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

Date

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

BIG PLAYERS STANDARDIZATION "SYSTEMS"

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 stakeholder
- 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

USG NATIONAL STANDARDS STRATEGY FOR CRITICAL AND EMERGING TECHNOLOGIES

Objective 1:	Investment
Objective 2:	Participation
Objective 3:	Workforce
Objective 4:	Integrity and Inclusivity

CRITICAL AND EMERGING TECHNOLOGY AREAS

Communication and Networking Technologies	Enabling dramatic changes in how consumers, businesses, and governments interact, and which will form the basis of tomorrow's critical communications networks
Semiconductors and Microelectronics, including Computing, Memory, and Storage technologies	Fundamental to our digital economy, and which power a panoply of innovations and capabilities
Artificial Intelligence and Machine Learning.	Promise transformative technologies and scientific breakthroughs across industries but must be developed in a trustworthy and risk-managed manner
Biotechnologies	Will affect the health, agricultural, and industrial sectors of all nations, and which will need to be used safely and securely to support the health of our citizens, animals, and environment

CRITICAL AND EMERGING TECHNOLOGY AREAS

Digital identity infrastructure and distributed ledger technologies	Are increasingly affecting a range of key economic sectors
Renewable Energy Generation and Storage	Are critical to the generation, storage, distribution, and climate-friendly and efficient utilization of energy, and to the security of the technologies that support energy-producing plants
Quantum Information Technologies	Leverage quantum mechanics for the storage, transmission, manipulation, computing, or measurement of information, with major potential for national security and economic implications

SPECIFIC CET APPLICATIONS

Automated and connected infrastructure	Smart cities, Internet of Things, and other novel applications
Biobanking	Involves the collection, storage, and use of biological samples from individuals
Automated and 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 minerals supply chains	We will promote standards that support increased sustainable extraction of critical minerals necessary to manufacture renewable energy technologies, semiconductors, and EVs
Cybersecurity and Privacy	Cross-cutting issues that are critical to enabling the development and deployment of emerging technologies and data security

LINES OF EFFORT

Federal support for U.S. R&D has not kept pace with global R&D investments. Standards are driven by technical contributions that flow from R&D; **greater U.S. investment in pre-standardization research** is needed to underwrite contributions to standards-setting discussions.

Increase R&D funding for CET to ensure a strong foundation for future standards development

Support the development of standards that address risk, security and resilience

LINES OF EFFORT

U.S. organizations confront difficult choices on where to focus resources in a more diversified standards landscape, at times resulting in little to no U.S. participation in potentially disruptive technological fields.

Remove and prevent barriers to private sector participation in standards development

Improve communications between public and private sectors on standards

Enhance USG representation and influence in international standards governance and leadership

LINES OF EFFORT

The number of standards organizations and venues has increased significantly over the past decade, particularly with respect to CETs. Meanwhile the U.S. standards workforce has not kept pace with this growth.

Educate and empower the new standards workforce

LINES OF EFFORT

In response to the increasing attempts of some nations to tilt the playing field to their parochial advantage, we must ensure the standards development process is technically sound, independent, and responsive to broadly-shared market and societal needs.

Deepen standards cooperation with allies and partners to support a robust standards governance process

