



“SPACE FOR TOURISM” THEMATIC CALL

Prepared by	TIA-AP
Document Type	Thematic Call
Reference	
Issue/Revision	1 . 0
Date of Issue	28/03/2022
Status	Issued



APPROVAL

Title	"Space for tourism" thematic call		
Issue Number	1	Revision Number	0
Author	TIA-AP	Date	28/03/2022
Approved By	Date of Approval		

CHANGE LOG

Reason for change	Issue Nr	Revision Number	Date

CHANGE RECORD

Issue Number	1	Revision Number	0	
Reason for change	Date	Pages	Paragraph(s)	

DISTRIBUTION

Name/Organisational Unit

Table of Contents

1. Introduction	5
2. Background and Rationale.....	5
3. Objectives of the Thematic Call	7
4. Thematic Areas.....	8
5. Space Assets.....	9
6. Scope of the Call	10
7. Procurement Approach	12
8. Process and Schedule	13
8.1. Timeline and Procedure.....	13
8.2. Evaluation Criteria.....	15
8.3. General Conditions	15
9. ANNEX A: Use cases	17
9.1.1. Use case-1: Municipality of Florence, Italy.....	17
9.1.2. Use case-2: CapsuleT - Hellenic Chamber of Hotels.....	22
9.1.3. Use case-3: WWF.....	22
9.1.4. Use case-4: Mirpuri Foundation	29
9.1.5. Use case-5: Visit Flanders	30
9.1.6. Use case-6: Andermatt Swiss Alps, Switzerland.....	31
9.1.7. Use case-7: Expedia Group.....	32
9.1.8. Use case-8: Global Himalayan Expedition.....	34
9.1.9. Use case-9: Entertainment Cluster & Welcome City Lab – Paris&Co, France.....	36
9.1.10. Use case-10: Athens International Airport, Greece.....	37
9.1.11. Use case-11: World Tourism Forum Lucerne	38
9.1.12. Use case-12: Municipality of Athens	38
9.1.13. Use case-13: Institute of the Association of Greek Tourism Enterprises (INSETE) ...	39



1. INTRODUCTION

This document presents an overview of the Thematic Call “Space for Tourism” issued under the ARTES 4.0 [BASS](#) and [5G](#) Programme lines, the latter specifically subject to technical/business justifications on the use of hybrid SatCom – terrestrial and 5G networks

2. BACKGROUND AND RATIONALE

This call targets the development of space-based services enabled by innovative digital solutions to support tourism and travel industry in their transition to the new normal, and help the sector embrace new business models to respond to the evolving landscape due to COVID-19 pandemic.

Tourism is a large contributor to many national economies; according to statistics prior to the pandemic, the sector would directly contribute on average with 4.4% of GDP, and 21.5% of service exports in OECD countries.

Due to COVID-19 pandemic, the actions and countermeasures being undertaken to limit its spread, have altogether triggered an unprecedented crisis in the tourism economy, whose impact is spreading throughout the entire tourism ecosystem and beyond, with foreseen long-lasting societal and economic effects.

Beyond the tangible and short term consequences to the tourism sector, the pandemic is expected to have a knock-on effect on travellers’ behaviour; travellers will need to be reassured of safety during travels as well as of their destinations. To accomplish this, a concerted set of actions involving both private and public sectors has to be undertaken to elevate new safety, health and hygiene standards, and give visibility of well-thought processes to objectively assess those.

Destinations need to prove themselves safe, investing in their infrastructure and re-training their personnel to be prepared to counteract health/ safety related issues. Likewise, new

solutions are required to allow a more efficient diseases' tracing, thus leading to complex trade-off between privacy and efficiency of the resulting measures.

Significant investments will be required to restart tourism; those investments need to be supported and catalysed by e-business tools to forecast socio-economic impact based on what-if scenarios and factoring in customers' behavioural trends as well as micro- and macro-economic patterns. To be effective, those investments shall ultimately deliver a positive net socio-economic and environmental impact benefiting travellers, tourism industry and destinations, leading towards a new dimension of sustainable tourism.

Those very complex actions are further exacerbated by the inherent characteristic of the tourism sector, which is highly fragmented and diverse, covering a wide range of industries from very large to small and micro-businesses.

Despite the challenges, such crisis creates the opportunity to rethink tourism and promote a structural transformation of this sector towards a stronger, more sustainable and resilient tourism economy.

Connectivity and digital transformation are required for the sector to initiate such a purposeful innovation journey while responding to the COVID-19 challenges. Initial indications are that the current crisis is accelerating the digital transformation of the sector. Digital solutions are being developed to create live tourism experiences and will be increased deployed to support virtual experience for remote destinations.

In the longer-term, new business and risk management strategies, consumer demand for contactless, self-service, and personalised experiences, are expected to further the uptake of digital solutions supported by seamless always-on / everywhere connectivity.

In the not so far distant future, it is expected an increased demand of unmanned / remotely managed systems to aid logistic processes as well as autonomous robots (e.g.: cleaning) to reduce risks for the operators.

For the purpose of gathering user requirements for this call, the Agency has initiated dialogues with a set of users and prospective customers, each interested in specific innovation on the tourism sector. This first exchange was supported by the World Tourism Forum Lucerne (<https://www.wtflucerne.org/>). The interested stakeholders are a broad group including government and municipalities, regulatory bodies, different participants in the supply chain as manufactures, distributors, logistics suppliers, retailers and others. Specific use cases and requirements have been provided by (1) the Municipality of Florence, (2) CapsuleT – Hellenic Chamber of Hotels, (3) WWF, (4) Mirpuri Foundation, (5) Visit Flanders, (6) Andermatt Swiss Alps AG, (7) Expedia Group, (8) Global Himalayan Expedition, (9) Entertainment Cluster & Welcome City Lab - Paris&Co, (10) Athens International Airport, (11) World Tourism Forum Lucerne, (12) the Municipality of Athens, (13) the Institute of the Association of Greek Tourism Enterprises (INSETE). These uses are provided in Annex A. Those stakeholders have expressed their interest in exploring the benefits of space based solutions addressing their identified challenges and evaluating solutions that would be established through the subject thematic call.

3. OBJECTIVES OF THE THEMATIC CALL

The objectives of the Call are to:

- Develop and facilitate the adoption of innovative digital technology integrated with space and non-space solutions to accelerate good practices towards sustainable development that will help the tourism sector reach the Agenda 2030;
- Promote the development of sustainable integrated downstream services in the domain of tourism;
- Build partnerships with champions, early adopters and anchor users to foster development and utilisation of downstream solutions complemented by advanced technologies and space resources;
- Reach out to non-space communities that are active in the tourism sector and facilitate networking with space and new-space actors and pursue international collaborations to support global adoption and interoperability;

- Provide pre-operational demonstrations to the prospective users and customers of the proposed services show-casing the benefits deriving from the utilization of space.

4. THEMATIC AREAS

In alignment with the objectives of this call, four thematic areas have been identified following discussion with stakeholders, representing the most relevant priorities in the tourism domain.

The thematic areas are:

1. Use of digital and connectivity solutions to help the tourism sector embrace new business models required in post COVID-19

- Shift towards unmanned transportation, increased use of automation and robots
- Support rural tourism by promoting remote experience
- Provide always-on / everywhere connectivity to travellers
- Support traveller's experience sharing and active engagement with rural communities.

2. Seamless travel

Technology and services to ensure transparency and traceability according to relevant protocols (including border controls) and enable efficient implementation of new regulations.

3. Safe travel

Applications and services to help tourism sector become more resilient to natural / man-made disasters and health issues. Catering for new customers' behaviours, the sector needs to embrace new solutions and business models to promote safety of destination. This is expected to be largely supported by seamless (always on) connectivity and digitalisation. Always on connectivity will re-ensure travellers of assistance for unforeseen circumstances; digital solutions will be required to provide factual evidence of safety of local destinations including social distancing; fast response tools and services have to be further developed in order to respond to various types of emergencies (including medical). New solutions are also required to monitor spread of new diseases at various scales - from regional - cities to touristic resort settings.

