ESA – AdR joint Webinar - Space for Infrastructure: *Air*, Land & Sea Transport

ESA Space Solutions

27/09/2023

→ AGENDA

- ESA – Aeroporti di Roma (AdR) Cooperation
- Introduction to the Thematic Call for Proposals "Space for Infrastructure – *Air*, Land and Sea Transport"
  - Use Cases
  - How to Apply
- Q&A

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

→ HOW ESA SPACE SOLUTIONS WORK WITH YOU

Idea Creation

Explore idea generation.

Filling out the narrative, exploring ideas.

Concept Design

Defining core functionality.

Understanding the market size and potential revenue

Prototyping

Create Prototype and assess feasibility.

Consolidation of the business plan.

Feasibility Studies: Up to 50% co-funding*

Product/Service Development

Design, Development & Testing.

Validation with pilot customers.

Verifying the viability of the financials.

Demonstration Projects: Up to 50% co-funding*

Commercialisation/ Product Rollout

*Up to 80% for SMEs (depending on specific initiative and approval of national delegation

Using **any space asset(s)** and integrating them with terrestrial assets for the **benefit of life on Earth**

Earth Observation

Satellite Navigation

Satellite Communication

Human Spaceflight Technologies

Financial

Aviation

Education

Energy

Media

Agriculture

Environment

Transport

Healthcare

Maritime

→ COOPERATION BETWEEN ESA AND AdR

- M.O.I. signed in 2023 as a basis for the cooperation

- Common Objectives: The Signatories acknowledge that they share mutual interest to investigate and, where appropriate, coordinate possible activities to study, implement, verify and validate applications/services for sustainable green airports and urban air mobility utilising space-based assets complementing terrestrial technologies and solutions.

MEMORANDUM OF INTENT

between

the European Space Agency

and

Aeroporti di Roma

on

Supporting the Development and Validation of Innovative Space-based Applications and Services for Ground/Air Sustainability and Mobility

ADR Mission and Goals

«Digital,
Reliable,
Data Driven &
Sustainable Airport»

1. Identification and support for the implementation of innovative solutions for the management of airport activities, from an increasingly sustainable perspective

2. Continuous improvement of productivity and process efficiency

3. Monitoring and continuous improvement of the quality of the service

4. Identification of new business and value creation opportunities

5 STAR AIRPORT SKYTRAX

ADR Innovation Approach Pillars

Innovation Hub

+650sqm dedicated to the Acceleration Program.
A strategic spot proximity to the airport.

A gateway to a smart city

Innovation Cabin Crew

A group of approx. 30 people with a key role in the company structures they represent.
They support and promote innovation in ADR.

A gateway to the ADR context

Strategic Partnership

A network of airports to shape the new aviation industry Industrial collaborations to learn and share knowledge.

A gateway to the ecosystem

ADR Ventures

A Corporate Venture Capital company to invest in the development of startups with high innovation potential, operating directly from the Innovation Hub at Rome Fiumicino Airport.

