Space for Immersive Reality Webinar

17/02/2021 11:00 CET

Roberta Mugellesi Dow (ESA)

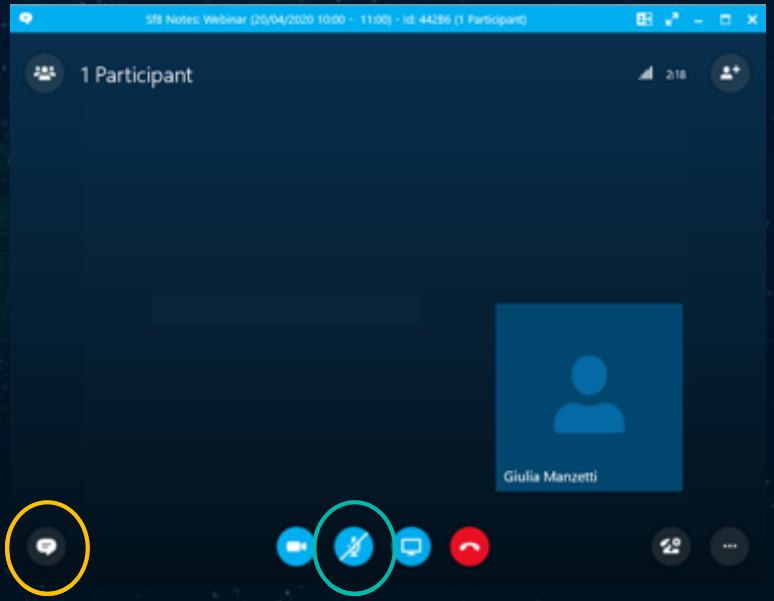
Roberta Mugellesi Dow - ESA

WELCOME TO THE WEBINAR!

Before we start...

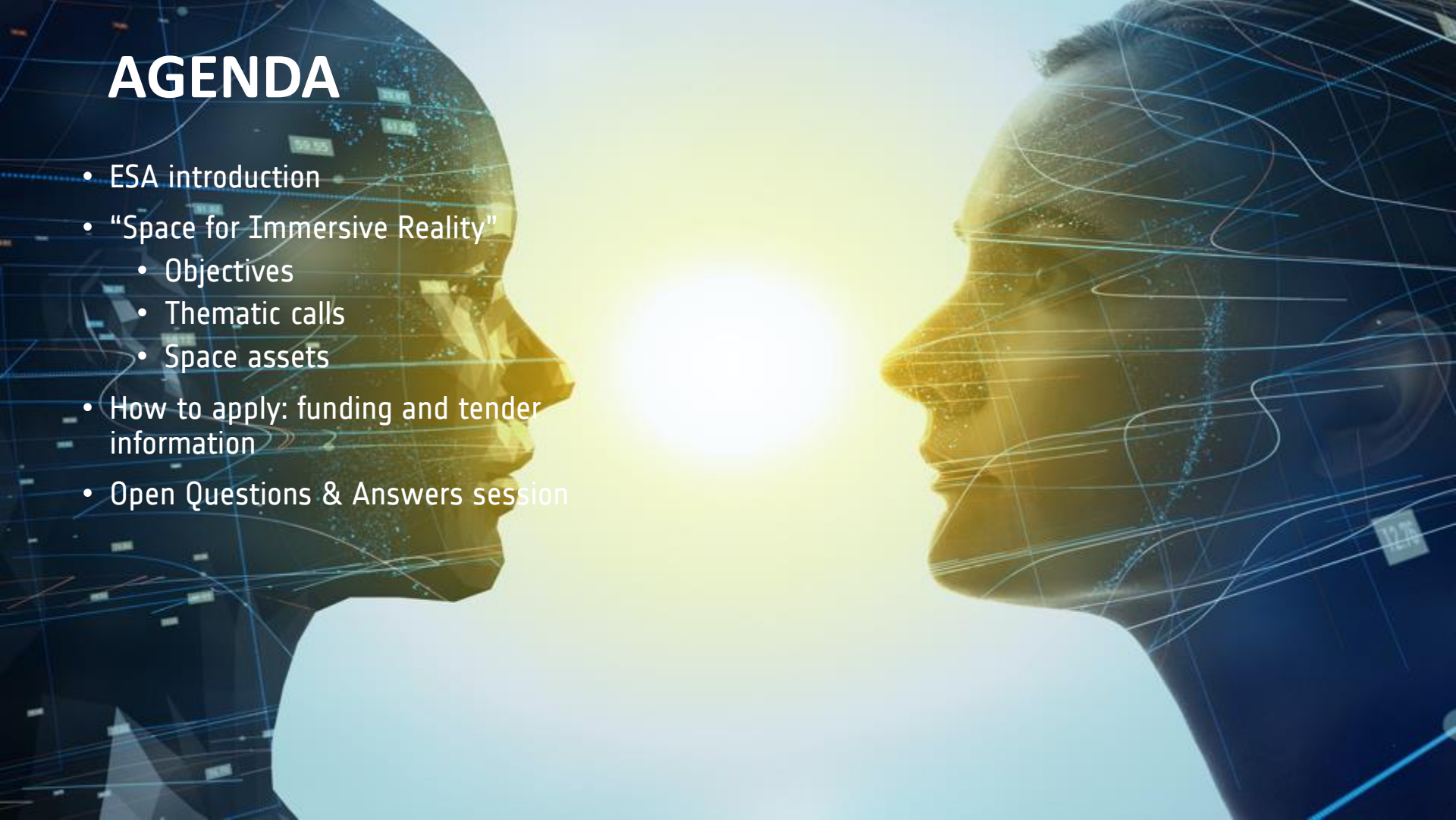
- Due to the number of attendees, please keep your microphones muted at all times and switch off the webcam function

