

# 5G for L'ART Webinar Intelligent Transport

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European Space Agency*

# WELCOME TO THE WEBINAR! Before we start...

- Due to the number of attendees, please keep your microphones muted at all times and switch off the webcam function
- You can use the conversation function anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar

## AGENDA

- What ESA Business Application offers
- Value of Space and 5G
- “5G for L’ ART” call for opportunity
  - Opportunity
  - Objectives
  - User involvement
  - Other requirements
- How to apply
- Open Questions & Answers session

# Purpose of the European Space Agency

“To provide and promote, for exclusively peaceful purposes, cooperation among European states in **space research and technology** and their **space applications**.”



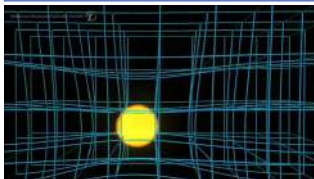
Article 2 of  
ESA Convention

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# EVERYDAY LIFE AT ESA

## Science and Exploration



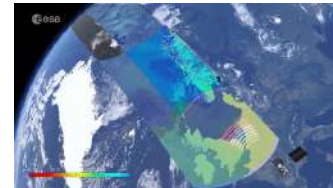
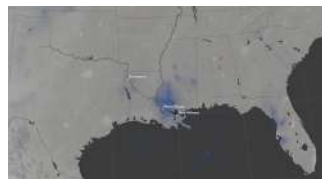
## Enabling and Support



## Safety and Security



## Applications



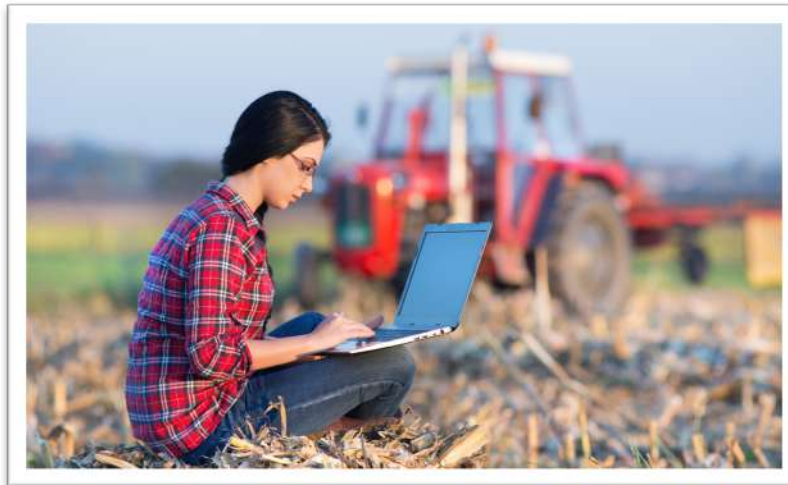
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## Space Companies.