A gateway to ADR strategic support

ADR Acceleration Program – Runway to the Future

Runway to the Future

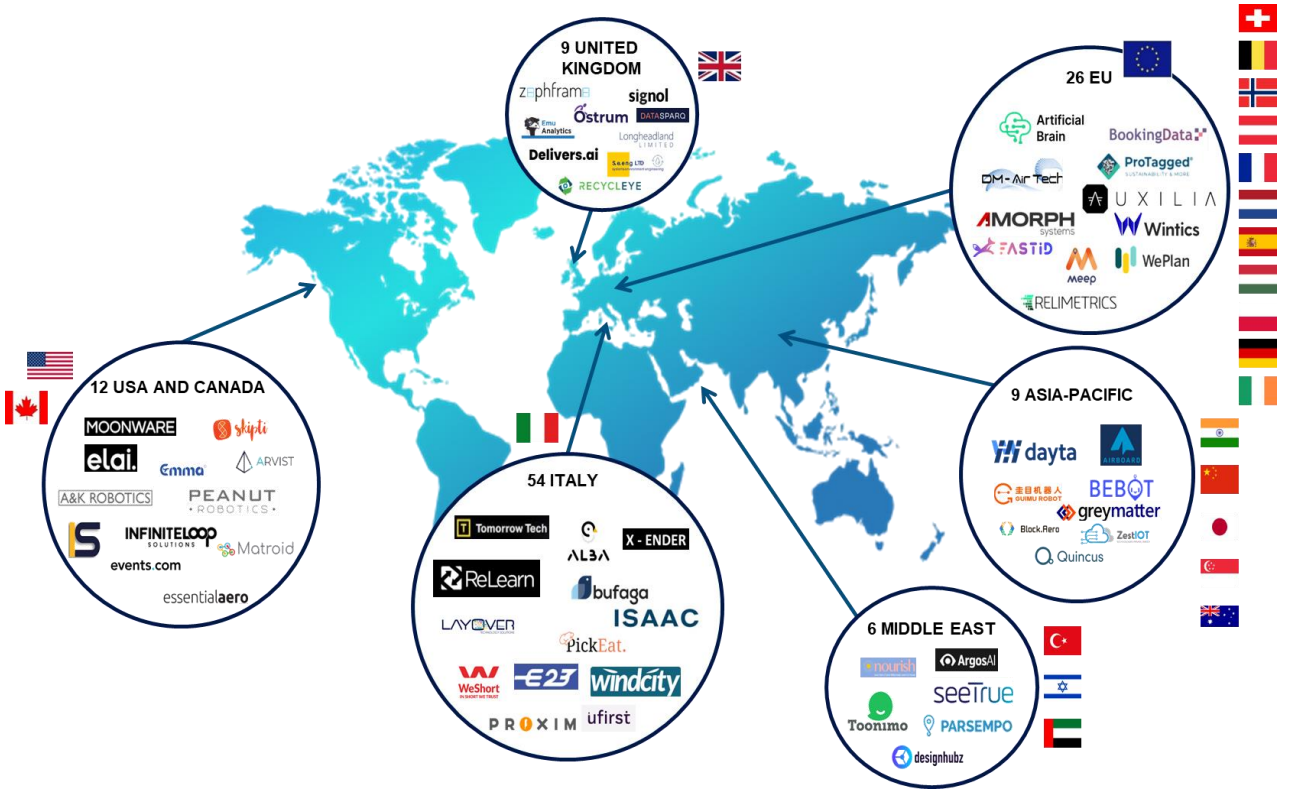
2nd edition call4ideas overview

8 *Challenges* » **116** *Startups applied globally to the Call4Ideas*

47% Italian Startups

53% Foreign Startups

1. **Predictive Maintenance**
2. **Enhance Terminal Processes**
3. **Improve Airside Operations**
4. **Passenger Experience**
5. **Community & Sustainability**
6. **Environmental Impact**
7. **Commercial Opportunities**
8. **Disruptive Solutions**



Thematic call for Proposals – 'Space for Infrastructure'

Key Objectives:

- **Support the infrastructure sector** by stimulating the emergence of innovative space applications and services with high market potential.
- **Improve efficiency** in the selected domains within the infrastructure sector through allowing lower costs, better capacity management and increased output while reducing environmental footprint.
- Increase the **resilience** of the infrastructure with more accurate resilience models and reducing the impact of disruptive events.

Air, Land and Sea Transport Infrastructure:

Opening Date: 6th July 2023

Closing Date: 27th October 2023

Accepting both Feasibility Studies and Demonstration Projects.

If you wish for the deadline to be extended, please get in touch ASAP!

Air, Land and Sea Transport Infrastructure – The Power of Space

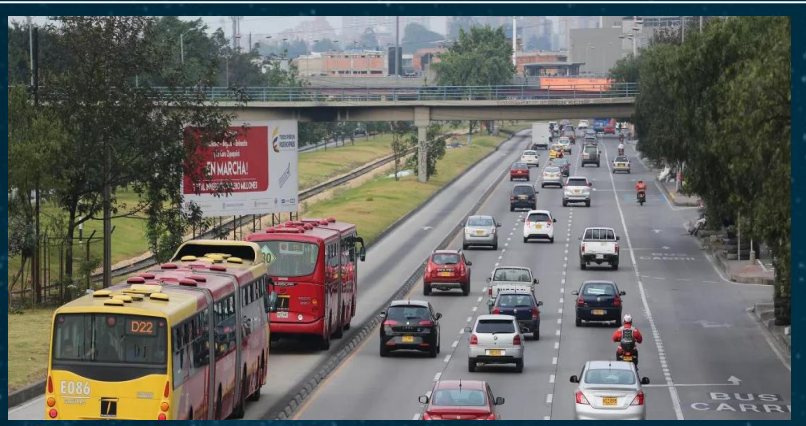
Satellite Communications (SatCom) enables the provision of ubiquitous connectivity to enhance the communication links, connectivity of IoT devices, support for remote locations. In addition, satellite communications can provide real-time, long-range communications with infrastructure monitoring systems (i.e. UAVs/robots/remote assets).