- 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

- ESA introduction
- “Space for Immersive Reality”
  - Objectives
  - Thematic calls
  - Space assets
- How to apply: funding and tender information
- Open Questions & Answers session



THE EUROPEAN SPACE AGENCY

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space solutions

Purpose of ESA

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

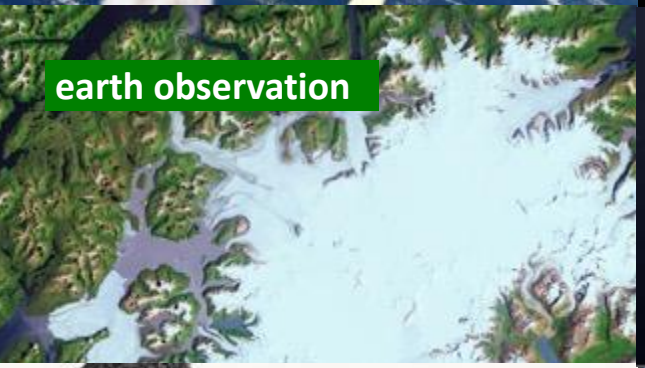
Facts and figures

- Over 50 years of experience
- 22 Member States
- 8 sites across Europe and a spaceport in French Guiana
- Over 80 satellites designed, tested and operated in flight


