

6G-VERSUS

6G Vertical Trials for Sustainability

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6G-VERSUS aims to demonstrate the profound **sustainable, economic and societal impact of 6G** technology, propelling towards a more sustainable and prosperous society.



6G - Sustainability as a design and evaluation objective

- Sustainability as a design objective: technical choices we make
- Sustainability as an evaluation objective: testing if technology delivers environmental and societal benefits and is economically feasible.

6G-VERSUS connects these two aspects through the pilots and the feedback from impact assessment into technical development.

	Sustainability as a design objective	Sustainability as an evaluation objective
Main question	How should sustainability influence the solution?	What improvement does the solution actually deliver?
Energy and resources	Adapt network and computing resources to the service's needs.	Assess energy use across the service, including its supporting infrastructure.
Service requirements	Balance resource use with required performance.	Check whether savings preserve acceptable service quality.
Lifecycle	Consider equipment longevity and resource use when choosing components and architecture.	Include relevant production, operation and end-of-life impacts.
Societal outcomes	Address stakeholder needs and access conditions.	Examine whether intended benefits reach the people concerned.

6G-VERSUS - 6G VERtical trials for SUStainability

- **Duration**: 36 months 1.1.2025 – 31.12.2027
- **Call**: HORIZON-JU-SNS-2024-STREAM-D-01-01 - SNS Large Scale Trials and Pilots (LST&Ps) with Verticals
- **Funding**: 12,1 M€, total budget 14,5 M€
- **Coordinator**: UOULU / Sanna Tuomela
- **Technical manager:** ICCS / Xenofon Vasilakos
- **Partners**: 33 from 9 countries, 13 academic and/or research organizations, 9 industrial partners, 9 SMEs and 2 NGOs

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Consortium

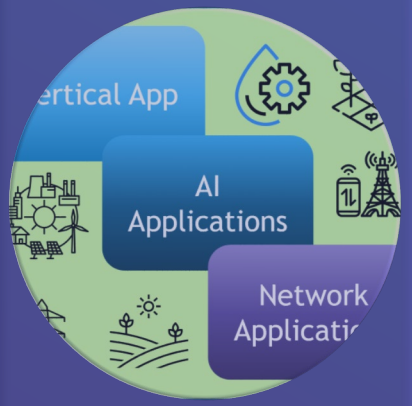


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6G-VERSUS concept and objectives

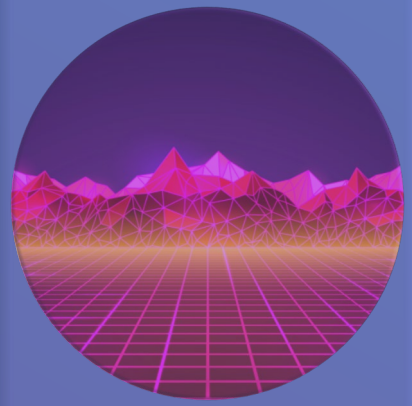
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Design and Development of a 6G-Enabled Application Framework for the triplet of V-app, AI-app and N-app



Conduct 6G Trials to Assess AI, Network and Application Performance, concentrating on the principles of "sustainable 6G"



Integrate Advanced 6G Applications across 6 6G-SNS and non-SNS Testbeds



Evaluate the societal and environmental impact of 6G trials to ensure alignment with sustainability goals and societal needs and create new business models