4. Guide investments and measuring impact

Public and private investments need to support the tourism sector resume and keep on innovating and transforming. Major investments will be needed to make structural and physical changes to address health requirements and respond to changed travel behaviours.

Measure the net impact of tourism focusing on rural tourism (tourism as catalyst to sustainably and responsibly support rural community's upliftment) as well as investments and planning, including tourism seasonality, trends monitoring, managing and mitigating risks.

The Proposals by the Industry can cover multiple themes. Additional themes can be proposed by the industry if deemed commercially relevant and supported by customers/ users involved in the study by the Industry (support to be evidenced in letter of support).

5. SPACE ASSETS

Satellite Earth Observation (SatEO)

SatEO data (both SAR and optical) can be used to monitor and plan infrastructure (e.g., buildings, road network, parking lots, airports) as well as identifying visitors' patterns. SatEO can also be used to monitor land cover changes over time (e.g., in both rural and city level, wild habitats, forest, land, water, etc.).

Global Navigation Satellite Systems (SatNav)

SatNav is essential to track and trace tourists and search and rescue teams. SatNav can also enable visitor flow-monitoring and location-based services to geo-localise points of interest in the tourist maps and to enable geo-fencing and time-fencing features. In addition, GNSS receivers and sensors can be installed in the tourist sites to be used as complementary ground surface deformation measurement points to EO data.

Satellite Communications (SatCom)

SatCom is essential to ensure global communications for any of the above data services enabled by SatNav whenever the terrestrial communications are absent or not reliable. Hybrid 5G SatCom/ terrestrial communication SatCom may be used also to provide broadband Internet access and enable mobile immersive applications.

In order to achieve the objectives and address the above use cases, the proposed services can also rely on complementary digital technologies such as Augmented/ Virtual Reality, Artificial Intelligence/ Machine Learning, Hybrid 5G space/terrestrial communication networks.

As part of this thematic call, during the implementation process of the technical solution, the selected companies will be given the opportunity to come and test their applications in the [ESA-ECSAT 5G/6G Hub](#). Based at ESA's European Centre for Space Applications and Telecommunications (ECSAT) in Oxfordshire, UK, the centre provides a converged satellite and 5G terrestrial network and state-of-the-art equipment. The Hub is a centre of excellence supporting the digital transformation of business with integration of satellite with terrestrial telecom networks <https://artes.esa.int/esa-5g6g-hub>. The use of the Hub shall be requested in the proposal and duly justified.

6. SCOPE OF THE CALL

The proposals under this Call for Proposal shall address the Tourism domain with innovative user-driven integrated downstream services which rely on advanced technologies and space data.

The Bidder shall involve in the project representatives from users' communities, which shall take part in the pilot. The Bidder shall either address the use cases of one or more stakeholders involved by ESA and included in Annex A or address other use cases and requirements related to the Space for Tourism provided by other customers/ users directly involved by the Bidder. In the latter case, support of those potential customers (other than the ones included in Annex A) shall be evidenced in letters of interest to be attached to the Outline Proposal.

Annex A includes:

1. Annex A.1: Use case provided by the Municipality of Florence
2. Annex A.2: Use case provided by CapsuleT- Hellenic Chamber of Hotels
3. Annex A.3: Use case provided by WWF
4. Annex A.4: Use case provided by Mirpuri Foundation

5. Annex A.5: Use case provided by Visit Flanders
6. Annex A.6: Use case provided by Andermatt Swiss Alps AG
7. Annex A.7: Use case provided by the Expedia Group
8. Annex A.8: Use case provided by Global Himalayan Expedition
9. Annex A.9: Use case provided by Entertainment Cluster & Welcome City Lab – Paris&Co
10. Annex A.10: Use case provided by Athens International Airport
11. Annex A.11: Use case provided by TripAdvisor
12. Annex A.12: Use case provided by World Tourism Forum Lucerne
13. Annex A.13: Use case provided by the Municipality of Athens
14. Annex A.14: Use case provided by the Institute of the Association of Greek Tourism Enterprises (INSETE)

The service provider shall be identified and possibly be part of the bidding team to ensure the commercial operational roll-out of the proposed service following completion of the project.

This Announcement of Opportunity covers two types of activities:

1. Feasibility Studies, which provide the preparatory framework to identify, analyse and define new potentially sustainable services.

The applications and/or services covered by the proposed Feasibility Studies have to:

- Be customer/user driven and present a strong sustainability potential.
- Propose a service demonstrating the benefits of the utilisation of integrated space assets
- Include a viability analysis
- Aim to evolve the targeted applications and services to marketability and operational roll-out, potentially through a Demonstration Project after successful completion of the feasibility study.
- Address at least one of the thematic areas described in section 4 or other(s) defined by the Bidder.

2. Demonstration Projects, dedicated to the implementation and demonstration of pre-operational services.

The applications and/or services covered by the proposed Demonstration Projects have to:

- Be customer/user driven (including user involvement and active participation in the project).
- Propose a service demonstrating the benefits from the utilisation of space assets with clear potential to become sustainable.
- Address at least one amongst the thematic areas described in section 4, covering one or more of the mentioned applications or other(s) defined by the Bidder.
- Provide a measurable socio-economic impact.
- The Bidder shall involve in the project representatives from users communities, which shall take part in the pilot.

7. PROCUREMENT APPROACH

The proposals submitted in reply to the call shall be implemented in the context of ESA BASS GPL or the 5G SPL of ARTES, depending on the relevance of 5G in the activity and subject to technical/business justification on the use of hybrid SatCom - terrestrial 5G networks.

The Bidder shall submit first an Activity Pitch Questionnaire, and following evaluation, may be invited to submit the Outline and Full Proposal. The Activity Pitch Questionnaire (APQ) template provided by ESA shall be used, and it shall be uploaded using the online web submitter: <https://business.esa.int/apq-submit>.

The price of activities carried out in a given State are charged against the contribution of that State in the programme. Letter of Authorisation of Funding (AoF) from the relevant National Delegation is therefore required as part of the Full Proposal. The Bidder is however advised to inform the relevant National Delegation(s) when submitting the Pitch.

The Agency will admit for evaluation only proposals from a bidding team composed of an economic operator - being a Prime or Subcontractor - residing in any of those States that have

subscribed to BASS or 5G SPL, as specified in the procurement rules of the CALL FOR PROPOSALS FOR DOWNSTREAM APPLICATIONS IN ARTES 4.0 (esa star ref.: 1-10494). The coordinates of the National Delegates can be found here: <https://artes.esa.int/national-delegations>.

