

ARGOS

Conceptual Design Study

Designing a Next-Generation Radio Facility for Multi-Messenger Astronomy

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Disclaimer

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Applicable documents

In the event of conflict between the contents of the following documents and this document, the following documents shall take precedence.

1. ARGOS-CDS Grant Agreement (no 101094354): ARGOS_Grant_Agreement_101094354_v1.pdf
2. Consortium Agreement (being drafted): ARGOS_Consortium_Agreement_V0.1.pdf

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Abbreviations and Acronyms

Acronym	Description

Executive Summary

This document, Dissemination and Communication Plan, prepared within the Dissemination, Exploitation and Communication Work Package (WP9) and provides the guidelines regarding the appropriate actions necessary to maximize the project's scientific, interdisciplinary, and societal impact.

This deliverable is designated as “public” regarding the dissemination level and includes all the information needed to facilitate the dissemination and communication efforts of the ARGOS – CDS partners.

1. Introduction to the ARGOS – CDS project

ARGOS – CDS is a three-year project funded by the European Commission and its overarching objective is to prepare fully for the subsequent rapid implementation of a leading-edge astronomical instrument in Europe and ensure its optimal integration into the network of existing and future international astronomical facilities.

Astronomy is being transformed by surveys performed with instruments capable of searching the sky multi-messenger signals with high speed and sensitivity, while delivering science-ready datasets to the community. While radio astronomy is not yet fully participating in this revolution, it is clear that an instrument following the same philosophy, that would finally open up the dynamic radio sky for exploration, is not only urgent but inevitable.

ARGOS is a concept for a leading-edge, low-cost, sustainable European astronomical facility that will finally realize this ambition, directly addressing multiple fundamental scientific questions, from the nature of dark matter and dark energy to the origin of fast radio bursts and the properties of extreme gravity. ARGOS will enable, for the first time, continuous wide-field monitoring of the sky at centimetre wavelengths, while publicly distributing science-ready data and alerts in real time.

To make the strategic scientific need for such a facility clear and accessible to funding and policy bodies, a detailed design study is necessary. This should include technical studies, community groundwork and prototyping, as well as quantitative cost-to-benefit analysis, well-calibrated project budget, and assessments of scientific and socioeconomic impact, sustainability, technological readiness and innovation needs. The ARGOS-CDS vision is to deliver a conceptual design study to fully prepare the subsequent rapid implementation of a leading-edge public radio facility on European grounds and ensure its optimal integration into the network of existing and future international astronomical facilities. ARGOS-CDS will achieve this by directly addressing the aforementioned challenges via an integrated system- engineering approach. The project will also produce cutting-edge science, big-data and artificial intelligence technologies with significant scientific impact and lasting spill-over societal benefits.

ARGOS – CDS specific objectives:

- Identify and optimize specific Science Use Cases (SUCs) for ARGOS and quantify the corresponding system-wide design requirements to meet these objectives. This will be achieved with input from the ARGOS stakeholders who will be involved in the design and definition processes. Stakeholders include the scientific community, funding, and policy-making bodies (at the regional, national, EU and international levels), as well as the public (industry, students, public).
- Produce a comprehensive Technical Design for ARGOS. ARGOS-CDS will produce detailed plans for all ARGOS subsystems (frontend, backend and software) and their interfacing, as well as sustainability plans for the facility and the required supporting infrastructure. This will include cost estimates for construction, operation and maintenance, as well as comprehensive risk assessments. The fully costed design, sustainability and roll-out plan reports will advance the project from the conceptual level (TRL2) to the Verification and Prototyping Stage.
- Characterize the suitability and sustainability of candidate deployment sites. To achieve the objective of characterizing the environment at the main candidate deployment site (Crete, Greece), the prototyping site (Skinakas Observatory, Crete) and alternative sites in Europe our team will

continue its Radio Frequency Interference (RFI) and weather monitoring activities. These reports will be complemented by detailed blueprints, environmental and safety studies that will feed into the design study.

- Assemble an ARGOS prototype for verification, validation and technology pathfinding
Within the context of the design process, we will construct ARGOS-pathfinder, a scaled-down prototype of the instrument that will be assembled at the last phase of the project. The main objective of the prototype will be to validate the System Design in a real-world setting and bring all sub-system designs to full maturity (TRL2à7). Beyond its main purpose, ARGOS-pathfinder will also serve as a unique testbed for new technologies and solutions, such optimized and sustainable digital signal processing software and AI-based image reconstruction algorithms, while also producing leading-edge science. These products and science results will be made publicly available and exploited to advance the interoperability of international astronomical facilities.
- Enhance the R&I potential of the EU southern periphery in this highly competitive research area and create capacity for lasting scientific and socioeconomic impact beyond the immediate field of Astronomy. Lastly, ARGOS-CDS will significantly enhance the R&I potential of Europe and Greece, in Astronomy and beyond. This will be achieved via multiple ways, for instance a) the training of PhD students, scientists and engineers in a highly multidisciplinary and rapidly evolving research area, b) close collaboration with national, European and international consortia and R&I actions (Section 1.2.3) c) participation in European experiments, such as the EPTA, d) the publication for forefront research, and e) the direct involvement of societal stakeholders (students, public, industry) in the design of the instrument and its services, and their training on the use of its products.

