

**Principles for 6G: OPEN & RESILIENT BY DESIGN**  
**White House National Security Council**  
April 21, 2023

Wireless connectivity can bridge the digital divide by expanding internet access both domestically and internationally, driving applications across our societies in areas like health, energy, transportation, and agriculture. 6G will be deployed in the next 10 years. The United States, and our allies and partners, must shape the future of this critical technology to advance economic and national security interests. Given that 6G-focused R&D is active, we have an opportunity to shape the principles that will guide the development of 6G. We must ensure that the 6G environment is technology-neutral and globally competitive, with diverse and resilient supply chains; widely available to developing nations; and relies on technical standards which align with our values. This will require collaboration between the U.S. government, its allies and partners, academia, industry, and civil society. During a full-day workshop in which stakeholders from all these groups participated, the following principles for 6G were identified.

*1. Trusted Technology and Protective of National Security*

- Wireless communications systems that are produced by trusted vendors and part of a trusted communications ecosystem, facilitating the ability of the U.S. and its allies and partners to protect national security.

*2. Open and Interoperable Innovation*

- Wireless communication systems that are open, interoperable, and preferably virtualized and software-defined.

*3. Secure, Resilient, and Protective of Privacy*

- Wireless communication systems that have systematic approaches to cybersecurity, including security-by-design, availability of essential services, and systems designed to fail safely and recover quickly.
- Wireless communications systems that are reliable, resilient, and protect the privacy of users.

*4. Affordable, Environmentally Sustainable, and Globally Connected*

- Wireless communication systems that are affordable, accessible, and able to bridge domestic digital divides.
- Wireless communication systems that are energy efficient, generate less pollution, and have a reduced environmental impact.
- Wireless communication systems that are widely available to developing nations.

*5. Spectrum, Novel Materials, Manufacturing*

- Wireless communication systems that have resilient supply chains.
- Wireless communication systems that yield a globally competitive market with multiple competing vendors.
- Wireless communication systems that have access to licensed, unlicensed, and shared spectrum.
- Wireless communications systems that efficiently make use of frequencies, are dynamic and able to effectively share spectrum, and are resistant to interference.

*6. Standards & International Collaborations*

- International standards that promote interoperability, competitiveness, openness, security, consensus-based decision-making, transparency, and include essential patents.
- Like-minded partners and allies that foster and promote research, development, testing, and evaluation of new technologies to advance 6G.