



May 31, 2024

The American National Standards Institute<sup>1</sup> (ANSI) welcomes the opportunity to provide its input to the National Institute of Standards and Technology (NIST) on the April 2024 Draft Plan for Global Engagement on AI Standards, developed in accordance with Section 11(b) of Executive Order 14110.

Particularly in rapidly evolving, interconnected technology areas such as Artificial Intelligence (AI)—transforming nearly every industry and market worldwide—effective, responsive standards and conformity assessment are critically important, demanding even greater investment, leadership, engagement and public-private partnership.

ANSI supports NIST’s efforts to identify priority areas for federal involvement in AI standards-related activities, and is pleased to offer its input on the current state, plans, challenges, and opportunities for engagement in AI standardization from the perspective of the U.S. voluntary standardization community.

### General

ANSI commends NIST for its recognition that “engagement” includes a wide variety of ways U.S. standards stakeholders, including U.S. government stakeholders, can interact with current and potential international partners, and that many priority interactions will depend on private-sector leadership and joint efforts from the global AI and standards communities. In this context, we note the need for ongoing engagement between the U.S. government and private sectors on both AI-related technical issues and also broader AI standards and policy discussions.

We also commend the recognition that AI standards that are developed in a process that is open, transparent, and driven by consensus will best meet market and government needs. Retaining this model for AI standards, with standards development led largely by industry with participation by civil society, government, and academia, will help ensure that the standards meet the needs of those who will need to apply them, and that they reflect broad consensus.

Positively, the draft Plan includes consideration of the full standards lifecycle—including research and related technical activities—as well as the full range of issues, both technical and societal, associated with standards for AI applications. In this context, the Plan would benefit from a definition of standards-related activities, in addition to the definition of “technical standards” presented. Specifically, it would be helpful here to also cite the Bureau of Industry and Security (BIS) definition of “standards-related activity,” which “include an action taken for the purpose of developing, promulgating, revising, amending, reissuing, interpreting, implementing or otherwise maintaining or applying [such] a standard.”<sup>2</sup> Many AI-related specifications are being or will be developed in consortia and implementation activities often take place under consortia or fora umbrellas. This point is indirectly addressed in the Plan with reference to standards-related tools such as “datasets,

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<sup>1</sup> [www.ansi.org](http://www.ansi.org)

<sup>2</sup> <https://www.federalregister.gov/documents/2022/09/09/2022-19415/authorization-of-certain-items-to-entities-on-the-entity-list-in-the-context-of-specific-standards>

benchmarks, reference implementations, implementation guidance, verification and validation tools, and conformity assessment procedures” and would benefit from being more explicit.

### Objectives for Engagement in AI Standards

Section 3.1 of the Plan addresses scientifically sound AI standards that are accessible and amenable to adoptions. The Plan notes that “one particularly important adoption-related issue is sectoral adoption or adaptation of horizontal standards.”

With respect to the development of sector-focused AI standards and tools, in industries that are coming to rely heavily on AI, sector-specific standards projects are also beginning to emerge. We note that such work is underway or planned by a growing number of ANSI-accredited standards developing organizations (SDOs). Some of this work is intended to result in American National Standards (ANS) or to be submitted to ISO or IEC committees. Examples of ANSI-accredited SDOs already working on or considering working on sector-specific AI standards include the following:

- SAE International, a global association of engineers and related technical experts in the aerospace, automotive and commercial vehicle industries, is developing standards products on foundational concepts and certification processes related to AI in aeronautical systems.<sup>3</sup>
- Standards and policies related to AI is a rapidly growing area of work within Accredited Standards Committee (ASC) X9. This work is focused on how AI is used both internally in the development of standards and externally as it is used for many different functions by the financial industry.<sup>4</sup>
- The Consumer Technology Association (CTA), Association for the Advancement of Medical Instrumentation (AAMI) and American Dental Association (ADA) are working on AI-related standards in the healthcare space.
- The American Type Culture Collection (ATCC) has begun sector work for AI standards in the biotechnology space, and is looking to develop authenticated reference data for use in training AI/ML models.
- The Robotics Industries Association (RIA), CSA Group, Alliance for Telecommunications Solutions (ATIS), National Information Standards Organization (NISO), National Council for Prescription Drug Programs (NCPDP), American Society for Nondestructive Testing (ASNT) and the Instrument Society of America (ISA) also report work underway or under consideration.

