

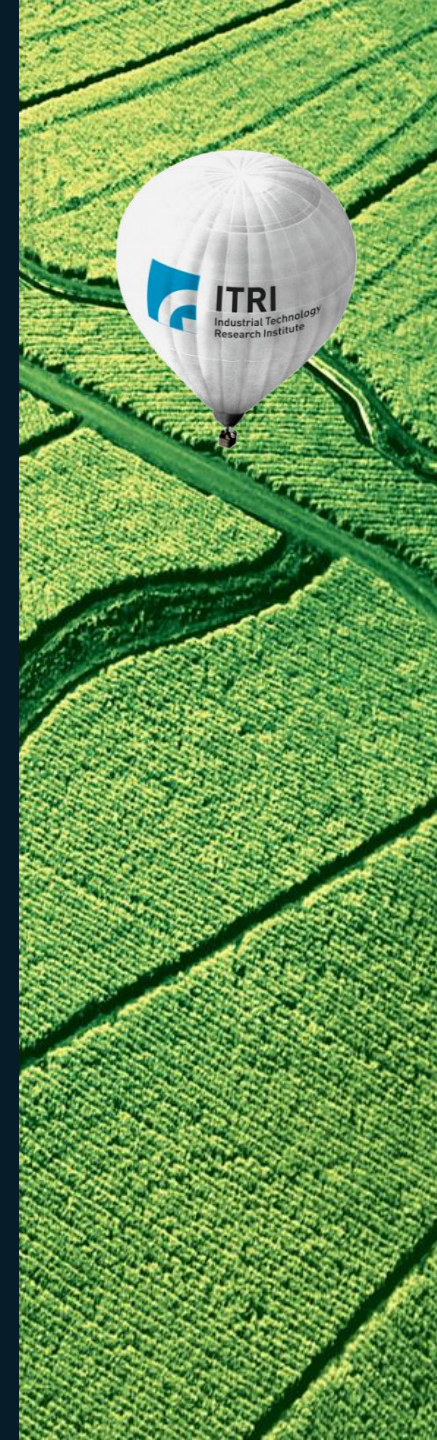
6G FORMOSA

Taiwan's first 6G Trial Network & Testbed

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6G FORMOSA

Taiwan's First Experimental 6G Trial Network & Testbed

Collaboration Ecosystem



ITRI
Leading the initiative



Research Institutes
Joint R&D



Academia
Talent & innovation



Telecom Industry
Commercialization
& application

Joint
Development



From Research to Real Impact



Early-stage 6G research, technology development, and proof-of-concept (PoC) validation.



Explore the potential of emerging 6G technologies and enable innovative application scenarios.



Develop diverse testbed environments and automated testing capabilities.

Key Technology Themes at 6G FORMOSA



Three Tiers of 6G FORMOSA Experimental Network

From ITRI Campus to Taiwan and the World

Layer 3

International Sites

Global collaboration and cross-border testing



Examples

- UK JOINER
- EU 6G-SANDBOX
- Other global 6G testbeds

Global
Connectivity

Layer 2

Taiwan Sites

Real-world environments and vertical use cases



More Taiwan Sites

- Smart city
- Smart manufacturing
- Transportation & logistics
- Agriculture & environment
- ...

