



TABLE OF CONTENTS

LETTERS FROM ANSIS PRESIDENT & CEO AND CHAIR OF THE BOARD
ABOUT ANSI AND ITS AFFILIATES
LEADERSHIP AND ADVOCACY FOR THE U.S. STANDARDIZATION SYSTEM
ADVANCING TECHNOLOGY SOLUTIONS FOR TOMORROW
SUPPORTING STANDARDIZATION AROUND THE GLOBE
ENHANCING SERVICES AND OPERATIONS
EXPANDING EDUCATION AND TRAINING ON STANDARDIZATION
ANSI NATIONAL ACCREDITATION BOARD
WORKCRED
ANSI BY THE NUMBERS
ANSI LEADERSHIP

ANSI Annual Report: 2020–2021



LETTER FROM THE ANSI PRESIDENT AND CEO

It's been a year like no other. Together, yet distanced apart, the world grappled with huge collective challenges to our health, economy, and environment, while also witnessing empowering triumphs of human ingenuity. As vaccines, artificial intelligence, and space travel saw significant technological advancements, standards and conformity assessment provided a flexible framework of trusted, tested knowledge needed to fuel progress and support public health and safety. And through all this change, ANSI worked tirelessly to safeguard that system.

As the Biden administration set its sights on a robust array of national priorities, ANSI worked proactively to help policy makers understand the power of privatesector standardization solutions in supporting their public policy and regulatory initiatives. We've been engaging officials and Congressional staff on the breadth of U.S. leadership and activity in global standardization forums and the vitality of the rules-based standardization system in furthering U.S. competitiveness, economic and national security, and technology leadership.

As we continually track and report on relevant executive orders and policy proposals, I'm pleased to share that the strategic importance of standardization has been recognized in several pieces of legislation in 2021. We continue to advocate for increased public- and private-sector participation and resource investment in standardization activities to support U.S. competiveness globally, as well as individual businesses' long-term success.

The members of the ANSI Federation are leading the way in their commitment to the global standardization system and the solutions it can provide—and gaining strategic benefits from their own engagement. Throughout this report you'll find highlights of collaborative initiatives ANSI has led over the past year, whether in direct response to the pandemic or in technology sectors transforming all corners of the globe—and beyond.

The past year has demonstrated more than ever before just how effectively the standards community steps up to meet challenges and build a better world. From the challenges we're facing on this planet, to new opportunities beyond, standards have an essential role in innovation, U.S. competitiveness, and quality of life, and ANSI is proud to support that progress.

I'd like to thank Phil Piqueira, vice president of global standards for Underwriters Laboratories, for his exceptional first year as ANSI Board chair. His insights, integrity, and experience have been invaluable to me and to ANSI as we steer through these unique times. My thanks extend to all the outstanding volunteer leaders on the Board, and finally, to our entire collaborative community—thank you all for your dedication and commitment in meeting challenges with responsive standardization solutions.



LETTER FROM THE ANSI CHAIR OF THE BOARD

In my first year as chair of the ANSI Board, I'm honored to work with the Institute's members, partners, and greater standardization community to support dynamic solutions that address the nation's priorities. While I've been an active ANSI Board member for more than a decade, it's even more meaningful to me to serve as chair in these unique times.

Perhaps now more than ever, the standardization community and the system on which it is built is essential to our national success. As the world continues to respond to shifting challenges, standardization remains a driving force behind national and global agendas to promote public health, security, and prosperity.

As has been proven time and again, collaboratively-developed solutions are the most effective key to opening doors and creating opportunity for all. The new *United States* Standards Strategy (USSS)—itself a reflection of the rich tapestry of voices that make up our community—affirms the importance of an open, rules-based standards system in fostering growth, innovation, and opportunities.

The USSS outlines a dynamic formula for success—a framework of globally accepted principles for standards development to maintain integrity and impartiality, while allowing for flexible, responsive solutions to societal and market needs. The strategy details tactics that industry, government, standards developing organizations, consortia, consumer groups, academia, and others can use to leverage effective standards-based solutions for the greatest impact.

As chair, one of my main responsibilities is helping to strategically position ANSI and our vital standardization system for long-term success. I am committed to continuing the excellent work of those who came before me, and I'd like to thank my predecessor, Russ Chaney, for having steered the Institute so successfully, building a record of achievement that has positioned us extremely well to meet the challenges of today and tomorrow. Thanks are also due to my fellow Board officers, governance leaders, and ANSI staff leadership for their support and commitment.

But while committed leadership is one requirement for success, none of ANSI's diverse initiatives would get off the ground without the expertise and commitment of our network of thousands of individuals working in collaboration. I would like to thank all the ANSI members, partners, standardization leaders, and other dedicated participants working on the solutions that our country so urgently needs. Together, we can continue to serve the interests of our community and our nation, and improve health, safety, and well-being around the world, no matter the challenges.





THE AMERICAN NATIONAL STANDARDS
INSTITUTE (ANSI) IS A PRIVATE, NON-PROFIT
501(C)(3) ORGANIZATION.

AS THE VOICE OF THE U.S. STANDARDS
AND CONFORMITY ASSESSMENT SYSTEM,
ANSI EMPOWERS ITS MEMBERS AND
CONSTITUENTS TO STRENGTHEN THE U.S.
MARKETPLACE POSITION IN THE GLOBAL
ECONOMY WHILE HELPING TO ASSURE THE
SAFETY AND HEALTH OF CONSUMERS AND
THE PROTECTION OF THE ENVIRONMENT.

TOGETHER, ANSI AND THE U.S.
STANDARDIZATION COMMUNITY ARE
FACILITATING SOLUTIONS THAT HAVE
POWERFUL, REAL-WORLD IMPACT AND
THAT ADDRESS THE MOST PRESSING ISSUES
FACING THE U.S. AND THE WORLD.

COLLECTIVELY, THESE ACTIVITIES ARE FUELING U.S. BUSINESS GROWTH, ENHANCING THE QUALITY OF LIFE OF ALL CITIZENS, AND DRIVING THE DEVELOPMENT OF DYNAMIC STANDARDIZATION SOLUTIONS WITH GLOBAL IMPACT.

TO CARRY OUT ANSI'S MISSION, THE INSTITUTE:

Coordinates and ensures the integrity of the standards and conformity assessment system

- » Serves as a bridge between public and private sectors
- » Provides a neutral forum
- Accredits standards developing organizations (SDOs) and approves
 American National Standards



Represents the U.S. around the world

- » Serves as the official U.S. representative in international and regional standardization forums
- » Facilitates access to these forums and programs by U.S. experts, organizations, and industry
- » Coordinates standards capacity-building programs in developing countries
- » Promotes U.S. interests



ANSI'S AFFILIATES

A wholly owned subsidiary of ANSI, the ANSI National Accreditation Board (ANAB) is the largest multi-disciplinary ISO/IEC 17011 accreditation body in North America, with comprehensive signatory status across the multilateral recognition arrangements of the International Laboratory Accreditation Cooperation (ILAC) and International Accreditation Forum (IAF). The ANAB accreditation portfolio includes management systems, certification bodies, calibration and testing labs, product certification bodies, personnel credentialing organizations, forensic test and calibration service providers, inspection bodies, police crime units, greenhouse gas validation and verification bodies, reference material producers, and proficiency test providers.

Workcred's vision is a labor market which relies on the relevance, quality, and value of workforce credentials for opportunities, growth, and development. It supports efforts to strengthen workforce quality by improving the credentialing system, ensuring its ongoing relevance, and preparing employers, workers, educators, and governments to use it effectively.





ANSI Annual Report: 2020–2021

As coordinator of the U.S. voluntary consensus standardization system, ANSI advocates on behalf of the U.S. standardization community and the dynamic public-private partnership on which it is built. We continually strive to foster partnerships and initiatives that address national priorities, support public policy, and promote the health and safety of U.S. citizens.

THE U.S. STANDARDS STRATEGY: A VISION FOR THE FUTURE

Following a nine-month revision effort involving broad stakeholder input and the analysis of comments from more than 30 companies, organizations, government agencies, and individuals, ANSI published the 2020 edition of the *United States* Standards Strategy (USSS) in January 2021. Recognized globally, the USSS articulates the value and importance of an open, rules-based standards system that is participatory in nature. It affirms that standardization activities encompass both sectorspecific and cross-sectoral approaches, allowing interested parties to address priority issues collaboratively.



ANSI Annual Report: 2020–2021









GOVERNMENT OUTREACH: STRENGTHENING THE PUBLIC-PRIVATE PARTNERSHIP

As a bridge between the public and private sectors, ANSI is working to educate the new administration, key government officials, and Congress about the power of private-sector standardization solutions in supporting public policy and regulatory initiatives—and sharing key insights and developments with our members.

