NIST's Alignment with Administration Priorities

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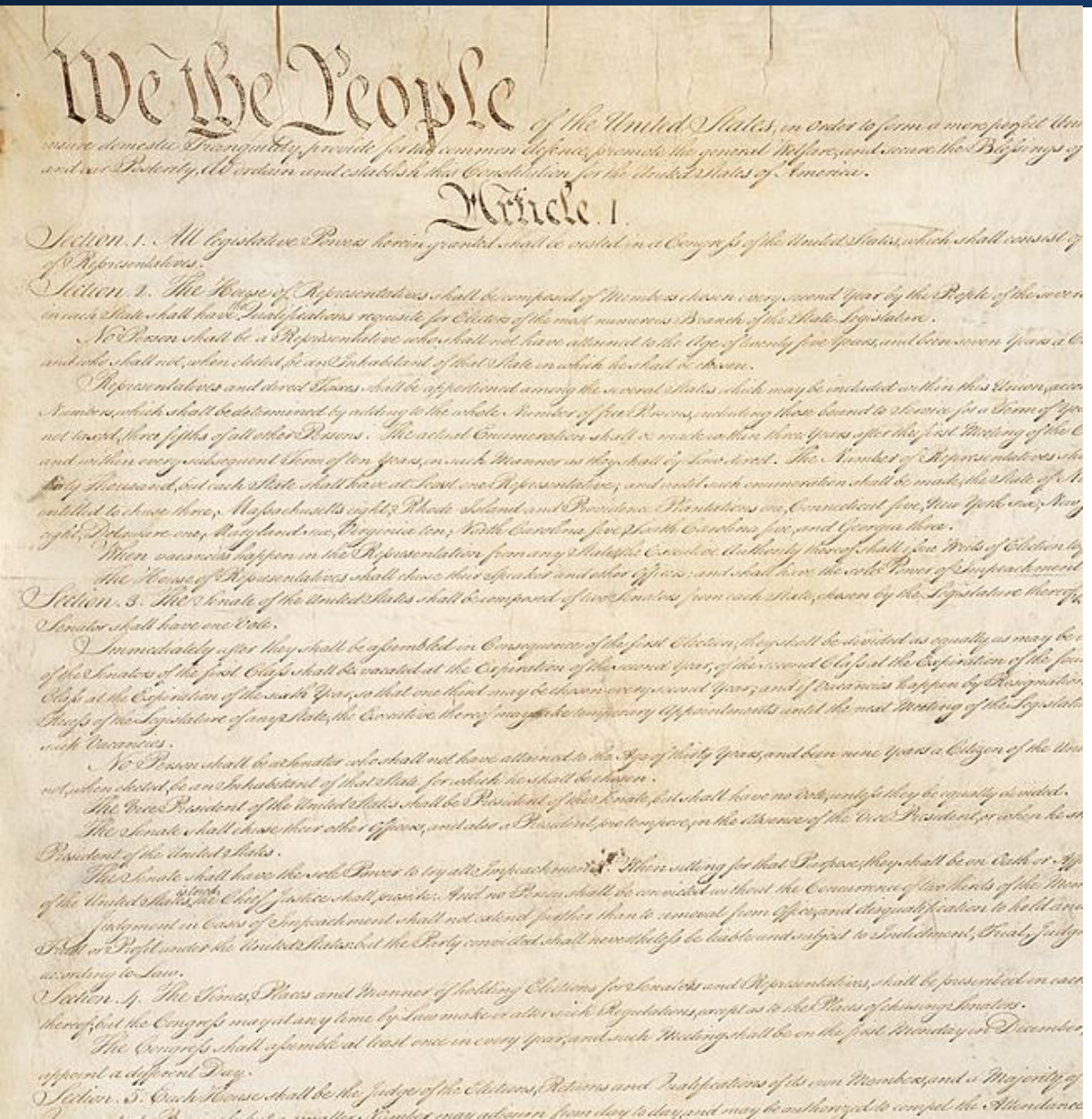
NIST's Origin Story



Article 1, Section 8, of the Constitution of the United States: "**The Congress shall have power…to fix the standard of weights and measures**"

Standards provide a **basis of trust for American consumers and international trade**

NIST Mission

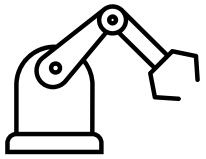
To **promote U.S. innovation and industrial competitiveness** by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life

Credit: NIST

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, semiconductors, 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.



