

# Open Call for Outline Proposals under the Hungarian Industry Incentive Scheme

1-10654/21/NL/CBi

February 18<sup>th</sup>, 2021



# Hungarian Industry Incentive Scheme

The Hungarian Industry Incentive Scheme is an ESA programme limited to Hungarian economic operators lasting until the end of 2021. It aims at providing support to Hungarian entities to overcome market entry barriers and reach a competitive level playing field allowing for successful participation in multinational ESA programmes. This is achieved by assisting Hungarian entities as follows:

- To be familiar with ESA practices and standards
- To develop a network in ESA and with the main European Space industrial contractors
- To obtain first heritage records

The Hungarian Industry Incentive Scheme can award projects to Hungarian economic operators who present proposals to the Open Call, the object of this presentation.

The Hungarian Industry Incentive Scheme also arranges training courses to assist entities in the country.

# Hungarian Industry Incentive Scheme

A number of key changes have been implemented for the Scheme as of 2020 covering:

- Call type (not permanently open)
- Subject areas
- Activity types
- Financial conditions and co-funding
- Proposal template
- Etc.

Not all changes are discussed in detail in this presentation and familiarisation with the full ITT package is **essential** in order to comply with the programmatic and contractual aspects.

# DISCLAIMER



This presentation material does not contain sufficient information to be used, in any way, in the context of the ITT (Invitation-to-Tender) 1-10654/21/NL/CBi .

This presentation is just to help understand, in a simplified manner, some of the Rules and Procedures associated with ESA procurements and in particular of this ITT.

Please ensure that your Outline Proposal is compliant with the requirements contained in the ITT 1-10654/21/NL/CBi documentation that will be published on EMITS/esa-star Publication.

**Note:**  
**EMITS will be discontinued on the 22nd March 2021 and replaced by esa-star Publication on the 23rd March 2021. Tenderers will be informed on EMITS and ESA websites and user manuals will be available.**



Tenderers are requested to submit "nominal offers" i.e. without any reservations concerning the expected impacts of the COVID-19 pandemic.

The Contract eventually to be concluded with the recommended Tenderer will be based on the circumstances prevailing (i.e. related to COVID), to the best knowledge of both parties, at the time of the contract negotiations. This whilst preserving the principle of fair competition by ensuring that the basis for recommendation of the selected winner is not altered.

