

A high-angle, wide-area photograph of Earth from space, showing the curvature of the planet and a vast expanse of land and water. The land is a mix of brown and green, while the water is a deep blue. The atmosphere is visible as a thin blue layer along the horizon.

6G for Society

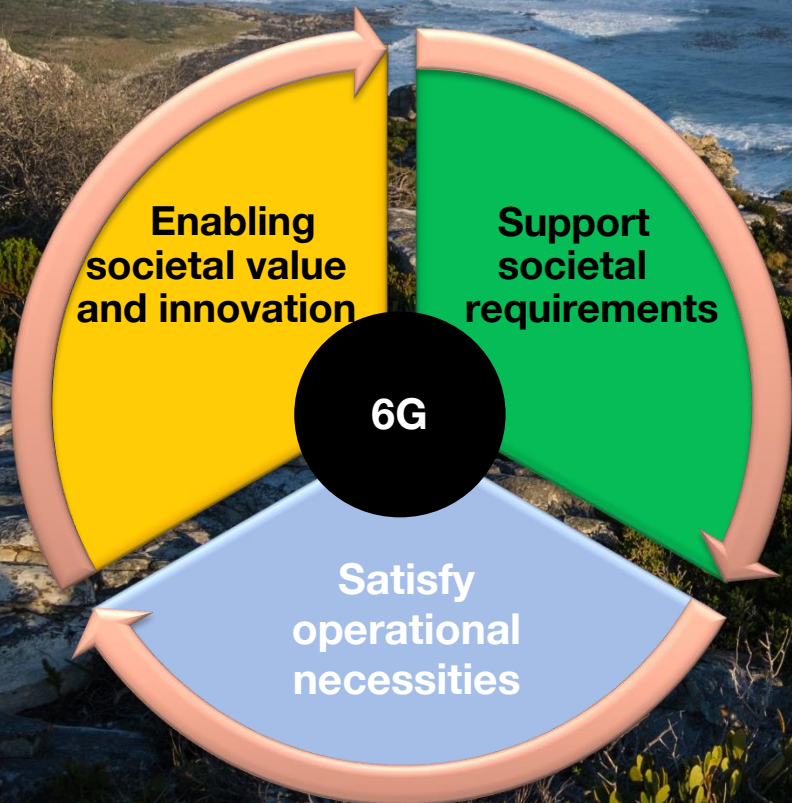
The logo for Orange, consisting of a solid orange square with the word "orange" in white lowercase letters and a small trademark symbol.

orange™

Eric Hardouin
10 November 2021

What are the expectations for 6G?

2030s operation target



2020s 5G field operation

5G Standalone Architecture

Networks cloudification

Networks disaggregation

Edge computing

Feedback



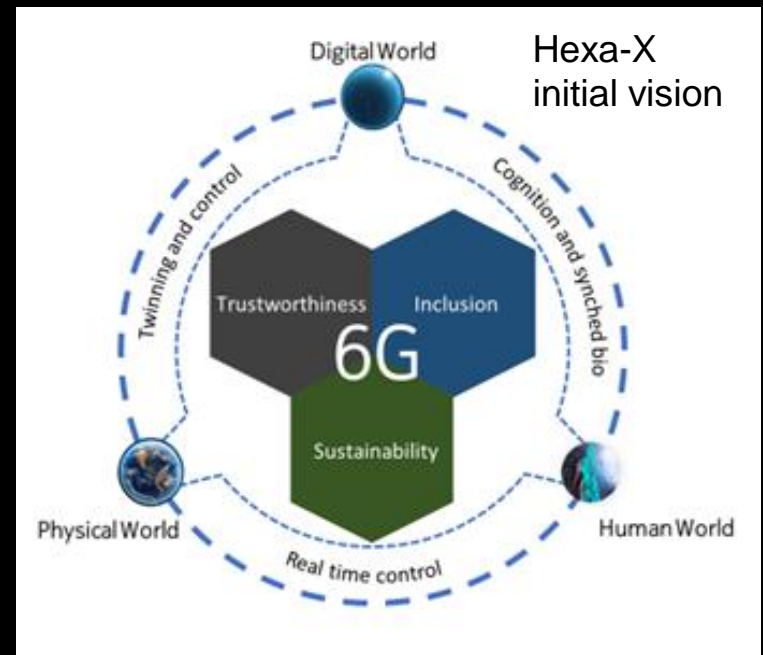
6G possible technological disruptions



- TeraHertz spectrum (100 GHz - 3 THz) *
- Radio sensing and imaging
- Zero-energy devices *
- Reconfigurable intelligent surfaces to control propagation *
- AI to optimise the performance of all network elements, including the physical layer *



