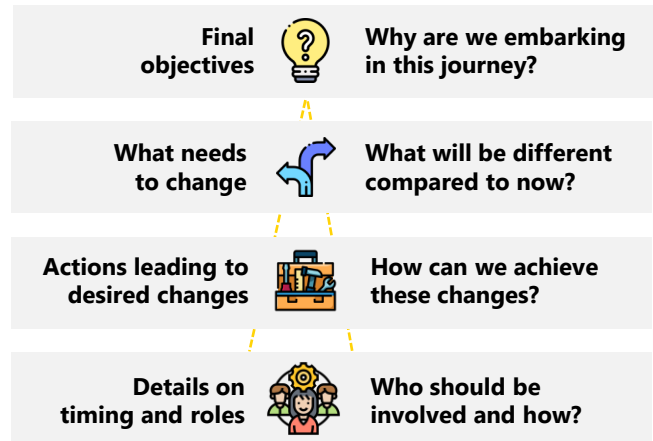- **Differentiate between short, medium and long-term goals**. A balanced roadmap will include very few long-term goals - even just one - and a relatively wider set of short and medium-term goals.
- **Take inspiration from this toolkit:**. Read through this toolkit to take inspiration for what can be done by adopting a smart tourism approach and to identify goals!

What needs to change

- **Use the five pillars of a smart tourism approach to identify what will need to change** to achieve the desired objectives. This will help you breaking down your goals and identifying priority areas of action.
- **Leverage the results of the self-assessment** while thinking about required changes. The self-assessment will help you assessing your maturity level for each pillar, highlighting where you have room for improvement and making it easier to identify priority areas of action. However, remember that you want to improve to achieve your goals, not simply to become smarter!

Actions and tools

- **Evaluate and prioritise potential actions based on their feasibility, sustainability, and desirability.** Once you have a long list of potential actions, these three criteria can help you identifying priority actions that will have greater impact, will entail fewer risks, and have wider support from stakeholders.
- **Take inspiration from this toolkit and look for additional resources on our project website:** the following pages include examples of resources and tools you can use to strengthen your smart tourism approach under each pillar. Additional materials will be made available on the website of the Smart Tourism Destinations project, including registration of webinars and resources used during the project.

Timing and roles

Look both within and outside your organisation: when defining roles and responsibilities, make sure to reflect on both your resources and on the possible contribution of your stakeholders. A well-defined roadmap can help you convince other organisations to participate and contribute to its implementation!

Step 3: Developing a roadmap towards Smart Tourism

Example of a first high level roadmap

The table below provides an example of a destination first draft roadmap regarding the mapping of changes needed. The table **maps the as-is and the to-be situation** based on the five pillars of our smart tourism approach.

For the sake of this example, we imagined the destination's goal is to reduce the seasonality of tourism and to improve the impact of tourism on the community, by adopting smart tourism solutions and approaches. The as-is situation is mapped through the **results of the self-assessment**. The to-be situation is developed based on the **analysis of the changes needed** to achieve the desired goal(s).

The table provides a **simple and effective summary of the destination priority areas of action**. Once the areas of improvement are clear, a destination can start thinking about the actions and initiatives needed to achieve its goals and implementation details.

Together with the results of the self-assessment, the following pages will help you developing a similar table. In the next pages, for each pillar, you will find:

- a table presenting an **overview of increasingly ambitious goals and attributes**, organised by sub-topics and maturity level. For example, under the pillar dedicated to data, you will find reference to the sub-topic data sources, with a short description of increasingly mature uses of data sources. You can use these tables to check if there is any specific sub-topic on which you will need to work to reach your goals, while keeping in mind the results of the self assessment to see how far you are.

- a set of **initial tips and resources** you can take inspiration from for the actions to be implemented and to help you thinking in concrete terms about each pillar.

Example of a destination draft roadmap, mapping the as-is and to-be situation, starting from the results of the self-assessment and identifying priority areas of action

		STAGE 1: "Smart Marketing"	STAGE 2: "Smart Management"	STAGE 3: "Smart Stewardship"
		Increasingly ambitious goals		
Key pillars of smart tourism	1. Strategy & Governance		X ----→	📍
	2. Data collection and management, technological solutions adopted	X ----→ 📍		
	3. Human capital and skills		X ----→	📍
	4. Knowledge transfer		X📍	
	5. Ecosystem management and partnerships	X --------------→		📍

x – as is situation   📍 – to be situation

Developing a roadmap: Strategy and Governance

1. Strategy and Governance

In order to achieve better strategy and governance, smart solutions focusing on data collection and analysis should be taken into account, bringing knowledge to destinations and thus help to overcome the challenges tourism destinations often face. The focus on economic development can be broadened to incorporate sustainable development, the responsible use of resources, advancements in the quality of life, and increasing the well-being of stakeholders and the local community. Data is thus considered a tool to monitor progress towards the goals and provide guidance to strategic readjustments.