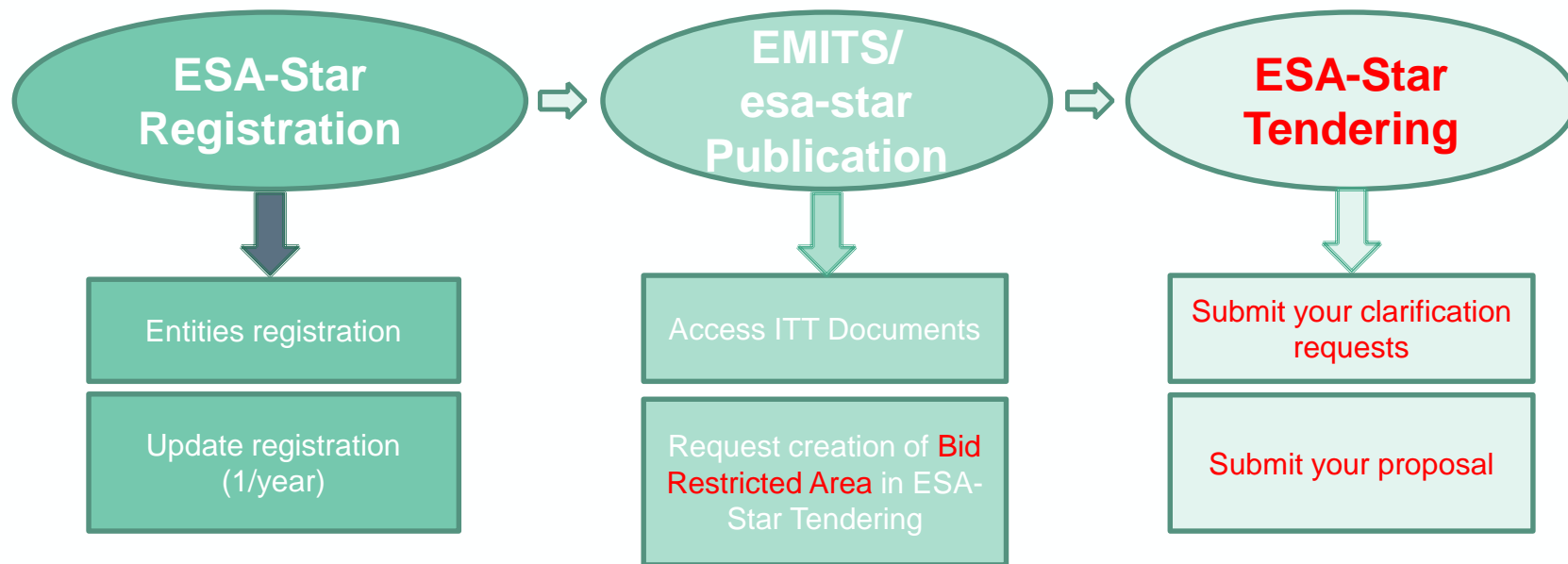
# Summary of presentation

1. ESA Tools - Basics of ESA Procurement
2. Call Overview
3. The Cover Letter
4. Activity Types
5. Prime contractorship
6. Key Programmatic Notes
7. Common Mistakes
8. Top down activities
9. Sources of help

# 1. ESA Tools - Basics of ESA Procurement (1/2)

Main tools supporting the procurement process:

- **ESA-STAR**: ESA's online System for **Registration and Tendering**
- **EMITS/esa-star Publication**: ESA's online system for publishing **Invitation-to-Tenders (ITT)**



# 1. ESA Tools - Basics of ESA Procurement (2/2)

## a) **ESA-STAR Registration** (<https://esastar-emr.sso.esa.int/>)

Registration on ESA-STAR is a **pre-requisite** to do business with ESA

## b) **EMITS** (<https://emits.esa.int/>)/**esa-star Publication**

All ITT related documents can be found in EMITS. Here you request the system to create a **Bidder Restricted Area** in ESA-STAR Tendering

## c) **ESA-STAR Tendering** (<https://esastar.sso.esa.int/>)

In the Bidder Restricted Area you can request for clarifications and **submit the proposal**

### Video:

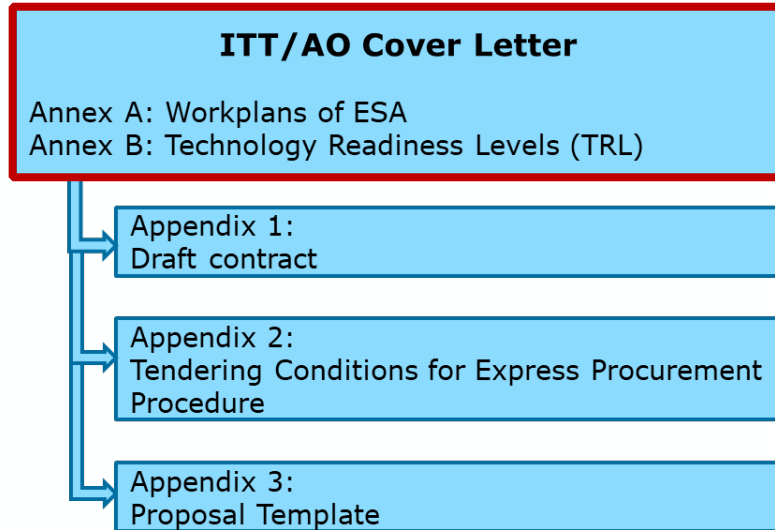
[http://www.esa.int/spaceinvideos/Videos/2016/03/Bidder\\_Restricted\\_Area\\_creation\\_and\\_structure](http://www.esa.int/spaceinvideos/Videos/2016/03/Bidder_Restricted_Area_creation_and_structure)



## 2. Call Overview

**ITT Reference: 1-10654/21/NL/CBi**

**NB! Not** a permanently open call!



ITT published on **11<sup>th</sup> of March 2021**

Submission Deadline on **14<sup>th</sup> of April 2021**

Maximum budget: **1.2M Euros**

First contracts: **Q3 2021**

## 3. Cover Letter

The Cover Letter contains essential information on the ITT e.g.

