SPACE FOR SPORT, CULTURE AND EDUCATION INFRASTRUCTURE USE CASES

Prepared by	ESA
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1. INTRODUCTION

This document lists the use cases to be used as part of the "Space for Sport, Culture and Education Infrastructure" thematic area within the umbrella of the "Space for Infrastructure" thematic call for proposals.

The use cases presented result from the cooperation between the European Space Agency (ESA) and key stakeholders of the transport infrastructure sector. It aims at developing sustainable services leveraging space assets to address the needs for modern day transport infrastructure.

2. ANNEX A: SPACE FOR SPORT, CULTURE AND EDUCATION USE CASES

2.1. Use Case 1 – UEFA

UEFA is keen to explore solutions leveraged by space data and technologies (SatEO, SatNav, SatCom and space-enabled solutions like HAPs or IoT) that can help UEFA in crowd management and safety during events. The solutions should enhance and complement their existing and tested sensor-based solution, to collect aggregated and GDPR compliant data on people who are not close to the stadium but rather in open locations in the host city; and enable UEFA to make data supported decisions.

The needs of UEFA are:
- To be able to cover open areas not controlled by UEFA (i.e. where no entrance/no exit under UEFA control policy).
- To be able to count the number of people, at mass level, in such open areas. Finding alternative technology solutions to the current sensors system to reduce its costs and to ensure operational scalability and implementation.
- To be able to collect reliable and accurate qualitative anonymous data on spectators' crowd movements. Challenging the reliability and accuracy of the existing main data source i.e. the sensors system in place. A reasonable maximum margin of error should be agreed (i.e: 5%).

- To be able to cross data collected, centralize, and expose it to support decision makers (mostly in the Venue Control Room) whenever they need to decide, considering the business and amount of stress from Match Day-4 to Match Day.

Nothing in this call for proposal constitute any agreement, commitment or undertaking, express or implied on the part of UEFA.

2.2. Use Case 2: Venice Sustainability Innovation Accelerator (VeniSIA)

"Data Confederation for Smart Destinations"
A common objective of tourism companies/groups is to update and innovate their strategic business models through the use of new technologies to present themselves on the national and international market to provide innovative cultural experiences and services through tourism.

The key resource for leveraging change and enabling new, more dynamic business models is represented by data and it's management: collection, storage, analysis and transformation aimed at making operational decisions.

It is known that Italian tourism is, like the other leading sectors of the country, a heritage of entrepreneurial "biodiversity". Today 95% of the Italian tourism sector is made up of micro and small businesses. The businesses are independent, inclined and dedicated to "doing" and generally not inclined to innovate but above all to standardize and standardize, because at stake is first and foremost the safeguarding of one's historical identity, most often also family, as well as being seen as "hyper" local.

To become a Smart Destination, the territory needs to develop and nourish a Digital Ecosystem that allows the use and safe sharing of data, information, knowledge, technologies and functional digital services respectively for:
- the operator of a destination (this applies not just to the operator of the main visitor attraction but in a broad sense also all those businesses and organizations that inhabit

and characterize it), to develop value-added solutions perfectly adhering to the characteristics of its stakeholders;

- the offer mediator, to create an innovative marketing and promotion model that exploits data to maximize market impact and development;
- the user of the destination (the tourist but also the citizen), to receive personalized packages algorithmically based on one's aptitudes and preferences.

From a digital ecosystem (as E015 is today) the move on to a Digital Business Ecosystem (EDB) is intended as an open and interconnected system, based on common rules and languages to guarantee interoperability between operators also a business point of view. EDB will enable digital activities aimed at businesses that are functional to the tourism sector like what happens in a beehive: every entity that operates inside it has its own role, its own function, its own meaning aimed at the global entity in which it is inserted.

The Digital Ecosystem is created starting from the development of an infrastructure for the management of Linked Data on Tourism by involving the various stakeholders of the sector, as data-providers and/or data-consumers, and as of producers and consumers of services. With the main aim of monitoring visitor's patterns over a period of time.

Space can bring it's benefit to the EDB is a variety of ways. Some of these examples are (and are not limited to):

- Satellite Communications
    - Back-up communications in case of emergency when large crowds are present at a certain site.
    - Provision of ubiquitous connectivity in remote locations.
    - Enabling the use of VR/AR applications making cultural history more accessible.
- Earth Observation
    - Monitoring of cultural/historically sensitive sites at risk of environmental damage.
    - Provision of information on weather impacting local events.
    - Identification of visitor patterns.
- Satellite Navigation
    - Tracking of visitor devices, providing information on visitor flow.

- Use by emergency services in case of a search and rescue operation.
- Navigation of unmanned aerial vehicles and drones to monitor visitor flow.
- Time stamping of reference data used within the EDB