2. Stakeholders' role

2.1 Dissemination and communication levels

An overarching goal of dissemination and communication activities of ARGOS-CDS is to maximize the impact of the project by creating visibility to, and regular interaction with the below ARGOS target groups:

TG1: scientific community

TG2: funding organizations

TG3: political and decision-making bodies

TG4: society, industry, students, public

2.2 Dissemination and communication of consortium member

The consortium comprises four partners:

1. Foundation for Research and Technology – Hellas (**FORTH**)
>Institute of Astrophysics (FORTH-IA)

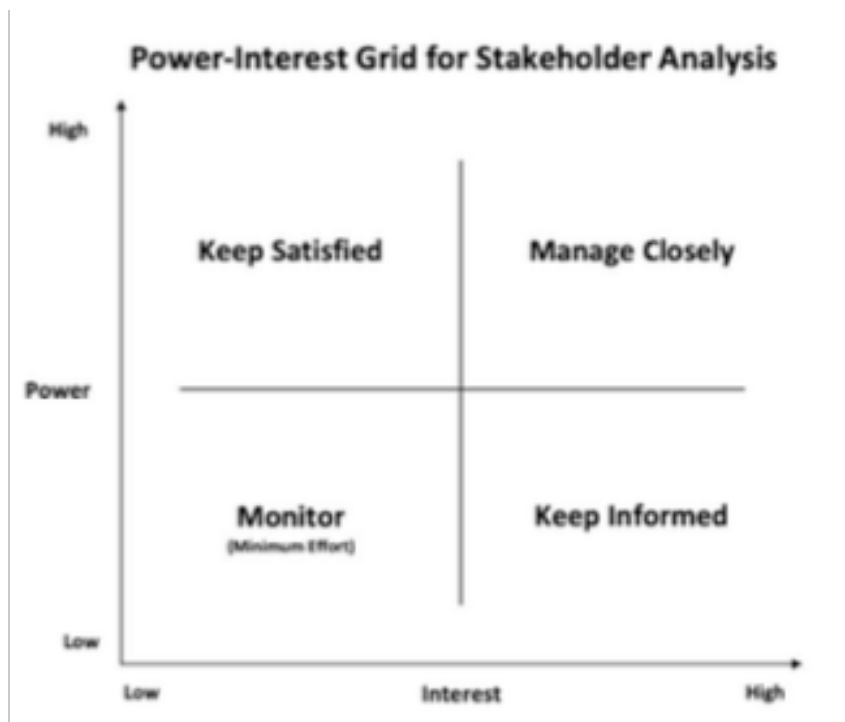
- > Institute of Computer Science (FORTH-ICS)
- 2. Max Planck Gesellschaft zur Förderung der Wissenschaften (MPG)
- 3. Commissariat à l'énergie atomique et aux énergies alternatives (CEA)
- 4. University of Piraeus Research Center (UPRC)

The partners must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests and in accordance with the dissemination and publication instructions on paragraph 5.1.

2.3 Dissemination of results and communication with external stakeholders

Stakeholders are defined as parties that can affect, or be affected by the project, positively or negatively. Examples include the scientific community, local authorities, members of the partner institutes, etc.

The project's external stakeholders will be placed on a power-interest grid, as shown in **Figure X**. This grid shall form the basis for effective communication with the project's external stakeholders and will be maintained and revised regularly.



3. Visual identity of the project

3.1 Acknowledgment of EU funding

3.1.1 Communication and dissemination materials – visibility

All communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies

or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate):

“This project has received funding from the European Union’s Horizon Europe research and innovation programme under grant agreement *No 101094354*. The content of this material reflects the opinion of its authors and does not in any way represent the opinions of the European Union”



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The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text.

Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.

When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

3.1.2. Quality of information — Disclaimer

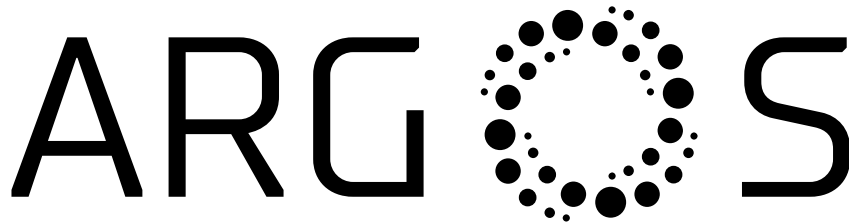
Any communication or dissemination activity related to the action must use factually accurate information.

Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

“Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them.”

3.2 ARGOS project logo

ARGOS logo should be used to internal and external documents, deliverables, dissemination materials, website and presentations.



3.3 Repository of documents

A Cloud Storage Service (<https://argos-cloud.ia.forth.gr>) has been created and all documents are stored in this. Access is possible only for approved users.

Moreover, the consortium has created a public github repository (<https://github.com/orgs/ARGOS-telescope/>) in order to facilitate the sharing of public software products and to increase the engagement of the community.

3.4 Templates

Standardized deliverables must be submitted using the templates published on the Cloud and uniform presentation templates should be used in order to increase visibility at conferences. Dedicated templates have been drafted and all project members can access to them via the argos-cloud (<https://argoscloud.ia.forth.gr/index.php/apps/files/?dir=/ARGOS/Templates&fileid=513>). These templates can be also seen in:

- Annex A. ARGOS presentation template
- Annex B. ARGOS-CDS document template
- Annex C. Meeting notes

4. Dissemination and communication strategy

4.1 Dissemination and communication materials

4.1.1 Website

The project's website is an explicit deliverable (D9.1) and communication tool for the ARGOS – CDS project available at <https://argos-telescope.eu/>. ARGOS – CDS website will provide information on the project and its progress interfaces to the project's public repositories and publications, subscription services to newsletters and links to the project's Social Media accounts and will be updated regularly.

The ARGOS – CDS website includes the following **content**:

- Project homepage
- Consortium – with two subsections: a. Team and b. Internal
- Dissemination
- Events
- News
- Get involved – with three subsections: a. Contact, b. Participate and c. Open Positions

4.1.2 Social media

Social media will be used for both dissemination and communication reasons as they contribute to establishing public engagement with the project and they provide information on project progress and results.

ARGOS - CDS project has continued presence on Twitter, Facebook ([link](#)) and LinkedIn and links of these accounts will be provided in the project's website.

4.1.3 Press releases

ARGOS – CDS press releases will be used for communication actions. Press releases will record all significant events and group's continuous presence in international conferences and workshops. A foremost aim of this is to inform stakeholders, namely scientific community, funding organizations and political authorities for the aforementioned actions.

4.1.4 Newsletters

The consortium, under the coordination of the WP leaders will issue regular newsletters with updates on the project. Subscription services to newsletters will be provided on ARGOS – CDS website. Three newsletters per year should be published according to project's grant agreement.

4.1.5 Public deliverables and reports

All public deliverables and reports will be available on ARGOS – CDS website under **XXX** section

4.1.6 Supporting communication/information materials

Brochures, leaflets, posters, banners and other visibility materials will be used to present the project during conferences and workshops. European flag (emblem), funding statement and ARGOS – CDS logo should be displayed.

4.1 Project workshops and other actions

4.2.1 Stakeholders' workshop

Stakeholder's workshop is a dissemination action and an explicit milestone.

Stakeholder's include the scientific community, funding, and policy-making bodies (at the regional, national, EU and international levels), as well as the public (industry, students, public).

Within the first year, a Stakeholder's workshop will be organized, during which the consortium will discuss their findings with the stakeholders. The meeting will be the first crucial step in optimizing the ARGOS deliverables, namely its science data products and services (e.g., alerts), operating schemes, technology products and prototyping science (VSMs). Stakeholders will establish a series of formal SUCs and associated system requirements. More specifically, a prioritized list of SUCs will be compiled, together with "threshold", "goal" and "nice-to-have" technical and science requirements, for each SUC. Another important aim for the workshop will be to compile a list of supporting scientists and stakeholders and establish communication channels with governing and funding organizations.

On month 18, one more Stakeholder's workshop will take place. During this workshop, two-way interactions with authorities and policy-making bodies at the local, regional and international level will be organized.

4.2.2 Publications in scientific journals and international conferences and workshops

Members of the project will disseminate the progress and the results of the project through publications in scientific journals and participation to conferences and workshops.

Members of the project is estimated to publish more than 30 papers and they will have a continuous presence in international conferences and workshops. Namely each one is invited to 2-4 major meeting per year and members is estimated to have more than 10 ARGOS related presentations in key conferences. These include the European and International Astronomical Society Meetings, the EPTA and IPTA meetings, and national astronomical society conferences.

4.2.3 Community webinars

Under communication actions, public engagement will be promoted via open ARGOS webinars. Speakers of these webinars will be both consortium members and external members of scientific community. The goal of this action is to increase community involvement in the project.

