# HORIZON-INFRA-2023-SERV-01-02

## Proposal for the overall topic and organisation

The call: Expected outcome and Award criteria

TNA & VNA: specific features for RIs, WP structure

Astrophysics Centre with Multimessengers in Europe (ACME) – *Tentative*

Work document and Next steps

# Expected outcome and Award criteria

**Expected Outcome:**

- wider, simplified, and more efficient access to the best research infrastructures available to researchers to conduct curiosity-driven research, irrespective of location;
- breakthrough and leading-edge research enabled by advanced research infrastructure services made available to a wider user community;
- improved and harmonized RI services and broader use of RI resources across Europe deriving from the exploitation of synergies and complementarities;
- a new generation of researchers trained to optimally exploit all the essential tools for their research;
- cross-disciplinary fertilizations and a wider sharing of information, knowledge and technologies across scientific fields fostered by closer interactions between researchers active in and around research infrastructures;
- better management, including implementing FAIR data principle, of the continuous flow of data collected or produced by research infrastructures.

**Award criteria:**

For the 'Excellence' criterion, in addition to its standard sub-criteria, the following aspects will also be taken into account:

- The extent to which the access activities (trans-national and/or virtual access) will offer access to the state-of-the-art infrastructures of European interest in the field, high quality services, and will enable users to conduct excellent research

- The extent to which the project will contribute to facilitating and integrating the access procedures, to improve the services the infrastructures provide and to further develop their on-line services

# Specific features for Research Infrastructures

## Trans-national access activities (TNA)

- Trans-national access to infrastructure services offered under the grant is provided 'free of charge' to selected researchers or research teams (user-groups) including from industry.
- Access activities should be implemented in a coordinated way so as to improve the overall service provision to the research community. → *(Virtual) Institute*
- Access may be made available to external users, either in person ('hands-on'), when the user visits the infrastructure to make use of it, or through the provision to the user of remote scientific services (e.g. the remote access to a high-performance computing facilities)
- **Research infrastructures must open specific calls to invite researchers to apply for access. A unit of access to each infrastructure service/installation needs to be identified and precisely defined in the proposal.** → *Call organized by the (Virtual) Institute with consent from RI*
- The selection of researchers or research teams must be carried out through an independent peer- review evaluation of the research project. The research team, or its majority, must work in countries other than the country(ies) where the infrastructure is located except when access is provided by an International organisation, the Joint Research Centre (JRC), an ERIC or similar legal entities with international membership.
- The EU financial support to trans-national access will cover the access costs incurred by the access provider in providing access to the selected researchers, as well as the travel and subsistence costs incurred in supporting visits to the infrastructure of these researchers.

# Specific features for Research Infrastructures

## Virtual access activities

- Virtual access to research infrastructure is provided through communication networks to users complying with the RI's access policy, without selecting them. Examples of virtual access activities are provision of access to databases available via Internet, or data deposition services. → *(Virtual) Institute can host databases, platforms, libraries of algorithms and tools*
- The research infrastructures must publicise widely the access offered under the grant agreement to ensure that researchers who might wish to have access to the infrastructures are made aware of the possibilities open to them → *Support from APPEC & Astronet, etc.*
- The EU financial support to virtual access will cover the access costs incurred by the infrastructure in providing access under the project, including the technological and scientific support researchers need to effectively use the services.
- **A unit of access to each research infrastructure service must be identified and precisely defined in the proposal. The provision of virtual access during the project lifetime will be measured through the units of access defined in the grant agreement and must be periodically assessed by an external board.** Eligibility criteria (e.g. affiliation to a research or academic institution) for users can be defined in the proposal, to take into account the access policies of the different RIs. → *Delicate point in particular for new messengers. Should be worked out by RI*

# Work package description

*The title of work packages focusing on access provision must be preceded by the indication of the type of access activity (TA for transnational access, VA for virtual access, TA/VA for both) and the number of work package for that activity; TA1, TA2, …., VA1, VA2,.*

