

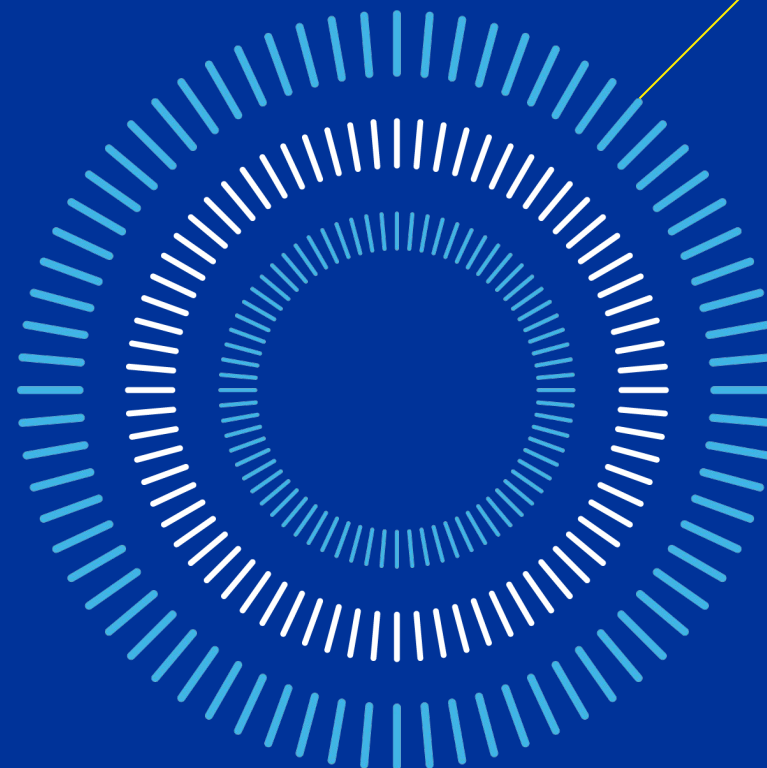
# Towards the European AI on demand platform

Barry O'Sullivan and Gabriel González Castañé  
Event EC – presentation of ADR-e and AI4Europe  
17<sup>th</sup> October 2022



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101070000

# The AI4EU project in a nutshell



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101070000

## Core objectives of AI4EU

**Create a supportive platform on AI for European stakeholders**  
**Construct a EU shared repository of AI knowledge – tools / assets**

The grid contains the following logos (row by row, left to right):

- ABB, GoodAI, Allianz, RUBACORPIO, LAAS-CNRS, CSIC, FRANKFURT, BSC, GATF, AtoS, POWW
- Forum Virioli, Inria, Clapnet, brynm, E.ON Energy Research Center, eFORTH, C2A, CHENCA, DLR, DLR, DLR
- Forum Virioli, BELLEVILLE, CERTH, INDUSTRIAL DATA SPACE, E.ON, F3, Fraunhofer, UNIVERSITY OF LUTRA, IJS, TUM, TECNIO LEGIDA
- KIT, KNOW, idiap, HUB FRANCE, LOUPE 16, SAPENZA, NTNU, Insight, TU Delft, ONERA, W
- SmartXpert, UNIVERSITY OF SAIL, WAVESTONE, SIEMENS, SAP, SMILE, TU, simula, ThalesAlenia, technicolor
- Telefonor, TILS, THALES, U, U, TUM, TU, UCC, UNIVERSITÄT DUISBURG ESSEN, UNIVERSITÄT GRENoble Alpes
- VUB, UNIVERSITÄT DUISBURG ESSEN, U, UNIVERSITÄT DUISBURG ESSEN, SCIENCES COGNITIVES UNIVERSITÉ, TUM, TU, UCC, UNIVERSITÄT DUISBURG ESSEN