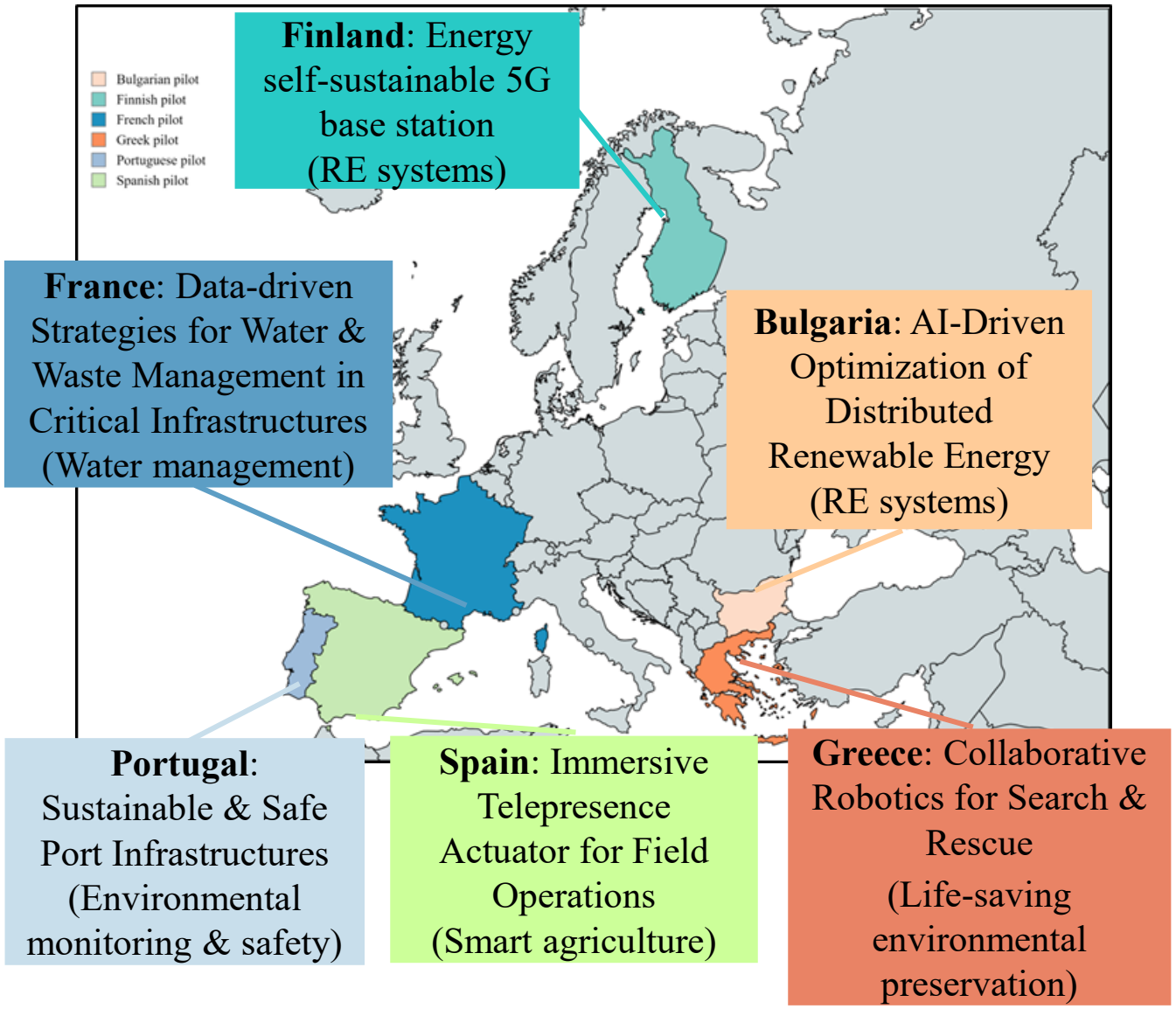
Maximize the impact and adoption of 6G-VERSUS results through dissemination, communication, capacity building, standardization efforts, and exploitation measures.

