NIST Strategy Overview

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NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

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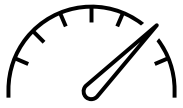
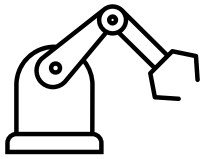
NIST's Unique Role in DOC and USG

Technology: NIST drives U.S. innovation and competitiveness via R&D in critical and emerging technologies, including artificial intelligence, quantum information science, biotechnology, next-generation communications, and cybersecurity.



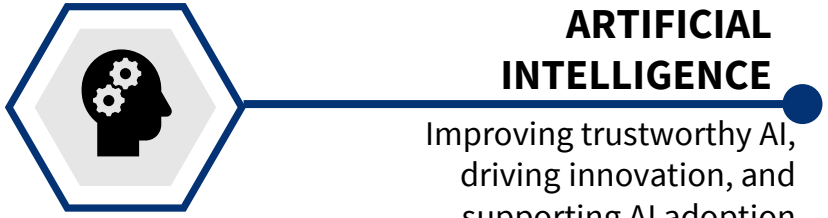
Measurement: In fixing the standard of weights and measures as the National Metrology Institute for the United States, NIST ensures accuracy and consistency in commerce. NIST provides nearly 600 calibration services and over 1,100 Standard Reference Materials that make Americans safer and healthier, and help our companies innovate and compete globally.



Manufacturing: NIST brings together practical tools and services for the U.S. manufacturing base, including on issues such as technology adoption, supply chains, security, and workforce development.

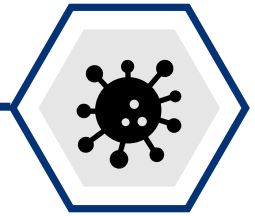
International Standards: NIST organizes and represents U.S. government positions in standards discussions on technology, supporting critical efforts such as trade. This leadership role is critical in light of concerns arising from increased involvement in international standards by other nations, and technical barriers erected by trading partners.

NIST CET Priority Areas



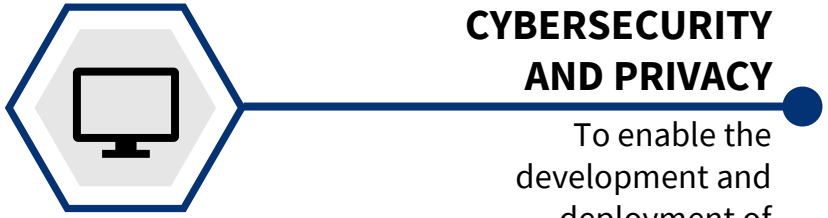
ARTIFICIAL INTELLIGENCE

Improving trustworthy AI, driving innovation, and supporting AI adoption across U.S. industries



BIOTECHNOLOGY

Enabling emerging biotechnology and biomanufacturing innovation to drive growth of the U.S. bioeconomy

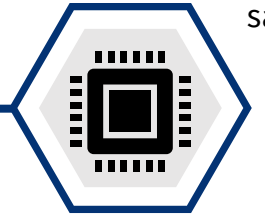


CYBERSECURITY AND PRIVACY

To enable the development and deployment of emerging technologies

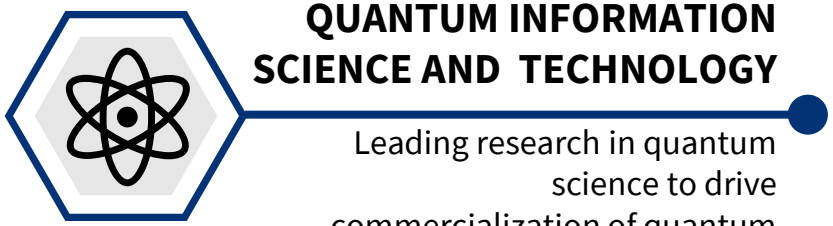
NEXT-GENERATION COMMUNICATIONS

Advancing 6G innovation and beyond in wireless networking, and modernizing U.S. public safety communications infrastructure



SEMICONDUCTORS

Revitalizing U.S. semiconductor manufacturing competitiveness



QUANTUM INFORMATION SCIENCE AND TECHNOLOGY

Leading research in quantum science to drive commercialization of quantum systems for U.S. industry

Administration S&T Priorities

> How can the United States secure its position as the unrivaled world leader in critical and emerging technologies — such as **artificial intelligence**, **quantum information science**, and nuclear technology — maintaining our advantage over potential adversaries? We need to accelerate research and development, dismantle regulatory barriers, strengthen domestic supply chains and manufacturing, spur robust private sector investment, and advance American companies in global markets.