ENGAGING THE NEW ADMINISTRATION

ANSI's vice president for government relations and public policy, Mary Saunders, served as a volunteer on President Joe Biden's 20-person agency review team for the Department of Commerce, which was responsible for helping the administration understand agency operations so it would be prepared to hit the ground running on day one. The Institute is tracking executive orders of interest to the standardization community and monitoring developments as the administration fills key policy and technology positions.

OUTREACH TO CONGRESS

During the Senate's consideration of the Endless Frontier Act, ANSI worked with concerned company and organizational members and other interested organizations to educate congressional staff on the important contributions of the U.S. standardization system to innovation and competitiveness, and to prevent problematic language on government oversight of SDO governance activities from being introduced as an amendment. Throughout all engagement with staff from numerous congressional committees, ANSI and the private-sector standardization community shared our support of the Act's goal to strengthen the technological leadership and competitiveness of the United States. Ultimately, the Senate passed the legislation as part of the U.S. Innovation and Competition Act, with several provisions pertaining to U.S. leadership in technical standards.

EMPOWERING OUR MEMBERS WITH KEY INFORMATION

Keeping a pulse on legislative and regulatory initiatives has always been a priority. Now the Institute is providing direct access to that valuable intelligence via a monthly members-only newsletter. ANSI's *Government Relations and Public Policy Monthly Update* provides members with a curated roundup and strategic analysis of significant federal and congressional developments of relevance to industry and the standardization community.

ANSI Annual Report: 2020–2021 10 ANSI Annual Report: 2020–2021

INCREASING CONSUMER ENGAGEMENT IN STANDARDIZATION

To help foster greater consumer awareness of and participation in standards-setting activities, ANSI is prioritizing outreach to consumer groups and deploying new staff and resources to increase the visibility and impact of consumer-related programs and opportunities.



ENGAGING CONSUMERS IN THE AMERICAN NATIONAL STANDARDS PROCESS

Standards developers, consumers, consumer advocacy organizations, and public interest groups came together in a series of ANSI-convened roundtables to examine the challenges ANSI-accredited standards developers (ASDs) face engagement.

ESSENTIAL REQUIREMENTS

In a significant effort that spanned several years, ANSI's Executive Standards Council assessed the ANSI Essential Requirements for American National Standards development procedures, and proposed revisions to address topics raised by consumers and others concerning balance, openness, interest categories, and more. These changes were unanimously approved by the Board Executive Committee and will be published in January 2022.



MEASURING THE IMPACT OF STANDARDS

Standards silently guide us in our everyday lives, but what's their actual impact on human health and safety? To help answer that question, ANSI is partnering with Underwriters Laboratories Inc. and the U.S. Consumer Product Safety Commission (CPSC) to host a virtual World Standards Week event in fall 2021 exploring best practices and methodologies. Building on existing data and approaches, the end goal is to fuel collaboration on common methodologies to measure the safety and health impacts of standards.



when seeking to bring consumer voices into a consensus body or other standards development activity. The insights from these sessions informed a guide of practical recommendations that ASDs can use to enhance consumer participation in standards development activities and foster long-term

such as children, older adults, or people with disabilities: and » giving examples of how goods and services are actually used (or

ANSI Annual Report: 2020-2021 12 ANSI Annual Report: 2020-2021

warnings;

» suggesting features

needed by consumers

with particular needs

predictably misused).

Through collaborative solutions and activities, the U.S. standardization community is influencing, defining, and creating the next wave of technologies that will impact our lives for years to come.

AI IN HEALTHCARE

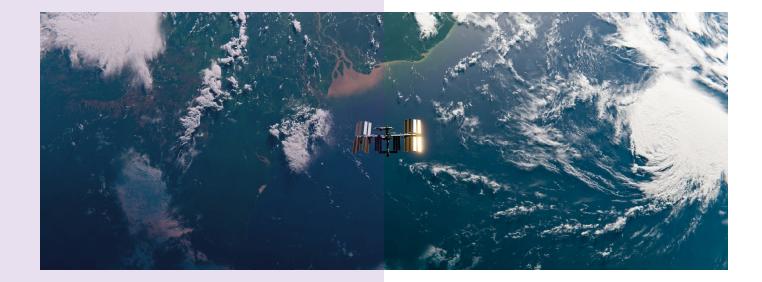
While its use was already rapidly expanding, artificial intelligence (AI) has become even more vitally important in healthcare during the COVID-19 pandemic, as predictive tools tracked the virus's spread and machine learning helped dramatically speed vaccine development. To help assess the standards needs for these and other AI-healthcare innovations, ANSI convened stakeholders to identify opportunities for standardization to support data, trust, transparency, governance frameworks, and risk management for AI for healthcare. The stakeholder recommendations are reflected in the workshop report, *Standardization Empowering AI-enabled Systems in Healthcare*.

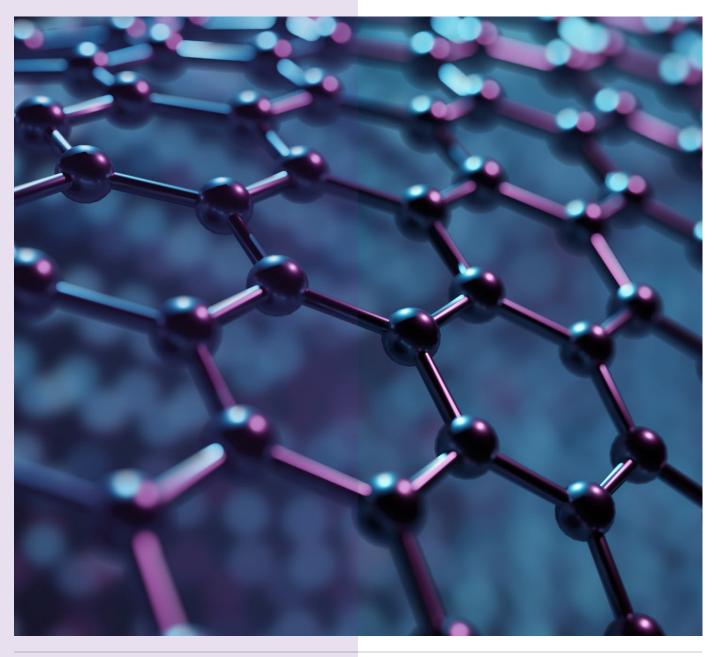
A follow-up workshop on "Data Standardization as Building Blocks for AI in Healthcare" is in development for fourth quarter 2021 with plans to create a roadmap to coordinate and accelerate standardization.



ANSI Annual Report: 2020–2021

15





COMMERCIAL SPACE INDUSTRY

Commercial space flight made headlines around the globe in 2021, as billionaires rode rockets to the edge of the atmosphere and space tourism picked up speed. In an effort to help foster safety and growth in this boundary-bending realm, ANSI released a report of its December 2020 meeting on <u>Standardization and the Commercial Space Industry – Space Situational and Domain Awareness, Space Traffic Coordination and Management, and Orbital Debris Mitigation</u>. The meeting drew some 300 attendees from the U.S. and around the world. Subject matter experts discussed the policy instruments, industry standards, best practices, and opportunities needed to help the commercial space industry take flight. Among the acknowledged observations is the need for standards and best practices to keep up with the rapid rate of the industry's growth, and the cooperation required between the public and private sectors to achieve a safe and sustainable space ecosystem.

NANOTECHNOLOGY

Nanotechnology continues to deliver on innovative applications for nearly every industry sector, and ANSI's leadership in nano-related standards activities is keeping pace. To help U.S. standards developers collaborate and identify future needs for work, ANSI's <u>Nanotechnology Standards Panel</u> (NSP) is working to convene its second workshop focusing on advanced and emerging materials used in everyday products and systems like medical devices, wearables, drug delivery systems, water purification, and packaging.

ISO TC 229, NANOTECHNOLOGIES

While terms for various nanomaterials and nanotechnology-related innovations are commonly used by a wide range of stakeholders, their definitions are not always consistent, leading to issues in communication that can result in barriers to trade and commerce, imprecise innovation indicators, and confusion in the prioritization of research and development efforts. Experts from the ANSI-administered U.S. Technical Advisory Group (TAG) to ISO Technical Committee (TC) 229, Nanotechnologies, are spearheading work exploring the need for specific terminology related to advanced and emerging nanomaterials. This work is being done with coordination from the Organization for Economic Co-Operation and Development (OECD) Working Party on Manufactured Nanomaterials (WPMN). In addition, a newly published TC 229 technical report, co-led by the United States, provides guidance for numerous sectors that use manufactured nanomaterials (MNM) to support decision-making related to the safe measurement of MNM released in consumer products.

