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ROBOTS AND ROBOTIC SAFETY

FEATURED STORIES



Using Standards to Help Guide the Safe Development of Commercial and Industrial Robotics and Automated Equipment



Consumer Robotics: Landscape and Opportunities



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"We are Better Together"



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Using Standards to Help Guide the Safe Development of Commercial and Industrial Robotics and Automated Equipment

by Matt Schumake, Content Specialist, Underwriters Laboratories, USNC Premier Member



By the end of 2019, the number of industrial robotics operating in manufacturing and production facilities around the

world reached approximately 2.7 million units.¹ These include robots programmed to perform tasks such as parts assembly, parts transfer, die-casting, deburring, welding, and paint spraying. In addition to robotics, companies are also integrating facilities with automated mobile platforms (AMPs), which follow predetermined travel paths to move payloads from one area to another.

Although the rate of installations for industrial robots had dropped around the globe in 2019 due to the COVID-19 pandemic, the overall count still demonstrates a 12% increase from the previous year. In 2018, the United States became the third leading industrial robot market in the world with 40,373 annual installations and maintained its position in 2019 with 33,339 annual installations.²

Because of the increasing prevalence of robotics and AMPs in industrial and material handling environments, Underwriters Laboratories has published [UL 1740, Standard for Safety for Robots and Robotic Equipment](#), and [UL 3100, Automated Mobile Platforms \(AMPs\)](#). These Standards are published to guide the development of robots and AMPs, to help ensure they can perform intended functions safely.



UL 1740, Standard for Safety for Robots and Robotic Equipment

UL 1740 is an approved American National Standard (ANS) that covers robots and robotic equipment rated 600 V or less, which are intended for indoor and outdoor industrial applications. A robot covered by this standard is programmable in two or more axes with a degree of autonomy, moving within its environment to perform intended tasks such as parts assembly and transfer, automated material handling, inspection, welding and deburring, and automated storage and retrieval.

The standard helps to safely guide the development of these industrial robotic units with requirements for construction, performance, and protection against injury to persons. These include requirements to help ensure secure mounting, reduce the risk of unintentional contact with moving parts such as belts and pulleys, automatically stop robots

if safety guards are activated, and provide emergency stop controls that can be manually activated by an operator if necessary.

Robots and robotic equipment covered under UL 1740 are intended for installation in accordance with the National Electrical Code, NFPA 70. Equipment evaluated to these requirements is intended to meet the requirements of ISO 10218-1, *Robots and Robotic Devices – Safety Requirements for Industrial Robots – Part 1*, and can be installed in accordance with ISO 10218-1, *Robots and Robotic Devices – Safety Requirements for Industrial Robots – Part 1*, and ISO 10218-2, *Robots and Robotic Devices – Safety Requirements for Industrial Robots – Part 2: Robot Systems and Integration*.

UL 1740 was first published in 1995 and is currently in its fourth edition, which was published in 2018. The most recent revisions were published in November 2020.

1 Bill, Marina. "Foreword." World Robotics Industrial Robots, International Federation of Robotics. (2020). p. 3 – 4. https://ifr.org/img/worldrobotics/Foreword_WR_2020_Industrial_Robots.pdf.

2 "Executive Summary." World Robotics Industrial Robots, International Federation of Robotics. (2020). p. 13 – 16. https://ifr.org/img/worldrobotics/Executive_Summary_WR_2020_Industrial_Robots_1.pdf.

UL 3100, Automated Mobile Platforms (AMPs)

UL 3100 helps to safely guide the development of automated platforms intended for lifting, carrying, product picking, towing and performing similar tasks in industrial environments. These actions may be provided by a gripping attachment, suction attachment, scope attachment, or similar mechanism to lift or carry the load. While the standard does not include requirements for industrial robots, a robotic manipulator in compliance with UL 1740 may be used as the payload for the integrated system.

The first edition of the standard, published in May 2021, includes requirements that address the risk of fire, shock, and injury associated with AMP use. Its requirements for object detection and avoidance help to ensure an AMP is able to mitigate the risk of injury and other hazards by detecting people and objects in its travel path. It also provides requirements for risk assessment, functional safety, robotic payloads and product integration.

Additionally, UL 3100 provides requirements for batteries and battery management systems (BMS), to help mitigate the risk of thermal runaway. AMPs use either lead-acid batteries or lithium-based batteries which, if rechargeable, are charged through a conductive system while either on-board or off-board the device. When the battery management system is included as part of a battery pack, the applicable battery standards (UL 2580, UL 2271, and UL 62133) will address the BMS.