The table below provides an overview of the key attributes of a smart tourism strategy and governance along the three maturity stages. The same approach is followed for all pillars.

Here you can find initial tips and resources to move from one stage to another:

- **Collaborating** with stakeholders is crucial to co-create a shared tourism and data management strategy. The Valmiera+ Interreg project provides examples of the process, benefits, and impact of shared strategy. More info available here and here (description and webinar).

- To **identify** the key actors to be involved in the co-creation of the strategy, go to page 12 of this toolkit, focused on the ecosystem management pillar.

- To benefit from a **more integrated approach** to **tourism governance**, you can check out what NECSTour is doing to create a link between regional and wider European levels of government like the EP, the EC and the Committee of the Regions.

- When looking for advice to **identify indicators** to monitor a destination's strategy, you can start from the list of smart tourism indicators developed by the HERIT-DATA Interreg project. The Tourism Impact Model (TIM) - developed by the Tourism 4.0 initiative – has also identified 300+ indicators, find more information here.

- Another excellent source providing inspiration on indicators and to steer tourism policies and strategies is the EU Toursim Dashboard. Launched in October 2022 by the EC, it provides access to statistics and policy-relevant indicators for tourism, supporting destinations and public authorities in tracking their progress in the green and digital transition. We suggest you also consult the European Tourism Indicators System (ETIS) Toolkit, always developed by the EC.

	STAGE 1: "Smart Marketing"	STAGE 2: "Smart Management"	STAGE 3: "Smart Stewardship"
FOCUS of general tourism approach	Marketing	Marketing, management	Marketing, management, facilitating collaboration, knowledge sharing
GOALS of general tourism approach	Economic development	Sustainable development	Regenerative Tourism
PRIORITY AREA of data collection	Planning and booking	Planning, booking and staying Managing tourism flows and tourists' experience	Supporting the tourists' experience through the whole journey Destination resource management Well-being of residents and communities Innovation of products and services
STRATEGY of general tourism approach	Attract visitors, focus on volume	Manage stakeholders, focus on quality Efficient resource use	Added value for businesses, residents and tourists Focus on value and experience co-creation Spread visitors in time and space Enhance destination for residents and tourists Enhance well-being of community
Data management strategy	Limited strategic importance, left to individuals, largely for reporting	Data awareness is present. There is an increasingly widespread understanding of the value of data and a data management strategy	Data awareness is omnipresent. Data is considered crucial for decision-making. The data management strategy is tailored precisely to that end. Collaborations for data management exist.
Indicators	Quantitative - focused on tourists (No. Of tourists, average length of stay,...)	Qualitative -focused on tourists and businesses (satisfaction)	Focused on quality of experience, life and performance Carrying capacity management Resource utilisation and replenishment

Developing a roadmap: Data collection and management

2. Data collection and management

The first critical requirement is to have **information about tourists and their behaviour**. After understanding the characteristics of tourists, destinations can build marketing strategies as well as enhance their destination management.

The question is where to find these information. More traditional data sources include national and local statistics and field or e-surveys. These data sources are used since they are convenient and easy to analyse. As these sources mostly provide static information, this approach is now often complemented with hybrid solutions **integrating different digital sources**.

Additional data sources may come from social media, devices, sensors, transactions information and so on and so forth. In addition to data coming **from the demand side**, destinations can completement their data strategy with information and data coming from private businesses and **from the supply side**. The guiding principle behind the integration of different data sources is acknowledging that **everything is connected to tourism and data is everywhere**.

Hence, destinations should continuously look for new data sets — even from "non-obvious" sources (e.g., retail shops, police, public transportation, waste management and weather data, surveys, interviews etc). This does not necessarily entail dealing with complex data, even though, as a destination maturity grows, it will have the opportunity to move from small data, to more complex data and to **real-time data**.

This will also allow to move from a **descriptive** use of data, to leverage information to **diagnose** what is happening and **predict** future developments.

Adopting a smart tourism and data-driven approach will also support destinations getting ready for future technological developments. One promising key technology for the tourism sector is the **metaverse**, with some pilot experiments already under way. As the technology will gradually enter the market, more digitally mature destinations will be ready to seize the opportunity offered by the metaverse to improve accessibility, offer phygital experiences and enhance their offer.