8. PROCESS AND SCHEDULE

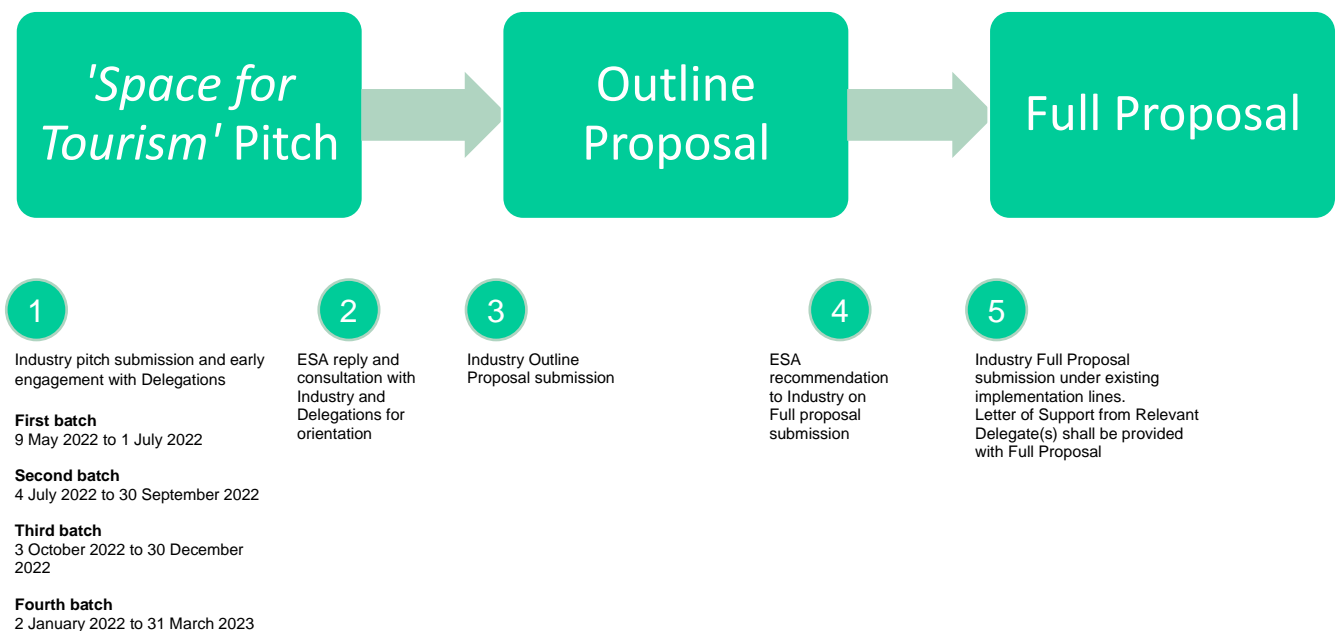
It is planned for the Announcement of Opportunity to be opened on 4 April 2022 for a period of 12 months organised in four main batches as presented below.

8.1. Timeline and Procedure

The Announcement of Opportunity will include both Feasibility Studies and Demonstration Projects.

The Thematic Call is open from 25 April 2022 and closes on 31 March 2023, where the industry can respond by submission of pitches.

The timeline is illustrated below:



The Call is planned to be implemented according to the following stepwise approach:

In **Step 1**, the interested Bidders are requested to submit their proposal(s) based on a short Pitch template made available by ESA that can be downloaded from the Thematic Call [website](#). The pitch should provide the initial idea of what the Bidder would like to propose, elaborated on the basis of the thematic areas and either the use cases proposed in Annexes or others selected by the Bidder.

Should the Bidder propose to address other use cases from other stakeholders, support of the stakeholders should be evidenced by a LoS attached to the OP.

The completed Activity Pitch Questionnaire (APQ) shall be uploaded using the online web submitter:

<https://business.esa.int/apq-submit>

The name of the APQ file must be APQ_SpaceforTourism_Projectname (the words SpaceforTourism shall not be removed).

Multiple Pitches can be submitted.

Pitches can be submitted within four batches (time-windows):

- First batch lasting from 9 May 2022 to 1 July 2022
- Second batch lasting from 4 July 2022 to 30 September 2022
- Third batch lasting from 3 October 2022 to 30 December 2022
- Fourth batch lasting from 2 January 2023 to 31 March 2023

It is strongly recommended that the interested Bidder liaises since the beginning with the relevant ESA Member States Delegates.

In **Step 2**, following an assessment of the Pitch by ESA, ESA will provide feedback to the company, aiming to provide a reply within 10 working days following the deadline for submission of the Pitch.

It is recognised that some interactions with the Bidder may be required and ESA may therefore consult with the Bidder and may offer support in providing further clarifications, aimed at better shaping the Outline Proposal(s). Dialogue sessions may be organised individually with potential partners prior to Step 3.

ESA might also consult, when necessary, with the relevant National Delegation(s) for orientation and will provide key information (e.g. title, cost, price, subcontractor) to the relevant National Delegation(s).

Subject to a positive evaluation of the Pitch and the Bidder having informed the National Delegation(s), the Bidder will be notified by ESA and invited to submit an Outline Proposal. In **Step 3**, the Bidder will submit the Outline Proposal, based on a template provided by ESA, with letter(s) of interest from users/stakeholders. The Outline Proposal is expanding the Pitch with a more extensive level of details.

In **Step 4**, subject to a positive assessment from ESA and in-principle support from the National Delegations, the Bidder will be invited to submit a Full Proposal in accordance with BASS programme line.

In **Step 5**, the Bidder will submit a Full Proposal with the Authorisation of Funding (AoF) from the relevant National Delegation(s). Following a positive assessment by ESA the proposed activity will be approved for implementation.

8.2. Evaluation Criteria

The evaluation process is non-competitive, as each proposal will be assessed individually on its own merits, according to the evaluation criteria applicable for [CALL FOR PROPOSALS FOR DOWNSTREAM APPLICATIONS IN ARTES 4.0](#) (esa star ref.: 1-10494).

8.3. General Conditions

The submissions and all correspondence relating to it shall be in English.

The tender shall not contain any Classified Information, whether in the Pitch, Outline Proposal or in the Full Proposal.

To avoid any confusion with Classified security markings, the unclassified protective marking used by the Tenderer in the proposal shall not contain the terms: "Restricted", "Confidential", or "Secret".

However, should the Tenderer consider necessary to include Classified Information in the tender, the Tenderer shall inform beforehand the Security Officer.

The Tenderers are informed that Classified Information can be shared with ESA only in compliance with the Project Security Instruction (PSI) duly established by the Agency beforehand and subject to the approval by the ESA Member States.

The Agency will treat commercially sensitive or proprietary information confidentially and solely for the purpose of the assessment of the response.

Expenses incurred in the preparation and dispatch of the response to the announcement will not be reimbursed. This includes any expenses connected with a potential dialogue phase.

The announcement does not bind the Agency in any way to place a contract. The Agency reserves the right to issue amendments to the announcement.

9. ANNEX A: USE CASES

For the purpose of this activity, the Agency has established contacts with several stakeholders who have expressed their interest in being involved in the activity, providing feedback and contribute with inputs towards successful development and implementation of the project(s).

Requirements and use cases have been collected from the following stakeholders:

1. Municipality of Florence
2. CapsuleT- Hellenic Chamber of Hotels
3. WWF
4. Mirpuri Foundation
5. Visit Flanders
6. Andermatt Swiss Alps AG
7. Expedia Group
8. Global Himalayan Expedition
9. Entertainment Cluster & Welcome City Lab - Paris&Co
10. Athens International Airport
11. World Tourism Forum Lucerne
12. Municipality of Athens
13. The Institute of the Association of Greek Tourism Enterprises (INSETE)

9.1.1. Use case-1: Municipality of Florence

Area of interest 1: Accessibility

Florence is an inclusive and enabling city, promoting equal access to services and opportunities for everyone, committed to leave no one behind. It is undeniable that, while on the one hand the historic center of Florence may present some objective difficulties for visitors with reduced mobility especially in the oldest area of the city: narrow sidewalks, cobblestone pavements, surfaces not always linear.

Area of interest 2: Sustainability

Addressing climate change by rethinking policies through a holistic and human-centred perspective has always been the approach of Florence. It means to conceive sustainable urban development as a crosscutting tool integrating objectives of different sectors: urban planning, environmental/green/air quality plans, SUMP, Smart City Plan.

Area of interest 3: Digitalization

The long-term strategic vision of “Digital Florence” (2014) lays down the assumption of the importance of connecting all relevant actors to create a local innovation ecosystem where the City provides enabling infrastructures and knowledge to improve people’s quality life and city wellbeing.

