



Joint workshop by EPoSS and
INSIDE Industry Associations

The Future of Innovation in Edge AI

Online, April 04, 2025

Notes from the Workshop

*Part V: dAIEDGE: A European Network of
Excellence for Distributed AI at the Edge*

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1. Introduction: A Network to Unify Edge AI Research in Europe

dAIEDGE is a Horizon Europe-funded **Network of Excellence (NoE)** dedicated to the advancement of **distributed, trustworthy, scalable, and energy-efficient AI at the edge**. It brings together **36 partners from 15 European countries**, including leading research institutes, universities, industry partners, and associations.

As part of the broader **AI Lighthouse** initiative – a “network of networks” established to coordinate European AI leadership – **dAIEDGE** plays a unique role. It is the **only Network of Excellence exclusively focused on Edge AI**, ensuring that this crucial technological frontier is developed with strategic coherence and scientific rigor.

2. Strategic Objectives

dAIEDGE’s mission is built around six core objectives:

1. Creating a Unified AI Community

Connecting researchers, industry, and institutions across Europe to build a cohesive knowledge and innovation ecosystem.

2. Advancing Scientific Excellence

Conducting foundational and applied research in hybrid, distributed AI methods optimized for edge environments.

3. Strategic Research and Vision Development

Producing a Strategic Research Agenda (SRA) for Edge AI, informed by cross-sector consultations and engagement with external stakeholders.

4. Leading by Demonstration

Developing and deploying tangible use cases to showcase technological breakthroughs.

5. Providing an innovation infrastructure

Developing tools for experimentation, benchmarking and datasets federation

6. Empowering the Ecosystem

Delivering tools, infrastructure, and services such as benchmarking platforms, a virtual AI lab, a marketplace, and an incubator.

3. Key Challenges in Distributed AI at the Edge

The **dAIEDGE** consortium has identified six critical challenges that guide its work:

1. Hardware and Infrastructure

- Adapting to rapidly evolving edge hardware
- Integrating AI across the AI continuum (cloud-to-edge)
- Enabling code generation, tuning, and deployment for edge devices

2. Methodology and Software

- Building robust, specialized models
- Supporting on-device learning and communication

3. Deployment and Reusability

- Simplifying deployment processes
- Creating benchmarks and resource-sharing mechanisms
- Establishing a scalable AI solution **marketplace**

4. Security, Privacy, Fairness, and Reliability

- Addressing the vulnerabilities of distributed systems
- Ensuring ethical and privacy-preserving AI deployments

5. Capability Demonstration

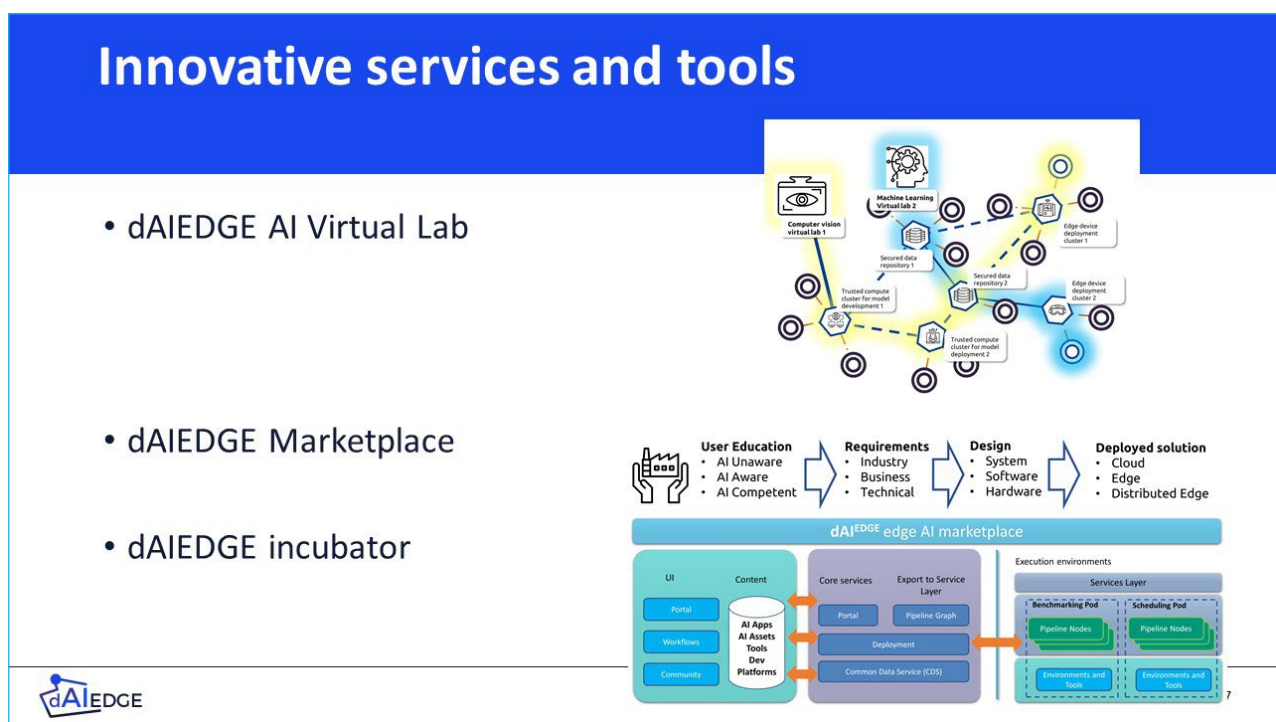
- Delivering real-world **demonstrators and pilots** across sectors

