Reinforcing the AI4EU Platform by Advancing Earth Observation Intelligence, Innovation and Adoption

D6.3: Summary of AI4Copernicus small-scale experiments

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Executive Summary

In this deliverable we present the activities carried out in the context of the *3rd Round of Open Calls* procedures and progress for small-scale experiments across all sectorial domains, as-well-as the activities carried out in the context of the *5rh Round of Open Calls* procedures and progress for Micro-Projects for testing the AI4Copernicus services.

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List of Terms & Abbreviations

Abbreviation	Definition
AB	Advisory Board
AI	Artificial Intelligence
AIoD	AI-on-Demand platform
DIAS	Data and Information Access Services
EO	Earth Observation
MB	Management Board
SME	Small & Medium Enterprise
SO	Support Officer
WP	Work Package

1 Introduction

1.1 Purpose and Scope

In this deliverable, we present a comprehensive report on the outcomes and progress of the *3rd and 5th Rounds of Open Calls* within the AI4Copernicus project; the former for small-scale experiments across all sectorial domains, and the latter for micro-projects for testing the AI4Copernicus services. Unlike the other Open Calls mentioned in D6.2 and D6.4, these rounds specifically targeted single-partner companies.

1.2 Approach for Work Package and Relation to other Work Packages and Deliverables

WP6 focuses on technology transfer via the AI4Copernicus Open Calls. In order for this to be achieved, the objectives of this task pertain to the (a) design, (b) implementation and (c) evaluation of the AI4Copernicus Open Calls for Projects (use-cases and small-scale experiments) and Open Calls for citizen-driven theme/social cause selection.

The AI4Copernicus Open Calls programme aims to bring together diverse communities, namely the Artificial Intelligence (AI), and AI-on-demand platform, tools and services, with the Earth Observation Communities and Earth Observation (EO) data, as well as DIAS (Data and Information Access Services) tools and services, and offer the AI4Copernicus tools and services that aim to address the variegating market-driven challenges in diverse industrial domains and citizen-driven social challenges (via the AI4Copernicus Open Calls).

The AI4Copernicus Open Calls are organised in five distinct rounds, targeting SMEs and Individuals. In particular, these Open Call Rounds are:

- 1st Round of Open Calls for Use-Cases: consortia projects with a low-technology SME by default in 4 Industrial Domains: Energy, Security, Health, Agriculture
- 2nd Round of Open Calls for Citizen Social Challenges
- 3rd Round of Open Calls for Experiments: single company projects
- 4th Round of Open Calls for Use-Cases: consortia projects with a low-technology SME by default based on the identified Citizen Social Challenges (of the 2nd Round)
- 5th Round of Open Calls for Micro-Projects for testing the AI4Copernicus services: single company projects

The work plan of WP6 reflects the organisation of the Open Calls and includes the following tasks:

- Task 6.1: Open Calls Operational Planning and Management, running throughout the project's duration (M1-M36) and led by NCSR-D with CF contributing.
- Task 6.2: Open Calls for use-cases in the high-value domains: Energy, Security, Agriculture, Health, running from M7-M36 and led by NCSR-D, with UNITN, ECMWF, SatCen, UoA, INSEAD, and EQUINOR contributing.
- Task 6.3: Open Calls for small-scale experiments across all sectorial domains, running from M4 to M36 and led by NCSR-D, with ECMWF, UoA, INSEAD, UNITN, SatCen, and Equinor contributing.

- Task 6.4: Open Calls for citizen-driven themes and use-cases, also active from M4 to M36 and led by NCSR-D, with the contributions of SatCen, UoA, INSEAD, UNITN, EQUINOR and ECMWF.

The present D6.3 deliverable provides a report on the Open Calls procedures and progress for single company projects. In particular, it provides a report on the progress of the 3rd and 5th Rounds of Open Calls according to the methodology provided by Deliverable D6.1.

Since the activities of WP6 are the central focus of the AI4Copernicus project, the tasks of WP6 are related to most WPs of the project, and in particular:

- WP2: "User requirements and acceptance" in which WP6 provides ongoing input from the Open Calls and feedback from the Project Winners in relation to AI4Copernicus services (in addition to other feedback);
- WP3: "Technical positioning and architecture", WP4: "Implementation, customisation, integration, and testing" and WP5: "Bootstrapping AI4Copernicus with high-impact services" which provide a series of technical, bootstrapping, and cloud services to the Open Call Projects for helping the implementation of their solutions;
- WP7: "Exploitation, Communication and Dissemination", which are involved in the active promotion, communication, and dissemination of the Open Calls and the organisation of relevant events across the lifecycle of the project. In addition, WP7 provides assistance for the exploitation and sustainability of the Open Calls results and the knowledge transfer from the Open Calls.

1.3 Organisation of the Deliverable

In Section 2, we provide an overview of the activities and the process of the 3rd Round of Open Calls, namely the activities for the Open Call phase, the selection phase, and the support phase of the projects (the activities conducted in the sustainability phase will be reported in D6.5). In Section 3, we provide an overview of the activities and the process of the 5th Round of Open Calls, namely the activities for the Open Call phase, the selection phase, and the testing phase of the projects. Section 4 discusses the results of the aforementioned Open Calls by providing a presentation of the winning projects, usage of the AI4Copernicus services and resources by the projects, and the assets provided in the AIoD catalogue. Finally, in Section 5 we conclude.

2 Overview of the Process of the AI4Copernicus 3rd Open Call

2.1 Introduction

The operation and management of the *Open Calls for small-scale experiments* across all sectorial domains utilised the methodology reported in Deliverable D6.1. The 3rd Open Call for experiments involved the following distinct phases:

- Phase 1: Open Call Phase (February 2022 - April 2022)
- Phase 2: Selection Phase (May 2022 - June 2022)
- GRANT AGREEMENT (July 2022 - August 2022)
- Phase 3: Support Phase (September 2022 - October 2023)
- Phase 4: Sustain Phase (November 2023 - December 2023)

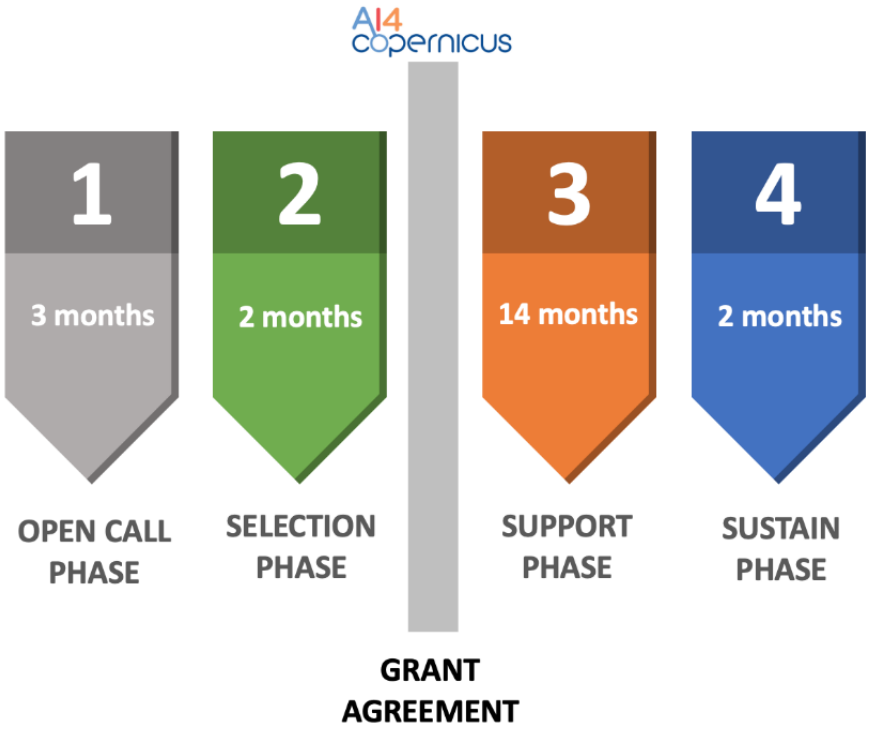

Figure 1: AI4Copernicus 3rd Open Call Phases

For carrying out the Open Call, NCSR-D utilised the following three platforms:

- *The AI4Copernicus website* http://ai4copernicus-project.eu which is used for making available to the applicants all the required material (announcements, news, information, and several template documents) that were required for writing their proposals. The official project website is the most important online tool of communication, as it allows the partnership to structure information as required to connect with the ecosystem that it will be reaching out to.

- *The AI4Copernicus Open Calls Platform* http://calls.ai4copernicus-project.eu which has been developed by NCSR-D (and presented in D6.1) and is used by the applicants to submit their proposals and by the AI4Copernicus consortium for the management of the Open Calls. The

platform provides the applicants with a set of tools to submit all the basic information about their proposal, include and manage their associate partners in their submission, tools to review and manage their proposal's budget with respect to the rules of the calls and manage their application's supplemental files. Compared to the other Open Calls, updates were carried out following respective meetings between the teams of Open Calls, Communications and Technical Support. The platform was duly updated including edits and improvements on available wording, submission fields, templates, information for applicants, etc.

- *The NCSR-D NextCloud file server* http://nextcloud.iit.demokritos.gr which is used for file storage, document sharing and as a repository between the AI4Copernicus consortium, the Open Call Projects and the External Advisory Board. It facilitates the implementation of the projects and communication with the Support Officers on a secure sharing platform, including summarised and project-specific monitoring materials and an overview of monthly updates per project.

2.2 Phase 1: Open Call Phase

This phase involves the announcement of the 3rd Round of the AI4Copernicus Open Calls for experiments. In this phase, the design of the Open Calls' structure, application material and dissemination material (in collaboration with WP7) needed was created. In particular, during the 3rd Open Call all the relevant templates, annexes and guidelines for applicants were prepared with a user-centric approach. Dedicated web pages on the AI4Copernicus website were prepared, including a specific Communications Toolkit, in collaboration with WP7. During this phase, all relevant AI4Copernicus Open Call Annexes were provided for interested participants to prepare their proposals. The Open Call was announced to the community on February 1st, 2022 and the deadline was set to April 30th, 2022.

More activities in this phase included the *launch of the AI4Copernicus Open Calls Platform* so that all interested applicants could submit their proposals, and the provisioning of *support to the applicants:* the Open Calls and the Communications teams provided support to applicants by answering questions by e-mail and maintaining an online page with Frequently Asked Questions. Finally, several dissemination and communication activities were carried out by the Communications team and were reported in Deliverable D7.4.

An overview of the 3rd Open Call applications is as follows:

- 51 submissions
- 49 SMEs
- 16 countries
- 20 proposals focusing on the Agriculture domain
- 8 proposals focusing on the Energy domain
- 5 proposals focusing on the Environment domain
- 6 proposals focusing on the Health domain
- 3 proposals focusing on the Maritime domain
- 4 proposals focusing on the Security domain

- 5 proposals focusing on other domains

2.3 Phase 2: Selection Phase

This phase involved the implementation of the selection evaluation process with the beneficiaries (single company projects). The evaluation process for the 3rd Round of Open Calls**,** as described in detail under Deliverable D6.1, involved four distinct types of screening and covered a period of 2 months. In particular:

- *Screening #1:* Eligibility Screening
- *Screening #2*: Proposal Evaluation & Ethics Screening (2 individual evaluators)
- *Screening #3*: Evaluation & Consensus Panels (2 evaluators and the Panel Chair)
- *Screening #4*: Expert Advisory Board Panels (Panel Chairs and Advisory Board Members)

The evaluation process covered a period of 2 months: May 2022 - June 2021.