"Using nanotechnology, materials can effectively be made stronger, lighter, more durable, more reactive, more sieve-like, or better electrical conductors, among many other traits."

- <u>National Nanotechnology Initiative</u>

ANSI Annual Report: 2020–2021 16 ANSI Annual Report: 2020–2021

DIGITIZATION OF STANDARDS

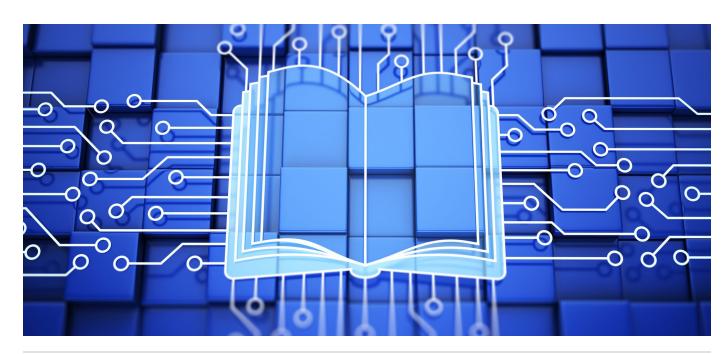
As the world moves toward greater digitalization, so too does the development and consumption of standards content. Machine learning technologies are digitally transforming standards development and the way industries use standards in their manufacturing processes and services delivery. Digital transformation is also helping to grow participation in standards development, increase efficiencies, and speed time to market.

To help blaze standardization's digital path forward, ANSI is highly involved at the global level, serving on a steering group of ISO Council members to develop an innovative and sustainable project plan for ISO SMART standards. The development and commercialization of ISO SMART standards will have great benefit for companies that wish to efficiently incorporate the content of standards into their design and manufacturing processes.

ANSI is committed to facilitating information sharing among ISO, IEC, and ANSI-accredited standards developing organizations to assist the community in identifying the most effective and innovative approaches to standards development.

In the span of months, the pandemic sped the adoption of digital technologies across sectors and regions. A recent McKinsey survey revealed a 7-year increase in the rate at which companies are developing digital or digitally-enhanced products and services, as consumers moved toward online channels during the pandemic.

Source: McKinsey & Company



ISO/IEC JTC 1: INNOVATIVE TECHNOLOGIES

The International Organization for Standardization/
International Electrotechnical Commission (ISO/IEC) Joint
Technical Committee (JTC) 1, Information Technology,
develops standards that support information and
communications technology (ICT) advancement across
multiple industry sectors.

ARTIFICIAL INTELLIGENCE (AI)

The increased adoption of artificial intelligence (AI) applications across every sector is driving the industry's rapid growth, surging an estimated 16.4% in 2021¹ and changing the way people live and work worldwide. To keep pace, ISO/IEC JTC 1, Subcommittee (SC) 42, Artificial intelligence, continues to expand its work program of standards to support the full AI IT ecosystem. ANSI serves as the secretariat to SC 42, providing leadership and support as the subcommittee engages with key national and international organizations, including the Organization for Economic Co-Operation and Development (OECD) and the European Commission (EC). Building on that strategic cooperation, SC 42 leadership recently presented its work at events hosted by the U.S. Consumer Product Safety Commission (CPSC), the Brookings Institution, and the EC.

22 SC 42 projects are currently underway

Recent publications:

- » Technical report on trustworthiness of Al
- » Technical report on algorithmic bias

One of the largest and most prolific technical committees with a tremendous impact on the global ICT industry, ISO/IEC JTC 1's work encompasses:

22 subcommittees and

4 working groups

responsible for the development of

+3,200 published standards and

∼600 standards in progress.

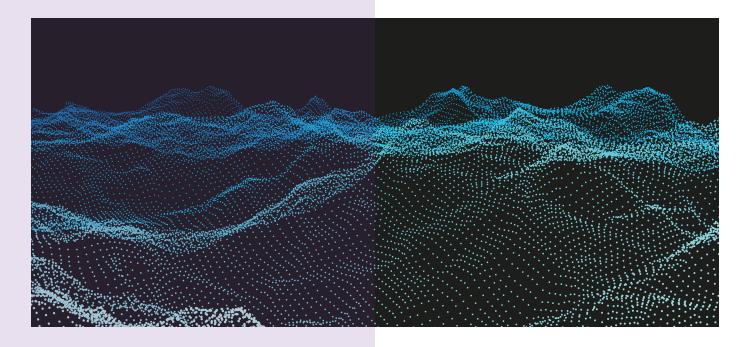
The U.S. chairs JTC 1, with

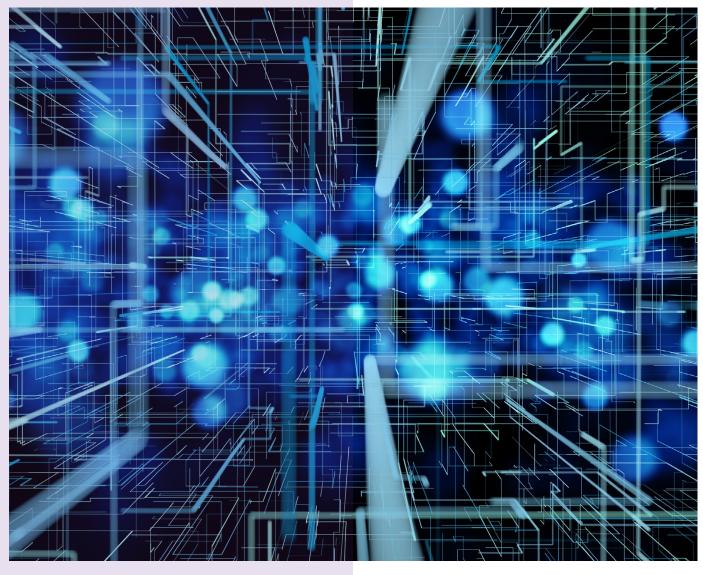
ANSI serving as secretariat and

national bodies participating.

ANSI Annual Report: 2020–2021 18 ANSI Annual Report: 2020–2021 19

[&]quot;IDC Forecasts Improved Growth for Global Al Market in 2021," IDC, accessed September 10, 2021, https://www.idc.com/getdoc.jsp?containerld=prUS47482321.





DIGITAL ECONOMY

Organizations need access to large amounts of high-quality data to achieve the benefits of digital transformation, quantum computing, and the digital economy. For example, transformation of digital services requires data to be shared, exchanged, or exploited to deliver benefits and value, but it can be challenging to determine when and how data use is authorized. Guidance for making decisions around data usage is often ad-hoc and utilizes inappropriate contexts, and issues such as privacy, security, quality, and value are all important considerations.

Through its SC 32, *Data management and interchange*, ISO/IEC JTC 1 is developing considerations and guidance that will help organizations develop their decision making process around use of data, including standards for vocabulary and use cases for data usage. This cross-cutting work is supported by over 60 experts worldwide, including more than 20 from the United States.

QUANTUM COMPUTING

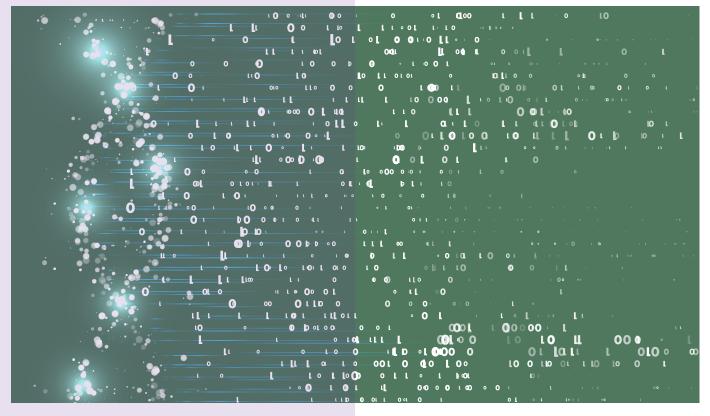
Quantum computing is not easy to wrap one's head around—which is one of the many reasons clear and effective standards are critical for the technology's growth. To address this need, ISO/IEC JTC 1, Working Group (WG) 14, *Quantum computing*, is establishing a foundation for the future development of this important field. With close to 100 members worldwide, including more than 30 U.S. experts, and through collaboration with other international entities, WG 14 is currently working to develop:

- » An international standard on quantum computing terminology and vocabulary
- » A technical report on an introduction of quantum computing and related technologies, applications, and standardization activities

Quantum computing is a rapidly evolving technology that utilizes a non-binary (or "relative") model to accelerate vast computations. Its potential impact on technological efficiency across industries is immeasurable—for example, in relieving a critical bottleneck in the evolution of AI—if leveraged intelligently with expert guidance.

