



Eva Hajdok

**Introduction to the
6G4Society project**

Martel Innovate

6G4SOCIETY



HEXA-X-II

Ensuring 6G Social Acceptance

6 November 2024

Eva Hajdok (Martel Innovate)

Joint Online Webinar

6G4Society (Project Manager)



Co-funded by
the European Union

Project funded by



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

6GSNS

6G4Society

Towards a sustainable and accepted 6G for Society
Grant Agreement no 101139070

Hexa-X-II

European level 6G Flagship project
Grant Agreement no 101095759

6G4SOCIETY is an SNS JU project at work to ensure that **societal, environmental and economic values** are embedded into the design, development and adoption of **6G**, bringing a **sustainability perspective** to technological development.

→ A Coordination and Support Action - Jan 2024/Dec 2025

→ 6 Partners from 6 Different Countries



6G4SOCIETY OBJECTIVES

1 

Generating a **better understanding and shared knowledge** on the aspects influencing public acceptance of 6G technologies

3 

Engaging and reaching out to public audiences to help **build 6G awareness and social acceptance**

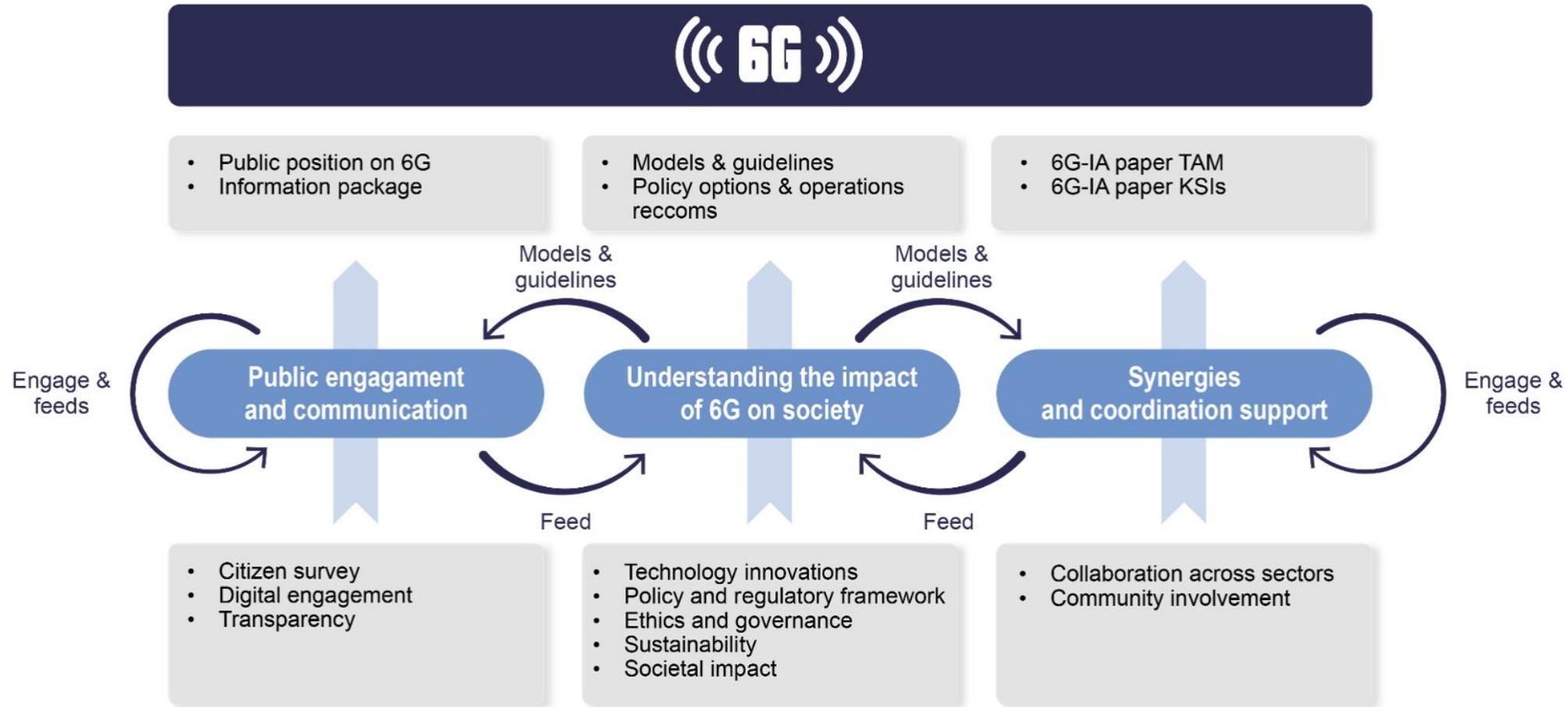
2 

Supporting the conception and development of a unified EU consensus framework on a **value-based, sustainable and ethics-driven** approach towards 6G, and supporting its promotion through the 6G EU and global standard-setting process

4 

Empowering the 6G community on how to **reflect EU policy and legislation into technology solutions** for future networks' development and services

PROJECT STRUCTURE



CORE PRINCIPLES



Bridging public and non-expert audiences with industries and SMEs in the Smart Network and Services ecosystem

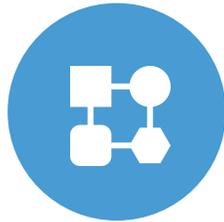
Leveraging on the relevant work done by ongoing 6G SNS projects – see KVIs / Sustainability Task Force

Promoting awareness, inclusivity, sustainability and trustworthiness, key factors for an ethics-driven 6G development and its social acceptance

PLANNED OUTPUTS



Summary of stakeholders' positions on the impact of 6G technologies on society and the expected improvements on citizens' life



Technology Acceptance Model for 6G as a roadmap building also on outputs of relevant SNS projects



Explanatory material for non-experts, fostering a better understanding of the potential effects of 6G and related technologies

PLANNED OUTCOMES



General public information events and publications in non-specialised media, studies, citizen/end-user panels, and open public debates with experts



Development of Sustainability Indicators, building on Key Value Indicators (KVI) for larger public validation and downstream exploitation at regulatory level



