

→ KICK START ACTIVITY

MINING

Mining Webinar
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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

WEBINAR AGENDA

- Introduction
 - Fuel your business
 - What ESA offers
- Space for Mining
 - Background
 - Opportunity
 - Topics of relevance
 - Enablers from space
- Kick-start Activity essentials
 - Introduction to Kick-start Activity
 - Thematic Calls
 - Authorization from National Delegations
 - How to apply
 - The Proposal Template
 - Study Tasks
- Q&A

FUEL FOR YOUR BUSINESS

Can you leverage Space technology and data for the benefit of life on Earth?



WHAT ESA OFFERS

We'll work together to make your idea commercially viable, with:



Zero-Equity
Funding
(€60k-€2M+)



Tailored Project
Management
Support



Access to
Our Network
& Partners



Use of the
ESA Brand for
Credibility

MINING BACKGROUND

Mining – the process of extracting minerals, metals and other valuable materials from the surface of the Earth – is pivotal to the world's economy.

New trends will shape the mining industry over the coming years:

- **Smart mining** may improve efficiency and cost control, resulting in new exploration methods, streamlined operations, and increased transparency
- The global shift towards a low-carbon economy will result in **tightening environmental standards** and increased scrutiny of mining practices.
- Traditional reserves are being depleted, pushing exploration to **remoter, riskier locations** like the Arctic, deep sea and space.
- There is tremendous opportunity for technology and innovation to contribute to positive socio-economic change in the mining industry.



Source: <https://blog.csiro.au/mining3/>



Source: <http://www.mining.com/south-africa-has-failed-to-protect-locals-from-gold-mine-pollution-harvard-report/>

OPPORTUNITY

6 months duration

up to €60K ESA funding (75% ESA co-funding)

Develop and assess new business case for commercially viable services

- **Customer Engagement**
incl. needs and value proposition validation
- **Technical Feasibility Assessment**
incl. Service and System Architecture, Space data/technology integration
- **Commercial Viability Assessment**
incl. Business Model and Plan



TOPICS OF RELEVANCE

Exploration– Since so much has been explored, the search for new mineral resources must now rely on more sophisticated prospecting and exploration techniques.

Construction & Operation– Emerging technologies are expected to significantly impact mine construction, mineral recovery, processing and transportation.

Closure & Rehabilitation– Mines may require long-term care, maintenance and monitoring after mine closure.

Commodity Trading– Mining shareholders and investors must assess which commodities to invest and divest in by carefully monitoring the sector

Illegal Mining– Illegal mining can belong to organised crime or can be a subsistence activity. It is dangerous and can bring about violence and corruption.

Safety of Workers– Mining can be risky and hazardous. Accidents occur and workers can suffer from fatigue, injury, and psychological impairment. Technological advancements can help to improve the safety for workers.

→ THE POWER OF SPACE



Satellite Navigation

- GNSS can be used to guide autonomous equipment, manage fleets and avoid collisions.
- It provides a way of tracking assets across the globe
- Current positioning of shovels, loaders, dozers and graders can be overlapped with the planned design of the mines, ore blocks, pits and roads to show the operator where to mine.



Earth Observation

- Feature extraction, elevation models and satellite imagery can help with planning features especially in remote or hazardous areas where ground-based exploration is challenging
- Satellite imagery can map and monitor the natural environment (managing long-term damage), assess potential risks (bushfire, flooding), spot suspicious activity (illegal mining), and monitor operations and closure.



Satellite Communication

- SatCom can enable remote personnel to transmit images and drilling data from the field for centralised analysis without the need to send a vehicle back to base
- It can provide reliable connectivity before permanent communications are installed, or can ensure that the site remains connected even in severe weather.
- Sensors measuring vehicle health, for instance tyre pressures, and the driver's wellbeing, like heart rate and skin temperature, can be geotagged and sent to a central control system to improve safety and efficiency.

INTRO TO KICK-STARTS

- “Kick-start Activities” 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-start Activities” 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.
- ESA is committed to a **rapid evaluation** process, for allowing companies to keep the pace in the market.
- Successful Kick-start Activities 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>



THEMATIC CALLS FOR KICK-START ACTIVITIES

- The Thematic Calls for Kick-start Activities are [open to any company or organisation in participating Member States](#) (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland and the United Kingdom).
- Kick-start Activities aim at exploring the [viability of new service/application](#) concepts and [consolidating the user landscape](#) including derivation of user requirements.
- Kick-start activities resulting from Thematic Calls are funded at [75%](#) by the Agency for a maximum amount of [60,000 Euro](#) per activity.
- The Thematic Calls for Kick-Start Activities follow a [competitive tendering procedure](#). The evaluation criteria and associated weighting factors are published in the cover letter of the Call for Proposals.

AUTHORIZATION FROM NATIONAL DELEGATIONS

The **availability of funding** 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 financial support to the Thematic Call.

In case your company/organisation resides in a country which has not provided their financial support 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>.