The Standards Development Process

Underwriters Laboratories is dedicated to promoting global safety through the development of consensus standards that guide the performance



and sustainability of new and evolving technologies and services. Our standards development process is open and transparent. Anyone can participate by submitting a proposal, or by applying for membership on one of our standards technical panels (STPs). The consensus-based process relies on the input of diverse, knowledgeable experts who ensure standards are comprehensive, sustainable, and focused on driving safety in line with the UL mission of working for a safer world.

Underwriters Laboratories and the Association for Advancing Automation (A3) held joint standards committee meetings with STP 1740, STP 3100 and the A3 standards committees in May 2019 and May 2021.

Additionally, Underwriters Laboratories has been appointed by the United States National Committee as the administrator to the U.S. Technical Advisory Group (TAG) to IEC/TC 129, Robotics for Electricity Generation, Transmission and Distribution Systems. This TC is responsible for standardization of robotics used in power systems such as power plants, substations

and transmission and distribution lines. This includes robot systems travelling on rails, unmanned aerial vehicles traveling in the air, unmanned underwater vehicles traveling under water, and robots designed to travel on or inside equipment. Please reach out to standards@ul.org if you are interested in participating in this U.S. TAG.

If you would like to share your expertise and take part in developing future editions of UL 1740 and UL 3100, please apply for membership through our MyInfo portal at s.ul.org/MyInfo. If you have questions about UL standards development, contact us at ul.org/contact. To access UL and ULC Standards documents or to sign up for alerts, visit ShopULStandards.com.

Information on UL 1740 and UL 3100 was provided by Megan Monsen, Standards Specialist, Underwriters Laboratories, and Diana Pappas Jordan, Standards Program Manager, Underwriters Laboratories. 

Consumer Robotics: Landscape and Opportunities

by Kerri Haresign, Director, Technology & Standards, Consumer Technology Association (CTA), USNC TMC Member and TAG Member, IEC/TC 124



Introduction

Consumer robotics is a category with huge, if still fully unrealized, market potential. Building on a solid growth

pattern, the COVID-19 pandemic has further accelerated consumer interest in and comfort with the services provided by consumer robots and consumer-facing robots, specifically in the professional services, domestic/household tasks, and entertainment segments. To enjoy future growth and household penetration, the category must overcome challenges associated with security, safety, interoperability, functionality and privacy.

Definition

A Consumer Robot is a device that can sense and interact with its environment, react (due to an input), and move outside of the physical device. A robot may perform operations fully autonomously or semi-autonomously. The consumer robot should provide direct interaction with or a service for the consumer. A Private Consumer Robot is designed for personal use and is owned by the consumer. A Commercial Consumer Robot is designed for use in commercial settings, e.g., hotels, hospitals, elderly care homes, offices, airports, etc.

State of the Industry & Market Potential

Robotic vacuums, robotic floor washers, and robotic lawnmowers are perhaps the robotics categories



most familiar to consumers and have emerged as a popular purchase for consumers amid the pandemic. In fact, robotic vacuums have emerged as one of the leading holiday gift purchases. Despite supply constraints and heavy enterprise demand, the Consumer Technology Association's (CTA) U.S. Consumer Technology Five-Year Industry Forecast expects sales of robotic vacuums to increase by 18% and robotic floor washers to increase by 10%. Even with price-cutting strategies and competitive holiday deals offered by most leading home robotics companies, CTA forecasts a 6% increase in robotic vacuum revenue and a 2% increase in robotic floor washer revenue from 2019 through 2020.¹

The COVID-19 pandemic seems to have barely impacted the market for most types of service consumer robots. In fact, the pandemic has predictably supported the market

for robotic disinfectant solutions and increased demand for contactless consumer-facing robotic logistics solutions like delivery.² Prior to the pandemic, service consumer robot capabilities like autonomous delivery and disinfection were seen as novel, but certainly not a necessity.³

The International Federation of Robotics (IFR) breaks consumer robotics into three categories: professional service robots, service robots for domestic/household tasks, and service for entertainment. According to IFR, professional service robots were expected to see 32% growth in 2019 and 38% growth in 2020. By 2023, the category will have a CAGR of 32%. Service robots for domestic/household tasks saw 40% growth in 2019 and will see 16% growth in 2023. By 2023, the category will have a CAGR of 31%. Service robots for entertainment were expected to see 13% growth in 2019

¹ <https://shop.cta.tech/collections/research/products/cta-u-s-consumer-technology-five-year-industry-forecast-2019-2024-january-2021>

