5G for L'ART Webinar
Intelligent Transport

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European Space Agency

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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

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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

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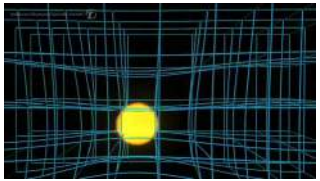
Purpose of the European Space Agency

"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

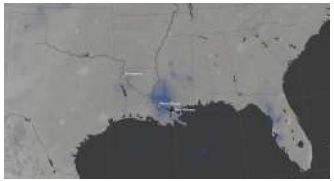
EVERYDAY LIFE AT ESA

Science and Exploration

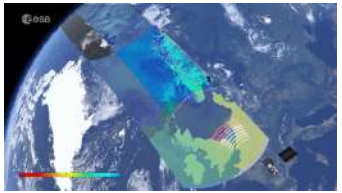


Enabling and Support

Safety and Security



Applications



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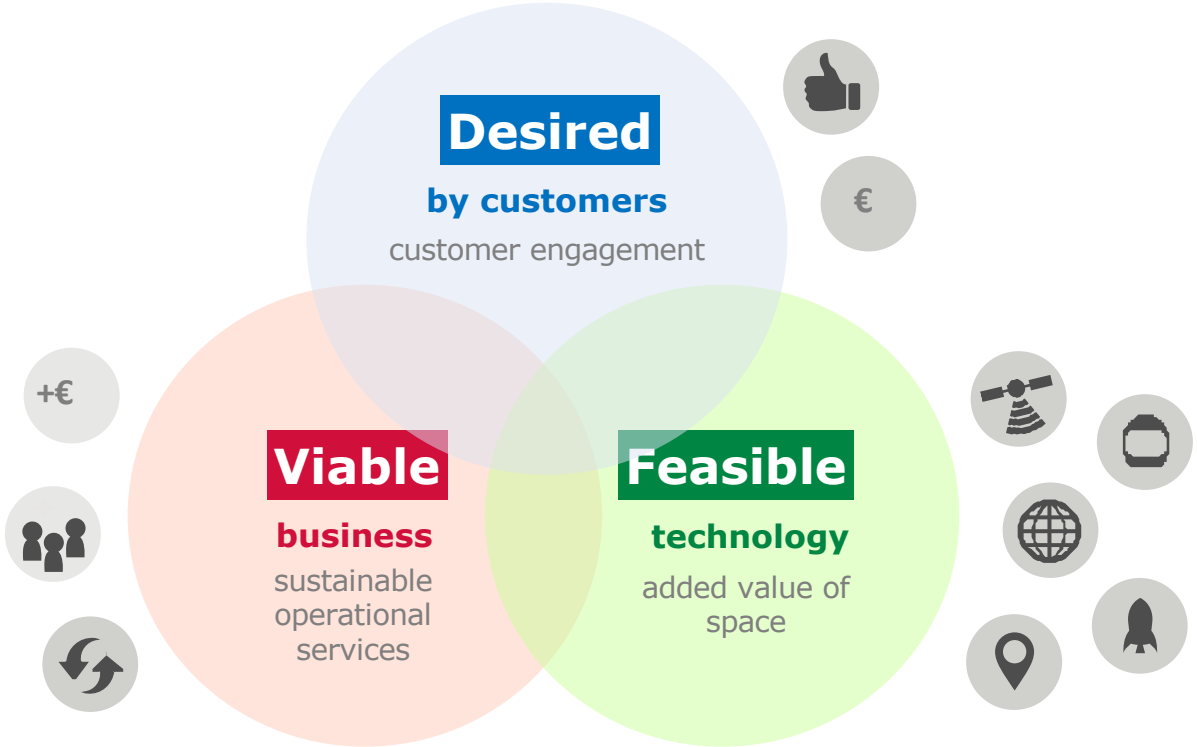
Space Companies.

“Upstream”

Also Space Companies

“Downstream”

Looking for promising services



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→ 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

European Institutional Actors

Frontex
EMSA
EU SatCen
EDA
EASA

National Governments& Regulators

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

Vertical Industry and associations

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

International Institutional Actors

UNICRI
IOM
Eurocontrol
WWF

Platforms/Foundations

Toilet Board Coalition
The Plastic Bank
Mirpuri Foundation
Genius100 Foundation

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.

