Space for Sustainable Tourism

Mina Syriou, European Space Agency

08/02/2023

Hosted and organised by:

Mina Syriou
Business Applications & Partnerships
ESA Business Applications
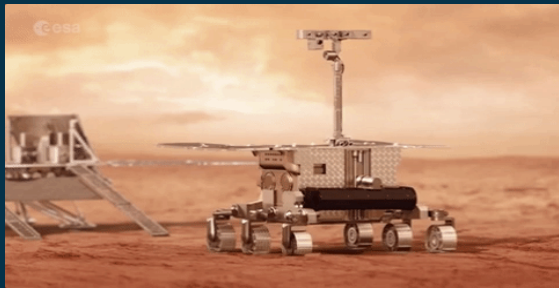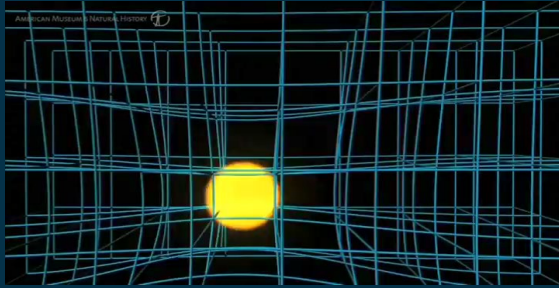Asimina.Syriou@esa.int

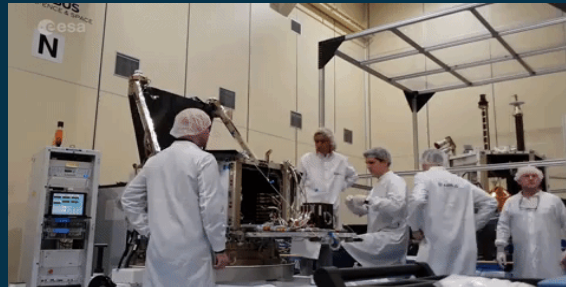→ THE EUROPEAN SPACE AGENCY

European Space Agency

- Europe's gateway to space
- Peaceful exploration and use of space for the benefit of everyone
- Established in 1975 - over 50 years of experience
- 22 Member States + Additional Associate & Cooperating States
- 8 sites across Europe and a spaceport in French Guiana
- Promote European scientific and industrial interests in space

UNITED SPACE IN EUROPE

ESEC — education and security
ESTEC — space technology and satellite testing
EAC — home to European astronauts
ESA HEADQUARTERS
ECSAT — space telecommunications
ESOC — mission control operations
ESAC — astronomy and planetary science
ESRIN — Earth observation
EUROPE'S SPACEPORT