space transportation


science


human spaceflight


earth observation


telecommunications
and applications


navigation


exploration


operations


technology

ESA SPACE SOLUTIONS

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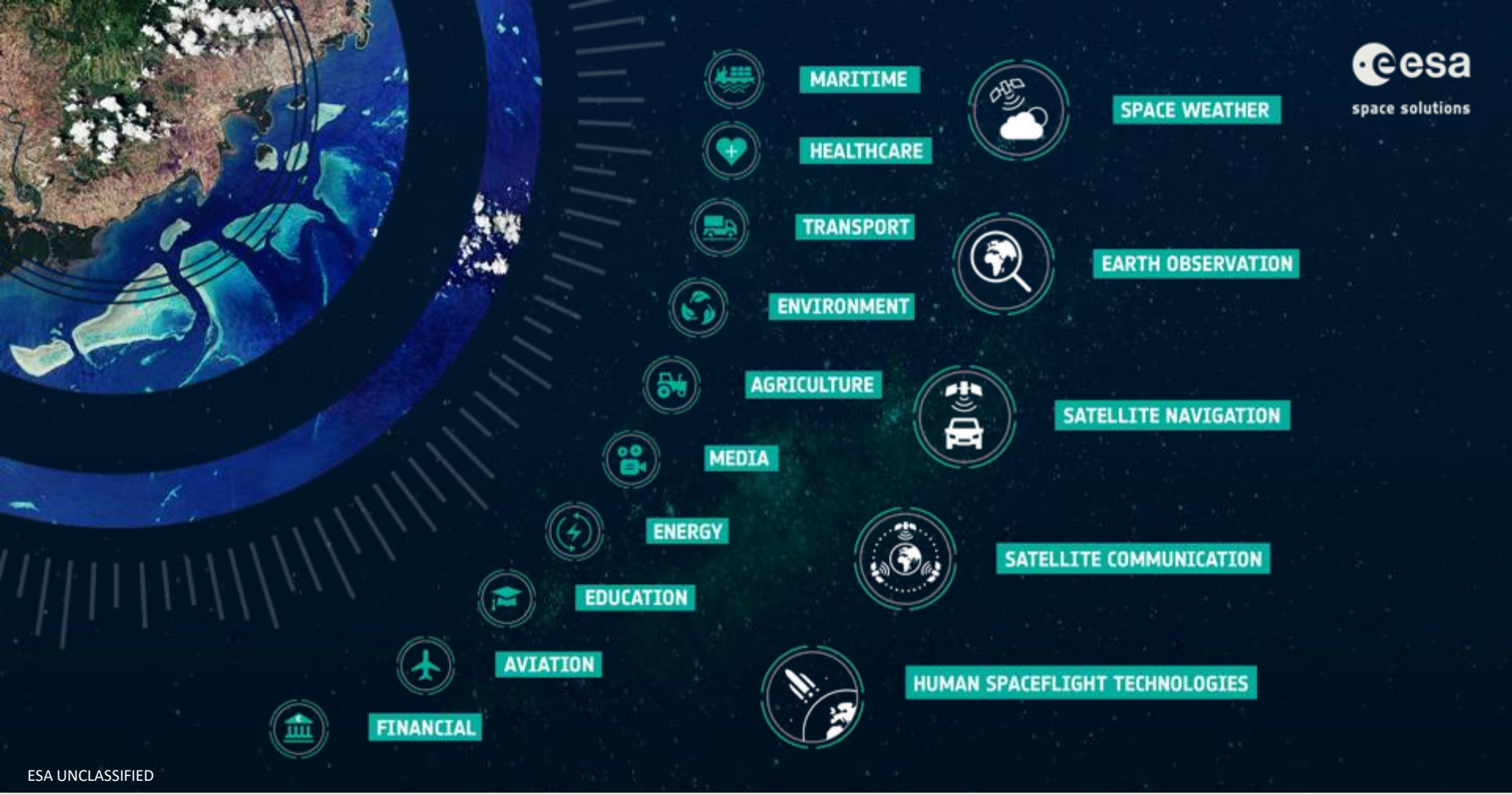
space solutions

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.

ESA SPACE SOLUTIONS OFFERS

- 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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MARITIME
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FINANCIAL
SPACE WEATHER
EARTH OBSERVATION
SATELLITE NAVIGATION
SATELLITE COMMUNICATION
HUMAN SPACEFLIGHT TECHNOLOGIES

Next step…

Space for Immersive Reality

to foster innovation enabled by space technologies and data

→ Introduction to Kick-Start

- Kick- Starts are ESA's funding scheme enabling companies to undertake short Feasibility Studies, up to 6 months, that explore new service and application concepts making use of space capabilities.