² https://ifr.org/img/worldrobotics/Executive_Summary_WR_2020_Service_Robots.pdf

³ <https://www.texasmonthly.com/news/driverless-grocery-delivery-nuro-coronavirus-houston/>

and 10% growth in 2020. By 2023, the category will have a CAGR of 10%.⁴

Pre-pandemic, CTA's *Robotics: Current Landscape & Consumer Perceptions* study (May 2019) projected that retail and delivery would be the largest sectors for consumer robotics because of their pre-existing prominence in the U.S. economy. In general, the study found, consumers were very excited about the consumer applications for robotics. When asked (unprompted) what robot they would most welcome, consumers desired a robot that would help with household chores such as laundry and cleaning, mentioned by 58% of participants.⁵

The COVID-19 pandemic has moved robots out of the warehouse and into the healthcare system, retail, restaurant, airports, office buildings and our own homes. In the near term, the use of robots has directly helped in the fight against COVID-19, with robots aiding hospital staff in both the U.S. and Europe, and many robotics manufacturers skipping trial phases to meet high demand.⁶ More than 70% of health executives said that robotics will enable the next generation of services in the physical world. With the growing number of robots in the health sector, organizations must integrate them into the workforce in a way that produces trust with existing staff. More than half (54%) of health executives say their employees will be challenged to figure out how to work with robots.⁷

Use Cases

There are myriad use cases for consumer robotics, with even more in development. The below are by no means exhaustive but elucidate use cases with significant traction and potential.

- » Home Security and Home Life
- » Health and Wellness
- » Kid Tech
- » Household Chores
- » Pet Tech
- » Food Prep
- » Delivery
- » Cleaning and Disinfecting
- » Hospitality/Travel
- » Health Care
- » Consumer Facing Retail

Industry Challenges

To help meet the significant market potential for consumer robotics, it is important for industry to review and address the challenges. The below items represent a range of topics to be considered and addressed to help support the growth of the industry. These topics are not an exhaustive list of the challenges facing the industry. Many of these challenges are being discussed within companies, trade associations (e.g., Consumer Technology Association), academia and elsewhere.

Security

The need for secure devices is a key topic for any connected device. CTA recently published the *Baseline Cybersecurity Standard for Devices and Device Systems*,⁸ which provides a clean, unambiguous list of cybersecurity capabilities for any connected consumer device. While this serves as a first step, there is an additional industry need to develop extensions for consumer robotics. To that end, CTA is developing *Baseline Cybersecurity for Private Consumer*

Robotics, which is anticipated to be published in 2022.

These robotics specific security extensions will be critical when considering the impact device security can have on things like physical safety. One example would be to ensure that a security breach of a robotic lawnmower could not cause physical harm to an individual.

Privacy

Like security, privacy is a key issue for all connected devices, but once again there are specific applications for robotics to be considered. One example is that an in-home robot or an educational robot might use cameras to map or interact with portions of the home that are not traditionally accessible by connected devices. This interaction could raise additional privacy concerns for the device users.

When thinking about privacy, it is important for the robotics industry to look to established industry standards that are consistent across technologies, companies, agencies, and borders to better ensure trust and data-driven innovation. A risk-based focus should be considered, while ensuring the robotics companies can continue to maintain the freedom to innovate.

Interoperability

The movement and sharing of intelligent data represent a key challenge to support the continued growth of the consumer robotics industry. One example includes how a delivery robot might be able to interact with a smart home device (e.g., door security system) or even an elevator in a building. In these cases, the sharing of data will be equivalent

4 https://ifr.org/downloads/press2018/Presentation_WR_2020.pdf

5 <https://shop.cta.tech/collections/research/products/robotics-current-landscape-consumer-perceptions>

6 COVID-19 Impact on Technology Innovation: U.S. & Europe October 2020

7 Digital Health Technology Vision 2020 / Accenture (Aug. 2020)

8 <https://shop.cta.tech/collections/standards/products/baseline-cybersecurity-standard-for-devices-and-device-systems-cta-2088>

to a language allowing the robot to understand how to interact with the infrastructure technology. This presents a unique challenge in that often these technology solutions are not developed by the same company.

Another example to consider would be if end users have multiple robotic devices in their homes that are developed by different companies – such as a robotic vacuum and a wet mop. In this hypothetical example, you likely would not want both devices running at the same time. By enabling data interoperability between the devices, they can grow and become smarter and more efficient without human interaction.