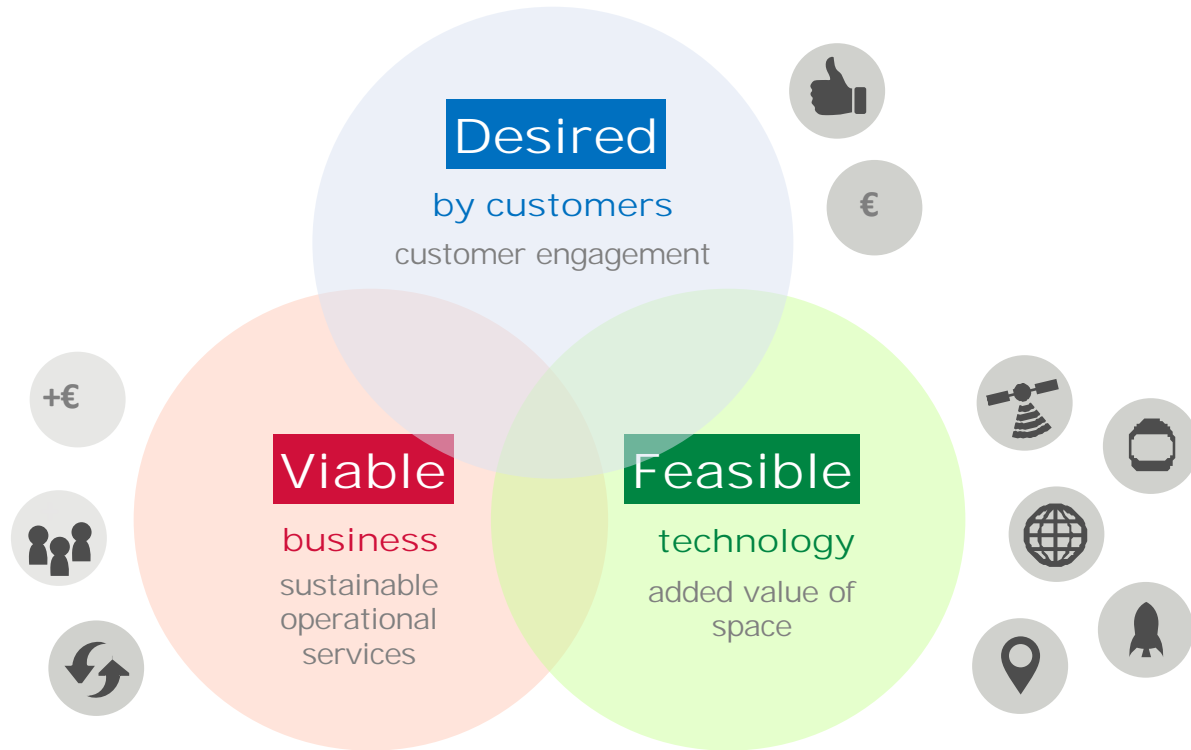
“Upstream”

## Also Space Companies



“Downstream”

# Looking for promising services



# → Space Applications

## Space technologies

Space Weather



Earth Observation



Satellite Navigation



Satellite Communication



Human Spaceflight Technologies



- Big Data analytics
- VR/AR
- Artificial Intelligence
- Megaconstellations
- 5G
- Crowdsourcing
- IoT
- Cybersecurity
- Blockchain



## Users and Markets

Maritime



Healthcare



Transport



Environment



Agriculture



Media



Energy



Education



Aviation



Financial





# Partners

## International Institutional Actors



space solutions

## European Institutional Actors

Frontex  
EMSA  
EU SatCen  
EDA  
EASA

## Vertical Industry and associations

ENTSO ENEL  
Friends of the Supergrid  
CarbonTrust  
Indian Energy Storage Alliance  
OneSea Alliance  
DMEC  
Global Sustainable Energy Alliance

UNICRI  
IOM  
Eurocontrol  
WWF

## Platforms/Foundations

Toilet Board Coalition  
The Plastic Bank  
Mirpuri Foundation  
Genius100 Foundation

## National Governments & Regulators

DCMS (UK)  
MID (IT)  
MISE (IT)  
IT Ministry of Education  
OPRED (UK)  
Traficom (FI)

## Smart Cities/Regions

Roma  
Torino  
L'Aquila  
Abruzzo  
Groningen

## Technology toppers

Vodafone  
AWS

## Space Agencies

JAXA  
AMS  
SANSA



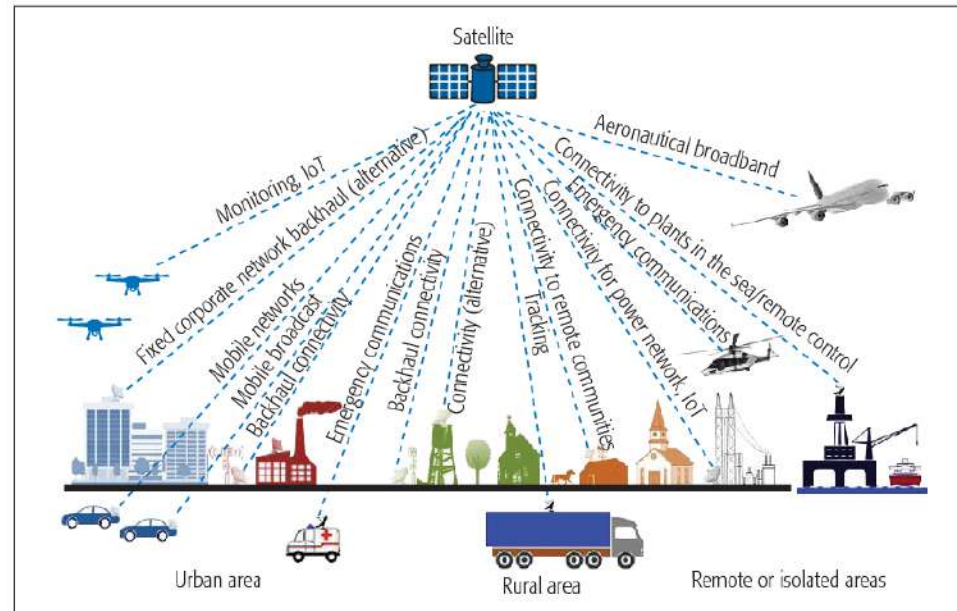
## VALUE OF SPACE and 5G (1/2)

