Metal Commodities

Webinar

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European Space Agency

WELCOME TO THE WEBINAR!

Before we start...

- Please keep your microphones muted during the webinar and make sure your webcam is switched off.

- 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 Welcome and Introduction

ESA's *Commodities Kick Start* Competition

Commodities and Space

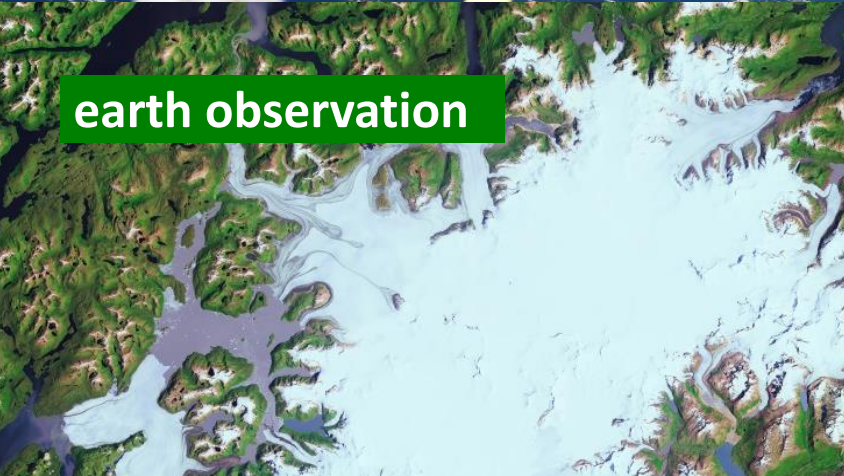How to Apply

Questions and Answer Session

space transportation

science

human spaceflight

earth observation

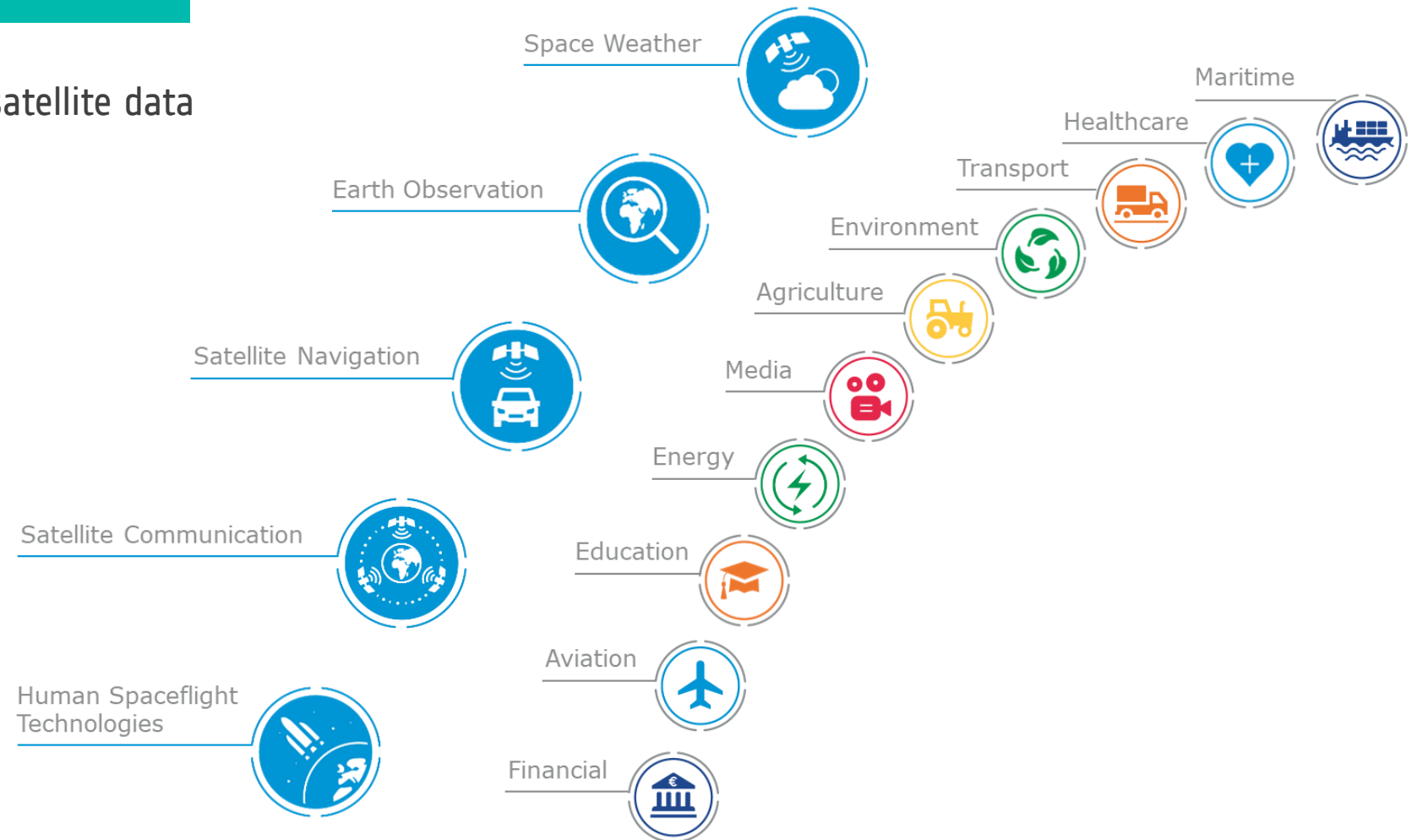telecommunications and applications

navigation

exploration

operations

technology

ESA SPACE SOLUTIONS

Could you use space technologies or satellite data for the benefit of life on Earth?

Space Weather

Maritime

Healthcare

Earth Observation

Transport

Environment

Agriculture

Satellite Navigation

Media

Energy

Satellite Communication

Education

Aviation

Human Spaceflight Technologies

Financial

→ 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

COMMODITIES

ESA's Kick Start Competition

Commodities: An Introduction

Commodity: a basic good, raw material or primary agricultural product

They can generally be divided into three categories:

i. Agricultural Commodities, which include food crops, livestock and industrial crops (like lumber, rubber and wool).

ii. Metal Commodities, which comprise precious metals (e.g., gold, silver, platinum and palladium) and base metals (e.g., aluminium, nickel, steel, iron ore, tin and zinc)

iii. Energy Commodities, which include petroleum products, natural gas, heating oil, coal, uranium (for nuclear energy), ethanol (as a gasoline additive) and electricity.

Commodities Kick Start

Since the topic of commodities is so vast, the "Commodities Kick Start" has been split into three competitions:

Part 1: Agricultural Commodities
Competition opens 06 July 2020 and closes 11 September 2020.

Part 2: Metal Commodities
Competition opens 14 September and closes on 30 October 2020.

Part 3: Energy Commodities
Competition opens 03 November and closes on 18 December 2020.

Part 2: Metal Commodities Kick Start

Winners of the competition will run a 6 month study, called a Kick Start.

During the Kick Start, teams will look at:

1. Engaging with users