Source: <u>Harvard Business Review</u>

ANSI Annual Report: 2020–2021 20 ANSI Annual Report: 2020–2021





DIGITAL TWIN TECHNOLOGY

Digital twin technology has recently found a home in ISO/IEC JTC 1, SC 41, *Internet of things and digital twin*. Working to further progress standardization for this impactful horizontal technology, SC 41 is currently developing use cases, concepts, terminology, and a reference architecture for digital twin. This new activity is championed by 144 international experts, including 40 from the United States, and through collaborative work with many SDOs and committees such as ISO TC 184, *Automation systems and integration*, and the IEC Systems Committee (SyC) on *Smart Cities*.

An important enabling technology and driving force of digital transformation, Digital Twin is a digital representation of a particular entity or process with data connections. It has been widely deployed in multiple domains such as smart manufacturing, smart cities, smart agriculture, smart energy, smart buildings, health care and many other fields.

Source: ISO/IEC 30173 Working Draft from JTC 1/SC 41

TRUSTWORTHINESS

The ability to meet stakeholders' expectations in a verifiable way is critically important. Depending on the context or sector, as well as the specific product or service, data, and technology, different characteristics apply and need verification to ensure stakeholder expectations are met. JTC 1's WG 13, *Trustworthiness*, is working to address these requirements for the IT sector, with more than 115 technical experts, including 20 from the U.S., currently engaged in the development of two technical reports:

- » One will provide a definition of trustworthiness of systems and their associated services along with a selected set of its characteristics.
- » Another will define an inventory of building blocks conceptually associated with different types of assessments, an ontology that organizes the building blocks, and guidelines for their use. Relevant assessments may be related to governance, risk management, security evaluation, Secure Development Lifecycle (SDL), supply chain integrity, and privacy.

Characteristics of trustworthiness include reliability, availability, resilience, security, privacy, safety, accountability, transparency, integrity, authenticity, quality, usability, and accuracy. This collective attribute can be applied to services, products, technology, data, information, and, in the context of governance, organizations.

Source: ISO/IEC 1st Draft Technical Specification 5723

ANSI Annual Report: 2020–2021 22 ANSI Annual Report: 2020–2021 22 23

SUPPORTING STANDARDIZATION



AROUND THE GLOBE

INTERNATIONAL TRADE & DEVELOPMENT: GLOBAL IMPACT IN EMERGING MARKETS

Through a number of key public-private partnerships, ANSI provides capacity building and technical assistance to help numerous countries across the world develop effective standards programs, meet international obligations, improve quality systems, and execute high-quality trade agreements.

Working with partners in more than 15 countries and regions, these activities create long-term benefits for the U.S. and global communities alike, addressing standardization best practices, international trade commitments, and advancing U.S. industry market access.



South Africa

44 training workshops held between November 2020 and October 2021
3,791 workshop participants (as of October 2021)

ANSI Annual Report: 2020–2021 25

ANSI & USAID: STANDARDS ALLIANCE PHASE 1 (SA1)

ANSI and the U.S. Agency for International Development (USAID) built a strong record of collaborative success with the first phase of the <u>Standards Alliance program</u> (SA1), a public-private partnership that provides training related to implementation of the World Trade Organization (WTO) Technical Barriers to Trade (TBT) Agreement. SA1 focused



on 10 markets representing a variety of geographical regions and levels of economic development, and ran from 2013 to 2021, wrapping up with the following activities in Cote d'Ivoire and Senegal:

ISO 37101 TRAININGS FOR SUSTAINABLE CITY MANAGEMENT IN COTE D'IVOIRE

In partnership with the Ivorian Directorate General for Decentralization and Local Development (DGDDL), the Standards Alliance organized a pilot program to support Ivorian government efforts in the decentralization of local planning across Côte d'Ivoire. The program led two communities to draft five-year local development plans that follow ISO 37101, Sustainable development in communities — Management system for sustainable development. Success in the program could have broad implications for Côte d'Ivoire's approach in the development of future policies and regulations, and will promote greater market predictability and opportunity for U.S. businesses and technologies.

In addition, ANSI and DGDDL signed a Memorandum of Understanding (MoU) toward greater cooperation on standards and conformance-related issues between the U.S. and Côte d'Ivoire.

REMOTE ENERGY TRAININGS IN SENEGAL

Remote Energy/Senegal is an SA1 program that adapted to the pandemic to provide virtual training activities for engineering professors, students, and professionals working on energy technology in Senegal. The goal is to create a lasting training curriculum for local technicians and enhance local practices for solar mini-grid installation, maintenance, and efficiency. The training is designed to teach participants as well as professors/trainers, so that they can continue teaching the course beyond the program's completion. In one successful example, in 2021 Dakar American University of Science and Technology (DAUST) took lessons learned and the equipment donated to incorporate the training curriculum into its university coursework.

"Thanks to the funds and participation of our partners, this course also allowed hands-on activities on site with the solar equipment available at DAUST. We strongly believe that its outcome will contribute to a wider adoption of solar energy in Senegal, in particular, and in Africa at large."

- Professor, Mamadou Diop, Dakar American University of Science and Technology (DAUST)

ANSI & USAID: STANDARDS ALLIANCE PHASE 2 (SA2)

While the COVID-19 pandemic is impacting all corners of the world, developing regions are the most vulnerable to long-term harm. According to the OECD, developing countries are facing unprecedented health and economic crises, with potentially extreme economic, social, and sustainable development consequences that threaten to reverse decades of progress.

Phase 2 of the Standards Alliance partnership (SA2) is focusing on COVID-19 response and recovery among its other capacity-building priorities to foster economic development and equality.

USAID has committed more than \$1 billion to help fight the virus pandemic around the world, including the SA2 partnership. Building upon the success of Phase 1, SA2 is assisting developing countries in Latin America, the Middle East, North Africa, sub-Saharan Africa, and the Indo-Pacific in implementing international best practices to improve the safety and quality of products, services, and infrastructure while stimulating economic growth. Initial activities are already making a big impact on health and safety in partner countries, while expanding markets and opportunities for U.S. businesses.





ANSI Annual Report: 2020–2021 26 ANSI Annual Report: 2020–2021 2





COVID-19 MEDICAL DEVICE REGULATORY CONVERGENCE (MDRC) PROJECT

Since the pandemic began, governments have been scrambling to increase access to critical medical equipment such as rapid diagnostic test kits, ventilators, and personal protective equipment (PPE). But these products cannot be effectively deployed without a strong regulatory framework and knowledge of emergency-use procedures and rules. The SA2 COVID-19 Medical Device Regulatory Convergence Project (MDRC) was initiated to increase the transparency and predictability of partner countries' regulatory ecosystems for medical devices, aligning them with international standards and improving the overall national quality infrastructure (NQI). Spearheaded by ANSI member the Advanced Medical Technology Association (AdvaMed), the project aims to:

- » build capacity of partner countries for standards and conformity assessment procedures related to medical devices;
- » remove countries' technical barriers to trade for medical devices;
- » increase patient access to needed high-quality PPE and other medical technologies to respond to COVID-19 and future global health crises; and
- » foster private-sector engagement in the medical technology regulatory space.

Despite the challenge of no in-person events or travel due to the pandemic, the SA2 MDRC team worked with local associations and government authorities to deliver six highly successful training activities (with eight more planned) on regulatory convergence, international standards alignment, and good regulatory practices for the medical device sector, reaching over 1,300 total participants. In addition, MDRC made great strides working in tandem with the Inter-American Coalition for Regulatory Convergence (IACRC) on further development of IARC's online training and virtual resource library for the medical technology sector in Latin America, resulting in a 32% increase in visits to the site.

ANSI & USTDA

Fostering U.S.-Indo-Pacific cooperation and information exchange, the U.S. Trade and Development Agency-sponsored Indo-Pacific Standards Cooperation and Technology Program (STCP) recently launched to coordinate bilateral workshops in key areas such as green technologies, transportation, smart cities, medical devices, ICT, and more.

The program's inaugural event provided an opportunity for U.S. companies to highlight solutions that can help the Thai government and private sector meet their cybersecurity and data protection needs in compliance with Thailand's new cybersecurity and data protection laws. Co-organized with the Ministry of Digital Economy and Society (MDES), BSA, and AmCHAM Thailand, the hybrid event featured 22 high-level U.S. and Thai industry and public-sector experts and more than 700 participants over 3 days.

Read the workshop report.

ANSI Annual Report: 2020–2021 28 ANSI Annual Report: 2020–2021

SERVICES AND OPERATIONS

IMPROVING SERVICES THROUGH DIGITAL TRANSFORMATION

The COVID-19 pandemic has hyper-charged the digital transformation that is changing the way organizations do business. While navigating the unique demands of remote operations, ANSI has been steadily implementing a robust transformation strategy to streamline and improve operations while securely digitizing services delivered to our members, clients, customers, and the community.