Industry

## Startup

SME



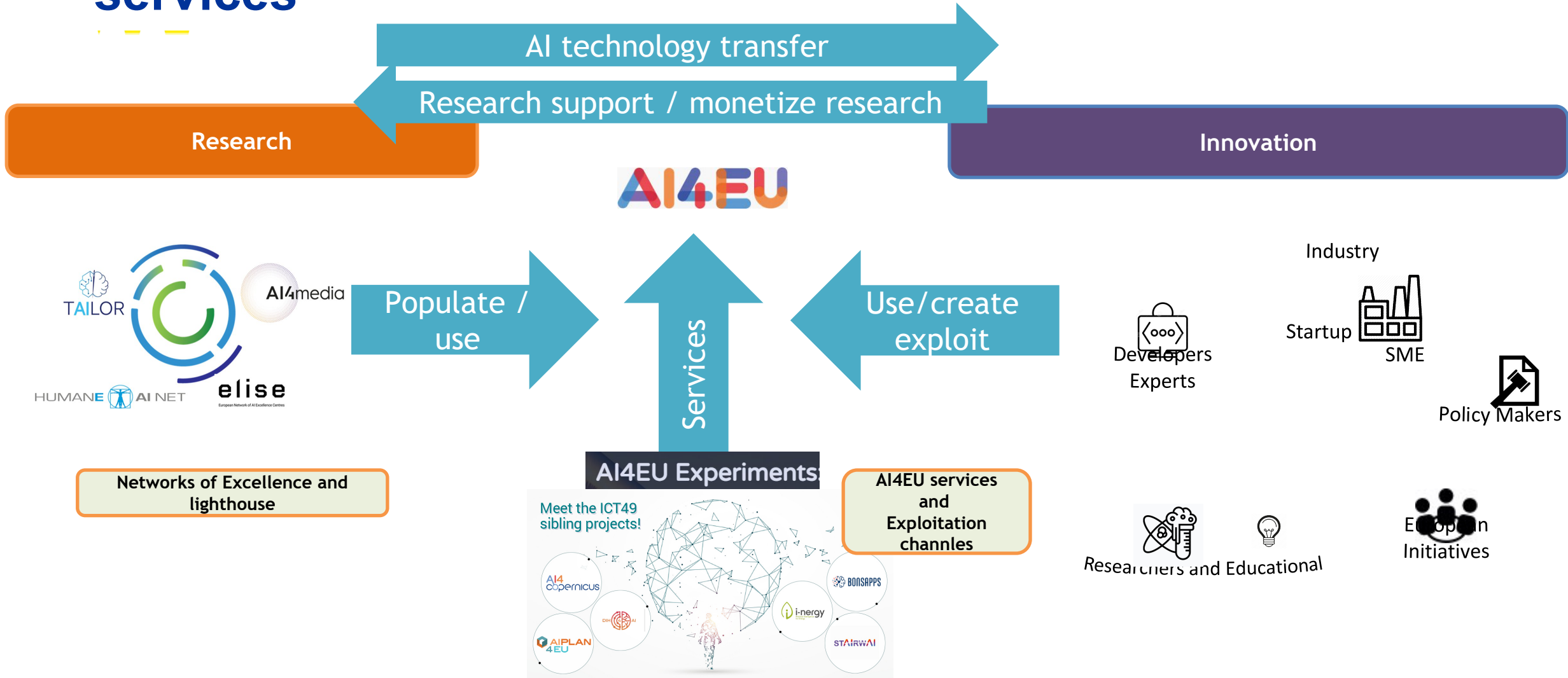
Policy Makers

Developers  
Experts

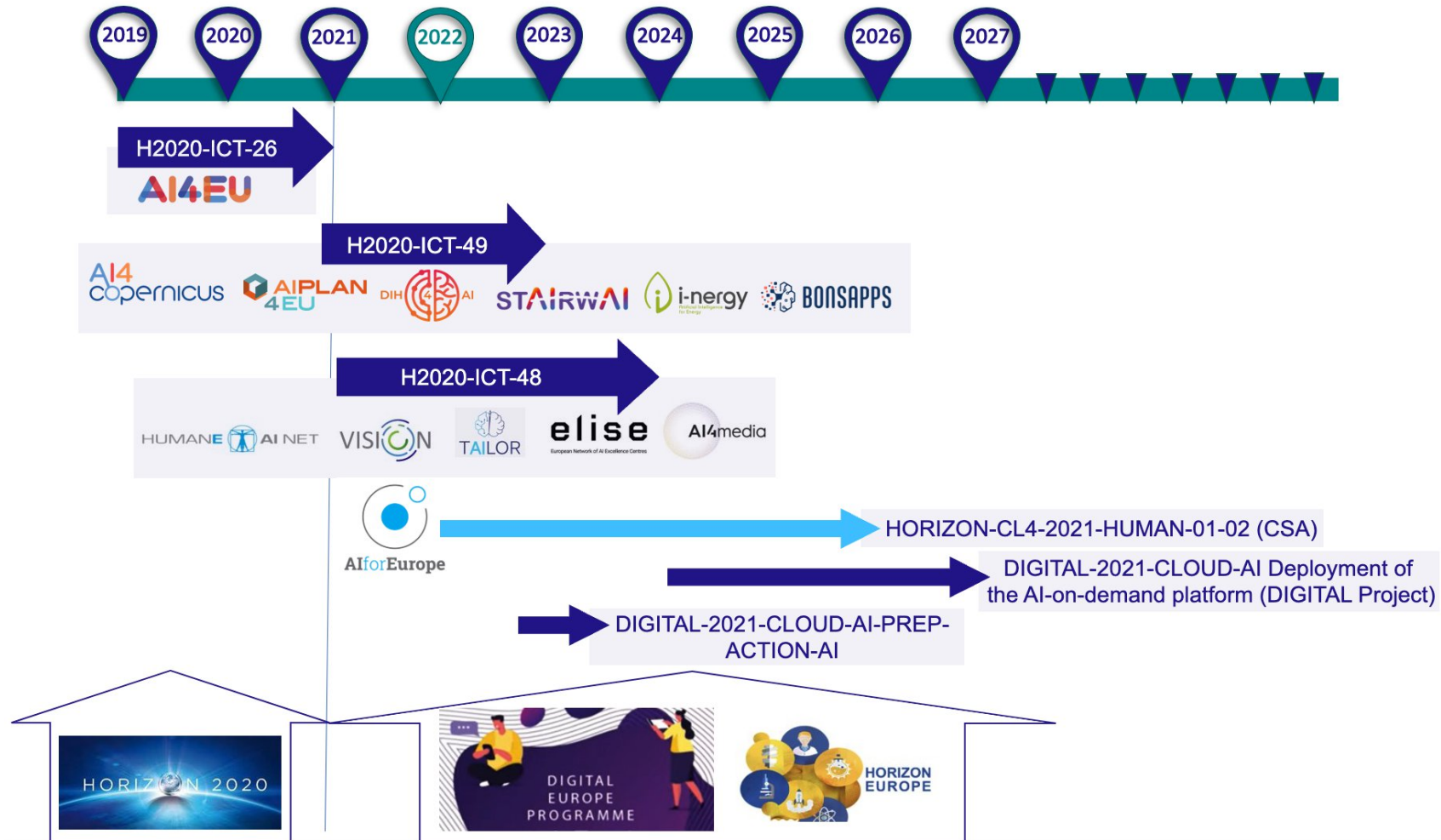
Researchers and Educational



# Completing the AI4EU picture and services

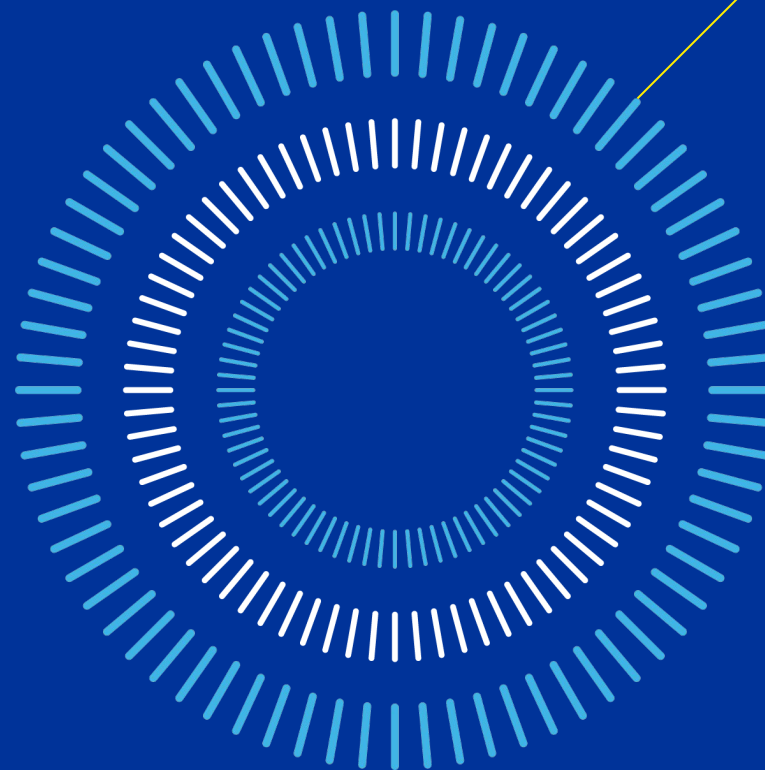


# Time line to bootstrap the AI on Demand



# AI4Europe

Vision and plans



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101070000

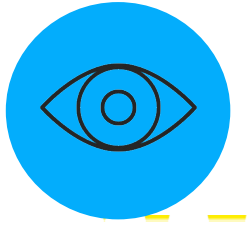
# Approach

## Separating the project from the platform

- Our project is just one of many that is tasked with advancing the AI-on-demand platform.
- Ongoing ICT49 projects, ICT48s, forthcoming DIGITAL Preparatory project, forthcoming DIGITAL project (€27m) and 40+ other Horizon Europe that have been funded under calls that make explicit reference to need to engage with the platform.
- The AI4Europe project has a plan to technically advance the platform and to build a community of supporters to enrich it – but the project and the platform are two separate entities.
- The platform will outlive AI4Europe and the project will need to share responsibilities with existing and forthcoming projects.

## Motivate engagement with the platform

- To motivate the AI research and innovation community to engage with the platform there is the necessity to demonstrate **that the platform is a community asset and not controlled by any project, organization or group of organizations.**
- The platform needs to be designed to enhance and integrate with existing communities/initiatives, not replace them or undermine their identity or communities.
- The measure of success of the project will be the extent to which organizations/communities not connected with consortium partner embrace and use the platform.



# The Project Objective & Context

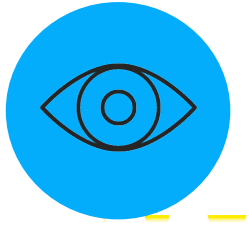
## Objective:

- Support and facilitate a sustainable digital platform and experimentation environment through the creation of open research channels and mechanisms that foster the European AI research ecosystem, academic and industrial, and that maximizes the academic, social, and industrial impact while it seamlessly integrates other projects, platforms, and solutions.

## Context:

- The EU is advancing efforts to establish an **AI ecosystem of excellence**.
- A pillar of this strategy is the creation of an **AI on-demand repository of experts, tools, and services supported by a set of distributed platforms**.
- **These platforms must be seamlessly used as a resource for the research community to support the European AI model based on the principles Trustworthy AI.**





## What will the platform do?

- The **platform will showcase the state-of-the-art science** being developed by leading AI research centres and laboratories, tackling topics including Human Centered AI, Explainable AI, AI for Good etc.
- **The trustworthiness of resources and the ethical design of AI tools** will be embedded within the Platform's publication process, providing an **ecosystem of trust** within which public bodies and companies can uptake the assets produced by researchers.

# Dimensions of the objectives

## Sustainability

S-1. Ensure platform support from the research community fostering a cooperative and transparent Governance model open to contribution from all stakeholders to address their real needs.

S-2. Design and execute a business sustainability plan that supports and ensures the long-term viability of technical, financial, and legal features of the AI on-demand platform.

S-3. Integrate hardware resource provisioning into the platform to provide underlying computation resources, establishing it as a place to do AI research.

## Technical Development

R-1. Advance the Platform as an open distributed tool that can be extended by the community with new services / tools and ensure interoperability with (and customizable to support) other EU platforms focused on AI research

R-2. Enhance the accessibility and usability of the excellence science of Europe's AI research community, and to ensure standard, secure, and executable reusable research assets.

R-3. Embed tools and mechanisms to facilitate the development and use of Trustworthy AI aligned with policy and regulatory developments in Europe.