ANSI is pleased to offer our assistance to NIST in engaging U.S.-based standards developers on sector-specific AI standards work, including but not limited to ANSI-accredited standards developers (ASDs), and those groups or individuals working on behalf of the United States through ISO and IEC Technical Advisory Groups (TAGs), to advance U.S. standardization and conformance goals in the area of AI. See Annex A for a listing of the ASDs that submitted affirmative responses to ANSI regarding AI-related work.

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<sup>3</sup> In addition to aerospace, the SAE ground vehicle AI is developing the following documents: J3313 Artificial Intelligence - terms & definitions taxonomy; J3312 Artificial intelligence (AI) — Use Cases in Ground Vehicle Applications; J3298 WIP for Ground Vehicle Artificial Intelligence Data Information Report. SAE G-34 AI in Aviation Committee has published: AIR6988 Artificial Intelligence in Aeronautical Systems: Statement of Concerns.

The following are in development: AIR6994 Artificial Intelligence in Aeronautical Systems: Use Cases; AIR6987 Artificial Intelligence in Aeronautical Systems: Taxonomy; ARP6983 Process Standard for Development and Certification/Approval of Aeronautical Safety-Related Products Implementing AI.

<sup>4</sup> X9 has two standing groups assigned to work on AI issues. X9F7 is an AI Work Group created to develop Technical Reports and Standards related to AI in the financial industry. X9F7 is currently completing a Technical Report on AI titled “The use and governance of Generative by Financial Institutions.” Additionally, X9 has an AI study group which is studying AI technology in general and is considering creation of a whitepaper. X9 has just released a policy notice to all members of X9 with requirements for any person that is or is considering using any form of AI in the development of a standard.

### Prioritizing Federal Engagement in AI Standardization

The vibrancy and effectiveness of the U.S. standardization system in enabling innovation depend on continued private-sector leadership and engagement. ANSI welcomes and endorses NIST’s statement that “the United States supports standards efforts that are voluntary and market-driven.... the Federal government engages primarily through foundational research, coordination, education, and participation in standards development processes as one of many stakeholders.”

In all cases when engaging in the standards arena, agencies should ensure effective intra- and inter-agency coordination of engagement in standards development activities. They should take into account the impact of their standards-related choices on innovation and the global competitiveness of U.S. enterprises, consistent with international obligations. To the extent feasible and appropriate, agencies should provide continuous support for their technical experts’ participation and leadership activities in mission-critical standards-setting activities and standards organizations, to include maintaining adequate resource levels throughout the life of priority standards activities.<sup>5</sup>

As noted in the draft Plan, AI is not just one technology, but a variety of software and hardware enabling technologies (e.g., machine learning, deep learning, knowledge representation) that can be applied in various ways in a potentially unlimited number of applications, ranging from manufacturing to financial services, and health care to transportation. In the federal space, potential applications of AI technology vary as widely as do individual federal agency missions.

ANSI recommends that the federal government continue to prioritize engagement in the development of AI technical standards and tools that have broad, cross-sectoral applications. These include terminology standards, data reference architectures, safety and security-related standards, and standards related to bias in AI systems. A number of relevant standards are being developed under the auspices of ISO/IEC Joint Technical Committee (JTC) 1, *Information Technology*, Subcommittee (SC) 42, *Artificial Intelligence*. Having these standards and tools in place will enable more rapid development of application-specific standards and tools as follow-on activities. NIST can assist in coordinating across the federal enterprise to identify and prioritize the federal government’s AI standards needs. This can help with generating greater support for such standards development efforts.

### Priority Topics for Standardization

There is great value in the Plan’s identification of priority topics for standardization work, noting those areas that are currently ready for standardization, and those where additional scientific or foundational work is needed. This is a living classification and it would be helpful to provide a mechanism for updating the topics and their priority placement as progress is made.

With respect to the topics listed in Clause 4.1 of the draft Plan, there is relevant work completed or underway in ISO/IEC JTC1/SC 42 that should be referenced. This includes ISO/IEC 42001 – *Artificial Intelligence Management System* as well as ISO/IEC DIS 42006 – *Requirements for bodies providing audit and certification of artificial intelligence management systems* (which is currently under development). SC 42 also has work underway on validation and verification and human machine teaming (ISO/IEC TS 17847 and ISO/IEC TR 42109 respectively).

