PROSPERO

PROSPERO Project Overview

Motivation, Methodology and Objectives

Marco Gramaglia, UC3M

SNS JU Call 4 & 5 Projects Introduction Webinar – 19th October 2026

Grant Agreement No 101293102

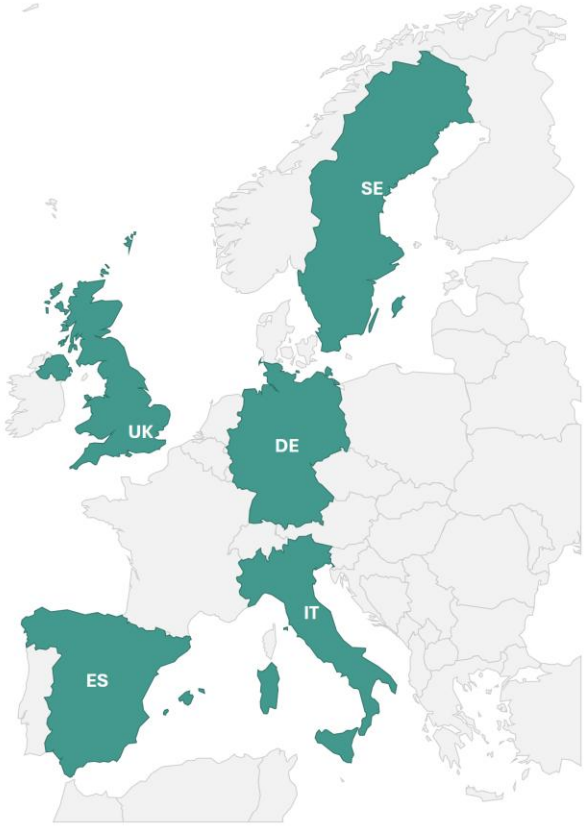
Co-funded by
the European Union

6GSNS

PROSPERO factsheet

Programmable and Scalable Operations for Efficient, Resource-Aware Architecture in 6G

- **Project scope:**
  - A Uniform, Integrated and Simplified (UIS) 6G architecture that unifies connectivity, intelligence and sustainability, aimed at lowering operator TCO, enabling new revenue sources and strengthening network resiliency.
- **Project website:** https://sns-prospero.eu
- **Duration:** 1 July 2026 to 30 June 2029 (36 months)
- **Consortium:** 8 partners from 5 countries, 1 associated partner
- **Coordinator:** Marco Gramaglia, UC3M
- **Technical Manager:** Andrés Saavedra, NEC Laboratories Europe



Spain
Telefónica Innovación Digital (TID)
Universidad Carlos III de Madrid (UC3M), coordinator
IMDEA Networks (IMDEA)

Germany
NEC Laboratories Europe (NEC)
Nokia Solutions and Networks (NOK)

Italy
FiberCop (FBC)

Sweden
Canary Bit (CAB)