- The name of the responsible **Contracts Officer** (C. Binedell)
- **Submission deadline** for evaluation
- All **programmatic** and **price constraints**
- Description of the **process of evaluation** and selection
- **Evaluation Criteria**
- **Instructions and restrictions** for proposals submission

**Read the Cover Letter carefully and be sure to comply**

## 4. Type of activities

The subject of this ITT is exclusively for the following **Activity Types**:

- a. **Close to Market (Upstream) related Activities** - not higher than Euro 500.000\*
- b. **Research and Development (R&D) Activities** - not higher than Euro 200.000\*\*
- c. **Preparatory Activities** - not higher than Euro 75.000\*\*

**EXCLUDED FROM THE CALL:** Education and awareness activities and Space (Downstream) applications, products and services will **not** be considered in this call.

*\*Co-funding obligation: The final selected activities for Type a, after successful negotiation, will result in firm-fixed-price contracts that are 75% co-funded by the Agency and 25% by the Tenderer (i.e. max 375K Euro funded by ESA).*

*\*\*The final selected activities for Type b and c, after successful negotiation, will result in firm-fixed-price contracts **100% funded by the Agency.***

## 5. Prime Contractorship

**Type a** must be led by **industry** (prime contractor). The bidding team must include an **end customer** with a clear business case.

**Type b** must be led by **industry or academic/research organization** but must include an **industrial partner** for any development potentially leading to a commercial product.

**Type c** may be led by any legal entity depending on the specific context while ESA mission related services must be led by industry.

# 6. Key Programmatic Notes

The technical subject shall have potential for further use or development in:

ESA mandatory activities (**in particular the ESA Science Programme**) and in the selected ESA optional programmes that Hungary subscribes to:

## Telecommunications - Advanced Research in Telecommunication Systems (ARTES)

Space Systems for Safety and Security

Optical Communications - ScyLight

## European Exploration Envelope Programme (E3P)

Humans in LEO (incl. SciSpacE)

Humans beyond LEO

Mars Robotic Exploration

ExPeRT

## Space Safety Programme (S2P)

Core Activities

**NB!** All other ESA optional programmes or programme elements that Hungary subscribes to are **not considered** within this call (e.g. including PRODEX).

# 6. Key Programmatic Notes

1. The Call is addressed only to **Hungarian entities**
2. Tasks for non-Hungarian entities in other ESA Members must be **fully justified** and cannot consist of any **core activities**
3. No duplication of ongoing and intended activities in ESA (see **ANNEX A of Cover Letter**)
4. The technical subject should be **independent from previous activities** with ESA, except if implemented under PECS or IIS
5. The procurement of **infrastructure and generic tools** (Hardware and software) is considered out of scope of the ITT.
6. Type a (hardware) proposals with an overall **mark >60** will be recommended, and type b and c (R&D and feasibility studies) proposals with an overall **mark >50** will be recommended.
7. The ceiling price **is a maximum limit**, not a target price nor an indication of the amount expected.
8. For most activity Types, involvement of an **end-customer** is considered highly beneficial (even where not essential).

# 7. Proposal Template: Common Mistakes

## VERY BRIEF Summary of the most common mistakes seen

### Criteria 1

1. Objectives (end goal) difficult to understand or not clearly stated. (Keep to max 2 sentences)
2. Poor or missing technical requirements (e.g. not covering the space environment, not quantified or verifiable, not matching market need, not covering key functions and features...)
3. Poor or missing engineering approach (e.g. Baseline concept not described, missing reviews or checks, lack of key testing or validation)
4. Poor or inadequate programme of work (e.g. missing customer or industry involvement, missing development steps) and inconsistency between text, flowchart, WPD and GANTT.
5. Poor WPD (e.g. insufficient detail to understand the full scope of the work e.g. missing analyses or testing, no clear responsibilities or clear split between companies)
6. Poor WBS (e.g. too few WPD, WP with tasks for more than one entity – separate them!)

### Criteria 2

1. Not meeting the programmatic constraints of the cover letter (e.g. not related to ESA needs or programmes, not space related, no user involvement, no industry involvement, no path to recurring benefit [e.g. product])

# 7. Proposal Template: Common Mistakes

## VERY BRIEF Summary of the most common mistakes seen

### Criteria 3

1. ~~Poor management plan (e.g. missing how you will monitor the timely implementation of the activity, sub-contractor control or including a steering group or management 'team' instead of a Project Manager)\*~~
2. High/very low management hours
3. Poor planning (e.g. insufficient detail, no dependencies shown, too much in parallel...)
4. Non-credible costing (e.g. hours not corresponding to described scope work in WPD, procurement of inappropriate items, excessive travel costs, price = max available envelope, procured items not detailed or not justified)