Regarding energy consumption of AI models, listed in Clause 4.2, SC 42 has recently established a Joint Advisory Group with SC 39 on AI and Sustainability. The goal of this activity is to develop a

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<sup>5</sup> This policy is codified in White House Memo [M-12-08](#).

roadmap of needed standards in this space and to recommend new projects. The Terms of Reference include:

- Increasing importance of AI and sustainability
- The existing work and collaboration between SC 42 and SC 39
- The application of AI for sustainability
- The need for sustainable AI systems
- AI systems deployed in topologies on devices, at the edge / node, cloud / data center, and everything in between

## **Facilitating Diverse Multistakeholder Engagement in Standards**

### **Domestic Capacity Building**

The draft Plan notes the importance of regularly convening stakeholders in AI standards to exchange information and discuss AI standards issues. These activities should, wherever feasible, be private-sector led with government participation. ANSI stands ready to provide a venue or venues for such discussions, engaging the full range of stakeholders. Thirty years ago, ANSI launched the standards collaborative model, bringing public- and private-sector stakeholders together to coordinate and accelerate the development of private-sector-led standards and conformity assessment programs to address national and global priorities.

While each collaborative is unique, several have addressed cross-sector needs in emerging technology areas ranging from nanotechnology and nuclear energy to electric vehicles, additive manufacturing, and unmanned aircraft systems. In each of these instances, federal agencies have been active participants and have publicly acknowledged the valuable role and contributions of ANSI-led collaboratives. The federal government should look to ANSI and its standards collaborative model when a common standards framework is needed.

### **Global Capacity Building**

The draft Plan addresses the need for global capacity building, and notes the importance of leveraging foreign assistance funds and other diplomatic programming, in collaboration with civil society and the private sector, to arrange training for and support for SDO participation by stakeholders in partner countries. In this context, it will be important to ensure that training and support is (i) consistent with the processes that SDOs already have in place to enable greater participation of under-represented groups, and (ii) political considerations do not outweigh the technical expertise that participants need to bring to the table.

ANSI has a number of training and education programs that can support AI standards that reflect the needs and inputs of diverse global stakeholders. Leveraging its international responsibilities and experience, ANSI implements a robust portfolio of technical assistance and capacity building programs focused on supporting international best practices related to standards and conformity assessment. These activities are often geared towards assisting developing countries through capacity building, promoting the adoption of international best practices, and promoting the U.S. standardization principles of consensus, due process, and transparency. As part of these projects, ANSI works with governmental and non-governmental partners to organize and implement workshops and trainings in the partner countries.

In the area of critical and emerging technologies, including AI, ANSI has implemented several activities that support the goal of expanding the ability of low- and middle-income countries to participate in standards development in these areas, as well as leverage the results of international best practice to meet their country's needs. For example:

- Between 2019-2021, ANSI and the U.S. Trade and Development Agency (USTDA) implemented workshops with South Africa, Nigeria, and Democratic Republic of Congo, facilitating industry connections and standards-related awareness building in the areas of digital transformation, 5G expansion, and the impacts these advancements could have on cybersecurity and health service delivery improvements. In follow up, Nigeria has built on the engagement to continue interactions with U.S. stakeholders on AI innovation.
- In 2022, ANSI and the USTDA implemented a U.S.–Indonesia Healthcare IT Standards and Solutions Workshop that addressed how AI can benefit healthcare sector in developing countries like Indonesia. The topics discussed included standards to support digital transformation, Health Information Exchange (HIE) interoperability, telehealth/telemedicine, cloud computing, and big data capture and analysis leveraging artificial intelligence. Standards for AI and data security can help the government to capture and manage large scales of health data from local clinics and frontline health workers, increase the interfacing speed and interoperability between varied healthcare data management systems, and provide healthcare information and services for patients who live in remote areas and have limited access to traditional healthcare facilities, among many other benefits.
- ANSI and USAID have an existing technical assistance mechanism and public-private partnership called the [Standards Alliance: Phase 2 \(SA2\)](#), which is designed to bolster the capacity of developing countries in the areas of legal and regulatory frameworks, standards development, conformity assessment procedures, and private sector engagement. SA2 activities foster economic development by helping create policies and implement international best practices that strengthen the institutions that enable quality and safety. At the same time, the SA2 approach removes trade barriers while helping countries align their regulatory frameworks with trade commitments. It also supports U.S. competitiveness by eliminating trade barriers created by technical standards, increasing market predictability and transparency abroad.
- Active until July 2026, the SA2 includes among its priority sectors digital infrastructure, and could leverage U.S. expertise in the area of AI standards to deliver future assistance to our partner countries.