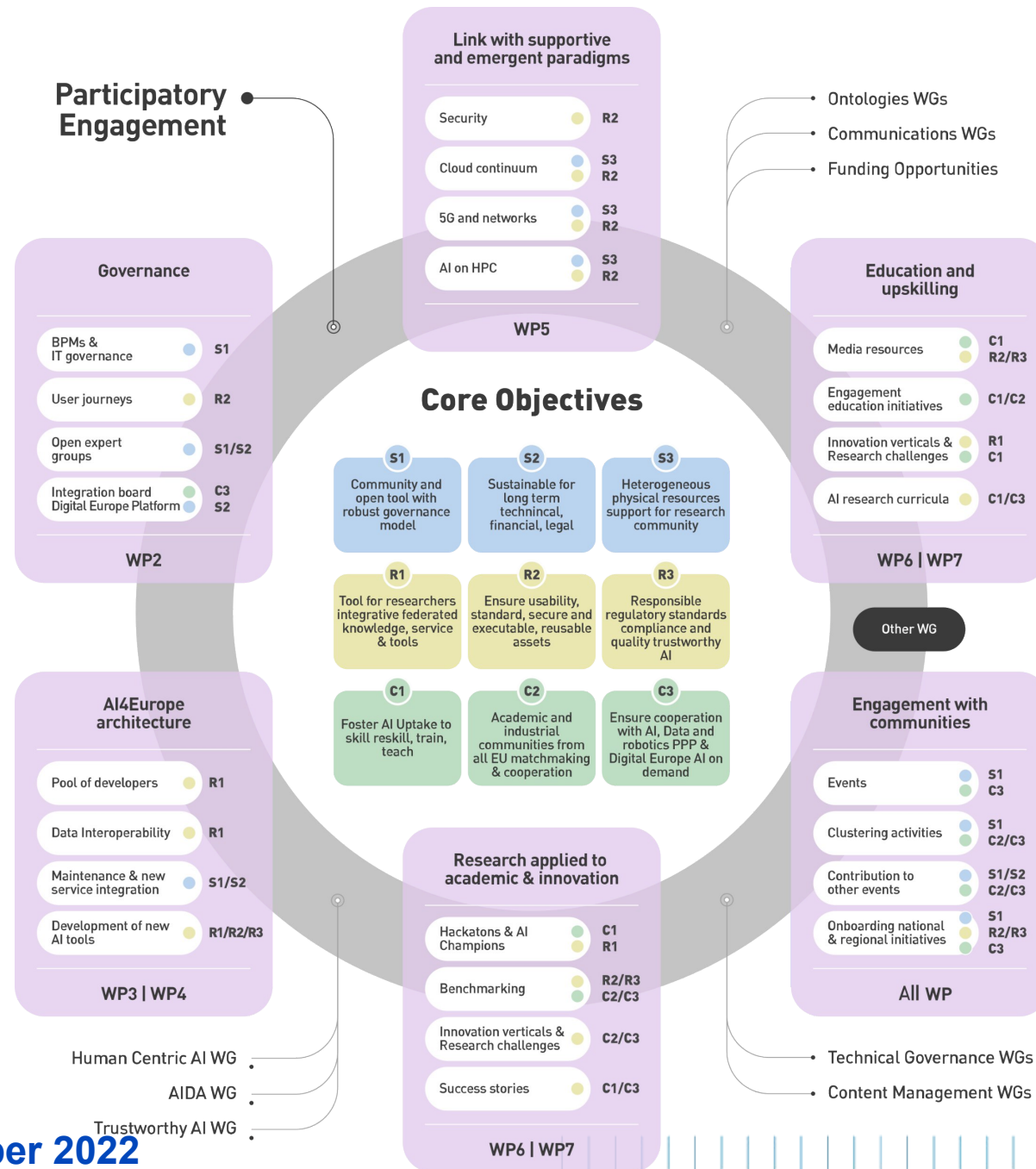
## Collaboration

C-1. Foster the AI uptake in European research community, industry, and society at large by mobilizing and enriching efforts in AI education, upskilling and reskilling in Europe.

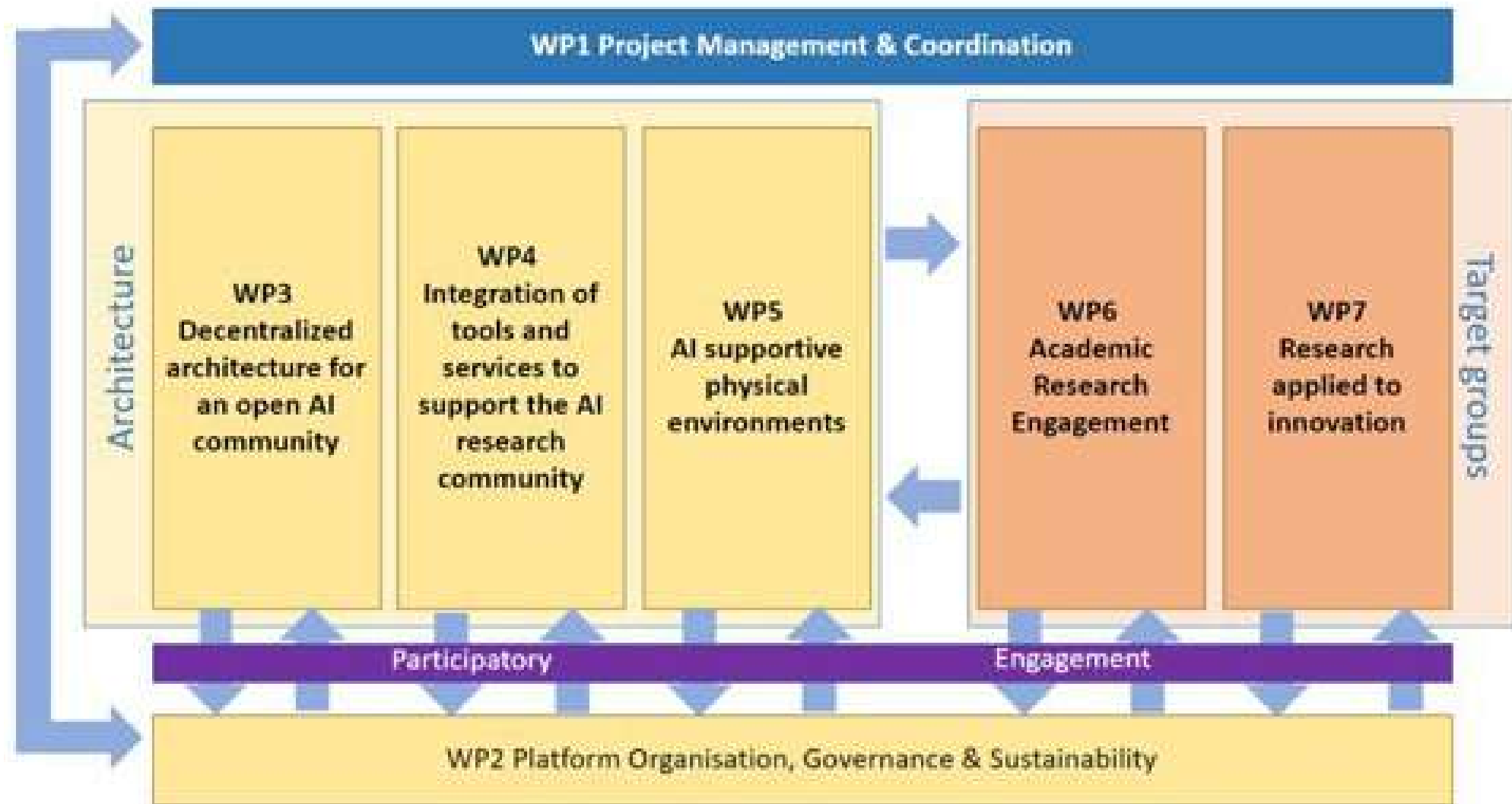
C-2. Enhance access, sharing, training and mobility for all European nations, ecosystems, and communities, with special attention on AI Juniors scholars, facilitating cooperation and matchmaking.

C-3. Ensure cooperation with the AI, Data and Robotics PPP and Digital Europe related topics, to support them and ensure impact of the AI on-demand platform.