ANSI.ORG: CONTINUALLY ENHANCED TO MEET CONSTITUENT NEEDS

A centerpiece of ANSI's digital transformation is the new and improved <u>ANSI.org</u>, which was completely overhauled in late 2020. Since the launch of the dynamic and mobile-responsive site, continual enhancements have been made to the content, functionality, and design in response to member and user feedback, analytics, and testing. In addition to new features mentioned elsewhere in this report, recent improvements include:

- » Fine-tuning the machine-learning-based <u>search function</u> to improve search results
- » Easier access to member document libraries and login help
- » Regularly updated announcements of public review and engagement opportunities compiled in "This Week in Standards Development"
- » User-friendly member access to the <u>nominations process</u> for the ANSI Board of Directors, Policy Advisory Groups, and Committee on Education
- » Updated imagery and design to reflect modern technology, diversity, and accessibility
- » A new USNC <u>interactive dashboard</u> that puts national and international participations, sector information, and other key metrics at a user's fingertips, and introduces several new features

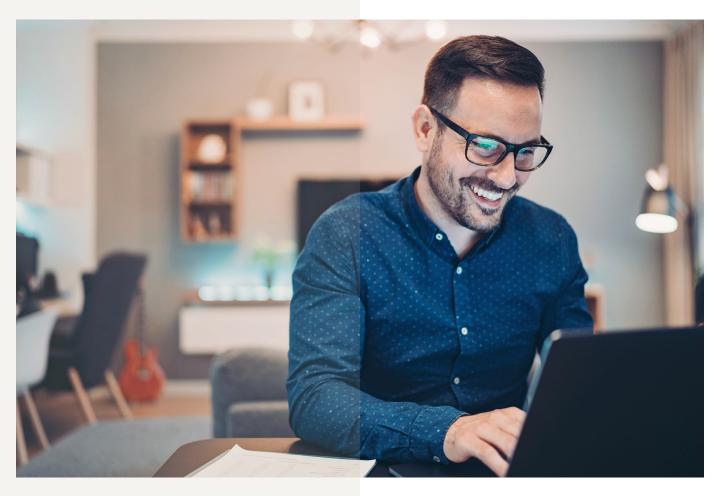
"It's here and live!—the USNC has a new online dashboard! Our members now have easy access to the participation data they've been clamoring for, dynamically updated and artfully presented. My thanks go to the USNC and ANSI staff whose collaborative work made this happen. Kudos to all on a job well done!"

- Kevin Lippert, USNC President

ANSI Annual Report: 2020–2021







CLOUD COMPUTING

To enable the Institute to efficiently deliver innovative new services to stakeholders, ANSI is moving to a hybrid cloud architecture for its information systems. The advantages of a hybrid cloud approach include flexibility between private and public environments, scalability, and agility to meet changing demands.

ISO 27001 COMPLIANCE

In a comprehensive effort to improve information security, resiliency, and business continuity, ANSI will complete its ISO 27001 implementation in 2021. This rigorous process demonstrates the Institute's commitment to safeguarding its business and keeping its data—and that of its members, partners, and customers—protected. The effort will also enable the secure transfer and distribution of machine readable standards in the future, an area of interest in which ANSI is actively engaged at the global level.

VIRTUAL MEMBER FORUM MEETINGS & EVENTS

Despite COVID-19 altering the ways in which ANSI and its members met and engaged in 2020–2021, the Institute had success hosting multiple Company, Government, Organizational, Consumer Interest, and Joint Member Forum Meetings in a virtual format. The events drew record numbers of attendees, and, most importantly, received some of the highest satisfaction ratings in post-event surveys.

Based on concrete feedback, ANSI continually adapted its approach to virtual events. As a result, the fall 2021 virtual World Standards Week events were planned with increased capabilities for interaction and engagement to create a dynamic event of value for attendees. Strategic decisions were made to reschedule the larger celebratory events, such as the ANSI Awards Banquet, to spring 2022.

ANSI Annual Report: 2020–2021 32 ANSI Annual Report: 2020–2021 33



TRAINIG ON STANDARDIZATION To support effective participation in standardization activities at home and abroad, ANSI's education and training programs are continually re-assessed to provide responsive and effective education, capacity building, and engagement opportunities for standardization participants and students at every level.







The Institute recently revitalized one of its fundamental online training offerings, <u>An</u>
<u>Introduction to Standards: Why, Where and How Are They Developed?</u> Along with the course's updated content and narrative, ANSI produced a video-captioned version as part of an ongoing effort to make its educational resources more accessible.

Working with members of the U.S. academic community, ANSI published a new <u>directory of university courses</u> that teach standardization and/or utilize standards as course material. Nineteen U.S. colleges and universities provided listings of courses where standards-related information has been incorporated into curricula, and ANSI will add more as they become available.

ANSI also created an updated <u>directory of online</u> <u>education and distance-learning resources</u> provided by ANSI members, accredited standards developers, and other partners. With more than 150 entries, this listing demonstrates the importance and breadth of education initiatives across the ANSI community.

"The new ANSI Education and Training Website includes a great variety of resources for educators and students, including case studies and informational graphics that can be used in class exercises, as well as on-demand courses for a variety of audiences. The Introduction to Standards course was recently updated with closed captioning, making the content fully accessible for deaf and hard-of-hearing students in my courses!"

- Lisa Greenwood, Ph.D., Assistant Professor, Civil Engineering Technology, Environmental Management and Safety, Rochester Institute of Technology

USNC MENTORING PROGRAM

In early 2021 the USNC launched a <u>Professional Mentoring Pilot Program</u>, providing emerging standardization professionals the opportunity to enter into a one-on-one working relationship with a more experienced member of the USNC community. The program was designed to foster new professionals' growth and help them succeed, whether their goals are to take on leadership roles in U.S. or international programs or to be contributing experts or delegates. The highly successful pilot program had 22 participants, and was subsequently approved by the USNC Council as an ongoing program in September 2021.

Read about USNC professional mentoring pilot program participant Caity Clark's experience in the <u>Summer 2021 edition</u> of USNC Current: "USNC Concludes Professional Mentoring Pilot Program, to Launch Full-Scale Version this Fall."

USNC YOUNG AND EMERGING PROFESSIONALS (YEP) PROGRAM

The USNC YEP Committee encourages young and emerging professionals to participate in the work of the USNC and IEC, and facilitates their engagement in electrotechnology standardization and conformity assessment activities, programs, trainings, and events. In June 2021, the committee hosted a webinar highlighting the myriad ways in which young and emerging professionals could get involved.

Attendees discussed the USNC 2021 IEC Young Professionals Competition and the USNC Mentoring Program, and previous participants shared insights on their experiences. Read their first-hand accounts in the USNC Current:

- » "A Decade in the Making: The U.S. National Young and Emerging Professionals Program" (Fall 2020)
- "Future of Standards Participation for Young and Emerging Professionals" (Summer 2021)

"In recognition of the intrinsic role of standards as enablers of innovation, technology commercialization, resilient infrastructure, and U.S. competitiveness, efforts to build a standards-literate workforce should be prioritized in the United States."