**Objectives:** *For work packages focusing on trans-national and/or virtual access provision, the information to be provided here must be structured as follows:*

**Provision of access to the following infrastructure(s):**

**Description of the infrastructure:**

Name of the infrastructure (and its installations, if applicable):

Location (town, country) of the infrastructure*: If the infrastructure comprises more than one installation (i.e. parts of the infrastructure that can be used independently and for which the operating costs can be singled out) at different locations, indicate briefly the location of each installation and give a justification for considering them as a single infrastructure.*

Web site address:

Annual operating costs (excl. investment costs) of the infrastructure (€):

Description of the infrastructure: *Give a brief general description of the infrastructure to which access is offered. Illustrate, in particular, its state-of-the-art equipment and services offered to users that make it rare or unique in Europe. Outline the areas of research normally supported by the infrastructure, as well as new areas opening to users, if any. If the infrastructure is composed of several installations, describe these including their specific features. If parts of the infrastructure are still under construction, specify the starting date of construction and indicate the date when access can realistically be made available.*

Services currently offered by the infrastructure:

*Describe the services offered by the infrastructure and its research environment, and demonstrate how they will enable scientists to carry out high-quality research, giving examples of relevant scientific achievements it enabled. Demonstrate that there is a widespread interest from users in other countries to conduct research at the infrastructure (or make otherwise use of its services), e.g. by indicating the number of international users currently using the facility per year.*

# Work package description

**Description of work:** *(where appropriate, broken down into tasks), lead partner and role of participants For work packages focusing on trans-national and/or virtual access provision, the information to be provided here must be structured as follows. In case some of the following elements are common for all the infrastructures in the grant (e.g. a unique entry point for requesting and/or providing access, or, for transnational access, a single Selection/Review Panel) the description needs to be given only once under the work package responsible for the coordination of the access provision. Before drafting the text please read carefully the provisions under the section 'Specific features for Research Infrastructures' at the end of the Research Infrastructures work programme part.*

Modality of access under this proposal: *Outline how a user, or user group, will be given access to the infrastructure or to its services (e.g.* ***trans-national/virtual****, type of equipment/service used, expected output/deliverables, etc.). For trans-national access indicate the typical execution and duration of work (if access is provided 'in person', thus not remotely, indicated the estimated number of days spent at the infrastructure), and, where relevant, how the users will be integrated into the scheduling of the infrastructure and the degree of independence they will experience with respect to the normal research activity of the infrastructure. Define clearly, for each installation, the* ***unit of access*** *used to measure the access offered and indicate what is covered and included (e.g. preparatory work, specific training courses) in one unit. This is essential for monitoring the access provided under this project, but also to justify the corresponding costs. Indicate for each installation which modality will be used to declare access costs (on the basis of unit cost, as actual cost, or as a combination of the two) and justify your choice. For virtual access, define clearly, for each installation, the unit of access used to measure the access offered and indicate what is covered and included in one unit. This is essential for monitoring the access provided under the project, but also to justify the corresponding costs. Indicate for each installation which modality will be used to declare access costs (on the basis of* ***unit cost****, as* ***actual cost****, or as a* ***combination*** *of the two) and justify your choice.*

# Work package description

Support offered under this proposal: *Describe the scientific, technical and, for trans-national access, logistic support that would be offered to the users. Where relevant, emphasise the quality of the scientific environment in which the users will be working and explain how this might stimulate their research. Explain to what extent such support is already routinely provided to external users.*

Outreach to new users: *State what measures are taken to attract new potential users (e.g. web page, call for proposals, etc.), including specific user groups such as users coming from SMEs or representing new areas of research, if appropriate. Indicate why and to which extent the EU funding of this trans-national and/or virtual access activity will provide European research teams with new opportunities of access to the infrastructure. Indicate whether the number of trans-national and/or virtual users is expected to increase as a result of this proposal, and how you will monitor such an increase. If trans-national access to the infrastructure is being opened to users other than those from the host country of the infrastructure for the first time, what evidence is there that there will be sufficient demand for the access offered under this proposal?*

