USG NATIONAL STANDARDS STRATEGY FOR CRITICAL AND EMERGING TECHNOLOGY (USG NSSCET)

STANDARDS LEADERSHIP

NIST leads execution of the U.S. government's National Standards Strategy for Critical and Emerging Technology and the development of federal standards policy to ensure continued U.S. global economy competitiveness and technology leadership

DYNAMIC GLOBAL LANDSCAPE OF STANDARDS DEVELOPMENT

- The future of U.S. innovation, competition, and national security is at risk
- The U.S. must uphold the integrity of international standards in coordination with likeminded partners and allies
- A clear vision is needed to sustain engagement in global standards-setting

STANDARDIZATION "SYSTEMS" COMPARISON

In the U.S.

- Voluntary, decentralized and market-driven
- Led by private sector
- Public-private partnership
- Differs from centralized standards systems in other countries
- Reflects U.S. culture and public-private sector dynamics
- Relies on cooperation, communication and parity among diverse stakeholders
- ANSI is the private sector coordinator of many U.S. domiciled standards organizations and the U.S. ISO and IEC member

In the EU

- European Commission mandates the development of regional EN standards (CEN, CENELEC, ETSI) to support regulatory objectives
- Agreements between EU regional standards organizations (ESOs) and ISO and IEC result in ISO and IEC standards routinely used as the basis of EU regional standards
- EU members are primarily the voting members of the ESOs
- EU member states' regulatory system gives presumption of conformity to products that conform to EN Standards
- EU member states are individual members of ISO, IEC, and ITU

In the PRC

- Central government organized by the Standards Administration of China (SAC)
- Developing a tiered standards system
  - National Standards (SAC)
  - Sector Standards (SAC Coordinated)
  - Local Standards (SAC Coordinated)

China 2035 Initiative

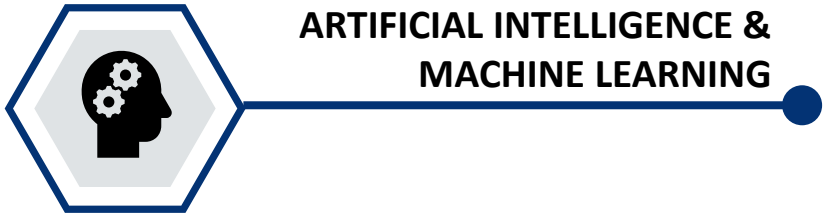
- Launched in March 2018
- Developed by SAC
- Research standardization strategies to inform PRC's strategy
- Focused on PRC national standards for priority areas
- Increase PRC private sector standards development
- Increase PRC participation and leadership in international standards

OUR PATH FORWARD

The U.S. requires a **strategic** approach built around a sustained commitment to the private sector-led international standards development processes:

- **Enhanced investment in R&D** – a critical component of successfully influencing international standards
- **Expanded collaborations** between allied governments, industry, and academia to ensure their engagement and participation in technical standards
- Creative approaches to **growing engagement and broadening participation** in standards development

CRITICAL AND EMERGING TECHNOLOGIES IDENTIFIED IN THE USG NSSCET



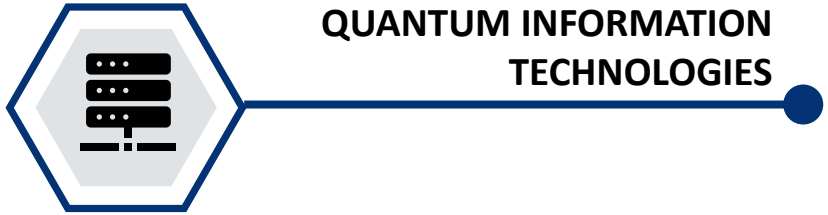
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

COMMUNICATION & NETWORKING TECNOLOGIES

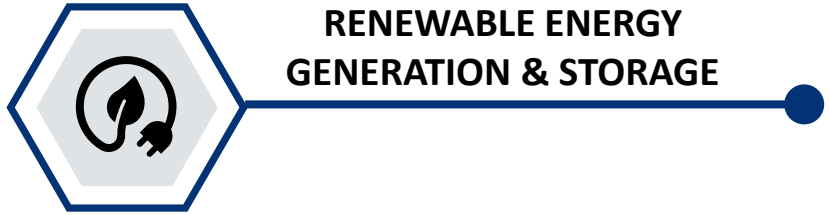
BIOTECHNOLOGIES

SEMICONDUCTORS & MICROELECTRONICS

DIGITAL ID INFRASTRUCTURE & DISTRIBUTED LEDGER TECHNOLOGIES



QUANTUM INFORMATION TECHNOLOGIES



RENEWABLE ENERGY GENERATION & STORAGE

SPECIFIC CET APPLICATIONS

Automated & Connected Infrastructure

Smart cities, Internet of Things, and other novel applications

Biobanking

Involves the collection, storage, and use of biological samples from individuals

Automated & Connected Transportation

Autonomous vehicles, unmanned aircraft systems, automated subway systems, smart cities, internet-of-things, and other possible applications

Electric Vehicles (EVs)

Standards to integrate EVs with the electrical grid

Critical Mineral Supply Chains

Cross-cutting issues that are critical to enabling the development and deployment of emerging technologies and data security

Cybersecurity & Privacy

Cross-cutting issues that are critical to enabling the development and deployment of emerging technologies and data security