Here below you can find some tips and resources to move from one stage to another:

- As you start collecting and storing more and more data on an always more frequent basis, you will need to look for **cloud storage providers** which must comply with the **EU regulation on the free flow of non-personal data**, as it specifies all the legal requirements cloud storage providers must respect in order to make data available to users in the EU. You can get familiar and explore the key pillars of the regulation starting from this webpage.

- If you are interested in exploring potential applications for **Earth Observation data**, you can find plenty of open datasets, use cases, training materials and funding and networking opportunities offered by the European Space Agency, for both less and more mature destinations. If you are new to EO data, you can start from here.

- If you are willing to innovate further and **embed Virtual Reality** and **cloud technologies** to **collect** and share **real-time data** on demographics, movement, and transportation infrastructure, as well as environmental data about climate, air quality, and noise, you can look at what the City of Rennes did by creating a **digital twin** for the city itself.

- As your destination grows, you could need to set up **continuous data-collection** systems to monitor and analyse how tourists behave when they visit your destination. To this extent, you can have a look at the **Smart Tourism Management** solution adopted by the city of Nijmegen, The Netherlands, to control tourism inflows in the city. Learn more about this initiative here.

- If you need to implement **API**-based solutions to dive deep in tourism data, you may look at **SDI4Apps**, an EU-funded project, aimed to build a cloud-based framework with open API for data integration. Check SDI4APP most significant results and application in the tourism industry here. Read the project's final report by clicking here.

- If you need to collect information and data regarding residents' perception of tourism, consider developing **ad-hoc surveys** or more complex **consultation processes,** through focus groups and civic meetings. Here you can find an example of how the city of Bordeaux consulted its residents. Surveys are also an excellent starting point to collect visitors feedback.

- The EC is investing in the development of a **tourism data space,** with the goal to provide access to more, high quality data from diverse sources to destinations and business. While it is still in its infancy, make sure to keep an eye on future developments here.

Developing a roadmap: Data collection and management

	STAGE 1: "Destination Marketing"	STAGE 2: "Destination Management"	STAGE 3: "Destination Stewardship"
Data approach and overall outcome	Describe ("hindsight"): what is happening?	Diagnose ("insight"): why are things happening?	Predict and instruct (to steer) ("foresight"): Realtime steering of visitor flows, 'Smart cities, smart regions', AI, ML
Specific data outcome	Understand characteristics of the visitor Understand current markets Identify new markets Measure the performance of marketing activities	Understand behaviour of the visitor Strategic planning	Steer/influence behaviour of the visitor in a real time Support and foster visitor engagement for value co-creation
Data reliance / trust in data	Data as opportunity but limited strategic importance (nice-to-have), left to individuals, largely for reporting	Data as an asset (must-have)	Data as a resource (data is the petrol of the new economy) Data as indispensable (can't-do-without)
Data sources	Data from national statistics, mailings, ticketing, surveys	+ internal data from stakeholders, website, social media (UGC data)	+ data from devices (GSM, GPS, WiFi, BLE, scanners), sensors and transactions (booking data, credit card data)
Data collection methodologies	Ad hoc, retrospective	Regular, mainly retrospective Re-active	Real-time, Ongoing, Pro-active and re-active
Data usage & "onboarding"	Use of own, internal data and open data	Use data from providers to enrich and supplement own data and open data	Continuously looking for new data sets from non-obvious sources Share own data – open-source data Form collaborations for data sharing
Data ownership	Individual and bi-lateral	Networked ownership	Integrated (open) ownership
Data management	Data is structured in silos, data management and policies are siloed and not formally defined	Data is stored in some sort of repository, some data too big to manage with existing infrastructure	Data is centrally stored, can be easily shared, special attention to data quality, security and privacy
Type of contact with visitor	Sending information	Interaction	Dialog Co-Creation
Focus in relation to "customer journey"	Inspire and inform	Bookings and experiences (in alignment with inspire and inform phase)	Experience, share/evaluate

Developing a roadmap: Human capital and Skills

3. Human capital and Skills

Human capital and skills are a crucial asset for tourism destinations aiming to adopt a smart approach. Firstly, a limited group of front runners is likely to take the initiative, operating as "data champions". After reaping initial benefits, the team (potentially across multiple organisations) may grow and evolve into a more permanent structure, eventually led by a Chief Information Officer (CIO) overseeing all activities.

In this context, destination managers working with data analytics should be supported by data analysts and/or engineers. In order to be proactive, destination managers should be able to use or have access to **predictive**, as well as **prescriptive analytics**. The latter requires the involvement of a data scientist capable of dealing with data mining and AI-based algorithms.