Area of interest 4: Cultural heritage

The Historic Centre of Florence can be perceived as a unique social and urban achievement, the result of persistent and long-lasting creativity, which includes museums, churches, buildings and artworks of immeasurable worth. Florence had an overwhelming influence on the development of architecture and the fine arts, first in Italy, and then in Europe. Florence promotes an integrated model of social and economic development, combining the cultural, artistic, tourist and manufacturing vocations based on a smart city holistic approach, even though high skills and tangible/intangible infrastructures. The vision is focused on developing a creative city through the enhancement of local history and culture, merging creative arts and tourism sector. Florence is then interested in attracting new talent and start-up enterprises. The keyword is synergy.

Use cases/ needs: sample questions

- A. Use cases: What are the main activities that your organisation is performing in the areas of interest mentioned above? Please make this traceable to the areas of interest.
- B. Current solutions, services and technologies used by your organisation: What are the current solutions, services and technologies used by your organisation, to conduct the main activities identified in each use case?

About Accessibility

Much has been done in this sense in recent years, for example a broad policy of pedestrianization of the centre, the smoothing of the height difference of the sidewalks in the vicinity of the crossings.

Florence Is continuously adopting a comprehensive approach that links the city urban and mobility planning with the sensible participatory process and bring us to be a smart tourist destination. This also means to break down information barriers regarding accessibility condensing information in a single channel, integrating numerous data and details related to

accessibility that otherwise would be scattered among different sources, thus making travel planning easier for the motion disabled. Florence has the largest European pedestrian area in city centre and the highest Italian number of parking for disabled; a network of physical and functional integration of spaces, routes, transport services and static/dynamic info available for all users (reduced mobility, sensory and cognitive capacity).

With the aim to improve the quality of services, Florence has set up an evaluation system to monitor the city performance.

KPIs are related to different areas, with respect to the cultural and tourist sector, the visits to civic museums are assessed in an annual report measuring their economic and social impact, using the Social-ROI indicator. Public with disability have evaluated two effects resulting from the cultural experience: the possible increase or decrease in perceived well-being and the willingness to pay (WTP) for a similar service in the future.

About Sustainability

As part of the sustainable urban planning, Florence set up the UNESCO Management Plan (MP) in 2016 that represents both an important tool for the preservation and enhancement of the Heritage and a guidance for the decisions process regarding the re-functioning of city space. The MP is part of a circular process: from the territorial analysis to the definition of the goals, including participatory processes, for the planning, implementation, monitoring phase and followed by a subsequent review. The new 2021 MP mainly focuses on the concept of “heritage impact assessment” to prevent the negative effects of mass tourism to build back better. Moreover Florence works on a wide set of different project to manage tourist flows/city users: the project Be.Long, is the unique opportunity addressed to foreign and offsite students, smart workers, start uppers, temporary residents to fully “belong” to the city. The project aims to repopulate the historic centre with the next generation of residents and medium- to long-term rentals. The initiative will also act as a data gathering exercise to monitor the long-term rental market in the city centre.

About Digitalization

A new city-wide data-driven approach as enabler of new services/competencies/business models. The Smart City Control Room (SCCR) Is an example that aggregates and shares data among the Municipality, public utilities and public service providers in a common data platform and enables policy making decisions for an increasingly responsive city (also thanks to sentiment analysis). Feel Florence is another new example of ICT tool based on data analysis to enhance the city as Smart Destination: a tourism platform and APP developed by Florence and extended to all 41 municipalities in the metropolitan area, also connected to VisitTuscany (the regional platform on tourism). The objective of the project was to create a common integrated tool for the promotion of initiatives, contents, and tourist information, thus solving the problem of channels fragmentation, multiple databases and applications born over the years.

Another example of IT tool is IF - Infomobility Florence. This is not just an App but it is a service platform dedicated to integrated urban mobility management. It gives to city users and tourists real time information on available mobility service as public transport real time arrivals, parking slots and charging station availability, access limitation to certain areas of the city, changes of circulation rules due to accidents, roadworks, etc.

Within the management of the tourism system there are lots of ongoing projects. For example:

- Tourist Destination Watch (a system to monitor tourism in the framework of the European NECSTouR project committed to economic-social-environmental sustainability through tourism and increasingly important driver of destination competitiveness, help members to deliver the tourism of tomorrow)
- Firenze Welcome Card (an initiative aiming to support SMEs, located in the city and in the nearby towns. The card offers discounts at all businesses activities that have joined the initiative. Bars and restaurants, commercial and craft activities, tours and excursions, sports activities, wellness, shows and cultural activities and more)
- Smart Waste Management (smart litter bins in the city center with compacting mechanism that allows a higher collection capacity, equipped with sensors for the best waste collection knowledge and management)

About Cultural heritage

A multi-level model for the management of databases, information, reception and tourist promotion. Tourist Information and Reception Operators (IAT, Italian acronym) include and update the data. These contents are made available to the various channels - website, app and other information platforms (VisitTuscany and MakeTuscany for example) as well as on open data.

- C. Problem statement: The limitations and areas of improvements of current solutions, and gaps requiring new solutions, should be identified. Does your current solution/service constrain you in any way? How/Why? What is the impact of these constraints?
- D. User needs: Which kind of improvements or new functionalities would help your organisation? Which are the operations gaps that should be addressed by a new service or by improving your existing service/tool? Which constraints (e.g.: privacy, regulations, etc.) shall be taken into account for service(s) operations. Please make the user needs traceable to the use cases.

About Accessibility

The accessibility continues to be a major area of efforts and interest for the municipality, by improving the actual solutions and finding new ones.

About Sustainability

After the Covid19 pandemic, the need to rethink and differentiate city users is becoming more and more important. The municipality already made some concrete steps, but it is constantly looking for new and innovative ideas.

About Digitalization

Other than the platform, key aspect for a successful digital tourism strategy is also the availability of data. For this reason, the city is constantly looking for new (remarkable) data sources that can be integrated in its existing infrastructure. Data sources inherent tourist flow or specially to determine the arrival of tourist flow are obviously key elements.

About Cultural heritage

The mission is constantly improve the offer - both tangible and virtual - of culture. Alongside the traditional well-known city places, the city is full of culture that needs to be explored, enhanced and promoted also by innovative digital instruments that the municipality is continuously looking for.

9.1.2. Use case-2: CapsuleT - Hellenic Chamber of Hotels

The Hellenic Chamber of Hotels operates since 1935 as a Legal Entity of Public Law. It is the institutional consultant of the Government as far as tourism and hospitality issues are concerned. Its members are, by law, all the hotels and camping sites of the country. The Chamber's membership is about 10.000. Classical hotels are the most numerous. The highest number of hotels-members are in Crete, followed by Macedonia and Central Greece regions.

CapsuleT is the accelerator programme of the HCH. Its activities have been designed according to the needs of the start-ups which will join the program as well as the need to connect and involve all stakeholders of the ecosystem. CapsuleT's main objective is to offer a rich content which will address the business needs of the participating start-ups, provide hands on learning opportunities and tools for their ventures as well as guidance on how to scale up their business in the travel & hospitality market.

The HCH has been giving very relevant inputs on the top priorities (during the pandemic) for the Greek tourism economy based on the identified needs of Greek hotels. These topics touch upon health and safety, upgraded digital literacy for all, virtual "travel dreaming" from home, touchless contact, from mass to personalised experiences. Other key areas of interest that have been identified so far include:

1. Sustainability solutions and management
2. Renewable energy/ Energy conservation solutions
3. Accessibility - solutions for people with special needs
4. Accessibility/ transport in rural communities
5. Quality measurements & control (beach/ sea/ atmosphere)
6. Extreme weather conditions - emergencies (e.g.: fires, floods)
7. Connectivity solutions in rural areas/ islands (e.g.: internet, locals)
8. Outdoor/ "nature" trends - activities, glamping, RVs.

9.1.3. Use case-3: WWF

WWF is the world's leading independent conservation organisation. Their mission is to create a world where people and wildlife can thrive together.