ESA Pillars
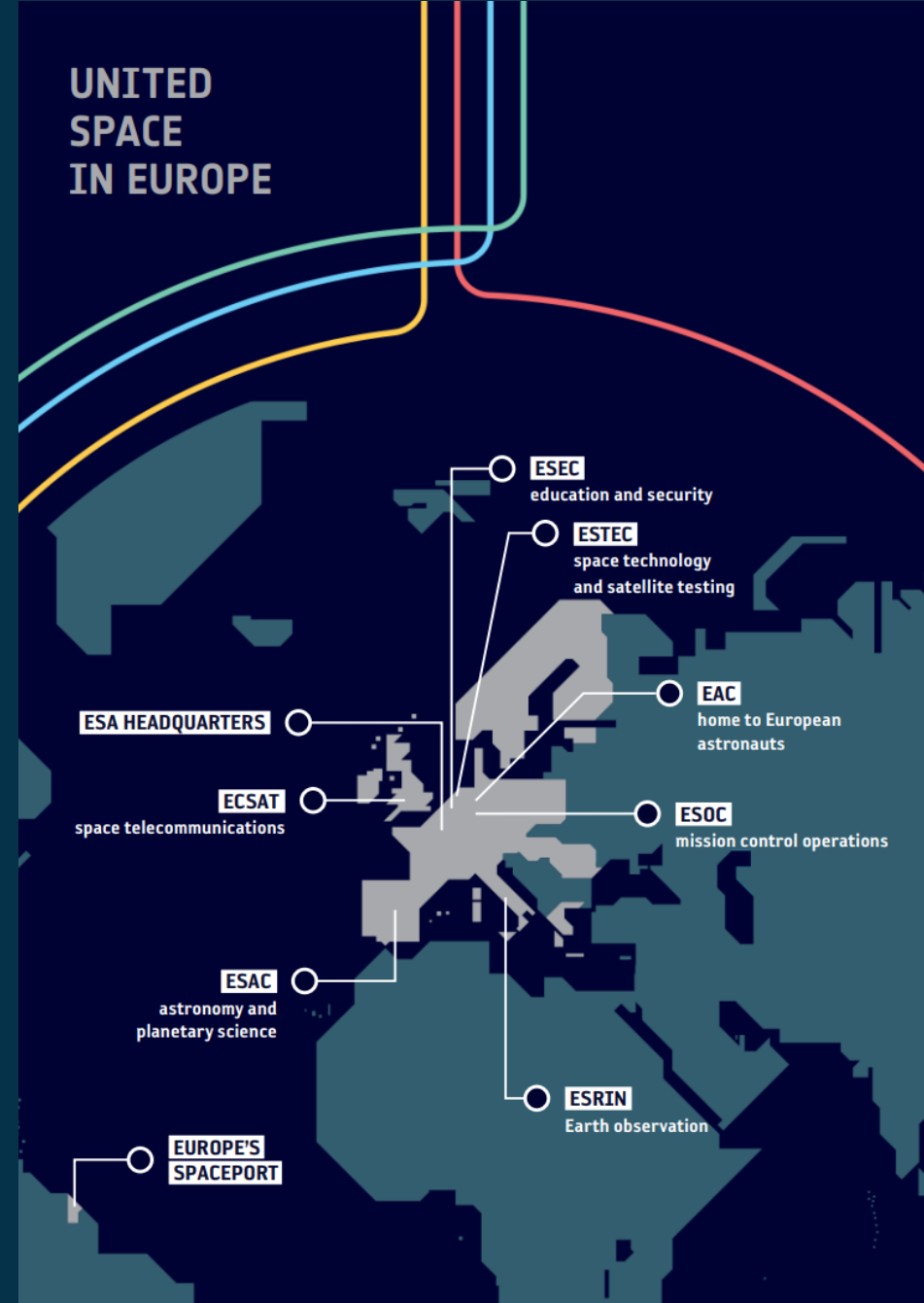
Science and Exploration

Enabling and Support

Safety and Security

Applications

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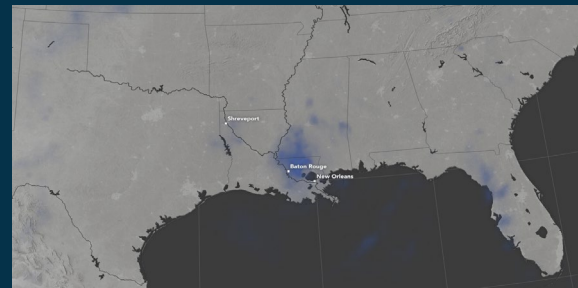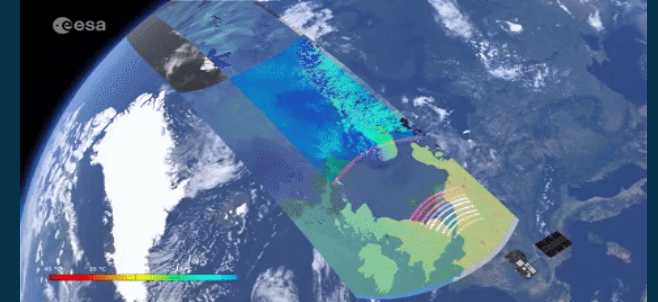
ESA Space Solutions

The largest space innovation network in the world

- The go-to place for great business involving space to improve everyday life.

