



# **D1.2 – Workshops (co-organized with other pillars) - Workshop Nr 1**



<b>Project Title</b>	A network of excellence for distributed, trustworthy, efficient and scalable AI at the Edge
<b>Project Acronym</b>	dAIEDGE
<b>Grant Agreement No</b>	101120726
<b>Topic</b>	HORIZON-CL4-2022-HUMAN-02-02
<b>Start Date of Project</b>	September 1 <sup>st</sup> , 2023
<b>Duration of Project</b>	36 Months

<b>Name of the Deliverable</b>	Workshops (co-organized with other pillars) - Workshop Nr 1
<b>Number of the Deliverable</b>	D1.2
<b>Related WP Number and Name</b>	WP1 - European AI Lighthouse Vision Implementation
<b>Related Task Number and Name</b>	T1.2 – AI community mobilization
<b>Deliverable Dissemination Level</b>	PU - Public
<b>Deliverable Due Date</b>	M12 – August 2024
<b>Deliverable Submission Date</b>	August 31 <sup>st</sup> , 2024
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### Keywords

Network of Excellence, Research Virtual Lab, Sharing of Resources, Experimentation, Requirements, Architecture, API, Proof of Concept, Benchmarking, Community

## Revisions

Version	Submission date	Comments	Author
V0.1	August 8, 2024	Initial version	JM Bonnefous, BCA
V0.2	August 18, 2024	Edited version	JM Bonnefous, BCA
V1.0	August 31, 2024	Final version	Reviewed by Alain Pagani

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## Acronyms and definitions

Acronym	Meaning
NoE	Network of Excellence
AloD	AI on Demand

## ***Executive Summary***

Deliverable D1.2 (Workshops (co-organized with other pillars) - Workshop Nr 1) is an outcome of task T1.2 (AI Community mobilization) in work package WP1 (European AI Lighthouse Vision Implementation) of the dAIEDGE project. The actual deliverable is a workshop entitled “Next-generation infrastructure federation: a Virtual research lab for edge AI”, which took place on June 26th, 2024, in Thessaloniki, Greece, organized by BCA. This workshop was organized in the frame of the 4<sup>th</sup> Community Workshop of the European Networks of Excellence in AI by the dAIEDGE NoE co-organized by the VISION CSA and the NoEs. This was the opportunity to present the concept of the distributed research virtual lab to be developed by dAIEdge and engage with the NoE ecosystem. This document is a short summary of the successful event.

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# 1. Introduction

## 1.1. Background and rationale

This deliverable D1.2 (Workshops (co-organized with other pillars) - Workshop Nr 1) is an outcome of task T1.2 (AI Community mobilization) in work package WP1 (European AI Lighthouse Vision Implementation).

This document summarises the successful workshop entitled “Next-generation infrastructure federation: a Virtual research lab for edge AI”, which took place on June 26th, 2024, in Thessaloniki, Greece. This workshop was organized in the frame of the 4<sup>th</sup> Community Workshop of the European Networks of Excellence in AI by the dAIEDGE NoE co-organized by the VISION CSA and the NoEs. This document is a short summary of the successful event.

The workshop focused on the concept of next-generation infrastructure federation, specifically highlighting the development of a virtual research lab tailored for edge AI. This lab will serve as a collaborative platform for researchers and developers to conduct experiments and research across various domains of edge AI. The workshop presented the core concepts behind the new dAIEDGE Virtual Lab. The audience learned about the expected benefits of the sharing on edge resources under a distributed system/network. This was also the opportunity to receive feedback from the audience towards the definition of requirements and possible use cases for such distributed network.

Key aspects of the workshop have been discussions on facilitating common research endeavors, providing access to dedicated resources, tools, and services within a decentralized network. The dAIEDGE consortium has presented to the audience how this infrastructure can enhance edge resource availability, optimize costs, and foster innovation in the field of AI at the edge. Through interactive sessions and discussions, participants could exchange views and gain insights into the potential of virtual research labs to advance edge AI technologies and address real-world challenges effectively.

## 2. Next-generation infrastructure federation: a Virtual research lab for edge AI



Figure 1: invitation to the 4th community workshop of the AI NoEs

The workshop “Next-generation infrastructure federation: a Virtual research lab for edge AI” presented the core concepts behind the new dAIEDGE Virtual Lab. The workshop was organized by BCA (represented by Jean-Marc Bonnefous).

The workshop was split in three parts presented in the following sections:

### 2.1. Description of VLab concept and objectives

**Concept:** The VLab is a laboratory for conducting common research and experiments across the domains of edge AI and across communities, facilitated by dedicated resources, tools and services. Provides a decentralized network of resources that researchers /developers can tap into, offering improved edge resource availability and optimising costs. JM Bonnefous (BCA) presented the concept and the benefits for the users.