A high-level overview of the evaluation process of the 3rd Open Call and the corresponding activities are illustrated in the figure below:

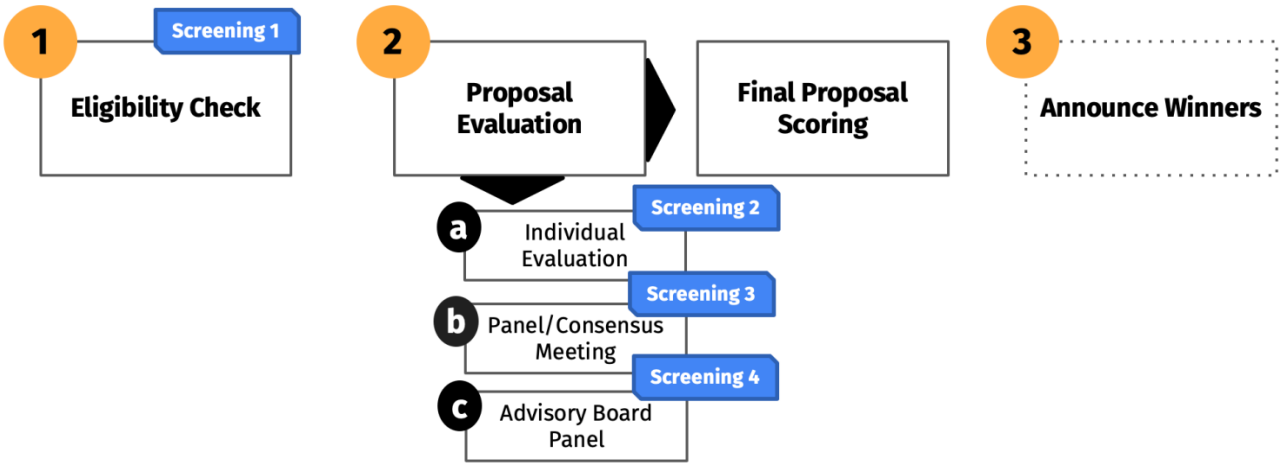

Figure 2: AI4Copernicus Evaluation Process Overview (3rd Open Call)

2.3.1 Eligibility Check (SCREENING #1)

Proposals went through an eligibility check based on the eligibility criteria that have been specified by the AI4Copernicus partners. This process was conducted during May 2022.

First, the Open Calls Team prepared a set of *Eligibility Forms* used for conducting the process, and identified a list *of evaluators*. Two (2) evaluators (from NCSR-D) were selected for conducting the eligibility check.

A set of proposals is assigned to each evaluator by the Open Calls Team, ensuring fair distribution of workload and expertise among the evaluators. Once the allocation was finalised, the evaluators gained *access to the proposals* and eligibility forms through the NextCloud platform. The reviews of the proposals were conducted on an individual basis by all the assigned evaluators, and once the reviews were completed, all evaluators submitted their respective proposal eligibility forms to the Coordinator for the final signing and approval.

2.3.2 Individual Evaluation (SCREENING #2)

Proposals were evaluated by 2 (two) AI4Copernicus evaluators with wide expertise in AI within the fields prioritised in the industrial domains targeted by AI4Copernicus. This process was conducted during May 2022.

First, the Open Calls Team prepared a set of *Individual Evaluation Forms*, used for conducting the process. All partners provided the names of the evaluators that were actively involved during the 1st Open Call review phase through a common spreadsheet.

In the next step, the Open Calls Team proceeded with the *allocation of evaluators for each proposal*, with a standard of two (2) evaluators assigned per proposal. The allocation process adhered to the guiding principles set forth by the consortium partners, ensuring a comprehensive evaluation. According to these principles, each proposal was assigned to two reviewers from different participating organisations, and additionally, an extra reviewer per industrial domain was put on hold as a contingency measure in case any issues or challenges arose during the evaluation process. Additionally, the allocation of panel chairs was carried out (see next subsection for more details).

A dedicated *Evaluators Meeting* was organised by NCSR-D for informing the evaluators about this process, and involved a presentation and discussion with all involved participants and a video recording of the workshop for all evaluators and panel chairs.

An important step in this process was the signing of the *Evaluation Service Agreements*. These documents were prepared by NCSR-D and were signed by all evaluators and panel chairs (prior to the finalisation of the individual evaluations - May 6th), so that legal compliance can be ensured. The scope of this Agreement is to set the specific obligations, regarding evaluation procedures and confidentiality in the context of the Open Calls evaluation process. This Agreement has been signed between the Project Manager and each evaluator separately.

After all these preparatory steps, the evaluators were informed about the proposal assignments across all proposals (ensuring transparency) on May 9th, 2022, initially via email and subsequently through the AI4Copernicus Open Calls Platform. A telco was also held by the NCSR-D Open Calls Team on May 10th, 2022, targeting all Individual Evaluators, where additional clarifications were provided on the overall Evaluation Process. The Individual Evaluation process was carried out offering a period of 2 weeks for each evaluator to complete their assigned proposals. The deadline for uploading the Individual Evaluation forms on the Open Calls Platform was May 23rd, 2022.

2.3.3 Panel Consensus Meeting (SCREENING #3)

AI4Copernicus Domain experts acted as Proposal Chairs in the dedicated Evaluation and Consensus Panels that were organised for each individual proposal. These panels also involve the 2 proposal Evaluators (that participated in SCREENING #2). This process was conducted during May 2022.

The allocation of panel chairs per industrial domain was carried out by NCSR-D, and involved 1 panel chair per domain at minimum. The following panel chairs have been appointed:

- Agriculture Chair #1: Manolis Koubarakis (UoA)
- Agriculture Chair #2: Costas Spyropoulos (NCSR-D)
- Agriculture Chair #3: Lorenzo Bruzzone (UNITN)

- Energy Chair: Richard Hall (EQUINOR)
- Health Chair: Vasileios Baousis (ECMWF)
- Security Chair: Michele Lazzarini (SATCEN)
- Maritime & Environment Chair: Iraklis Klampanos (NCSR-D)
- Other Domains Chair: Antonis Koukourikos (NCSR-D)

First, a series of preparatory actions were carried out. The *Panel Evaluation Forms* were prepared by NCSR-D and shared with the panel chairs and the consortium on May 12th, 2022, along with a spreadsheet including all Proposals assigned and the Individual Evaluators' details per proposal. Panel Chairs were also expected to confirm that all individual evaluators reports were properly uploaded.

After these actions, the actual *Panel Consensus meetings* were carried out as follows: Each panel chair was advised to arrange a short project-specific call with the reviewers in the respective domain. NCSR-D acted as an observer in these calls to ensure the alignment of all domains before the final meeting with the Advisory Board. Subsequently, the finalised *Panel Evaluation Forms* were filled in by their corresponding Panel Chairs and were uploaded by the different Panel Chairs on the AI4Copernicus Open Calls Platform.

2.3.4 Advisory Board Meeting (SCREENING #4)

During this final screening, the chairs of the Evaluation Panels presented the outcomes of "Screening #3" to the Expert Advisory Board. This process finalised the list of Successful Projects to be funded. Once this process was concluded, the Public Announcement of the Results was made available. This process was conducted during June 2022 (with some preliminary actions during May 2022).

Given the high number of proposals to be funded by the AI4Copernicus 3rd and 4th Rounds of Open Call (notice that the 3rd and 4th Rounds of Open Call were carried out simultaneously), it was decided for each AB Member to assess 3-4 proposals, based on the outcomes of the Screening #3. On May 25th, 2022, all AB Members were informed via email on the status of the proposals and the updated evaluation process. A follow-up communication took place on June 10th, 2022 including the proposals for each AB Member to review, including the Panel Evaluation Results of the corresponding results. The AB members provided their scores and/or comments by June 22nd, 2022.

Upon receipt, AB's feedback was integrated in the Evaluation Summary Reports while the final scores were respectively aligned. Each AB Member was subsequently informed of the final list of projects to be funded on June 24th for their final validation.

2.3.5 Selection of successful proposals

Following the receipt of the AB's feedback, NCSR-D updated the projects' Evaluation Forms in terms of scoring and comments.

- Selected Proposals (8)
- Proposals on Reserve List (6)
- Rejected Proposals (36)
- Proposals Excluded from Funding (1)

Regarding the last proposal on the above list, the same organisation submitted another proposal that received a higher score and was part of the selected proposals.

2.3.6 Informing applicants

The final step was to inform the applicants. The preparatory activities included the preparation of the notification letters, the finalisation of texts per status of proposal, and the establishment of a dedicated file folder on Nextcloud with the finalised personalised documents included in the notification process.

The *Delivery of Notification* to all participants was held on July 4th 2021 via the AI4Copernicus Open Calls Platform. For the 8 Selected Projects, the notification comprised an Introductory Notice, an attached Invitation Letter and a request or confirmation of PIC availability or the provision of guidelines in case of unavailability. For the remaining proposals, the notification comprised an Informative Notice for the Proposals on Reserve List and the Rejected Proposals. All Selected Projects received follow-up communication by the Open Calls team via email on July 6th and 7th, to ensure that the respective notifications were duly received.

2.4 Grant Agreement

The *Grant Agreement process* involves the signing of contractual arrangements with the beneficiaries (single-company projects), during the 3rd Round of Open Calls.

2.4.1 Sub-grant Agreement Preparation

The activities that comprised the preparation of the Sub-Grant Agreement text are the following: First, the Open Calls team prepared Sub-Grant Agreement templates for each project of the 3rd Open Call, based on the templates of the 1st Open Call. Then, the Open Calls team drafted guidelines on the completion of the Sub-Grant Agreement text in order to complement the main document. During May 2022, a meeting took place between the Open Calls Team, the NCSR-D Legal Officer, and the AI4Copernicus Administrative Manager in order to finalise all relevant documents.

2.4.2 Sub-grant Agreement Finalisation

All Projects selected during the 3rd Round of Open Calls received follow-up communication on July 6th and 7th including the Sub-Grant Agreement Template (together with the relevant Annexes), the respective Guidelines, and the overall timeline for the completion of the Sub-Grant Agreement process. The deadline given for the return of the completed editable documents was July 15th, 2022.

On July 12th, 2022, a Q&A online session was delivered to all Selected Projects by the Open Calls Team, the NCSR-D Legal Officer, and the AI4Copernicus Administrative Manager, where additional guidelines were provided on the completion of the sub-Grant Agreement document.

Throughout July 2022, several communications took place between the Open Calls Team and the Selected projects, including the provision of additional clarifications on project specific questions for the Sub-Grant Agreement Process, as well as the completion of the relevant Annexes.

Upon receipt of the completed editable texts by the projects, the finalisation/tailoring per project took place, including the following Annexes:

- Annex 1: Description of the Action (Proposal Template and Supplement)
- Annex 2: Estimated Budget for the Action
- Annex 3: Technical Progress Report Template
- Annex 4: Costs Report Template
- Annex 5: Bank Account Information
- Annex 7: Selected Third Parties' Declaration of Honour
- Annex 8: SME Declaration

Annex 6 was not completed by the 3rd Open Call projects, since it concerns projects involving consortia (notice that in the 3rd Open Call we have single-partner projects).

The Sub-grant Agreement texts were finalised based on received comments, adjusted accordingly, and shared with the Selected Projects for review. After necessary adjustments, the final texts of each Sub-Grant Agreement were reviewed and approved. The Sub-Grant Agreements were then shared with the respective Sub-project Leaders, who reviewed and signed them in late July. Upon receipt of the signed texts, all documents were shared with the AI4Copernicus Consortium Coordinator (NCSR-D Director and Chairman of the Board) for his signature. Fully signed documents were shared with all selected projects in early August 2022.