Global Navigation Satellite Systems (GNSS) can be used to enable geo-referencing of in-situ data, as well as navigation and tracking of vehicles, people and goods; PNT. GNSS-based technologies can be used for time-stamping reference system information, ensuring the traceability of the data.

Satellite Earth Observation (satEO) can be used for the monitoring of the status of the working sites, the planning, construction and maintenance of the infrastructure, collecting information on geographical and environmental parameters for the sustainability analysis, integration of environmental data; identification of patterns and trends that may be linked to infrastructure safety risks, and provide insights into how to best address them.

Air, Land and Sea Transport Infrastructure – Use Cases

- Airport Digital Twin
- Regular Airport Georeferenced Surveys
- Monitor of Airport Construction and Surroundings in “Real-Time”
- Monitoring the environmental impact of airports



- Real-time Urban Monitoring System for the efficient management of emergency situations
- Hydrogen refuelling infrastructure
- Demand responsive transport and route optimisation

- Planning and monitoring of dredging operations
- Port infrastructure monitoring
- Monitoring of port ecosystem activities

Activities are just not limited to these use cases. ESA welcomes new use cases from industry.

1 Airport Digital Twin

To implement a digital twin of the airport for monitoring real time transport/assets/people movement, with possibility to deep dive into key data, make pivotal analysis, understand bottlenecks and implement 'what if' scenarios.

Some examples of digital twin applications are:

- *Airside digital twin: aircraft, ground handling and other operator's airside vehicles*
- *Landside digital twin: public means of transport as well as private ones*
- *Terminal digital twin: passengers and operators real time flow monitoring from curbside to gate*

ADR Use Cases

2 Georeferenced Survey of Airport Infrastructure

Airport georeferenced survey (rolling updates, e.g. twice a year), comprehensive of airside, terminals, landside, hotels/offices/other buildings. The output has to be updated on a rolling basis and each 3D building has to be integrated into its BIM model.

3 Real-time Situation Monitoring

Monitoring airport construction sites in "real time" and airport surroundings.

4 Monitoring Environmental Impact

Monitoring environmental impact of airports (e.g. terminal system green performance - energy, internal air quality, external air quality)

How to Apply

Air, Land and Sea Transport Opening Dates:

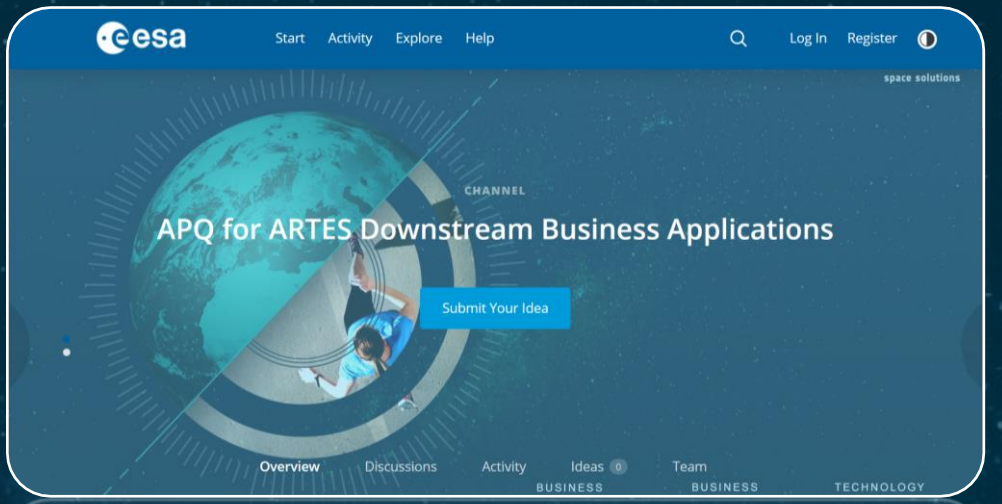
6th July-27th October 2023

If you wish for the deadline to be extended, please get in touch ASAP!