Moving forward, we also recommend ANSI and ANSI member engagement in State-Department-led International Visitor Programs, as well as in training State Department officials as part of Foreign Service Institute training programs.

### Appendix A

With respect to Section A.2 **How are Standards Developed**, we recommend the addition of the following language regarding the [United States Standards Strategy](#), recognizing the comprehensive and dynamic nature of the Strategy, which is updated by ANSI every five years with broad stakeholder input:

“The *United States Standards Strategy* sets a strategic vision to support U.S. competitiveness, innovation, health and safety, and global trade, guiding how the U.S. develops and uses standards, and participates in the international standards development process.”

### Appendix B

With respect to Section B.1.1. – ISO/IEC JTC1/SC42 does focus on largely horizontal standards, but these deliverables are not just foundational. Within SC 42, “foundational” holds specific meaning. The overall SC 42 work program is much more expansive; examples include data work, work on computational approaches, and newer work with verticals (Joint Working Groups).

The draft Plan states the following regarding Technical Reports (TR) and Technical Specifications (TS) produced by SC 42: “While these documents represent a consensus of conceptual thought, few appear to have led directly to operationalizable standards.” This statement is not entirely accurate within the context of SC 42 work. With respect to both TR and TS, these deliverables have inherent value even when they do not progress to “operational standards.” For example:

- SC42 TRs on use cases provide a scan of how AI is being utilized in specific sectors (and help SC42 identify potential customers and collaborators).
- The TRs on ethics and on bias have been utilized in the development of newer projects: TS 12791 - *Information technology — Artificial intelligence — Treatment of unwanted bias in classification and regression machine learning tasks* (joint with CEN/CENELEC JTC 21) and TS 22443 - *Information technology — Artificial intelligence — Guidance on addressing societal concerns and ethical considerations*.
- TS documents are also normative (like IS documents) and may stay that way in perpetuity—though a number of SC 42 TS documents may transition to full standards in the future. As an example: TS 4213, *Information technology—Artificial intelligence—Assessment of machine learning classification performance*, is currently being balloted to become an IS with an expanded scope of work - *Performance measurement for AI classification, regression, clustering and recommendation tasks*.

Regarding the SC42 Work Program – some of the information referenced in the draft Plan is outdated. We recommend linking directly to the SC42 work program at <https://www.iso.org/committee/6794475/x/catalogue/p/0/u/1/w/0/d/0> for up-to-date information.

### Conclusion

ANSI and its members look forward to continuing to contribute toward a strong public-private partnership for the development of global AI standards. Ensuring that key principles are well-crafted within the Plan for Global Engagement on AI Standards is of critical importance as this document will be not only an essential tool for U.S. public-private sector coordination, but also a model for the U.S. government’s harmonization efforts globally.

Thank you for the opportunity to comment. ANSI would be pleased to provide clarification or further engage with NIST on any of these points.

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American National Standards Institute

## Annex A

### Affirmative Responses from ASDs with AI-Related Sector-Focused Work

Association for the Advancement of Medical Instrumentation  
Matt Williams (MWilliams@aami.org)

American Dental Association  
Sharon Stanford (stanfords@ada.org)

American Nuclear Society  
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American Society for Nondestructive Testing  
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American Society of Safety Professionals  
Tim Fisher (TFisher@ASSP.org)

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InterNational Committee for Information Technology Standards  
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Society of Automotive Engineers  
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Society of Cable TV Engineers  
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Steve Stevens ([Steve.Stevens@X9.org](mailto:Steve.Stevens@X9.org))

**The following ASDs had responded affirmatively to an earlier ANSI request for input related to NIST's 2021 Plan for Federal AI Standards Engagement.**

A-3 Association for Advancing Automation (A3) (formerly the Robotics Industries Association)  
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Canadian Standards Association  
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