2.4.3 List of Selected projects

The 8 projects selected for funding from the 3rd Open Call are the following:

- ODFuse4Ship - Ocean Data Fusion for Ship Routing
- Lobelia Air - Machine Learning-powered Air quality monitoring and forecasting at your doorstep
- EO4NOWCAST - Earth Observation for Severe Weather Hazard Nowcasting
- ESFA - Empirical Seasonal Forecasts for Agriculture
- PLANET - hyPerlocal cLimate driven LANd Evaluation (intelligent) Tool
- FertiRec - Postcode based fertilizer rate recommendation system
- OPTIMAL - cOPernicus irrigaTION mAnagement tooLkit
- LIVE4ENV - Reducing the environmental impact of livestock farming and optimising resources using satellite imagery, IoT and AI

2.5 Phase 3: Support Phase

The *Support phase* covered a period of 14 months and comprises the *Initial support sub-phase*, which involves the preparation and launch of the AI4Copernicus selected projects (5 months), the *Interim assessment*, which provides an initial feedback of the AI4Copernicus projects progress (1 month), the *Final support sub-phase* (6 months), in which the implementation of the projects continues taking into account the feedback from the interim-assessment, and, finally, the final assessment (2 months), which involves the final evaluation of the output of each project. During this phase, a series of mentoring and support services is provided in the project.

This process was conducted from September 2022 to October 2023. The timeplan for the support phase is shown in the following table:

Initial Support Phase					Interim Assessment	Final Support Phase						Final Assessment	
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14
Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
2022					2023								

Table 1: 3rd Open Call Support Phase Timeplan

On August 3rd, all projects selected during the 3rd Round of Open Calls were informed on the extension of each Projects' Start Date to September 1st, 2022, while the respective End Date to December 31st, 2023.

2.5.1 Assignment of Support Officers

An assignment plan of Support Officers for the projects selected in the 3rd Open Call was prepared by NCSR-D and shared with all AI4Copernicus Project Partners, where the latter were requested to confirm by late August. The appointment of Support Officers per Selected Project was finalised in mid-September 2022 (and updated in December 2022) and can be seen in the following table:

Project	Support Officer	Organisation
ODFuse4Ship	Nikos Katzouris	NCSR-D
Lobelia Air	Richard Hall	Equinor
	Vasileios Baousis (until Nov 2022)	ECMWF
	Mohanad Albughdadi (from Dec 2022)	ECMWF
EO4NOWCAST	Giannis Mouchakis	NCSR-D
ESFA	Antonis Koukourikos	NCSR-D
PLANET	Giannis Mouchakis	NCSR-D
FertiRec	Despina-Athanasia Pantazi	UoA
OPTIMAL	Lorenzo Bruzzone	UNITN
LIVE4ENV	Nicola Conci	UNITN

Table 2: Allocation of Support Officers (3rd Open Call)

In order to ensure the effective coordination and collaboration among the Support Officers, a series of Support Officers Coordination Meetings were scheduled. The first coordination meeting took place on October 3rd, 2022 where the Support Officers were informed about their new role. Additionally, as part of the monthly calls for WP6, a monthly meeting was included to facilitate reporting of the progress of the Projects to the WP6 Lead and the rest of the consortium, as-well-as ongoing discussions, updates, and coordination among the Support Officers.

2.5.2 Other Preparatory Activities

In early September 2022, a dedicated mailing list was established for the 3rd Open Call Selected Projects, fostering direct communication between the Open Calls team and the members of the selected projects.

Subsequently, in September 2022, a secure working environment was established using the NextCloud platform. This environment aimed to support the implementation of the projects and facilitate effective communication between project teams and Support Officers. It provided a secure space where project-specific monitoring materials were shared, enabling project teams to track their progress in a summarised format. Additionally, an overview of monthly updates per project was made available, ensuring transparent and comprehensive reporting.

2.5.3 Award Ceremony & Technical Workshop

An Award Ceremony was organised on September 26th, 2022. In this public event winning proposals of the 3rd Open Call were announced thus providing the general public an opportunity to meet the winners and the funded solutions by the AI4Copernicus project in collaboration with WP7.

Furthermore, a Technical Workshop was conducted, exclusively tailored for the selected projects. This was a closed event and featured an introduction to the Support Officers to the Open Call Projects and a presentation of the AI4Copernicus services that were made available by the technical partners of the consortium (Bootstrapping Services, Cloud Resources, and Linked Data tools). The agenda of the closed event is shown as follows:

26 September 2022			
TECHNICAL WEBINAR : Moderator Manolis Koubarakis			
12:00-12:20	**Overview of bootstrapping services** ● Introduction and brief display of the services (10 min) ● Q & A (10 min)	SatCen	*Omar Barrilero*
12:20-12:40	**Overview of cluster, resources and Docker registry provided by CREODIAS, WEkEO** ● Overview (10 min) ● Demo (5 min) ● Q & A (5 min)	CloudFerro SatCen	Overview: *Marcin Ziółkowski* Demo: *Omar Barrilero*
12:40-13:00	**Overview of common services: EarthQA engine and linked data tools (UoA)**	UoA	*Dharmen Punjani* *George Stamoulis*
13:00-13:20	**Overview on how resources can be published in the AIoD platform** **Overview on how resources are integrated in AI4EU Experiments**	AI4EU representatives (NCSR-D, Fraunhofer IAIS)	*Antonis Troumpoukis* *Martin Welss*
13:20-13:30	*Next Steps*	NCSR-D	*Vangelis Karkaletsis*

Table 3: Agenda for the 1st Technical Meeting Workshop

2.5.4 Incubation Services

As a part of the supporting services of the AI4Copernicus, the following sessions were delivered to the projects selected during the 3rd Round of Open Calls:

Project-specific support Services:

- Monthly Meetings of each Support Officer with the corresponding Project Representative (or bi-weekly meetings depending on project needs), to ensure the smooth implementation of each project. In each of these meetings, held throughout the support phase of the projects (M1-M14), the Project Representative reports the progress of the project and together with the Support Officer discuss any possible Problems, Needs, or any other Issues on both the technical and the business level.

- Ad-hoc meetings with technical or business experts from the AI4Copernicus consortium partners wherever the projects required some help or guidance with their development.

Technical Workshops:

- 1st Technical Workshop: "Overview of all technologies and platforms", held on September 26th, 2022 by the Technical partners of the AI4Copernicus. The contents and the structure of the workshop was described in a previous section.

- 2nd Technical Workshop: "Cloud Infrastructure". 1-to-1 meetings for each project between the Project Representative and the Contact Point of CloudFerro. In this meeting, details about the Cloud Resources and infrastructure needed from the project are discussed, in order for CF to grant the cloud resources to the project. These meetings were organised during the initial support phase of the projects (M1-M5).

Business Sessions:

- 1st Business Session: "*Challenges and Practices of Organizations in Developing AI capabilities*" Date: February 7th, 2023. Speaker: Theos Evgeniou (INSEAD).

- 2nd Business Session: "*Business implications of the AI lifecycle*" Date: April 20th, 2023. Speaker: Theos Evgeniou (INSEAD).

- 3rd Business Session: "*AI explainability and Trust*" Date: July 17th, 2023. Speaker: Theos Evgeniou (INSEAD).

AI-Ethics Workshops:

- AI Ethics Introductory Session: "*Trustworthy and Ethical Artificial Intelligence: An overview*". Date: January 30th, 2023. Speakers: Xenia Ziouvelou (NCSR-D), Alexandros Nousias (NCSR-D).

- Ethical & Trustworthy AI self-assessment per project: all projects used the "*Ethical & Trustworthy AI assessment*" tool, created by NCSR-D during the "development phase" of the projects. Following the AI Ethics Session, the tool was filled in by each project and each

support officer separately (in order to have two opinions). The completed tools were delivered to NCSR-D by April 20th, 2023.

- Ethical AI workshops (1-on-1 workshops for each project): Dates: April-May 2023. These meetings include a discussion utilising as input the completed "*Ethical AI assessment*" tool of each project. The projects are encouraged to revise the tool after the discussion and share its updated version.

- The *AI Ethics Assessment feedback* for the 3rd Open Call projects was provided from NCSR-D to the projects via Nextcloud. The AI Ethics assessment documents provide feedback for all the assessment areas and conclude with a set of concrete recommendations that aim to help each project for the next phase based on the project-specific needs that have been identified.

Communication and Dissemination activities:

- The communication team (WP7) has created a weekly social media campaign titled "*Meet the winners*" (started October 2022) which aims to promote further the projects which resulted from the 3rd Open Call. For every project, a specific banner, a short video of the Project Representative pitching the project, a 3-question interview, and several other details (Abstract, Consortium members, Countries, types of beneficiaries), were communicated. A new section "Winning Projects" was created on the website to highlight this action.

- In coordination with the Communication team (WP7), a physical event titled: "Artificial Intelligence Ecosystem Forum 2023" was organised on Thursday 29th and Friday 30th June 2023, where the Open Call projects have the opportunity to pitch their ideas to a wide audience consisting of strategic players and leading stakeholders of the AI and EO domains.

2.5.5 Other activities

Numerous communications were held regarding availability and feedback of the AI4Copernicus services. On December 8th 2022 the Open Calls team informed the projects about the availability of the Docker registry where the Bootstrapping Resources of WP5 were made available for the projects. On March 22nd 2023, the Open Calls team shared to the projects a questionnaire for collecting feedback on the Bootstrapping Resources as requested by WP2 in the context of D2.3.

On December 13th 2022, the Open Calls team shared with the projects a questionnaire for "collecting natural language questions for discovering EO datasets" as requested by WP3 in the context of collecting user requirements for the development of the EarthQA engine.

The projects provided content to the AI-on-Demand platform in two stages. On June 1st 2023, the projects were provided with instructions on how to submit content on the AIoD CMS, and were requested to submit one organisation page for the company of the project. On July 18th 2023 the projects were requested to provide one AI asset page for each asset developed within the project, and simple answers to 3 questions, which were used by NSCR-D to draft a case study per project.

After that, all created pages (organisations, AI assets, and Case Studies) were linked by NCSR-D under the AI4Copernicus project page.

2.5.6 Interim assessment

The interim assessment of the 3rd Open Call projects was carried out during February 2023 (M6). The assessment was carried out as reported in Deliverable D6.1 (see Section 2.7 of D6.1 for the interim assessment criteria).

The assessment panels for the interim assessment phase consist of one Advisory Board (AB) member per project, along with one or more Project Representatives from each project and the project's appointed Support Officers. The format of the assessment panel for each project is approximately 1 hour long, conducted online, and scheduled to take place during mid-late February 2023. The structure of each panel session starts with a 30-minute presentation of the project (based on a predefined presentation template) by the Project Representative, followed by a 15-minute Q&A session with the AB member and the Project Representative. The remaining 15 minutes are dedicated to a discussion and feedback session exclusively between the AB member and the Support Officers, without the presence of the Project Representative. The assessment results are recorded and submitted in a predefined spreadsheet.

In preparation for the interim assessment, a series of notifications were sent out to ensure all stakeholders were informed about the upcoming assessment process. On January 18th, 2023, an email was sent to all Selected Projects and their respective Support Officers, via the mailing list, providing information about the Assessment Panels, the format of the review, the structure of the panels, and the specific time plan. In addition, on the same date, another round of notifications was sent out, this time to all appointed AB Members. The email provided them with an introduction to the project assigned to them, along with the details of their appointed Support Officer. It also reiterated the information on the Assessment Panels, the review format, the panel structure, and the overall time plan for the interim assessment.