Taiwan-wide
Validation

Layer 1

ITRI Campus

Indoor and outdoor test environment

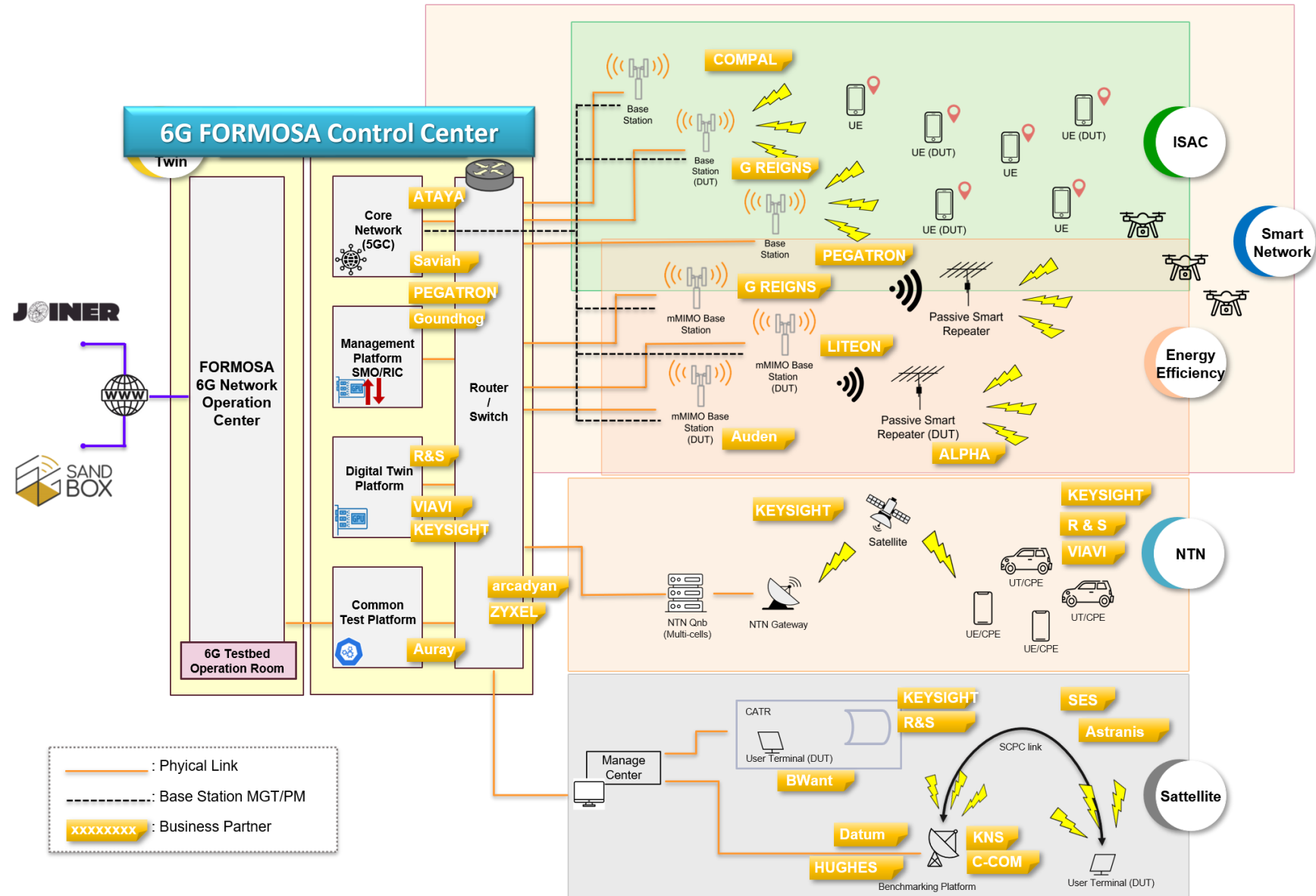


Key Facilities

- Research labs
- 5G/6G base stations
- Core network & O-RAN
- Sensing & NTN equipment
- AI computing platform
- ...