* currently investigated by Orange

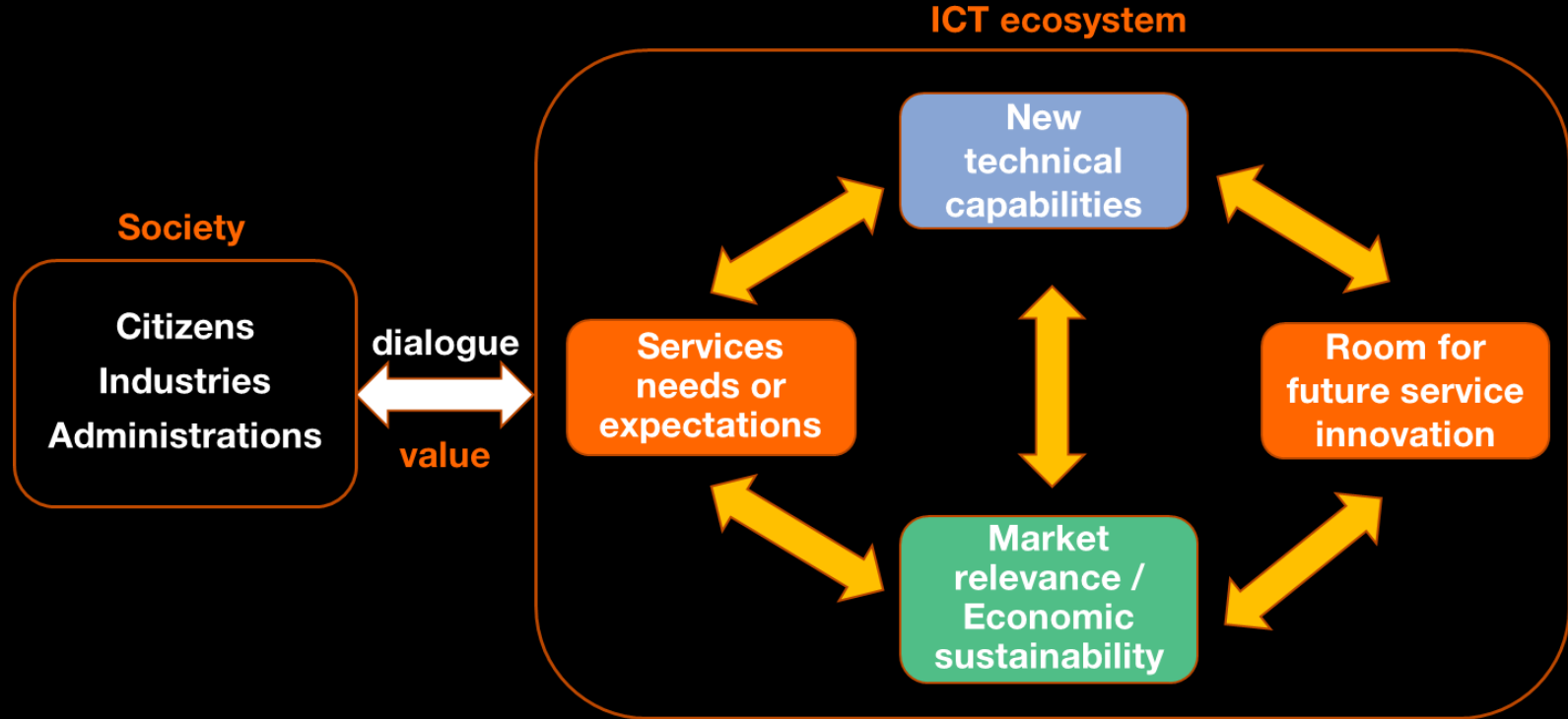


Some applications for 6G

- advanced industrial and robotics applications
- more immersive communication / communication of the five senses
- massive twinning

6G for sustainability

Need to build a technology enabling services that will provide value to the Society, particularly towards the green and digital transition