The Open Calls Team followed up communication between respective parties till the finalisation of each Interim Review Meeting, and the Communications' Team prepared the respective meeting links (via Zoom platform). The finalised Review Meetings' plan was the following:

Project	Meeting Date	AB member	Support Officer(s)
ODFuse4Ship	Feb 22, 08:00 CET	Alain Arnaud	Nikos Katzouris
Lobelia Air	Feb 22, 12:00 CET	Mihir Sarkar	Richard Hall, Mohanad Albughdadi
EO4NOWCAST	Feb 15, 11:00 CET	Geoff Sawyer	Giannis Mouchakis
ESFA	Feb 17, 13:00 CET	Ioannis Papoutsis	Antonis Koukourikos
PLANET	Feb 20, 10:00 CET	Geoff Sawyer	Giannis Mouchakis
FertiRec	Feb 23, 09:00 CET	Pierre-Philippe Mathieu	Despina-Athanasia Pantazi
OPTIMAL	Feb 17, 14:00 CET	Ioannis Papoutsis	Lorenzo Bruzzone
LIVE4ENV	Feb 21, 10:00 CET	Ioannis Papoutsis	Nicola Conci

Table 4: 3rd Open Call Interim Assessment Meetings

Following the completion of the Review Meetings, the AB Member & SO shared the completed Assessment Forms with the Open Calls' Support Officer. 7 out of 8 projects received a score over 75% and were able to transition to the next phase. On March 1st, 2023, these projects were informed on the successful completion of the Interim Review Process and their transition to the next phase, as well as on the time-plan for the Final Assessment (M13-M14). Last, the Support Officers, who were copied in these communications, were asked to provide additional feedback to the projects on the Assessment results during their follow-up meetings.

The project that did not achieve the required score received notification on March 1st, 2023, informing them of a reevaluation by the Expert Advisory Board within three months following the interim assessment. This reassessment aimed to reach a final decision while considering all potential objective reasons for underperformance. The Support Officer(s) provided additional feedback to the projects on the results during their follow-up meetings. On June 15th, 2023, a meeting structured similarly to the interim assessment was conducted, where the project showcased substantial improvements, exceeding the required criteria and successfully progressing to the next phase.

2.5.7 Final assessment

The final assessment of the 3rd Open Call projects was carried out during October 2023 (M14). The assessment was carried out as reported in Deliverable D6.1 (see Section 2.7 of D6.1 for the final assessment criteria).

The assessment panels for the final assessment phase maintained the same structure as those of the interim assessment. The format of the assessment panel for each project remains unchanged, with sessions scheduled to take place during mid-late October 2023.

In preparation for the final assessment, a series of notifications were sent out, mirroring the procedures implemented during the interim assessment. The projects and the Advisory Board members were informed about the process on September 13th 2023. The Open Calls Team followed up communication between respective parties till the finalisation of each final assessment meeting, and the Communications' Team prepared the respective meeting links.

The finalised Review Meetings' plan was the following:

Project	Meeting Date	AB member	Support Officer(s)
ODFuse4Ship	Oct 06, 09:00 CEST	Alain Arnaud	Nikos Katzouris
Lobelia Air	Oct 17, 18:00 CEST	Mihir Sarkar	Richard Hall, Mohanad Albughdadi
EO4NOWCAST	Oct 09, 14:00 CEST	Geoff Sawyer	Giannis Mouchakis
ESFA	Oct 16, 12:00 CEST	Ioannis Papoutsis	Antonis Koukourikos
PLANET	Oct 10, 14:00 CEST	Geoff Sawyer	Giannis Mouchakis
FertiRec	Oct 09, 15:00 CEST	Pierre-Philippe Mathieu	Despina-Athanasia Pantazi
OPTIMAL	Oct 16, 10:00 CEST	Ioannis Papoutsis	Lorenzo Bruzzone
LIVE4ENV	Oct 23, 10:00 CEST	Ioannis Papoutsis	Nicola Conci

Table 5: 3rd Open Call Final Assessment Meetings

Following the completion of the Review Meetings, the AB Member & SO shared the completed Assessment Forms with the Open Calls' Support Officer, where the selected projects were all considered to be successful, and allowed the projects to transition to the next phase.

2.6 Phase 4: Sustainability Phase

This phase facilitated the sustainability of the selected projects of the 3rd Open Call. This phase started in November 2023 and concluded in December 2023. We report the actions of this phase in D6.5 as we have done in the case of the 1st Open call (please refer to Section 2.7 of D6.2 for more details). Although this phase has concluded, this approach allows us to keep the reporting concise and to maintain consistency with the reporting process. In a nutshell, activities in this phase include commercialisation and sustainability mentoring services by AI4Copernicus and the provision of the AI4Copernicus Trustmark.

3 Overview of the Process of the AI4Copernicus 5th Open Call

3.1 Introduction

The operation and management of the *Micro-Projects for testing the AI4Copernicus services across all sectorial domains* utilised mostly the methodology reported in Deliverable D6.1, with some small modifications. Thus, the 5th Open Call involved the following distinct phases:

- Phase 1: Open Call Phase (February 2023 - March 2023)
- Phase 2: Selection Phase (April 2023)
- GRANT AGREEMENT (May 2023)
- Phase 3: Testing Phase (June 2023 - November 2023)

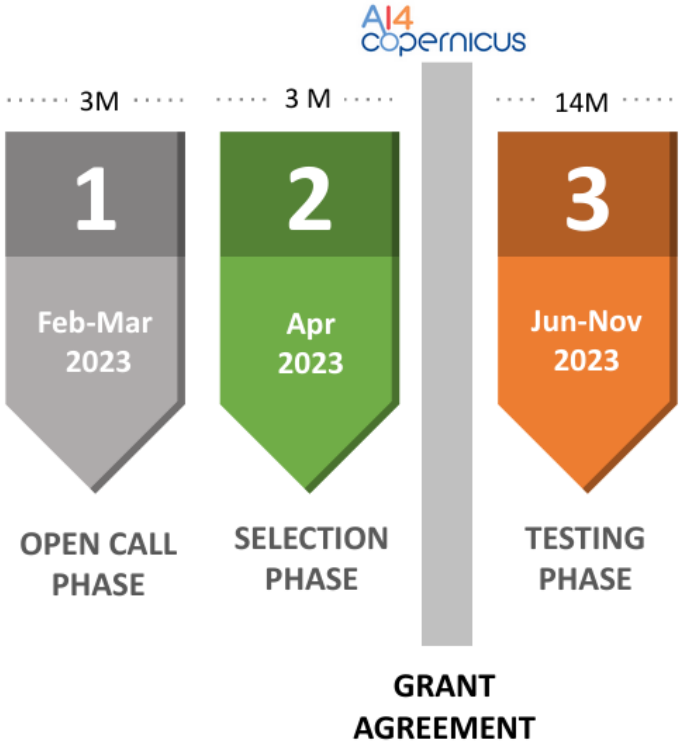

Figure 3: AI4Copernicus 5th Open Call Phases

Comparing this to the other rounds of Open Calls, the Open Call and selection phase have a smaller duration, instead of a 12-month support phase we have a 5-month testing phase, and there is no sustainability phase.

For carrying out the Open Call, NCSR-D utilised the three platforms (that is, the AI4Copernicus website, the AI4Copernicus Open Calls platform, and the NCSR-D NextCloud file server), as mentioned in Section 2.1 of this deliverable.

3.2 Phase 1: Open Call Phase

This phase involves the announcement of the 5th Round of the AI4Copernicus Open Calls for micro-projects testing AI4Copernicus services. In this phase, the design of the Open Calls' structure, application material and dissemination material (in collaboration with WP7) needed was created. In

particular, during the 5th Open Call all the relevant templates, annexes, and guidelines for applicants were prepared with a user-centric approach. Dedicated web pages on the AI4Copernicus website were prepared, including a specific Communications Toolkit, in collaboration with WP7. During this phase, all relevant AI4Copernicus Open Call Annexes were provided for interested participants to prepare their proposals. The Open Call was announced to the community on February 7th, 2023 and the deadline was set to March 31st, 2023.

The main objective of the 5th call is for the successful applicants to evaluate and make good use of the AI4Copernicus services. In order to help the applications for this task, we have organised a public technical webinar on Thursday, March 9th, 2023, where the technical partners presented their services (Bootstrapping Services, Cloud Resources, and Linked Data tools). The agenda of the is shown as follows:

9 March 2023			
TECHNICAL WEBINAR. Moderator: Antonis Troumpoukis			
11:00-11:10	Overview of the AI4Copernicus Project and the 5th Round of Open Calls	NCSR-D	*Antonis Troumpoukis*
11:10-11:55	**Overview of Bootstrapping services** Introduction and approach followed **(SATCEN**, 5 min) ● Security (**SatCen**, 10 min) ● Agriculture (**UNITN, THALES**, 10 min) ● Health (**ECMWF**, 10 min) ● Energy (**Equinor**, 10 min)	SatCen UNITN THALES ECMWF Equinor	*Michele Lazzarini,* *Omar Barrilero* *Giulio Weikmann* *David Hassan* *Mohanad Albughdadi* *Richard Hall*
11:55-12:05	**Overview of Cloud resources (CREODIAS and WEkEO) and Docker registry** ● Overview (**CloudFerro**, 5 min) ● Demo (**SatCen**, 5 min)	CloudFerro SatCen	*Jacek Tokarski* *Omar Barrilero*
12:05-12:25	**Overview of Common services: Linked Data Tools and EarthQA search engine**	UoA	*Despina Pantazi, Eleni Tsalapati*
12:25-12:35	**Overview on how resources can be integrated in AI4Experiments**	AI4Europe, Fraunhofer IAIS	*Martin Welss*
12:35-12:45	**Overview of Supplementary Services (I-NERGY project)**	I-NERGY, ICCS	*Sotiris Pelekis*
12:45-13:00	Q/A & Closing	NCSR-D	*Antonis Troumpoukis*

Table 6: Agenda for the Technical Webinar for the 5th Open Call applicants

More activities in this phase included the *launch of the AI4Copernicus Open Calls Platform* so that all interested applicants could submit their proposals, and the provisioning of *support to the*

applicants: the Open Calls and the Communications teams provided support to applicants by answering questions by e-mail and maintaining an online page with Frequently Asked Questions. Finally, several dissemination and communication activities were carried out by the Communications team and were reported in Deliverable D7.5.

An overview of the 5th Open Call applications is as follows:

- 65 submissions
- 65 SMEs
- 18 countries
- 21 proposals focusing on the Agriculture domain
- 11 proposals focusing on the Health domain
- 4 proposals focusing on the Environment domain
- 13 proposals focusing on the Energy domain
- 6 proposals focusing on the Maritime domain
- 5 proposals focusing on the Security domain
- 5 proposals focusing on other domains

3.3 Phase 2: Selection Phase

This phase involved the implementation of the selection evaluation process with the beneficiaries (single company projects). The evaluation process for the 5th Round of Open Calls, similarly to what was described under Deliverable D6.1, involved three distinct types of screening and covered a period of 1 month. In particular:

- *Screening #1:* Eligibility Screening
- *Screening #2*: Proposal Evaluation & Ethics Screening (1 evaluator)
- *Screening #3*: AI4Copernicus Management Board Panel (AI4Copernicus project coordinator, WP6 Leader & Open Calls officer).

The evaluation process covered a period of 1 month: April 2023.