However, destinations may struggle with relatively small budgets and limited number of employees. **Close cooperation with universities** and **innovation hubs** can help destinations closing the gap, cooperating for the completion of analytical and complex tasks. CITUR and Algarve Smart Destination are two examples of how destinations, research centres, and innovation hub can work together to foster digitalisation and support smart tourism.

Financial support can be provided by national and international organizations, including from innovation funds, regular tourism programs but also internal and external funds focusing on staff upskilling. In fact, several EU initiatives support the development and improvement of professional skills in tourism and support the digital transition. If you want to know more about this topic, we suggest to start by exploring the dedicated webpage of the EC on skills for the tourism sector and on the Digital Compass, the EC vision to support Europe digital transition.

Here below you can find some selected tips and resources that can support you progressing from one stage to another:

- If you are planning on expanding your team and need support in describing the job profile, or if you are looking for a specific set of skills and want to know which profiles you should be looking for, you can start by consulting the ESCO classification developed by the EC. You can consult and navigate the classification by occupations (e.g., data analyst) as well as by skills and competences (e.g., data mining).

- If you are looking for training and funding opportunities related to digital skills, we recommend consulting the EC Digital Skills & Jobs platform. The platform includes training, funding and career sections as well as a community you can join to connect with other organisations, share practices, and promote your initiatives.

- If you want to have a better understanding of the overall digital literacy of your employees and wish to support them and your stakeholders exploring these topics, you can consider promoting the use of the digital competency self assessment tool, developed by the Digital Skills Accelerator initiative. The tool provides individuals with a personalised radar chart describing their current strengths and weaknesses and it is linked to training resources and materials.

- If you want to gather more information on how to promote cooperation between public and private organisations to make concrete commitments to **upskilling** and **reskilling** employees also in tourism, have a look at Pact for Skills, one of the flagship actions of the European Skills Agenda**.**

	STAGE 1: "Destination Marketing"	STAGE 2: "Destination Management"	STAGE 3: "Destination Stweardship"
Leadership	Individual 'data champions'	Small team of 'data champions'	Chief-information-office (CIO)
Jobs	Marketing manager with data analytic function	Data analyst / data engineer + business analysist	Data analyst + data engineer + data scientist + business analysist + stakeholder – collaboration manager
Skills	Basic knowledge of digitalization Descriptive analytics Administrator	Predictive analytics Manager	Prescriptive analytics Transformative leadership skills Responsible and ethical leadership skills
Capacity	Relatively small budget, limited number of FTEs	Relatively average budget, average number of FTEs	Relatively big budget, large number of FTEs

Developing a roadmap: Knowledge Transfer

4. Knowledge Transfer

Knowledge transfer and co-decision making among stakeholders are crucial for a destination its competitiveness. Static reports like factsheets and magazines can be valuable channels to start sharing data, information, and knowledge with stakeholders. However, these typologies of reports are not future-proof sources, as they render decisions reactive rather than proactive. To enable proactive and relevant decisions based on data analytics, **visualising data via interactive dashboards** is pivotal. Therefore, **data processing** should be based on **real-time processing** and analysis. The principle of knowledge sharing in a smart destination means using open data for the stimulation of knowledge transfer, and providing real-time dashboards for destination stakeholders, consequently creating opportunities for co-decision.

As the sources of data collection vary, data owners are also different from one another. Moreover, the sensors embedded in destination environment have various data owners even within the same destination (e.g., retail shops, police). Therefore, data exchange is needed. To exchange data in tourism destinations, all stakeholders should be dynamically linked through technological platforms supporting open data initiatives (Buhalis et al., 2015). However, there is low willingness to share data, as destination stakeholders fear the misuse of their data and are unwilling to cooperate due to a lack of trust or common vision. To this extent, technology should offer better tools for cooperation and knowledge sharing. Open data environments should also ensure transparency in knowledge sharing.

Here below you can find some tips and resources to move from one stage to another:

- If you have already identified valuable datasets to be used and shared but you are still looking for a **digital platform where to aggregate, manage, analyse, visualize, and share this data**, you can start by exploring the opportunities offered by Snap4city, an open-source platform that allows you to develop dashboard and IoT applications. The platform also includes trainings and extensive documentation from other use cases, such as the Florence Smart City Control Room.

- If one of the key challenges you are facing and would like to improve on regards the **regulation of data sharing**, you can read the data sharing toolkit developed by the DataPitch Horizon2020 project, which includes additional background information, use case examples, and resources and steps to help you implementing data sharing.