Advice on how to reflect EU policy objectives and EU legislation and guidance in SNS technology solutions for future networks' development and services

MAIN ACHIEVEMENTS SO FAR

- **SNS- JU WG and TF active participation to foster collaboration:** SNS JU Sustainability Task Force; SNS JU Communication Task Force; Social and Value Creation Working Group; 6G Architecture WG; Test, Measurement and KPI Validation WG.
- **Citizens survey** was launched to gather insights on public expectations, concerns, and hopes 6G (available on 9 languages and so far 500 responses have been received).
- **EUCNC 2024 White paper** on *‘Towards a Sustainable and Socially Accepted 6G for Society’* which explores how 6G networks can address critical societal and environmental challenges by placing sustainability and social values at the core of future technological development (available on our website).
- **Work on Impact, Key Value Indicators, Key Sustainability Indicators, Social Acceptance of Technology (SAT) Model** to provide orientation and guidance for future legislation and technology development processes (supporting requirement specifications) to better address 6G acceptance challenges. The corresponding deliverable, D1.1, will be published soon - stay tuned on 6G4Society channels.
- **Key Value/Sustainability Indicators Workshop and Webinar Series** is planned to support the use and impact of these indicators in the design and development of 6G. In close collaboration with several ongoing SNS JU projects as well as other relevant initiatives at European and International level. 1st interactive workshop took place on 25.10.2024 on KVI and Impact creation pathway, further hopes, challenges, questions and assumptions.

WHERE TO MEET NEXT?

UPCOMING WORKSHOPS/WEBINARS

- **KVI/KSI roadmap webinar series:**
 - Objective and subjective measures of KV/KVIs: sharing methodological approaches and evaluation instruments; with TrialsNet (Dec 24/Jan 25)
 - Working with Trade-offs, What is Societal Sustainability, Acceptance, *Methodological (e.g. how to select and define values/impacts?), How to map value outcomes into project outputs (Q1/2 2025)*
 - Planning with projects *a series of small scale thematic workshops* to converge definitions, objectives: e.g. ecological sustainability, reusability, inclusivity, safety (until Q3 2025)
- **Green Next Generation Networks: Sustainability challenges and initiatives in mobile networks** - in collaboration with NGMN (Q2 2025)
- **Pre-standardisation and Standardisation for Sustainable 6G** - in collaboration with ETSI (Q3 2025)
- **Addressing Societal and Sustainability Challenges: the SNS JU Efforts** - in collaboration with other SNS JU projects and relevant TF/WGs (Q4 2025)

The screenshot displays the 'Upcoming' events section of the 6G4SOCIETY website. It features a search bar at the top, navigation tabs for 'Today', 'Upcoming', and a dropdown menu. The events are listed by month and date:

- November 2024**
 - WED 6**: November 6 @ 9:30 am - 11:30 am. **6G4Society & Hexa-X-II Webinar** (Virtual Event). Description: Ensuring 6G Social Acceptance Communication networks are the backbone of our connected society. Reliable, secure and inclusive connectivity is indispensable to access many essential services, and this is why a [...]
 - WED 20**: November 20 @ 2:00 pm - 3:30 pm. **SNS ICE / GUIDE: Automotive, Transport & Logistics Solutions Webinar** (Virtual Event). Description: The EU has set forth a clear and ambitious action plan to enable Connected and Automated Mobility (CAM) across Europe and especially across the designated Pan-European Transport Corridors, with 5G [...]
- December 2024**
 - SUN 8**: December 8 - December 12. **IEEE Global Communications Conference** (Cape Town Cape Town, South Africa). Description: Welcome to IEEE Globecom 2024 IEEE Global Communications Conference (GLOBECOM) is one of the IEEE Communications Society's two flagship conferences dedicated to driving innovation in nearly every aspect of communications. Each [...]
 - WED 11**: December 11 - December 12. **ETSI-ITU Symposium on ICT Sustainability: Standards Driving Environmental Innovation** (International Telecommunication Union (ITU) Pl. des Nations 1211, Geneva, Switzerland). Description: ETSI with ETSI TC FF (Environmental Engineering) and the International [...]

UPCOMING EVENTS

Participation to:

- ETSI-ITU Symposium on ICT Sustainability: Standards - Driving Environmental Innovation (December 2024)
- MWC 2025 (February 2025)
- EuCNC and 6G Summit (June 2025)
- ...

The screenshot displays a web interface for the 6G4SOCIETY event calendar. At the top, there is a search bar labeled "Search for events" and navigation options for "Find Events", "List", "Month", and "Day". Below this, the current view is set to "Today" and "Upcoming".

The calendar shows events for November 2024:

- November 6 @ 9:30 am - 11:30 am**
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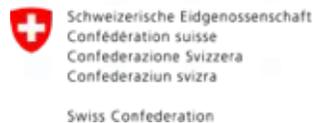
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THANK YOU



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State Secretariat for Education,
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Hexa-X-II project has received funding from the Smart Networks and Services Joint Undertaking (SNS JU) under the European Union's Horizon Europe research and innovation programme under Grant Agreement No 101095759.

STAY UP TO DATE AND FOLLOW US



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Dr Mikko Uusitalo

Introduction to the
Hexa-X-II project

Nokia



6G4Society and Hexa-X-II webinar
on social acceptance

Nov 6th 2024



Introduction to the European level 6G Flagship Hexa-X-II

<https://hexa-x-ii.eu/>

[Mikko.Uusitalo](#)