A high-level overview of the evaluation process of the 5th Open Call and the corresponding activities are illustrated in the figure below:

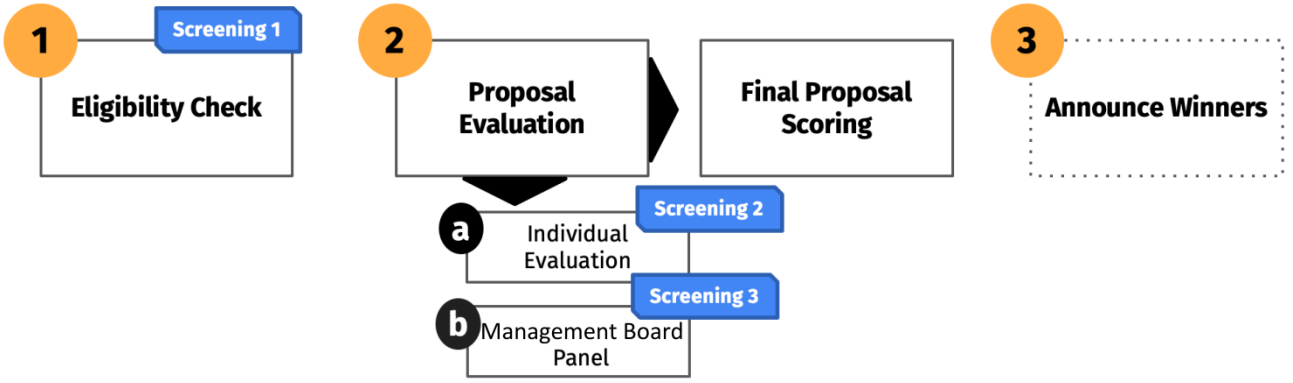

Figure 4: AI4Copernicus Evaluation Process Overview (5rh Open Call)

3.3.1 Eligibility Check (SCREENING #1)

Proposals went through an eligibility check based on the eligibility criteria that have been specified by the AI4Copernicus partners. This process was conducted during April 1st- April 11th 2023.

First, the Open Calls Team prepared a set of *Eligibility Forms* used for conducting the process, and identified a list *of evaluators*. Two (2) evaluators (from NCSR-D) were selected for conducting the eligibility check.

A set of proposals is assigned to each evaluator by the Open Calls Team ensuring fair distribution of workload and expertise among the evaluators. Once the allocation was finalised, the evaluators gained *access to the proposals* and eligibility forms through the NextCloud platform. The reviews of the proposals were conducted on an individual basis by all the assigned evaluators, and once the reviews were completed, all evaluators submitted their respective proposal eligibility forms to the Coordinator for the final signing and approval.

3.3.2 Individual Evaluation (SCREENING #2)

Proposals were evaluated by AI4Copernicus evaluators with wide expertise in AI within the fields prioritised in the industrial domains targeted and with technical knowledge about the services offered by AI4Copernicus. This process was conducted during April 12th- May 7th 2023.

First, the Open Calls Team prepared a set of *Individual Evaluation Forms*, used for conducting the process. In the next step, the Open Calls Team proceeded with the *allocation of evaluators for each proposal*, with a standard of one (1) evaluator assigned per proposal. Dedicated *Evaluators Meeting* was organised by NCSR-D for informing the evaluators about this process during April 12th - April 19th 2023.

An important step in this process was the signing of the *Evaluation Service Agreements*. These documents were prepared by NCSR-D and were signed by all evaluators and panel chairs (prior to the finalisation of the individual evaluations - May 6th), so that legal compliance can be ensured. The scope of this Agreement is to set the specific obligations, regarding evaluation procedures and confidentiality in the context of the Open Calls evaluation process. This Agreement has been signed between the Project Manager and each evaluator separately.

After all these preparatory steps, the evaluators were informed about the proposal assignments across all proposals (ensuring transparency) on April 19th, 2023, initially via email and subsequently through the AI4Copernicus Open Calls Platform. The Individual Evaluation process was carried out offering a period of 2 weeks for each evaluator to complete their assigned proposals. The deadline for uploading the Individual Evaluation forms on the Open Calls Platform was May 7th, 2023.

3.3.3 AI4Copernicus Management Board Meeting (SCREENING #3)

Contrary to the other rounds of Open Calls, since here we had only one evaluator per proposal, we did not have individual panel chair meetings. All proposals were evaluated in a final screening by the AI4Copernicus Management Board. The board consists of the following persons:

- Vangelis Karkaletsis, NCSR-D, AI4Copernicus project coordinator
- Antonis Troumpoukis, NCSR-D, WP6 Leader
- Christoforos Rekatsinas, NCSR-D, Open Calls Officer

The MB Meeting in which the final proposal screening was held on May 7th 2023, where the finalisation of the scores and the ranking was carried out. The feedback from the MB was integrated in the Evaluation Summary Reports while the final scores were respectively aligned.

3.3.4 Selection of successful proposals

Following the receipt of the AB's feedback, NCSR-D updated the projects' Evaluation Forms in terms of scoring and comments.

- Selected Proposals (10)
- Proposals on Reserve List (8)
- Rejected Proposals (46)
- Non-eligible Proposals (1)

The last proposal did not pass the eligibility test due to missing files.

3.3.5 Informing applicants

The final step was to inform the applicants. The preparatory activities included the preparation of the notification letters, the finalisation of texts per status of proposal, and the establishment of a dedicated file folder on Nextcloud with the finalised personalised documents included in the notification process.

The *Delivery of Notification* to the selected proposals was held on May 10th 2023 via the NextCloud platform. For the 10 selected proposals, the notification comprised an Introductory Notice, an attached Invitation Letter. For the remaining proposals, the notification comprised an Informative Notice for the Proposals on Reserve List and the Rejected Proposals and was held on May 16th 2023 via the NextCloud platform. All Selected Projects received follow-up communication by the Open Calls team via email on May 11th, to ensure that the respective notifications were duly received.

3.4 Grant Agreement

The *Grant Agreement process* involves the signing of contractual arrangements with the beneficiaries (single-company projects), during the 5th Round of Open Calls.

3.4.1 Sub-grant Agreement Preparation

The activities that comprised the preparation of the Sub-Grant Agreement text are the following: First, the Open Calls team prepared Sub-Grant Agreement templates for each project of the 5th Open Call, based on the templates of the 3rd Open Call. Then, the Open Calls team drafted guidelines on the completion of the Sub-Grant Agreement text in order to complement the main document. During May 2nd 2023, a meeting took place between the Open Calls Team, the NCSR-D Legal Officer, and the AI4Copernicus Administrative Manager in order to finalise all relevant documents.

3.4.2 Sub-grant Agreement Finalisation

All Projects selected during the 5th Round of Open Calls received follow-up communication on May 11th including the Sub-Grant Agreement Template (together with the relevant Annexes), the respective Guidelines, and the overall timeline for the completion of the Sub-Grant Agreement process. The deadline for the return of the completed editable documents was May 26th, 2023.

Throughout this period (late May 2023), several communications took place between the Open Calls Team and the Selected projects, including the provision of additional clarifications on project specific questions for the Sub-Grant Agreement Process, as well as the completion of the relevant Annexes.

Upon receipt of the completed editable texts by the projects, the finalisation/tailoring per project took place, including the following Annexes:

- Annex 1: Description of the Action (Proposal Template and Supplement)
- Annex 2: Estimated Budget for the Action
- Annex 3: Technical Progress Report Template
- Annex 4: Costs Report Template
- Annex 5: Bank Account Information
- Annex 7: Selected Third Parties' Declaration of Honour
- Annex 8: SME Declaration

Annex 6 was not completed by the 5th Open Call projects, since it concerns projects involving consortia (notice that in the 5th Open Call we have single-partner projects).

The Sub-grant Agreement texts were finalised based on received comments, adjusted accordingly, and shared with the Selected Projects for review. After necessary adjustments, the final texts of each Sub-Grant Agreement were reviewed and approved. The Sub-Grant Agreements were then shared with the respective Sub-project Leaders, who reviewed and signed them in late July. Upon receipt of the signed texts, all documents were shared with the AI4Copernicus Consortium Coordinator (NCSR-D Director and Chairman of the Board) for his signature. Fully signed documents were shared with all selected projects in early June 2023.

3.4.3 List of Selected projects

The 10 projects selected for funding from the 5th Open Call are the following:

- THRUST-4RESST - Remote Sensing via Satellite Technology
- AI-Aquafarm - Optimising Fish Farm Location Selection using AI
- FLORA4COP - Flora and fauna data analysis with AI algorithms enhanced with AI4C services
- Lift Sentinel - AI Terrain Detector
- NOEMI - High resolution NO2/NO prEdiction using Machine learnIng
- AIMPSI - Assistant for the identification, maintenance and planning of solar installations
- Sandmap - System enabling AI and EO technology
- SemiLake - Semi-supervised representation learning-powered urban lakes and algae monitoring system
- AI4EW - Artificial Intelligence for Early Warning
- AQQA - CAMS Air Quality Question Answering

3.5 Phase 3: Testing Phase

The Testing phase covered a period of 6 months and involved a 5-month period for testing and 1 month for the final assessment (1 month).

This process was conducted from June 2023 to November 2023. The timeplan for the support phase is shown in the following table:

Testing Phase					Final Assessment
M1	M2	M3	M4	M5	M6
Jun	Jul	Aug	Sep	Oct	Nov
2023					

Table 7: 5th Open Call Testing Phase Timeplan

3.5.1 Preparatory Activities

Contrary to the previous Open Calls, no award Ceremony was organised for the 5th Open Call. In this case, the new projects were first announced and presented to the public during the "Artificial Intelligence Ecosystem Forum 2023" physical event on June 29th 2023 (find more information on the event itself in the next section).

Contrary to the previous Open Calls, no allocation of support officers was conducted for the 5th Open Call. In this case, we had only one (1) support officer (Christos Perentis, NCSR-D) to provide technical support for the 10 projects of the 5th Open Call.

In early June 2023, a dedicated mailing list was established for the 5th Open Call projects, fostering direct communication between the Open Calls team and the members of the selected projects.

Subsequently, in June 2023, a secure working environment was established using the NextCloud platform. This environment aimed to support the implementation of the projects and facilitate effective communication between project teams and the Support Officer.

3.5.2 Incubation Services

As a part of the supporting services of the AI4Copernicus, the following sessions were delivered to the projects selected during the 3rd Round of Open Calls:

Project-specific support Services:

- One mid-term reporting meeting during 4th-8th September 2023 (and several follow-up meetings whenever needed of the Support Officer with the corresponding Project Representative, to ensure the smooth implementation of each project. In each of these meetings, the Project Representative reports the progress of the project and together with the Support Officer discuss any possible Problems, Needs, or any other Issues.

- Ad-hoc meetings with technical or business experts from the AI4Copernicus consortium partners wherever the projects required some help or guidance with their development.

Technical Workshops:

- No specific technical Workshop with an overview of the AI4Copernicus services was held for the Open Call winners, due to the availability of a similar webinar targeting the applicants (held on March 9th, 2023; contents and the structure of the workshop described in Section 3.2). The recording of the event was provided to the winners of the Open Call.

- Technical Workshop: "Cloud Infrastructure". 1-to-1 meetings for each project between the Project Representative and the Contact Point of CloudFerro. In this meeting, details about the Cloud Resources and infrastructure needed from the project are discussed, in order for CF to grant the cloud resources to the project.

Communication and Dissemination activities:

- In coordination with the Communication team (WP7), a physical event titled: "Artificial Intelligence Ecosystem Forum 2023" was organised on Thursday 29th and Friday 30th June 2023, where the Open Call projects have the opportunity to pitch their ideas to a wide audience consisting of strategic players and leading stakeholders of the AI and EO domains.