- If you want to set up a **digital platform** to **collect, harmonise,** and **distribute anonymised data,** aiming at creating knowledge and informing decision making processes linked to tourism development to enhance a destination competitiveness, you might be check out the initiative promoted by the Municipality of Gothenburg and its Knowledge Hub.

- If you need **SaaS** and **IaaS** cloud-based services SWIPO offers a wide range of providers that are compliant with SWIPO Code of Conduct. Find the most updated list of providers here.

	STAGE 1: "Smart marketing"	STAGE 2: "Smart management"	STAGE 3: "Smart stewardship"
Data reporting: Information dissemination for knowledge uptake	Static reports such as factsheets, magazines.	Dashboards/BI based on continuous data inflow	Realtime insights based on automized and continuous monitoring
Sharing policy	Limited willingness of sharing (fear of misuse of data)	Data sharing among partners	Open data environment
Types of knowledge sharing	Sharing limited information	Sharing explicit knowledge	Sharing tacit knowledge
Contractual models	Public-Private partnerships	Shared ownership	Platform cooperatives
Purposes of data sharing	Customer complaint / reviews management Market research	Customer service Dynamic pricing Process improvement	Personalization of customer services and interactions New service development - innovation Customer experience and engagement Business model and strategy innovation

Developing a roadmap: Ecosystem management & partnerships

5. Ecosystem management & partnerships

Smart destinations can be considered as networks of connected stakeholders among which several relationships exist. The smart approach creates opportunities for better collaboration, fostering the sharing of knowledge, and data and providing a common vision.

A DMO should become able to solve conflicts, encourage destination stakeholders to cooperate, and thus ensure destination resilience. **DMOs** should move from being marketing organisations to becoming **leading destination management organisations,** with the adequate structure for managing different stakeholders. Hence, their work should include stakeholder management functions, tourism product development, and knowledge sharing. To this end, and to proactively pursue these goals, **smart DMOs could also become data hubs and data-mining organisations,** responsible for promoting and managing the use and sharing of data in the ecosystem. In particular, in less mature destinations, DMOs can play a pivotal role in fostering and starting a conversation around the use of data.

Furthermore, smart destinations should set up smart tourism ecosystems capable of attracting people to discover, live, and do business within them. Destinations should work with residents and tourists to understand the technological offerings as well as privacy issues. Through advanced technologies (e.g., smartphones and wearables), as well as social media, both residents and tourists can engage and experience the destination in a new way.

Providing residents with training and support to understand and leverage crowdsourced information and new technologies can be the first step to involve them in the co-creation of smart solutions for the destination. Moreover, tourists have become more experienced, demanding, and active. They should not be isolated in a limited zone of knowledge about tourism destination (Fan et al., 2019); however, by using technologies and sharing data, they should become co-creators of their experience.

Here below you can find some tips and resources to move from one stage to another:

- If you need to build a **data ecosystem** to define the actors involved in tourism and the infrastructures needed to manage such ecosystem, please consider using **data mapping systems**. An effective solution is represented by the tool developed by **ODI**, available here.

- If you need to **increase and improve the interactions your destination has with stakeholders**, you can read the recommendations provided by the European Commission in the paper Establishment of Sustainable Data Ecosystems, which also includes tips and advice on how to put stakeholders at the center.

- When defining a **smart governance structure,** make sure to agree with stakeholders on clear responsibilities and roles. Examples of different solutions might include the set up of a local Tourism Observatory or Knowledge Hub. You can read more on how to set up an Observatory here.

	STAGE 1: "Smart marketing"	STAGE 2: "Smart management"	STAGE 3: "Smart Stewardship"
Organisational structure route 1: DIY (do-it-yourself)	Each organization on their own, within own control and sphere of influence	Organization is part of temporary/project-funded network or coalition	Organization is part of structural/permanent operationalized "knowledge network"
Organisational structure: partnerships/ ecosystems (do-it-together)	Ad hoc cooperation between limited number of stakeholders.	Temporary/project-funded network or coalition (e.g., data lab)	Structural/permanent operationalized "knowledge chain" (e.g., data hub, tourism observatory)
The role of DMO in data management	DMO as primary user of data, mostly related to marketing purposes	DMO as sponsor of ad-hoc / temporary data partnerships	DMO as data mining organization, with leading role in promoting and strengthening structural "knowledge chains"
Residents	Passive	Participants in tourism development	Connected, creative, actively involved
Tourists	Isolated in a limited zone of knowledge about tourism destination	Informed about destination and its offering	Better connected, share data, co-creators of experience Destination ambassadors

Data-driven partnerships between public and private actors

The value of data-driven partnerships

Various autonomous stakeholders, both individuals and organisations, operate in tourism destinations. Although these actors may be heterogeneous in terms of their operating environment, culture, and objectives, they **all benefit from and contribute to the development of the tourism destination** and its increased competitiveness, sustainability, and resilience.

