SUSTAIN 6G

"SUSTainability Advanced and Innovative Networking with 6G"
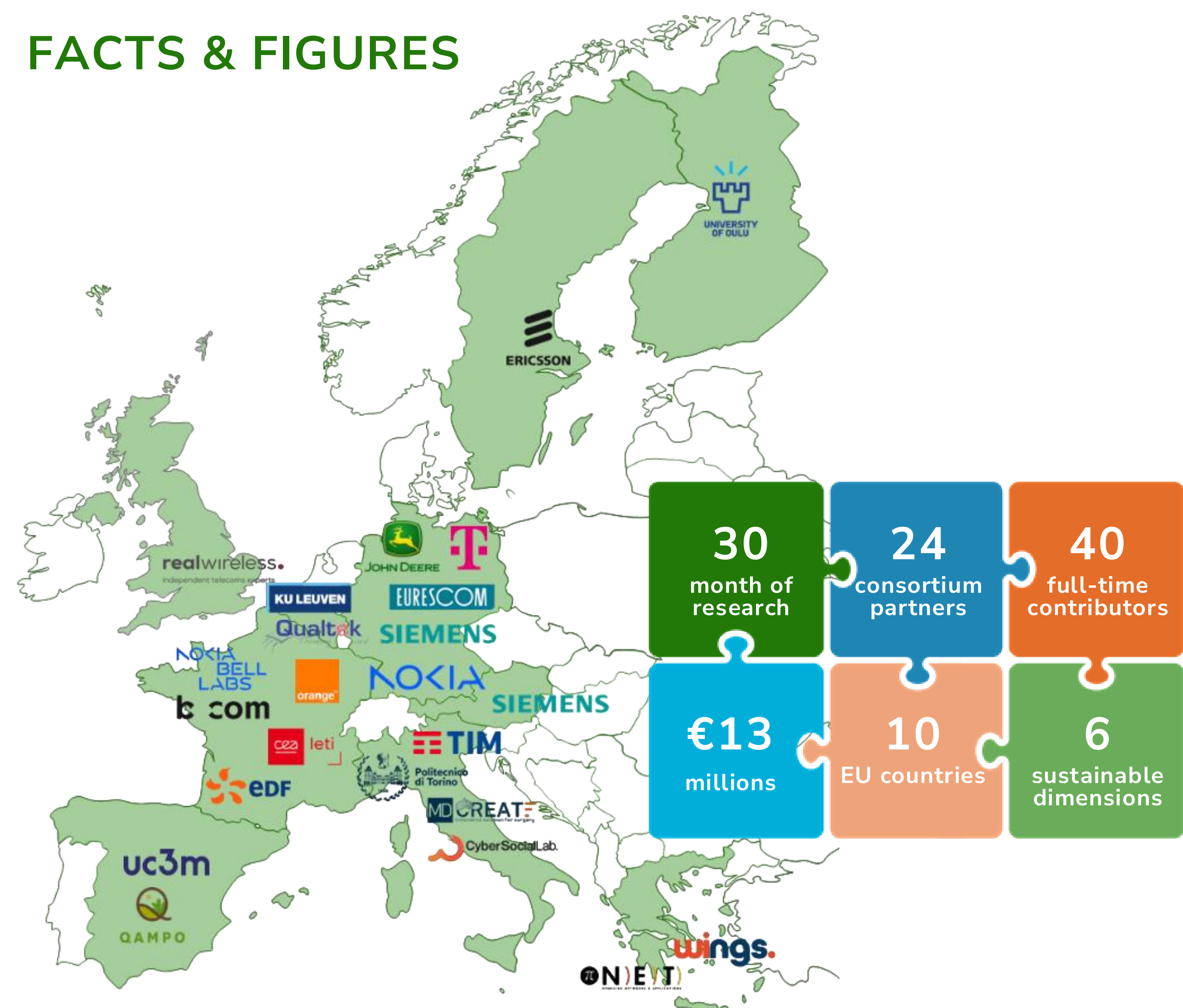### European Lighthouse project