- Supporting European start-ups and SMEs to develop businesses using space technology and data.

- Offering funding, business and technical support to help to generate successful business and create jobs.

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ESA Space Solutions Support

SPACE FOR TOURISM

FIND MORE DETAILS ON OUR WEBSITE

https://business.esa.int/funding/space-for-tourism

Zero-equity funding (from €50k to €2M+ per activity)

A personalised ESA consultant

Technical support and commercial guidance

Tailored project management support

Access to our international network of ESA and partners

Access to our network of investors

Credibility of the ESA brand

Project web pages:
business.esa.int/projects

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Space tech, users & markets

esa

Space Technology...

- Earth Observation
- Satellite Navigation
- Satellite Communication
- Spaceflight Technologies
- Space Weather

... coupled with...

Big Data analytics

VR/AR

Artificial Intelligence

Mega-constellations

Crowdsourcing

IoT

Cybersecurity

Blockchain

5G (https://artes.esa.int/esa-5g6g-hub)

... to serve Users & Market

- Maritime
- Environment
- Financial
- Education
- Energy
- Agriculture
- Healthcare
- Transport
- Media
- Aviation

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Downloads

📄 Scope - Space for Tourism.pdf
📄 Second webinar Space for Tourism 07.09.2022.pdf
📄 Fist webinar Space for Tourism 26.01.2022.pdf

SPACE FOR TOURISM

Feasibility Study &
Demonstration Project

SUBMIT YOUR INNOVATION

https://business.esa.int/funding/intended-tender/space-for-tourism

Contextual information and trends

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 the 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.
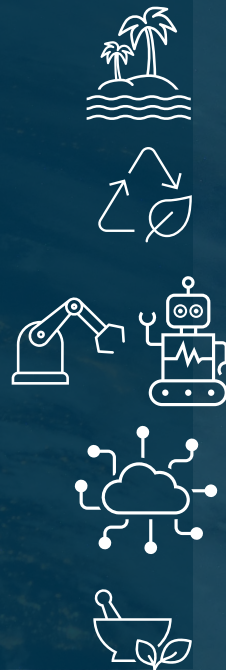
Trends in tourism

It is important to follow the current tourism trends in response to increasing consumer actions as a result of the pandemic. However, most patterns have arisen from more general shifts in customer behaviour, and these are:

- Safety & Hygiene
- Growth of Contactless Payments
- Voice Search & Voice Control
- Virtual Reality
- Solo Travel
- Eco Travel
- Local Experience
- Personalisation
- Robots, Chatbots and Automation
- Artificial Intelligence
- Internet of Things (IoT)
- Augmented Reality (AR)
- Healthy and Organic Food
- Virtual Reality & Metaverse Travel

Example use-cases as addressed by our stakeholders

- Municipality of Florence → Sustainability, digitalisation, cultural heritage

- WWF → Climate smart mapping and zoning, monitoring biodiversity and/or tourism traffic volume

- Visit Flanders → Measuring number of long distance cyclists on some specific routes

- Andermatt Swiss Alps → Multimodal travel for first & last mile, community creation, flexible smart logistics, eco-city & sustainability, easy access to activities

- Expedia group → Remove friction from their traveller and partner journey: Create personalised and frictionless experiences that meet the emerging needs of travellers

- Global Himalayan Expedition → Sensor based monitoring of Key Natural resources of the Village, Satellite based information on the availability of the accommodation

- Paris&Co → Contact-free technology, Teleworking, How can we make information accessible 24/7 in rural areas?