3.5.3 Other activities

Several communications were held regarding availability and feedback of the AI4Copernicus services. On June 19th 2023 the Open Calls team informed the projects about the points of contact of the several services offered by the AI4Copernicus project. On October 16th 2023, the Open Calls team shared to the projects a questionnaire for collecting feedback on the Bootstrapping Resources as requested by WP2 in the context of D2.4.

Before their final assessment, the projects were requested to submit on the AIoD CMS one organisation page for each project partner and (optionally) one AI asset page for each asset developed within the project (if applicable). Provisioning of new AI assets in the platform was an optional for the 5th Open Call projects because the scope of these projects was the testing of the AI4Copernicus services and not the creation of new ones (even though some projects did provide new services). Finally, all created pages (organisations, AI assets, and Case Studies) were linked by NCSR-D under the AI4Copernicus project page.

3.5.4 Final assessment

The final assessment of the 5th Open Call projects was carried out during November 2023 (M6). The assessment procedure is similar to that reported in Deliverable D6.1, but with some differences. Instead of involving members from the Advisory Board (AB), the final assessment was conducted in collaboration with technical partners according to each project's service usage.

The assessment panels for the final assessment phase consist of one expert from the technical partners of the AI4copernicus project, along with one or more Project Representatives from each project and the Support Officer of the 5th Open Call. Since the scope of the 5th Open Call was the testing of the AI4Copernicus services, the experts were selected based on the services tested by the project (e.g., an expert from SatCen should participate in an assessment if a project includes in its testing plan the bootstrapping service of SatCen, etc.). In the assessment participated an AI expert from the ICT-49 project I-NERGY, since one of the projects tested services from the I-NERGY project (in addition to the AI4Copernicus services, we allowed projects to test other services from the AIoD ecosystem, such as the energy services offered by the I-NERGY consortium).

The format of the assessment panel for each project is approximately 1 hour long, conducted online, and scheduled to take place between November 15th and 28th, 2023. The structure of each panel session starts with a 30-minute presentation of the project (based on a predefined

presentation template) by the Project Representative, followed by a 15-minute Q&A session with the AI4Copernicus expert and the Project Representative. The remaining 15 minutes are dedicated to a discussion and feedback session exclusively between the AI4Copernicus expert and the Support Officer, without the presence of the Project Representative. The assessment results are recorded and submitted in a predefined spreadsheet.

The projects were reviewed according to the following criteria. Each criterion will be scored from 0 to 10 and the weight of each one of these criteria in the final score will be as follows:

- **Testing Performance indicators (40%)**
- **Testing feedback of the AI4Copernicus services (50%)**
- **Deadline Compliance (10%)**

According to this final score:

- **Best-in-class Projects (Graduates)** having a score above 75% will receive the final payment.
- **Behind the Best-in-class.** For those beneficiaries who haven't reached the threshold, the AI4Copernicus partners will take into account all possible objective reasons for underperformance (i.e. external factors which might have influenced the beneficiaries' performance) and will provide suggestions for future improvement. The AI4Copernicus MB will decide on the percentage of the final payment to be awarded, depending on the relevant quality of the project in this category.

On November 1st, 2023, the Open Calls team started a series of communications between respective parties for each project in order to organise the final assessment meetings, and the Communications' Team prepared the respective meeting links (via Zoom platform). The finalised Review Meetings' plan was the following:

Project	Meeting Date	Technical AI expert	Support Officer
THRUST-4RESST	Nov 17, 15:00 CET	Omar Barrilero (SatCen)	Christos Perentis (NCSR-D)
AI-Aquafarm	Nov 22, 12:00 CET	Despina-Athanasia Pantazi (UoA)	Christos Perentis (NCSR-D)
FLORA4COP	Nov 17, 10:00 CET	David Hassan (THALES)	Christos Perentis (NCSR-D)
Lift Sentinel	Nov 16, 10:00 CET	David Hassan (THALES)	Christos Perentis (NCSR-D)
NOEMI	Nov 27, 09:00 CET	Mohanad Albughdadi (ECMWF)	Christos Perentis (NCSR-D)
AIMPSI	Nov 24, 16:30 CET	Giulio Weikmann (UNITN)	Christos Perentis (NCSR-D)
Sandmap	Nov 15, 11:00 CET	Giulio Weikmann (UNITN)	Christos Perentis (NCSR-D)
SemiLake	Nov 15, 13:00 CET	Omar Barrilero (SatCen)	Christos Perentis (NCSR-D)
AI4EW	Nov 28, 12:00 CET	Sotiris Pelekis (I-NERGY project)	Christos Perentis (NCSR-D)
AQQA	Nov 22, 11:00 CET	Despina-Athanasia Pantazi (UoA)	Christos Perentis (NCSR-D)

Table 8: 5th Open Call Final Assessment Meetings

Following the completion of the Review Meetings, the selected projects were all considered to be successful.

4 Results

In this section, we present an overview of the results of the 3rd Open Call and the 5th Open Call. We first present the list of funded projects, together with some information about each project. In addition, we include the utilisation of the AI4Copernicus cloud and bootstrapping resources and the AIoD platform.

4.1 Winning Projects from the 3rd Open Call

The list of the Winning Projects of the 3rd Open Call can be shown in the following table:

Project's Acronym	Project's Name	Domain	Type of Enterprises	Technological Status	Countries
ODFuse4Ship	Ocean Data Fusion for Ship Routing	Maritime	Startup	Technology advanced company	Italy
Lobelia Air	Machine Learning-powered Air quality monitoring and forecasting at your doorstep	Health	SME	Technology advanced company	Spain
EO4NOWCAST	Earth Observation for Severe Weather Hazard Nowcasting	Safety/Disaster Risk Reduction	SME	Technology advanced company	Italy
ESFA	Empirical Seasonal Forecasts for Agriculture	Agriculture	SME	Technology advanced company	Spain
PLANET	hyPerlocal cLimate driven LANd Evaluation (intelligent) Tool	Agriculture	Startup	Technology advanced company	Greece
FertiRec	Postcode based fertilizer rate recommendation system	Agriculture	Startup	Technology advanced company	Germany
OPTIMAL	cOPernicus irrigaTION mAnagement tooLkit	Agriculture	SME	Technology advanced company	Spain
LIVE4ENV	Reducing the environmental impact of livestock farming and optimising resources using satellite imagery, IoT and AI	Agriculture	SME	Technology advanced company	Spain

Table 9: 3rd Open Call Winning Projects

4.1.1 ODFuse4Ship

Company: AMPHITRITE SAS

Country: France

Domain: Maritime

Abstract of the project: An ocean of Earth Observation data is available today through the Copernicus programme. Each one of the individual observation data or numerical model outputs has their own disadvantages, offering limited reliability for operational use. The fusion of satellite observations of the ocean from different sensors (infrared, visible, altimetry, radar) through

advanced AI-Computer Vision methods can provide end-users with real-time, highly-reliable and high-resolution surface currents.

Page: https://ai4copernicus-project.eu/odfuse4ship-ocean-data-fusion-for-ship-routing/

4.1.2 Lobelia Air

Company: Lobelia Earth

Country: Spain

Domain: Health

Abstract of the project: Lobelia Air is an operational service developed to monitor and forecast air pollution at the hyper-local level. This proposal focuses on improving the current monitoring and forecasting results of the Lobelia Air system through machine learning-based integration of heterogeneous data sources including official monitoring stations, low/mid-cost sensors and atmospheric models.

Page:
https://ai4copernicus-project.eu/lobelia-air-machine-learning-powered-air-quality-monitoring-and-forecasting-at-your-doorstep/

4.1.3 EO4NOWCAST

Company: Artys S.r.l.

Country: Italy

Domain: Safety/Disaster Risk Reduction

Abstract of the project: EO4NOWCAST's ambition is to realise and demonstrate an operational and replicable approach to assess severe weather events and related hazards in the short term (nowcasting) built upon the synergy between EO and rainfall monitoring products.

Page:
https://ai4copernicus-project.eu/eo4nowcast-earth-observation-for-severe-weather-hazard-nowcasting/

4.1.4 ESFA

Company: Geoskop SL

Country: Spain

Domain: Agriculture

Abstract of the project: Agricultural production has been increasingly exposed to unfavourable climate events and extremes in the last decades. These events can lead to heavy reductions in, and

even failures of, crop yield quantity and quality, with potential regional-to-global consequences in the agricultural markets and trade patterns. Climate change is projected to further exacerbate this tendency. Copernicus C3S Seasonal Climate Systems, with their predicting time up to 6 months ahead, offer a great opportunity to inform and support farmers in their agro-management actions, e.g. on: planning of sowing, selection of optimal crop variety, planning of fertilisation and field interventions, disease treatment, and irrigation water use. Yet, these predictive systems are complex, difficult to interpret and not as accurate as a farmer would expect them to be. Hence, a new generation of Empirical SFS build on top of Copernicus Seasonal Forecasts and advanced Artificial Intelligence (AI) techniques is proposed by Geoskop.

Page: https://ai4copernicus-project.eu/esfa-empirical-seasonal-forecasts-for-agriculture/

4.1.5 PLANET

Company: NEURALIO AI P.C

Country: Greece

Domain: Agriculture

Abstract of the project: Making use of modern technologies and methodologies like Artificial Intelligence, Big Data Analytics and leveraging the wealth of geospatial earth observation data made available through the EU Copernicus and Eumetsat Agencies, PLANET aspires to develop an intelligent tool based on an automatic processing data chain that will offer a hyperlocal climate-driven land-use suitability service on-demand, available to everyone that is having the willingness to evaluate their land for various crops under different climatic regimes and climate change projection scenarios, combining Copernicus EO data with soil, crop and socioeconomic data.

Page:
https://ai4copernicus-project.eu/planet-hyperlocal-climate-driven-land-evaluation-intelligent-tool/

4.1.6 FertiRec

Company: Spacenus GmbH

Country: Germany

Domain: Agriculture

Abstract of the project: The Nitrogen (N) fertilisation rate recommendation is a decade old problem that yet to be solved in an efficient way. Existing technologies are either too expensive or time consuming. As a result, farmers make fertiliser rate decisions based on their experience, which is not data-driven and includes guesswork. The proposed project intends to provide a solution to the current service gaps. With the solution, a user can get a fertiliser rate recommendation, ahead of the season, by providing field boundary and crop type. This not only helps the farmer in fertilisation efforts, but also assists them in fertiliser purchasing decisions. We intend to make the service available for key crops in western European countries.

Page:
https://ai4copernicus-project.eu/fertirec-postcode-based-fertiliser-rate-recommendation-system/

4.1.7 OPTIMAL

Company: Xilbi Sistemas de Informacion SL

Country: Spain

Domain: Agriculture

Abstract of the project: The proposed project is focused on the development of the cOPernicus irrigaTION mAnagement tooLkit – OPTIMAL, aimed at taking the interaction between the farmers, irrigation resources and their plantation fields to a new level. OPTIMAL will deliver an Artificial Intelligence (AI) based Decision Support System (DSS) which will allow farmers to maximise irrigation resources and empower stakeholders with improved tools for policy level planning. The OPTIMAL development will be initially focused in the intensive almonds production – a product with high demand and commercial growth, whose production strongly depends on irrigation and will be progressively generalised towards aiming at other types of crops. OPTIMAL will provide better, more streamlined and optimised irrigation management; protect the environment; maximise existing investments; reduce operation and management costs; reduce losses and improve profitability.

Page: https://ai4copernicus-project.eu/optimal-copernicus-irrigation-management-toolkit/

4.1.8 LIVE4ENV

Company: Digitanimal S.L.