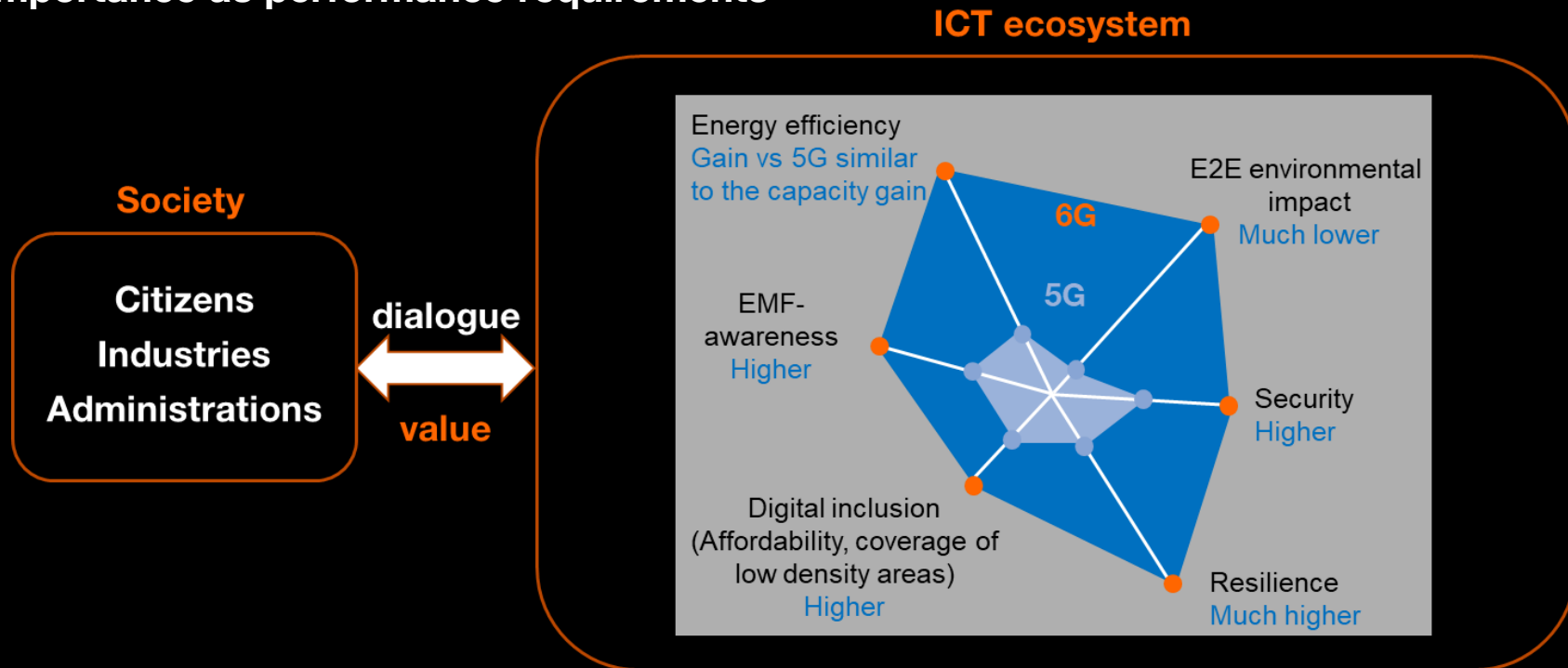


Need for reinforced **collaboration** between ICT and various sectors (e.g. Energy, Industry, Agriculture) to identify these **services** and related **technical capabilities**

Sustainable 6G

Need to define 6G societal requirements, to be considered with the same importance as performance requirements

More details [here](#)



Research challenges to define **indicators and tools** to evaluate them, and **technical solutions** pushing the limits of technology in these directions

Operational necessities

- **Flexibility**
 - for upgrades, to support new needs
 - to **set trade-offs** according to operators needs
- **Ease of operation**
 - Automation, AI
 - Full system monitoring
- **Economical sustainability**
- **Trustworthiness**



Conclusion: 6G development stakes

- Orange has the high-level objective for **6G to provide value to the society, being environmentally and economically sustainable**
- We need to identify **target services bringing value to the society** to guide the technology development
- **Societal requirements** need to be defined in addition to performance requirements
- **Technical solutions** need to be designed to **meet performance AND societal requirements**
- **A dialogue with the society at large** is necessary all along the future technology development to collect needs and feedback, and ensure correct public information

Thank you