Trustworthiness

Trust is key to the use of any technology. We want to ensure that our technology is reliable, safe, secure, and will accomplish the identified task. This is especially true for the robotics space when many of the applications are take place in consumers' homes. While trust is a difficult concept to define, it is an important element in the growth of emerging consumer technology.

In an effort to build trust in technology, CTA is developing industry standards addressing

trustworthiness in artificial intelligence and trustworthiness in the application of AI to health care.⁹ Robotics technology certainly stands to benefit from the lessons learned and standards produced in this work.

Human Robot Interaction

As outlined in the many examples in this paper, robotic devices interact with humans in ways that other technologies do not. They are helping to educate children, supporting health care professionals, or serving as our pets. This means that careful consideration must go into how a robot interacts with humans.

For example, how do cleaning robots interact with children or pets in the home? How do companion robots exhibit empathy and connection? These are not simple questions to answer, but to support the continued growth of the industry human centric design will be very important.

Limited Functionality

One of the barriers that has been expressed around the growth of consumer robotics is they have limited functionality and typically address only one or two use cases. Would the addition of the ability to address multiple problems potentially increase

consumer interest? This will factor into the consumer's purchasing decision, as the consumer weighs the cost of the robot against the benefits it provides. While ultimately this topic is up to the individual device maker, it is something that the broader industry should consider when identifying new use cases.

Software Capabilities

Software capabilities have grown exponentially in the recent decades, this is evident by the growth of processing power demonstrated in phones, computers, digital assistants, etc. Artificial Intelligence has become an ingredient technology powering a wide range of applications including many robotic devices. At this point, the capabilities of software are likely meeting industry needs, but further advancements and development should continue to be monitored.

Conclusion

There is a clear growth opportunity for the consumer robotics industry. Industry support and collaboration through things like standardization will help to address challenges and maximize these growth opportunities. To learn more about CTA's work in this space please visit <https://cta.tech/Topics/Robotics>. 

⁹ <https://shop.cta.tech/collections/standards/artificial-intelligence>

USNC Young and Emerging Professionals Soft-Launch at ANSI's World Standards Week

Leadership and staff of the USNC will introduce the USNC's new National YEP Program at this year's ANSI World Standards Week. While formally launching in early 2022, this fall's webinar will serve as a soft-launch for the program. During the presentation, former USNC IEC YEPs will share their first-hand experience and answer

questions about all the opportunities and benefits of getting involved. The goal of the USNC YEP program is to create a platform for active engagement among all U.S. young and emerging professionals with interests in standards and conformity assessment for electrotechnologies.

The USNC National Young and Emerging Professional (YEP) Program: Soft Launch webinar is scheduled for **Friday, October 29 from 1:00 – 2:30 PM ET**. [Registration](#) is required. For further information on World Standards Week, please visit: <https://www.ansi.org/events/standards-events/world-standards-week>.

Emerging Technologies and Standardization

by Muhammad Ali, CStd, Sr. Standards Strategy and Policy Lead, AMS – HP, Inc., Member of USNC YEP Committee and IEC/SEG 12



As we all know, the global pandemic has accelerated the digital transformation in all sectors and areas. While the pandemic has disrupted society on an unprecedented

level, it is also requiring us to take a fresh look at trends impacting the global economy, public health, education, and the future of work. It is important for standards community to keep track of future emerging technology trends and adjust standardizations activities or initiate new activities. Standards play a key role in expanding market access and promoting successful deployment of new technologies and products by ensuring interoperability, safety, and reliability. In addition, standards can accelerate the speed at which innovations become more than ideas.

There was a global rise of additive manufacturing during the COVID-19 pandemic to help resolve supply chain disruptions and produce lifesaving critical products such as personal protective equipment (PPE) or testing equipment—like a face shield, mask, or nasal swab. While the use of additive manufacturing has been growing, one of the barriers for broader adoption has been lack of standards. The interrelation of standardization and innovation needs to be recognized and appreciated to assist in the development of standards roadmaps, coordination and collaboration opportunities and timely and efficient implementation of standards to support emerging technologies.