> In a moment of strategic significance, we must be more creative in our use of public research and development money, and shape a funding environment that makes clear what our national priorities are. Whether in **AI**, **quantum**, **biotech**, or **next-generation semiconductors**, in partnership with the private sector and academia, it is the duty of government to enable scientists to create new theories and empower engineers to put them into practice.

NIST Strategy for American Technology Leadership in the 21st Century

To ensure U.S. global dominance in the industries of the future, we need to act now to advance the President's stated agenda to secure the U.S. position as the unrivaled world leader in critical and emerging technologies (CETs)

Over the next four years, NIST is committed to advancing American innovation and industrial competitiveness through four interdependent strategic priorities:

1. Accelerate Innovation in Critical and Emerging Technologies of the Future
2. Bolster American Leadership in Standards
3. Accelerate the Commercial Adoption of U.S. Innovations
4. Build 21st Century Research Infrastructure to Unleash CET Innovation

NIST Strategy Overview

1. **Accelerate Innovation in Critical and Emerging Technologies of the Future**
   Buildout and scale-up of the U.S. quantum industrial base, solidify American dominance in AI innovation, harness the power of biotechnology, and grow U.S. leadership in semiconductors.

2. **Bolster American Leadership in Standards**
   U.S. engagement and leadership in international standards for critical and emerging technologies (CETs) to promote U.S. trade, and standards policy coordination across the U.S. government.

3. **Accelerate the Commercial Adoption of U.S. Innovations**
   Adoption and commercialization of federally funded scientific discoveries and technology advancements in CETs at the pace of industry.

4. **Build 21st Century Research Infrastructure to Unleash CET Innovation**
   Construct world-class facility infrastructure and equip NIST with the required laboratory environments to drive innovation in Gaithersburg, MD, and Boulder, CO, campuses.