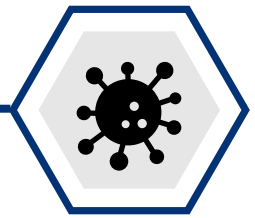
Manufacturing: NIST brings together practical tools and services for the U.S. manufacturing base, including on issues such as technology adoption, supply chains, security, and workforce development.

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 nations like China, and technical barriers erected by trading partners.

NIST CET Priority Areas

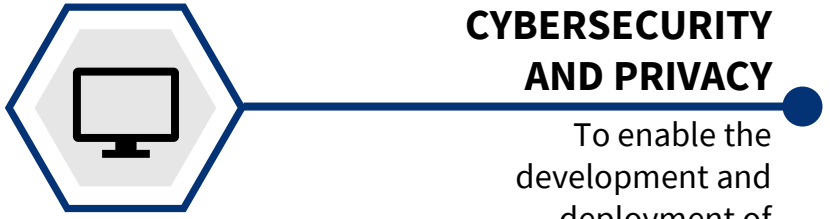
ARTIFICIAL INTELLIGENCE

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

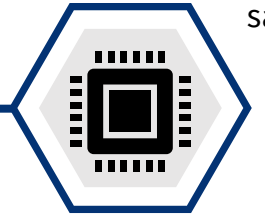


CYBERSECURITY AND PRIVACY

To enable the development and deployment of emerging technologies

NEXT-GENERATION COMMUNICATIONS

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



SEMICONDUCTORS

Revitalizing U.S. semiconductor manufacturing competitiveness

QUANTUM TECHNOLOGY

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

Administration S&T Priorities

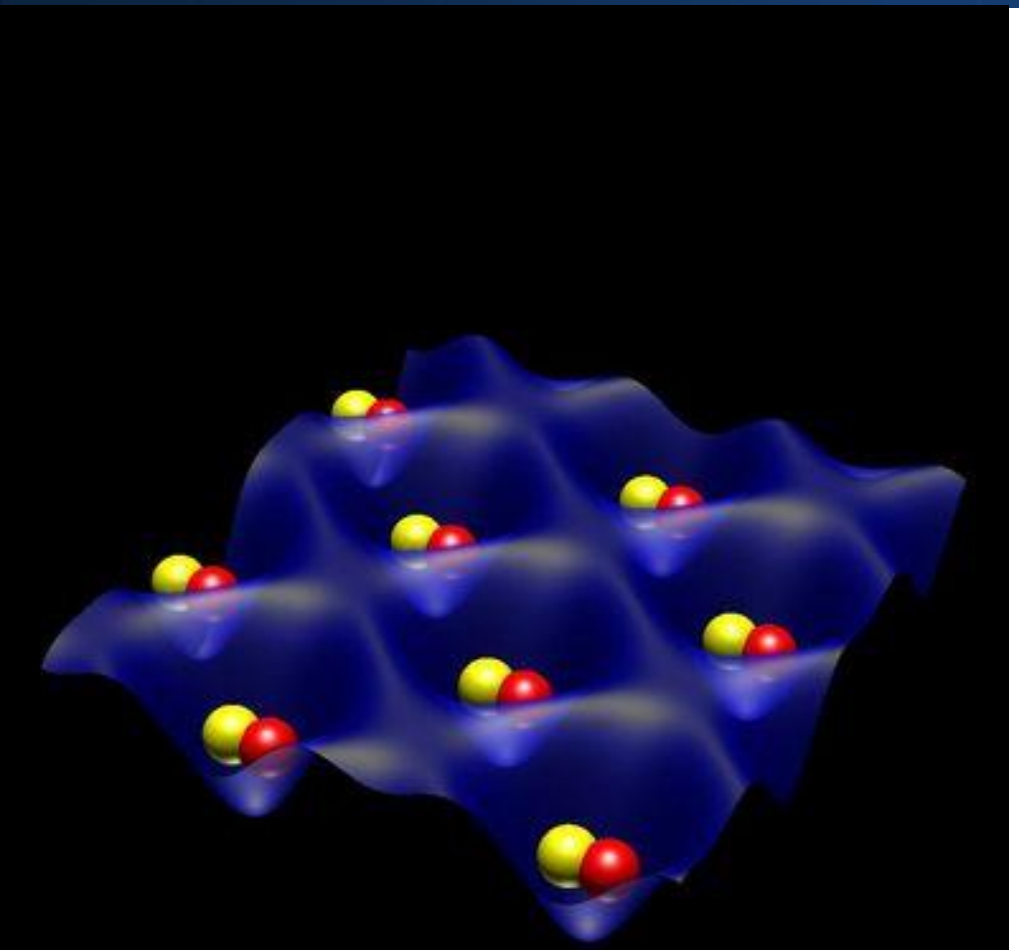
> How can the United States secure its position as the unrivaled world leader in critical and emerging technologies — such as **artificial intelligence**, **quantum information science**, and nuclear technology — maintaining our advantage over potential adversaries? We need to accelerate research and 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.