ISO/IEC JTC 1, entitled "Information technology", is a joint technical committee of the International Organization for Standardization and the International Electrotechnical



Commission. ISO/IEC JTC 1 develops standards that support information and communications technology advancement across multiple industry sectors. The U.S. plays a leading role in JTC 1, with ANSI serving as Secretariat and 35 national bodies participating. ISO/IEC JTC 1 has established an Advisory Group 2 on JTC 1 Emerging Technology and Innovation (JETI), to:

- » Assess the technology opportunities to identify the relevant standardization issues and priorities that warrant immediate action and those that should be watched for potential consideration later by JTC 1;
- » Monitor the future considerations from JTC 1 SCs/WGs (e.g., through their business plans, dashboards, and/or other alternative information sources) to perform successful execution of standards development and planning with an appropriate coordination in JTC 1; and
- » Make recommendations on actions to the JTC 1.

JETI is mandated to seek opportunities to facilitate JTC 1 standards development for future emerging and innovation technologies as a technology watch group in JTC 1. ISO/IEC JTC 1 AG 2, JETI carries out an information collection via market research reports, information from business plans of JTC 1 SCs, Other SDOs and compiles a list of technologies. The list then gets prioritized for top technologies via an internal survey to JTC 1 National Bodies and JTC 1 SC/WG/AGs. The survey responses then get analysed within the advisory group to come up with proposals to write Technology Trend Reports. TTRs are reports from JETI to JTC1 about specific technology topics for consideration of standards development and includes robust set of 1-5 recommendations for JTC 1 to act on which are then reviewed during the next JTC 1 Plenary meeting. This process has allowed ISO/IEC JTC 1 to identify standardization or coordination/collaboration needs for emerging technologies and initiate standards project at the right time.

The TTRs typically include relevant current standardization activities (if applicable), any standards gaps, and recommendations to JTC1.

The 2021 JTC 1 survey identified top 25 technologies. The top 10 technologies include Data Privacy, Remote Education/Learning, Digital Health, Telehealth/Telemedicine, Green Tech, AI as a Service, Cybersecurity Mesh, Distributed Cloud, Edge Cloud, and Intelligent Computing. Some of these identified areas already includes ongoing projects while others have little to no standards activity. The following relevant potential standardization areas was noted in the survey along with some of the ongoing activities within JTC 1 for some of these top 10 areas:

- » **Data Privacy:** There is already some ongoing standards activities in ISO/IEC JTC 1 SC 38, Cloud Computing, SC 27, Cybersecurity and Privacy, SC 37, Biometrics. However, there is still room for standardization in areas such as
- » **Edge Cloud:** There is already some ongoing standards activities in ISO/IEC JTC 1 SC 38, Cloud Computing and ISO/IEC JTC 1 SC 42, Artificial Intelligence. However, there is still room for standardization in areas such as applications in smart cities, multi access edge computing, edge computing security, privacy enhancing technologies, privacy engineering, and identity management.
- » **Digital Health:** There already some ongoing standards activities in ISO/IEC JTC 1 SC 27, Cybersecurity and Privacy and WG 12 on 3D Printing and Scanning. However, there is still room for standardization in areas such as Digital Therapeutics, Microfluidics, AI in Healthcare, Smart and connected devices, AI and machine learning in medical technology, VR/AR and Brain Computer
- » **Interface for medical sector.** IEC has also recently established a Standardization Evaluation Group 12 on Bio Digital Convergence.
- » **Telehealth/Telemedicine:** There is already some ongoing standards activities in ISO/IEC JTC 1 SC 27, Cybersecurity and Privacy and SC 37, Biometrics. However, there is still room for standardization in areas such as Brain Computer Interface for telehealth, VR based training systems, VR based medical systems, VR based health information systems, remote clinical service, and use of biometrics.
- » **Cybersecurity Mesh:** There is already some ongoing standards activities in ISO/IEC JTC 1 SC 27, Cybersecurity and Privacy. However, there is still room for standardization in areas such as Decentralized Identify, VR/AR security, and applications in smart cities. 



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“We are Better Together”

by Florence Otieno, Director, International Standards Programs, Telecommunications Industry Association (TIA), Member of USNC TMC and USNC Communications Committee, TAG Secretary: IEC/TC 46, IEC/SC 46A, IEC/SC 46C, IEC/SC 46F, IEC/TC 76, IEC/TC 86, IEC/SC 86A, IEC/SC 86B, IEC/SC 86C, IEC/SyC Smart Manufacturing, and ISO/IEC JTC 1/SC 25