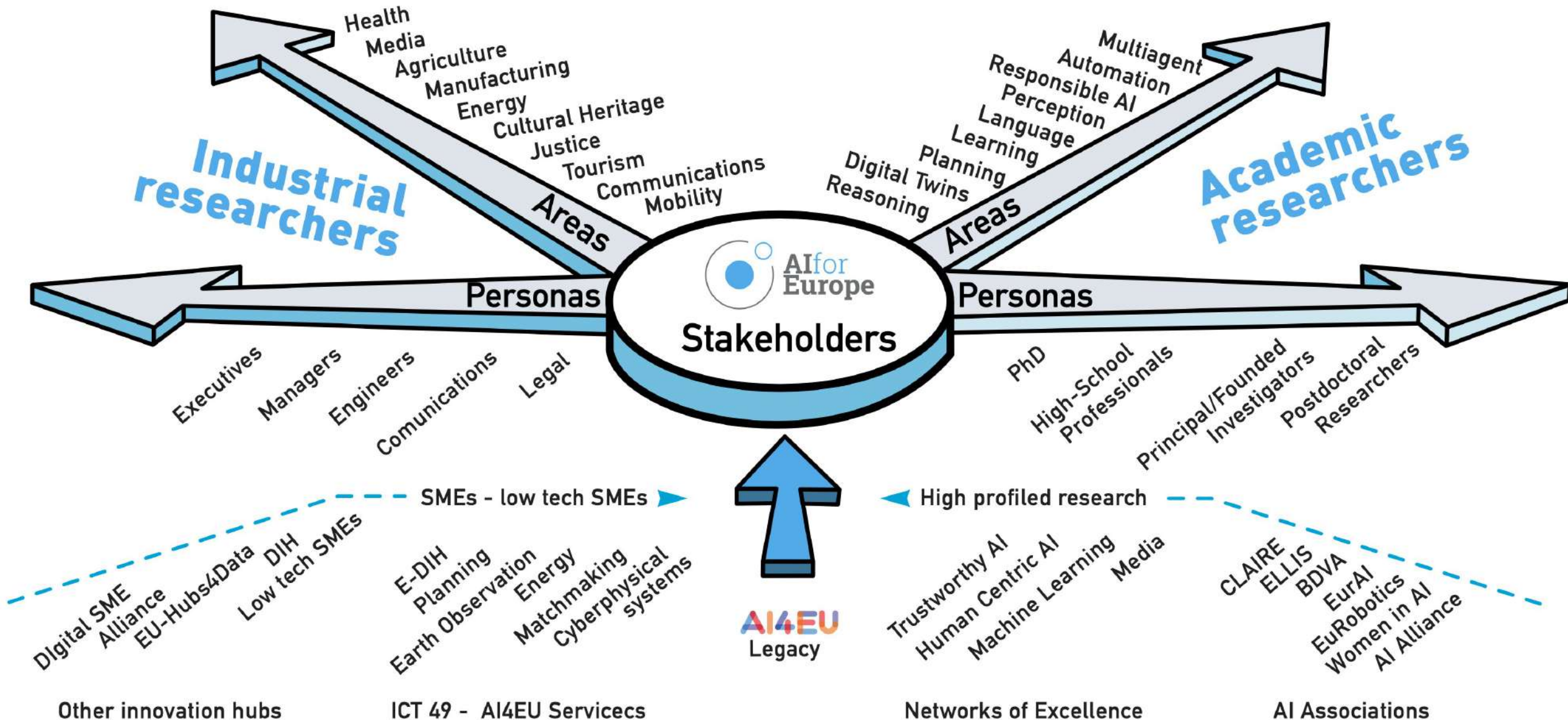
# AI4Europe main components



# Project structure



“Such platform should support the **research community** in providing modules, codes, tools, knowledge base to share and continuously strengthen the S&T excellence.” HORIZON-CL4-2021-HUMAN-01-02



# Mechanisms for engagement with the AI on demand

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# Why cooperate with AloD?

- **Rely on communities** and established entity. Reaching the target audience effectively.
- **Cooperation** with research institutions and industry to facilitate the progress and development
- **Flexible to adapt** to the needs of the stakeholders
- Build on the European principles of **Excellence and Trustworthy**
- **Sustainability**. AloD does not have an end date.

Communicate your project activities to a wider audience. Make use of a ready-made community of users to disseminate results. Rely on a sustainability mechanism to ensure that outputs are available to stakeholders beyond the life of your project.

# Potential contributions

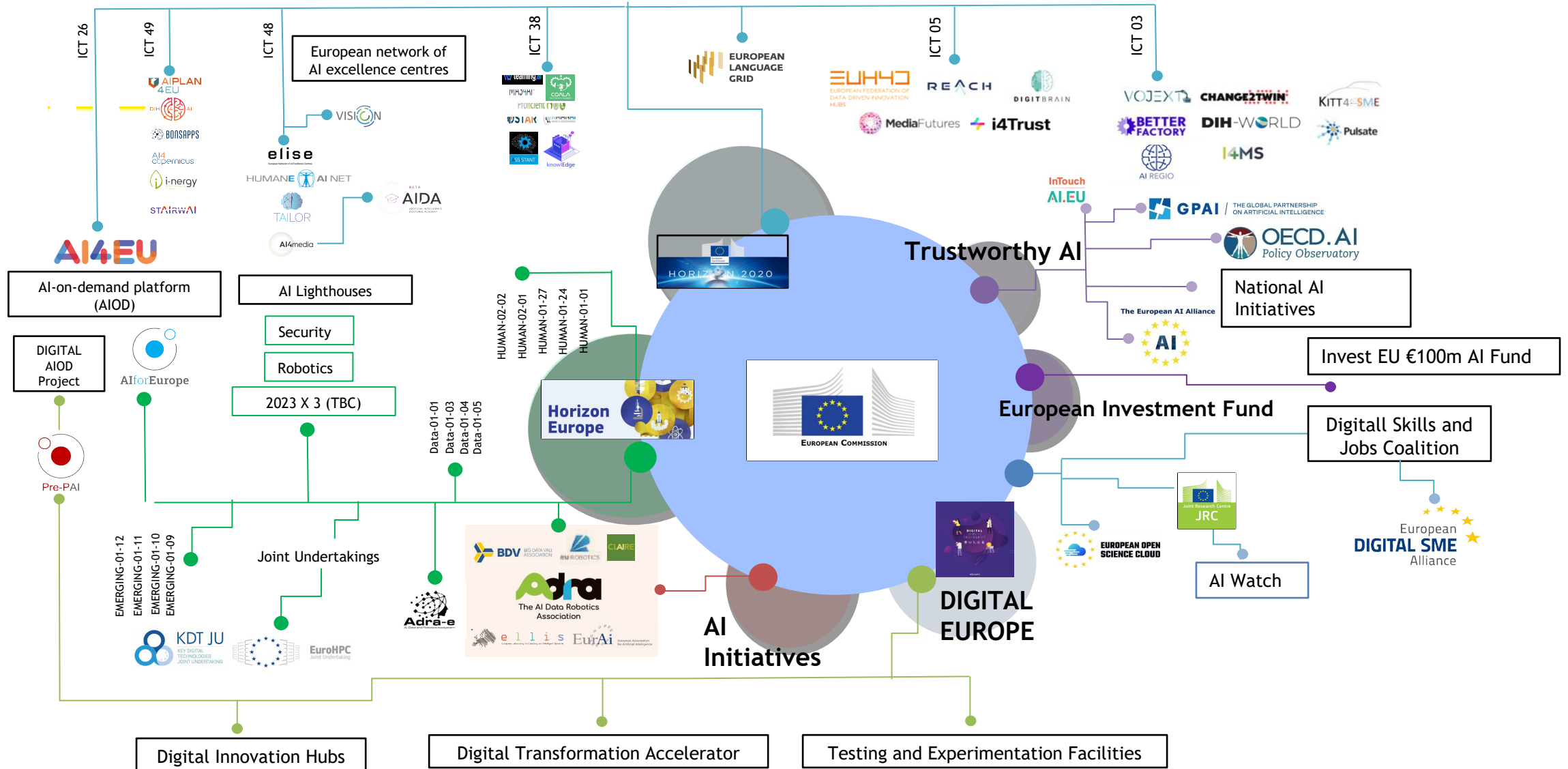


- **Communities and communication.** Branding and micro-sites
- **Content:** Contributing to the AI assets –research bundles, containers, tools, tutorials..
- **Development** of the platform / connectors / backend / APIs
- **New technical services**





# Communities – The European AI Landscape



# Communication Cooperation

Communicate your project activities to a wider audience. Make use of a ready-made community of users to disseminate results. Rely on a sustainability mechanism to ensure that outputs are available to stakeholders beyond the life of your project.