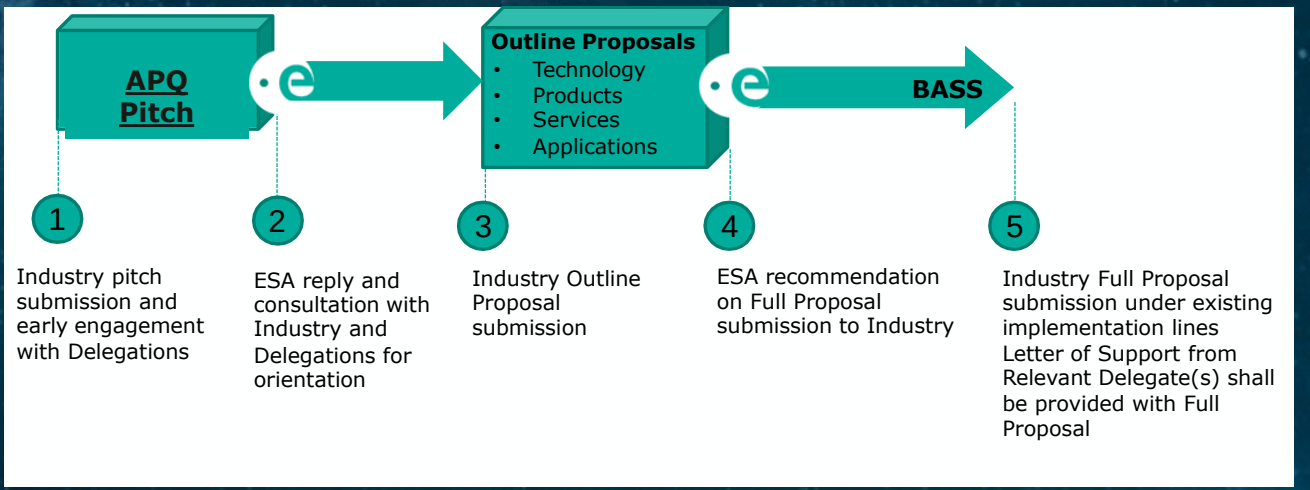
Things you will need to do:

- Submit your APQ pitch via ESA's Open Space innovation platform in the "APQ for ARTES Downstream Business Applications". Making it clear you are applying as part of the "Space for Infrastructure Thematic Call".
- If successful, you will be asked to submit an outline proposal and then (if acceptable) a final proposal (and dependent on national delegation support).

Please do not wait until the end of the opening period to apply! We will be reviewing proposals regularly throughout the opening period.



https://ideas.esa.int/



Funding Details

	Feasibility Study	Demonstration Project
Activity Cost	Max. 500 000€ (limited to acceptable cost)	Case by Case Assessment (limited to acceptable cost)
ESA Co-Funding		
Baseline	Max. 50% of company's cost	Max. 50% of company's cost
Micro, Small and Medium- Enterprises	Max. 80% of enterprise's cost	Max. 80% of enterprise's cost
Universities and Research Institutes with no commercial interest in the product/service	Max. 100% of institute's cost And Max. 30% of activity cost	Max. 80% of institute's cost And Max. 30% of activity cost
Industry Co-funding	Remaining part of the cost to carry out the activity	

- Activities in Direct Negotiation, streamlined process with ESA guidance.
- ESA will bear up to 50% (non-SME) or 80% (SME) of the eligible cost **pending support from the National Delegation**, and the remainder must be financed by the tenderer and/or other partners.
- IPRs (Intellectual Property Rights) will **remain with the company**.

Who can participate?