- Space has an invaluable role to play in the 5G ecosystem.
- Telecommunication satellites can extend, enhance, and provide reliability and security to 5G, helping to deliver its promise of global, ubiquitous connectivity. Other space assets, such as Earth Observation and Satellite Navigation can be integrated with 5G technology to deliver innovative applications in a number of vertical sectors.

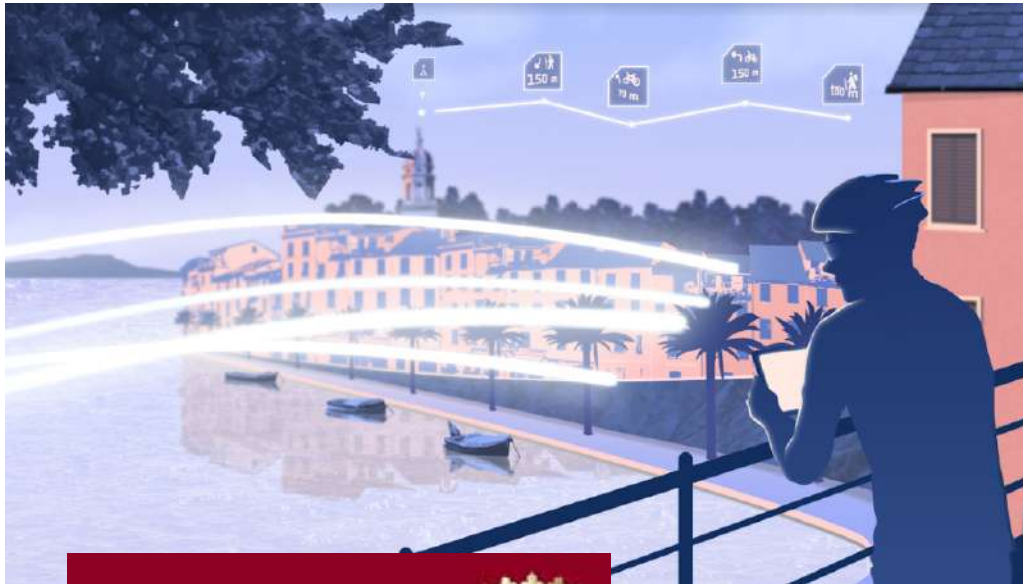


# VALUE OF SPACE and 5G (2/2)

- Roaming between terrestrial and satellite networks
- Broadcast and multicast with a satellite overlay
- Internet of things with a satellite network
- Temporary use of a satellite component
- Optimal routing or steering over a satellite
- Satellite trans-border service continuity
- Indirect connection through a 5G satellite access
- 5G fixed backhaul between NR and the 5G core
- 5G moving platform backhaul
- 5G to premises
- Satellite connection of remote service centers
- Global satellite overlay



# Smart Cities/Regions & 5G



CITTA' DI TORINO



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# Roma, Torino & L'Aquila cities, Abruzzo region



esa  
space solutions

ROMA



CITTA' DI TORINO

The following thematic have been identified:

1. *Law enforcement and emergency response*
2. *Cultural heritage*
3. *Structural monitoring*
4. *Intelligent transport*



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# 5G for L'ART

MEMORANDUM OF INTENT  
between  
the European Space Agency  
and  
The City of Torino  
on  
pursuing space based activities  
making use of the 5th Generation of communication networks