Sustainability

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Pilot clusters



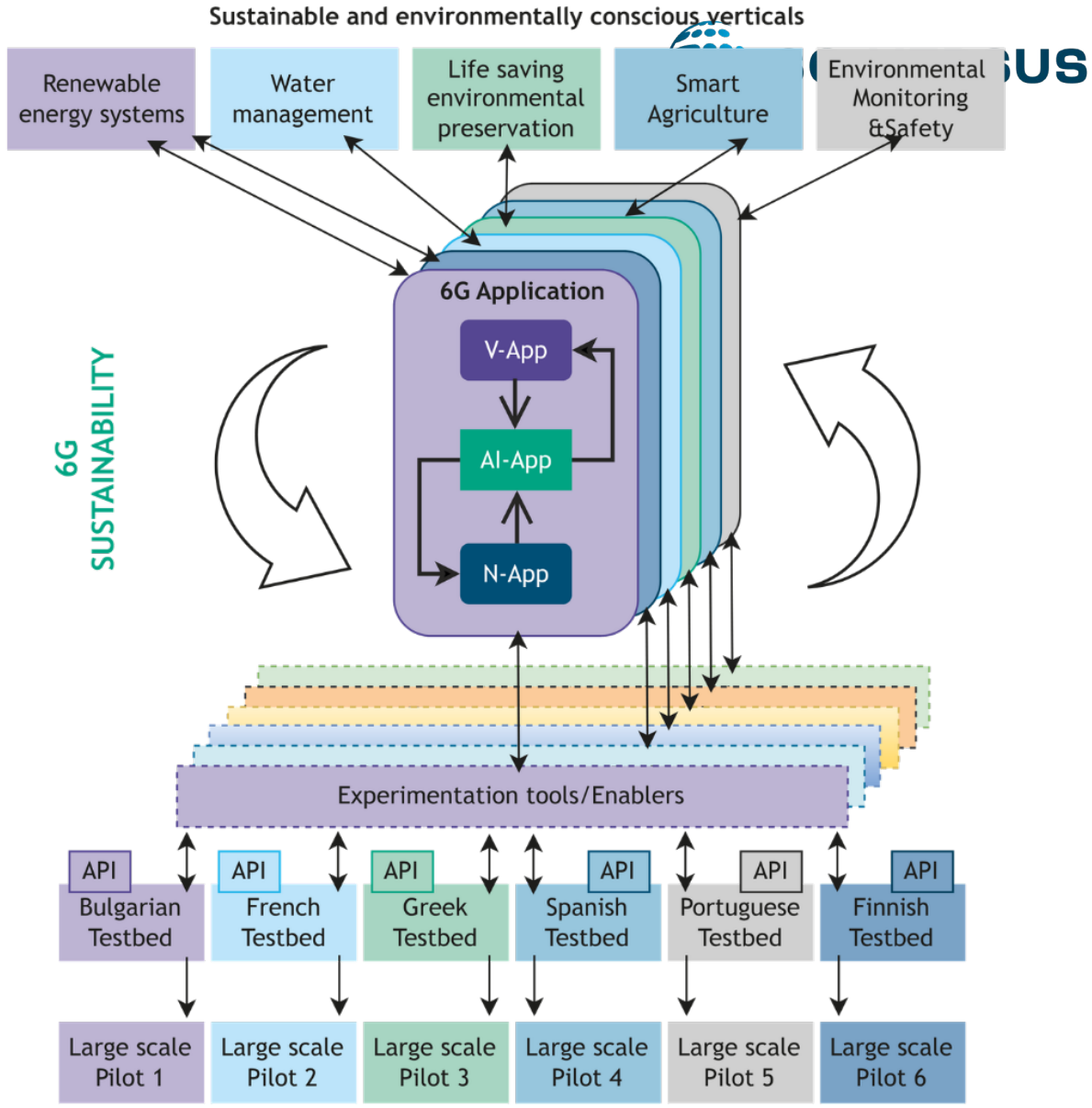
- 6 large-scale E2E pilots for 5 verticals
- Real-life sustainability use cases
- Integration with 5G/6G testbeds
- Novel technology architecture and methodology

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Turning use cases into 6G applications

Application triplet :

- **V-App** delivers the vertical service
- **AI-App** supports prediction and decisions
- **N-App** adapts network behaviour to service requirements.



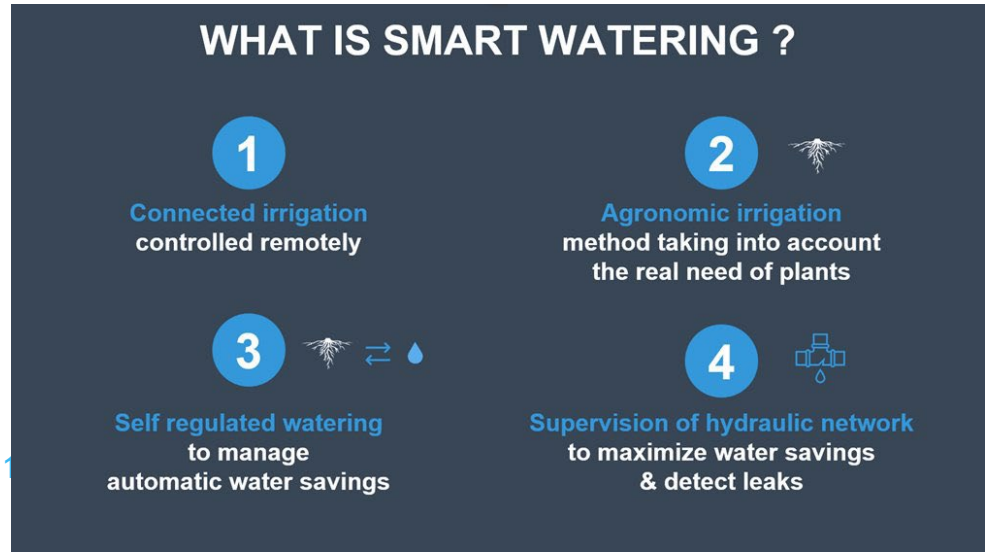
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France: managing water and protecting urban environments