- **Social Media:** Mechanism for posting on AloD (Buffer), AloD mention for a chance to share; paid targeted campaigns
- **Newsletters:** Shared newsletter; Mechanism to create your own newsletters
- **Press releases:** Announce new projects, tools and results
- **Events:** Hold your AloD web cafes; Joint Events; Support to your event in terms of identifying speakers
- **Monthly meetings:** To discuss strategies and action plans

**Communication & Dissemination support:** AI4Europe has a communication team that will be at the service of the projects to support them with the integration of the various guidelines, making sure that its implementation is done smoothly. A chat mechanism will be implemented to send feedback and make questions directly to AI4Europe.



# Branding & websites (Microsites)

- logo proposal 1

logo  
short version



The short version allows recognition of the AI-on-Demand Platform brand and allows the logo to be applied to smaller media.

In this version the lowercase "o" has a small elevation. This detail allows the characters to be visually balanced and gives the acronym a differentiating element.

**Note:** In the short version, the symbol has fewer circular radials to ensure legibility on smaller media.

CUSTOMER EXPERIENCE DESIGN

LOBA

- logo proposal 1

logo  
short version



The short version allows recognition of the AI-on-Demand Platform brand and allows the logo to be applied to smaller media.

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CUSTOMER EXPERIENCE DESIGN

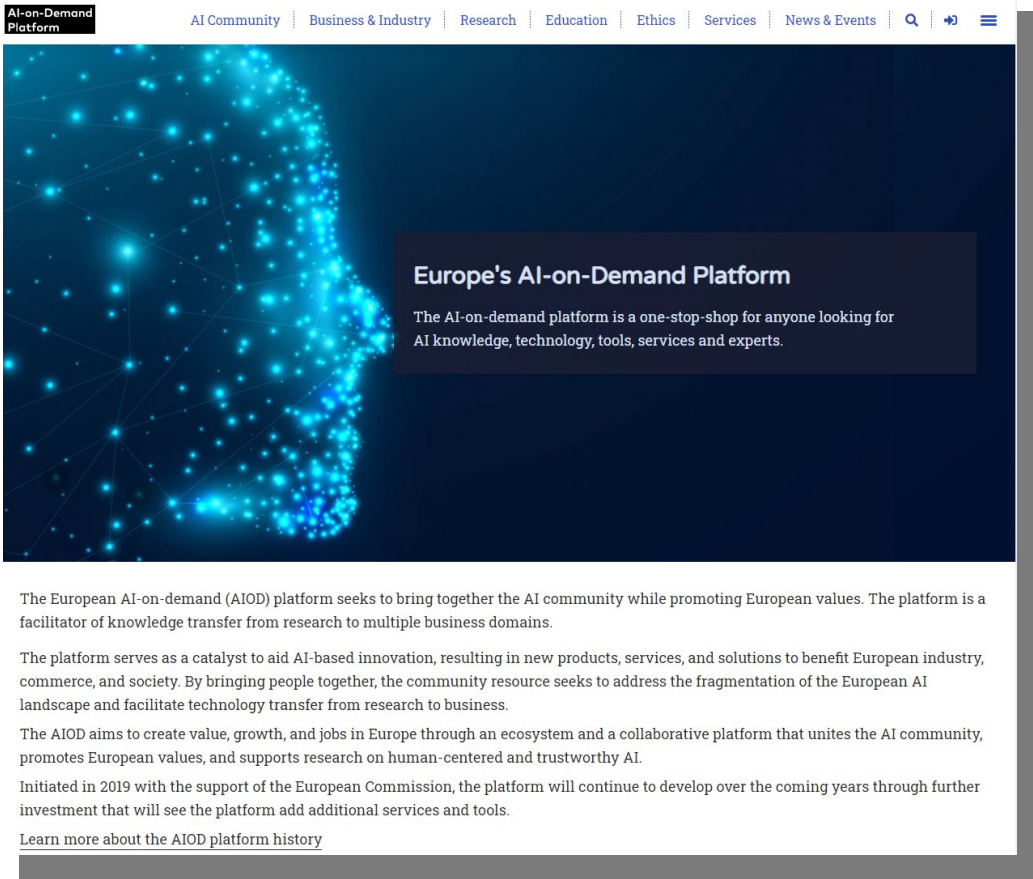
LOBA

- **Website:** Create and nest your website under the AIoD domain; use AIoD website to share open calls, experiments, news, events, project results, etc.; media corner for all press announcements
- **Common Branding:** Possibility of using AIoD “stamp” (AI4Europe will send guidelines)



# Systems and services

## Portal



The screenshot shows the AI-on-Demand Platform Portal. The header includes navigation links: AI Community, Business & Industry, Research, Education, Ethics, Services, News & Events, a search icon, a share icon, and a menu icon. The main content area features a large blue abstract graphic on the left and a dark blue box on the right with the text: "Europe's AI-on-Demand Platform. The AI-on-demand platform is a one-stop-shop for anyone looking for AI knowledge, technology, tools, services and experts." Below this, a paragraph states: "The European AI-on-demand (AIOD) platform seeks to bring together the AI community while promoting European values. The platform is a facilitator of knowledge transfer from research to multiple business domains." Another paragraph follows: "The platform serves as a catalyst to aid AI-based innovation, resulting in new products, services, and solutions to benefit European industry, commerce, and society. By bringing people together, the community resource seeks to address the fragmentation of the European AI landscape and facilitate technology transfer from research to business." A third paragraph states: "The AIOD aims to create value, growth, and jobs in Europe through an ecosystem and a collaborative platform that unites the AI community, promotes European values, and supports research on human-centered and trustworthy AI." A fourth paragraph mentions: "Initiated in 2019 with the support of the European Commission, the platform will continue to develop over the coming years through further investment that will see the platform add additional services and tools." At the bottom, there is a link: "Learn more about the AIOD platform history".

AI-on-Demand Platform

AI Community | Business & Industry | Research | Education | Ethics | Services | News & Events | Search | Share | Menu

### Europe's AI-on-Demand Platform

The AI-on-demand platform is a one-stop-shop for anyone looking for AI knowledge, technology, tools, services and experts.

The European AI-on-demand (AIOD) platform seeks to bring together the AI community while promoting European values. The platform is a facilitator of knowledge transfer from research to multiple business domains.

