

# The Technology of the Future: Securing U.S. Quantum Competitiveness

## ACTION

Members of Congress should support the National Quantum Initiative (NQI) Reauthorization Act (H.R. 6213) to safeguard U.S. national security and competitiveness.

### What Is Quantum Information Science?

Quantum information science (QIS) will revolutionize computing, communication, and sensing technologies by exploiting exotic quantum effects to circumvent “classical” physical limitations.

#### Quantum Sensing



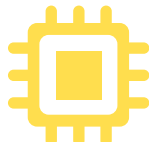
**APPLICATIONS**  
Medical imaging; positioning and navigation; enhanced lidar and radar

#### Quantum Communication



**APPLICATIONS**  
Secure communications and financial transactions; networking quantum devices

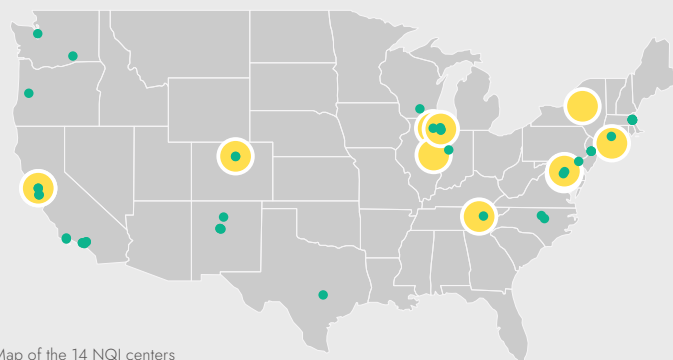
#### Quantum Computing



**APPLICATIONS**  
Materials sciences; biomedicine; financial modeling; logistics; encryption-breaking

### National Quantum Initiative Act (NQIA) Achievements Across the U.S.

The 2018 NQIA resulted in 14 multidisciplinary QIS centers, accelerating innovation across the science agencies and training the future Quantum Workforce.



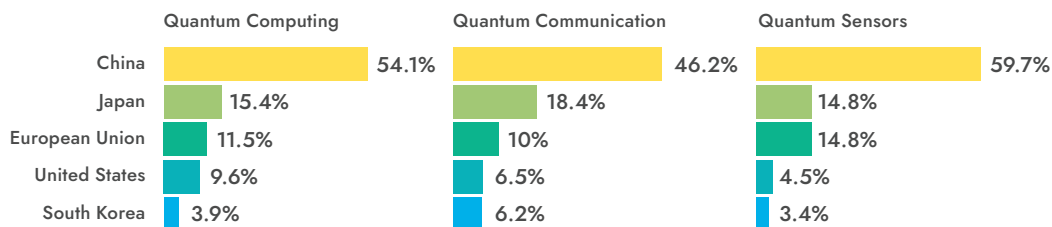
Map of the 14 NQI centers and their partners, as of December 2023

Quantum Centers Quantum Partners

### U.S. Quantum Leadership at Risk

The 2018 NQIA laid a strong foundation for the U.S. QIS ecosystem, but competitor nations’ efforts and advances are outpacing us. Continuous robust investment is required to build the U.S. quantum workforce and improve U.S. leadership in this field.

### Percentage Share of Quantum Patents by Company Headquarters, 2000-21



Source: McKinsey Quantum Technology Monitor

### Reauthorizing the NQIA Is Essential to Securing U.S. Quantum Competitiveness

The NQI Reauthorization Act builds on the 2018 NQIA, expanding its scope to include more technology development and to strengthen the domestic supply chain. The reauthorization:

- Renews and expands existing National QIS Research Centers
- Create a multidisciplinary hub focused on quantum curriculum and workforce development, as well as quantum technology R&D testbeds
- Establishes up to 3 NIST centers on quantum engineering, sensing, and measurement
- Establishes “Quantum Foundries” at DOE to meet the device and material needs of the quantum supply chain