Globalization is connecting economies and cultures across the world like never before, and harmonized global standards and conformance play a key role in that transformation. Standards build confidence in the quality and safety of traded products by proving that they adhere to certain requirements; they help protect consumers and businesses from harmful practices; and they help create an even playing field where all enterprises can compete internationally by capitalizing on established best practices.

The Role of Standards in Global Trade: Standards and Harmonization Lead to Interoperability, Expanded Markets, Robust Trade

By John D. McDonald, P.E., Smart Grid Business Development Leader, GE Power Grid Solutions; Vice President for Technical Activities, USNC of CIGRE

Readers probably know the old saw about standards: “Which one shall we use? There are so many to choose from…”

Although this silly saw makes me (and my audience) wince, it gives me yet another opportunity to mount my soapbox to extoll the many benefits of standards. Typically, my audience includes those who develop standards, those who implement them and the consumers, industries, markets, and international trade relationships that benefit from them. Ultimately, standards development, implementation, and harmonization foster robust global trade, a boon to our interdependent economies and a peaceful, prosperous world.

THE LONG GAME

Standards, like investing, really embody the strategy of the long game. In a distracted world, investing in the long game needs consistent support. It is always worth our time to review and reiterate the drivers for and the benefits of standards and the role they play in market development and global trade.

Using grid modernization as an example, it’s clear that standards enable robust global trade because they play a key role in achieving critical, widely shared public policy objectives such as reducing greenhouse gas emissions, increasing energy efficiency and renewable energy resources and building sustainable economies.

It’s also useful to remind everyone of the critical role played by the USNC as a policy and technology conduit to the IEC. As the U.S. representative to the IEC and regional standardization...
The Role of Standards in Global Trade (continued)

bodies, the USNC serves to bring American policy and technology issues to the global standards community and vice versa. These relationships are vital to global trade, prosperity, and sustainability because our challenges are too great for any one party to solve. Indeed, innovations in one place tend to offer solutions elsewhere. We’re all in this together.

GLOBAL STANDARDS &
THE MARKET
Simply put, standards create a virtuous domino effect in which value creation expands down the line. First, standards provide the certainty that fosters investment. With its partner, conformity assessment, standards lead to interoperability. Interoperability, in turn, enables innovation by companies large and small, based anywhere in the world. Innovation and competition are intertwined forces that tend to lower costs, thus expanding end-user uptake and markets, which drives global trade.

Harmonization of vendor-specific and nation-specific standards to create a single global standard obviously plays a key role in this picture. Harmonization would be much more difficult without the trans-national relationships among ANSI, the USNC, and the IEC.

In fact, it is much easier today to determine the industry standard or standards to consider for a specific application because the USNC mobilized its subject matter experts to address the power industry’s practical needs.

Convergence of Communication Protocol Standards

**Control Center to Control Center**
- IEC 60870-6/TASE.2 – Inter-control Center Communications Protocol (ICCP)

**Control Center to Field Equipment**
- IEEE 1815 (DNP3) – North American Suppliers
- IEC 60870-5 – European Suppliers
  - 101 – serial communications
  - 103 – protection devices
  - 104 – TCP/IP (network communications)

**Field Equipment**
- IEC 61850 – substation automation and protection
- IEEE 1815 (DNP3) – substation and feeder device automation

*Figure 1*: Standards convergence at three levels of the electric grid. The top level represents one global standard for control center to control center communications and information exchange. The middle level shows two standards co-existing globally for control center to field devices communications: DNP3 used by North American suppliers and IEC 870-5 used by Europeans. The bottom level shows two standards for communications between field devices: DNP3 used by North American suppliers and IEC 61850 used globally. In each of these three levels, many, many protocols were once in use. The convergence to a single global standard, or two global standards, was driven by USNC Subject Matter Experts (together with global counterparts) to answer industry’s practical needs.

JOHN MCDONALD

For example, today there is one global standard for control center to control center communications and exchange of information (figure 1), where there used to be many. In another example, the USNC, the National Institute of Standards and Technology (NIST), and myriad global stakeholders published 16 foundational standards for smart grid, so the industry does not have to consider the 100+ smart grid standards identified by IEEE and the 100+ smart grid standards identified by the IEC.

The IEC 61850 standard for communication among devices within power substations is another such success story. Among other things, IEC 61850 provides the means to integrate communication networking protocols such as Ethernet and TCP/IP, and to network the latest technologies (continued)
such as intelligent electronic devices. These advancements enable greater grid reliability and efficiency, lower costs, increase power quality, and help speed power restoration. Power utilities around the world are adopting IEC 61850, expanding the global market for many interoperable technologies designed for power substations.