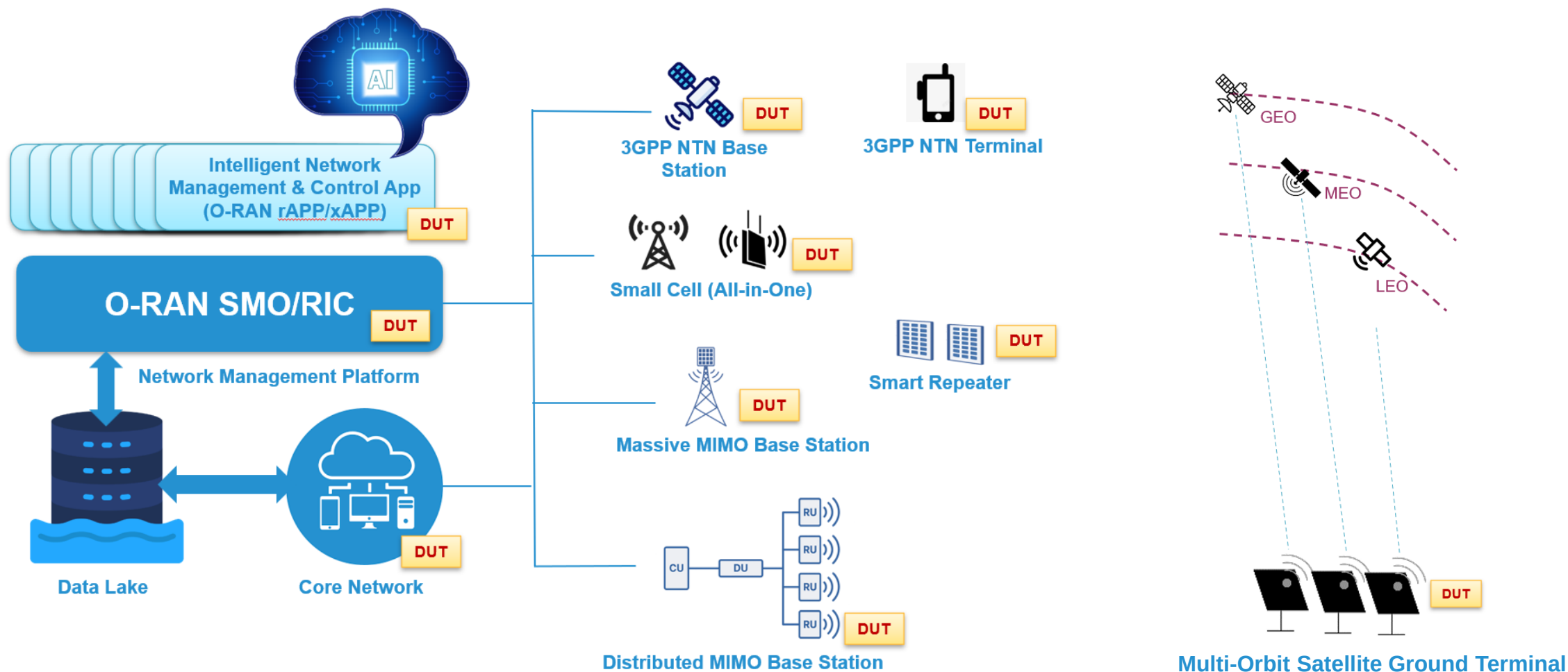
Innovation
Starts Here

6G FORMOSA Trial Network System Architecture



DUTs Supported by 6G FORMOSA

Testing and Validation for 6G Technologies and Products at TRL 4–6



What can be tested in 6G FORMOSA?

Validate Functions. Measure Performance. Explore Real-World Applications.

Devices Under Test (DUTs)



Core Network

6G core functions, AI/Agent, Ambient IoT, data exposure

DUT



Network Management & Control (SMO/RIC)

rAPP / xAPP, AI-native O&M

DUT



RAN / Base Station

gNB, Massive MIMO, Distributed RAN, RIS

DUT



User Equipment / Terminal

6G UE, RedCap, IoT device, Drone/Robot terminal

DUT



NTN / Satellite System

Satellite gateway, payload, 5G/6G NTN, multi-orbit terminal

DUT



Other 6G Components

ISAC sensor, smart repeater, edge server, AI model, etc.

DUT

Deploy to Testbed



Test & Evaluate



Function Testing

- Standards compliance (3GPP, O-RAN, etc.)
- Core and RAN functions (e.g., AI Agent, ISAC, NTN)
- Interoperability with multi-vendor equipment
- End-to-end service establishment and mobility
- Security, trust and resilience



Performance Evaluation

- Throughput / latency / reliability
- Coverage and mobility
- Spectrum and resource efficiency
- Energy consumption and carbon efficiency
- Scalability (users, devices, traffic)
- AI model inference performance (accuracy, latency)
- Cross-domain performance (terrestrial + NTN)



Application Scenario Exploration

- Real-world environment trials
- Multi-domain service scenarios
- New business models and ecosystem validation
- User experience and service KPIs
- Regulatory and operational feasibility

From Technology to 6G Societal Impact



Smart City & Industry



Smart Port & Maritime



Smart Mobility (Drone / UAM)



Low-Altitude Economy



Industrial IoT & Smart Factory



Public Safety & Disaster Response



Sustainability & Green Network



Digital Twin & Metaverse

6G FORMOSA Website

<https://6g-formosa.tw/>



6G-FORMOSA

6G-FORMOSA is Taiwan's first experimental 6G trial network. Led by the Industrial Technology Research Institute (ITRI) and developed in collaboration with domestic research institutes, academia, and telecom industry, the platform supports early-stage 6G research, technology development, and proof-of-concept (PoC) validation. Its objective is to explore the potential of emerging 6G technologies and enable innovative application scenarios.

Wrap Up & Conclusion

■ A National 6G R&D & Validation Platform

- 6G FORMOSA provides real-world test environments for 6G technologies and products at TRL 4–6, bridging R&D and field validation.

■ Test, Validate & Explore

- The testbed supports functional testing, performance evaluation, and application scenario exploration across terrestrial and non-terrestrial networks.

■ From Taiwan to Global Collaboration

- By connecting ITRI Campus, field sites across Taiwan, and international 6G testbeds, 6G FORMOSA enables cross-border experimentation and joint validation.

■ Let's connect 6G FORMOSA with EU testbeds to jointly explore, validate, and accelerate 6G innovation.

Thank you!

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