Country: Spain

Domain: Agriculture

Abstract of the project: Grasslands occupy 1/3 of the total global landmass and provide the feed base for extensive livestock farms. This interaction is crucial for the provision of ecosystem services such as climate change mitigation, biodiversity conservation and the provision of food products. The development of AI-based tools using EO data and IoT devices for monitoring the environmental impact of extensive livestock farms is crucial for the long-term conservation of these ecosystems and the reappraisal of livestock farmers' duty. The main objective of the LIFE4ENV project is the development and validation of AI-based service for assessing the environmental impact of extensive livestock farming and generating recommendations for an improved environmental performance of farms by using multiple data sources, such as EO data and IoT devices. Currently there is no such a service in the market, however, the goals of the project are in line with the European Green Deal and the new Common Agricultural Policy (CAP). Therefore, the outcomes of the project will likely have a significant impact on farm management, policy-making and climate change mitigation.

Page:
https://ai4copernicus-project.eu/live4env-reducing-the-environmental-impact-of-livestock-farming-and-optimising-resources-using-satellite-imagery-iot-and-ai/

4.2 Winning Projects from the 5th Open Call

The list of the Winning Projects of the 3rd Open Call can be shown in the following table:

Project's Acronym	Project's Name	Domain	Type of Enterprises	Technological Status	Countries
THRUST-4RESST	Remote Sensing via Satellite Technology	Agriculture	SME	Technology advanced company	Lithuania
AI-Aquafarm	Optimising Fish Farm Location Selection using AI	Agriculture	SME	Technology advanced company	Greece
FLORA4COP	Flora and fauna data analysis with AI algorithms enhanced with AI4C services	Agriculture	SME	Technology advanced company	Italy
Lift Sentinel	LIFT Sentinel AI Terrain Detector	Environmental	SME	Technology advanced company	Slovenia
NOEMI	high resolution NO2/NO prEdiction using Machine learnIng	Health	SME	Technology advanced company	France
AIMPSI	Assistant for the identification, maintenance and planning of solar installations	Energy	SME	Technology advanced company	Spain
Sandmap	SandMap system enabling AI and EO technology	Education	SME	Technology advanced company	Greece
SemiLake	Semi-supervised representation learning-powered urban lakes and algae monitoring system	Health	SME	Technology advanced company	Ireland
AI4EW	Artificial Intelligence for Early Warning	Environmental	SME	Technology advanced company	Italy
AQQA	CAMS Air Quality Question Answering	Health	SME	Technology advanced company	Germany

Table 10: 5th Open Call Winning Projects

4.2.1 THRUST-4RESST

Company: THRUST

Country: Lithuania

Domain: Agriculture

Abstract of the project: Forests are a vital component of Europe's natural environment, providing a range of ecological, social, and economic benefits. Covering more than 1 billion hectares (around 46% of land area) within the EU, forests have a strong impact on biodiversity conservation, carbon sequestration, water management, recreation & tourism, and, of course, timber production. However, forestry resources are being continuously challenged due to deforestation (both legal and illegal), damage by wildfire and other natural causes (such as flooding, storms, etc.), as well as inefficient, manual maintenance & control processes that cause serious time lag in decision making. This lag in decision making is caused by lack of current technologies ability to provide large-scale, high-resolution data at high refresh frequency: while satellites can provide large-scale data with high-frequency, the resolution is not sufficient to detect small changes, like forest pest hotspot in an early stage. Needed resolution can be provided via means traditional aviation, however due to high cost such data is gathered every 3-4 years, which is too long interval for timely decision making. With the help of AI4Copernicus we will bridge the gap between high-resolution, low-frequency aerial data and low-resolution, high-frequency satellite data to create a decision support system for foresters.

4.2.2 AI-Aquafarm

Company: Xilbi Sistemas de Informacion SL

Country: Spain

Domain: Agriculture

Abstract of the project: The proposed project is focused on the development of the cOPernicus irrigaTION mAnagement tooLkit – OPTIMAL, aimed at taking the interaction between the farmers, irrigation resources and their plantation fields to a new level. OPTIMAL will deliver an Artificial Intelligence (AI) based Decision Support System (DSS) which will allow farmers to maximise irrigation resources and empower stakeholders with improved tools for policy level planning. The OPTIMAL development will be initially focused in the intensive almonds production – a product with high demand and commercial growth, whose production strongly depends on irrigation and will be progressively generalised towards aiming at other types of crops. OPTIMAL will provide better, more streamlined and optimised irrigation management; protect the environment; maximise existing investments; reduce operation and management costs; reduce losses and improve profitability.

4.2.3 FLORA4COP

Company: 3Bee

Country: Italy

Domain: Agriculture

Abstract of the project: 3Bee aims to use AI4 Copernicus services for enhancing its tool FLORA. FLORA, supported in R&D phase by the European Space Agency, is an earth observation application for terrestrial biodiversity mapping. FLORA is an innovative and quantitative method to define changes in biodiversity in a precise, scalable and continuous way. 3Bee uses different devices to measure terrestrial biodiversity by monitoring flora and entomofauna (considering insects,

especially pollinators, as a proxy for terrestrial biodiversity): IoT devices (Hive-Tech – for monitoring the health status of honeybee colonies – and Spectrum – for monitoring and census of fauna starting from the analysis of the sound spectrum); Satellite images (FLORA). For the time being, 3Bee measurement costs are nearly 200 €/ha (hectare), since it is based on high density IoT installation. With ESA, 3Bee developed a mechanism to classify raw images with different supervised learning algorithms (SGD Classifier, Random Forest, Logistic Regression, Deep Learning classifier). From this processing, 3Bee achieves 4 indexes: land use, land cover, vegetation diversity and nectar potential with high resolution (10X10 m) and high frequency of update (1 month). The next step, in order to improve FLORA and complete pollinator mapping, is to correlate images with an index that shows the likelihood to find pollinators in a given area (pollination abundance index). With these improvements, 3Bee would be able to lower biodiversity monitoring costs to 30-40 €/ha, reducing the number of sensors installed, and using artificial intelligence and satellite technology. To reach this goal 3Bee needs to perform a training phase of a neural network that predicts pollination abundance index starting from Satellite data (land use, land cover, vegetation diversity and nectar potential). By having access to AI4C services, 3Bee may improve its algorithm training model and make use of a time series database of Sentinel 2 data in the case of crop fields. For this reason, 3Bee shows interest in two AI4C's services: 1) "Deep network for pixel-level classification of S2 patches", in order to test new ways of training a Sentinel 2 patch pixel level classifier; 2) "TimeSen2Crop", for analyzing a different topic (crop fields instead of other types of plants used by pollinators) and inspiring new opportunities for the development of new products and services based on Sentinel-2 data. 3Bee already has a network of 4000 IoT sensors installed on the field that would represent the backbone for training the prediction model for pollination abundance index. This data would be the perfect match with AI4C services. Biodiversity mapping enabled by satellite would set a new benchmark in terms of pollinator data availability for EU researchers and policy makers. From a market potential, our services would be of interest for different verticals, interested in having a scalable and precise service to measure biodiversity: Agriculture, energy, infrastructure, nature based solution.

4.2.4 Lift Sentinel

Company: Flycom Technologies d.o.o.

Country: Slovenia

Domain: Environmental

Abstract of the project: This project aims to develop an automated classification system for satellite images using deep learning to identify water, urban, rural, and forest areas. The system will be integrated into the existing HazMap module in LIFT software and validated using real-world datasets. The project is led by Flycom Technologies, a company specializing in spatial data and location intelligence, and will utilize the AI4Copernicus service "Deep network for pixel-level classification of S2 patches" for training the deep neural network. The project team will also evaluate the usefulness of the tool for other potential use cases. The proposed system has the potential to improve the accuracy and efficiency of land use mapping and support environmental monitoring and management efforts.

4.2.5 NOEMI

Company: WaltR

Country: France

Domain: Health

Abstract of the project: WaltR's mission is to fight against Climate Change and improve Air Quality. To enable policies' and economical transition towards this end, it is imperative to have adequate and valid information. NOEMI project will use/test AI4Copernicus services to propose an affordable gap filler between S5P/TROPOMI satellite data and local in-situ measurements to provide hourly maps of near-surface NO2 and NO concentrations at high resolution at the regional scale. Moreover, it will demonstrate that NO2 and NO fields are consistent with the so-called "indicative measurements" uncertainty level of air quality directive 2008/50/EU.

4.2.6 AIMPSI

Company: ECTIOS

Country: Spain

Domain: Energy

Abstract of the project: We are living an exponential growth of distributed solar installations. However, there is still a gap of assistant tools for determining optimal locations for new assets, detect maintenance needs, or assess the impact of growth in the power network. In this project, we propose a new method for solving these issues by leveraging both single and temporal satellite images, along with other structural and weather data. In comparison with conventional methods, it enables a simpler, proactive and cheaper approach to promote, adopt and provide higher predictability and planning capacity for future power networks.

4.2.7 Sandmap

Company: Sense Space Informatics

Country: Greece

Domain: Education

Abstract of the project: SandMap is a map simulation interactive platform which incorporates a series of exercises for students to familiarise themselves with geomorphology and geography. The student may reform the sand and the system responds in real time to show the geographic information adapted to the new morphology of the sand. As an educational tool, it promotes geographic awareness and will prove beneficial for a wide range of applications like natural disaster and emergency management, public safety, urban planning, etc. THe integration of AI4Copernicus services will facilitate three areas: The "Sentinel-2 Change detection", service e.g. (data before and after a fire or flood) will be utilised to design a series of exercises in order to prove on the consequences of fires or floods to the environment and society and increase the awareness of the students for the environment protection and climate change and being responsible citizens. Another series of exercises for high-school students will be developed for olive-grove and vineyard

crops classification in the area of Crete utilising the "Deep network for pixel-level classification of S2 patches" service. Finally, the "Long Short-Term Memory Neural Network for NDVI prediction" service will be also utilised to help students estimate metric indices such as NDVI which aid the farmers and the organisations of the agriculture sector to make refined decisions for the crops of their local area. The market potential and services of our product will be sky rocketed, since AI enabling technologies, EO and Copernicus services will provide a new area for education and spatial intelligence establishment.

4.2.8 SemiLake

Company: Raniarose Technology Limited

Country: Ireland

Domain: Health

Abstract of the project: Urban lakes are natural places for citizens to relax and enjoy mindfulness. A key obstacle is their algae blooms which have harmful impacts on such in-land water bodies. Particularly, algal blooms in urban lakes not only cause unpleasant odours and health risks, but also negatively affect the economy. Here, we aim to develop a novel machine learning pipeline for urban lakes and algae monitoring. This will be based upon state-of-the-art semi-supervised contrastive learning, Sentinel-2 MSI data and AI4Copernicus preprocessing services. In our experiment, we will evaluate this new approach on multispectral image patches of urban lakes in Ireland and UK by comparing it with a baseline machine learning model.