In order to maximise the destination's development, **they shall all have sound relationships, and collaborate specifically in sharing and distributing data** – and as data is mostly generated and managed by private actors, particular attention needs to be paid to public-private partnerships. According to the European Commission (2022), micro businesses and SMEs make up for 99.8% of tourism enterprises in the EU. Providing a support strategy to target the specific challenges they face with data sharing can greatly extend the benefits for the tourism ecosystem.

Indeed, public-private partnerships are becoming the cornerstone of decision-making mechanisms and the essential formula to achieve successful policies. As an example, the Urban Agenda for the EU focuses on concrete priority themes within dedicated 14 Partnerships in the effort to improve the quality of life in urban areas.

In addition, promoting the networking and partnerships capacity of a DMO increases its authority and thus its ability to govern successfully.

Some studies describe the role of DMOs within smart destinations as smart hubs, tasked with supporting data openness, regulating data privacy, and establishing partnerships. This democratization of data includes all entities of the tourism value chain with a special focus in the private sector, especially in SMEs.

To achieve this goal and become a data-driven destination, tourism managers should **take advantage of the variety of datasets available**, focusing on both the supply and demand side of the market (e.g., Lithuania travel). The box below shows a glimpse of the information that a destination can leverage to improve its tourism offering and competitiveness. Understanding whether these kinds of information are available and who is the owner, helps destinations **identifying and prioritise possible alliances,** to kick-off working groups and committees, and to increase feedback and communication activities between public and private sectors. Key steps to be considered in order to assess and understand the potential value of these partnerships and correctly prioritise them, include an initial **mapping of the ecosystem needs and resource and mapping of potentially available data sources**. If you need support mapping your data ecosystem, you can start with the Data Ecosystem Mapping Tool and Guide developed by ODI.

The central role of data and the different stakeholders of a smart tourism ecosystem

Tourism private service providers	Data & technology	Local government and DMOs
Universities and research centres		Innovation labs, incubators, accelerators
Residents		Tourists

Examples of data sources for partnerships

- **Transaction data** (online booking and purchasing, consumers credit cards transactions). They can provide spending trends and can be used to gather trends and analyse targets.
- **Device data** (GPS, mobile roaming, bletooth, RFID, Wi-Fi, and smart city devices data). They can provide information on tourists behavious and movements and can be used to develop increasingly personalized services and direct resources on most popular spots.
- **Private businesses datasets** (airline passengers data, hotel vacancies data, restaurant reservations, rental data). They can be used to forecast demand & tourism flows and to analyse target markets.

Data-driven partnerships between public and private actors

The objectives of data-driven partnerships

The underlying impetus for partnering is that all partners will benefit from collaborating. Indeed, partnerships are formed for a variety of reasons, with the most obvious benefits of data sharing being economic. **Partnerships may be formed to achieve greater levels of efficiency or economies of scale, to open markets that were previously inaccessible, or simply to pool resources - financial and/or human**.

Concrete objectives of partnerships can be oriented towards data holders, innovators, intermediaries and/or the overall society. DMOs can facilitate the creation of partnerships by helping the different actors identify opportunities offered by data and bringing them together to achieve a common strategy.

The rules of such partnerships should be very clear for the private sector from the very beginning, to avoid generating expectations that will not be met.

Too high or misleading expectations can generate frustration among the partners, deteriorating the quality of collaboration and in the worse cases ending the relation among public and private entities. Due to this, it is important to have in mind that **the following requirements should be fulfilled to successfully involve private actors** :

- The interests of all actors should be considered, ensuring that relevant and valuable data can be shared with the private sector.

- Partnerships should contribute to generate new business models.

- Partnership should allow to accelerate the digitalisation of the sector.

The objectives of data-driven partnerships by stakeholder category and their motivations to join

DATA HOLDERS: organisations that supply the data in a data sharing relationship
- Cost & Efficiency savings
- Product & service development
- Solutions to business challenges
- Open innovation
- Access to talent
- Data exploration
- Improved internal data structure
- Increased legal compliance
- Skill development

DATA USERS: Organisations that use data that is shared by a data holder to develop new services
- Access to data
- Product & service development
- Skill development
- Insight into new markets
- Business relations with data holders

INTERMEDIARIES: They play a role in many data sharing relationships
- Marketable product / service offering
- Organisation-specific goals

SOCIETY
- Better products and services
- Increased privacy
- Relationship with data holders

Forms of data sharing

The value of data may not be maximised with one single instance of data sharing. Rather, sharing data unlocks the so-called big data value chains, where large amounts of data are collected and processed in several related steps. This requires established frameworks in which data can be shared consistently. Here below, we provide an overview of established practices that enable a form of data sharing:

- **Data commons:** Resources which are held in common, accessible to all members of a group (e.g., data commons or city data commons in Barcelona).