2. Assessing the technical feasibility
3. Developing the business model and plan

Kick Start activities typically cost €80K and each winning team will receive:

- 80% funding by ESA up to €64K for SMEs*
- 75% funding by ESA up to €60K for non-SMEs

Visit: https://business.esa.int/funding/intended-tender/commodities

*SMEs, or 'Small and Medium enterprises', are defined here: EU recommendation 2003/361.

Metal Commodities Introduction & Background

Metal Commodities, comprise precious metals (gold, silver, platinum etc.) and base metals (aluminium, nickel, steel, iron ore, tin and zinc etc.)

1. The mining industry faces challenges in terms of productivity, cost, and safety

2. The extractive industry is criticised for its environmental impact

3. Illicit trafficking in precious metals is reported to be a multi-billion dollar market

4. Traders are always looking for new sources of information to help make investment decisions.

5. Metal supply chains can be very complex

Relevant Metal Commodity Ideas

Applications to:

1. Help mining companies improve mining operations through remote sensing and automation.

2. Monitor and improve the environmental impact of mining.

3. Detect illegal activities along metal supply chains and identify the provenance of metals.

4. Secure metal supply chains, and track and trace metals from source to destination.

5. Monitor commodity supplies by tracking ore extraction, shipping, and stockpiling to provide traders with unique intelligence on metal supply volumes and choke points.

6. And others!

VALUE OF SPACE

Earth Observation

- SatEO + AI or ML, can provide insight into metal commodities markets (e.g. by observing stockpiles, transportation of goods, activities along points of the supply chain)
- Monitors impacts of extracting commodities e.g. satellite imagery detecting contaminated groundwater
- Mapping to detect potential risks (e.g. natural hazards) and ensure mines aren't affecting protected areas
- Satellite imagery could help secure the supply chain by detecting infrastructure issues and illegal activities (e.g. new border crossings for illicit trade of metals)
- SatEO to help mining companies detect prospective sites to be mined; differentiate rock types; identify barren and productive areas; map preserved areas; and create 3D terrain models.