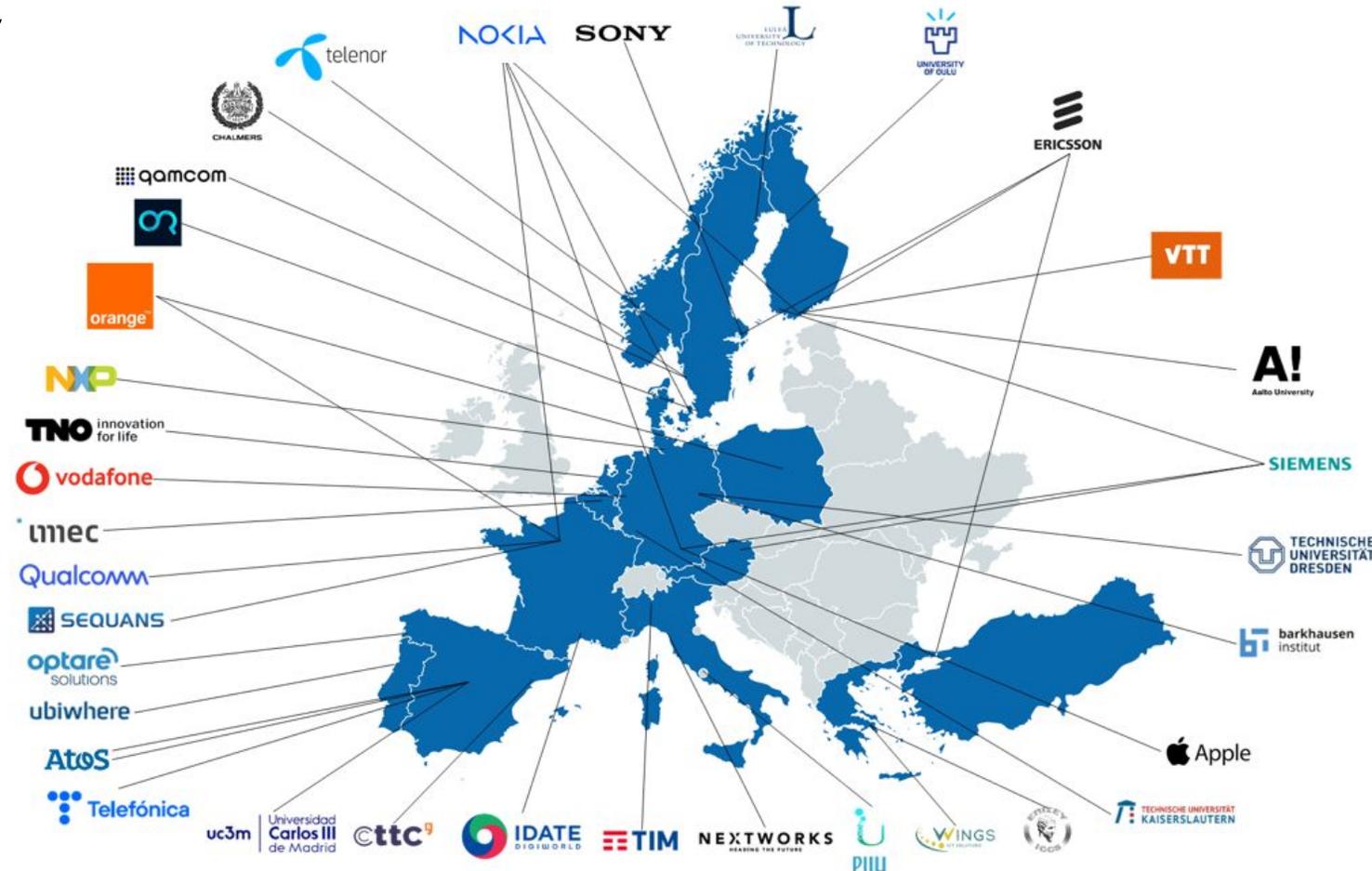
[@nokia-bell-labs.com](#)



Hexa-X-II overview



- Hexa-X-II is the European level 6G Flagship
- Focus is continued development of technology and define the 6G platform and system
- Funded through Horizon Europe SNS-JU
- 44 partners
 - Cover the entire value-stack from hardware to system to platform to applications to service providers and a strong academic presence
- Nokia is overall leader
- Ericsson is technical manager



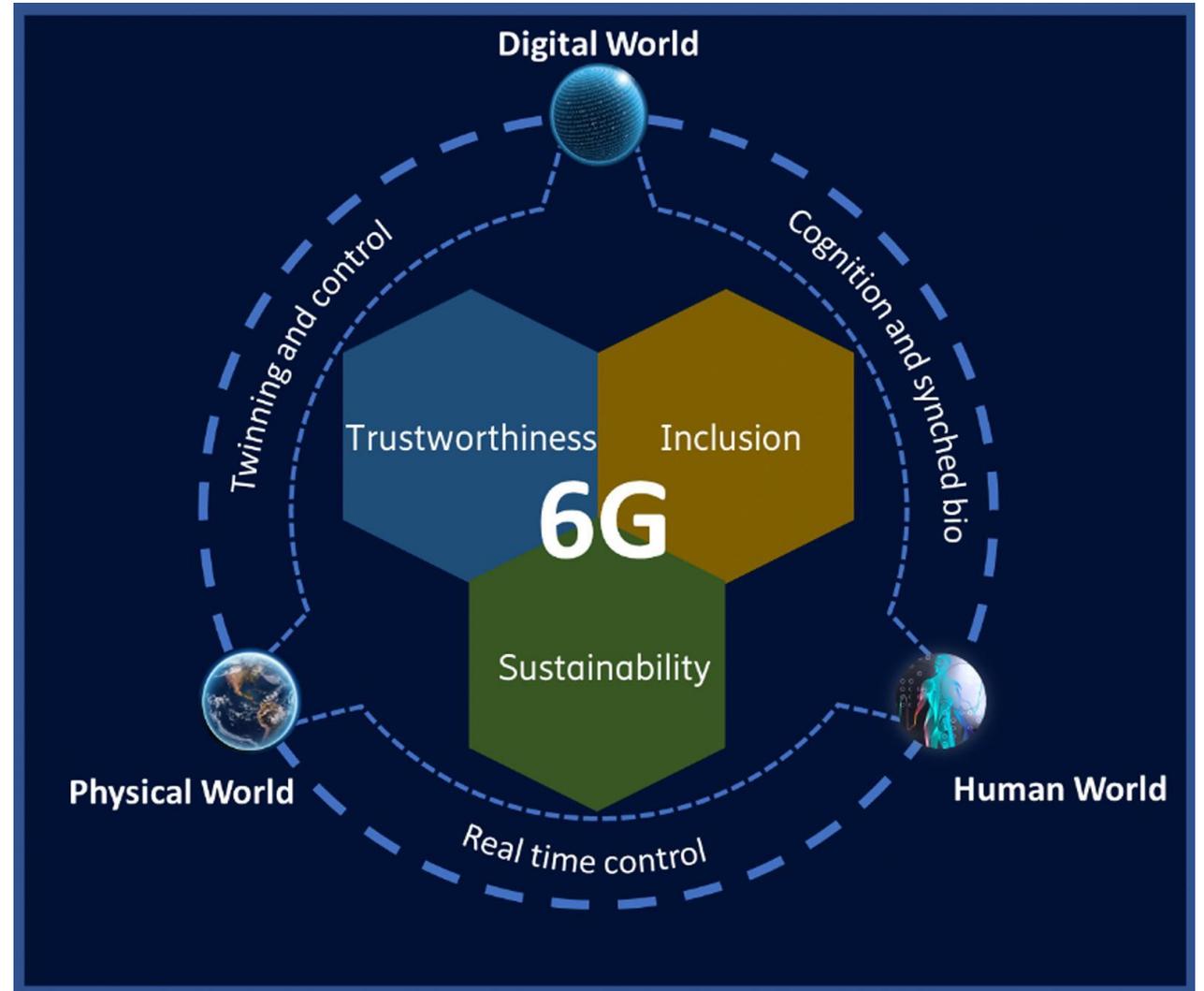
Hexa-X-II European 6G Flagship Consortium covering the entire value stack



