



The Standards People

## ETSI Research Conference 2023

Maximizing the Impact of European 6G  
Research through Standardization

# Distributed Artificial Intelligence- driven open and programmable architecture for 6G networks

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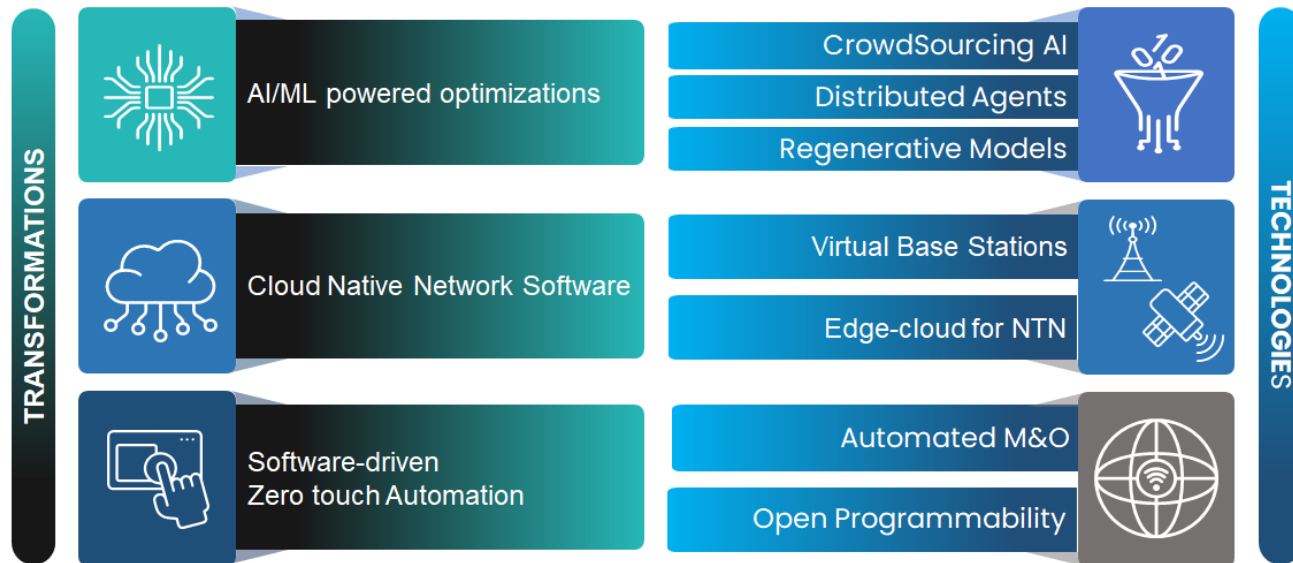
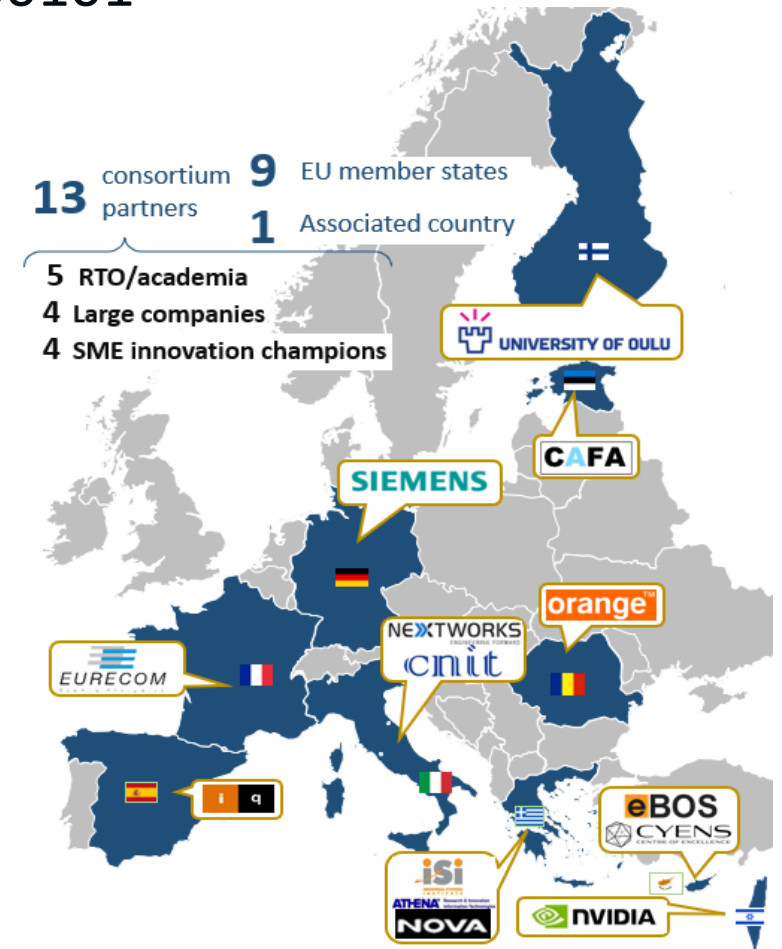
# 6G SNS