Satellite Navigation

- SatNav can be used to monitor the transportation of goods globally. This is especially useful when combined with sensorised shipping containers for track and trace monitoring.
- SatNav can also be used to improve transport routes of commodities and for geo-tagging data e.g. from mining equipment
- SatNav can help guide autonomous vehicles and machinery used on mining sites

Satellite Communications

- SatCom provides broadband internet, video and reliable communications to harsh and remote regions.
- It can be used as a primary communication means or as back-up to terrestrial networks, enhancing robustness and resilience.

Who Can Apply?

- ESA Space Solutions can provide funding for Kick Starts to any company residing in the following 19 Member States: Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, and Sweden.

- Please note that, currently, the **United Kingdom, Austria** and **Switzerland** are **not** supporting Kick-Start activities.

- If you are considering applying, you must inform your National Delegation to obtain a **letter of authorisation** allowing the funding of the proposed activity.

- Contact details of each **National Delegate** can be found here: https://artes-apps.esa.int/national-delegations

- **Germany, Luxembourg, Norway and Ireland** have pre-authorised funding. Teams residing in these countries do not need to contact their National Delegate.

How to Apply

1. **Register** by completing online questionnaire on [ESA-STAR Registration](#) - minimum 'light registration': https://esastar-emr.sso.esa.int

2. **Download** the official tender **documentation** (Invitation to Tender) via EMITS from 14th September 2020: http://emits.sso.esa.int/emits/owa/emits.main

3. **Create** 'Bidder Restricted Area' in ESA-STAR

4. **Write your proposal** and obtain **Letter of Authorization** from [National Delegation](#).

5. **Submit** your proposal via 'Bidder Restricted Area' in [ESA-STAR Tendering](#) by 30th October 2020 at 13:00 CET

How to Apply

The Letter of Invitation to Call for Proposals is issued on EMITS

(http://emits.sso.esa.int/emits/owa/emits.main) It includes:

- Cover letter

- **Appendix 1:** List of Thematic Calls for Ideas

- **Appendix 2:** Draft Contract

- **Appendix 3:** Tendering Conditions

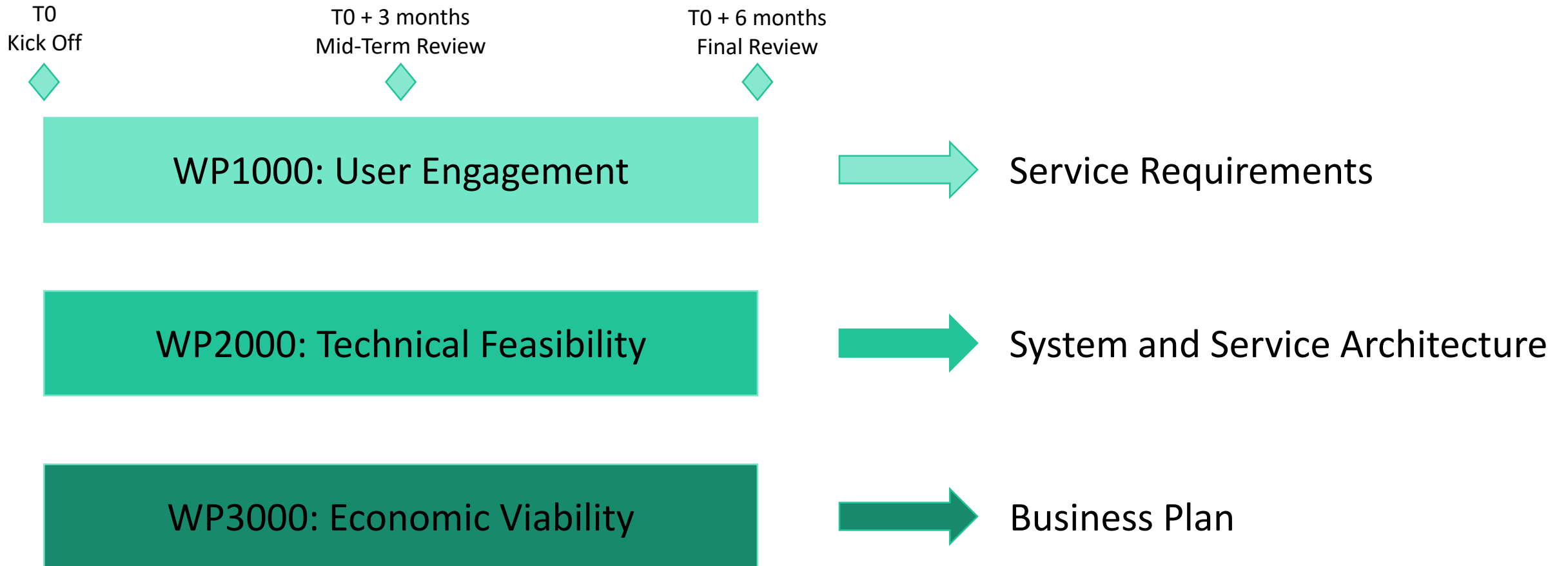- **Appendix 4:** Proposal Template

Proposal Template

Your Proposal should 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)