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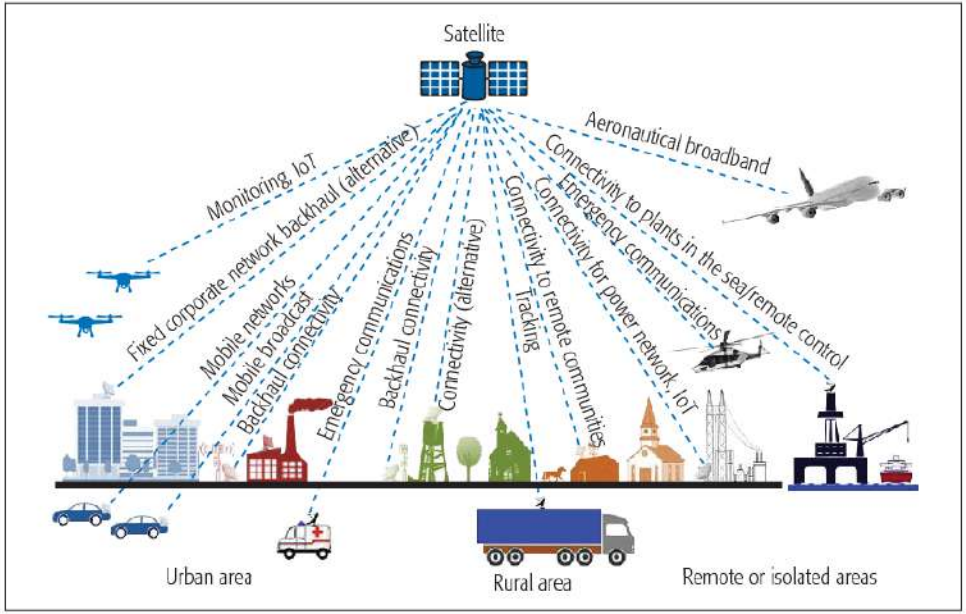
VALUE OF SPACE and 5G (2/2)

- 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



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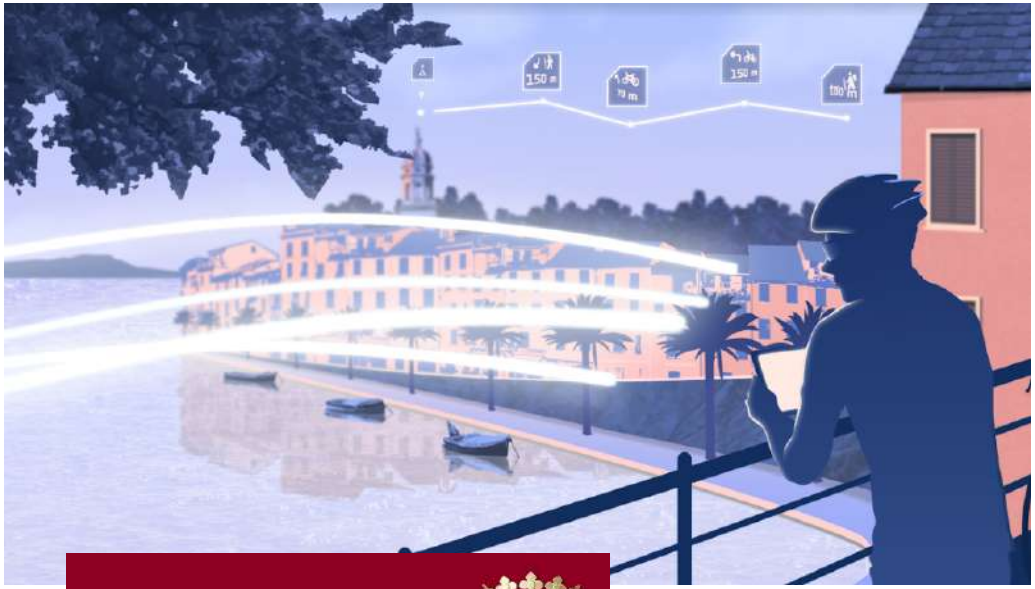
Smart Cities/Regions & 5G



ROMA

CITTA' DI TORINO

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Roma, Torino & L'Aquila cities, Abruzzo region