- Kick-Starts offer an instrument to assess the technical feasibility and commercial viability of an idea with limited initial investment by companies. As such, this scheme is considered particularly attractive for SMEs and start-ups, granting them an easy entry into ESA Business Applications.

- Successful Kick-Starts can be further developed into commercially-viable businesses with follow-up support from ESA Business Applications in the form of Demonstration Projects(*)

(*) https://business.esa.int/funding/direct-negotiation-call-for-proposals/demonstration-projects

Kick-Start on Immersive Reality

Kick-Start activities are funded at 75 % for a maximum amount of 60,000 Euro per activity and at 80% for a maximum of 64,000 Euro for SMEs.

Duration: 6 months

The Thematic Calls for Kick-Start Activities follow a competitive tendering procedure

Planned Kick-Start on Immersive Reality

- Immersive reality is the immersion in an artificial environment that replaces users' real-world surroundings convincingly enough that they are able to fully engage with the created environment.
- It is realized through a technology that attempts to emulate a physical world through the means of a digital or simulated world by creating a sense of immersion.
- These technologies have been increasingly utilized for several applications to enlarge the users experience and provide digital content tailored to the applications.
- Purpose of this kickstart is to identify and analyse the technical feasibility and economic viability of space-based solutions for commercially sustainable services utilizing immersive technologies

Objectives of Immersive Reality Kick-Start

Define innovative space-based applications relying and benefitting from immersive technologies

- Customer Engagement
- Technical feasibility & economic viability assessment
- Follow-on demonstration project preparation

Kick-Start call organized in two sub-thematic calls :

- Mixed Reality & Simulations, 1 March – 12 April
- Digital Twin & Holograms, 12 April – 24 May

Up to € 64K per study - duration: 6 months
Call opening on 1 March 2021

Mixed Reality

MR is the use of both Virtual Reality (VR) and Augmented Reality (AR) technologies to create an environment where physical and virtual objects can exist and interact in real-time.

Engineering & Manufacturing

Mixed Reality

Education
Training
Healthcare

Simulations

Simulations can be used to analyse the performance of systems and to test the implementation of new ideas. Engineers and technicians make use of simulations across a variety of industries to test products, systems, processes, and concepts

Gaming
eSports
Education
Training

Digital Twin

A digital twin is a virtual model that mirrors a physical object or process throughout its lifecycle. Digital Twin improve reliability and safety while keeping operating costs under control. It can reduce manpower requirements on the platform and optimize equipment maintenance schedules, by developing digital lifecycle automation and performance analytics solutions

Healthcare

A **Hospital of the Future Digital Twin** virtualizes a hospital as an environment where to test changes and play “what if?” in system dynamics. By creating a Digital Twin of the hospital(s) and related ambulatory services, potential changes in operational strategy, capacities, staffing, and care delivery models to determine which actions to take, can be tested.

Digital twins of a patient is as a personalized model of the patient that can be kept updated with each measurement, scan or exam. It can includes digital models of human organs, such as the heart, it can support diagnosis, treatment planning and guidance for patients in far or remote locations.

Manufacturing

Digital Twins of jet engines, wind-farms, off-shore oil rigs, power generation equipment, pumps, compressors, entire power station, help in designing cost-effective maintenance strategies for equipment, identifying optimal processes and systems for managing assets, predictive maintenance, stochastic evaluations of the likelihood of an event (failure) over time, and others

Cultural Heritage

Cultural & Historical Heritage

Logistics and Supply Chain

DT help logistics to manage container fleets more efficiently by keeping track of movements of reusable containers, create detailed models of containers, allow automated identification of potential problems such as cracks, inform about when a specific asset should be used, repaired, or retired

Warehouse digital twins can support the design and layout of new facilities, allowing companies to optimize space utilization and simulate the movement of products, personnel, and equipment.

Holograms

- Hologram is a physical structure that uses light diffraction to make an image appearing in three dimensions.
- Advances in technology allow to produce a system that digitally project 3D aerial images and streaming content in front of the display
- This is a 3D projection in space that displays products, objects, and and enables real objects or animations to appear to float completely freely in space.