### Criteria 4

1. Some of the documents not signed or missing (e.g. Cover Letter, PSS Forms)
2. Non compliance with tender conditions
3. Disagreeing with the Draft Contract (that you accepted by signing the Cover Letter)
4. Leaving incomplete or empty a part of the proposal (e.g. If not applicable, state why)

***\*Note: The management plan has been removed from the proposal template for this call but a WP dedicated to Management and Reporting shall be included.***



# 8. Top down activities – Open Competition

Activity ref.	Activity title	Budget K€	Publication
1	Feasibility study on space food 3D printing to support long-term human space missions	150	1Q2021
2	Innovative structural material research and manufacturing study for passive radiation protection for future space missions	225	1Q2021
3	Hungarian cave use feasibility study	75	1Q2021
4	Analysis of the capacity of the industrial and academic sector in Hungary in the area of Space Safety	50	1Q2021
5	Space environment nowcast and forecast development – part 2 (contribution to S2P activity S1-SW-14)	150	2Q2021

# 8. Top down activities – Open Competition

## 1 Feasibility Study on Future Space Food 3D Printing to Support Long-Term Human Space Missions

**Estimated Budget:** 150 k€

**Description of Activity:** Future human space missions targeting Lunar and Martial environments will require on-site sustainable infrastructure for crew operations. It shall include a sustainable nutrition approach like on-site food production using 3D printing technologies.  
This activity will focus on the feasibility of possible space food 3D printing for future human space missions, including the assessment of current technology state-of-art, identification of risks, technology development needs, development roadmap and requirements for a possible technology demonstrator experiment on ISS.

**Justification of need and potential benefit:** Future human space missions will require sustainable technologies in order to support crew activities and daily life far away from Earth. Resources to be delivered from Earth to Lunar and possible Martian environments will be well limited, thus future related technologies shall be early enough investigated. Crew life support technologies are the most critical ones, therefore nutrition and future sustainable space food production shall be assessed. ESA needs to implement related development activities to be a strong future competitor on the international market.

**Prospects for use/ continuation:** This study clearly aims at investigating new grounds and capabilities of Food Production, via this interesting “3D-printing”-like approach, but for nutrients conditioned as inks. This is a novel approach worth pursuing. To ensure that practical aspects for future missions are taken into account.

**Start TRL** TRL 1

**End TRL** TRL 2/3

# 8. Top down activities – Open Competition

## 2 Innovative Structural Material Research and Manufacturing Study for Passive Radiation Protection for Future Space Missions

**Estimated Budget:** 225 k€

**Description of Activity:** Assessment of the possible use of new innovative, ultra-light weight space radiation dose shielding materials to protect humans in spaceflight and electronics (GPUs, FPGAs, CCDs, CMOSs). The nature of the protection is passive radiation shielding.

The aim is to integrate this new shielding material into metal matrix composite with a new state of the art technology to be used as possible future structural material candidates. The proposed material's weight should be lighter or equivalent with aluminium with a higher degree of mechanical and radiation dose protection.

**Justification of need and potential benefit:** Future human space missions will require sustainable technologies in order to support crew activities and daily life far away from Earth. New material technologies will be needed to support these expeditions in Lunar and possible Martian environments.

The proposed novel material research study can contribute to these efforts due to its light-weight and optimized radiation shielding, mass and manufacturing properties. Such materials can support astronaut's and critical electronic systems in human spaceflight as structural elements. It can be a good alternative for light-weight camera and sensor protection in future space missions. Such material can be also considered as future instrument collimators.

**Prospects for use/continuation:** The proposed activity would complement the overall strategy for radiation characterization and protection in support of future human and robotic exploration missions. Focused on R&D aspects, this activity could increase the Hungarian/European expertise in terms of lightweight radiation protection for small devices/instruments. Depending on the outcome of this study, the downstream benefits may be greater than for pure radiation protection.

**Start TRL** TRL 2

**End TRL** TRL 3

# 8. Top down activities – Open Competition

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## Hungarian cave use feasibility study

**Estimated Budget:** 75 k€

**Description of Activity:** Budapest hosts the Molnar Janos cave system. It is the largest readily accessible submerged cave system in Europe and its geothermal waters provide a constant year round environment. The size, location and environment of the cave offer numerous potential uses for space applications including: astronaut long duration training, EVA simulation, in orbit assembly testing and deployment testing. The possibility, practicality, setup/ installation cost, running cost and business case for each of these potential applications will be investigated and a development plan produced for the development and exploitation of the cave system will be produced.