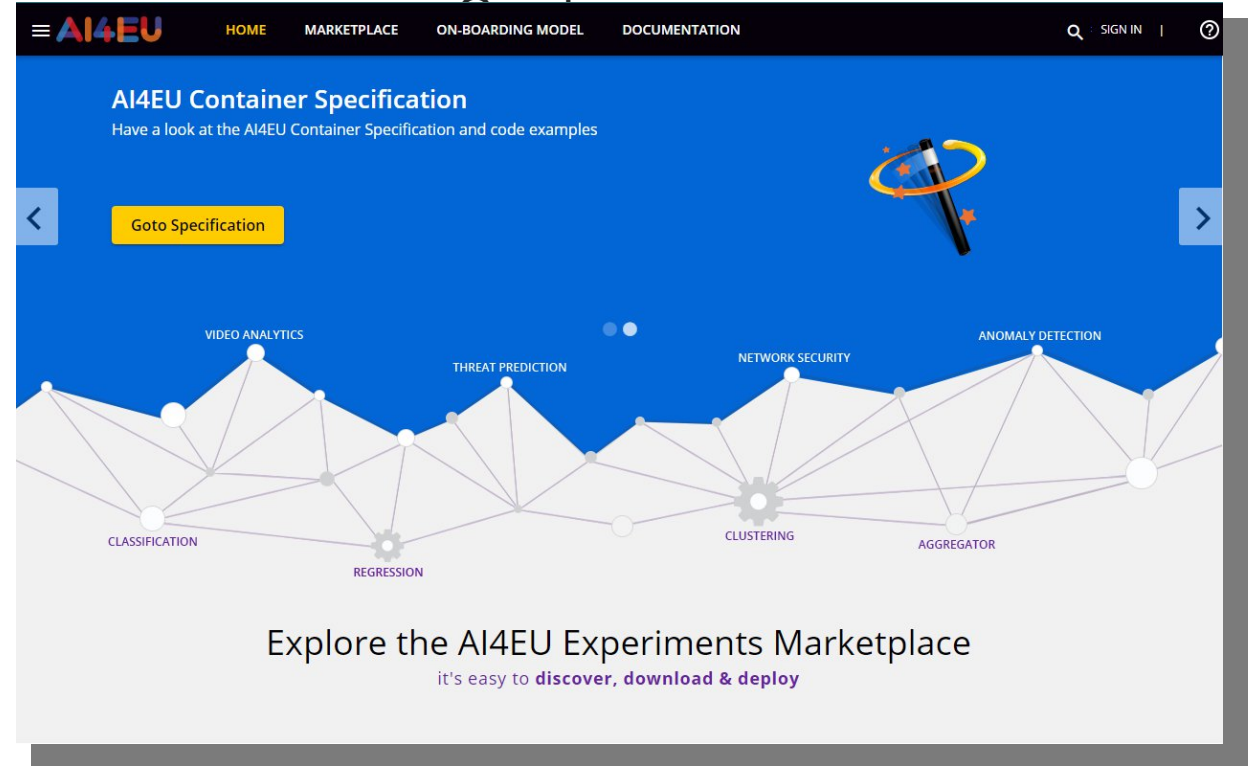
The platform serves as a catalyst to aid AI-based innovation, resulting in new products, services, and solutions to benefit European industry, commerce, and society. By bringing people together, the community resource seeks to address the fragmentation of the European AI landscape and facilitate technology transfer from research to business.

The AIOD aims to create value, growth, and jobs in Europe through an ecosystem and a collaborative platform that unites the AI community, promotes European values, and supports research on human-centered and trustworthy AI.

Initiated in 2019 with the support of the European Commission, the platform will continue to develop over the coming years through further investment that will see the platform add additional services and tools.

[Learn more about the AIOD platform history](#)

## Eclipse



The screenshot shows the AI4EU Eclipse Marketplace. The header includes navigation links: HOME, MARKETPLACE, ON-BOARDING MODEL, DOCUMENTATION, a search icon, a SIGN IN link, and a help icon. The main content area features a blue background with a yellow button labeled "Goto Specification". Below this, a network diagram shows various AI applications: VIDEO ANALYTICS, THREAT PREDICTION, NETWORK SECURITY, ANOMALY DETECTION, CLASSIFICATION, REGRESSION, CLUSTERING, and AGGREGATOR. At the bottom, the text reads: "Explore the AI4EU Experiments Marketplace. it's easy to discover, download & deploy".

AI4EU HOME MARKETPLACE ON-BOARDING MODEL DOCUMENTATION Search SIGN IN Help

### AI4EU Container Specification

Have a look at the AI4EU Container Specification and code examples

[Goto Specification](#)

VIDEO ANALYTICS THREAT PREDICTION NETWORK SECURITY ANOMALY DETECTION

CLASSIFICATION REGRESSION CLUSTERING AGGREGATOR

### Explore the AI4EU Experiments Marketplace

it's easy to **discover, download & deploy**



# Research bundles

**AI-on-Demand Platform**

AI Community | Business & Industry | **Research** | Education | Ethics | Services | News & Events

- Any - | Micro-project in Humane-AI-Net | PhD project | Student project

Technical categories  
- Any -

Technology readiness  
- Please select -

Sort by  
Title

Order  
Asc

## Research Bundles


"Research bundles" give you a space in the AI on-demand platform where you can collect and publish the outputs of a small research project in a compact way. A research bundle collects in a single place all the assets (code, data, tutorials, examples, ...) produced by your project and published on the AI on-demand platform. Of course, you can also put links to assets published elsewhere, like Github or Zenodo.

INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência

### A Graph-Based Drift-Aware Data Cloning Process

This project investigated a data generation methodology that, given a data sample, can approximate the stochastic process that generated it. The methodology can be useful in many contexts where we need to share data while preserving user privacy. [read more](#)


---

**INRIA**

### A Hierarchical Framework for Collaborative Intelligent Systems

The research bundle describes a hierarchical framework for collaborative intelligent systems developed by T7.3 Working Group on Collaborative AI of AI4EU and incorporated in the Strategic Research Agenda of Humane AI Net. [read more](#)


---

**IIIA-CSIC**

### A tale of two consensus. Building consensus in collaborative and self-interested scenarios.

A study of consensus building under two different hypotheses: truthful annotators (as a model for most voluntary citizen science projects) and self-interested annotators (as a model for paid crowdsourcing projects). [read more](#)

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**Brno University of Technology**

### Adaptation of ASR for Impaired Speech with minimum resources (AdAIS)

This micro project studied the adaptation of automatic speech recognition (ASR) systems for impaired speech [read more](#)

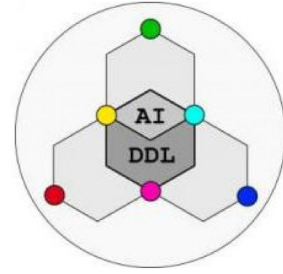
Home > Research > Research Bundles > AI Integration Languages

## AI Integration Languages

A Case Study on Constrained Machine Learning

Micro-project in Humane-AI-Net

giovanni.oru.se



**Short description**

The tangible objective of this micro-project is develop a modular implementation in AIDDL of the Moving Targets algorithm, for injecting constraints in ML mode.

The moving targets method integrates machine learning and constraint optimization to enforce constraints on a machine learning model. The AI Domain Definition Language (AIDDL) provides a modeling language and framework for integrative AI.

We have implemented the moving targets algorithm in the AIDDL framework for integrative AI. This has benefits for modeling, experimentation, and usability. On the modeling side, this enables us to provide applications of "moving target" as regular machine learning problems extended with constraints and a loss function. On the experimentation side, we can now easily switch the learning and constraint solvers used by the "moving targets" algorithm, and we have added support for multiple constraint types. Finally, we made the "moving targets" method easier to use, since it can now be controlled through a small model written in the AIDDL language.

**Additional information**

This micro-project was jointly performed by Uwe Köckemann, Fabrizio Detassis and Michele Lombardi. The project is part of the Humane-AI-Net network of excellent research centers in AI. It contributes to this network in the following respects:

- Linking Symbolic and Subsymbolic Learning (Task 1.1): Moving targets provides a convenient approach to enforce constraint satisfaction in subsymbolic ML methods, within the limits of model bias. Our AIDDL integration pulls this idea all the way to the modeling level where, e.g., a fairness constraint can be added with a single line.
- Compositionality and Auto ML (Task 1.4): The moving targets method, combined with an easy way of modeling constraints via AIDDL, may increase trust in fully automated machine learning pipelines.
- Dealing with Lack of Training Data (Task 2.6): Training data may be biased in a variety of ways depending on how it was collected. We provide a convenient way to experiment with constraining such data sets and possibly [generate synthetic data to test of data](#).

**Tangible outcomes:**

1. Example Jupyter Notebooks (3 data sets)
2. Experiments Jupyter Notebooks (3 data sets)
3. Moving targets tutorial
4. Python library
5. Short video presentation (2:20 minutes)

**Technical categories**  
Constraints and satisfiability | Machine learning


**Technology Readiness Level**  
TRL 3-5 (Technology development)

**Lead institution**  
Örebro University

**Last updated**  
Wed, 10/13/2021 - 00:44

**Contact details**  
Uwe Köckemann <uwe.kockemann@oru.se>, Michele

**Tangible outcomes**





# Composition of AI assets and solutions marketplace

AI4EU

HOME

MARKETPLACE

MY MODELS

ON-BOARDING MODEL

DESIGN STUDIO

Q AND A

INTERFACES

Video Tutorials

Watch Playlist

Explore the AI4EU Experiments Marketplace  
it's easy to discover, download & deploy

i-energy-load-forecasting | Catalog: AI4EU Expert... | Version: 1.0.0

Home / Marketplace / i-energy-load-forecasting | Solution ID: 00000000-0000-0000-0000-000000000000

Created by Decision Support Systems Laboratory, Institute of Communication and Computer Systems, I NERGY Project | Created on 10/05/2021 | Manage My Model

INTRODUCTION | CATEGORY: Prediction

**i-energy**  
Artificial Intelligence  
for Energy

**Energy Load Forecasting**

This is a forecasting service for predicting electrical load of a boiler room in a large District Heating Network in hourly basis.  
This service is based on a Seasonal ARIMA model implemented in context of **i-ENERGY** project.  
For more information on how to use the solution, please see README.pdf in Documents section.