- **Data collaboratives:** Private data which benefits society and which are shared for social good (e.g., data collaboratives)

- **Data marketplaces:** Intermediary platforms or online stores through which data can be bought or sold

- **Open data:** Data that is licensed and available for anyone to access, use and share for any purpose. Personal data can never be open data (e.g., European data portal, Helsinki region infoshare or open data Malta).

- **Data spaces:** initiatives aiming to provide access to data. The EC aims at launching nine sectoral European data spaces, in the respect of EU rules and values. These data spaces will be interlinked, providing great opportunities for access to data to operators working in a horizontal sector such as tourism. An example of a similar initiative at national level is the German Mobility Data Space.

Data-driven partnerships between public and private actors

Types of partnerships

Partnerships among different stakeholders can present several challenges, related among others to different organisational cultures and legal and bureaucratic barriers. In order to overcome these challenges, it is important to consider different options available to build a partnership and select the most adequate to the organisations involved and your goals. To this end, a non-exhaustive list of **different types of possible partnerships** include:

- **Consortium/consortia** - a pooling of resources to gain a benefit that they could not afford on their own (e.g., joint data, joint technology, joint services).

- **Joint ventures** – a co-operative project (typically bringing different skills/resources) that pursue an opportunity, sharing the risks associated with its development.

- **Strategic alliances** – generally a longer-term agreement to achieve common objectives. May involve both smaller and larger service providers with complementary resources or expertise. Termed "strategic" because the objectives are of critical importance to the overall business/market development strategy of the partners.

- **Cooperative data collection and exploitation** – an agreement to collect, pool and exploit partners' data. This might be a good model for stakeholders who create and use data for public access. It may be a single class model where data suppliers such as public bodies work together or a multi-stakeholder model where public data providers work with service providers that manage personal data.

- **Organization networks** – a multi-organisation alliance in which member businesses collaborate to meet common objectives.

- **Outsourcing** – contracting of non-core services to third-party providers.

Due to the importance of digitalization and the new data economy, some new emerging typologies are worth to be mentioned in more detail:

- **Digital Innovation Hubs (DIHs):** DIHs can take different legal forms, depending on the country/region (e.g., association or consortium). DIHs bring together public and private entities, including universities and research centres, to **support the digital transformation of SMEs and public administration**.

- **Clusters: sector or thematic focused associations** that allow public and private entities to interact, promote innovation, and foster the competitiveness of a specific industry. At European level, the European Cluster Collaboration Platform serves as knowledge hub on a variety of topics while it also promotes matchmaking among organisations.

Finally, you may decide to join forces with other organisations in the context of grants and funding opportunities. Different programmes may have specific requirements. If you are looking for more information on **how to prepare a proposal in Horizon Europe**, you can start from this webinar of the European Commission.

Relevant networks and initiatives	• **European Capital of Smart Tourism**: the annual European Capital of Smart Tourism competition aims at identifying and supporting European smart tourism excellences, also establishing a framework for networking and the exchange of best practices. • **Digital Cities Challenge**: The Digital Cities Challenge has the ambition to make cities better places to live. You can get inspired and learn from the experience of over 40 cities involved in the programme. • **Intelligent Cities Challenge**: the ICC supports 136 cities in using cutting-edge technologies to lead the intelligent, green, and socially responsible recovery. The project also focuses on green and digital transition in tourism, which is one of the overarching thematic tracks. • **Spanish network of Smart Tourism Destinations**: it is addressed to improve the competitiveness of the destinations and the quality of life of citizens based on 5 axes: governance, innovation, technology, accessibility, and sustainability.
Information on EU funding opportunities	• **Guide on EU funding for tourism:** on this page you can find information and guidelines on EU funding opportunities for the tourism sector, including an introduction to EU funding and tenders, an updated list of currently open tourism calls, and much more.

Data-driven partnerships between public and private actors

Public and innovation procurement

Public procurement is the legal form used by the public administration to purchase goods and services. In the field of data, public administration might need access to different datasets that are sold in the market and that can be acquired through procurement. However, when possible, public administrations would benefit from prioritising win-win data sharing partnerships or procurements including goods (data) and services (of data scientists).