**Justification of need and potential benefit:** Current facilities are either limited in size or realism (e.g. pool work), are not owned by ESA and expensive (e.g. Neemo) or simply do not exist (in orbit assembly / large deployments). The potential and possibility of the Molnar Janos system to satisfy one or more of these needs could lead to a unique European facility in Hungary.

**Prospects for use/ continuation:** This is a feasibility assessment to provide inputs to ESA and the Hungarian Government as inputs to decide whether further government infrastructure investment in the cave system is worth to consider

**Start TRL** TRL 1

**End TRL** TRL 2

# 8. Top down activities – Open Competition

4

## S2P: Analysis of the capacity of the industrial and academic sector in Hungary in the area of Space Safety

**Estimated Budget:** 50 k€

**Description of Activity:** The main objective of the present activity is to explore and identify existing capabilities, infrastructure and assets of the industrial and academic sectors in Hungary and their applicability to the three main areas of the ESA Space Safety Programme (S2P): Space Weather, Planetary Defence, Space Debris and Clean Space. The activity will also reach out to these sectors to familiarise them with the content and the opportunities of the programme and the main associated players in Europe.

**Justification of need and potential benefit:** As a result of this activity, ESA shall be able to propose targeted S2P activities and suggest partners from the Hungarian sectors in S2P contracts.

**Prospects for use/ continuation:** This is a feasibility assessment to provide inputs to ESA S2P programme on the capacity of Hungarian academic and industrial sector in Space Safety area and set the foundation for future S2P activities in Hungary.

**Start TRL** N/A

**End TRL** N/A

# 8. Top down activities – Open Competition

5

## Space Environment Nowcast and Forecast Development – Part 2

**Estimated Budget:** 150k€ (as part of a larger activity with 800k€ S2P funding: S1-SW-14)  
OC with mandatory HU participation of ~25% of budget

**Description of Activity:** This procurement will focus on development of both model and toolkit development geared towards characterising the Earth's space radiation environment and resulting effects, targeting the needs of spacecraft operators and human spaceflight. In addition to developing enhanced nowcast and forecast capabilities, tools and functionalities supporting rapid post-event analysis shall form part of these developments.

Activities will build upon developments and planning work carried out within the Space Radiation Expert Service Centre during the SSA Programme along with developments carried out within P2-SWE- XIII Advanced SWE service prototypes, P3-SWE-XXXI Space Radiation Applications for Spacecraft Operators, and in particular P3-SWE-X Space Environment Nowcast and Forecast Development – Part 1.

During disturbed geomagnetic conditions the plasmopause and the outer radiation belt exhibit dynamic behaviour which has been shown to be correlated as a result of the contribution of wave-particle interactions to outer radiation belt particle energisation and loss. This activity will investigate and demonstrate use of plasmaspheric observations and modelling to constrain radiation belt models, building on the results of the P3-SWE-LII activity to develop Plasmaspheric Products for Space Weather Services.

Underpinning modelling work is expected to include physics based modelling, use of data assimilation techniques and machine learning approaches. Full utilisation of radiation monitor data resulting from SWE hosted payload missions is expected. This shall include both the currently operating NGRM instrument on-board EDRS-C and preparatory steps for utilisation of the next radiation monitor hosted payload missions, ICARE-NG instruments onboard HOTBIRDNext F1 and Lunar Gateway Power and Propulsion Module (PPM).

**Justification of need and potential benefit:** Improved radiation belt nowcasting and forecasting capability, upgraded radiation belt specification, improved toolkits and targeted services elements addressing the needs of spacecraft operators and human spaceflight.

**Prospects for use/ continuation:** It contributes to the overall space weather monitoring and forecasting capability of ESA.

**Start TRL** N/A

**End TRL** N/A

## 9. Sources of help

These other sources of information and help are available to you at the following link (valid until 31/03/2021):

<https://esabox.esa.int/owncloud/index.php/s/10w5Or4GmdgOZD4>

**Password:** Incentivescheme2021!

- How to write a good proposal – presentation.

[How to write a good proposal PECS\\_NMS.pdf](#)

- Basics of ESA Procurement Handbook - (*How to use ESA IT systems*)

[Handbook\\_Basic of ESA Procurement.pdf](#)

# Questions?

Before the ITT Opening

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