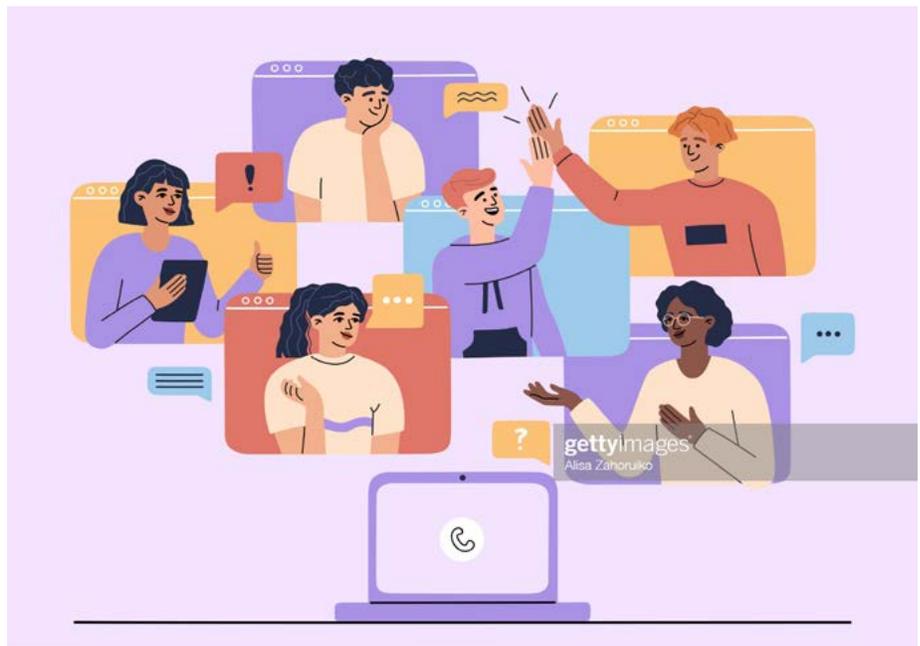


When I read USNC's current e-mail request for any standard related theme, I immediately thought of the phrase “we are better together.” I knew this was a

topic that many people will relate to. In our day-to-day activities and life's journey and experiences, we often encounter different circumstances, opportunities and challenges that need team work, togetherness or cooperation. My topic will evolve from some of the opportunities, challenges and circumstances within the standard development environment that I have encountered during my tenure as TAG Secretary. I believe the article “We are Better Together” is not only appropriate, but also a fitting title.

I remember when I was coordinating a time-sensitive project which involved submitting a draft on a viable U.S. TAG position. We were able to find a solution by consulting with various parties involved on the project. As I look back on the situation, I am so amazed that on a late Friday, this problem was resolved so quickly and with the cooperation of different parties from different entities. I questioned myself, could I have achieved the desired result without this kind of cooperation? The answer is of course, no way! Luckily enough, everyone involved was available at the right time to make recommendations on the best course of action, and in less than 30 minutes and the issue was resolved.

I was so elated and couldn't stop thinking about other opportunities where we produce when we work



together simply because “we are better together” and I now understand why this expression is so important and prevalent to successful international bodies such as the United Nations and other international bodies. The result of “we are better together” is illustrated by all the outstanding accomplishments and achievements by many developing and underdeveloped countries. This is central to United Nations' goals and the foundation of their unifying factors that create global partnership and impact.

One may ask what does it take for a standards development journey? It requires the spirit of good teamwork as no one ever accomplishes a body of work alone. We need one another as a standard body, everyone brings value that makes us look better together. For example, in the technical industry, ISO/IEC experts help to

develop unified standards that define the work. These sister organizations provide the resources, human capital and bring diversity of talents that enable and facilitate the development of standards. This working team involves the harmonious and productive interactions among various parties and it is no small endeavor. Teamwork has to occur across the spectrum of standard developers, national committee members, project leaders, project editors, chairs of technical committees, secretaries both national and international, committee managers, sub-committees and working groups from different technical committees and sub-committees because each and every one of them bring different values and diversity needed in standard community.

To be effective, I have observed that cooperation, patience, empathy

and humility are ideal characteristics to have in a productive group. An inclusive environment such as standards body should be created where others can express their opinions without the fear of reprisal. It is much better when we listen and exchange different opinions respectfully. In a diverse group, we are able to come to a well-rounded, meaningful, and insightful consensus.

Consequently, even this pandemic has amplified the notion that no one person can tackle a problem alone. The whole world is in agreement on the importance of helping hands and having different perspectives to be able to find solutions and agreements on how to tackle the global pandemic caused by COVID-19. In essence, the pandemic response centers around partnerships with other communities, regional, and national counterparts who seek to ensure that no one is left behind.