6. Interoperability

- Tackling **contextual, spatial, and operational fragmentation**
- Managing software and hardware heterogeneity in edge environments

4. Innovation Infrastructure and Services

To support development and deployment, dAIEDGE offers a range of technical tools and platforms:



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dAIEDGE VLab

The dAIEDGE Virtual Lab (VLab) is an interactive online platform where users can:

- Benchmark AI solutions on real edge hardware
- Upload datasets and test models remotely across a distributed infrastructure

dAIEDGE Marketplace

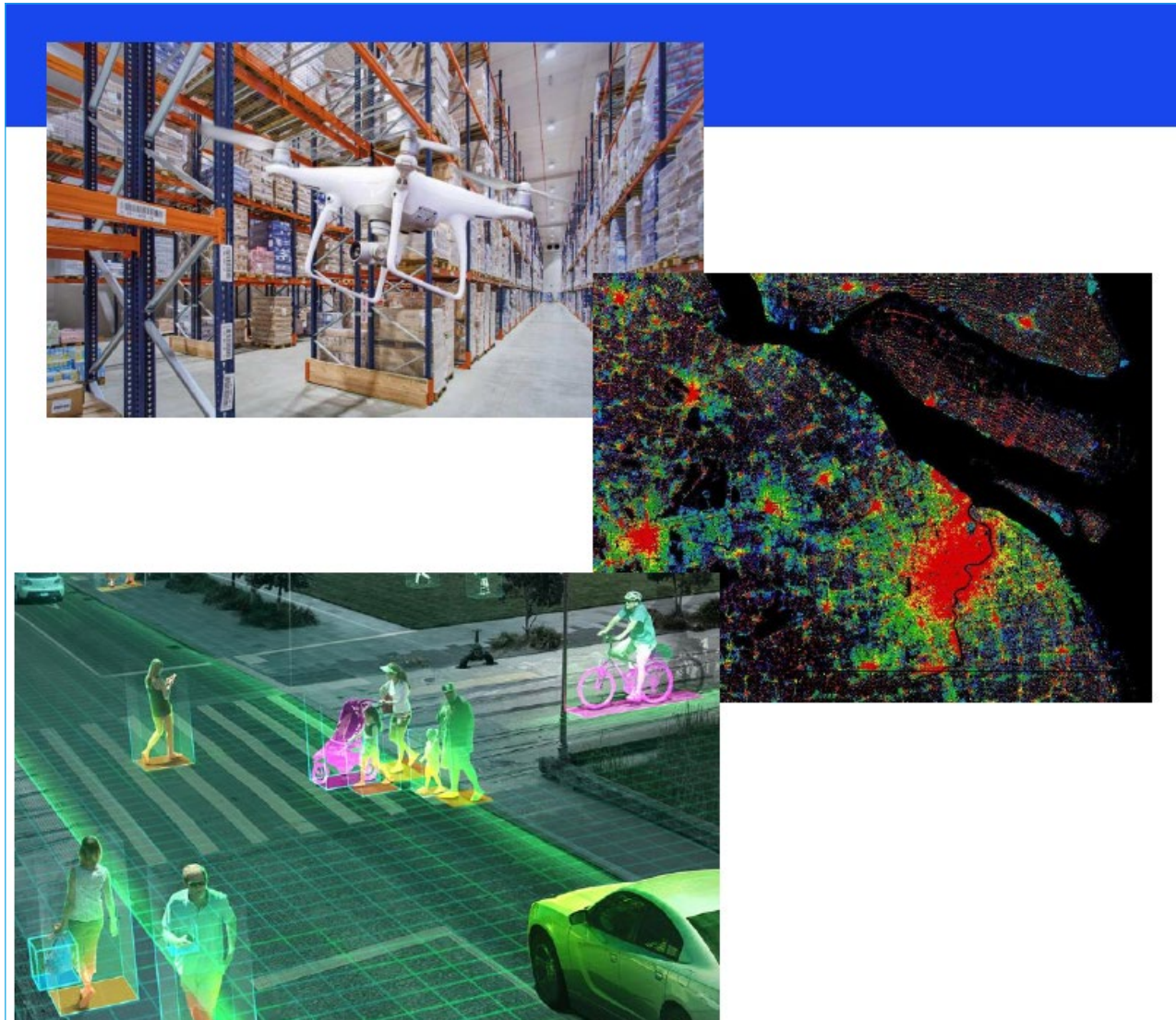
A commercial and collaborative platform where AI and edge solutions can be proposed, discovered, and reused – built in collaboration with the **AI-on-Demand** platform.