Kick Start Tasks

T0
Kick Off

T0 + 3 months
Mid-Term Review

T0 + 6 months
Final Review

WP1000: User Engagement → Service Requirements

WP2000: Technical Feasibility → System and Service Architecture

WP3000: Economic Viability → Business Plan

Overall Aim

Kick Start

Explore the technical feasibility and commercial viability of a service

Demonstration Project

Develop the application and pilot the service with end users on board.

Operational service
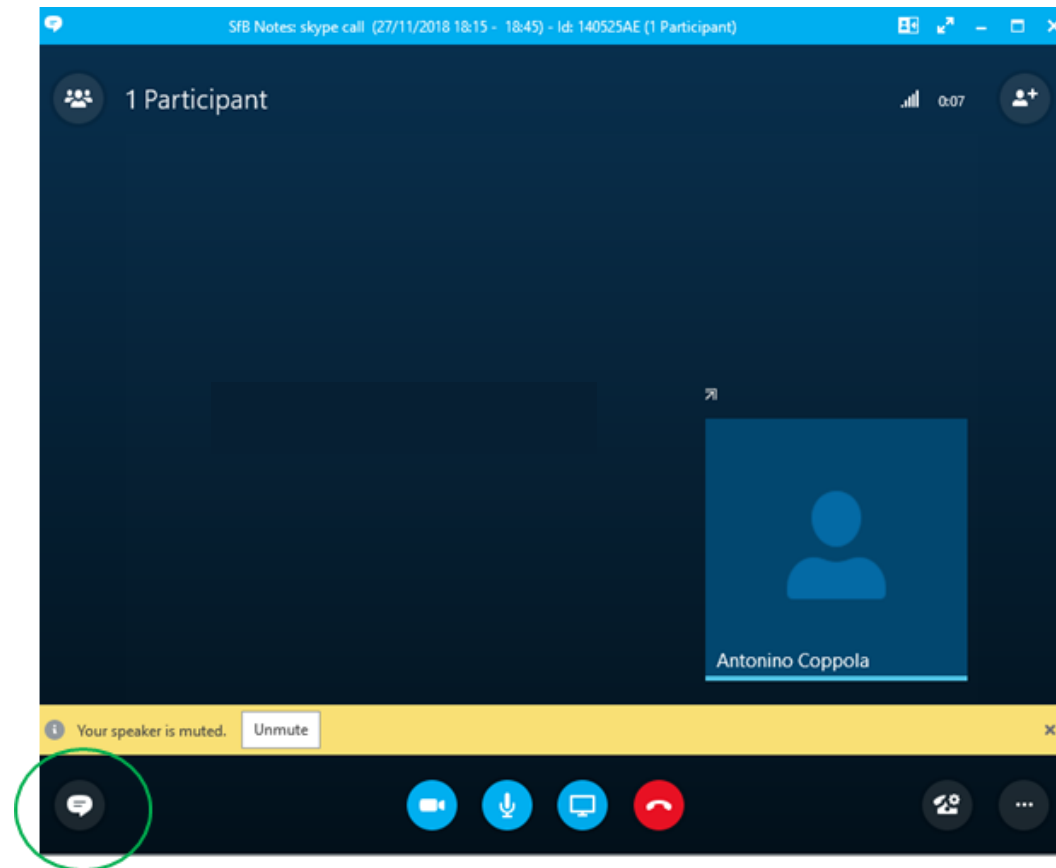
Ultimate aim is to have an economically sustainable

COMMODITIES
ESA's Kick Start Competition

To find out more: https://business.esa.int/funding/intended-tender/commodities

OPEN QUESTIONS & ANSWER SESSION

MINESENSE

The European Space Agency, Satellite Applications Catapult and United Nations Crime Institute (UNICRI) established the MineSense group to provide a platform for stakeholders of the mining and space industries to collaborate and discuss new technologies, opportunities, and solutions to solve challenges of mining industry using space technology.

Join the LinkedIn Group here:
https://www.linkedin.com/groups/13784315/

See here for more info:
https://sa.catapult.org.uk/minesense/

Thank you!

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European Space Agency