4.2.4 Public tours, lectures and demonstrations

Following the construction of the prototype, we will utilize the utilize the Visitor Centre at the Skinakas Observatory, currently under construction by FORTH and the Municipality of Anogia in Crete. We will also partner with educational and R&I actions such as the “Discovery Space” implemented at FORTH-IA, which aims to create an innovative network for teaching astronomy to K-12 students via remote access to the Skinakas Facilities.

5. Publication of results

5.1 Dissemination and publication clearance

During the course of the project, the team members will disseminate information about the project through:

- Presentations at public events.
- Posters at public events.
- Submission of articles for publication in professional and other journals.
- And by other means.

There is a duty within the team to ensure that information is not disclosed that may be used to prepare patent applications. If this type of information inadvertently becomes public, then any subsequent patent applications relying on this information would be invalid. Any information prepared for public dissemination must be made available for review by the PC and WP co-leaders in advance of its submission for publication, i.e., in good time to review it and make comments and changes if necessary.

The team member wishing to publish, present or disclose information about the project must follow the following procedure. In the event that the dissemination activity consists of a publication not intended for a conference (e.g., a journal paper):

- The member wishing to publish shall forward an abstract to the project’s PMT and WP co-leaders.
- As a general rule, the time-limit for prior notice of any such dissemination activity to be given to the PMT and WP co-leaders shall be 3 weeks.

- Following receipt of the aforementioned notification, the PMT may object to such dissemination activity within 15 days from the date of notification's reception (or/and in the event of a publication, from the date of receipt of prior notice in the form of a copy of the publication abstract).
- Should the PMT fails to reply within the said period, it shall be deemed that the PMT does not object to the relevant publication.

In the event that the dissemination activity consists of publications intended for congresses:

- The team member wishing to publish shall forward an abstract or draft presentation to the PMT and WP co-leaders.
- The time-limit for prior notice of any communication (e.g. a poster or presentation) concerning a congress shall be 15 days. The member wishing to publish shall provide enough information about the planned communication.
- A period of 7 calendar days shall apply for any objections.
- Should the PMT fails to reply within the said period, it shall be deemed that the PMT does not object to the relevant publication.
- An objection is justified if:
 - The protection of the objecting Party's Foreground or Background is adversely affected; or
 - The proposed contribution includes the Foreground, Background or Confidential information of the objecting Party.

The objection has to include a precise request for necessary modifications. If an objection has been raised, the involved members shall discuss how to overcome the justified grounds for the objection on a timely basis (for example, by amendment to the planned publication and/or by protecting information before publication).

It is noted that all publications MUST acknowledge the funding from the EC in suitable form of words is "This work was funded from the EC under grant agreement No. 101094354 (ARGOS-CDS project)."

5.2 Open Science

5.2.1 Open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

5.2.2 Research data management

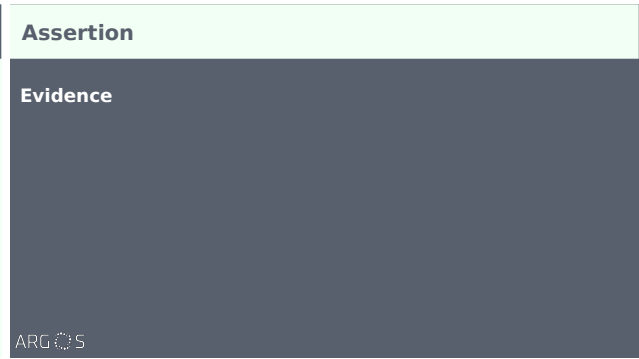
The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- establish a data management plan ('DMP') (and regularly update it)
- as soon as possible and within the deadlines set out in the DMP, deposit the data in a trusted repository; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements
- as soon as possible and within the deadlines set out in the DMP, ensure open access — via the repository — to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle 'as open as possible as closed as necessary', unless providing open access would in particular:
 - be against the beneficiary's legitimate interests, including regarding commercial exploitation, or
 - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary's obligations under this Agreement; if open access is not provided (to some or all data), this must be justified in the DMP
- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

6. Annexes

Annex A. ARGOS presentation template





Annex B. ARGOS-CDS document template

ARGOS-CDS Grant Agreement no: 101094354 ARGOS

ARGOS
Conceptual Design Study
 Designing a Next-Generation Radio Facility for Multi-Messenger Astronomy

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Partner	Reviewer	Version Reviewed

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Partner	Name	Signature

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Annex C. Meeting notes

28/02/2023, 09:49 Meeting notes - ARGOS Cloud

Meeting Notes 20/02/2023

20 February 2023, via Nextcloud Talk

Attendees

Tasks

- []
- []

Agenda

Recap from last meeting

<https://argos-cloud.io/nextcloud.php/apps/notes/index.php?view=7&view=ARGOS/Template&specific=122> 1/1