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

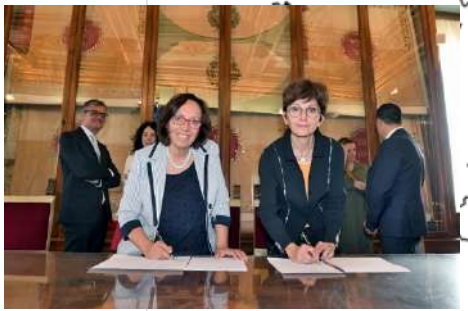
on

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



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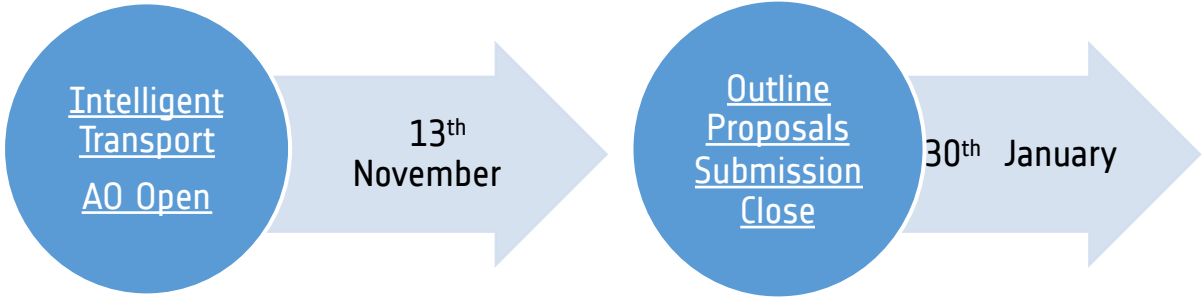
5G for L'ART Thematic Call- Intelligent Transport

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



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5G for L' ART FEASIBILITY Study: Outline Proposal Content

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.

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Feasibility Study Key Requirements

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.

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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.

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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

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UserS Engagement

- **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.**

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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 cc to Audrey.Ferreol@esa.int before the 8th 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 **26th February 2020.**

Basic principles

Tender documentation:

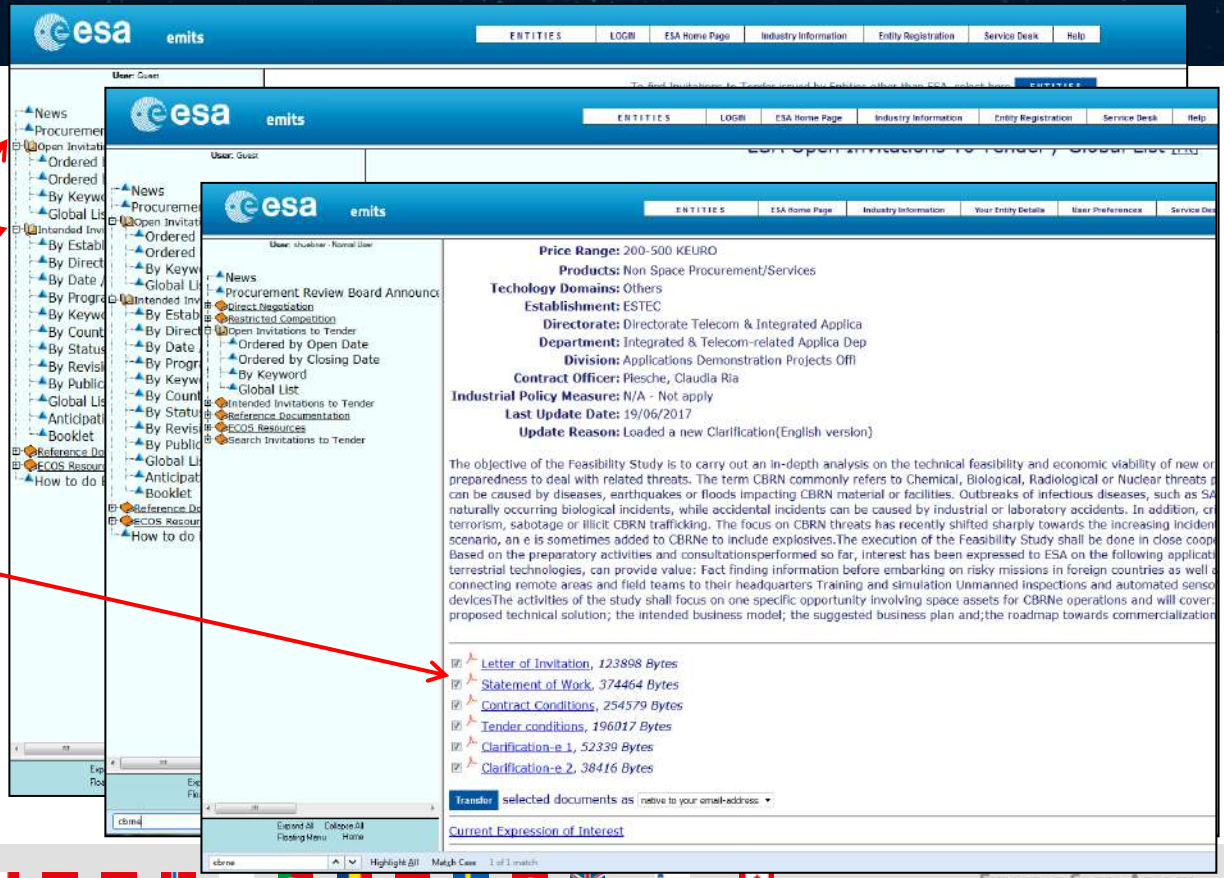
on **<emits.esa.int>**

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



Basic principles

- 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**

FUNDING ELIGIBILITY

- 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

Q&A

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THANK YOU FOR PARTICIPATING

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