AI Approach at NIST

- Removing barriers to American AI innovation by filling a critical gap in **fundamental AI research** and measurement science
- Providing a foundation for U.S. companies to innovate and develop **AI standards, tests and evaluations**
- Promoting **risk-based approaches to trustworthy AI**, supporting all sectors of the U.S. economy

Quantum Information Science/Technology



Thousands of trapped Rb atom swap 'spins' simultaneously, advancing prospects for using neutral atoms as quantum bits in quantum computers

Credit: Trey Porto/ NIST

Foundational Research in scaling of quantum systems, metrology for U.S. industry

Quantum Engineering and **Post Quantum Cryptography Standards** to drive future of quantum devices and communications

Partnerships: Quantum Economic Development Consortium (QED-C)

Accelerating U.S. Dominance in AI & Quantum

NIST plans to **create two Emerging Technology Accelerators** that will build upon and optimize NIST's existing, trusted foundation in AI and Quantum Technologies to **accelerate U.S. development and adoption of AI and quantum sensor technologies**

- **Acceleration "hubs"**: **Leverage and enhance NIST's core research and standards mission capabilities**
- **Acceleration Centers or "spokes"**: **Leverage and enhance industry capabilities using adaptive and flexible public-private partnerships** to pilot and implement new advances in AI and quantum technologies

AI Accelerator

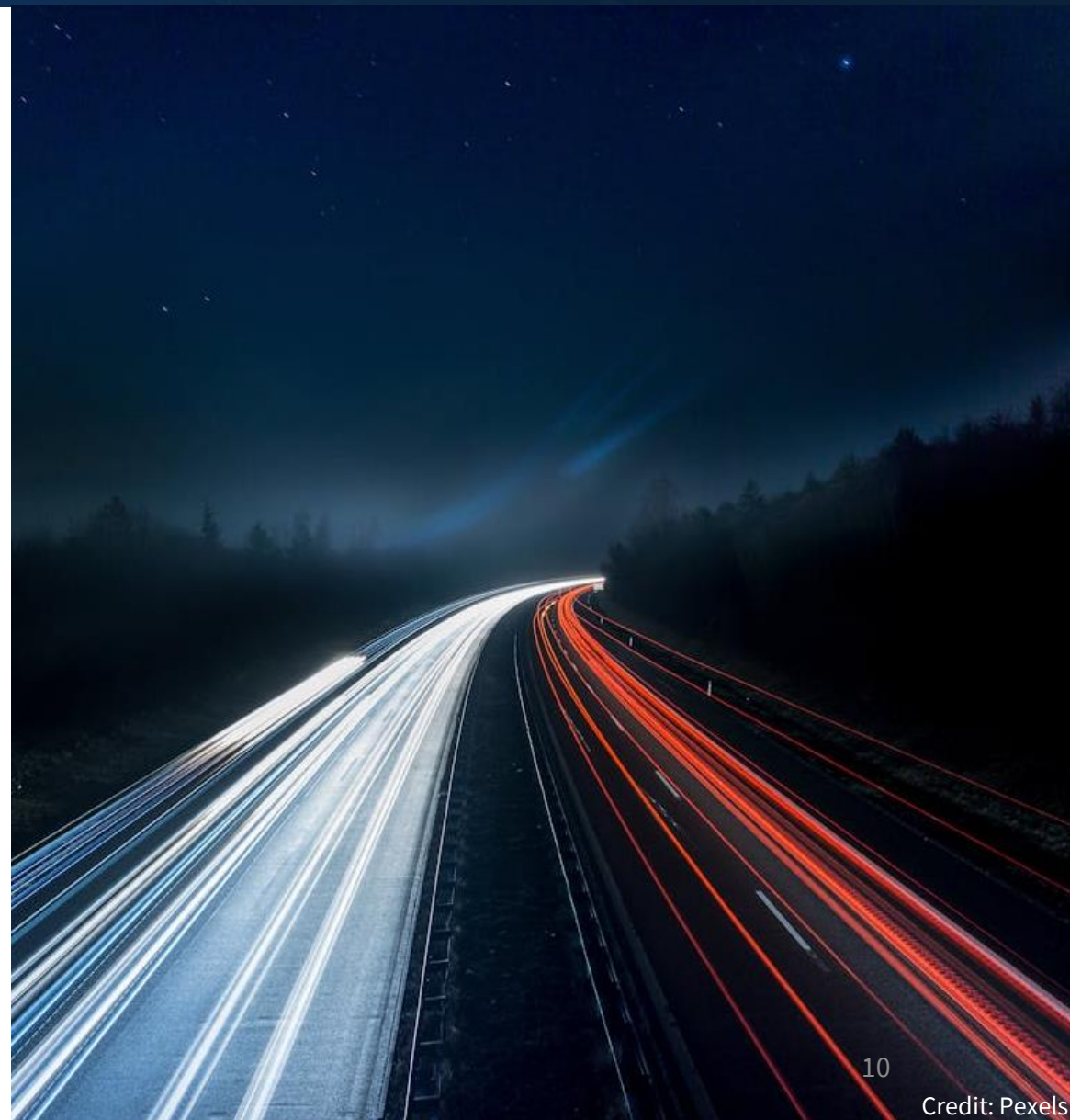
- **Creating unprecedented AI "gold standards"** to empower U.S. AI developers and users to trust and adopt AI, innovate, and lead the world in AI technology development
- **Achieving true reliable, secure, and trustworthy AI** in areas that are high priorities for U.S. economic and national security to unlock what AI can do and predict how it will operate, so that U.S. companies will reap the benefits of AI