- Athens International Airport → Shift towards unmanned transportation, increased use of automation and robots

How Space can contribute to the **tourism industry**

Areas of relevance

1. Use of digital and connectivity solutions to help the sector embrace new business models required in post-COVID 19
   - Unmanned transport (automation & robots)
   - Rural tourism
   - Everywhere connectivity to travellers
   - Active engagement with rural communities
2. Seamless travel
3. Safe travel
4. Guide investments and measuring impact
5. Drive sustainable tourism development

Examples: value of space

SatCom is essential to ensure communications whenever the terrestrial communications are absent or not reliable and to support digital solutions
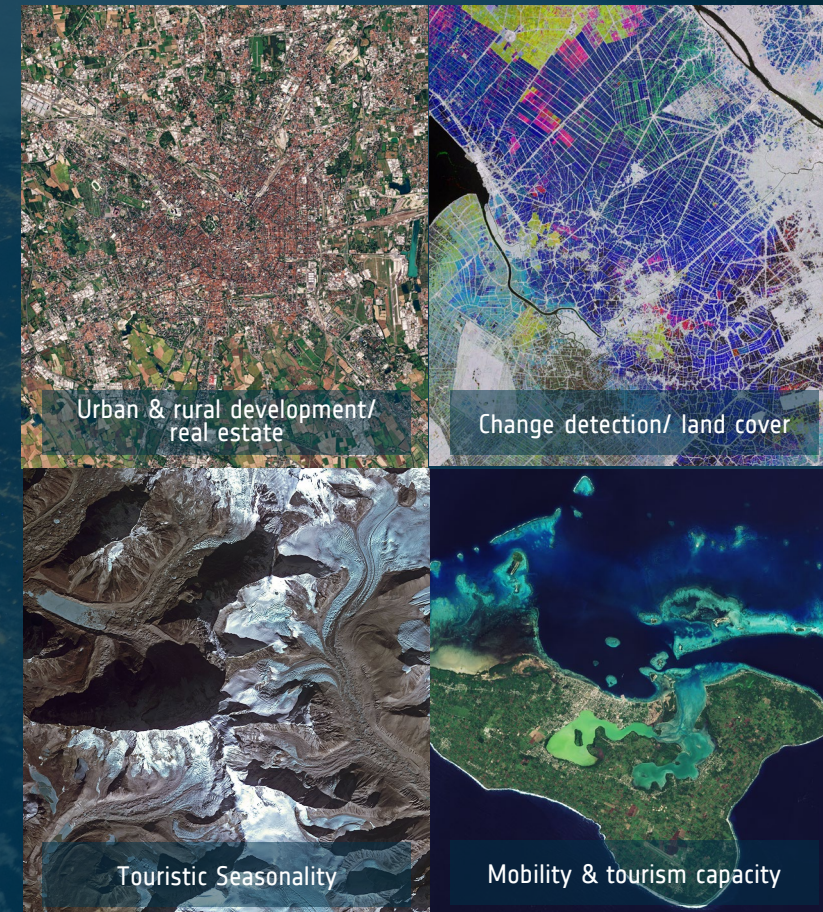
GNSS can be used track and trace tourists and provide information to search and rescue teams. Enable visitor flow-monitoring and location-based services to geo-localise points of interest in the tourist maps.