Virtual Incubator

A space to foster new innovations, helping entrepreneurs and SMEs bring edge AI ideas to market.

5. Demonstrator Pilots: Showcasing Real-World Edge AI

Three concrete use cases highlight the potential of distributed AI at the edge:



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1. Warehouse Monitoring with Drones

Autonomous drones provide inspection and security services in logistics environments.

2. Satellite Image Preprocessing at the Edge

Performing image preprocessing directly aboard satellites, reducing the need for high-volume data transmission to Earth.

3. Smart Cities and Mobility Monitoring

A network of edge-based cameras monitors urban mobility, pedestrian flows, and traffic in real-time.

These pilots embody the “lead by demonstration” principle and validate the maturity of dAIEDGE technologies.

6. Community and Outreach Activities

dAIEDGE is actively engaged in the European AI research and policy ecosystem through:

- **Co-organization of the Edge AI Conference (2023, 2024)**
- **Workshops at HiPEAC and IEEE Events** (e.g., AI-TREATS on AI hardware security)
- **Production of public reference documents**, including the AI Lighthouse Vision

These activities amplify dAIEDGE's scientific impact and support stakeholder engagement across sectors.

7. Strategic Policy Input and Recommendations

As a leading player in the **European AI Lighthouse**, dAIEDGE contributes to shaping future policy through published recommendations, including:

- Engage more deeply with industrial stakeholders
- Ensure longer lifespans and better funding continuity for coordination actions
- Emphasize **exploitability and sustainability** of networks of excellence
- Clarify the practical benefits of the AI Lighthouse initiative
- Promote **terminological alignment** via a proposed tree-based AI taxonomy
- Advocate for **greater flexibility** in AI policy frameworks

These recommendations were captured in dAIEDGE's reference document and are feeding into European policy dialogues.

8. Toward a Strategic Research Agenda (SRA)

A central deliverable of dAIEDGE is its **Strategic Research Agenda for Edge AI**, due by February 2026. The agenda aims to define future scientific directions, research priorities, and infrastructure needs.

Development is ongoing, and stakeholder input is being collected through:

- Consultations
- Webinars
- Community workshops
- Collaborations beyond the consortium

9. Open Calls and Industry Engagement

To extend its reach, dAIEDGE is offering **competitive funding** through open calls:

- **Open Call #1:** Mobility grants for researchers – completed.
- **Open Call #2:** Joint projects between SMEs and research partners – under evaluation.
- **Open Call #3:** Launching in **summer 2025**, aimed at industry collaboration aligned with dAIEDGE's defined challenges.

These initiatives ensure the ecosystem remains **inclusive and dynamic**, encouraging widespread participation and application of edge AI technologies.

Conclusion: A European Vision for Edge AI

dAIEDGE is more than a research project – it is a **cohesive movement** to build the foundations for **scalable, decentralized, and responsible AI** in Europe. Through its pilots, platforms, policy engagement, and open collaboration, it stands as a cornerstone of the European strategy to lead in **next-generation edge intelligence**.

The journey continues – with science, industry, and policy working together to shape the **future of distributed AI at the edge**.