



AI ad cellular communication for energy-efficient industrial automation

OVERVIEW AND STATUS



Project funded by Horizon Europe, Grant Agreement #101057083

AGENDA

Project overview

System architecture concepts

Trials and implementation examples

More information and interaction



PROJECT OVERVIEW

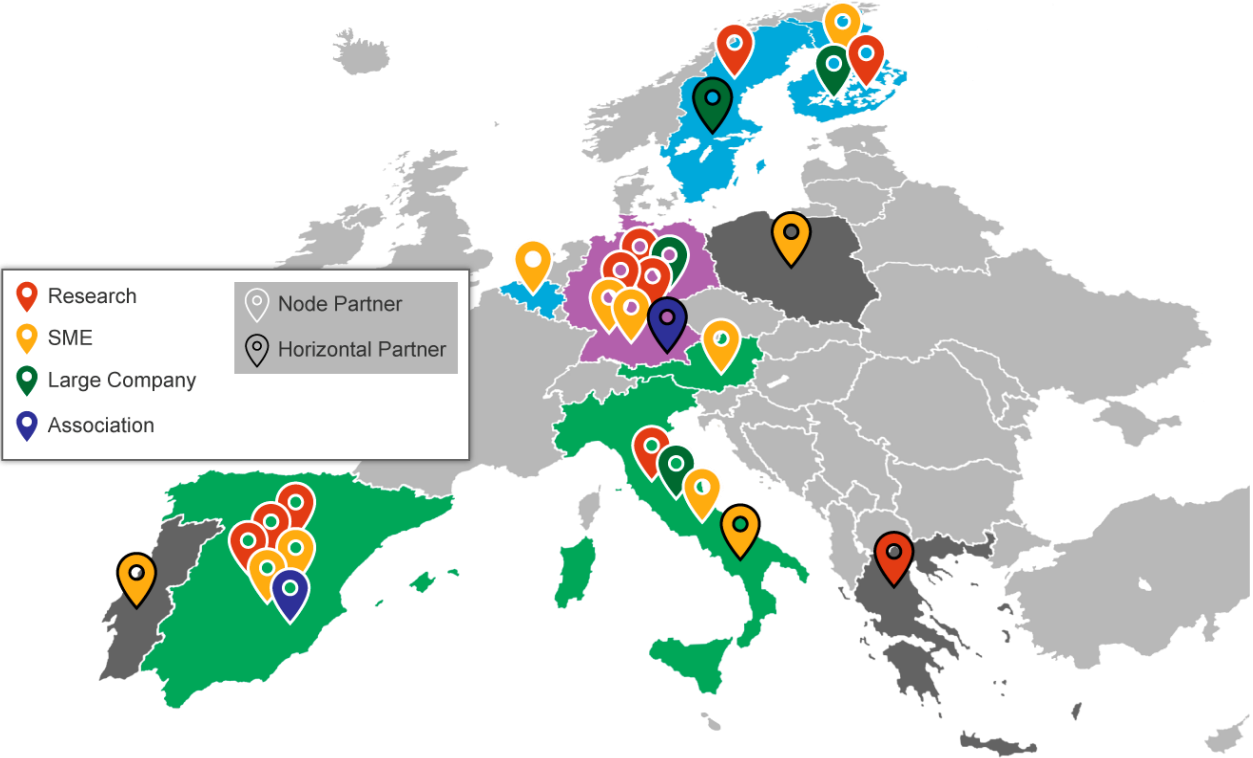
Full Title: *ZERO-enabling smart networked control framework for agile Cyber Physical Production Systems of Systems*

- **Call:** HORIZON-CL4-2021-TWIN-TRANSITION-01
- **Topic:** HORIZON-CL4-2021-TWIN-TRANSITION-01-08
- **Project Grant Agreement:** No. 101057083
- **Budget:** 9.899.912,00 €
- **Funding:** 8.052.023,00 €
- **Project Start Date:** 01/06/2022 (M01)
- **Project End Date:** 30/11/2024 (M30)
- **Project Coordinator:** Dr. Anastasios Drosou (CERTH)
- **Project Technical Manager:** Dr. Pouria Sayyad Khodashenas (Huawei)
- **Project Officer:** Mrs. Elena Angiolini