## Objectives:

- Demonstrate the capability of space and 5G-enabled innovative services/systems to address the needs of local stakeholders and user communities
- Demonstrate the new 5G networks capabilities to augment space assets performance and/or the utilization of space as a complement to 5G networks

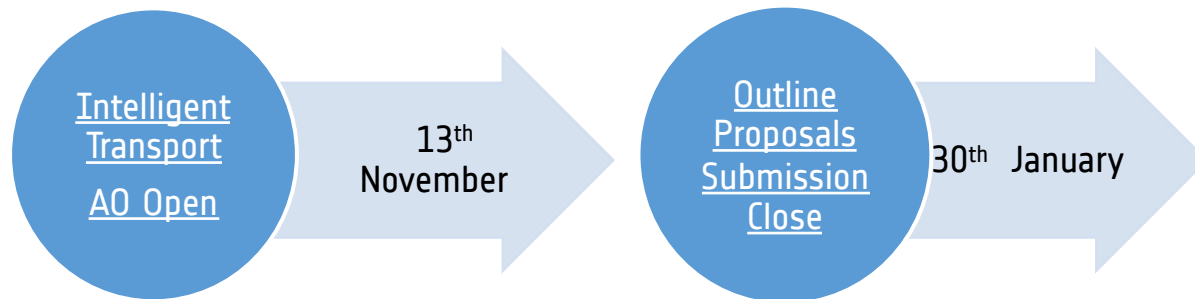


# 5G for L'ART Thematic Call- Intelligent Transport

## Intelligent Transport Use Cases

- Sustainable and Safe Mobility Based on Advanced Traffic Management Systems
- Advanced Traveller Advisory System
- Advanced and Safe Public Transportation System

| ACTIVITY              | ESA PROJECT FUNDING (UP to % of ELIGIBLE COST) | ESA CO-FUNDING LIMIT     |
|-----------------------|--|--------------------------|
| Feasibility Study     | 50%**  | Max ESA price: 200 kEuro |
| Demonstration Project | 50%**  | Max ESA price: 1 MEur    |



- 1) Project summary and rationale
- 2) Customers/Users and their needs
- 3) Application/Service viability
- 4) System and implementation aspects
  - Project team
  - Service architecture
  - Implementation approach (including the Proof of Concept in at least one of the proposed 5G for L' ART areas/sites/buildings )
  - Financial and Management

The tenderer shall inform their National Delegation(s) of their intention to participate to the AO, prior to the submission of the outline proposal.



Feasibility studies (FS) that investigate the technical viability and business potential of services that use both 5G and satellite/space-based data. FP shall:

- Be customer/user driven and present a strong sustainability potential
- Propose a service demonstrating the benefits from the integrated use of at least one space asset integrated with 5G terrestrial assets
- address the needs identified in one of both use cases which will be described in the Tender documentation.
- Studies shall include a proof of concept (PoC) in at least one of the areas/sites/buildings proposed by the 5G for L' ART involved users .
- aim to evolve the targeted applications and services to marketability and operational roll-out, potentially through an ARTES IAP Demonstration Project after successful completion of the feasibility study.

# 5G for L' ART Demonstration Project: Outline Proposal Content

- 1) Project summary and rationale
- 2) Customers/Users and their needs
- 3) Application/Service Value Proposition
- 4) System and implementation aspects
  - Project team
  - Service architecture
  - Implementation approach (including the Pilot Demonstration in at least one of the proposed 5G for L' ART areas/sites/buildings )
  - Financial and Management

The tenderer shall inform their National Delegation(s) of their intention to participate to the AO, prior to the submission of the outline proposal.

# Demonstration Project Key Requirements

Demonstration Project (DP), dedicated to the implementation and demonstration of pre-operational services. The DP shall:

- be customer/user driven
- address the needs identified in one of both use cases which will be described in the Tender documentation.
- propose a service demonstrating the benefits from the integrated use of at least one space asset with 5G terrestrial assets, with clear potential to become sustainable.
- provide a measurable socio-economic impact
- include a Pilot demonstration in at least one of the proposed assets/areas listed in Tender documentation

- Bidders are invited to propose for investigation services and solutions relevant to the areas and use cases of interest to involved municipalities and region.
- Tenderers shall not contact the municipalities and region during the bidding period (Outline Proposal preparation).
- Use/confirmation regarding availability of the assets shall be agreed between the tenderer and Roma Capitale, the Municipality of L'Aquila and Abruzzo region, and the Municipality of Torino, depending on the identified needs. This process will take place following ESA selection of the Outline Proposal and before submission of the Full Proposal.
- ESA will facilitate the discussion with the interested municipality(ies) following the selection of the Outline proposal(s), allowing the Tenderer(s) to gather the inputs required to consolidate the full proposal.