Hexa-X vision on 6G



- Connecting the physical, digital and human world
- Key values:
 - Sustainability
 - Inclusion
 - Trustworthiness
- Research challenges:
 - Connecting intelligence
 - Network of networks
 - Sustainability
 - Global service coverage
 - Extreme experience
 - Trustworthiness



UN Sustainable development goals as basis



SUSTAINABLE DEVELOPMENT GOALS



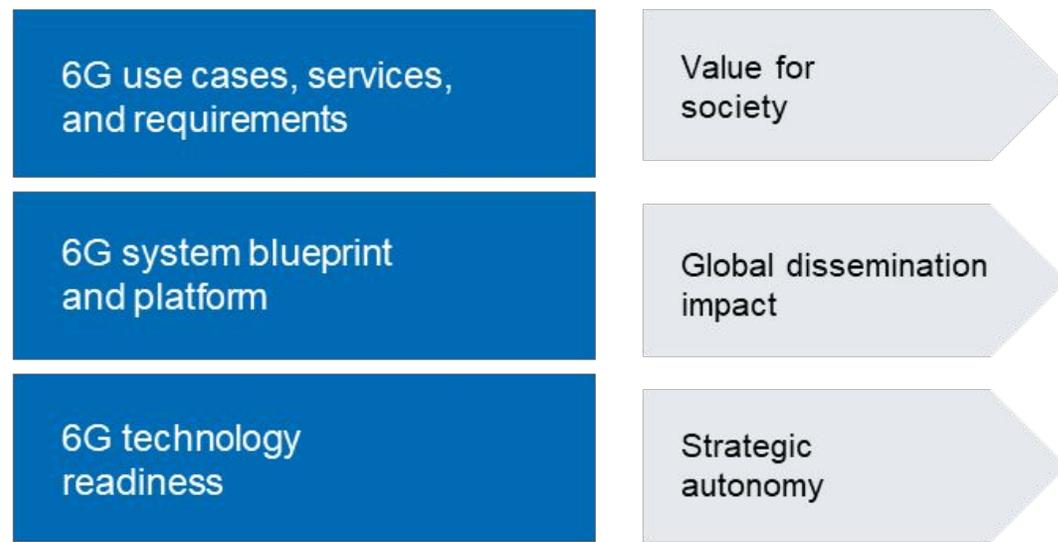
Overall objectives of Hexa-X-II



A holistic flagship towards the 6G platform and system
to inspire digital transformation for the world to act together in meeting needs in society and ecosystems with novel 6G services