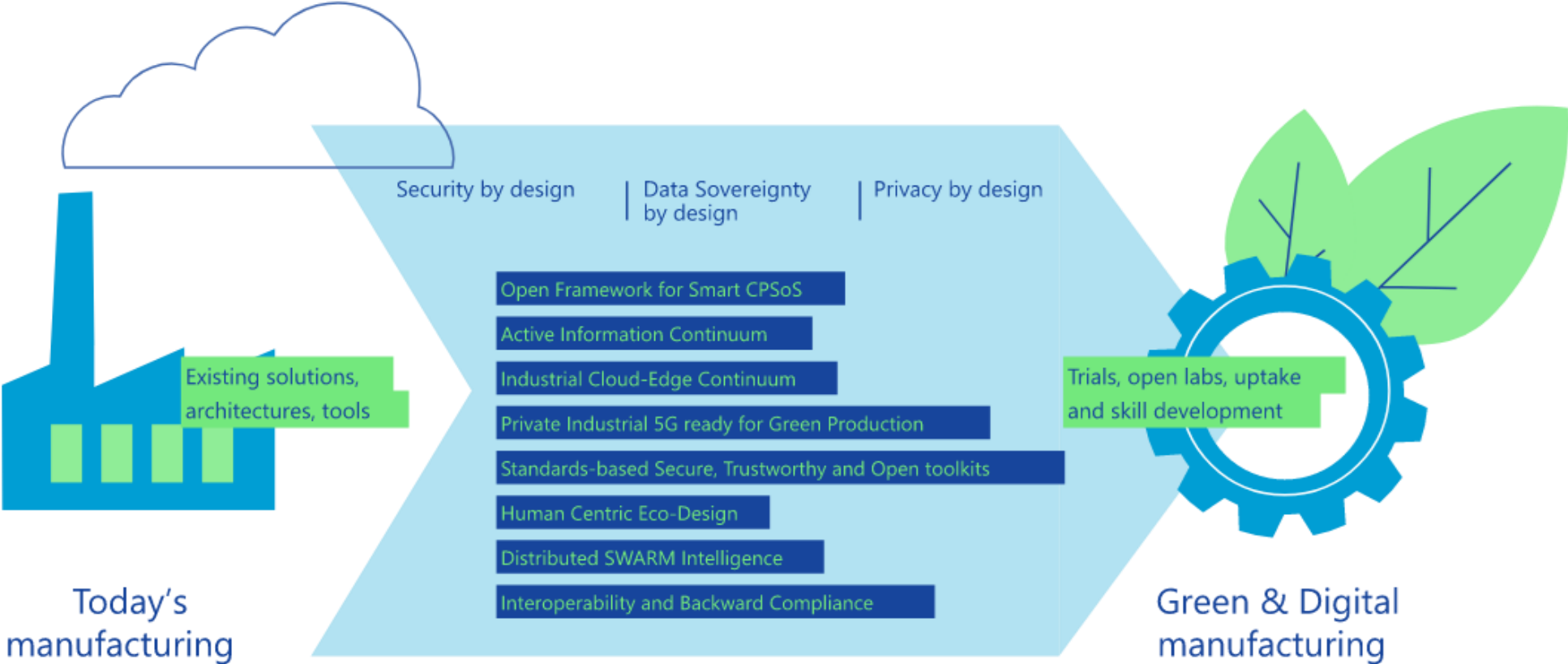


GEOGRAPHICAL DISTRIBUTION

27 participants from
9 EU countries



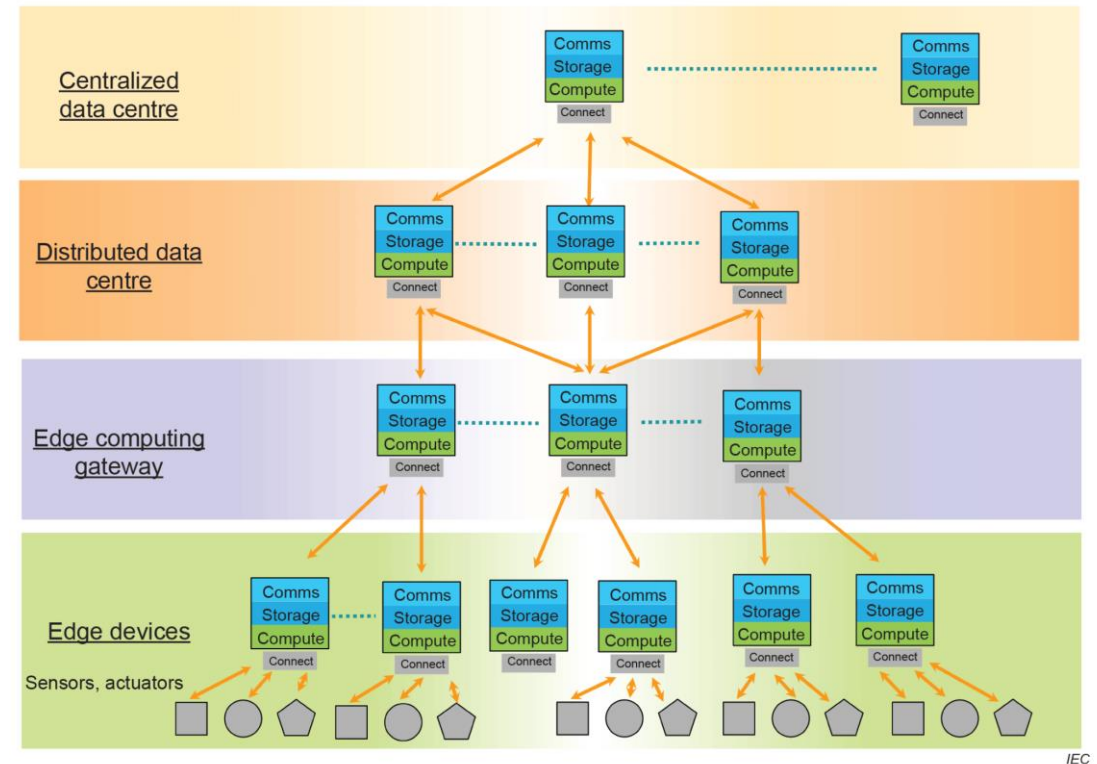
PROJECT OVERVIEW



SYSTEM ARCHITECTURE CONCEPTS

ISO/IEC 30164. Deployment views

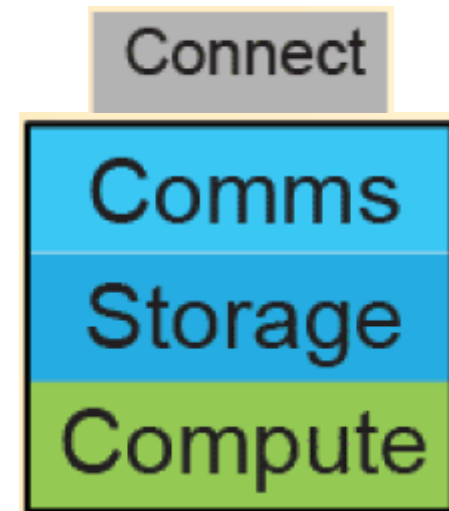
- Tolerance to energy efficiency topics
 - Devices or whole sections may come temporarily under power save mode
 - System reporting, maintenance and supervision must be adapted
 - Communication parameters must be kept
- Several tiers of deployment of Edge Entities
 - **Edge Devices** - Industrial automation device (PLC, drive, sensor, actuator, IoT gateway, etc)
 - **Edge Computing Gateway** - Aggregation layer for cost and usage optimisation
 - **Distributed Data Centre** - Industrial automation layer of engineering, configuration, monitoring
 - **Centralised Data Centre** - System-of-systems (e.g. collection of remote power plants operated and optimized centrally)

