



# Integrating Network Digital Twinning into Future AI-based 6G Systems

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# Project Factsheet



- **6G-TWIN vision:**  
“To enable a **cyber-physical continuum** between a physical network and its digital representation, by realising the concept of **network digital twin** and **demonstrating** its application in tangible use cases for **future 6G systems**”
- **Duration:** 1 January 2024 – 31 December 2026
- **Budget:** 4.19 millions euros

# The consortium



11 partners from 8 Member States or associated Member States



LUXEMBOURG  
INSTITUTE OF SCIENCE  
AND TECHNOLOGY

LIST



Politecnico  
di Bari

imec



TECHNISCHE  
UNIVERSITÄT  
DRESDEN

ubiwhere

Acelleran

R2M  
RESEARCH TO MARKET  
SOLUTION

ERICSSON

telindus

VI.VI

# The consortium



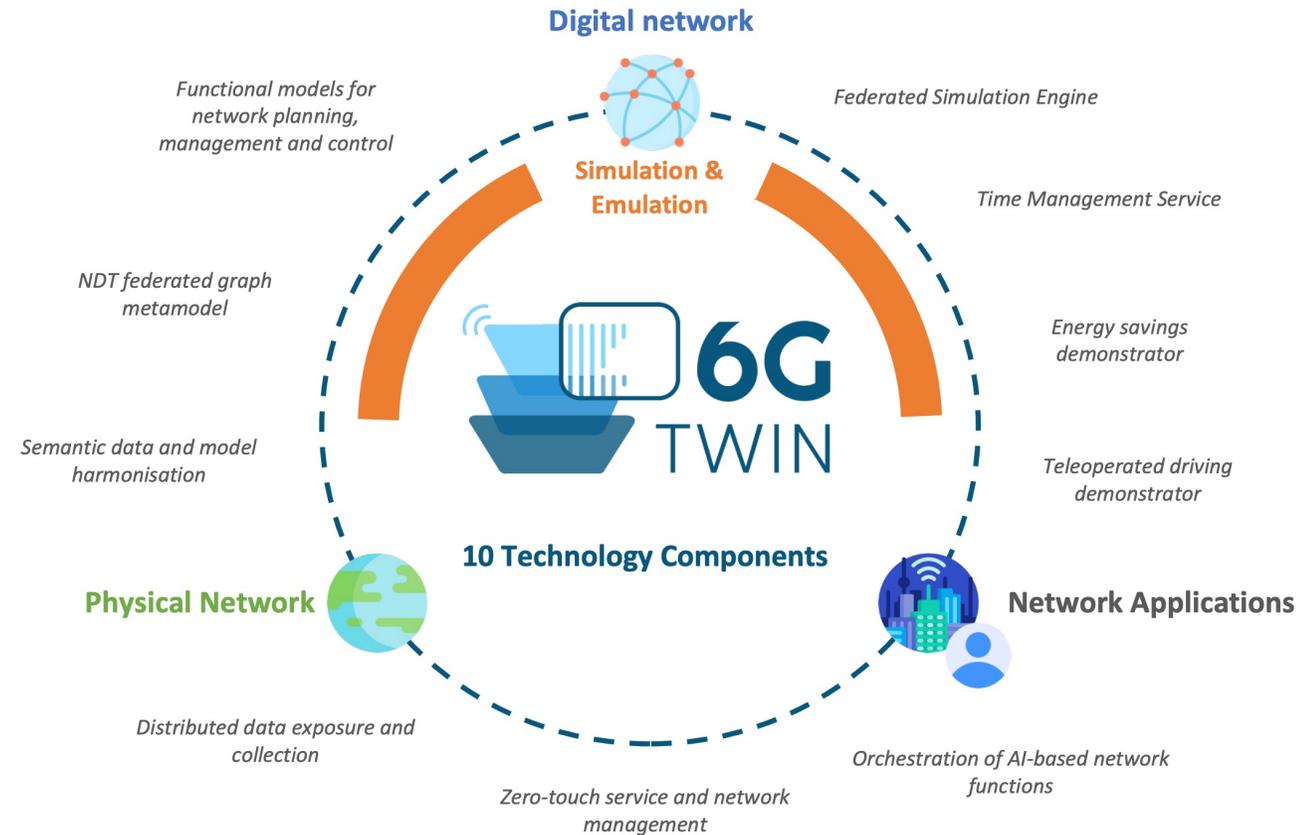
- 2 RTOs, 3 universities, 3 SMEs and 3 LEs.
- Two-thirds of the consortium partners are members of 6G-IA.