4.2.9 AI4EW

Company: GECOsistema SRL

Country: Italy

Domain: Environmental, Energy

Abstract of the project: Real time flood and water levels forecasting in the next hours/days across rivers is crucial for flood prevention and civil protection activities, as recent flood events in Germany in 2001 as clearly demonstrated . Europe has a dense monitoring network of gauging stations, that could be coupled with rapid flood modelling to quickly obtain flood scenarios and support civil protection activities. With this goal, our company develops and maintains the global flood mapping platform SaferPlaces , that provides flood risk intelligence based on Geospatial, Satellite, Climate Data and AI-based models combined into a cloud computing environment. The platform democratises access to flood risk intelligence to a wide range of decision makers, including non-experts users, professionals, urban planners, insurances, multiutility companies, promoting the transition of cities towards greater resilience under current and future climates. It is already a commercial platform that exploits both Data As A Service (precomputed flood maps) or Software As A Service (capability to perform on the fly flood simulations) business models. Our platform could benefit considerably by integrating a data driven forecast of incoming floods for river gauging stations, to run flood simulations in advance and offer added value the civil protection authorities /first responders, for example in improving early warning and Disaster Risk Reduction DRR which is

among the priority areas of the Copernicus program. We want to test AI4 Copernicus bootstrapping services, particularly those providing access to ERA5 datasets from CDS (from which we will retrieve also forecast of meteorological forcings), and LSTM algorithms (short term times series forecasting services, to be adapted from other domains, provided among I-NERGY Services), to produce local forecast of incoming water levels to a generic river section, where water levels are monitored and publicly available, assessing performances and accuracy of the provided forecast for flood mapping applications. The forecasted river water levels can be easily converted by our proprietary raster-based flood models in flood hazard and damage maps at high resolution exploiting the available DTM/DEM (Copernicus DEM) or Lidar datasets.

4.2.10 AQQA

Company: Terranea

Country: Germany

Domain: Health

Abstract of the project: Recent developments in chatbot technologies and the reports about ChatGPT underline the potential of language as an interface to technology. The AQQA project aims to adapt and improve our earlier heatwAIve developments. In the heatwAIve project we developed an AI-based voice assistant to inform citizens about the risk of upcoming heatwaves and high air pollution levels and to provide them with personalised behavioural measures. The related information was derived from the Copernicus Atmosphere Monitoring Service (CAMS) and other data sources. However, the use of Amazon Alexa technology induced technical and especially privacy limitations. In AQQA we will investigate the use of the Health Bootstrapping service for downscaling CAMS AQ data. This will deliver AQ information at unprecedented detail. Moreover, multiple tools for linked geospatial data for language-based user interaction will be tested. The use of linked geospatial data enables us to develop a service that is hardware independent and especially web based. This increases the potential group of users. Independence from legacy providers allows us also to develop tailored health services with personalised behavioural recommendations which are, to our knowledge, still not available on the market.

4.3 Usage of Bootstrapping Services & Cloud Resources

Bootstrapping Services: Regarding the projects of the ***3rd Open Call*** we have some use of our services, which is not so extensive, especially if we compare it with the use in the 1st and 4th Open Calls. This may have happened because the scope of the 3rd Open Call is for higher TRL than that of the other calls (TRL 6 vs TRL 5), and the companies are exclusively high-tech SMEs (and already have some AI tools at their disposal). 2 projects have used services in their final product (one project used the “Sentinel-2 pre-processing” service and the “LSTM Neural Network for Sentinel-2” service, while another had used the “Harmonization of pre-processed time series of Sentinel-2 data” service. 2 other projects have tested some services but not utilised them in their final solution.

Regarding the projects of the ***5th Open Call***, all projects have tested and utilised the bootstrapping services (since it was among their responsibilities in the context of the call), but we have (at least) 5 projects that were interested to integrate our services in their operational product pipeline. In Table

11, we illustrate the testing plan of the 5th Open Call. Notice that we have 1 project that tested services from the I-NERGY project, another ICT-49 project, providing a bridge between our project and the I-NERGY project. We provide an analysis on the feedback we have gained in D2.4 and D6.5 deliverables.

AI4Copernicus services	#project utilised the service
Security Bootstrapping Service (SatCen)	4 of 10
Agriculture Bootstrapping Service (UNITN)	6 of 10
Agriculture Bootstrapping Service (THALES)	5 of 10
Health Bootstrapping Service (ECMWF)	2 of 10
Energy Services (I-NERGY)	1 of 10
Semantic Web and Linked Data services (UoA)	2 of 10

Table 11: 5th Open Call Testing Plan

Cloud Resources: In order to carry out their implementation, each of the projects received a fixed Cloud resources quota. We observed similar usage of cloud resources, so we report the results together for the 3rd and 5th Open Calls. Of the total of 18 projects, 9 projects utilised CREODIAS and 6 utilised WEkEO. Regarding usage, 5 projects used ~10% of their received resources, 3 projects used ~30%, 3 projects used ~50%, 2 projects used ~70%, and 3 projects used ~100% of their resources. 2 projects have kindly asked and received an extension of their resources quota to complete their project tasks.

4.4 AI-on-Demand Platform

During the 3rd and 5th Open Calls, 18 organisations and 21 AI assets were submitted in the AIoD platform by the projects. We begin by illustrating the organisation pages made available in the AIoD platform. Notice that all projects are single-beneficiary projects:

Project	AIoD organisation page
ODFuse4Ship	https://www.ai4europe.eu/ai-community/organizations/company/amphitrite
Lobelia Air	https://www.ai4europe.eu/ai-community/organizations/company/lobelia-earth
EO4NOWCAST	https://www.ai4europe.eu/ai-community/organizations/company/artys
ESFA	https://www.ai4europe.eu/ai-community/organizations/company/geoskop-sl
PLANET	https://www.ai4europe.eu/ai-community/organizations/company/neuralio-ai
FertiRec	https://www.ai4europe.eu/ai-community/organizations/company/spacenus-gmbh-0
OPTIMAL	https://www.ai4europe.eu/ai-community/organizations/company/xibli-sistemas-de-informacion-sl
LIVE4ENV	https://www.ai4europe.eu/ai-community/organizations/company/digitanimal

Table 12: Table of Organisations published in AIoD by the 3rd Open Call projects

Project	AIoD organisation page
THRUST-4RESST	https://www.ai4europe.eu/ai-community/organizations/company/thrust-intelligent-uav-systems
AI-Aquafarm	https://www.ai4europe.eu/ai-community/organizations/company/heuristic-data
FLORA4COP	https://www.ai4europe.eu/ai-community/organizations/company/3bee-srl
Lift Sentinel	https://www.ai4europe.eu/ai-community/organizations/company/flycom-technologies
NOEMI	https://www.ai4europe.eu/ai-community/organizations/company/waltr
AIMPSI	https://www.ai4europe.eu/ai-community/organizations/company/ectios
Sandmap	https://www.ai4europe.eu/ai-community/organizations/company/sense-pc
SemiLake	https://www.ai4europe.eu/ai-community/organizations/company/raniarose-technology-limited
AI4EW	https://www.ai4europe.eu/ai-community/organizations/company/gecosistema-srl
AQQA	https://www.ai4europe.eu/ai-community/organizations/company/terranea

Table 13: Table of Organisations published in AIoD by the 5th Open Call projects

We continue by presenting the AI assets created by the projects. Notice that not all projects from the 5th Open Call have produced AI assets; this happened because the scope of the 5th Open Call was to test the AI4Copernicus services and not produce additional ones (in fact, we communicated to the 5th Open Call projects that producing AI assets was an optional step).

Project	AIoD asset page
ODFuse4Ship	https://www.ai4europe.eu/research/ai-catalog/hires-current-med-2022
Lobelia Air	https://www.ai4europe.eu/research/ai-catalog/sensor-community-ai-calibrated-data-sofia-jan-may-2022
EO4NOWCAST	https://www.ai4europe.eu/research/ai-catalog/eo4nowcast-near-real-time-soil-moisture-assessment-and-pluvial-flood-nowcasting
	https://www.ai4europe.eu/research/ai-catalog/eo4nowcast-near-real-time-soil-moisture-assessment-and-pluvial-flood-0
	https://www.ai4europe.eu/research/ai-catalog/eo4nowcast-near-real-time-soil-moisture-assessment-and-pluvial-flood-1
ESFA	https://www.ai4europe.eu/research/ai-catalog/geoskop-esfa-time-series-forecaster-component
	https://www.ai4europe.eu/research/ai-catalog/new-generation-6-month-global-forecast
PLANET	https://www.ai4europe.eu/research/ai-catalog/planet-hyper-local-climate-driven-tool
FertiRec	https://www.ai4europe.eu/research/ai-catalog/postcode-based-fertilizer-rate-recommendation-system
OPTIMAL	https://www.ai4europe.eu/research/ai-catalog/optimal-copernicus-irrigation-management-toolkit-environmental-parameters
LIVE4ENV	https://www.ai4europe.eu/research/ai-catalog/labels-land-cover-classification-livestock-farms

Table 14: Table of AI Assets published in AIoD by the 3rd Open Call projects

Project	AIoD asset page
THRUST-4RESST	https://www.ai4europe.eu/research/ai-catalog/thrust-4resst
AI-Aquafarm	https://www.ai4europe.eu/research/ai-catalog/pixel-level-classification-model-sentinel-2-images-based-processed-images-bands
	https://www.ai4europe.eu/research/ai-catalog/pixel-level-classification-model-sentinel-2-images-based-harmonized-images-0
	https://www.ai4europe.eu/research/ai-catalog/pixel-level-classification-model-sentinel-2-images-based-harmonized-images-1
	https://www.ai4europe.eu/research/ai-catalog/pixel-level-classification-model-sentinel-2-images-based-harmonized-images
Sandmap	https://www.ai4europe.eu/research/ai-catalog/spatiotemporal-dataset-ndvi-prediction-sentinel-2-imagery
	https://www.ai4europe.eu/research/ai-catalog/dataset-tree-crops-prediction-sentinel-2-imagery
	https://www.ai4europe.eu/research/ai-catalog/model-tree-crops-prediction-sentinel-2-imagery
SemiLake	https://www.ai4europe.eu/research/ai-catalog/semilake
AQQA	https://www.ai4europe.eu/research/ai-catalog/aqqa-air-quality-question-answering

Table 15: Table of AI Assets published in AIoD by the 5th Open Call projects

Finally, 8 case studies from the 3rd Open Call were submitted in the AIoD platform by NCSR-D, after getting the relevant input by the projects via a questionnaire. This procedure was followed in order to have a homogenised presentation of all case studies from the Open Call winners. Again, due to the nature of the 5th Open Call, no case studies were created in the context of the 5th Open Call.

Project	AIoD organisation page
ODFuse4Ship	https://www.ai4europe.eu/business-and-industry/case-studies/odfuse4ship-ocean-data-fusion-ship-routing
Lobelia Air	https://www.ai4europe.eu/business-and-industry/case-studies/lobelia-air-low-cost-air-quality-sensor-calibration
EO4NOWCAST	https://www.ai4europe.eu/business-and-industry/case-studies/eo4nowcast-near-real-time-soil-moisture-assessment-and-pluvial-0
ESFA	https://www.ai4europe.eu/business-and-industry/case-studies/tfs-time-series-forecaster-esfa
PLANET	https://www.ai4europe.eu/business-and-industry/case-studies/planet-hyper-local-climate-driven-tool
FertiRec	https://www.ai4europe.eu/business-and-industry/case-studies/fertirec
OPTIMAL	https://www.ai4europe.eu/business-and-industry/case-studies/optimal-copernicus-irrigation-management-toolkit-environmental
LIVE4ENV	https://www.ai4europe.eu/business-and-industry/case-studies/live4env-reducing-environmental-impact-livestock-farming-and

Table 16: Table of Case studies published in AIoD by the 3rd Open Call projects

All these pages were linked under the AI4Copernicus project page.

5 Conclusions and Next Steps

In this deliverable, we presented the activities carried out in the context of the 3rd and 5th Rounds of Open Calls procedures, that had to do with single-beneficiary projects. No more actions for the 2nd Open Call are left to be reported. However, in this deliverable we didn't report the actions regarding the provisioning of the sustainability phase to the winning projects and the Trustmark granting process of the 3rd Open Call (ref. Section 2.6 on why we had done that). These actions will be reported in Deliverable D6.5.

------End of Document------