To achieve their mission, WWF try to find ways to help transform the future for the world's wildlife, rivers, forests and seas; pushing for a reduction in carbon emissions that will avoid catastrophic climate change; and pressing for measures to help people live sustainably, within the means of our one planet.

The challenges identified for the purpose of this call can be found in the table below:



WWF Challenges					
Area of Interest	Use Cases/ Challenge Description	Problem Statement	User needs	WWF examples	WWF Concerns
In the domain of tourism and conservation	<p>What are the main activities that your organisation is performing in the areas of interest mentioned above?</p> <p>Please make this traceable to the areas of interest.</p>	<p>The limitations and areas of improvements of current solutions, and gaps requiring new solutions, should be identified. Does your current solution/service constrain you in any way? How/Why? What is the impact of these constraints?</p>	<p>Which kind of improvements or new functionalities would help your organisation? Which are the operations gaps that should be addressed by a new service or by improving your existing service/tool? Which constraints (e.g.: privacy, regulations, etc.) shall be taken into account for service(s) operations.</p> <p>Please make the user needs traceable to the use cases.</p>	<p>Geography, Size of Opportunity, timeline</p>	<p>Risks of misuse of digital solutions</p>
1. Monitoring of Biodiversity and Impact					
Measure and monitor the impact of tourism activity and conservation	<p>In many project sites, WWF is collaborating with communities, tourism businesses, guides, and tourists to avoid human wildlife conflict; to develop and support concepts of community-based tourism products and conservancies.</p>	<p>Missed opportunities to take advantage how to make tour guides, drivers, boat captains etc become ambassadors and conservationist and upgrade their roles and responsibilities; Same for tourists: how can tourists monitor tourism practices (e.g. control of carrying capacities, misuse, overtourism etc.)</p>	<p>Technical solutions for partner, guides, drivers to collect data for analysis and improvement; Training necessary!</p>	<p>Safari, excursions, tracking, wildlife watching; In WWF projects worldwide;</p>	<p>Incorrect application of data leads to more disturbance and overuse of wildlife and protected areas;</p>
Game counts from space	<p>Is a tourism concept working and does wildlife and natural landscape is really benefitting? Regular</p>	<p>To have regular periodic game counts across the wildlife economy landscape would be</p>	<p>Need for high resolution satellite imagery used for game counts in areas with lower</p>	<p>Worldwide (e.g. Namibia)</p>	<p>Increasing number of game is not an indicator for</p>



	<p>periodic game counts give indication about influence of a successful sustainable tourism concept;</p> <p>Also to proof the relation between increased livelihoods and number of games: does the local population benefit?</p>	<p>useful metrics to monitor conservation performance of a tourism product;</p>	<p>vegetation cover like flood plains and open savannahs.</p>		<p>better livelihoods!</p>
<p>Monitoring of deforestation and conversion of ecosystems and its associated wildlife population</p>	<p>Conversion of landscape, pristine woodland areas/habitats through deforestation and conversion into cropland and settlement areas is a threat for ecosystems and associated wildlife;</p> <p>Conversion of specific landscapes through tourism infrastructure / urbanization (e.g. mangrove's loss)</p>	<p>Correct and reliable current status about loss is not available;</p>	<p>No full monitoring system in place providing year to year comparative data about the loss of woodlands/habitats (can be used for any kind of loss like mangroves, dunes, wetlands etc.)</p>	<p>e.g. Namibia, Mexico</p>	
<p>2. Monitoring of tourism traffic volume</p>					



<p>Monitoring tourism traffic volume and conflicts with wildlife</p>	<p>Example at the Namibia Riverbeds: These riverbeds are linear oases in the harsh Skeleton Coast/Kunene Region, where people, livestock, and wildlife, including desert-dwelling elephants, rely upon limited resources, particularly water. These limits are being further reduced due to climate change and years of drought. However, given their stunning beauty and remote location of these riverbed, they also attract self-drive tourists.</p>	<p>The potential for great game viewing at critical sites with vital resources is tinged with the threat of conflict when tourists and elephants (all kind of wildlife) meet.</p>	<p>Monitoring of the riverbeds could be key to understanding how to manage tourism in this area while ensuring elephant herds, other wildlife and local communities have access to the resources they desperately need.</p> <p>If traffic volume can be monitored along roads, tracks, and ephemeral riverbeds, it could be a useful tool to understand tourism and its impacts on landscape conservation (to upscale for all kind of critical landscapes)</p> <p>Plus: Long term monitoring to provide critical information on the effects of drought and climate change</p>	<p>Ephemeral rivers in Namibia's northwest</p>	
<p>Better allocation of visitors to minimize negative impacts and avoid conflicts</p>	<p>In many WWF remote project areas, ecotourism is the only concept to guarantee livelihoods for local people; But tourism activities are not allocated in a balanced way. In corona times, some places have been locked;</p>	<p>Imbalanced tourism: -Overtourism; pressure on nature and wildlife, communities, and cultural heritage;</p> <p>Insufficient ecotourism and sustainable, low impact tourism in remote areas to support wildlife and communities;</p>	<p>Monitoring of stressed and overallocated fragile natural sites and landscapes: Coral reefs, bays, waterholes etc. to provide reliable information for better guiding and allocation to good alternative places</p>		<p>Risk to disturb fragile places which are not suitable for any tourism activities;</p>
<p>2. Fundraising for Conservation</p>					



<p>Raise investments and donations for conservation</p>	<p>In many WWF project areas (marine and terrestrial), tourists are impassioned and stirred by nature and species while visiting sites; WWF can educate, attract and convince people to protect nature and the environment;</p>	<p>No opportunity to take advantage of the momentum to make tourists to sponsors, advocacies and supporters for a project;</p>	<p>Use of digital solutions to finance conservation and create new business models like Wildlife Credits / Landscape Credits</p>		
<p>4. Climate smart mapping and zoning</p>					



<p>Zoning and Routing for better planning and mitigating risks and conflicts</p>	<p>Tourism infrastructure such as hotels, marinas, airports and streets and its operations are destroying relevant ecosystems. Despite corona, tourism growth is unchecked.</p> <p>Measures like smart mapping and zoning help to increase resiliency of communities and reduce the pressure on (marine and coastal) ecosystems</p> <p>e.g. improve ship's routing (->Whale ship Collision avoidance systems)</p> <p>Land use zoning systems to protect ecosystems like coral reefs, mangroves etc</p>	<p>Tourism business like traffic or infrastructure are major drivers for development; Tourism business and investors need reliable information where to expand their business without negative impacts and pressure on landscape and biodiversity;</p> <p>Public sector realities are different in each country and destination but common trends are: lack of acknowledgement of the negative long-term impacts of mass tourism development; development models that promote mass construction; perverse incentives; and corruption. Often the different government instances involved enable confusion, lack of accountability, and lack of cohesive development plans.</p>	<p>Need for mapping and evaluation of a destination to identify zones for development and infrastructure and zones for protection and limited use;</p> <p>Technical support to evaluate the present situation of a destination to regulate further land use and conversion;</p> <p>(land use mapping / spatial planning</p> <p>Using GIS based spatial planning for tourism development in destinations)</p>		
<p>5. Support remote areas and rural communities</p>					



<p>Support rural tourism by promoting remote experience & support traveller’s experience sharing and active engagement with rural communities</p>	<p>Market access is missing: WWF is working for nature based products (“Nature pays”) in many projects worldwide; How can we promote the products in the right way?</p>	<p>Where do tourists find sustainable options? Market access for nature based products is missing; connectivity between tour operator and nature based and community based tourism products are missing to increase traveller’s experiences in rural and remote areas</p>	<p>Need for digital support to build a sustainable online platform for products, activities, handcraft accommodation and food offered by rural communities in remote areas where sustainable tourism development is needed;</p>		<p>How to secure quality? Certification of a product? Communities have to decide how many tourists they want to host and welcome!</p>
<p>6. Identify unsustainable tourism activities</p>					
<p>Screening of tourism platforms and social media</p>	<p>Online tourism platforms like tripadvisor, Airbnb, google travel, booking.com and check 24 are getting more and more the usual way to book trips, accommodation and excursions; The sustainable performance is low; There is no quality check at all; quite the opposite: many products ranked first are harmful and unsustainable;</p>	<p>A critical guidance for the tourists and visitors is missing; sustainable behaviour and products supporting communities and natural protection, or cultural heritage are not existing;</p>	<p>Technical support to develop criteria to identify negative practices and highlight better business practices;</p>		

9.1.4. Use case-4: Mirpuri Foundation

The Mirpuri Foundation is a non-profit organization established in 2016, by Paulo Mirpuri with the mission of making a better world for future generations. The Foundation fosters cooperation between legislators, corporations, communities, and individuals and acts on six different areas: Marine Conservation, Wildlife Conservation, Aerospace Research, Medical Research, Performing Arts and Social Responsibility.