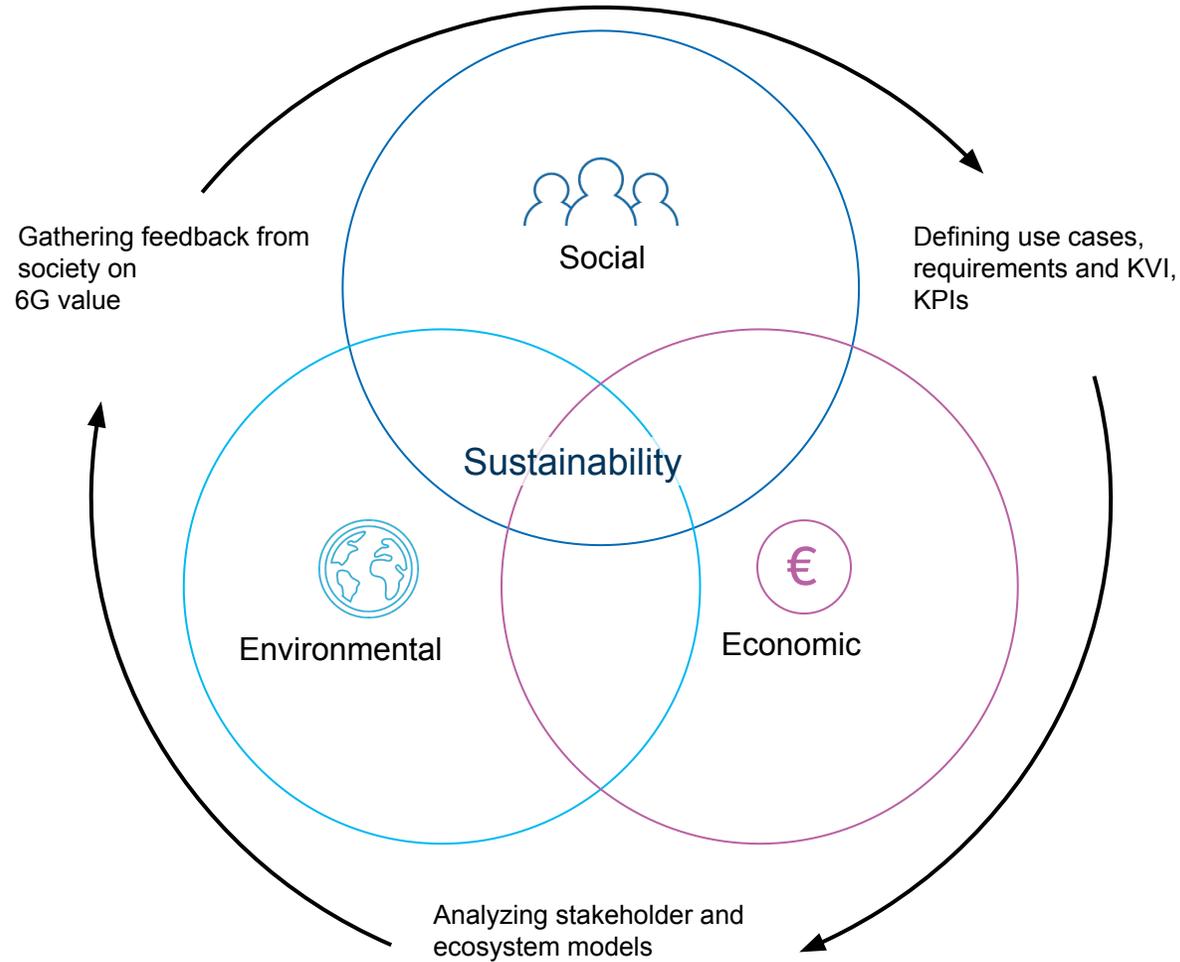


Hexa-X & Horizon-2020 candidate enablers

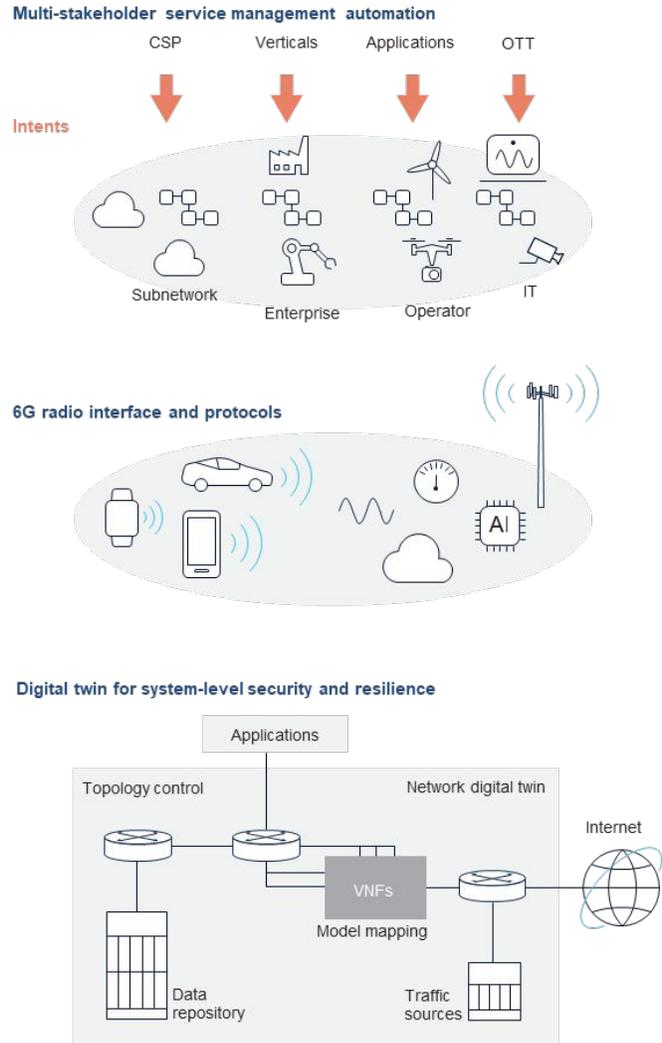


SNS stream B projects

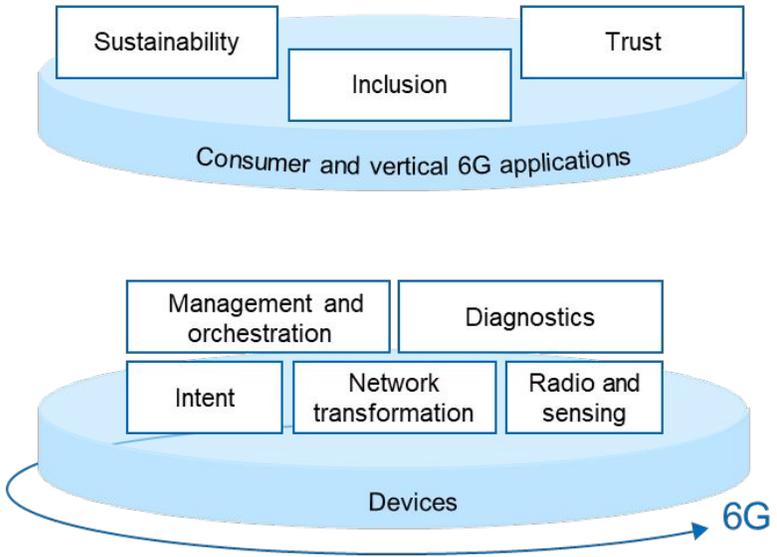
WP1 Value, requirements and ecosystems