The role that technical experts and industries have played during this pandemic has taught us an important

life lesson that “we are better together.” Things will improve through the standards that our thousands of ISO/IEC experts have developed and continue to develop through various committees. We will overcome the odds and recover better together by leaving no one behind. This includes the poor, the vulnerable, the disabled, and the voiceless. If we stand together, we will rise together.

Standards developed by our ISO/IEC Experts are slowly changing consumer mindset and with an aim geared towards positivity. These ideals have started to impact the sustainable development goals. Their main objective is to be better together by addressing global challenges such as combating existing inequalities, injustice, and alleviating poverty.

When we adopt the principle of being better together, we can strive toward building a sustainable society which can create more opportunities than challenges. The idea is that no one person has access to the biggest piece of the pie. An equal

share of the pie can be eaten by all including the vulnerable, people with disabilities, women, and children. This concept can be achieved through the development of new standards that will embrace, address and impact global challenges.

During the 2020 Olympic games, Toyota came out with an inspiring commercial promoting the idea of infinite possibilities. They highlight the dream of Olympic gold swimmer Caeleb Dressel who reflects on his journey as a kid to stand on the podium at the Olympic games. The commercial pushes the idea that the possibilities are infinite; like this swimmer, we should out there and start our impossible in standards, as we are better together.

In the same token, the principle of being better together, can strengthen the human fabric by solving problems in one accord and having less global challenges. When we honor team work and inclusion, we start the impossible and the possibilities become infinite. 

USNC Members Invited to Attend ANSI's Company Member Forum



Please join us for the upcoming Company Member Forum (CMF) Meeting chaired by USNC Member Jennifer Kitchen. The Forum will be held virtually, on **Wednesday October 27, 2021 from 1:30 PM – 3:30 PM ET**, as part of World Standards Week. The agenda is very engaging, with a focus on the value of implementing standards strategies, and the transformation of standards as digital data elements. Check out the [full meeting agenda](#) for a detailed listing of the discussion topics and speakers, including USNC President, Kevin Lippert, and USNC VP – Finance Elect, Pete Pondillo.

If you haven't already registered for the meeting, please follow the link: [CMF Meeting Registration](#)

If you have any questions or need any additional information, please contact the ANSI Membership Team at membership@ansi.org.

USNC Welcomes IEC Members to the IEC 2022 General Meeting in San Francisco

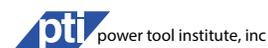
The USNC is thrilled to host the IEC 2022 General Meeting October 31-November 4 in San Francisco! Check out our recently released [host video!](#)

Hosted annually by a different IEC member nation, the IEC General Meeting brings together international stakeholders for discussion of current issues and future directions and strategies for the IEC. The General Meeting has a unique format, combining management and technical meetings, and bringing all the key players together on one stage.

Interested in becoming a General or Technical Sponsor for this once-in-a-decade, international event? Check out the [2022 IEC General Meeting USNC webpage](#) or contact us at usnc@ansi.org.



Thank you to the organizations already on board as 2022 IEC General Sponsors!



Call for Action and Participation in Standards!

USNC Members Encouraged to Apply – USNC Workshop Presenters, 2022

The USNC would like to invite Individuals who are interested in presenting or co-presenting USNC training workshops for the 2022 schedule. To sign up as a presenter, or for more information, please email Megan Pahl (mpahl@ansi.org) by **Monday, November 15**.

The scope overview for the USNC training workshops presenter/ co-presenter:

Scope Overview:

The USNC intends to provide the following training workshops during the 2021-2022 academic year:

- » TAG Leadership Workshop, January 2022
- » IEC Effective Participation Workshop, Spring 2022

The USNC Communications Committee is looking for presenters or co-presenters for these two trainings. All training materials have already been developed and are attached to this email for your reference.

Questions can be directed to me at mpahl@ansi.org.

USNC Members Encouraged to Apply – TASK GROUP FOR THE CREATION OF A CONFORMITY ASSESSMENT TRAINING MODULE

As an action item resulting from the 13 September USNC Communications Committee meeting, the USNC would like to invite Individuals who are interested in developing a conformity assessment training module to sign up for the task group. Please email Megan Pahl (mpahl@ansi.org) with your intended interest by **Monday, November 15**.



The scope overview for the task group Individuals who are interested in can be found below:

Scope Overview:

As a result of the September 13 meeting, the USNC Communications Committee requests volunteers to assist in the development of a new training module focusing on conformity assessment. The new module will be added to the USNC Constituency Training Modules which have recently been updated. Experience in conformity assessment is required.

Questions can be directed to me at mpahl@ansi.org.