## How to Apply

1. Register by completing online questionnaire on [ESA-STAR Registration](#) (minimum 'light registration')
2. Download the official tender documentation (Invitation to Tender) and create 'Bidder Restricted Area' via EMITS :
  - *Intelligent Transport : " AO/1-10067/19"*
3. Write your Outline Proposal using the template provided **in the Tender documentation** and email it at [business@esa.int](mailto:business@esa.int) cc to [Audrey.Ferreol@esa.int](mailto:Audrey.Ferreol@esa.int) before the 8<sup>th</sup> January 2021.
4. ESA will inform you whether your outline proposal has been selected .
5. Write your Full Proposal and obtain Letter of Support from [National Delegation](#)
6. Submit your proposal via [ESA-STAR Tendering](#) by 26<sup>th</sup> February 2020.

# Basic principles

## Tender documentation:

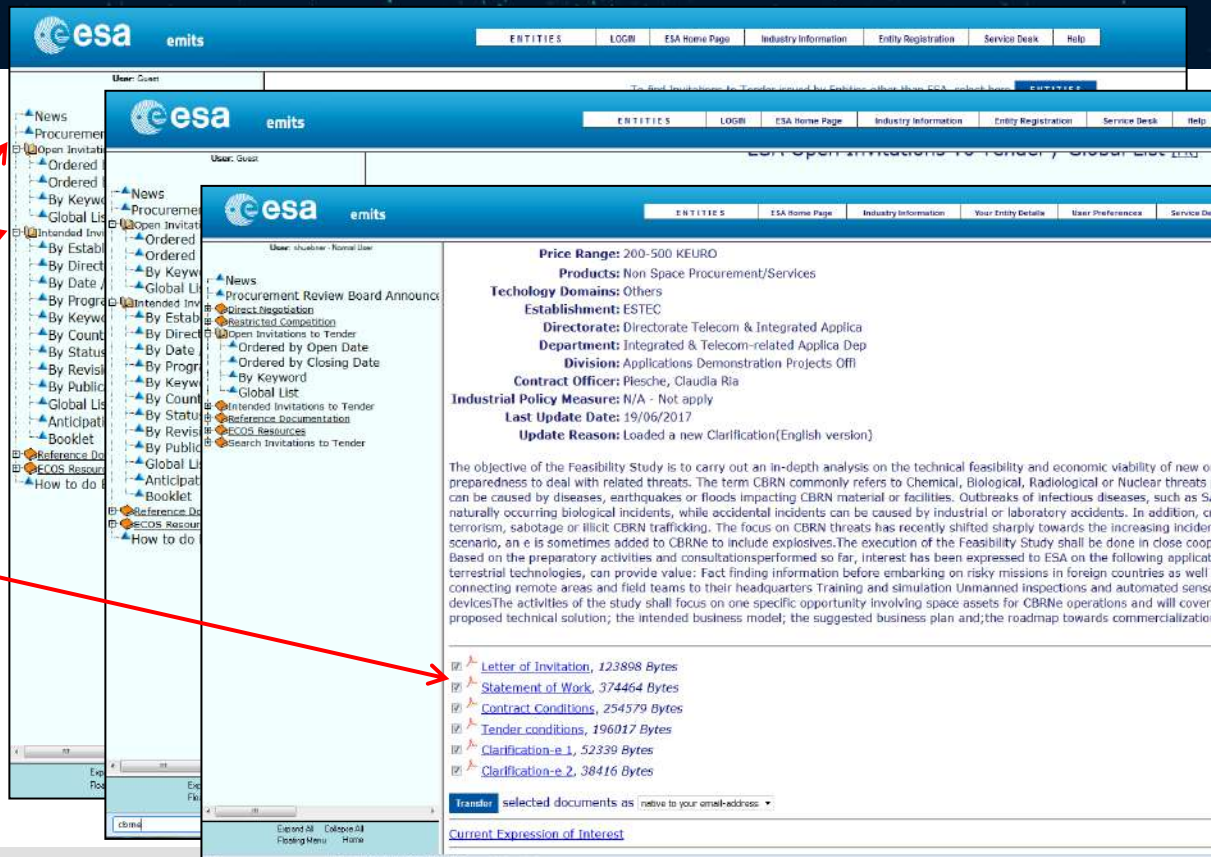
on <emits.esa.int>

Announced under “Intended Invitations to Tender (IITT)”