Quantum Technology Accelerator

- **Reducing size, weight, power, and cost** (SWaP-C) of quantum sensors and components
- **Achieving high performance and scalability** necessary for economic impact by overcoming major engineering barriers
- **Realizing quantum sensor field deployment** through rugged design and advanced manufacturing

Emerging Technology Accelerators

- Accelerate adoption of research and standards through focused investments
- Demonstrate technology adoption impacts in 3-4 years
- Leverage cross-cutting NIST and private sector mission-aligned capabilities
- Evolve and change with time to align with national priorities



Credit: Pexels

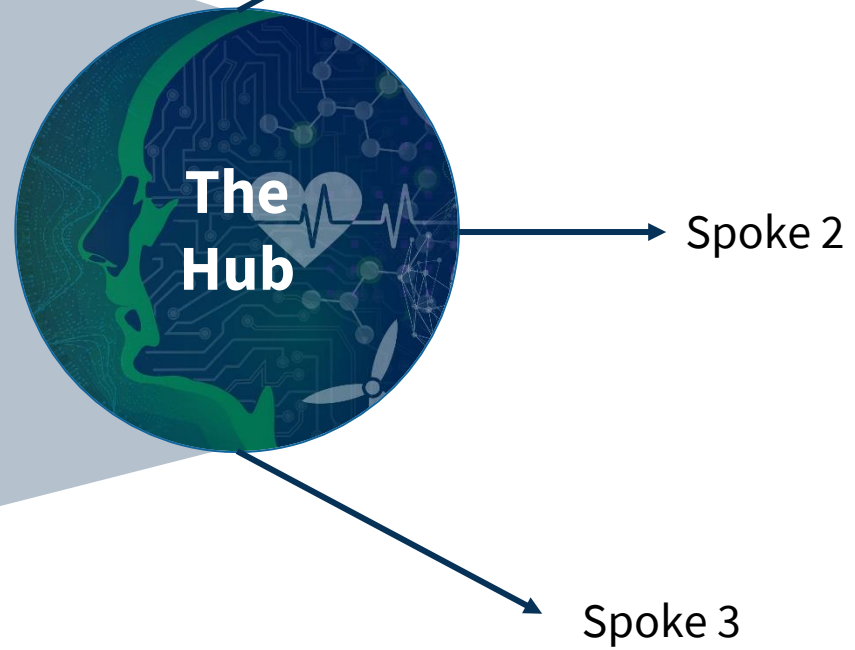
Portfolio-Based Program Approach

- Develop and execute vision and strategy to overcome Research, Development, Testing, and Evaluation (RDT&E) grand challenges for emerging technologies
- Implement synergistic hub-and-spoke model via public-private partnerships with industry, universities, and other organizations
- Catalyze private sector investments to scale the technology

AI Accelerator Hub

The AI Accelerator Hub will create:

- Testbed facilities and tools for testing and evaluating AI systems
- Evaluation, monitoring, and post-deployment methods to improve understanding of AI systems
- Guidelines for mitigating issues
- Tools and guidelines for training data
- Evaluation methods to promote fair competition in AI procurement



Quantum Technology Accelerator Hub

The Quantum Technology Accelerator Hub will:

- Develop core quantum technologies, pursuing fundamental and translational research
- Ensure cross-cutting impact of key innovations in sensor science
- Accelerate development and commercialization of quantum sensors

Spoke 1

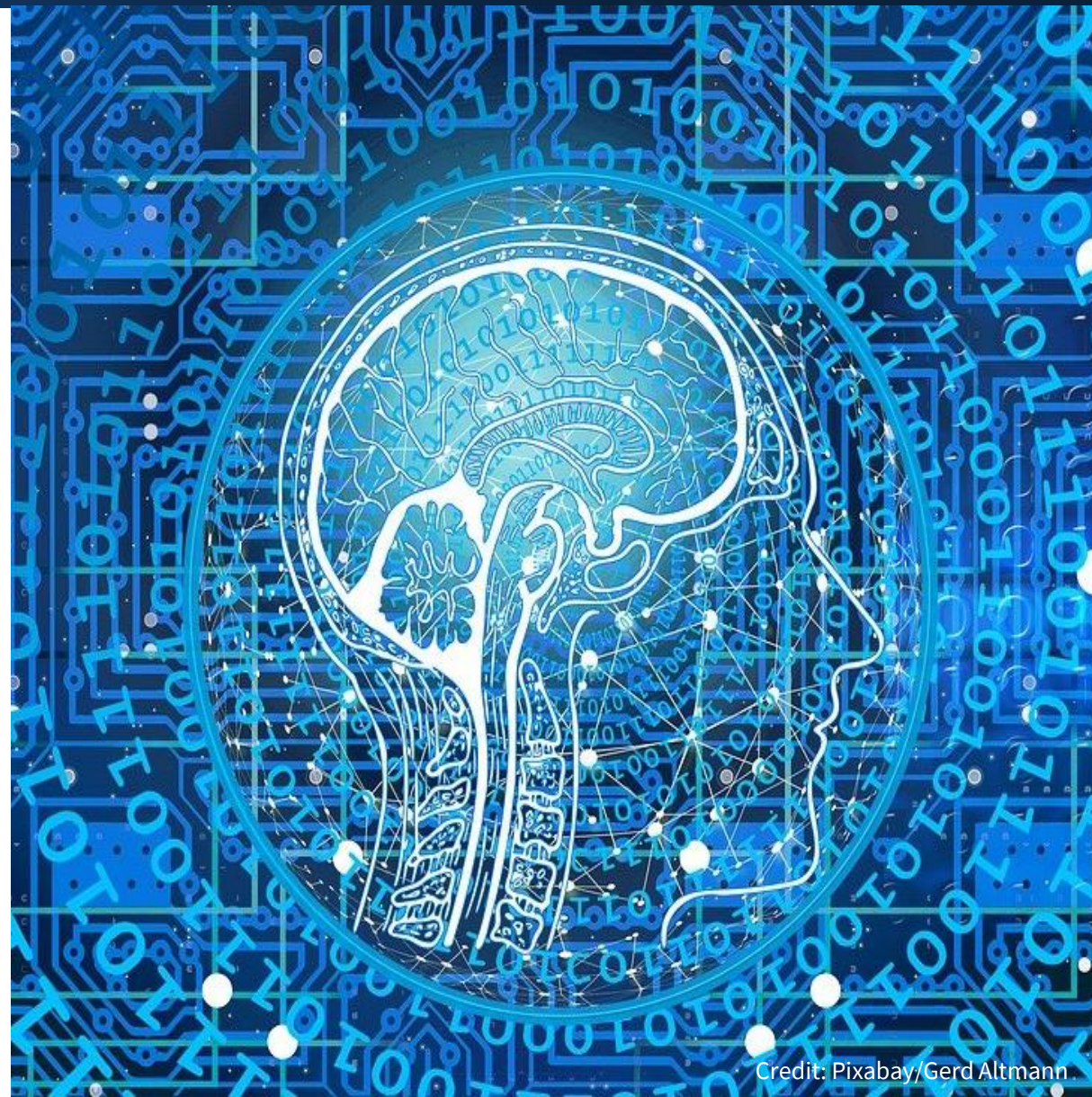
Spoke 2

Spoke 3

Implementation in FY 2025 and Beyond

NIST will align, and has aligned, with Administration priorities by:

- Prioritizing CET funding in the FY 2026 President's Budget Request
- Proposing AI & Quantum Technology Accelerators
- Developing a draft reorganization plan that, if enacted, would maximize NIST's ability to accelerate the hub-and-spoke model in alignment with the core mission of the NIST Laboratories



Credit: Pixabay/Gerd Altmann