SatEO for monitoring and planning of infrastructure (e.g. buildings, roads, parking lots, airports). Monitoring of big events for logistics planning and monitoring (e.g. sports, festivals, big trade fairs. Identification of open air "safe" and "unsafe" areas (e.g. parks, squares, big markets, touristic spaces with crowds).
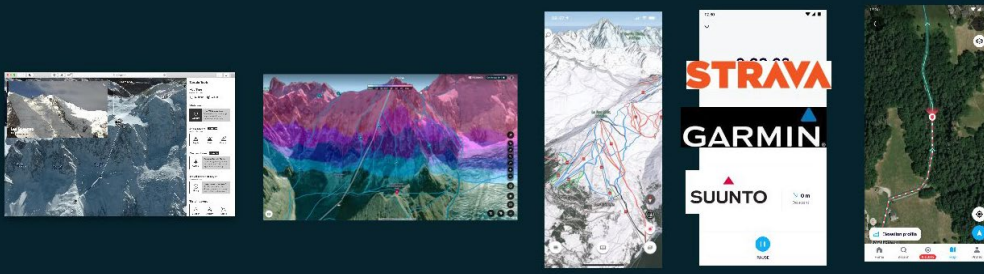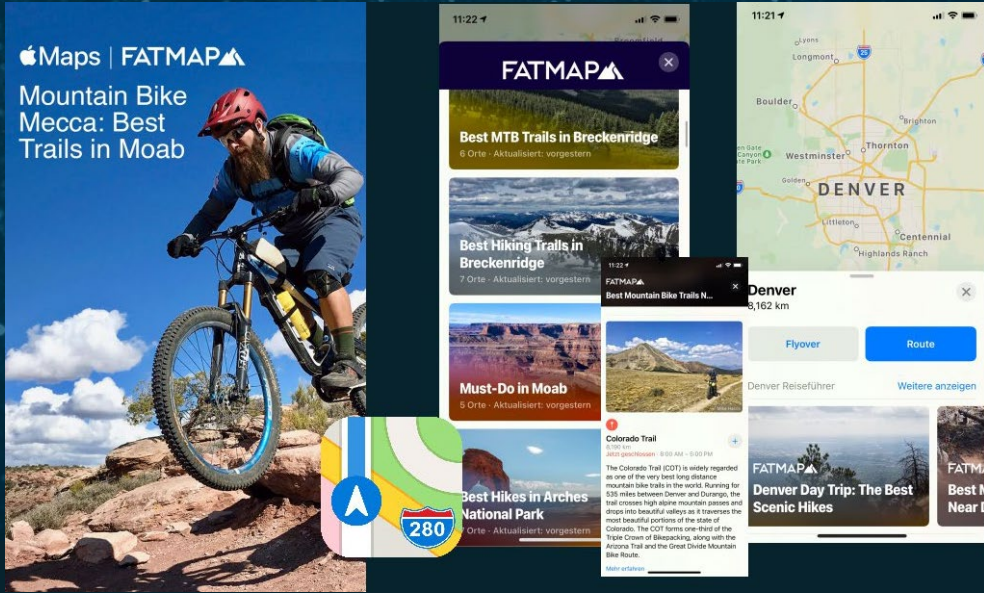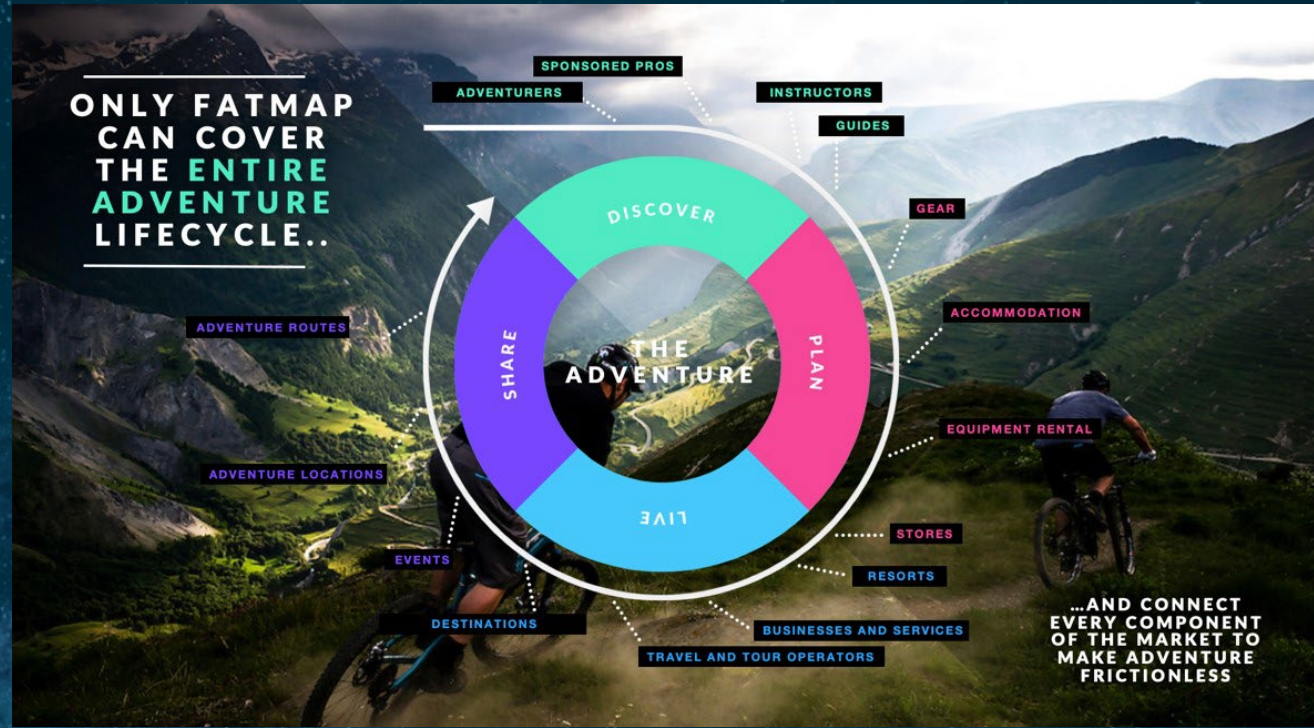
Urban & rural development/ real estate

