

Open Source Community Day

23 - 24 September

ECLIPSE
FOUNDATION

CEI-Sphere
part of EU CloudEdgeIoT.eu

Co-located with
AIOTI Days 2025



O-CEI Project

Focus: Cloud-edge-IoT blueprint

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O-CEI : Open CloudEdgeIoT Platform Uptake in Large Scale Cross-Domain Pilots

Mission

O-CEI 's mission is to drive the rapid adoption and scaling of cutting-edge solutions for energy optimization, enhancing Europe's competitiveness and enabling strategic autonomy.

Project's main objectives

- To demonstrate the capacity of IoT-edge-cloud resource, data, and service orchestration to act as the true backbone of European energy flexibility.
- To establish a reference point for deploying CEI platforms and appliances, promoting the use of trusted cross-domain interfaces for data, knowledge, and resource exchange.
- To develop a viable, transferable business case strategy for an Open Platform on top of a computing continuum.

6

KEY
STRATEGIC
VERTICALS

8

LARGE SCALE
PILOTS

28

REAL-WORLD
SCENARIOS

Call :

HORIZON-CL4-2024-DATA-01-03 : Piloting emerging Smart IoT Platforms and decentralized intelligence (IA)

Project Grant Agreement: No.101189589

Project Coordinator: UNIVERSITAT POLITECNICA DE VALENCIA

Budget: 27.8 M Euro

Duration: 42 months

Start Date: 1st January 2025

O-CEI Innovative Outcomes

01

O-CEI Data Sharing Platform

To share metrics and information about prosumers and infrastructure

04

Pre-Normative

Standardisation on O-CEI deployments

02

O-CEI Cross-Domain Continuum Ontology

To allow federation of resources

05

Adoption Methodology

Facilitating uptake for other LSPs based on blueprints

03

Federated Marketplace

To discover, select and allow installation from other examples

06

Business Model

Exploitation roadmap of flexible and efficient energy using edge computing



O-CEI applicability – verticals

6 key strategic verticals:



Electricity grid



Software-defined vehicles



Logistics



Electro mobility



Agrifood and agriculture



Urban environments



Objective : To bring together a vibrant ecosystem of technology providers, on the field integrators, and industry actors to enhance Smart IoT platforms pervasiveness, channeling previous open-source research efforts.





Objective : To maximize impact in standardization and to ensure long-term sustainability and ecosystem development.



Involvement of O-CEI partners in standardisation groups :

- EU CEI Task Force 3 : Architecture of IoT Edge Cloud
- ITU-T SG 20 : Minimum Interoperability Mechanisms
- CEN/CLC/JTC 25 : Minimum Interoperability Mechanisms
- ETSI TC DATA : Semantic Interoperability
- IEC TC57, IEC TC13 : Semantic Interoperability
- ETSI TC SmartM2M : Semantic interoperability / SAREF
- ETSI ISG CIM : Information Models
- CEN-CENELEC-ETSI Coordination Group of Smart Grids
- ISO/IEC JTC 1/SC 38 : Cloud computing
- ISO/IEC JTC 1/SC 32 : Data Management
- ISO/IEC JTC 1/SC 41 : IoT and Digital Twin
- ISO/IEC JTC 1/SC 27 & SC 44 : Cybersecurity & privacy
- ETSI OneM2M : Machine-to-Machine and IoT Technologies
- ...



Examples of O-CEI active participation to standards:

- ISO PWI-22 : *Architecture considerations for IoT Edge Cloud*
- ISO/IEC AWI 30188 : *Digital Twin – Reference architecture*
- ISO/IEC AWI 30151 : *Digital twin – Extraction and transactions of data components*
- ISO/IEC AWI 30152 : *Guidance on the integration of IoT and digital twins in data spaces*
- ISO/IEC 21823-1:2019 : *Interoperability for IoT systems*
 - o *Part 1: Framework*
- ISO/IEC AWI 21823-5
 - o *Part 5: Behavioural and policy interoperability*
- IEC TC57 WG19 (interoperability within TC57 in the long term)
- IEC TC13 JWG16 (CIM-DLMS-COSEM harmonisation)
- ...



Identify consortium needs for Open-Source Technology : a continuous process

- Continuously identify consortium OS needs
- Provide tools to fill these needs



Key topics / needs identified during the first phase of the project

- Energy
- Dataspace
- AI



Open-Source Workshop dedicated to Eclipse Dataspace

- Eclipse Dataspace Working Group
- Open Source Dataspace Software : Eclipse Dataspace Components
- Efforts towards interoperability and standardization
 - *How can open-source specifications be transposed into technical standards?*

ECLIPSE DATASPACE
WORKING GROUP



ISO/IEC JTC 1
Standing Document N 9

Guide to the Transposition of
Publicly Available Specifications
Into International Standards

Stakeholders

Appliances, commodities and end user stakeholders

Digital Service Providers

Digital >< Energy Value Chain

Data and Infrastructure Providers

DSO, TSO, hardware manufacturers

Energy Management Systems

Capabilities

O-CEI Marketplace

Blueprints

CEI utilities

O-CEI Platform automation

Orchestration of data and resources

Cloud-Edge-IoT continuum representation



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Thank you



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