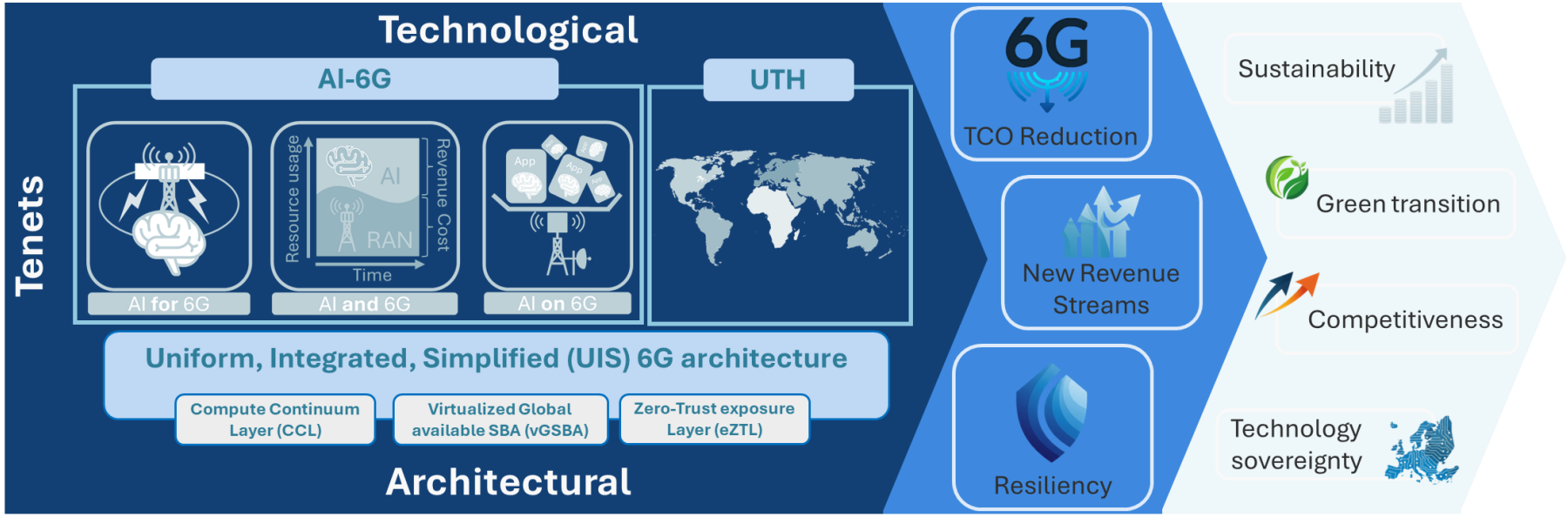
United Kingdom
Real Wireless (RW)

Brazil (associated partner)
Universidade Estadual de Campinas (UNICAMP)

PROSPERO Architectural Tenets

- We start from the premises that 5G has (partially) failed to maintain the promises
  - The introduction of NSA worked for the early adoption of the technology but introduces a lock-in effect
  - Deploying new technology, to enable new services may be expensive
- New revenues streams and an affordable transition to 6G will break this lock
  - All of the above while guaranteeing the reliability and resiliency of the network
- **PROSPERO is tackling that from the architectural perspective**

- **Business cases**
  - TCO reduction
  - New revenue streams
  - Network Resiliency
- **New Architectural Components**
  - Uniform, Integrated, Simplified (UIS) Architecture
  - AI-6G
  - Unified Telco HyperFabric (UTH)



PROSPERO scope, experimentation and goals

Technology Enablers & Domains

- Enablers:
  - AI/ML
  - Energy Efficiency Technology
  - Computing Technologies (Edge, Fog, offloading)
  - Management & Orchestration
  - Trustworthiness
- Network Domains: RAN, Core

Planned Experimentation/ Use Cases

- Nine evaluations (E1 to E9), mostly lab experimental PoCs, plus one data-driven study (E6) and one digital twin study (E7):
  - AI-driven energy-aware radio control (RAN)
  - Dynamic 6G/AI multiplexing, i.e. AI-as-a-Service on vDU compute (RAN)
  - Semantic image delivery over NTN (RAN/UE)
  - Multi-cloud and secure-by-design UTH core (Core)
  - Energy-aware P4 user-plane programs (Transport)
  - Unified RAN-Core implementation (RAN/Core)
- Use cases follow three business cases:
  - TCO reduction
  - New revenues (AI-as-a-Service, GPU-as-a-Service)
  - Network resiliency

Vertical Engagement

- No vertical partners are in the consortium, but relevant industrial partners (operators) supply the requirements and the business cases and validate the results
- The target vertical sectors are smart grid and energy, media (immersive AR/VR), and public sector, healthcare and critical infrastructure (sovereign verticals)

Project Goals

- A validated UIS 6G architecture blueprint (CCL, vGSBA, eZTL, UTH)
- Prototypes and software at TRL 3 to 4, with public reports for E1 to E9
- Standards contributions (3GPP, O-RAN, IETF) and scientific impact
- Open-source contributions to at least two large initiatives