Based in Portugal, a country highly connected to the sea, since it takes up to 97% of its territory, the foundation is highly focused on marine litter and climate change, launching campaigns such as: “Turn the Tide on Plastic”, “Save the Coral Reefs” and “Racing for the Planet”.

As the principal sustainability partner of Hi Fly airline, a wet lease specialist, the Mirpuri Foundation has also been leading the airline into good practices that aim to contribute to greener aviation. With this in mind, the Mirpuri Foundation (a solution-oriented organization) has made efforts to abolish single-use plastic in general and raise awareness of the issue. After investing in a R&D project to create a plastic free polymer, “The Good Bottle” was launched, a new packaging that is 100% biodegradable and fast-deteriorating, containing algae.

The foundation has also created the Mirpuri Foundation Racing Team, the winner of The Ocean Race Europe in 2021, as a platform to raise awareness of marine conservation and climate change. The team was trained both to be sustainable and to efficiently communicate sustainability; they have taken part in actions throughout the course of the race in order to raise awareness, educate, and incite positive behaviour changes. It has also partnered with EarthSense to calculate the amount of air pollution both in the ocean and on land - by using two EarthSense Zephyr® air quality monitors onboard. During the whole competition there was no non-essential single-use plastics, and efforts were made to minimize the environmental impact by reducing carbon emissions on operations and supply chain.

With the Covid-19 pandemic, the world saw an extreme increase on the use of single-use plastics, not only because of PPE, but also due to e-commerce and food takeaway. Just in 2020 it is estimated that around 1.56 million face masks ended up in the oceans.

This has deep effects conservation wise, but also impacts the tourism sector economically. With the sector reopening, more and more people will start travelling again, thus, the goal is to think about a post-pandemic recovery of the industry, linking economic growth to sustainability. Tourism can play a big role in addressing sustainability and contributing to environmental solutions.

It is important to note that 80 per cent of tourism takes place in coastal areas and, during the summer season, solely in the Mediterranean region, marine litter increases by more than 40%. The tourism sector alone represents roughly 8% of the world’s carbon emissions, of which around 49% is caused by transport services, 10% by food and beverage and 10% by goods.

With this in mind, it is of uttermost importance to tackle issues and create strategies, through adaptation and mitigation, to reduce plastic consumption and to think about a more sustainable tourism management.

It is imperative that businesses take a step back and start investing in greener alternatives. In order to also reduce their carbon dioxide emissions, hotels can take the first step by thinking about new tools that will help them efficiently manage/optimize their emissions. As technology in renewable energies advances, it has become easier and more affordable to substitute traditional energy sources to green ones. Regarding food management and supply, the industry can benefit from rethinking operations and start connecting with local suppliers, both to reduce transportation time, but also to better control food orders to avoid food waste (given its the environmental, social and economic impact).

We are now at a critical time and space for tourism should be thought as a way to promote a blue-green recovery.

9.1.5. Use case-5: Visit Flanders

Visit Flanders is the tourism destination management organisation for Flanders, northern part of Belgium. The organisation is a governmental body that is responsible for the tourism development in Flanders and the marketing of Flanders abroad.

Visit Flanders has 3 needs that might be solved:

1. Measuring number of long distance cyclists on some specific routes: Flanders developed recently a couple of long distance cycling routes (ranging from 60 kms up to 1000 kms all together combined). These are marketed as routes to cycle on for a couple of days in a row. We would like to measure how much these routes are used as long distance routes (people doing the long distance in a couple of days in a row). The problem is that these roads and paths are mainly used by many others (short tours, functional traffic, ...). It is hard to measure the specific group of those long distance cyclists. This year we start measuring by using interviewers (volunteers) but this is not efficient as they need to find that small specific group within a big group of users and they need to make them stop. An advantage is that it can deliver much information. An alternative on the long run would be desirable.
2. Measuring the number of tourists has become very important. It was in the past but now since over tourism has become an issue it is even more important, and it has become more complex. In the past we used the official statistics of overnight stays, but this is not sufficient anymore because of some reasons:
 - a. Concerning over tourism, the day tourists play an important role. Official statistics don't give a view on that.
 - b. Overnight statistics don't show flows of tourists which is important information in managing a destination.
 - c. The official overnight statistics only show figures for official accommodations. In the past this was almost exhaustive but with the rise of Airbnb and other rental platforms

the number of unofficial accommodations has risen. To tackle the problem of the rental platforms, Visit Flanders uses data from a specific source that scrapes Airbnb data on the website, but this causes another problem because on those rental platforms there are also a lot of official accommodations active and the share of both is not known.

Visit Flanders experimented in the past already with telco data (as only source and each time from one provider) and always focusing on specific events and geographically small in size. Visit Flanders was never completely satisfied with the results. Several issues appeared.

3. As many destination management organisations, Visit Flanders focuses on sustainable tourism. To measure the sustainability, Visit Flanders developed a theoretical framework of indicators, but these are not easy or suboptimal to fill in. Specifically, emissions are very difficult.

CO2 emission for example, is calculated only for travellers using air and only for the part of air transport using a formula based number of arrivals in Flanders and the theoretical emission linked to that distance per country of origin to Flanders. The real emissions are more than only linked to air but approaching air transport as general might also not be ideal.

Within ETC satellite data concerning emissions were already explored a bit but insufficient. The main problems were determining the share of tourism and making distinction between causality and correlation.

9.1.6. Use case-6: Andermatt Swiss Alps

Andermatt is located in the middle of the Swiss Alps. In recent years, Andermatt Swiss Alps has expanded its infrastructure, created attractive opportunities for investors and created new jobs for the entire region.

A team of experts have identified the below use cases for the Space for Tourism thematic call:

What would be the future of travel and Swiss mountain resort?

There is no question that the COVID-19 pandemic has dramatically changed our daily lives, travel behaviour, preferences and needs. To grasp these new challenges and meet our responsibilities beyond the current global crisis, we asked the Spark Works team to help us better understand the future. Their work is now our guide and map to proactively shape the future.

4 Key Topics we looked at:

1. Climate Change
2. Digitalisation
3. Globalisation
4. Sustainability

-61% is the expected surface loss of Andermatt glacier by 2030 compared to 2010. 2.4°C the temperature increase in December

We believe in 2040, residents will find an authentic holistic experience and are inspired to actively participate in expanding Andermatts ecosystem.

Thesis we believe Andermatt has great potential in:

Multimodal travel for first & last mile

In 2040, Andermatt offers a multi modal mobility infrastructure/service (which makes privately owned cars unnecessary) that entails a connection to other cities, mountain-valley-logistics and smart-last-mile solutions, which effectively ensures optimal traffic management.

Community creation

In 2040, tourists/visitors in Andermatt feel like residents. Smooth digital offerings and events support this integration into a multi-national diverse community.

Flexible smart logistics

In 2040, Andermatt will have a holistic, universal and flexible logistics system. Artificial intelligence and multiple usage concepts enable the region and all companies to distribute goods and people in a highly efficient and sustainable manner.