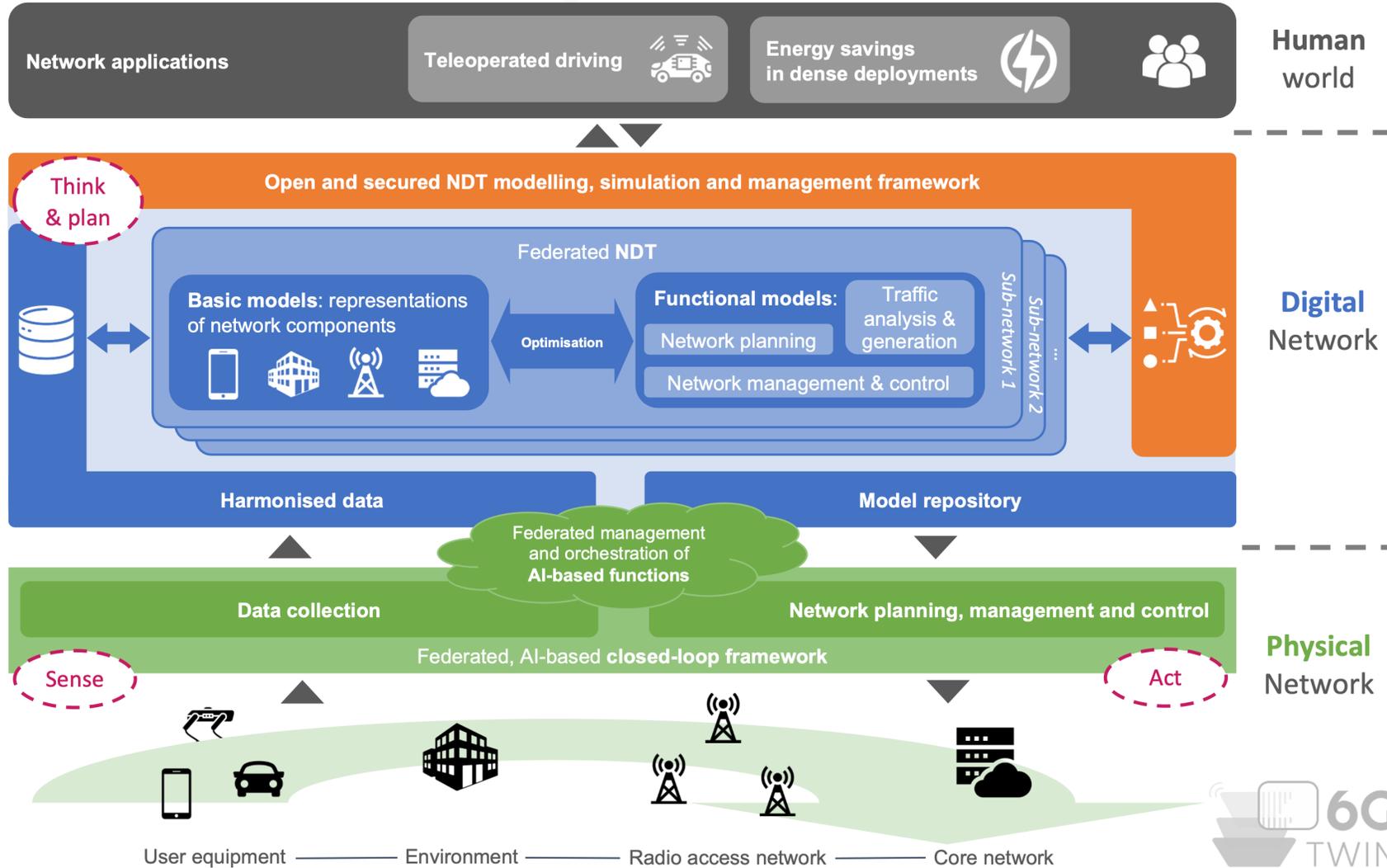
# Overarching objective



To provide the foundation for the design, implementation and validation of an **AI-native reference architecture** for 6G systems that incorporates **Network Digital Twins (NDT)** as a core mechanism for the end-to-end, real-time optimisation, management and control of highly dynamic and complex network scenarios.