PROJECT OBJECTIVES

1 Identify and understand sustainability needs and values

2 Define methodologies for sustainability definition and assessment

3 Integrate vertical UCs with 6G to jointly reduce negative and maximise positive impact

4 Enhance 6G technologies to reduce footprint and increase handprint

5 Validate, evaluate, and demonstrate sustainability value

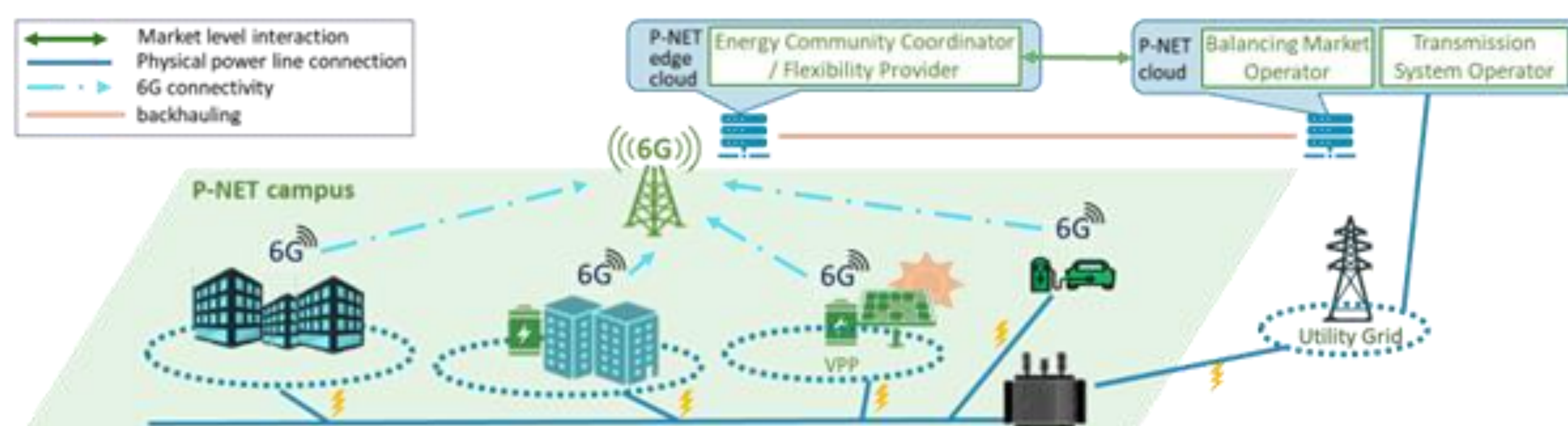**6** Impact generation, sustainability guidelines and strategic roadmap

FACTS & FIGURES

- **30** month of research
- **24** consortium partners
- **40** full-time contributors
- **€13** millions
- **10** EU countries
- **6** sustainable dimensions

VERTICAL SCENARIO 1: SMART GRID

6G-enabled use cases for smart grid sustainability
- Real-time grid balancing
- Resilient grid operations
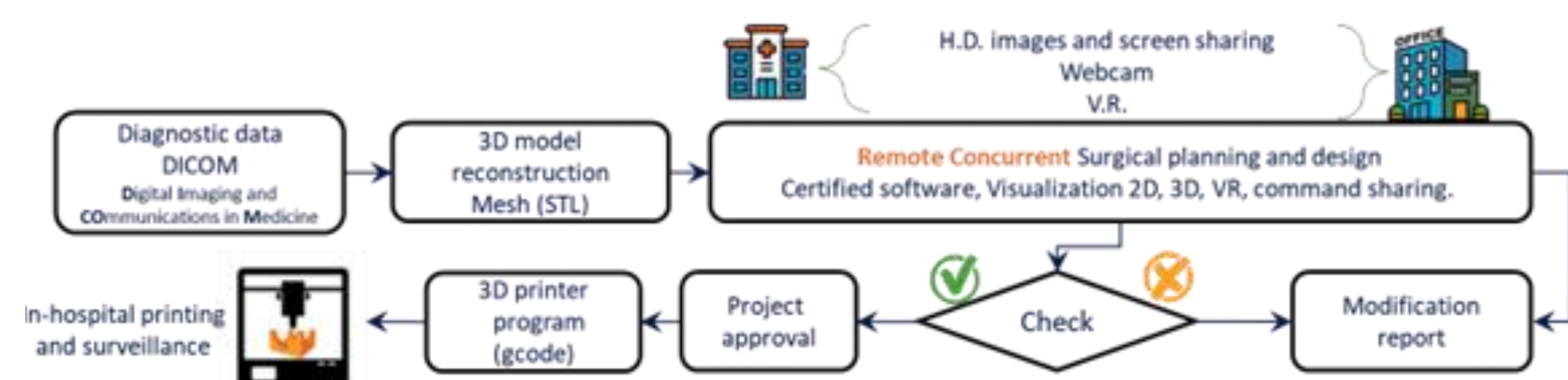- Joint 6G & smart grid infrastructure planning & optimisation

Integrating concepts and technologies
- Internet of Things
- AI-based digital twins
- ML-driven optimisation for fast frequency response
- Self-aware grid management
- Predictive analytics to enhance stability and efficiency
- Micro Grids
- Flexible energy management systems