Change detection/ land cover

Touristic Seasonality

Mobility & tourism capacity

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Examples of use-cases and success stories

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FATMAP Live

FATMAP Live provides an extension to the Outdoor Adventure Platform (App and portal) adding Live Conditions and Forecasts, Live Webcam, Snow Cover and Lift/Piste Data

ONLY FATMAP CAN COVER THE ENTIRE ADVENTURE LIFECYCLE..

...AND CONNECT EVERY COMPONENT OF THE MARKET TO MAKE ADVENTURE FRICTIONLESS

Webcams   Snow Cover   Live Status   3rd party Tracker   Tracking

SATNAV: position of the user
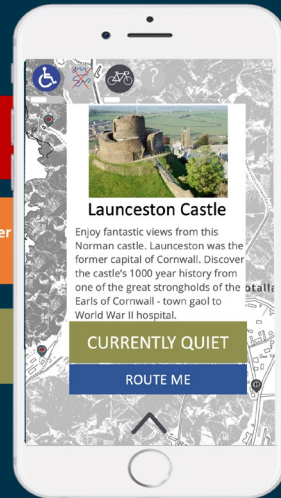
SATEO: images to build 3D maps

XplorIT

XplorIT is a solution that gives venues a way to improve the visitor experience by reducing onsite congestion through data analysis. The automatic notifications are location targeted to incentivise visitors to move away from the crowds and increase spend on site.

**VERY BUSY –** try visiting one of the quieter areas.

MEDIUM BUSY– will likely be quieter in an hour.

QUIET – perfect time to visit now!

Launceston Castle
Enjoy fantastic views from this Norman castle. Launceston was the former capital of Cornwall. Discover the castle's 1000 year history from one of the great strongholds of the Earls of Cornwall - town gaol to World War II hospital.