For the Thematic Call on ‘Mining’ [United Kingdom, Norway, Germany and the UK](#) have already pre-authorized the funding.

→ HOW TO APPLY 1/2

1. **Register** by completing online questionnaire on [ESA-STAR Registration](https://esastar-emr.sso.esa.int) (minimum 'light registration') (<https://esastar-emr.sso.esa.int>)
2. **Download** the official tender **documentation** (Invitation to Tender) via [EMITS 'AO 8872'](#) from 09th April 2019
3. **Create** 'Bidder Restricted Area' in ESA-STAR
4. **Write your proposal** and obtain **Letter of Authorization** from [National Delegation](#), if needed (see below)
5. **Submit** your proposal via 'Bidder Restricted Area' in [ESA-STAR Tendering](#) by 20th May 2019 13:00 CET (Don't wait until the last minute!)



→ HOW TO APPLY 2/2

The Letter of Invitation to Call for Proposals is issued on EMITS (<http://emits.sso.esa.int/emits/owa/emits.main>) under 'AO 8872' 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



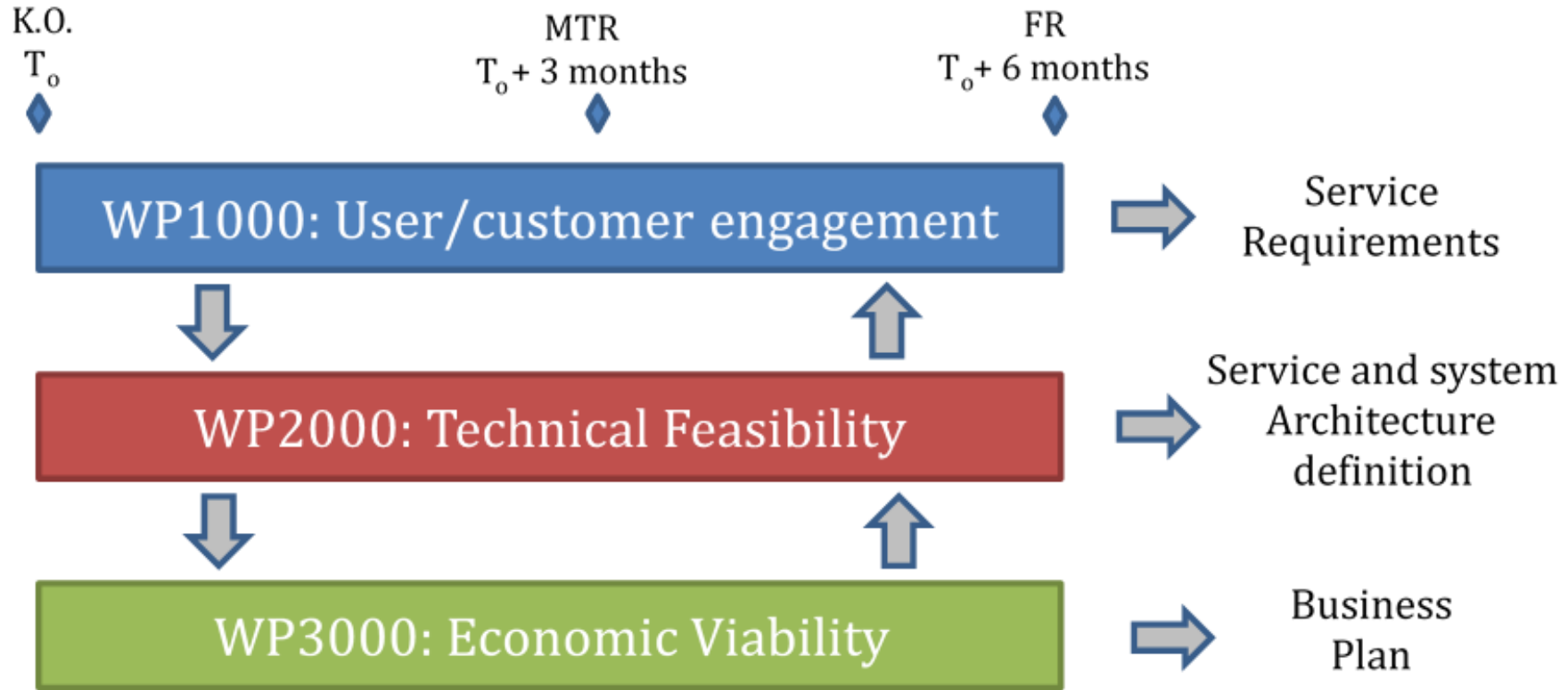
→ THE PROPOSAL TEMPLATE

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)

Kick-Start Activity

→ Study Tasks



→ Q&A



A large circular graphic in the center of the slide. It features a central image of the Earth from space. Surrounding the Earth are several semi-circular segments containing different images: a bar chart with an upward trend, a pair of lungs, a person running, a port with shipping containers, a landscape with solar panels, a coastline with a river, and a field of crops. The entire graphic is set against a dark background with white stars.

→ THANK YOU FOR PARTICIPATING