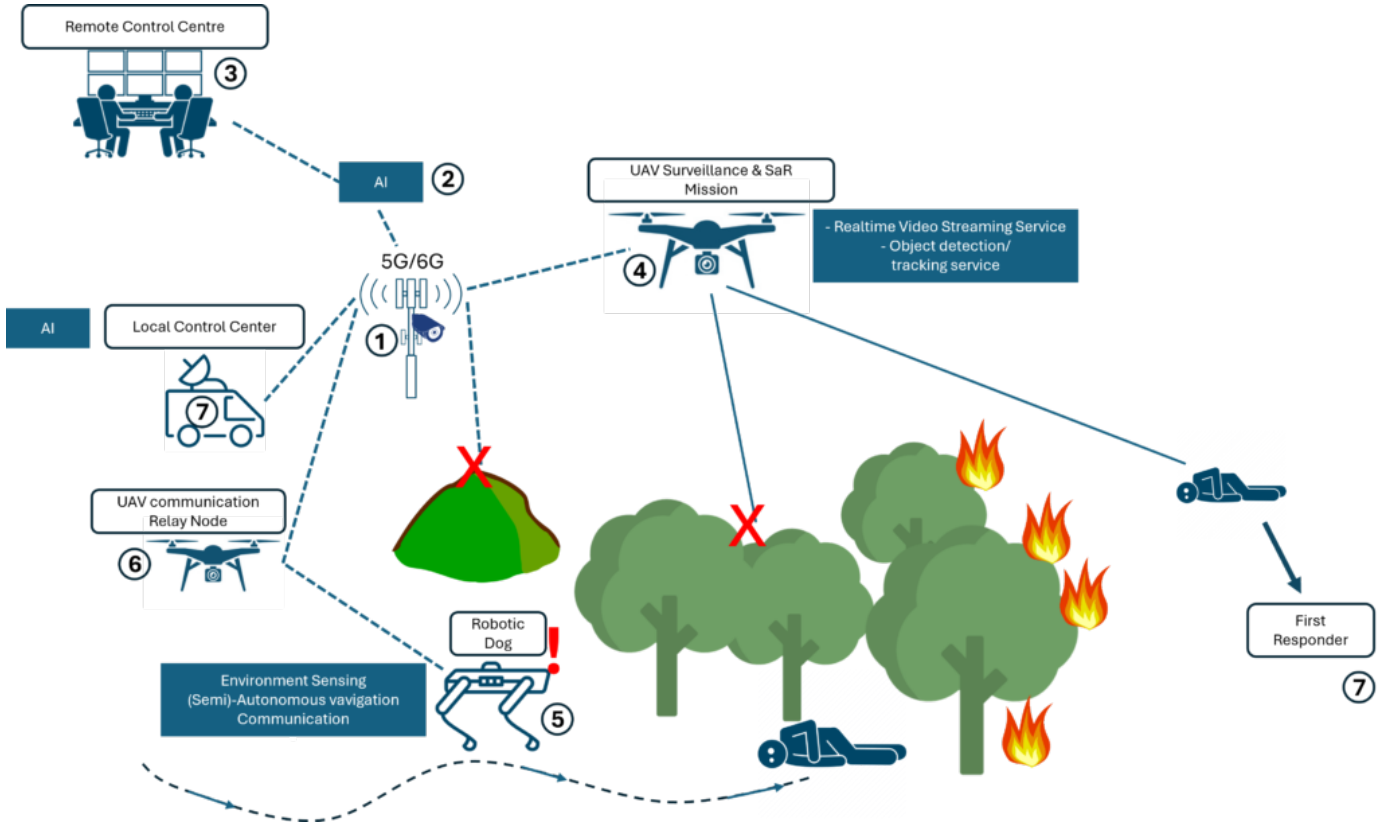
- Sewer network monitoring and smart watering of green spaces.
- Benefits: Better targeted water cleaning, lower flooding and pollution risks, reduced water use and fewer maintenance journeys





Greece: wildfire detection and collaborative search and rescue

- Cameras, AI, drones and ground robots support early detection of wildfires and situational awareness in rescue situations.
- Benefits: Protection of people, responder safety, remote communities and environment alongside energy-aware operation.



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Portugal: a more sustainable and safer port

- In the Port of Aveiro environmental monitoring, port safety and infrastructure energy awareness.
- Benefits: adaptive sensing, video and network resources support air and water monitoring, hazardous-goods detection and more efficient infrastructure operation.



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Bulgaria and Finland: two complementary energy challenges

Bulgarian Pilot: AI-data driven monitoring and control of distributed renewable sources.

- Benefits: Integration of RE into the grid, balancing the grid and avoid blackouts.