USNC PARTICIPANTS NEEDED

IEC approved one (1) new Committee: IEC Subcommittee (SC) 59N: Electrical air cleaners for household and similar purposes

Individuals who are interested in becoming a USNC Technical Advisory Group (TAG) participant for the USNC TAG to IEC/SC 59N: Electrical air cleaners for household and similar purposes are invited to contact USNC staff at usnc@ansi.org.

Please see the scope for IEC/SC 59N below:

Scope:

- » To prepare international standards on performance measurement methods for electrical air cleaners for household and similar purposes.
- » NOTE 1: Cooking fume extractors are covered by SC 59K.
- » NOTE 2: Health care equipment is under the scope of IEC TC 62 (Electrical equipment in medical practice). 

USNC Training Opportunities

We are pleased to share that the USNC Constituency Training Modules have been updated and are now available on our webpage! Through this self-guided series, individuals have the opportunity to learn at their own pace. The USNC training modules provide resources that help standards and conformity assessment professionals within the electrotechnical industry effectively navigate the myriad processes and procedures of international standards and development programs, primarily as related to work in the USNC and the IEC.

In this series:

- » Module 1: International Standardization: Introduction and Overview
- » Module 2a: IEC and USNC Organizational & Governance Structure
- » Module 2b: USNC Organizational & Governance Structure
- » Module 3a: IEC Personnel: Roles and Responsibilities
- » Module 3b: USNC Personnel: Roles and Responsibilities



» Module 4: Standards Development & Stages of Technical Work

The USNC and its members participate in approximately 90% of the technical work of the IEC. The USNC's education and training resources are designed to help ensure that U.S. participants are well informed, prepared, and effective in electrotechnical standardization.

The USNC would like to thank the members of the webinar revision task force for their thorough efforts in updating these educational resources for the community.

In addition, the presentation slides and webinar recording of our recent

training, IEC Effective Participation, is now available online. Please note that the USNC Constituency Training Modules are a prerequisite of the IEC Effective Participation course.

If you're interested in catching one of our live webinars, stay tuned for more information on these upcoming USNC training events!

- » TAG Leadership Workshop, January 2022
- » Effective IEC Participation Workshop, Spring 2022

For questions on USNC training opportunities, please feel free to contact Megan Pahl at mpahl@ansi.org. 

DECISION DEPOT



This column provides easy access to recent decisions that have been made regarding IEC and USNC policies and procedures that directly affect our members. Click the link below to access the recent decisions.

See the Decision Lists below for decisions made at the following meetings: IEC CAB hybrid meeting on October 2-3, 2021; IEC Council meeting on October 7, 2021; the IEC Council Board meeting held on October 5, 2021; the SMB meetings held on July 7, 2021 and October 2-3, 2021.

CAB: [CAB/2146/DL](#)

SMB: [SMB/7360/DL](#) and [SMB/7425/DL](#)

IEC Council: [C/2380/DL](#)

IEC Council Board: [CB/1241/DL](#)

Get the most of your ANSI membership with a free webinar!

ANSI encourages you to take the first step to see what you are missing, and, more importantly, to find areas where we can work effectively together. Find out why so many people value their membership in ANSI. Join in our upcoming webinar and ask us!

These interactive 30-minute webinars — held on the first Friday

of each month and free of charge — are hosted live and provide an overview of ANSI's activities, as well as information on how to take full advantage of ANSI membership. A Q&A session encourages active dialogue between all participants.

For more details, visit our [website!](#)



UPCOMING EVENTS

Due to the ongoing health crisis, many upcoming events have been postponed or are being held remotely. Please check the website of the individual organization for up-to-date information.

USNC LINKEDIN



Would you like to stay updated with the news and events of the USNC? [Join our LinkedIn Group](#) to learn about and provide input on all issues electrotechnical that can affect your life, from your own home to the other side of the globe! If you have any information to share on LinkedIn, please contact Megan Pahl (mpahl@ansi.org).

ABOUT THIS PUBLICATION

The USNC Current newsletter is distributed to the constituency of the U.S. National Committee (USNC) of the International Electrotechnical Commission (IEC). It provides updates on technical activities and other information of interest to members of the electrotechnical community. Some articles are reprinted with permission from the IEC News log.

DISCLAIMER

The opinions expressed by the authors are theirs alone and do not necessarily reflect the opinions of the USNC or ANSI.

HOW TO CONTRIBUTE

Contributions are gladly accepted for review and possible publication, subject to revision by the editors. Submit proposed news items to: Megan Pahl, mpahl@ansi.org.