WP2 End-to-end system



6G network platform blueprint



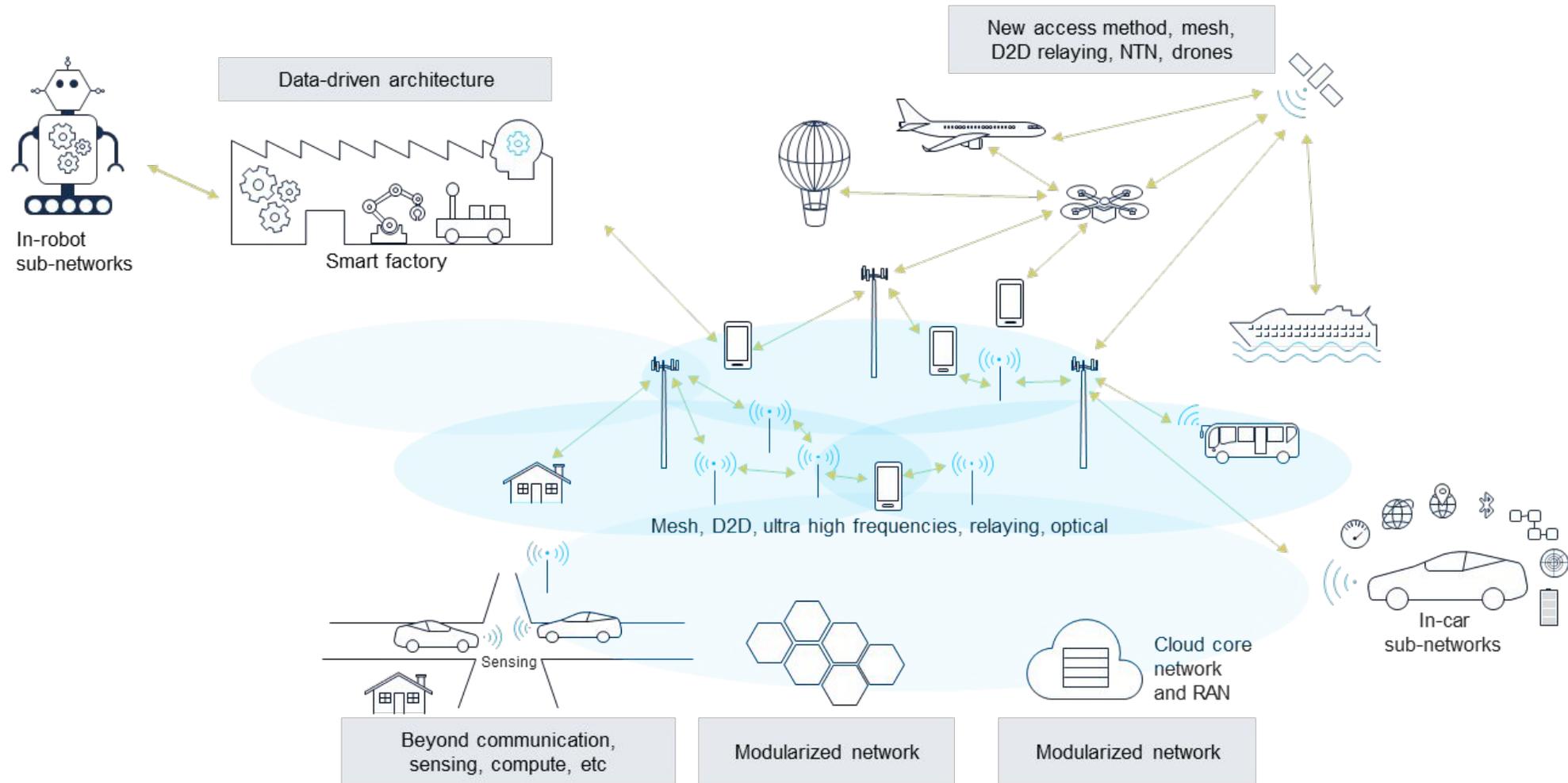
E2E system validation



WP3 6G architecture design



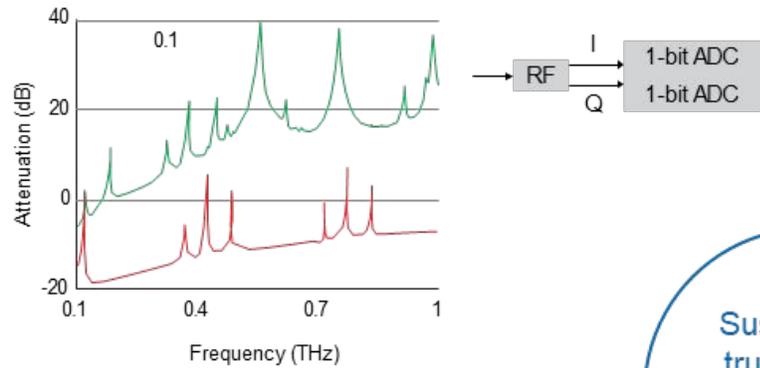
In-robot sub-networks



WP4 Radio evolution and innovation