7/2/2023



# Project Overview

- **Project Name:** ADROIT6G **Stream:** B0101
- **Project website:** [www.adroit6g.eu](http://www.adroit6g.eu) (under development)
- **Project Coordinator:** Prof. Christos Verikoukis (Athena/ISI)
- **Project Officer:** Mr. Pavlos Fournogerakis



# Technical Information

## Technical Objectives (TO)

**TO1: Design and implement a novel 6G system architecture that integrates a distributed AI framework for combined communication, computation and control and empowers the convergence of networks and IT systems to enable new future digital services.**

**TO2: Create an AI-driven Management & Orchestration (M&O) and control framework for 6G Networks.**

**TO3: Architect a distributed and secure CrowdSourcing**

**TO4: Develop energy-aware models for multimodal Representation Learning**

**TO5: Evolve the cellular infrastructure to allow the true integration of deep-edge devices in communication and computation functions**

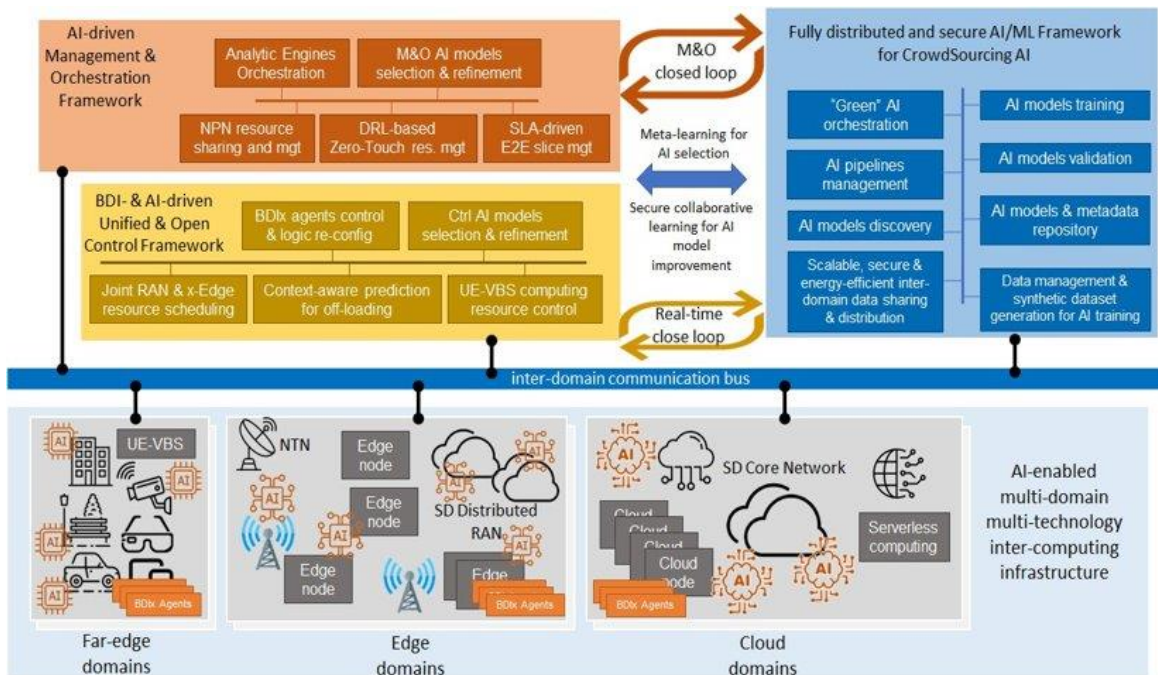
**TO6: Enable Non-Terrestrial Networks (NTN) connectivity for highly reliable Industrial IoT Services**