Facilitate broad representation in standards development

NIST'S LEADERSHIP OF CET STANDARDS

ITU

ASTM INTERNATIONAL

IEC

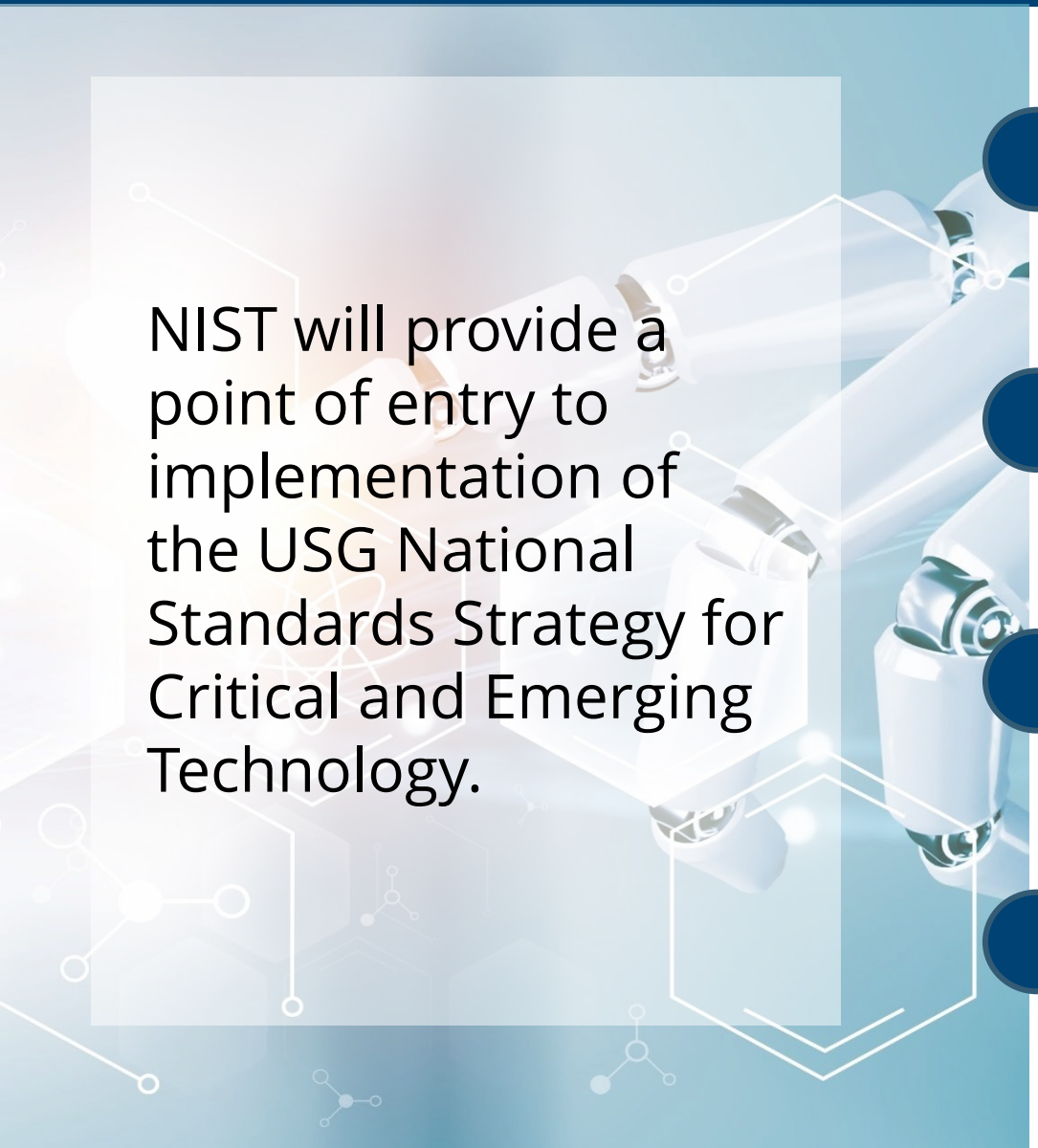
ISO

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

NIST'S ROLE IN STRATEGY IMPLEMENTATION



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

- Support communication and coordination information through **standards.gov**
- Engage with the stakeholder community including standards development organizations, consortia and industry groups through listening sessions
- Work through federal advisory committees and establish a NIST VCAT Subcommittee on how to broaden participation in standards development
- Share 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

INTERNATIONAL TRADE ADMINISTRATION (ITA)

INTERNATIONAL TRADE ADMINISTRATION

ITA plays a lead 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.

Increasing the capacity of our partners to participate in standardization activities and encourage adoption of, and conformance with, relevant international standards through technical training and programming, including through existing workstreams in various bilateral and multilateral fora, dialogues and partnerships such as APEC, ASEAN, etc.

Supports the development and implementation of international standards with an eye toward democratic values including by serving as co-lead of the Technology Standards Working Group under the U.S.-EU Trade and Technology Council (TTC), identifying standards activities of mutual interest to the United States. and EU for cooperation.

Employs Digital, Standards, and Intellectual Property Attachés in key foreign markets to help U.S. companies increase exports by accessing the global marketplace, navigate foreign digital policy and regulatory issues, and defend and protect U.S. IP rights.

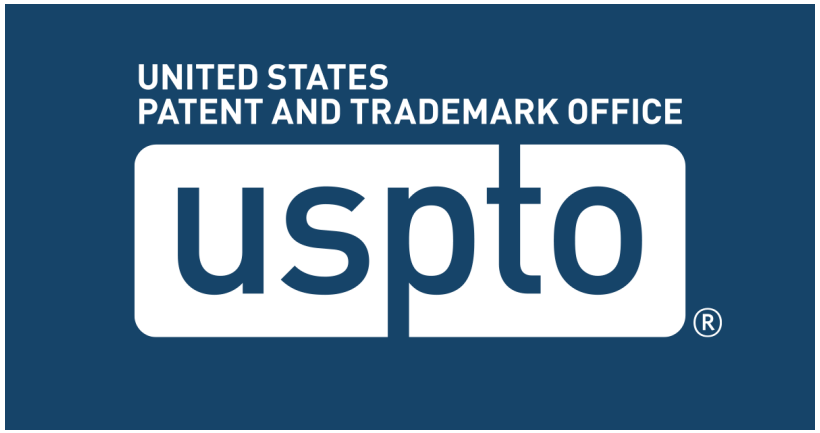
BUREAU OF INDUSTRY AND SECURITY (BIS)

The Bureau of Industry and Security (BIS) published an interim final rule that authorized the release of certain low-level technology and software subject to the Export Administration Regulations (EAR) to the majority of entities on the Entity List (Supplement No. 4 to Part 744 of the EAR) without a license when that release occurs in a standards-related activity with the intent that the resulting standard will be "published."

This action was promulgated to advance U.S. national security and technological leadership by allowing robust U.S. industry participation in international standards-related activities.

BIS will continue to work 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.

UNITED STATES PATENT AND TRADEMARK OFFICE (USPTO)



The U.S. Patent & Trademark Office (USPTO), NIST, and the U.S. Department of Justice Antitrust Division withdrew a 2019 Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments, strengthening the ability of U.S. companies to engage and influence international standards.

USPTO will continue its joint 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.

NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION (NTIA)

- Coordinates United States Government participation in the **3rd Generation Partnership Project (3GPP)**, the preeminent mobile broadband standards development consortium.
- Works closely with the **Alliance for Telecommunications Industry Solutions (ATIS)** to ensure participation by international standards delegates at North American-hosted 3GPP meetings.
- Participates in proceedings of the **International Telecommunications Union (ITU)** to ensure approved contributions are technically sound, responsive to market needs, and fall within the remit of the ITU.
- Administers the **Public Wireless Supply Chain Innovation Fund (PWSCIF)**, a $1.5 billion grant program that aims to catalyze the research, development, and adoption of open, interoperable and standards-based networks.

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