Towards THz communications



Joint communications and sensing

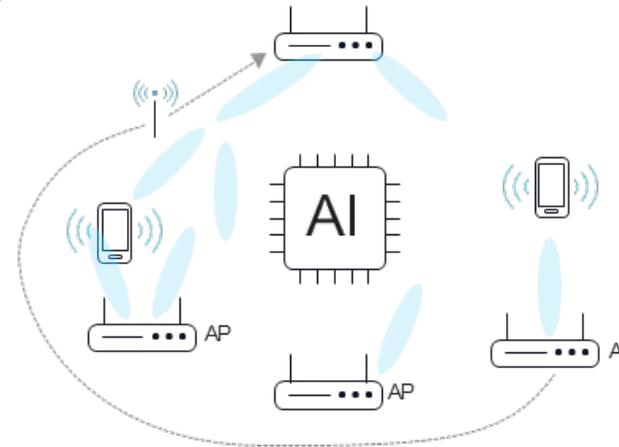


Flexible spectrum access solutions

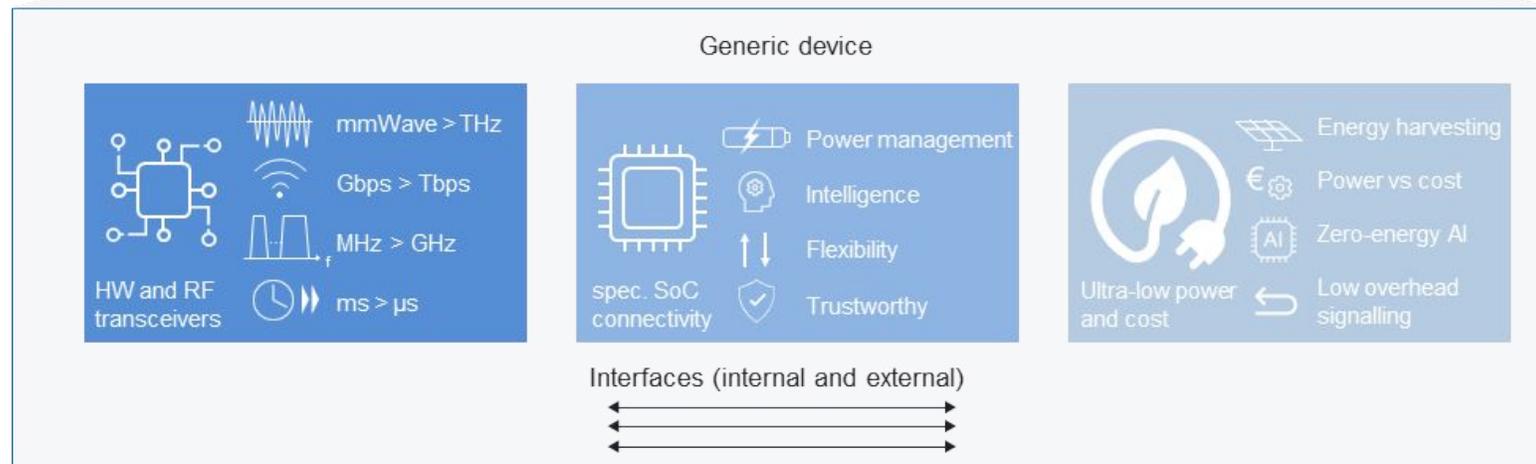
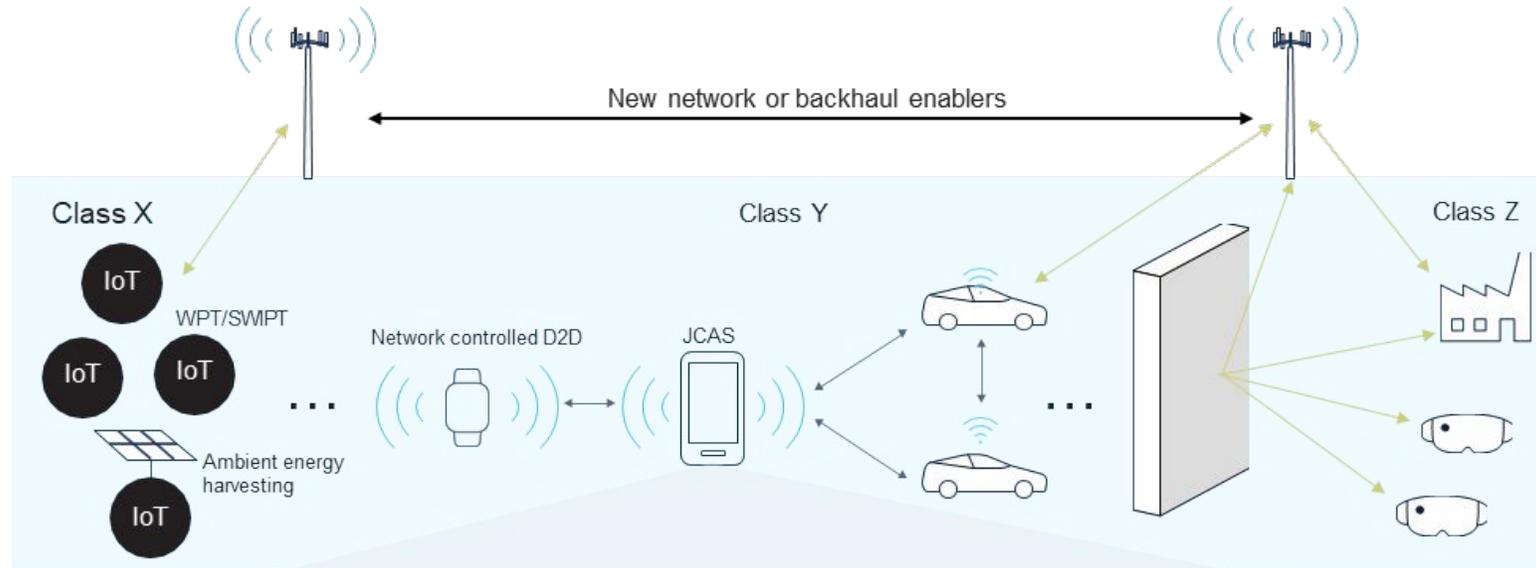