Review procedure under this proposal: *For trans-national access activities, describe the peer review procedure that will be used to select users under this proposal. Outline the composition of the User Selection Panel. Demonstrate that the selection of users will follow the principles of transparency, fairness and impartiality. As the selection will be based on the evaluation of scientific merit of the applications, but with priority to new users and users coming from countries where such infrastructure is not available, indicate any additional selection rule that you would like to add. For virtual access activities, describe how and when the periodical assessment of the services offered to the scientific community will be carried out (e.g. by an international review panel). The corresponding assessment reports must be defined as deliverables to the EC.*

# Work package description

*This is the template for last year's programme, but no major change is expected



**Table 3.1k: Summary of trans-national/virtual access provision**

| Access provider short name[5] | Short name of infrastructure | Installation | | Installation Country code[6] | Type of access[7] | Unit of access | Estimated quantity of access to be provided | Unit cost (UC) (€)[8] | Access costs[9] | | Estimated number of users | Estimated number of applications* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nr[10] | Short name | | | | | | On the basis of UC | As actual costs | | |
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** *Column to be mandatorily filled in for trans-national access only. Not to be filled in for virtual access.*

# Astrophysics Centre with Multimessengers in Europe (ACME)

**The objective**

The **Astrophysics Centre with Multimessengers in Europe (ACME)** will set up and implement a European level coordinated structure, providing transnational access – on site and virtual – to the services of the best Astroparticle and Astronomy infrastructures operating in the multi-messenger domain (space and ground-based observatories, data analysis platforms, software, computing centers), facilitating science collaborations and networking, exchanges of best practices, technology improvement, training of new generations of scientists and better management of large volumes of data and alert systems.

# Astrophysics Centre with Multimessengers in Europe (ACME)

## Proposal

**Calls for Researchers**
~40% of the budget

**Activities of the Institute**
~30% Budget
To be translated into WPs (see next)

**Observatories & Detectors**
*To define a « unit of access »,
*To check MoUs for open data

**Alert improvement**
*20% budget, short term R&D

**Calls to invite researchers to apply for access, funded by the INFRA-2023-SERV**

**Observation Programmes**
(Obser. Time +Low threshod, specific filter, etc)

**Data analysis platforms**
(Need MoUs with RI ?)

**Interpretation**
(Publication policy ?

**Training**

**AI & Machine learning**

**Networking**

**Citizen Science**

**Gravitational waves**
Virgo
LIGO
KAGRA…
**Neutrinos**
ANTARES
KM3NeT
ICeCube
…
**X-rays/γ-rays**
CTA
…
**Cosmic rays**
**IR/Optical/UV**
**Radio Antennas**

**Low-latency**

**Data standardization**

# Astrophysics Centre with Multimessengers in Europe (ACME)

## Work Packages ?

**WP1**
**Management team**

- Coordinates the Institute collaboration
- Manages the calls for TNA/VA
- Manages the HE project

**WP2 – TA1**

RIs that offer on-site access

**WP3 – VA1**

RIs that offer virtual access

**WP4**
**Alert improvement R&D**

- Latency improvement
- Data standardisation

**WP4**
**Data management**

Open Data & Data management
Dissemination & Communication
Citizen Science
Environmental Impact

**WP5**
**Training and Networking**

Training for scientists
Organization of visits and workshops

# Next steps

- A shared work document has been created, please add your ideas, comments, information, etc. It will serve as a basis for the part B (technical) document of the proposal

- A Multi-messenger workshop will be held on 10-12 October in Pisa, organized by Stavros Katsanevas, with one day dedicated to the discussion and refinement of the Work Packages (indico page soon)

Link to the 1st workshop: https://indico.in2p3.fr/event/25290

- Next Zoom meeting:

 - objectives: *to be defined*

 - date: a doodle will be sent