CURRENTLY QUIET

ROUTE ME

Tackling the **challenges of re-opening venues** in response to **COVID-19 guidelines.**

Secured contract with pilot customers.
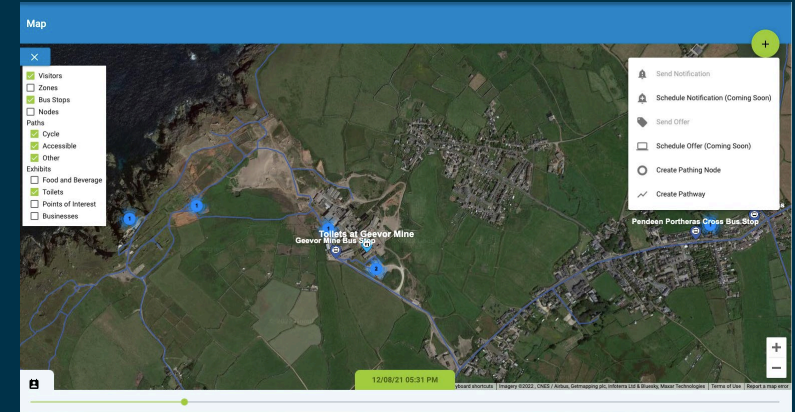
- **Targeted Users:** Indoor and outdoor tourism venues, educational venues
- **Pilot test partners:** Tin Coast National Trust, Falmouth University

GNSS guarantees continuous monitoring of visitors within the range of venue

5G for C.H.: AMOR

AMOR aims to provide Public Institutions and Visitors with services dedicated to the Cultural Heritage domain, respectively for Safeguard and Fruition aspects. Safeguard services will provide information about the state of conservation of ancient monuments enabling set of service for restauration and preventive maintenance .Fruition services will offer Augmented and Virtual reality experiences directly available on personal devices, via a dedicated mobile APP.
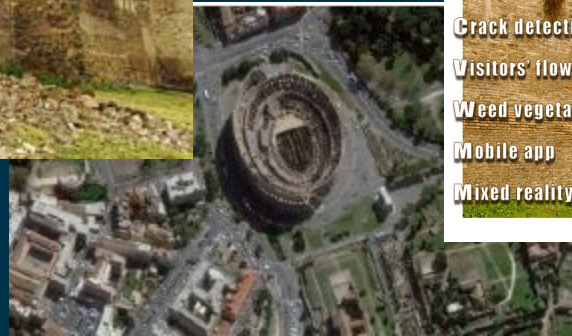
Project highlights :

- Successful development and related testing of the services in scope

- strong engagement with the institutional users; prototype deployment planned on April 22

- Efficient use of the 5G infrastructure in development and compatibility with 4G

- Positive investment scenario and socio-economic impact

- **Targeted Users:** MiC-Italian Ministry of Culture; MiBACT National Superintendencies; Archeological Parks; Municipalities.

- **Pilot test partners:** Soprintendenza Speciale Archeologia, Belle Arti e Paesaggio di Roma (Terme di Caracalla pilot site); Sovrintendenza capitolina ai Beni culturali di Roma (Mura Aureliane pilot site).

SAT EO: Synthetic Aperture Radar sensors for the detection of relevant land/buildings' movements; Multispectral sensors for detection and mapping of weed vegetation and change detection capabilities.

GNSS: GNSS data, coming from permanent GNSS networks; Information about UAV airborne location; Visitors' positioning for flow analysis.
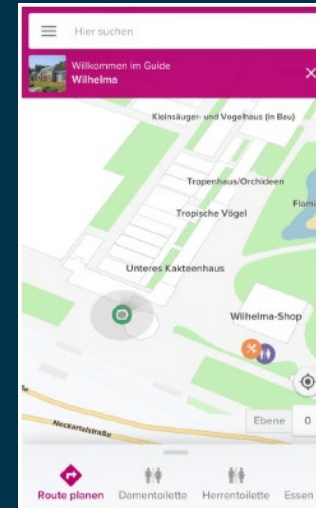
ConnieAI

ConnieAI offers zoo visitors a mobile, digital, interactive outdoor guide including a "context engine", an AI component which provides guide content to users depending on their usage context (e.g. weather, time, and position)

- 3D-navigation map and on-site tested multi-data-fusion positioning including satellite navigation (GNSS)