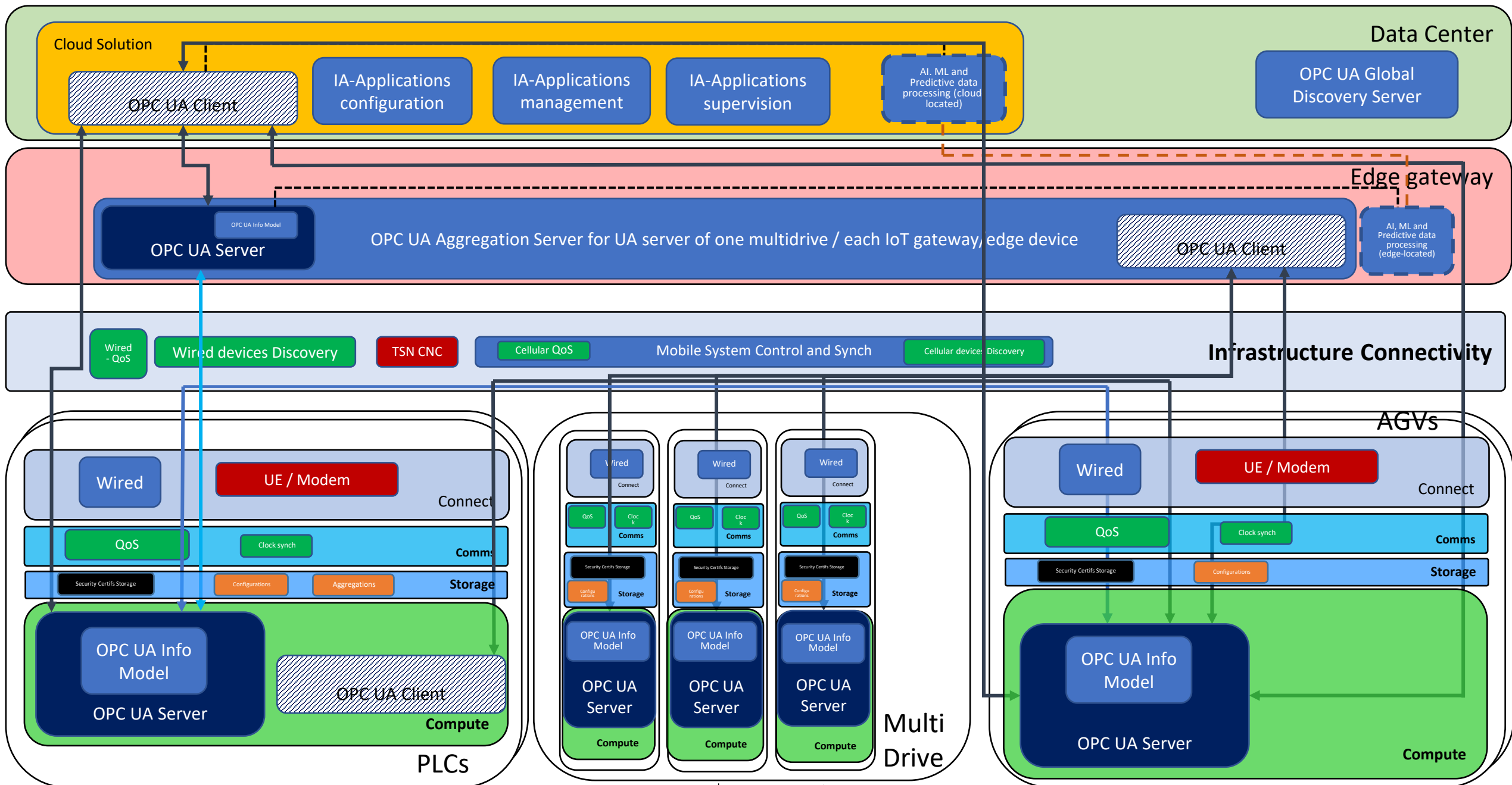


SYSTEM ARCHITECTURE CONCEPTS

ISO/IEC 30164. Base Model. Edge Entity. Think Lego pieces concept...