Other Prediction Models

adicos-apply

adicos-train

Deploy for Execution

Local Kubernetes

KI-Lab Playground

Description Rating: ★★★★★

# Service for Newsletters

- Registration of projects and participants
- Upload of items (news, events, documents)
- Control panel to circulate the newsletters

AI-on-Demand Platform


AI Community | Business & Industry | Research | Education | Ethics | Services | News & Events

Home > AI Community > Projects


Organisations  
Projects  
Working Groups

## Projects


Categories:  Sort by:  Order:



**AI REGIO**  
01.10.2020 - 30.09.2023  
VISION: By 2030, Europe will lead the worldwide competition for an ethical and sustainable adoption of AI in Manufacturing, by integrating regional Digital Innovation Hubs and pan-EU open Digital Manufacturing Platforms via a cross-border network of SME-d... [read more](#)



**AI-PROFICIENT**  
01.11.2020 - 01.11.2023  
By combining human knowledge with AI capabilities, the EU-funded AI-PROFICIENT project will develop proactive control strategies to improve manufacturing processes in terms of production efficiency, quality and maintenance. The overall goal is to incre... [read more](#)



**AI4Copernicus**  
01.01.2021 - 31.12.2023  
AI4Copernicus is a European H2020 project that aims to bridge Artificial Intelligence (AI) with Earth Observation (EO) world by making the already developed AI4EU AI-on-demand platform, the digital environment of choice for users of Copernicus data, for r... [read more](#)

AI-on-Demand Platform

AI Community | Business & Industry | Research | Education | Ethics | Services | News & Events

## Upcoming Events

01.09.2022 | 00:00 - 30.09.2022 | 23:59 (CET)  
**Intel® AI Global Impact Festival**

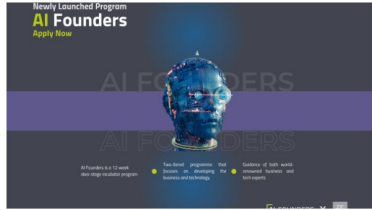
05.10.2022 | 14:00 - 15:00 (CET)  
**AI-Café presents: Named Entity Recognition: U...**

12.10.2022 | 15:00 - 16:00 (CET)  
**AI-Café presents: Information Sharing is a GI...**

13.10.2022 | 09:30 - 11:00 (CET)  
**EU Regions Week 2022 "AI across different regions in Europe"**


**Tweets from @AI4EU**

## News




**AI Founders**  
Apply Now


**Business Funding**  
**Heilbronn is to become Europe's Nr.1 AI-location – Campus Founders supports European AI-Startups with its own incubation program**  
Heilbronn, September 15th, 2022 – Solving the challenges of the future with artificial intelligence. To support making this a reality more often, Campus Founders launches its startup incubator program "AI Founders". In cooperation with ZFHN Zukunftsfonds ... [read more](#)



**Business Funding**  
**EU Regions Week 2022 "AI across different sectors and regions in Europe" World Café**  
This café is organised by the ICT-49 projects to encourage discussions on the opportunities and challenges associated with the adoption of AI, as well as how to best support and connect with different European regions, organisations and industry. [read more](#)



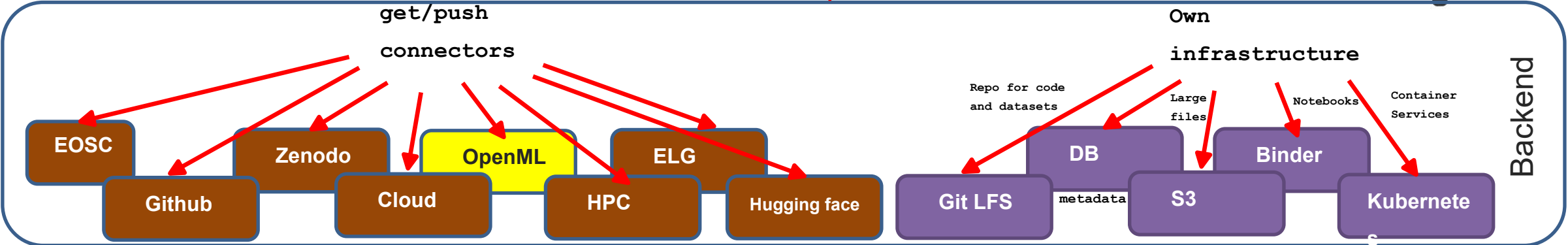
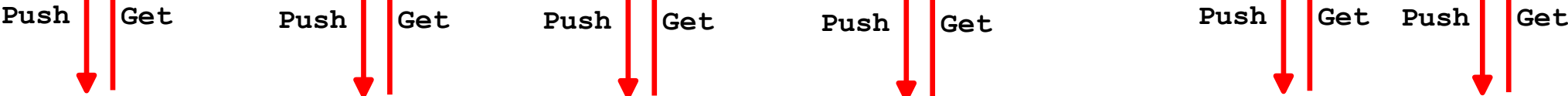
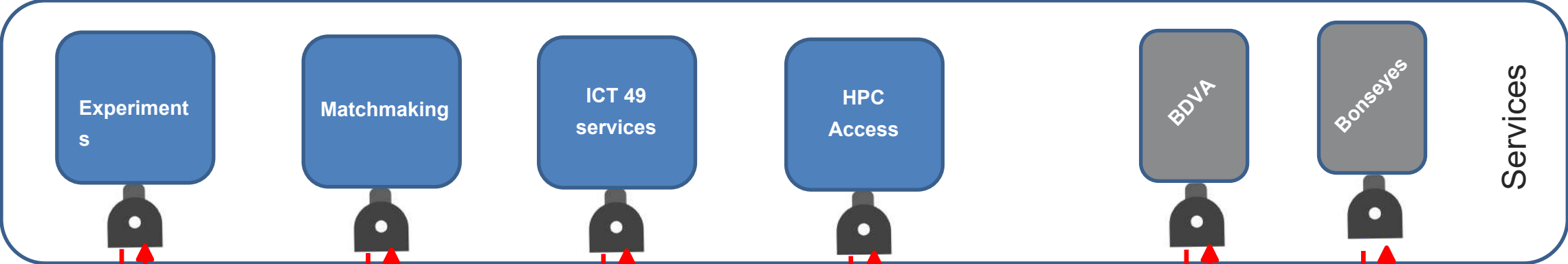
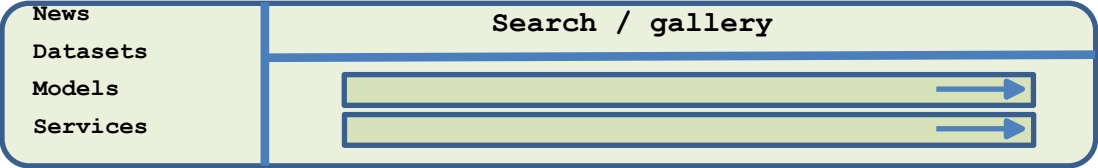
**Research Education**  
**Artificial Intelligence in Energy - News from the Horizon 2020 I-ENERGY Project Network**  
I-ENERGY Newsletter, Issue July 2022 [read more](#)



**Research Education**  
**We are one step further in Artificial Intelligence adoption and bringing together the EU AI Ecosystem!**  
Access a full three-session training on how to boost AI Adoption in your region. [read more](#)