Flexible housing & ownership, work-life-integration

In 2040 in Andermatt, habitants and tourists will equally have the option to use flexible housing & leisure services to ensure convenient short-term visits as well as the possibility to work from Andermatt by offering the right infrastructure.

Eco-city & sustainability

By 2040, we will have reached a high sustainability level by investing in green energy solutions (water, wind, solar, energy harvesting technologies) and investing in more sustainable food production (such as vertical farming).

Easy access to activities

In 2040, our customers will not have to choose between leisure activities and have instant access to the desired activity, not depending on weather, season, etc.

9.1.7. Use case-7: Expedia Group

Expedia group provides industry-leading technology solutions to fuel partner growth and success, while facilitating memorable experiences for travellers. Expedia group provides industry-leading technology solutions to fuel partner growth and success, while facilitating memorable experiences for travellers. Expedia Group's family of brands includes: Brand Expedia®, Hotels.com®, Expedia® Partner Solutions, Vrbo®, trivago®, Orbitz®, Travelocity®, Hotwire®, Wotif®, ebookers®, CheapTickets®, Expedia Group™ Media Solutions, Expedia Local Expert®, CarRentals.com™, and Expedia Cruises™.

The use cases identified for the purpose of the 'Space for Tourism' thematic initiative are presented below:

Remove friction from our traveller and partner journey:

Create personalised and frictionless experiences that meet the emerging needs of travellers.

- Our conversation platform provides travelers with an AI-powered virtual agent to help resolve the most common enquiries.
- Our virtual agent supports cancelling or changing trips, receiving refunds, redeeming vouchers, and questions about amenities via web, app, and social channels with new voice functionality coming soon. In the case of more complex queries, our virtual agent connects travelers to human agents or supply partners.
- This year, we've added new skills to respond to customers at scale. For example, we launched one-click cancellation, where travelers can use the virtual agent to initiate cancellations for each part of their trip with just a tap, then receive either a refund or a voucher for their trip when eligible. Our virtual agent can also help travelers redeem airline credits.
- The entire process is quick and seamless from the traveler's perspective, and any change is in line with our partner's policies.
- Meeting traveler needs on mobile-first, digital experiences and self-service options is helping to increase our net promoter scores (NPS), creating cost savings for Expedia Group and our partners, and encouraging repeat purchases.
- The future vision for the virtual agent will include suggesting destinations based on unique traveler preferences, operating like a concierge to book other services like ride share, pet sitting and insurance. These enhancements to our virtual agent will help reduce friction across the end-to-end travel journey, not only post-booking or servicing.

Save our partners (in this case hoteliers) time by providing more choice in how they seek and receive support.

- The big challenge for hotels is staffing right now and they try hard to find ways to deliver a great guest experience. Saving them time is crucial.
- Our conversation platform simplified and enhanced the Help function within Partner Central, improving the speed, accuracy, and reach of our support.
- By bringing together artificial intelligence and machine learning in the form of a virtual agent, we are providing partners with more choice and options in how they seek and receive support.

- Our virtual agent provides 24/7 support to our partners, using advanced technology to answer questions, flag additional resources, and quickly accomplish tasks – such as reviewing cancellation policies for a specific booking, editing cancellation policies, and finding Expedia Virtual Cards for payments and vouchers.
- We are planning to expand the skills of the virtual agent to include things like building promotions, adding rates plans, and researching rates and inventory.

Help travellers make smart booking decisions and feel safe through technology

- We are restoring confidence in travel by helping to alleviate stress and reduce friction: providing real-time updates on itineraries and destinations, helping travellers making smart booking decisions by displaying health and safety measures, and protecting their financial security through flexibility.
- Expedia Group brands including Expedia.com recently launched the COVID-19 Travel Advisor, an interactive tool powered by Sherpa that helps customers find up-to-date information about travel restrictions in the destination they plan to visit, such as quarantine, face mask and COVID-19 test requirements.

9.1.8. Use case-8: Global Himalayan Expedition

The Global Himalayan Expedition (GHE) engages travellers and businesses to build resilient communities through sustainable development and climate positive travel.

Current rural tourism problem:

- Lack of basic facilities in terms of infrastructure, lack of education and livelihood which they both result in having limited new rural destinations “migration of tribes and lost culture”.

The aim of the Global Himalayan Expedition is to empower remote villages through tourism, reflecting on the UN’s Sustainable Development Goals 2030. As part of this effort, GHE’s objectives are to alleviate poverty, promote digital education, clean energy and livelihood.

Solar powered health centres:

- Creating Solar Powered Health Centres with better medical equipments
- Provide good quality Health Care to the Communities
- Training of the local medical staff on the installed appliances
- Developing a sustainability model for smooth operations of medical centres

Component of a health centre:

- Providing the basic health care infrastructure required at Health Care Centre

Access to clean cookstoves:

- Providing a transformative solution for the rural communities

- What is used up to now: traditional cookstoves on firewood that emit toxic fumes
- Proposed solutions: clean cookstove – 60% reduction in CO2 and 40% reduction of black carbon. 50% reduced cooking time, 50% reduction in fuel costs, 40% improvement in cooking efficiency. 80% reduction in smoke and toxic emissions.

Empowering communities by:

- Solar powered homestays
- Astro-tourism in Himalayas

Women empowerment:

- Electrical training
- Homestays training

Life in Himalayas during winter:

Post COVID Challenges

 <p>Post COVID 19 “Sustainable Tourism will Increase”</p>	 <p>Lack of Infrastructure “No Basic Facilities”</p>	 <p>Lost Opportunity “Zero income”</p>
<ul style="list-style-type: none"> ▪ In a post COVID world, people will avoid long haul travel and prefer to travel domestic ▪ Additionally, there is a strong inclination to visit offbeat destinations and stay in homestays 	<ul style="list-style-type: none"> ▪ The village homestays do not have access to basic health care and are most vulnerable ▪ There are also no basic information and Monitoring facilities that are available at these remote locations 	<ul style="list-style-type: none"> ▪ Travelers will demand basic facilities at accommodations & safety net at these destinations ▪ A poor setup will lead to low confidence translating into zero revenues for these communities

Challenge-1: Destination natural resource Monitoring

- Increase in Hand wash and sanitation will lead to depletion of natural resources
- Sensor based monitoring of Key Natural resources of the Village
- Providing real time carrying capacity info for travel companies

Challenge-2: Traveller accommodation and safety updates

- Availability of Safe Accommodation in remote areas will be essential post COVID-19
- Satellite based information on the availability of the accommodation will be crucial
- This will be like a booking engine with two-way interaction between the host and traveler

Challenge-3: Portable GPS based health monitoring

- Group trekking will require confidence among fellow travelers
- GPS system with integrated health monitoring system will be essential
- Will convey the vital help to the nearest hospital aiding swift rescue and action

9.1.9. Use case-9: Entertainment Cluster & Welcome City Lab – Paris&Co

Welcome City Lab is a programme to stimulate innovation in the tourist sector including the world's first incubator that is dedicated to this sector. Created in 2013 with the support of the City of Paris, the Welcome City Lab has incubated and coached more than 160 start-ups with a success rate of 85% to date. It was created by Paris&Co, with the support of the City of Paris, the Métropole du Grand Paris, BPI France, Paris Convention and Visitors Bureau and the General Directorate of Enterprise. Its founding members are Air France, Atout France, Banque des Territoires, the Hauts-de-Seine General Council, France Tourisme Lab, Groupe ADP, Paris Inn Group and ViParis.

The innovation platform offers start-ups and players in the tourist sector a full range of services: an incubator, a place to meet, for discussions and co-working, a test platform and a monitoring unit. Paris&Co is the economic development and innovation agency of Paris. Paris&Co supports more than 500 start-ups each year and has been putting its expertise at the service of young innovative companies for 20 years. Its ambition is to make "Grand Paris" the tourism innovation leader, having the objectives to identify and bring out future international tourism champions, create a culture of innovation in the tourism industry, foster synergies between traditional players and start-ups.