- Compute
 - Capability(ies) of executing logical actions to support one or more industrial automation functionalities
- Storage
 - Capability(ies) of storing and aggregating configuration and process data (including events)
 - related to the industrial automation functionalities of the compute section
- Comms
 - Capability(ies) of supporting the data exchange required by the industrial automation functionality(ies) supported by the entity (e.g. network stacks)
- Connect
 - Network interface(s) uses for Comms





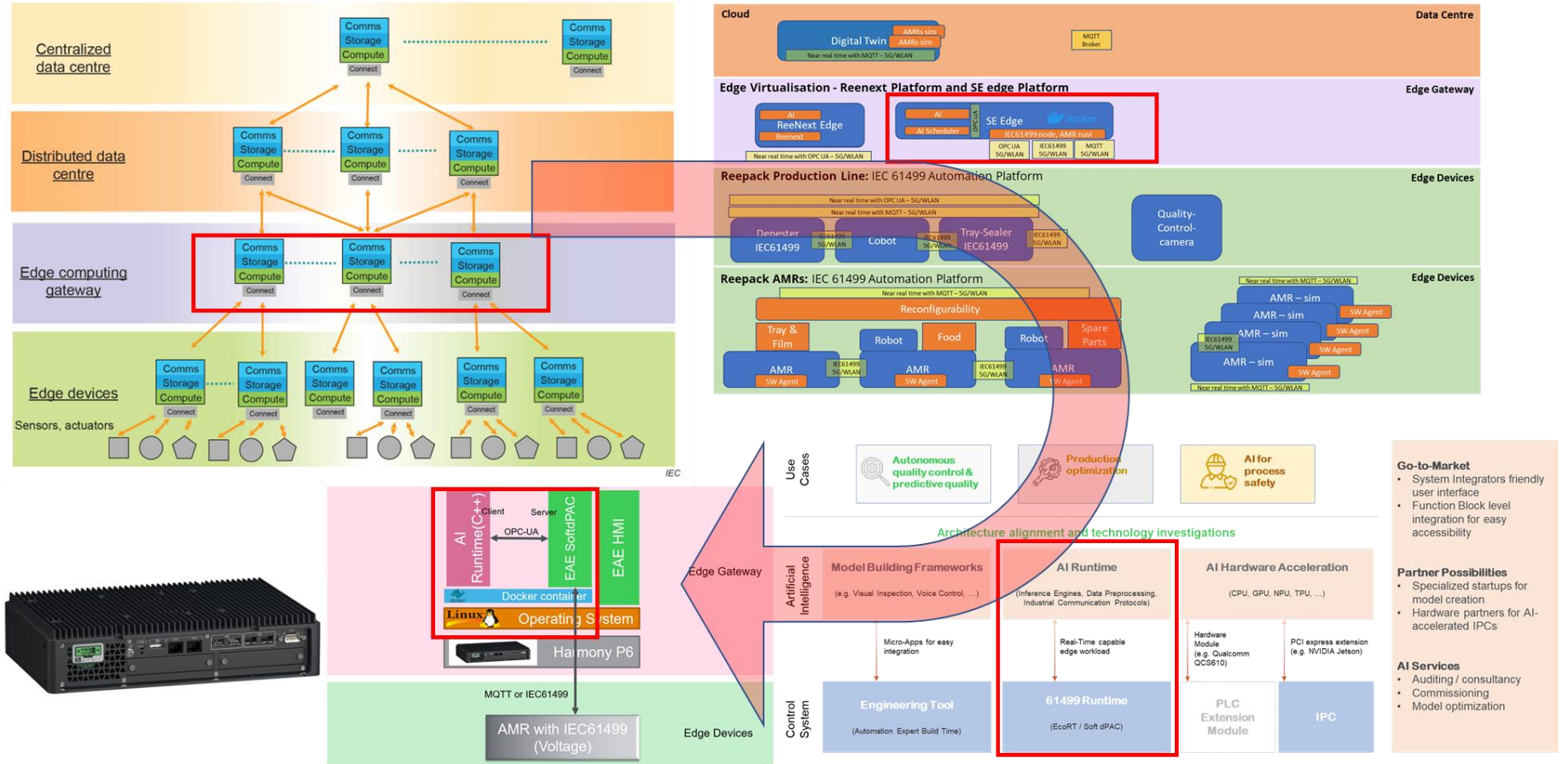
EXAMPLES. Data aggregation in dedicated IoT gateway device with OPC UA communication