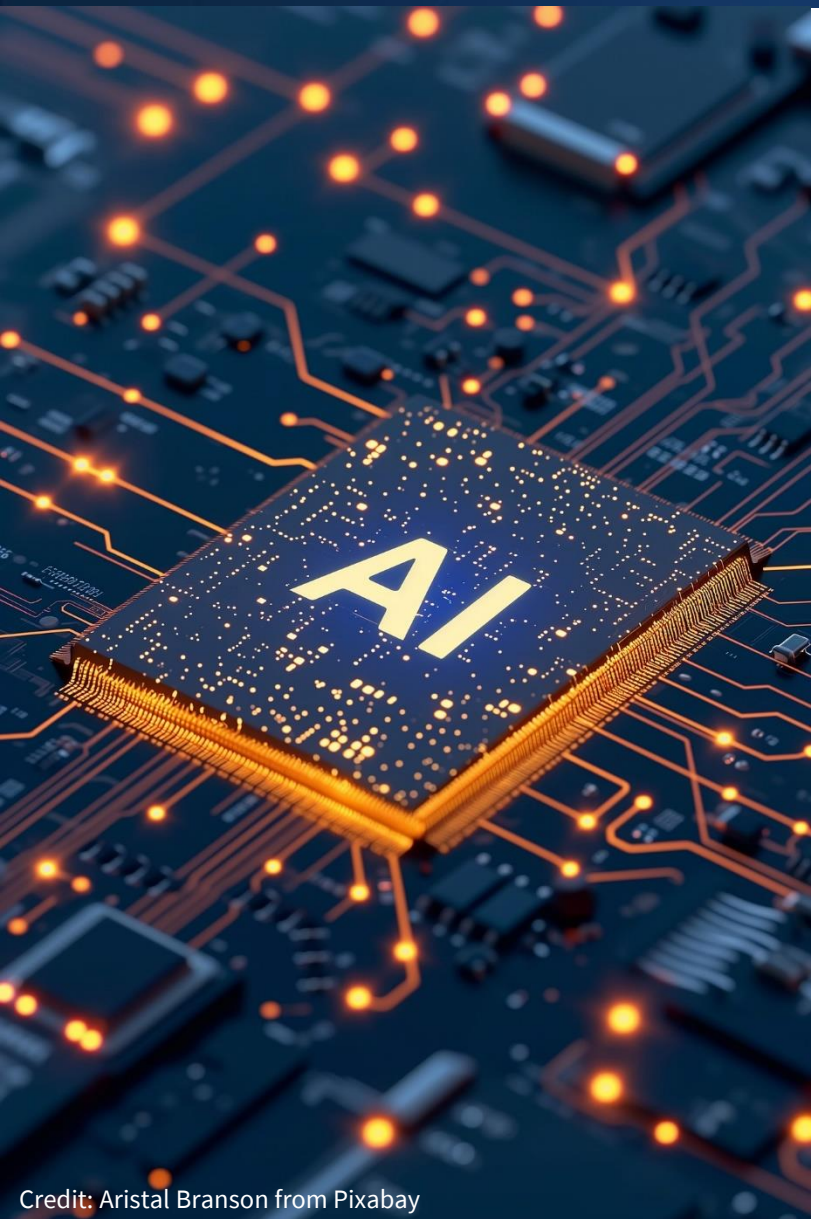
Accelerate the Buildout and Scale-Up of the U.S. Quantum Industrial Base

NIST will advance U.S. quantum sector leadership and accelerate:

- Manufacturing of **new quantum sensors**.
- Manufacturing of **scalable, high-performance quantum system components**.