**TO7: Extend and demonstrate the use of decentralized AI for Device-to-Device (D2D) communications**

**TO8: Support data plane acceleration**

**TO9: Integrate and demonstrate the potential and user value of ADROIT6G through relevant experimentation, testing, and validation of its innovations in PoCs in lab settings**

# Technical Information



## PoCs

- Immersive XR - Holographic Teaching
- Terrestrial 6G IIoT
- NTN for low-bitrate IIoT
- Collaborative robots (cobots) in construction

- UEs as Virtual Base Stations (VBS) computing concept.
- A novel Decentralized AI framework for D2D communication in 6G networks, based on BDI Agents.
- Crowdourcing AI to minimize AI/ML carbon footprint and enable efficient AI/ML in distributed systems, via collaborative techniques.
- Sustainable data usage and generation, through learning representations of data collected at the edge and the far edge of the network.
- Zero-Touch management enabling AI-driven dynamic slice reconfiguration for self-driven 6G infrastructures.
- Network automation and self-optimization via closed-loop orchestration in multi-layer and inter-computing scenarios with multiple cooperating stakeholders.



# Planned Standardization Activities

## Contributions to the ETSI ENI WG

- Crowdsourcing AI MLaaS solution to minimize AI/ML carbon footprint and enable efficient AI/ML training and inference in distributed systems

## Contributions to the ETSI ZSM and ETSI MEC WG

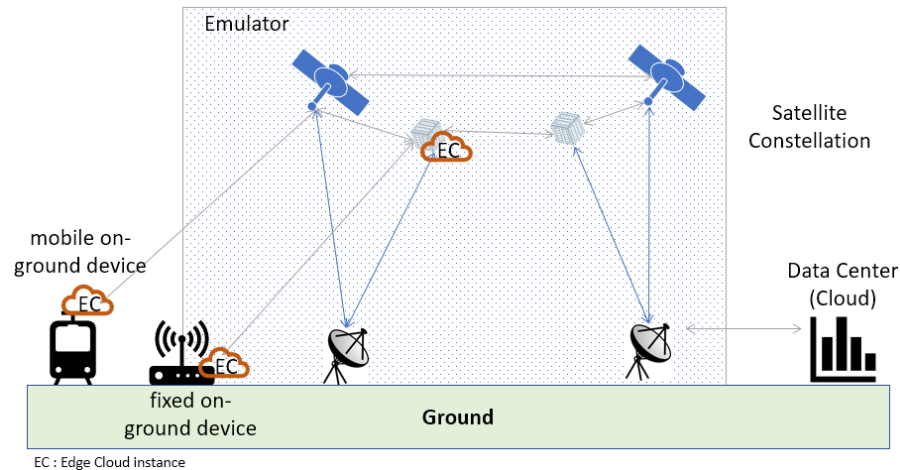
- Contributions related to distributed closed loop automation in AI-driven Management & Orchestration frameworks for multi-stakeholder ecosystems.

## Contributions to Open Platforms

- ETSI OSM: contributions will be made in OSM events showing the usage and/or the extensions of the innovative concepts validated in the project.
- OpenAirInterface Software Alliance: Contribute to the software development of the 5G/6G network stack through ADROIT-6G developments (e.g., UE-VBS and NTN modules)

# Planned Standardization Activities

- **Contributions of the UE-VBS Computing continuum concept to 3GPP**
  - Contribute the proposed UE design to the TSG Core Networks and Terminals (CT)
  - Monitor the SA5 group activities related to SON; consider standardization of BDI Agents for Self-Organizing UE-VBS
- **Monitoring and Contributions to the 3GPP SA2 group**
  - Monitor activities relevant to the ADROIT-6G architecture
  - Consider contribution of the NTN / 6G integration solution from Terrestrial 6G IIoT PoC



# Thank you!



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