Applications can be found in several sectors such as:

- Health
- Industry
- Training
- Emergency response

Medicine
Training
Art
Film Industries
…….

The Power of Space

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Satellite Navigation

- GNSS are the main source of geo- referenced locations data.
- Satellite navigation is instrumental in order to track the location of the user, geo-locate different objects in the MR (e.g. obstacles a ship/plane may encounter).

Satellite Communications

- will safely and securely connect with control centers in the absence of terrestrial communications or in case of terrestrial network failures.
- provides broadband internet, voice over IP, real-time video and reliable communications
- facilitate broadcasting of new content like eSports requiring high-speed, low-latency services to enable real-time video.

Earth Observation data

- provide imagery for the maps required by models and simulations.
- systems (GIS) are becoming more advanced, allowing for better geographical analysis and compelling visualisations. These can be used, for example, in creating urban simulations.

5G networks including terrestrial and satellite components will have a key role for delivering the high amount of data required by the immersive reality applications with the required low latency, eventually also in real time (support to operations).

How to apply:
Funding and Tender Information

HOW TO APPLY

1. Register (minimum 'light registration') by completing online questionnaire on ESA-STAR Registration (esastar-emr.sso.esa.int)
2. Download the official tender documentation (Invitation to Tender), which will be available as soon as the ITT is open via EMITS (emits.esa.int). ITT number is AO TBC
3. Create 'Bidder Restricted Area' in ESA-STAR
4. Write your Proposal using the template provided in the Tender documentation and obtain Letter of Authorization from your National Delegation (business.esa.int/national-delegations)
5. Submit your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering (esastar.sso.esa.int)

More info can be found here:
esa.int/About_Us/Business_with_ESA/How_to_do/esa-star_Registration_Process

Authorization from National Delegations

Participation to the kickstart is open to any company and/or organisation, residing in the following Member States: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden and United Kingdom.

The authorization from National Delegation for the specific Thematic Call against which you submit your Proposal is an admissibility criteria. Proposals not authorized at the closing date of the Thematic Call will not be admitted for evaluation.

For each individual Thematic Call, dedicated clarifications will be posted in EMITS to provide information on the list of Member States that have already provided their pre-authorization to the Thematic Call. In case your company/organisation resides in a country which has not provided a pre-authorization to the Thematic Call you are interested in, you need to contact your National Delegation. The contact information of the National Delegations can be found at https://business.esa.int/national-delegations.

BASIC PRINCIPLES - ESA-STAR

Registration (minimum 'light registration') on ESA-STAR Registration (https://esastar-emr.sso.esa.int)

Please note that esa-star allows two levels of entity registration: "Light" and "Full". This allows new users wishing to do business with ESA to carry out their registration in two steps. A "Light" registration will grant access to all esa-star services up to and including proposal submission. The award of ESA contracts requires "Full" registration.

BASIC PRINCIPLES - EMITS

Tender documentation: on emits.esa.int

- Published under “Open Invitations
- Look for the number AO TBC

How to Apply

The Letter of Invitation to Call for Proposals is issued on EMITS (http://emits.sso.esa.int/emits/owa/emits.main) under 'AO TBC' and includes:

- Cover letter
- Appendix 1:
  List of Thematic Calls for Ideas (including the calendar of the Thematic Call for Ideas and specific information on the themes)
- Appendix 2:
  Draft Contract
- Appendix 3:
  Tendering Conditions for Express Procurement Procedure - EXPRO/TC
- Appendix 4:
  Proposal Template

Proposal Template

Your Proposal shall include the following information:

1) Executive Summary (max 1 page)
2) Business Potential (max 5 pages)
3) Technical Concept (max 5 pages)
4) Team and Resources (max 3 pages)
5) Management (max 4 pages)
6) Financials (max 2 pages)

- For more information, please visit :

business.esa.int

THANK YOU!

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OPEN QUESTION & ANSWER SESSION