Sustainable,
trustworthy,
inclusive and holistic
radio design

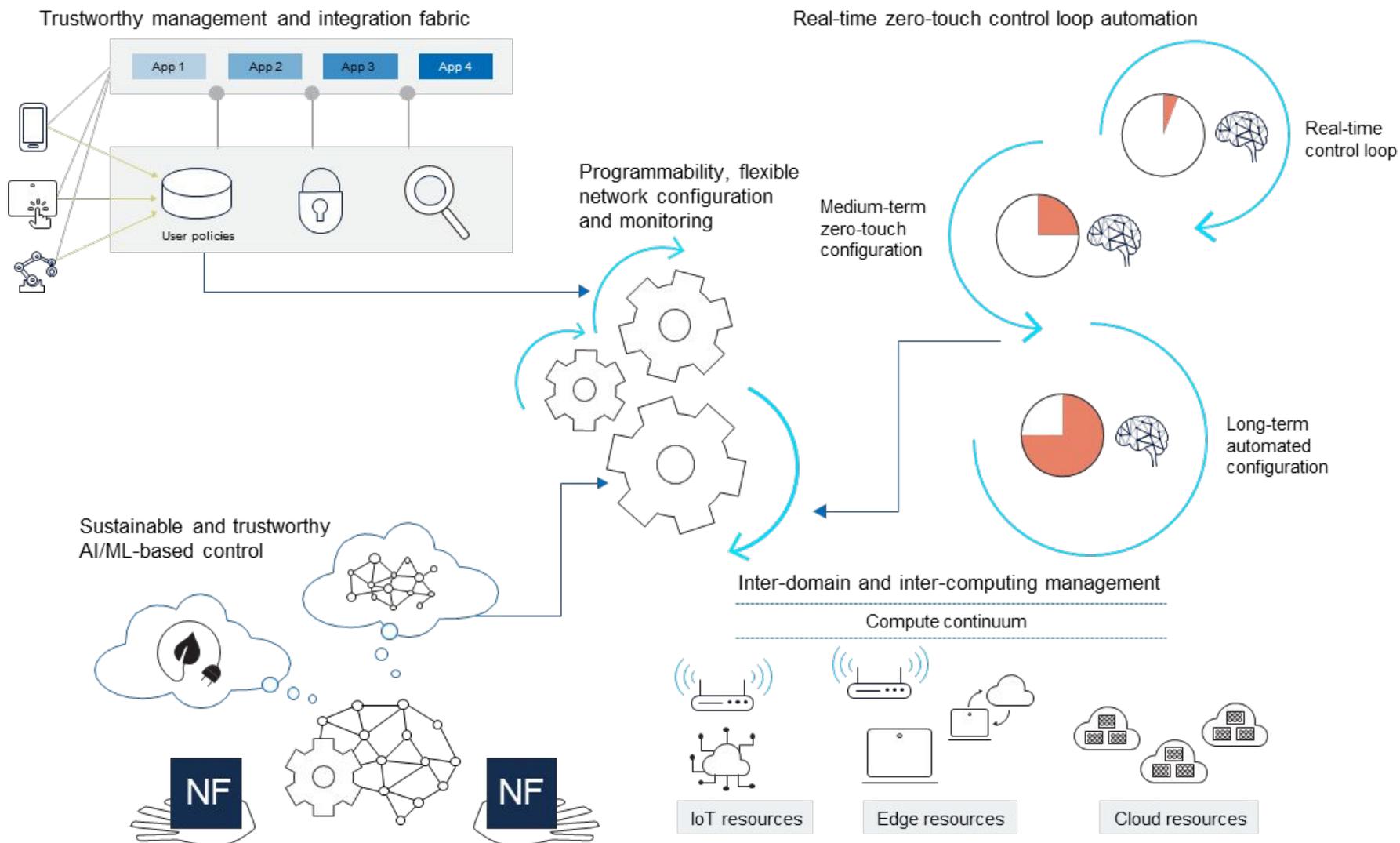
Intelligent radio air-interface design



WP5 Future devices and flexible infrastructure



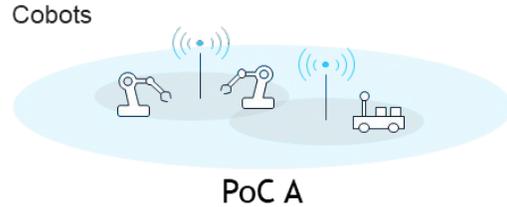
WP6 Smart Network Management



System-PoCs work evolution

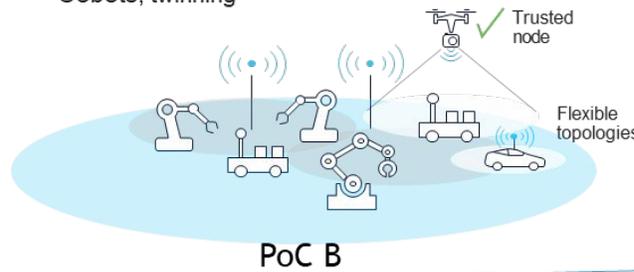


Sustainability Aspects	Social	Environmental	Economic
	Trustworthiness; Time related KPIs	Energy efficiency / Power consumption	Resilience / limited downtime; OPEX
Key enablers	Management and orchestration		Diagnostics intent
	Network architecture and transformation Trustworthy flexible topologies, Beyond communications		
	6G device components	6G radio aspects	



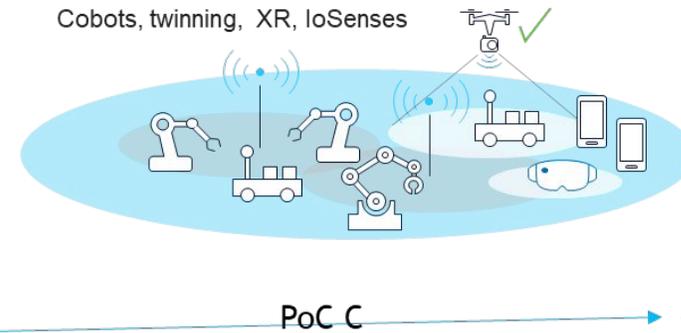
Social	Environmental	Economic
Trustworthiness; Exposure, security / privacy; Digital inclusion	Energy efficiency / Power consumption	Resilience / Limited downtime; OPEX; CAPEX
Management and orchestration		Diagnostics intent
Network architecture and transformation Trustworthy flexible topologies, Beyond communications		
6G device components	6G radio aspects	

Cobots, twinning



Social	Environmental	Economic
Trustworthiness; Exposure, security / privacy; Digital inclusion	Energy efficient radio, zero-energy devices	Resilience / Limited downtime; OPEX; CAPEX
Management and orchestration		Diagnostics intent
Network architecture and transformation Trustworthy flexible topologies, Beyond communications		
6G device components	6G radio aspects	

Cobots, twinning, XR, IoSenses



6G

Gradual addition

- **Three waves.** Currently in PoC B (PoC A laid a foundation, PoC B evolves and introduces new features, PoC C will evolve the previous two)
- In each wave: gradual addition of **technical** enablers. M&O, network enablers (flexible technologies, beyond coms), radio aspects, with respective KPIs
- Gradual placement of focus to diverse **sustainability** (societal) facets. **Environmental**, **Social** (Trust, Inclusion), **Financial** (to the degree possible), with respective indicators



Hexa-X-II results from <https://hexa-x-ii.eu/results/>

- D1.2 - 6G use cases and requirements
- D1.3 - Environmental and social view on 6G
- D2.3 - Interim overall 6G system design
- D2.4 - End-to-end system evaluation results from the interim overall 6G system design
- D3.3 - Initial analysis of architectural enablers and framework
- D4.3 - Early results of 6G Radio Key Enablers
- D5.3 - Initial design and validation of technologies and architecture of 6G devices and infrastructure
- D6.3 - Initial Design of 6G Smart Network Management Framework
- Also presentations and videos from our workshops

Remember also: <https://hexa-x.eu/insightful-new-book-on-6g-now-available/>

THANK YOU



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