- United States Standards Strategy, Strategic Initiative 10

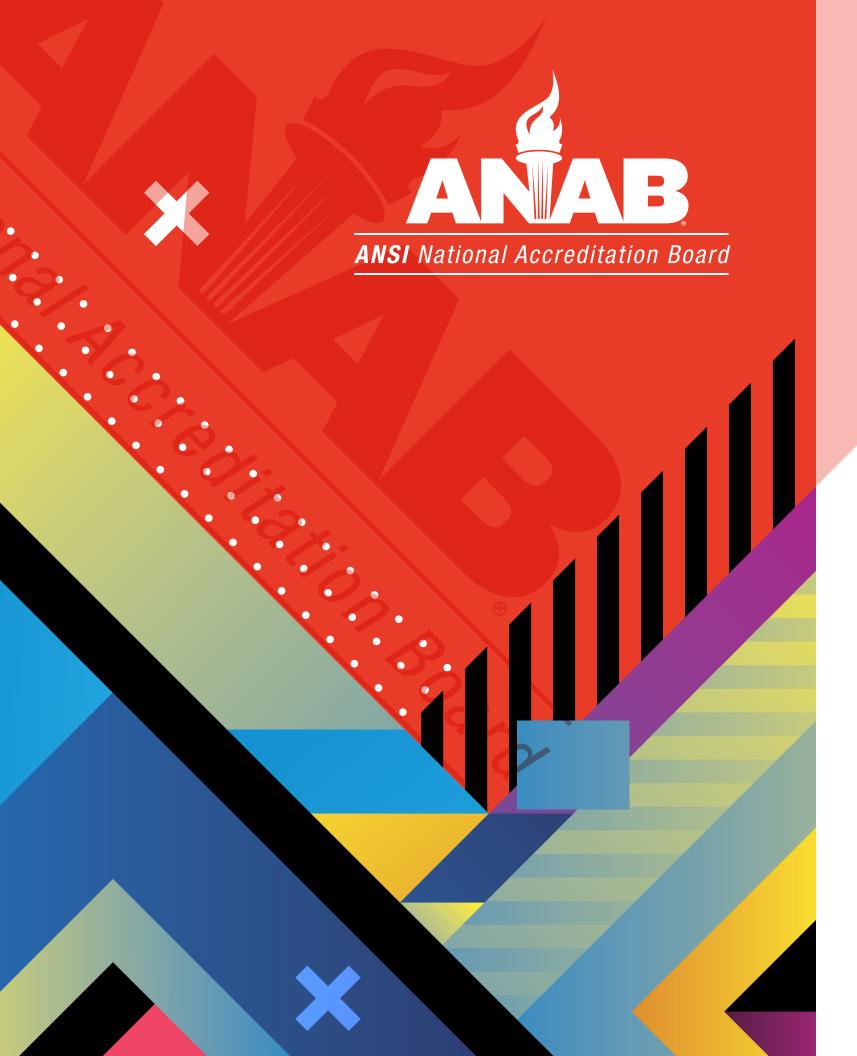


GUIDANCE AND BEST PRACTICES FOR VIRTUAL AND HYBRID MEETINGS

When the pandemic brought inperson meetings to standstill, standards work quickly went virtual, spurring committees to adopt innovative new technologies, tools, and approaches to advance their work. But the virtual environment also brought challenges, complicating interpersonal relationships and consensus-building—both essential ingredients of standardization work. ANSI played a lead role in a joint ISO and IEC task force to develop flexible guidance for ISO and IEC committees and working groups on conducting effective virtual and hybrid meetings. Finalized and approved in September 2021, the guidance may be revised and refined as committees continue to adapt to the evolving "new normal."

During World Standards Week, the Organizational Member Forum will kick off the first in a series of workshops exploring the challenges and opportunities of hybrid meetings. The series is expected to examine logistics, staff support, participation, and leadership requirements.

ANSI Annual Report: 2020–2021 36 ANSI Annual Report: 2020–2021



BUILDING TRUST & CONFIDENCE

Accreditation builds trust and confidence in products, services, people, and systems:

Boosting U.S. competitiveness in the workforce



Assuring health, safety, and environmental protections



Facilitating global trade



Increasing efficiencies

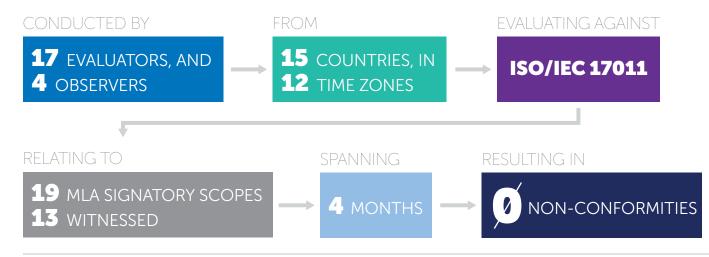


ANAB MAINTAINS SIGNATORY STATUS WITH SUCCESSFUL PEER EVALUATION

ANAB is the largest ISO/IEC 17011 accreditation body in the western hemisphere, recognized internationally by virtue of its multilateral arrangement (MLA), mutual recognition arrangement (MRA), and membership in global and regional accreditation body cooperatives.

In 2021, ANAB successfully underwent its largest and most complex peer evaluation following the unification of the ANAB and ANSI accreditation programs in 2018. The peer evaluation was conducted remotely by 17 evaluators and 4 observers from accreditation bodies in 15 countries. The evaluation team examined ANAB's ISO/IEC 17011 management system and operations related to 19 of the scopes for which ANAB is an MLA signatory, 13 of which also required "witnessing" ANAB conducting an assessment activity. The evaluation, which spanned four months, and resulted in no nonconformities, is pending review and approval by the two regional cooperatives conducting the evaluation.

The Assessment Process:



ANSI Annual Report: 2020–2021

39









PROMOTING HEALTH, SAFETY, AND CONSUMER CONFIDENCE

HEALTH SOLUTIONS

Providing quality assurance solutions amid the ongoing global health crisis, ANAB accredited ABM Industries' EnhancedCleanTM training program, with a member of Dr. Anthony Fauci's team serving on ABM's certificate advisory group. The accreditation helps assure greater confidence in health and safety as organizations, facilities, and other venues get back to business and begin the long-awaited road to recovery.

MEDICAL DEVICES

The U.S. Food and Drug Administration has approved ANAB to accredit testing laboratories that perform pre-market testing for medical device companies. The move increases the consistency and predictability in the FDA's approach to assessing conformance with FDA-recognized consensus standards and test methods.

BIOBANKING

Increased interest in biobank research is seeking to uncover insights into the dynamics of genetics and disease, with the goal of creating a more personalized approach to healthcare. ANAB recently launched a new accreditation program assuring the competence and impartiality of organizations performing biobanking of biological material from multi-cellular and micro organisms for research and development.

NON-FOOD PRODUCTS

Strengthening safety, quality, and trust throughout the supply chain for dietary supplements, cosmetics, and over-the-counter drugs, three certification bodies earned ANAB accreditation under the highly-anticipated Global Retail and Manufacturer Alliance pilot accreditation program. With a single standard for each product category, the program helps increase efficiencies, improve risk management programs, and reduce audit costs for manufacturers and retailers.

ANSI Annual Report: 2020–2021 40 ANSI Annual Report: 2020–2021

BOLSTERING THE U.S. WORKFORCE

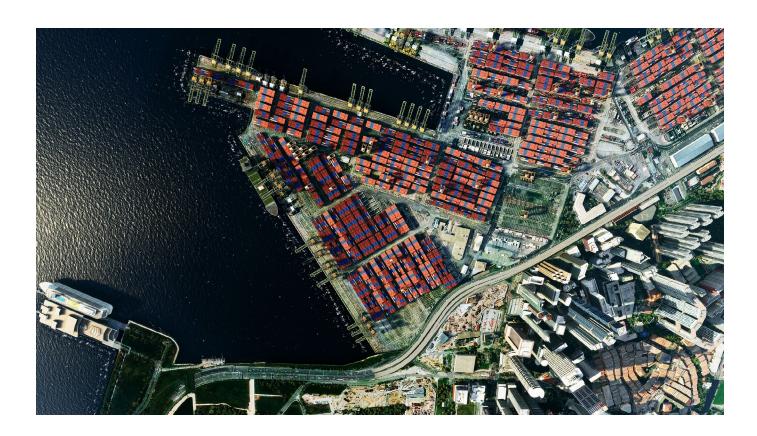
In a move that supports the expansion of high-quality apprenticeships in the U.S., ANAB has recognized the first-ever industry-recognized apprenticeship program (IRAP), developed by Dallas College, pursuant to the U.S. Department of Labor's standards. ANAB's IRAP program encourages innovative, flexible, industry-driven workforce development approaches to grow a skilled workforce.

The U.S. Department of the Army added several new credentialing programs in areas related to safety, emergency management, and explosives. More than 20 training programs offered by 3 different U.S. Army departments are currently accredited by ANAB.

The success with the Army's ANAB-accredited credentialing programs resulted in the U.S. Air Force Materiel Command seeking and achieving ANAB accreditation of its professional development program supporting highly qualified logisticians in the civilian and military workforce.

SUPPORTING TRADE AND ENVIRONMENTAL PROTECTION

Accreditation to ISO/IEC 17020 is rapidly expanding in the areas of containerized shipping, bulk cargo, and food safety at ports as governments and industries increasingly require accredited inspection services to assure integrity, reliability, competence, and compliance to international standards. ANAB is positioned for global growth to support these areas, as well as building code, energy resource, and carbon reduction inspections.



EXPANDING TRAINING AND SERVICES FOR CLIENTS

- » Amid the pandemic, ANAB further developed its extensive experience in remote/virtual assessment technology, enabling clients to continue critical operations during COVID.
- » ANAB also expanded its <u>online training</u> to include both live instructor-led and self-paced offerings. With the ability to reach a wider audience, ANAB now offers many of its online courses in Spanish.
- » Seven new ANAB courses were added in 2021, covering IT security and ISO/IEC 27006, ISO standards for environmental validation/verification, labs and inspection bodies, proficiency testing, and more indemand offerings.