- Multi-language provision of content for foreign zoo visitors, Predictive

- Digital transformation from analogue to digital service for the zoo

- **Targeted Users**: **Zoos and cities** in Germany, and their visitors

- **Pilot test partner**: Wilhelmina Zoo Karlsruhe

**www.business.esa.int/projects/connieai**

Satellite navigation (GNSS) to provide highly accurate pedestrian navigation in the zoo, combined with access to zoo's information and offerings as context-based services

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Beeline

Beeline Cycle Routing is smart mobility platform that provides cyclists with bike friendly routes tailored for each cyclist. It consists of a smart compass device that connects to the cyclist's phone and it leverages on an AI-powered routing algorithm that combines crowdsourced data from other cyclists as well as EO-derived road data to generate the best routes for each cyclist.

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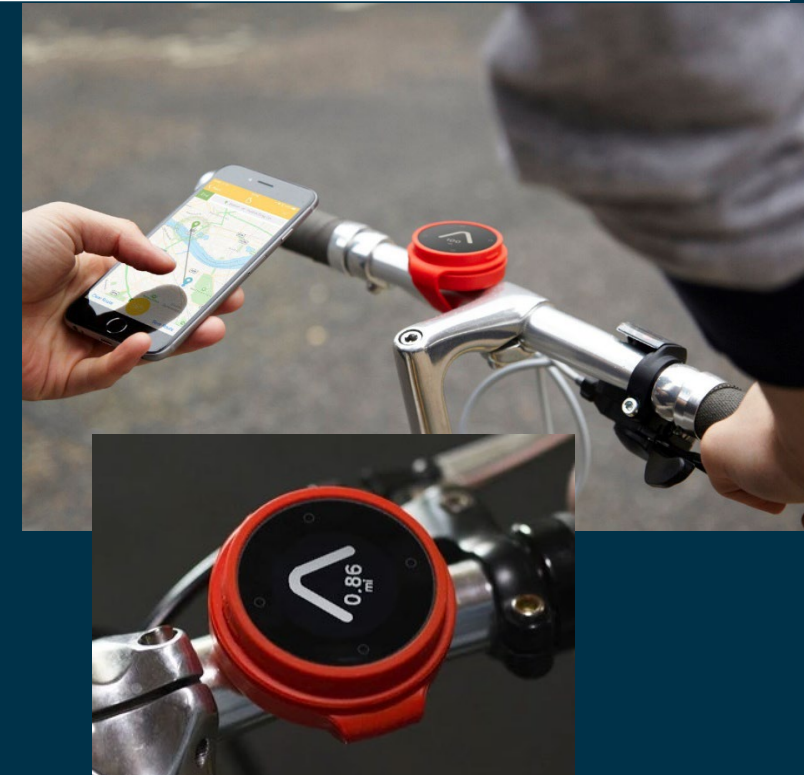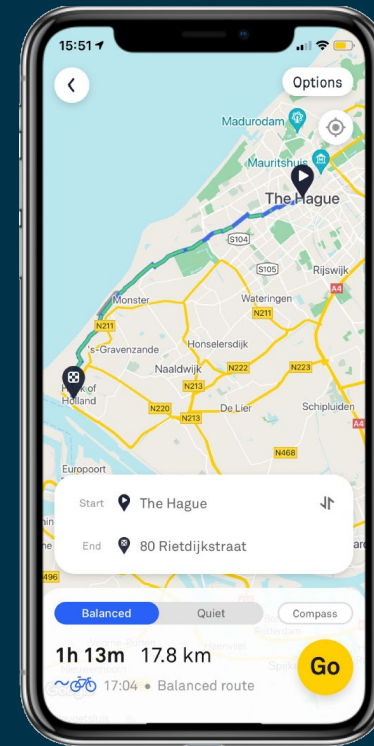
- **Targeted Users**: cyclists, rideshare operators, bike delivery companies
- **Pilot test partners**: existing customers that joined their beta programme

EO-derived road data are integrated with the AI and GNSS services to guarantee continuous monitoring in areas not covered by terrestrial connectivity

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Thank you!

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