**Benefits** of the VLab:

- Provide a decentralized network of resources that researchers /developers can tap into, offering improved resource availability
- Centralised cloud model is constrained by supply of resources, not demand
- Incentivize users to direct or deploy hardware to offer fungible, digital resources
- Generate network effects, easier to scale,
- No massive upfront investment needed, adding or adjusting virtual resources
- Improve access
- Reduce costs with more flexibility





Figure 2: D Paudel (INSAT), JM Bonnefous (BCA, organiser), A Pagani (DFKI, coordinator), M. de Prado (VERSES), N Pazos (HES-SO)

## 2.2. Presentation of the Benchmarking use case

The presentation was made by Nuria Pazos, representing HES-SO.

**Concept:** The automated benchmarking of models and applications on edge systems is a high-value added functionality that can be used by researchers and other users and will be made available on the VLab as a first use case.

### Objectives:

- Enrich the research virtual laboratory
- Be able to launch/execute DNN models/ DNN apps on remote edge and deep-edge nodes

### Requirements:

- Remote edge/deep-edge nodes are configured and installed on remote node owner facilities, and they are connected to a host deserving internet connection
- Configuration of remote edge/deep edge node and host has to be implemented by the node's owner. Standard guidelines and installation procedures will be provided.

Miguel de Prado, representing Verses, explained the benefits of benchmarking from the perspective of a user.

## 2.3. Discussion and Q&A

The audience addressed a number of questions to the panelists regarding a number of topics:

- Means of participation : users initially from consortium but vocation to be expanded to external users and add partners that are not in the consortium we will provide a guideline for creating a node.
- What are the main HW platform that will be supported? Depends on the node - if the user has a vendor specific platform, he can choose. Currently Raspberry Pi is available.
- Possible link with other services: e.g. Can be add-on to MPerf – here benchmarking is about hardware metrics (latency etc, energy consumption)
- Integration with AI on Demand platform? It is planned to define an integration path with AloD through discussions with AI4Europe and now also Deploy AI the new CSA just started.
- Sustainability after project end is a question that will be addressed.



Figure 3: Workshop panel Q&A session

### 3. Impact

The event was a successful informational channel which raised much interest from the participants. The questions of the audience showed the interest to use and benefit from the Virtual Research Lab and the question of the integration into the AI on demand platform was discussed.

The information about the event was published on the project website<sup>1</sup> and on the social media LinkedIn<sup>2</sup>.

<sup>1</sup> <https://daiedge.eu/news/celebrating-four-years-ai-research-excellence-4th-ai-community-workshop-and-aida-symposium>

<sup>2</sup> [https://www.linkedin.com/posts/daiedge\\_vision-ai-elise-activity-7211993362722148352-mpJs](https://www.linkedin.com/posts/daiedge_vision-ai-elise-activity-7211993362722148352-mpJs)

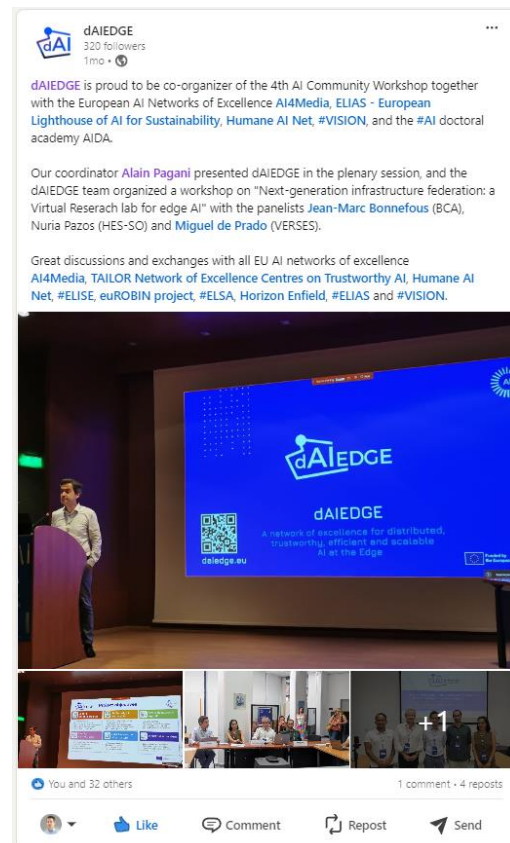


Figure 4: Presentation of the workshop on the dAIEDGE website (left) and on LinkedIn (right)

## 4. Concrete follow-up actions from the session

A number of actions will be implemented as a follow up to this workshop:

- Connect with DeployAI the new project in charge of the commercialisation layer for the AI on Demand platform for the industry
- Clarify that the Vlab is not focused on providing distributed access to cloud services but to selected edge resources under a collaborative framework
- Reiterate similar workshops to specific audiences



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