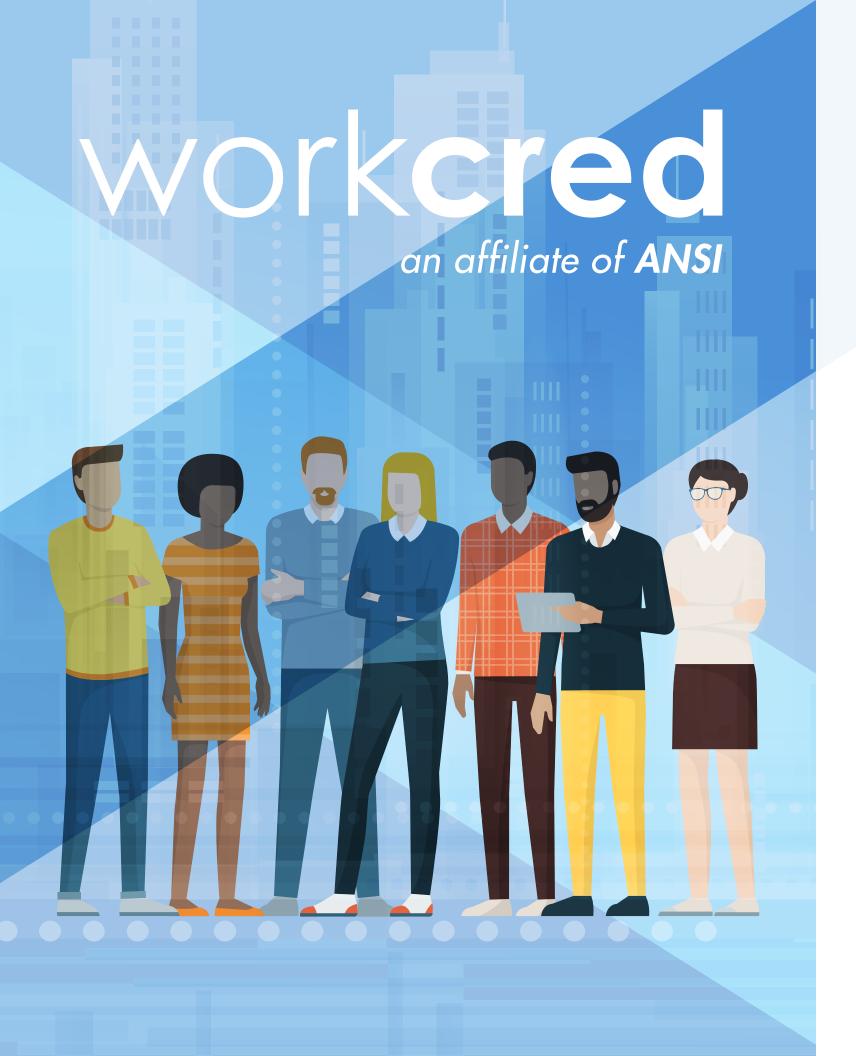




CELEBRATING SUCCESS: TERRY BURGESS ASSESSOR OF THE YEAR AWARD

James Dilanni was the recipient of ANAB's fourth annual Terry Burgess Assessor of the Year Award, which recognizes outstanding service by an ANAB contract assessor for exemplary customer service, teamwork, creativity and innovation, performance excellence, leadership, and commitment.

ANSI Annual Report: 2020–2021 42 ANSI Annual Report: 2020–2021 43 45 ANSI Annual Report: 2020–2021



Through collaborative partnerships, research, and activities, ANSI's affiliate Workcred is leading new innovations and solutions to build a strong and effective U.S. workforce.

PROVIDING CLARITY ON CERTIFICATIONS

At a time when millions of workers are looking to retool, reskill, or find new employment, the Workcred report, *Understanding Certifications*, offers key insights on the value of certifications.

Authored in partnership with the George Washington Institute of Public Policy (GWIPP) and Corporation for a Skilled Workforce (CSW) under a Lumina Foundation grant, the report is a first in a series that will shed light on cybersecurity, IT, healthcare, and manufacturing certifications.



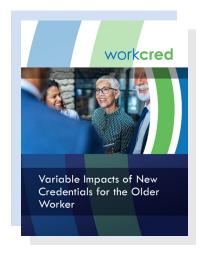
"U.S. Bureau of Labor Statistics (BLS) Research concludes that a certification or license carries as much as a 33 percent wage premium over a high school diploma alone."

Source: Understanding Certifications

INCREASING ACCESS TO CREDENTIALS FOR ALL

In another report, *Variable Impacts of New Credentials for the Older Worker*, Workcred examines how credentials can be valuable reemployment tools for older workers (50+ years) who may face challenges such as job displacement or age discrimination.

The report's findings were presented by Workcred's Dr. Isabel Cardenas-Navia at a <u>Federal Reserve virtual event</u>, which highlighted disparities in employment, labor force participation, income, and wealth across demographic groups in February 2021.



"Age 50+ individuals who pursue training tend to be more likely than their younger counterparts to finish the credentials they start."

Source: Variable Impacts of New Credentials for the Older Worker

BUILDING PATHWAYS TO SUCCESS

With the goal of improving career outcomes for students, Workcred and its partners the Association of Public and Land-grant Universities (APLU), Coalition of Urban Serving Universities (USU), and the University Professional and Continuing Education Association (UPCEA) completed a framework identifying opportunities to connect degrees and certifications. The Lumina-funded initiative lays the groundwork for students to earn industry and professional certifications as they pursue their undergraduate degree. A second phase of work to test models is now under consideration.



WORKCRED IN THE NEWS

Workcred's reputation as a leader in the workforce arena continues to grow, with recognition in *Forbes*, *The Washington Post*, and *Inside Higher Ed*, among others.

Workcred staff has also penned a number of expert articles:

- » An article in <u>The EvolLLution</u> makes the business case for colleges and universities to embed industry certifications into degree programs.
- » A joint op-ed with WhiteBoard Advisors published in *The EvoLLLution* showcases the power of industry-recognized stackable credentials.
- » A feature on employment records for Issues in Science and Technology captures how digital learning and employment records could empower workers, aid employers, and fuel innovation.
- » Workcred, along with APLU and UPCEA, has co-authored a chapter on certification-degree pathways for the book, Handbook of Research on Credential Innovations for Inclusive Pathways to Professions, published in fall 2021 by IGI Global in collaboration with Coppin State University.



WORKCRED GETS A NEW WEBSITE!

The new mobile-friendly site provides greater opportunities for audiences to engage with Workcred and learn about the latest research, insights, and trends related to credentials. The redesigned site reflects a more robust, modern layout and enhanced features.



BUILDING STRATEGIES TO SUPPORT WORKFORCE NEEDS IN THE WAKE OF COVID-19

As the economy regains footing and workers prepare for a post-pandemic job market, Workcred contributed to national conversations about workforce changes resulting from COVID-19. As a member of a National Academies of Sciences, Engineering, and Medicine committee, Workcred helped identify strategies outlined in <u>a new report</u> to align displaced workers with regional workforce needs in STEM careers.



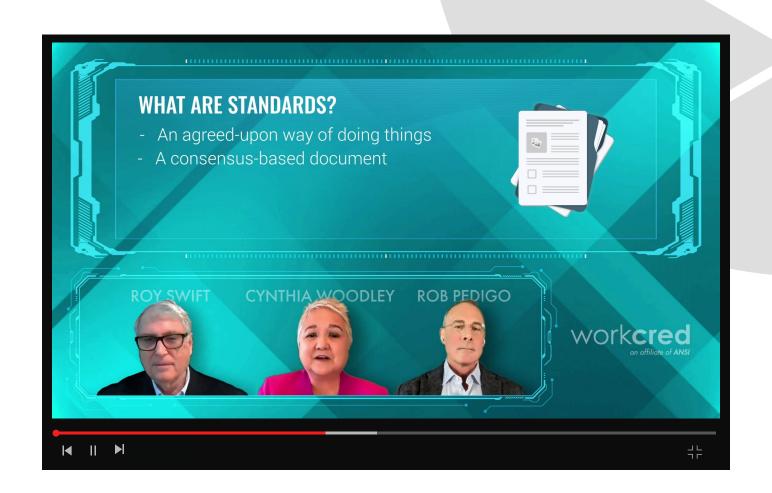
ANSI Annual Report: 2020–2021 46 ANSI Annual Report: 2020–2021 47

LIGHTS, CAMERA, ACTION...

Workcred amped up production efforts on both sides of the camera this year:

A new, upcoming Workcred video series examines the standards that guide quality personnel certifications. The videos explain how standards are integral to certifications and the role of standards in developing and administering a certification.