USG NSSCET OBJECTIVES

- Objective 1: Investment
- Objective 2: Participation
- Objective 3: Workforce
- Objective 4: Integrity & Inclusivity

USG NSSCET LINES OF EFFORT

Greater Investment in Pre-Standardization Research

- Increase R&D funding for CETs
- Support development of standards that address risk, security, and resilience

Participation in Standards Development

- Remove and prevent barriers to private sector participation
- Improve communication between public and private sector
- Enhance USG representation and influence in international standards governance and leadership

Workforce Development

- Educate and empower the new standards workforce

Ensuring Integrity in Standards Development

- Deepen standards cooperation with partners and allies
- Facilitate broad representation in standards development

TECHNOLOGY AND STANDARDS LEADERSHIP AT NIST

Artificial Intelligence (AI)

NIST collaborated with experts from more than 240 organizations through a consensus-driven, open, transparent, and collaborative process on the development of an AI Risk Management Framework (AI RMF), released Jan. 2023

Biosystems and Biomaterials

NIST led the development of a framework for the development of the first meaningful methods to compare cell quantity measurements. NIST chairs and administers the U.S. Mirror Committee to ISO/TC 276: Biotechnology

Advanced Wireless Communications

NIST launched the NextG Channel Model Alliance in 2015. This consortium of more than 200 global members works to advance breakthrough measurement approaches to support the commercialization of next-generation wireless networks, including 5G and beyond

Quantum Information Technology

NIST helps to advance quantum information technology through joint institutes, JILA, the Joint Quantum Institute (JQI), the Joint Center for Quantum Information and Computer Science (QuICS), and through the Quantum Economic Development Consortium (QED-C)

NIST'S LEADERSHIP OF CET STANDARDS

ITU

ASTM INTERNATIONAL

IEC

ISO

IEEE SA STANDARDS ASSOCIATION

3GPP A GLOBAL INITIATIVE

- Implementation of the USG Standards Strategy for CET
- Broadening participation in international standards development
- Identifying best practices for standards coordination across the labs, interagency, industry and like-minded countries

DEVELOPING A USG NSSCET IMPLEMENTATION PLAN

NIST will provide a point of entry to implementation of the USG National Standards Strategy for Critical and Emerging Technology

- Supporting communication and coordination information, including an upcoming RFI, on **standards.gov**
- Planning a series of national listening sessions and stakeholder engagements
- Working through federal advisory committees and establishing a NIST VCAT Subcommittee on how to broaden participation in standards development
- Sharing case studies and lessons-learned on standards development best practices

NIST'S STANDARDS COORDINATION OFFICE (SCO)

- Interagency Assistance and Coordination
- Trade and Regulatory Programs
- Conformity Assessment
- Education and Training

NIST STANDARDS COORDINATION OFFICE

www.Standards.gov

A COMMERCE-WIDE EFFORT

INTERNATIONAL TRADE ADMINISTRATION

ITA plays a leading role in addressing foreign standards practices that might impede the export of U.S products and seeks to level the playing field by working directly with trading partners to reduce, remove, or prevent standards-related barriers.

BIS works with USG partners and private sector to ensure that BIS policy and regulations do not hinder U.S. private sector participation and influence in international standards for CET.

USPTO leads an endeavor with the World Intellectual Property Office to facilitate the resolution of disputes related to standards-essential patents. Additionally, the USPTO and NIST jointly support listening sessions with technology clusters, academia, standards developing organizations, and think tanks.

NTIA coordinates USG participation in 3GPP, works closely with the Alliance for Telecommunications Industry Solutions (ATIS), participates in proceedings of the International Telecommunications Union (ITU), and administers the $1.5 billion Public Wireless Supply Chain Innovation Fund (PWSCIF).

We're Listening.

The Standards Information Center provides a gateway to navigating the dynamic U.S. and international standards landscape

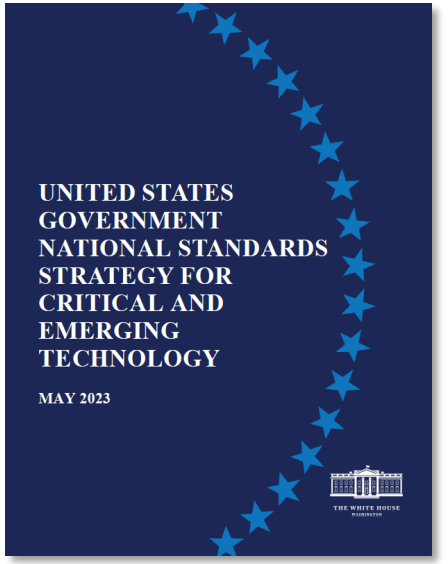
The USA Enquiry Point for the World Trade Organization (WTO)

www.Standards.gov

DISCUSSION QUESTIONS

The new USG NSSCET was released in May.

- Have you received any feedback since the release?
- If so, what have you heard?



Broadening participation of academic and private-sector stakeholders in international standards development is critical to the strategy.

- Do you anticipate barriers to participation for these stakeholders?
- How can NIST, along with other U.S. government agencies and departments, help address these barriers?

NIST is a known leader in measurement science research. Some NIST staff leverage that strength in the international community by participating in Standards Developing Organizations (SDOs).

- Other than SDO activities, what additional activities should NIST consider to strengthen U.S. leadership in international standards activities for CETs?