# Concept



# 6G-TWIN specific objectives



## Area 1: advance the state of the art

**SO1:** To design and develop an **open, federated and AI-native network architecture** for future 6G systems that integrates NDT to enable intelligent data analytics and decision-making in real-time.

**SO2:** To design a **federated, graph-based NDT** that accurately represents highly dynamic and complex network scenarios and serves as a sandbox for optimising network planning, management and control applications.

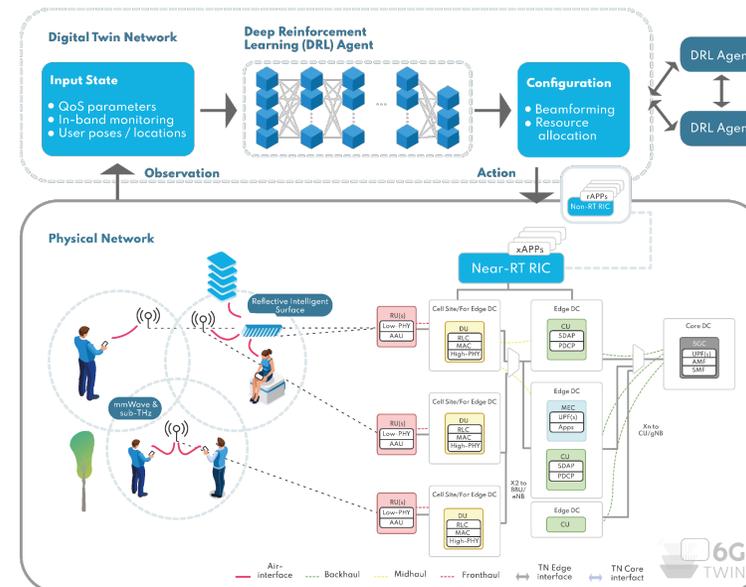
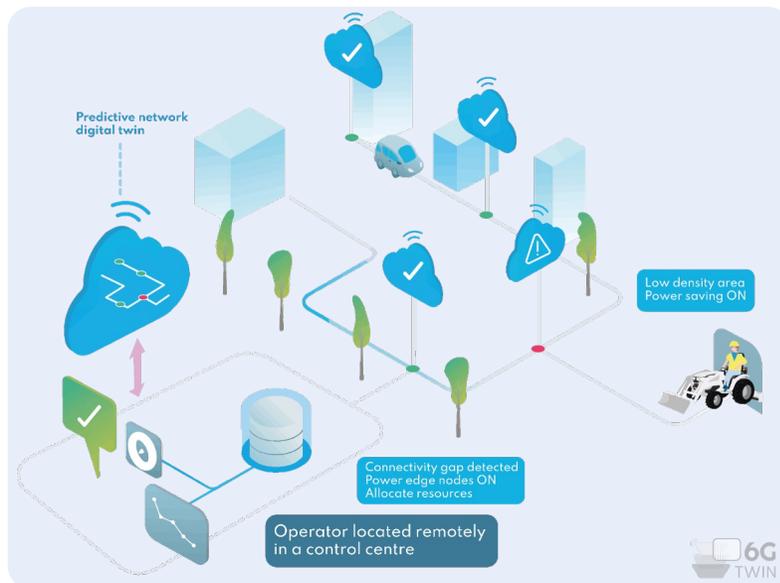
**SO3:** To implement an **accurate, reliable, open and secured modelling and simulation framework** to represent a networked environment and test the functionalities of the proposed 6G architecture.