In front of the camera, Workcred's staff are joining RVN Television's "Morning Coffee Expert Series" to discuss various workforce and credentialing-related topics in 2021, accessible via Workcred's website and <u>YouTube</u> pages.



ON THE HORIZON ...

SUPPORTING EQUITY AND OPPORTUNITIES FOR THE FUTURE WORKFORCE

Creating more effective and equitable learning opportunities by building connections is the goal of a Stanford Graduate School of Education Future of Work and Learning Working Group to which Workcred is contributing expertise. Efforts will inform research and service programs in the public, private, and philanthropic sectors.

ADDRESSING THE SKILLS GAP

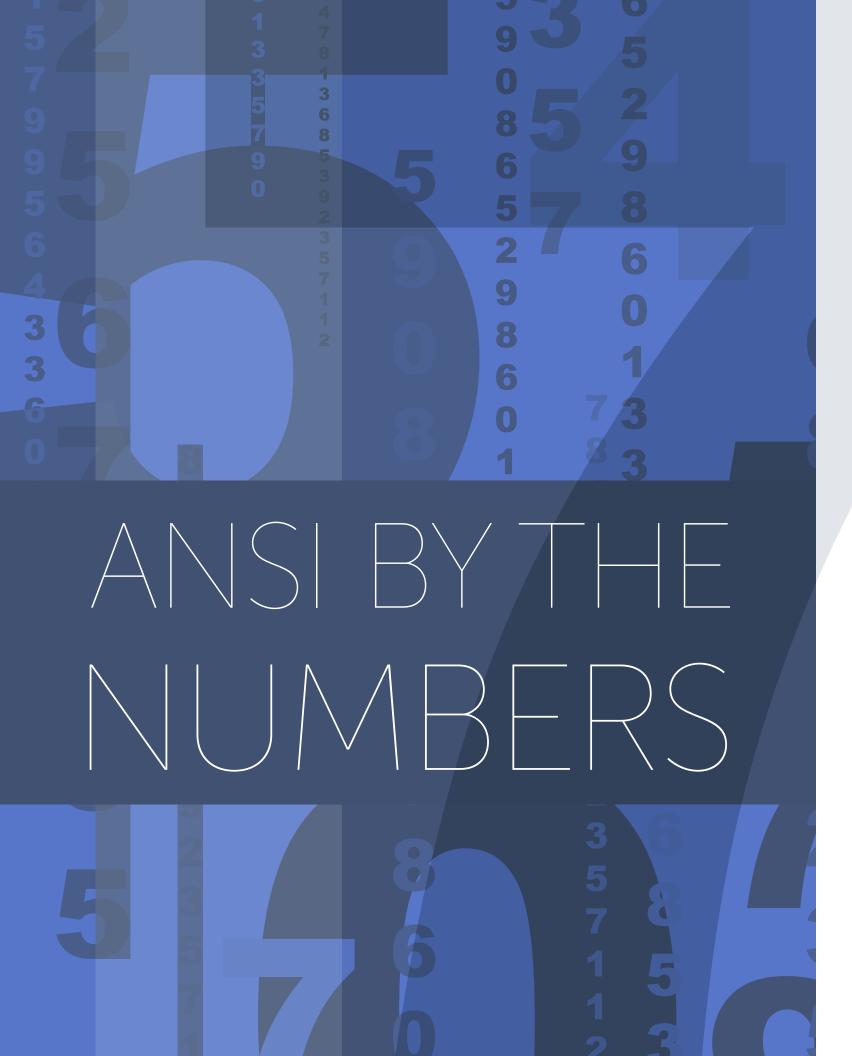
As part of the Education Design Lab's Community College Growth Engine Fund, Workcred is helping to meet the urgent demand for community colleges to deliver skills-focused, market-driven education as regions struggle to mitigate the growing skills gap.

ENHANCING PUBLIC HEALTH PROTECTION

Although credentialing systems exist for radon professionals, these systems currently lack a standard benchmark for quality. Workcred is assisting the U.S. Environmental Protection Agency (EPA) to explore options for aligning existing credentialing systems for radon service providers to promote access to a qualified workforce.



ANSI Annual Report: 2020–2021 48 ANSI Annual Report: 2020–2021 48 ANSI Annual Report: 2020–2021



ANSI proudly represents the diverse interests of more than **270,000 COMPANIES AND ORGANIZATIONS** and **30 MILLION PROFESSIONALS**.

1,316 **ANSI Members** as of September 30, 2021

Click here for a searchable roster of ANSI members.

816 COMPANY 338 ORGANIZATIONAL

84 GOVERNMENT 50 INTERNATIONAL

28 EDUCATIONAL



Through the work of ANSI and its members, the U.S. currently participates in:

91% OF IECTECHNICAL ACTIVITY

The U.S. holds/administers:

172 P-MEMBERSHIPS

172 TECHNICAL ADVISORY GROUPS

27 CHAIRS

27 IEC SECRETARIATS

255 CONVENORSHIPS



Through the work of ANSI and its members, the U.S. currently participates in:

76% of iso technical activity, including JTC1

The U.S. holds/administers:

552 P-MEMBERSHIPS

242 TECHNICAL ADVISORY GROUPS

102 CHAIRS

99 ISO SECRETARIATS

As part of its standards procedures and administration work, ANSI has:

APPROVED 13,322 AMERICAN NATIONAL STANDARDS

ACCREDITED 239 STANDARDS DEVELOPERS

ANSI Annual Report: 2020-2021



CONSOLIDATED FINANCIAL POSITION

AS OF DECEMBER 31, 2020 & 2019

	2020	2019
ASSETS		
Cash and cash equivalents	\$20,343,294	\$14,965,826
Investments	14,103,966	11,816,085
Accounts receivable, net		
Publications and royalties	7,485,093	7,024,611
Program support, accreditation, dues, and other	7,709,682	8,395,629
Prepaid expenses and other assets	2,411,780	2,256,964
Goodwill	8,558,828	8,841,488
Property and equipment, net	1,742,924	1,640,351
TOTAL ASSETS	\$62,355,567	\$54,940,954
LIABILITIES		
Accounts payable and accrued expenses	\$14,667,144	\$14,700,571
Deferred dues and fee income	8,622,556	9,704,157
Refundable advance	3,827,000	-
Pension liability	5,824,059	5,437,255
Deferred rent	595,506	736,969
TOTAL LIABILITIES	\$33,536,265	\$30,578,952
NET ASSETS		
Without donor restrictions	28,744,976	24,214,677
With donor restrictions	74,326	147,325
TOTAL NET ASSETS	\$28,819,302	\$24,362,002
TOTAL LIABILITIES & NET ASSETS	\$62,355,567	\$54,940,954

CONSOLIDATED STATEMENT OF ACTIVITIES

AS OF DECEMBER 31, 2020 & 2019

	2020	2019
REVENUE AND SUPPORT		
Member services and policy development	\$3,668,607	\$3,856,797
International standards facilitation	31,831,575	31,727,924
Domestic standards facilitation	8,451,470	7,448,029
Accreditation services	26,945,281	32,414,477
Fee-based programs	7,296,947	5,922,202
Paycheck Protection Program grant	1,360,000	-
TOTAL OPERATING REVENUE AND SUPPORT	79,553,880	81,369,429
EXPENSES		
Program-related		
Member services and policy development	3,718,569	4,184,039
International standards facilitation	19,795,311	19,331,541
Domestic standards facilitation	7,282,298	6,323,273
Accreditation services	17,064,291	21,846,200
Fee-based services	7,063,329	4,938,524
Supporting services	54,923,798	56,623,577
Membership development and administration	857,949	1,082,508
Management and general	20,091,936	21,054,829
	20,949,885	22,137,337
TOTAL OPERATING EXPENSES	75,873,683	78,760,914
Change in net assets from operations	3,680,197	2,608,515
NONOPERATING ACTIVITIES		
Investment return, net	1,722,088	1,612,003
Other components of net periodic pension cost	(81,847)	(389,552)
Pension-related changes other than net periodic pension cost	(863,138)	(89,064)
TOTAL NONOPERATING	777,103	1,133,387
ACTIVITIES		
CHANGE IN NET ASSETS	4,457,300	3,741,902
Net assets, beginning of year	24,362,002	20,620,100
NET ASSETS, END OF YEAR	\$28,819,302	\$24,362,002

ANSI Annual Report: 2020–2021 52 ANSI Annual Report: 2020–2021



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Wegmans Foods Markets

JENNIFER KITCHEN

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Consumer Technology Association (CTA)

EARL LAWRENCE

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Eaton Corporation

ANGUS LOW

Rockwell Automation

ALAN MANCHE

Schneider Electric

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Microsoft

PHILIP MATTSON

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OASIS

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