PARTICIPATING MEMBER STATES

- Austria
- Belgium
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Hungary
- Ireland
- Italy
- Lithuania
- Luxembourg
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Slovenia
- Sweden
- United Kingdom
- Switzerland

Where to find the Details

For more information see: business.esa.int

- Scroll down to the "Featured Opportunities" section to see all activities open or under preparation.
- Look for "Air, Land and Sea Transport Infrastructure"

https://business.esa.int/funding/intended-tender/thematic-call-air-land-and-sea-transport-infrastructure

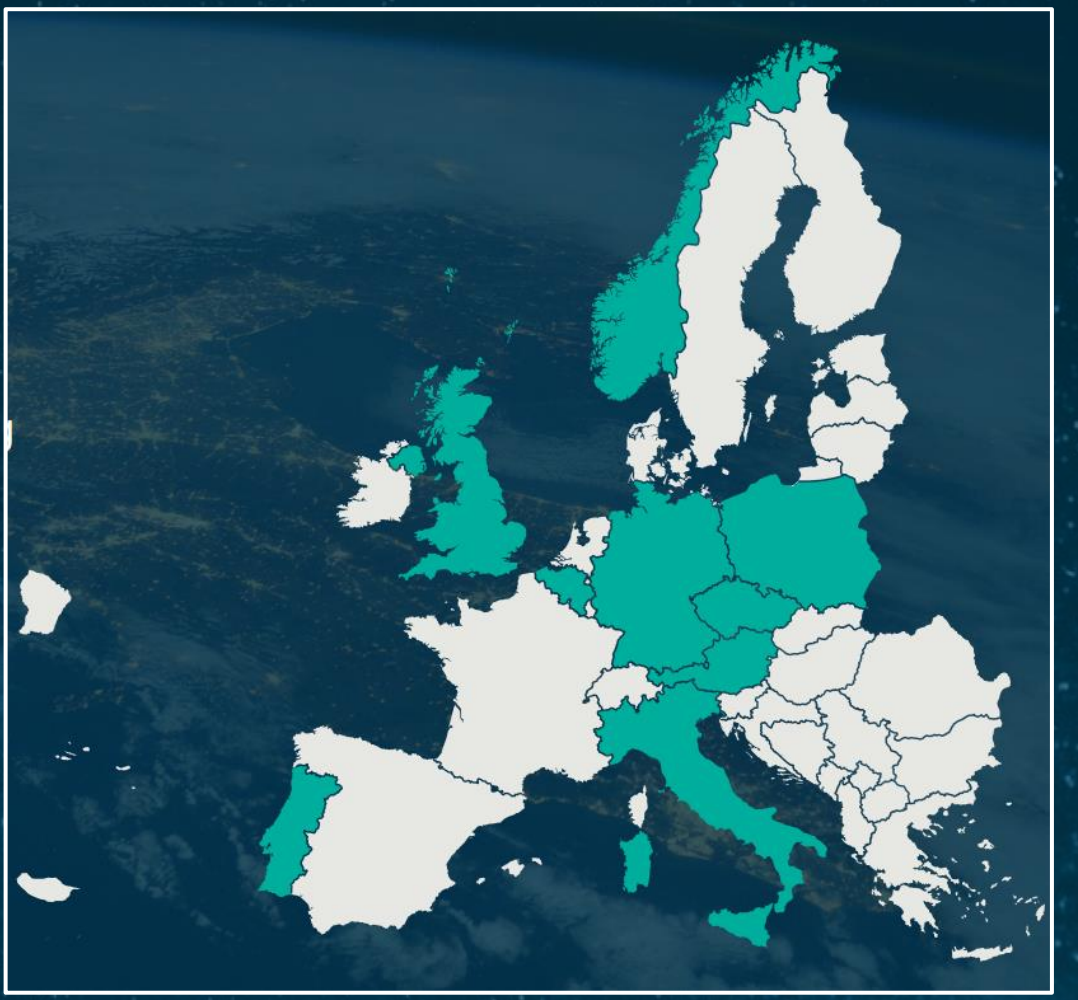
A tool at your disposal – The Ambassador Network

Ambassadors are present in 9 countries

They are your local interface for any questions related to the offering of ESA Space solutions.

They can advise you on:

- Preparation of the Activity Pitch Questionnaire (APQ)
- Give you an overview of ESA Space Solutions funding opportunities.



https://business.esa.int/ambassador-platforms

Q&A

For more information visit:

- https://business.esa.int/
- https://business.esa.int/funding/intended-tender/space-for-infrastructure
- Email: jonathan.crabb@esa.int