As part of their travel-tech innovation Trend Book, Paris&Co have been trying to identify the major innovative trends that will shape tomorrow's tourism sector. This trend Book has become a national and international reference, based on which the following key thematic challenges have been identified as part of this funding call:

1. Local and responsible tourism: from intention to action
 - Preserving your pleasure whilst preserving the planet thanks to high quality vacations
 - Sustainable tourism: how to select and certify your accommodation offering
 - Ecology: the 3rd dimension of business travel
2. Contact-free technology, a trend that perfectly matches the latest aspirations
3. Teleworking, a new opportunity for the tourist industry
 - Teleworking – an opportunity to develop regional tourism, somewhere

- between a “staycation” and local tourism
- The era of road warriors is over, make way for work/ life balance
- “Workcation”: the new frontier for tourism in Italy
- 4. New business models for cultural events
 - Establishing new innovative business models for cultural experiences
 - Festivals and the COVID-19 crisis, cultural diversity at the heart of the regions and dynamics for development
 - Museums, exhibitions, and the COVID crisis: weakening, permanence and renewal
- 5. Offering visitors permanent access to information: a major issue for specific and suitable offerings
 - How can we make information accessible 24/7 in rural areas?
 - Access to information; a digital and mapping challenge
 - Travelers are constantly seeking information before, during and after their trip

9.1.10. Use case-10: Athens International Airport

Athens International Airport S.A. (AIA) was established in 1996 as a Public-Private Partnership with a 30-year concession agreement. AIA is a privately managed company, with the Greek State holding 55% of shares, while the private shareholders collectively hold 45%. With a corporate goal to create sustainable value to all stakeholders by offering value-for money services, AIA has a successful developmental strategy, in both its aeronautical and non-aeronautical sectors. Offering one of the most advanced incentive and marketing support schemes, AIA ensures the sustainability and development of domestic, regional and international traffic, working closely with home carriers and international carriers, legacy airlines and LCCs.

The following key thematic challenges have been identified as part of the ‘Space for Tourism’ funding call:

Topic: Shift towards unmanned transportation, increased use of automation and robots

Autonomous Apron - requires accurate positioning information and real time communications and observation. - Satellite Earth Observation (SatEO) & Global Navigation Satellite Systems (SatNav). (<https://www.euspa.europa.eu/newsroom/news/galileo-critical-autonomous-driving>)

- Service robots in open spaces such as Airport's car-parks or at the curbside could also make use of real time Satellite Earth Observation (SatEO) and Global Navigation Satellite Systems (SatNav)
- Real time situational awareness services of major events that impact the airport operations such as major sporting events, Expos, Cruises, Cultural events (Concerts) etc - Satellite Earth Observation (SatEO)
- Real time situational awareness of major incidents and catastrophes affecting airport operation and safe access of passengers to/from the airport (Satellite Earth Observation (SatEO))

- Mobility as a Service (MaaS) for airport passengers travelling to and from the airport either with autonomous trains or busses or with autonomous cars could benefit from both real time Satellite Earth Observation (SatEO) and Global Navigation Satellite Systems (SatNav) services (<https://www.euspa.europa.eu/newsroom/news/galileo-supporting-mobility-service>)

Topic: Provide always-on/ everywhere connectivity to travelers

Provision of Satellite Communications (SatCom) to airport remote areas that cannot be covered with existing infrastructure. (e.g., Incident or construction site)

- Use of Satellite Communications (SatCom) for business continuity in case all terrestrial communications have failed (e.g., widespread power outage)

9.1.11. Use case-11: World Tourism Forum Lucerne

The World Tourism Forum Lucerne (WTFL) is the leading interactive platform in the industry, where CEOs, Ministers, Academia, Finance, Start-Ups, Next Generation and Young Talents become a strong community addressing the future challenges of the travel, tourism and hospitality industry and shape a more sustainable future. WTFL's work is focused on four core pillars: Innovation, Sustainable Development, Talent and Diversity.

For the purpose of this call, the WTFL have identified 3 key areas where the value of space technology can drive innovation and safety in the tourism sector:

1. Safe tourism: cope with COVID-19, explore safely the world and stay connected
2. Sustainable tourism services: Monitor and measure data, protect resources, empower sustainable choices
3. Smart services, cities, and mobility: robotics, connectivity and low-touch technologies

9.1.12. Use case-12: Municipality of Athens

The Athens Development and Destination Agency (ADDMA) is a public company owned by the City of Athens that supports the city's mission in tourism development, entrepreneurship, and social solidarity. ADDMA is the city's Destination Management Organization (DMO), serving as a catalyst for the strategic development of the local tourism industry and promoting Athens as a destination for leisure and business travel through the international brand 'This is Athens.'

ADDMA has identified 4 key topics of interest, supporting the 'Space for Tourism' funding initiative:

1. Ensure that tourism is year-round, not just during the summer season

2. Develop a healthy visitor economy that creates stable employment and promotes quality of life for residents
3. Develop sustainable tourism that reduces the negative impact of traditional tourism on both society and the environment
4. Protect and promote cultural heritage while expanding the presence of cultural activities on both traditional and new platforms
5. Visitors arrive in the centre of Athens through many different modes of transport, but the primary source of data about visitor traffic comes from airport arrivals. We have effectively no capacity to measure the number of people who are present in the centre of Athens at a specific of time, and it is very difficult to predict and address the impact of visitor traffic on the city, its residents and the environment. We would like to have a picture of the visitor traffic and carrying capacity of Athens to better understand the stressors on the city at varying levels of demand.
6. The roofs of Athens apartment buildings are mostly un-utilized and a great candidate for the installation of green roofs or solar panels. These could improve the efficiency of aging buildings while contributing sustainable energy to the city's electrical grid. We want to help develop the potential of building rooftops by 1) planning for the placement of infrastructure as well as 2) demonstrating the value that can be created. This will help to build the financial vehicles necessary to support investments in green roofs and solar panels by the ownership boards of individual buildings.

9.1.13. Use case-13: Institute of the Association of Greek Tourism Enterprises (INSETE)

The Institute of SETE-INSETE is a non-profit organisation founded in early 2013, on the initiative of the Greek Tourism Confederation (SETE), by four partners with intense activity in critical areas of the Greek tourism market: (1) SETE as principal partner, (2) the Hellenic Hoteliers Federation (HHF), (3) the Hellenic Association of travel & tourism Agencies (HATTA), (4) The confederation of entrepreneurs of rented rooms and apartments (SETKE).

INSETE's objective is to research, safeguard and promote the position and contribution of tourism towards sustainable economic, social and cultural growth and development at both a national and European level. To support and promote entrepreneurship (both conventional and social) in the tourism sector and in any other service sector which is directly or indirectly associated with it. To enhance Human Resources development policies and tools for the tourism sector and any other service sector which is directly or indirectly associated with it. Lastly, to provide scientific, technical or other form of documentation and support to SETE on issues relevant to its activities and operations, and to help it achieve its objectives.

INSETE has provided the 4 key use-cases addressing the 'Space for Tourism' thematic initiative:

1. Environment: with respect to changes in coastal areas, sea levels, desertification, state of forests etc. – these are very important resources for tourism and climate change is impacting them.
2. Climate: accurate weather forecasting for a period of one month (or more) – as booking windows are shortening, accurate weather forecasts will help (potential) tourists chose destinations
3. Discovery: using space technology to discern patterns that can lead to important archaeological discoveries – of critical importance for bringing cultural heritage in the open and promoting alternative tourist products.
4. Know-your-client: using mobile telephony technology, roaming in particular, to identify home markets of visitors to attractions during different times / periods – very useful for marketing attractions / destinations.