VERTICAL SCENARIO 2: E-HEALTH

6G-enabled use cases for e-Health and telemedicine
- Advanced remote healthcare – rehabilitation assessment
- Secure and trustworthy medical data federation
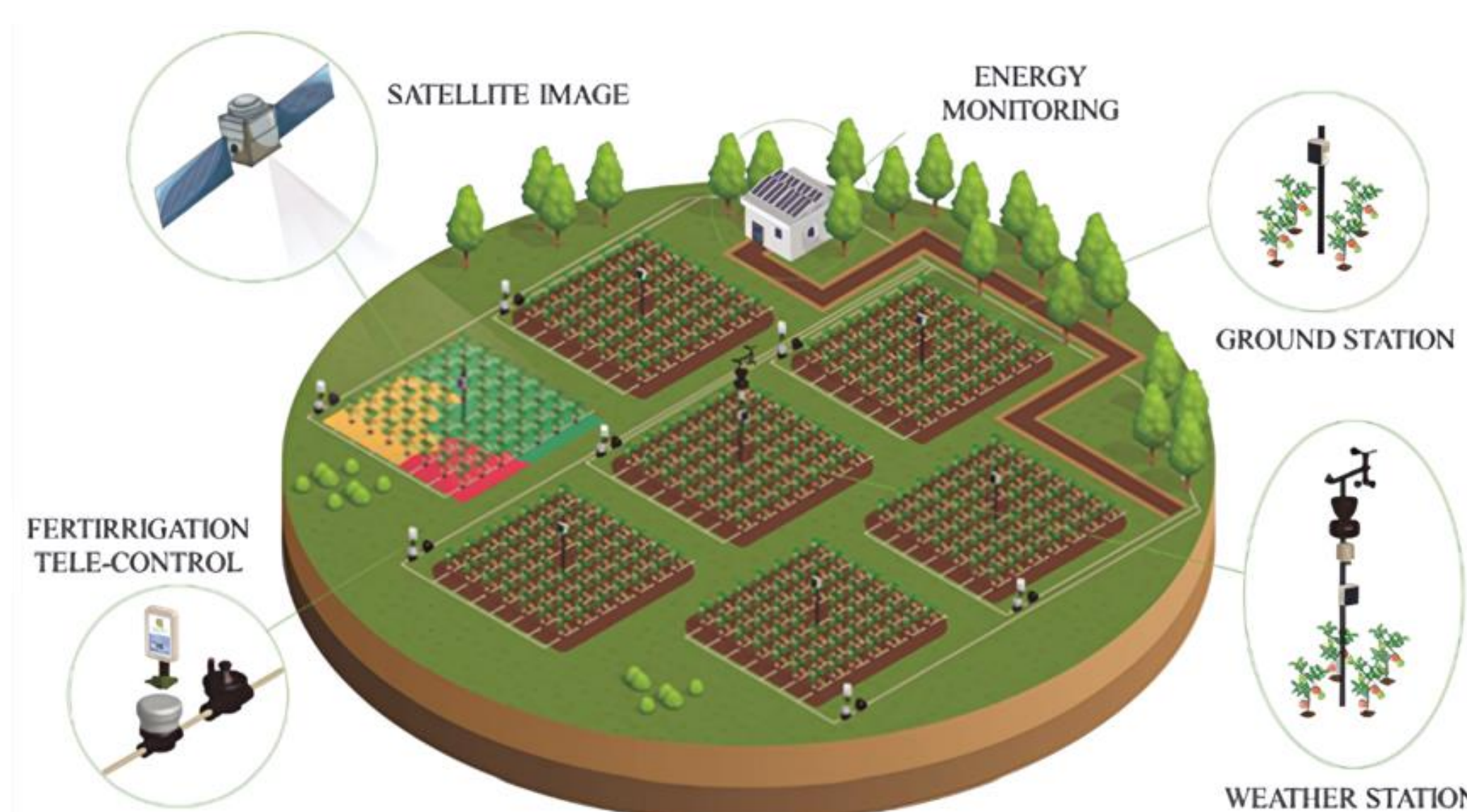- Pre-operative joint surgical / engineering planning

Integrating concepts and technologies
- Digital twinning
- Augmented and virtual reality
- Cloud-based shared services
- Sustainable / responsible AI
- End-to-end privacy and security
- Real-time services
- Optical/fixed-mobile convergence, photonic continuity

VERTICAL SCENARIO 3: AGRICULTURE

6G-enabled use cases for agriculture
- Connectivity-on-Demand for remote and rural areas
- Task offloading to the Edge for energy-efficient resource-intensive tasks
- AI-driven agricultural data vs. information contextualisation for automated decision making

Integrating concepts and technologies
- Non-terrestrial and terrestrial networks interworking
- Real-time data transfer
- Energy-efficient sensor / IoT networks
- Digital twinning
- Sustainable AI

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