- **Development of quantum networks** including deployable atomic clocks.
- Development and adoption of **post-quantum cryptography (PQC) standards**.

Credit: NIST/CTL

Solidify American Dominance in AI Innovation



Credit: Aristal Branson from Pixabay

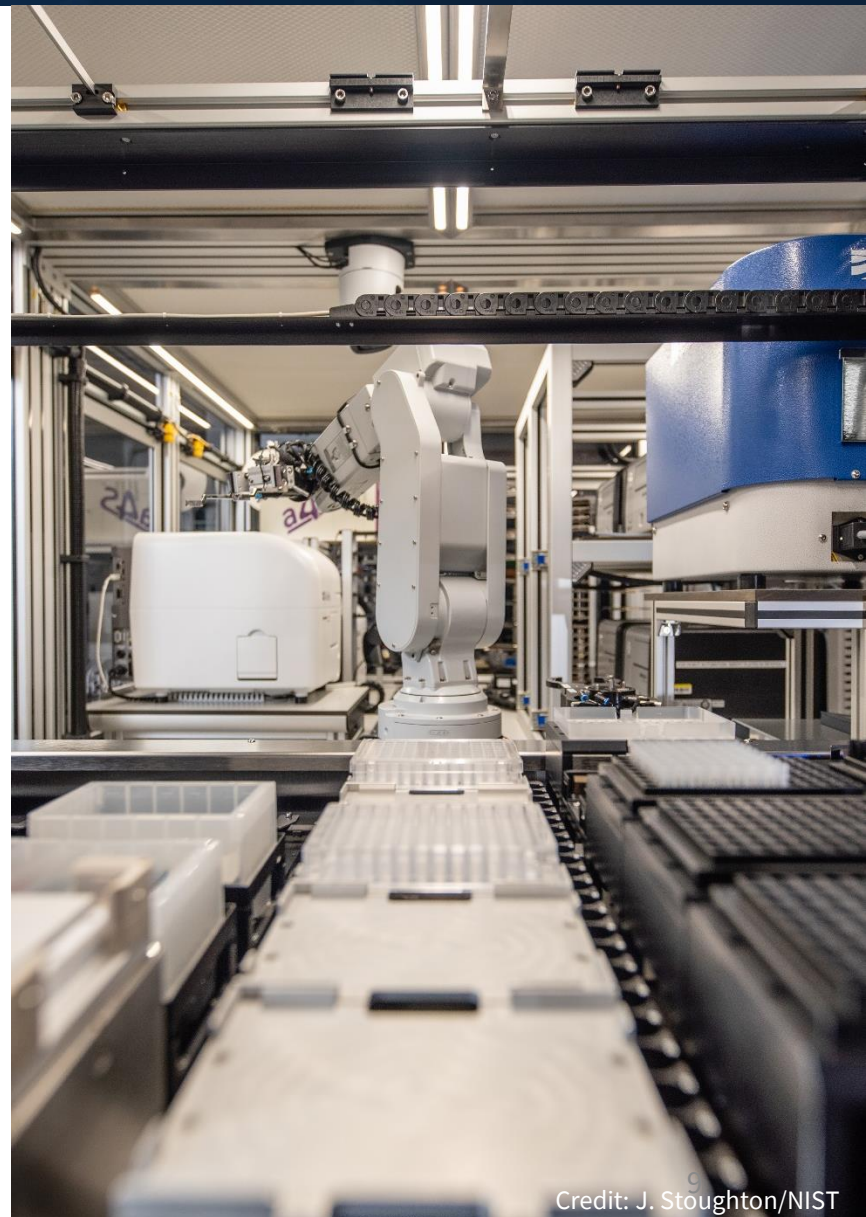
NIST will catalyze American AI innovation and accelerate:

- Development and adoption **of AI-driven** autonomous agents for increased **U.S. manufacturing productivity**.
- Development and adoption of **AI-based agents** to **protect and secure U.S. critical infrastructure** from cyberthreats.
- Adoption of American AI products by driving consistency in the **measurement of AI system performance, reliability, and security**.
- Abilities to rapidly **evaluate the capabilities of AI systems** to promote American AI innovation.

Harness the Power of Biotechnology

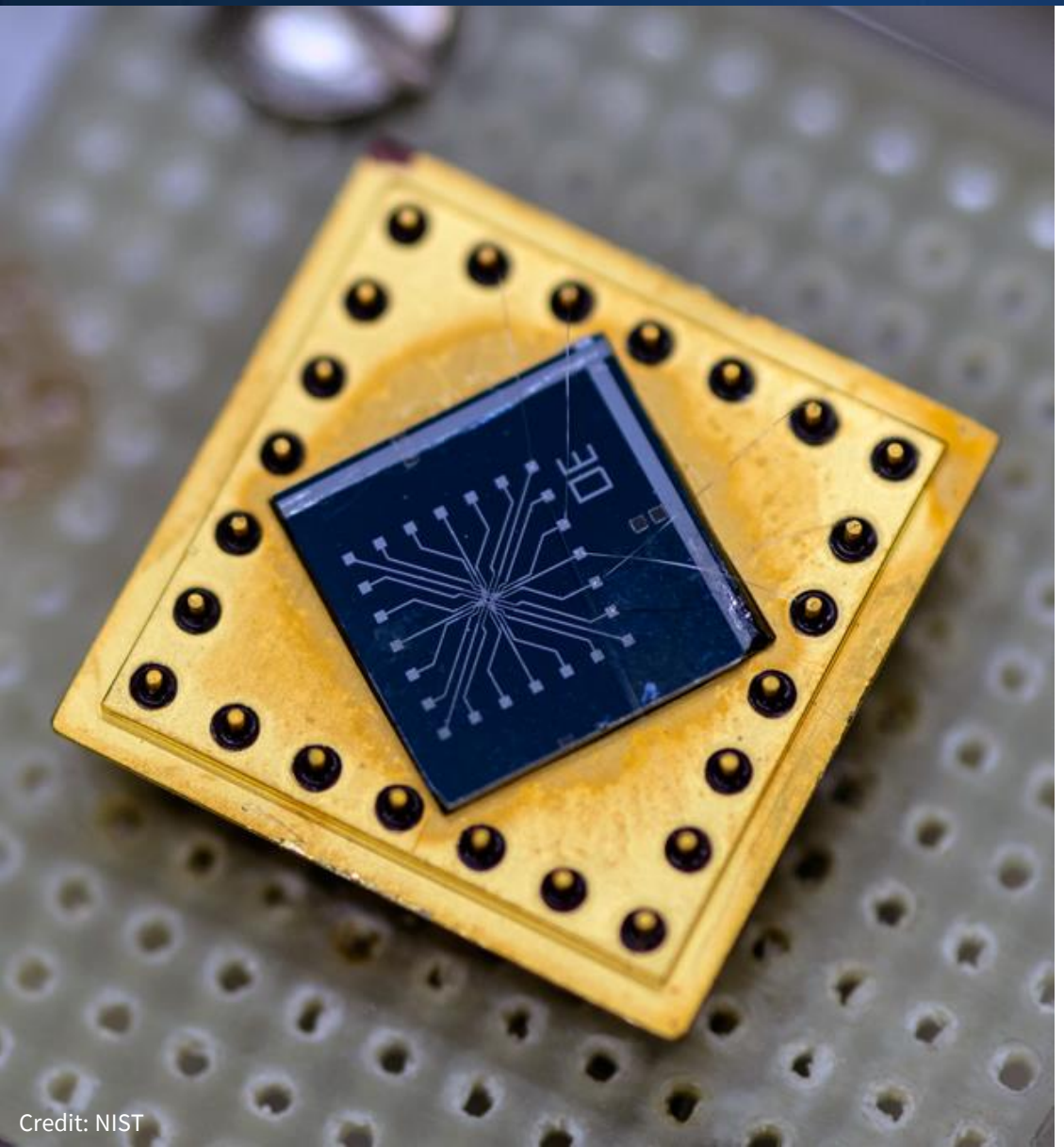
NIST will unlock the potential of biotechnology and biomanufacturing to solve U.S. industry challenges and partner with U.S. industry to accelerate:

- **U.S.-based adoption** of emerging biotechnologies and development of biomanufactured products.
- Drug development and manufacturing with **new fit-for-purpose biological reference materials and reference data**.
- Development of **AI-enhanced biotechnology solutions**.



Credit: J. Stoughton/NIST

Grow U.S. Leadership in Semiconductors



Credit: NIST

To ensure U.S. leadership in semiconductors, NIST will partner with U.S. industry to accelerate:

- Development of **semiconductor technologies** to enhance U.S. competitiveness.
- **Semiconductor innovation** to overcome R&D ecosystem gaps.

Bolster American Leadership in Standards

NIST will continue to champion the United States' industry-led, market-driven, and voluntary approach to international standards development and will accelerate:

- **U.S. engagement and leadership** in international standards for CETs.
- Development and adoption of **science-based standards for CETs** to promote U.S. trade.
- **Strategic NIST engagement, participation, and leadership** in international standards bodies.
- **Standards policy coordination** across the U.S. government.

Credit: Shutterstock/Anton Balazh

Accelerate the Commercial Adoption of U.S. Innovations

Credit: Pixabay

To achieve global leadership in the technologies of the future, NIST will accelerate:

- **Adoption and commercialization** of federally funded scientific discoveries and technology **advancements** in CETs at the pace of industry.
- **Strategic assessments** of U.S. industrial opportunities and needs.
- **Advancement of the U.S. innovation ecosystem** for the 21st century through policy reforms.

Build 21st Century Research Infrastructure to Unleash CET Innovation

NIST will invest in modernizing its aging facilities to provide the capabilities and the advanced research equipment critically needed to drive U.S. innovation and global competitiveness and will:

- **Construct world-class facility infrastructure** and equip NIST with the required laboratory environments to drive innovation in CETs.
- **Create a scalable utilities infrastructure** for both the Gaithersburg, Maryland, and Boulder, Colorado, campuses.

Credit: NIST

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Questions?