# 6G-TWIN specific objectives



## Area 2: demonstration

**SO4:** To test, validate and facilitate the transferability of the solutions developed in 6G-TWIN through the development of two demonstrators supporting highly dynamic use cases, with **two key focus areas: teleoperating driving and energy efficiency.**



# 6G-TWIN specific objectives



## Area 3: adoption

**SO5:** To support the **standardisation** of the 6G-TWIN operation system to ensure the interoperability, platform openness and operation harmonisation of future 6G-TWIN Solutions.

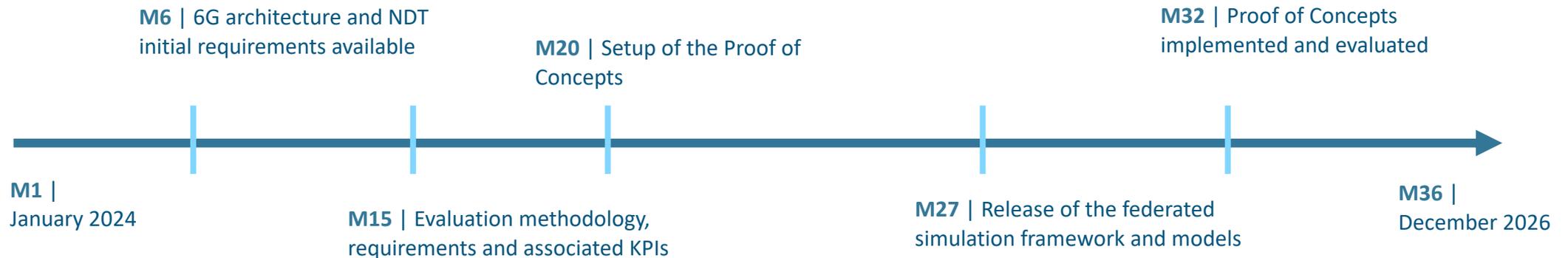
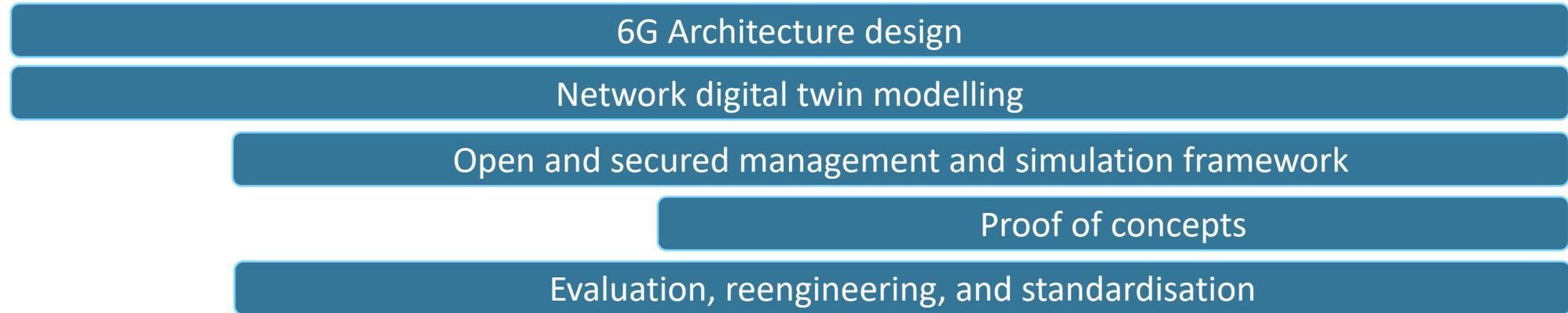
**SO6:** To provide industry with insights on **innovative business models** based on 6G-TWIN solutions and visions.

## Expected results



- **Federated and AI-native network reference architecture that integrates multiple NDTs** for real-time data analytics and decision-making across several network domains.
- **On-the-fly AI approaches** for orchestrating network functions (NF) and services (NS).
- **AI-based NF/NS** for data analytics or/and decision-making to optimise network performance.
- Accurate, reliable, open and secured **modelling and simulation framework** for representing a networked environment and testing the functionalities of the 6G architecture.
- **Two demonstrators** with key targets for KPIs and KVIs.

# Timeline and core activities



Follow us and get in touch



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Thank you for your attention !



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