Published under “Open Invitations to Tender (ITT)”

(⇒ registration required to access tender documents)

Submission of proposals electronically in ESA-STAR



The screenshot displays the ESA emits website interface. The top navigation bar includes links for ENTITIES, LOGIN, ESA Home Page, Industry Information, Entity Registration, Service Desk, and Help. The main content area shows a detailed view of a tender document, including the following information:

- Price Range:** 200-500 KEURO
- Products:** Non Space Procurement/Services
- Techology Domains:** Others
- Establishment:** ESTEC
- Directorates:** Directorate Telecom & Integrated Applica
- Department:** Integrated & Telecom-related Applica Dep
- Division:** Applications Demonstration Projects Offi
- Contract Officer:** Plesche, Claudia Ria
- Industrial Policy Measure:** N/A - Not apply
- Last Update Date:** 19/06/2017
- Update Reason:** Loaded a new Clarification(English version)

The objective of the Feasibility Study is to carry out an in-depth analysis on the technical feasibility and economic viability of new or preparedness to deal with related threats. The term CBRN commonly refers to Chemical, Biological, Radiological or Nuclear threats that can be caused by diseases, earthquakes or floods impacting CBRN material or facilities. Outbreaks of infectious diseases, such as SA naturally occurring biological incidents, while accidental incidents can be caused by industrial or laboratory accidents. In addition, or terrorism, sabotage or illicit CBRN trafficking. The focus on CBRN threats has recently shifted sharply towards the increasing incident scenario, an e is sometimes added to CBRNE to include explosives. The execution of the Feasibility Study shall be done in close coop Based on the preparatory activities and consultations performed so far, interest has been expressed to ESA on the following applicat terrestrial technologies, can provide value: Fact finding information before embarking on risky missions in foreign countries as well connecting remote areas and field teams to their headquarters Training and simulation Unmanned inspections and automated sensor devices The activities of the study shall focus on one specific opportunity involving space assets for CBRNE operations and will cover: proposed technical solution; the intended business model; the suggested business plan and; the roadmap towards commercialization

Below the text, there is a list of documents available for download:

- Letter of Invitation, 123898 Bytes
- Statement of Work, 374464 Bytes
- Contract Conditions, 254579 Bytes
- Tender conditions, 196017 Bytes
- Clarification-e 1, 52339 Bytes
- Clarification-e 2, 38416 Bytes

At the bottom, there is a section for "Current Expression of Interest" with a "transfer" button and a dropdown menu set to "selected documents as" and "relative to your email-address".

- For **competitive tender activities (ITT)**, interaction with ESA experts is not possible during the opening period.
  - **During the opening period**, questions have to be **formally** addressed to the **contracts officer** and will be answered via **clarifications** to the ITT in **EMITS**
- All submissions for activities as response to competitive tenders are based on **templates available in the tender package**.
- Proposal templates provide **additional explanations on the content**
- **Read carefully** the explanations and **answer to the point** (be concrete and focused)
- **Do not confuse quality of content with quantity**
- **Evaluation criteria can be found in the ITT Letter of Invitation**

- Open to any organisation, residing in any of those states that subscribed to the ARTES IAP programme (to date: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, The Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland and the United Kingdom)
- **The tenderer shall inform their National Delegation(s) of their intention to participate to the AO, prior to the submission of the outline proposal.**
- **Letter of Authorisation from bidding team's national delegation(s) is needed and must be submitted as part of the Bidder's Full Proposal. Without this letter, the proposal is not eligible.**
- The contacts of the National Delegations can be found at <https://business.esa.int/national-delegations>







# THANK YOU FOR PARTICIPATING

<https://business.esa.int/funding/invitation-to-tender/intelligent-transport>