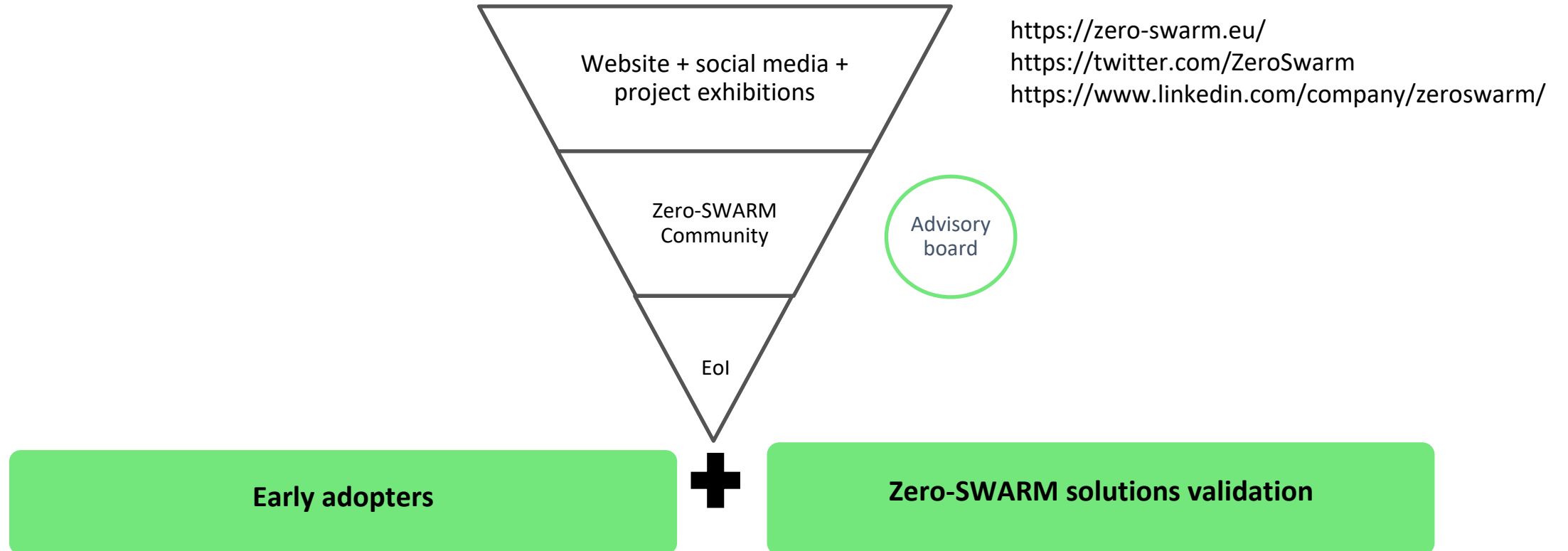
EXAMPLES

Deployment. Reepack production line

- Domains and Capabilities definitions
 - AI runtime for the controllers handling food trays
 - AI for process personnel and functional safety
 - Cobot functions
 - Digital twin representation



MORE INFORMATION AND INTERACTION



MORE INFORMATION AND INTERACTION

Smart Manufacturing / THE-TESTING-PLACE / ZERO-SWARM

ZERO-SWARM
About? Aims to accelerate the adoption of advanced 5G technologies in European manufacturing SME, through an innovative approach that combines open swarm framework and non-public 5G networks. Who for: Manufacturing SME What do you get? Access to 5G-enabled technology to optimize your manufacturing processes

231 MEMBERS 52 POSTS

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Thank you!



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