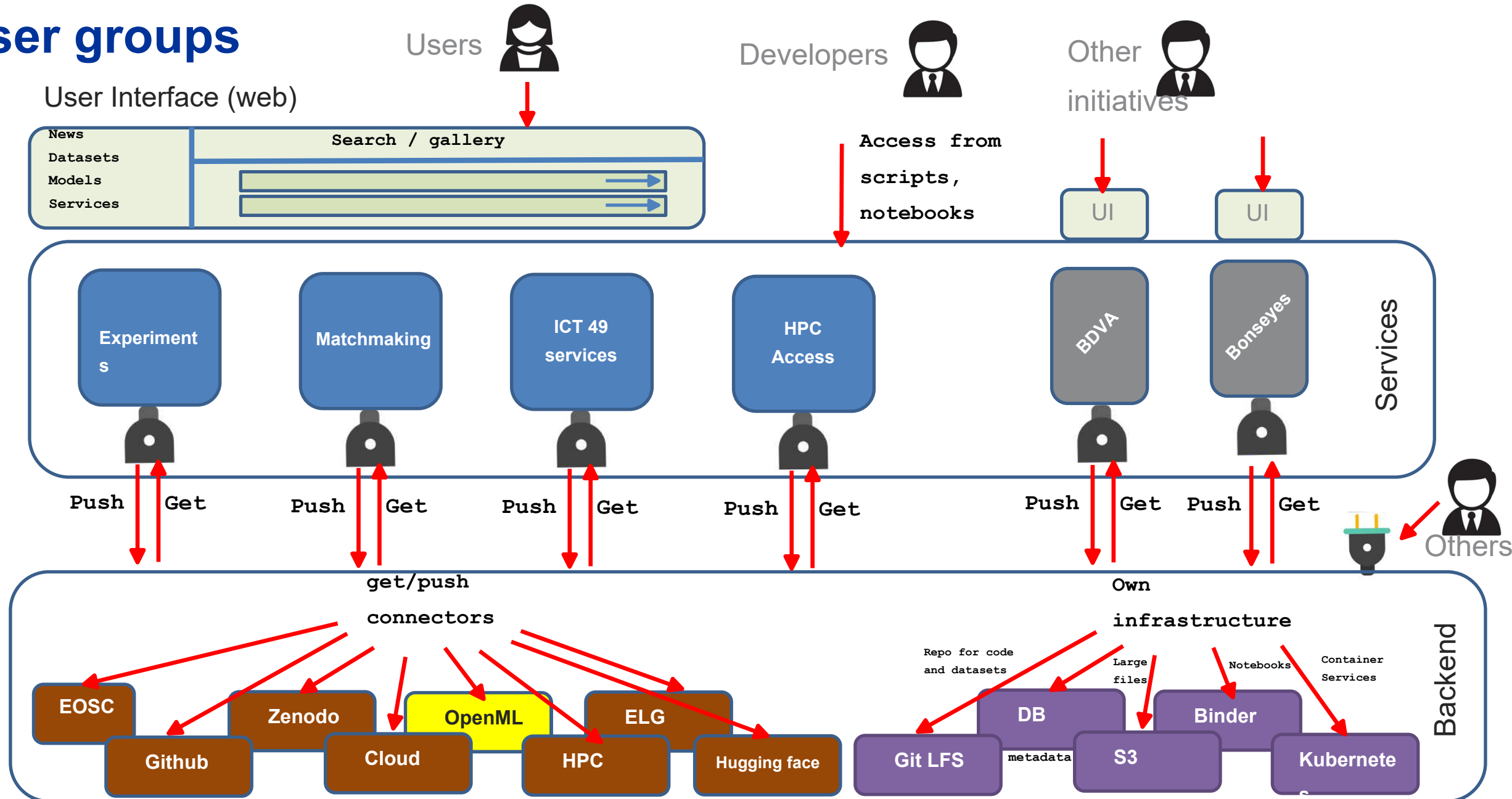
# Development of the platform & New services

User Interface (web)





# User groups



# Upcoming services

ICT 49

- Matchmaking
- Earth Observation
- Energy service
- Planning – logistics, smart transport
- Cyber physical systems – IoT
- DIHs

AI4Europe

- Reproducibility
- Benchmarking
- Upskilling and AIDA



## Matchmaking

Connecting **AI experts** and **hardware providers** with **SMEs**, **public administrators** and **researchers** for **AI solution development**.

You don't know what you don't know? Explore in **your own language**

Monetise your infrastructure deploying research tools or supporting partnerships

Coming Soon



## Earth Observation

Find out what value AI can bring to **Earth Observation (EO)**.

Linking **users of Copernicus data** (scientists, SMEs, etc.) and the **DIAS platforms** with Artificial Intelligence.

**Offering** AI4Copernicus datasets and tools and services relevant to Copernicus data.

Coming Soon



## Energy Service

Explore how AI will reshape the **energy value chain**.

Evolving, upscaling and demonstrating innovative AI-as-a-Service (**AIaaS**) **Energy Analytics Applications** and **digital twins services**.

Coming Soon



## Planning Service

AI facilitating the process of deciding what to do in order to achieve a desired objective.

Bringing the most advanced **planning technology** Europe has to offer to **companies**, **SMEs** and **innovators**

Demonstrating how this technology can be adopted in different scenarios, boosting the use of planning technologies even in non-technical businesses.

Coming Soon



## Cyber Physical systems

AI-as-a-Service for the Deep Edge

Helping **SMEs** digitalise by allowing them to access, implement and make use of Artificial Intelligence in an easy and affordable way.

Offering a series of modular services—such as experimentation, model compression, optimisation, benchmarking, and deployment on hardware and security—that will increase AI usage among enterprises and SMEs.

Coming Soon



## Digital Innovation Hubs

A dynamic **European network** of regional **AI DIHs** and **AI Testing and Experimental Facilities (AI TEFs)**

Ensuring deployment of available state-of-the-art European AI capacities and capabilities.

Supporting joint development and provision of **ecosystem-business-technology-transformation services** targeting local **SMEs** and tech **governmental agencies**.

Coming Soon

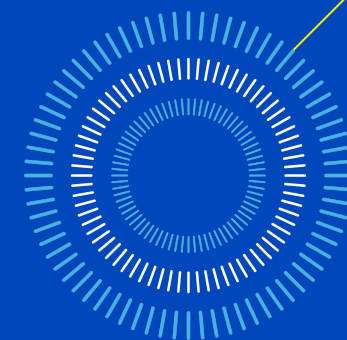
# How to proceed - Contacts

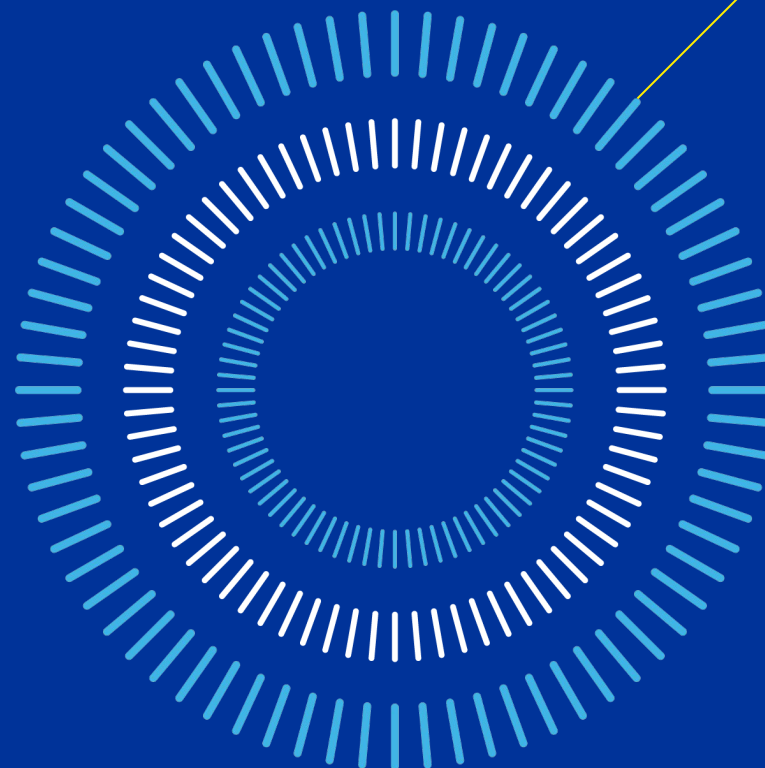


- Please direct queries to: [coordination.aiod-csa@insight-centre.org](mailto:coordination.aiod-csa@insight-centre.org)
- If you wish to join the general AIOD Forum for periodic updates on the platform and interaction with other interest parties, please contact: [tanvir.badwal@insight-centre.org](mailto:tanvir.badwal@insight-centre.org)



*Thank you!*





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