Finnish pilot: Energy-Aware Arctic Remote Site with AI-Enhanced Control

Benefits: Reliable, resilient communication network, safety in remote areas, use of local renewable energy.

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Spain: remote presence for field operations

- Immersive telepresence using sensor-equipped vehicles and drones for agricultural and water-related operations.
- Benefits: reduces travelling, better access to expertise and improved resource-management decisions.

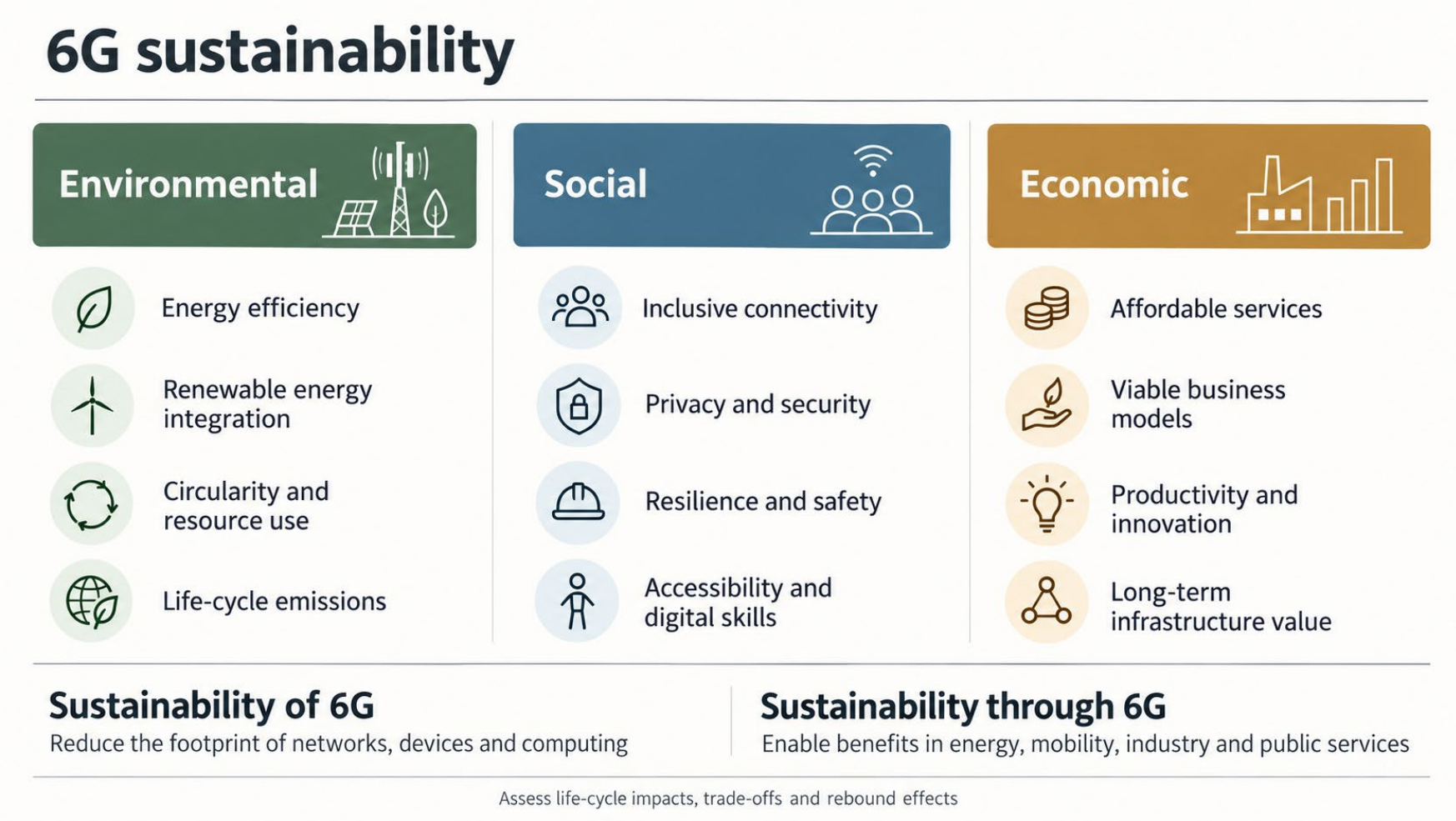


Outcome and implications

6G technology applied in real-life use cases -> tested and adoptable/adaptable solutions.

Assessed additional value over existing options for selected use cases.

Assessed reliability, interoperability, viability and sustainability.





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