Based on its overall strategic goals and needs, organisations should set out **a strategy for the acquisition of external data**, beyond the procurement of a single dataset, defining clear priorities, assessing costs and benefits, and the available resources to purchase data, to work on it and to ensure data quality.

For public administrations working towards a Smart Tourism approach, an appealing tool is **innovation procurement**, which might take the form of the acquisition of innovative solutions through the procurement of research and development services, the procurement of innovative solutions that are not yet available or do not exist on the market, or the procurement of innovative solutions that do exist but are not yet widely available on the market. To discover more about innovation procurement, you can consult the following materials:

- EU guidance on innovation procurement: available in all EU official languages and including practical information on how to start and develop procurement of innovation projects

- EAFIP toolkit for innovation procurement: a three modules online guide, providing support to policy makers in designing strategies, and to procurers and their legal departments in implementing innovation procurements.

How to create the conditions to encourage data sharing and partnerships

For destinations whose ecosystem is less mature in terms of a data sharing culture, trying to build the needed partnerships might represent a significant challenge. In these cases, it becomes necessary to work on creating the conditions that will encourage more structured data sharing in the future.

Possible actions to start creating a culture of data sharing and to promote stakeholders' participation include:

- **Assessing and communicating the benefits** of using data for the destination and to inform the policy cycle. By raising awareness on the benefits that evidence-based decision-making brings, a destination will promote a culture of sharing data, both internally and externally.

- **Fostering interest** in stakeholders by disseminating good practices and examples of smart tourism solutions

- **Creating dedicated environments** (e.g., innovation labs, innovation zones, etc.) where different organisations – including private businesses – can cooperate to address tourism challenges. In particular, sandboxes can encourage discovery and testing of data-driven solutions. Scaling up, in steps, from small-sized projects is the recommended approach.

- **Building trust** by demonstrating the destination commitment to a **responsible and ethical use of data**. This can be achieved by agreeing to common practices – such as adhering to the Code of Conduct for data sharing in tourism.

- **Leading by example**, making data available to third parties through open APIs. This contributes to the creation of data-driven solutions by private businesses, shaping the conditions for digital transformation towards innovation.
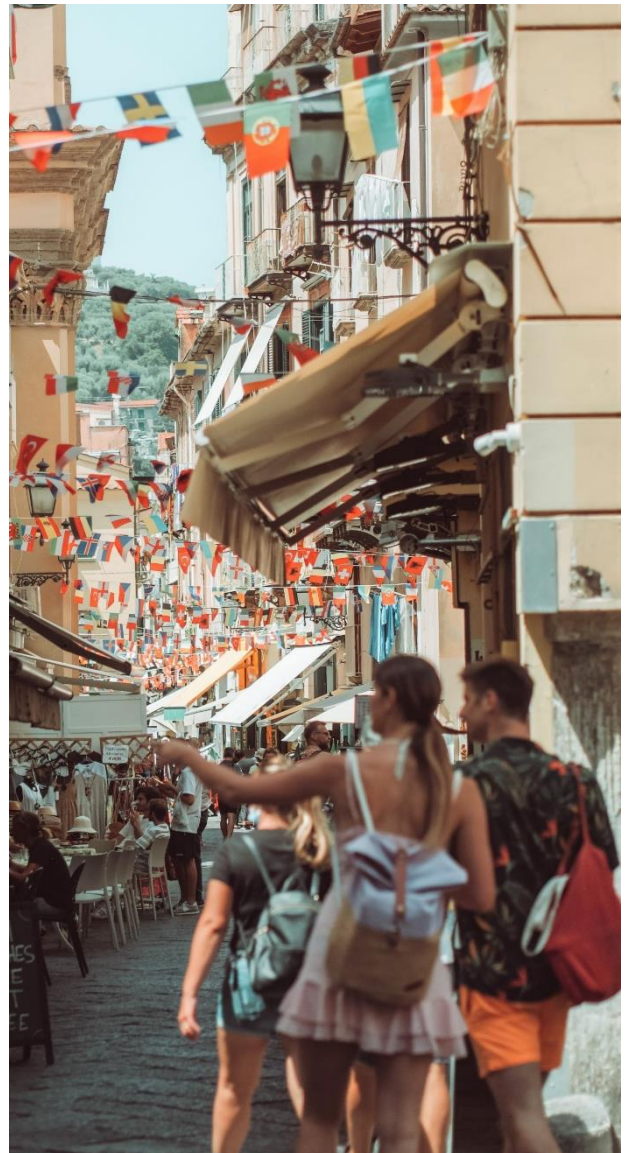
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Smart Tourism Destinations

SI2.843962

October 2022

For further information about this Toolkit, please contact:

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