In contrast, competing standards have the opposite effect: they fragment markets by creating confusion, potentially hindering interoperability, hampering investment in grid modernization, and constraining market growth. Competing standards actually create barriers to trade.

**LEVERAGING THE USNC**

Supporting the USNC and its mission means that the United States has a seat at the table to share its policy goals and technology issues with the global community through the IEC. In turn, we have the opportunity to assess the goals and issues of other nations and regions across the globe. This is policy and technology symbiosis at its best.

Though many nations share similar policy goals for energy, environmental, and economic development, their respective challenges and solutions are diverse. The benefit of the USNC’s role is that solutions in one nation or region may well represent a solution elsewhere.

For instance, China is developing standards for ultra-high-voltage transmission networks to enable it to deliver electricity from eastern generation sources to consumers in its western provinces. Clearly, improvements in the efficiency of long-distance transmission will be useful in many regions of the world, including the U.S.

In Mexico, public policy aims to increase the use of renewable energy and reduce carbon dioxide emissions by 50 percent by 2050. Thus, it is focusing on the adoption of the IEC Common Information Model (CIM) to further systems integration. Note that Mexico has several connections to the U.S. grid, with the ability to export electricity to the American Southwest.

South Korea’s goal of increasing energy efficiency and reducing CO₂ has led it to create a national interoperability standards framework and to the promotion of international standards activities to integrate its efforts globally. I have no doubt that South Korea’s leadership role in electronics innovation will benefit other nations in Asia and throughout the world.

On a practical level, the USNC is a key vehicle by which U.S. stakeholders learn of and benefit from these international developments in the standards arena.

**THE PAY-OFF FOR PARTICIPATION**

It has always been my contention that participation in standards development bodies and, by extension, in the USNC pays dividends for individuals, for the companies that sponsor their employees’ participation, for all stakeholders, and, indeed, for the industry in question.

For individuals, participation means actually shaping standards that influence technology R&D, which provides unparalleled insight into industry trends. Participants are exposed to broader perspectives across the global technology landscape. Participants will find that their circle of colleagues and contacts expands to encompass the world, and leadership opportunities often follow as a result.

Companies and CEOs that sponsor and support their employees’ involvement wield influence over standards development and get a bird’s-eye view of the direction technology is headed. These insights can inform internal R&D, product design work, and market strategies. The corollary is that vendors that do not participate risk approaching the market with blinders on.

Power utilities, as implementers of standards, have an obvious interest in participating in standards development and in the USNC. They can learn how their counterparts around the world are meeting challenges, understand current and future trends, and articulate effective technology roadmaps and related investments. By developing and harmonizing our collective standards efforts to achieve truly global standards, we advance the electric power industry for all, advance our collective goals, and greatly facilitate global trade.

It’s long past time to put to rest the old saw about “so many standards to choose from” and throw our full weight behind the USNC and its widely shared vision of globally harmonized standards. This will boost grid modernization around the world to achieve the common goals of robust trade, sustainable energy practices, and all the benefits they enable.
The Association of Home Appliance Manufacturers (AHAM) recently celebrated its 50th year providing the home appliance industry and consumers with leadership, advocacy, and a forum for action in public policy, standards, and business decisions. AHAM helps manufacturers bring safe, efficient, high-performing home appliances into the homes of consumers in the United States, Canada, and around the world.

AHAM represents manufacturers of a full spectrum of major, portable, and floor care appliances, as well as suppliers to these manufacturers. The results of AHAM’s work can be seen in major federal and state legislation and improved safety and energy efficiency standards for appliances. AHAM helps pave the way for growth and innovation in an industry with a $38 billion value in the United States and Canada.

**DOMESTIC & INTERNATIONAL LEADERSHIP**

As an ANSI-accredited standards developing organization (SDO), AHAM develops and maintains voluntary performance standards that are recognized by regulatory agencies, including the U.S. Department of Energy, and represents its members interests during the development of standards by other SDOs. AHAM standards are adopted voluntarily by its members in the public interest, to establish common understanding between manufacturers and consumers and to assist consumers in comparing appliances before purchase.

Advocating for U.S. requirements in international standards helps U.S. manufacturers gain access to worldwide markets for their products. AHAM engages extensively with other SDOs such as IEC, UL, CSA, and ASTM International; and serves on advisory committees to the U.S. government on standards and trade barriers.

AHAM also serves as the U.S. Technical Advisory Groups (TAG) Administrator, Secretary, or Technical Advisor to a number of U.S. TAGs to IEC Technical Committees and Subcommittees, and participates on a number of additional Working Groups, Maintenance Teams, and Project Teams. AHAM feels it is important to serve in these leadership roles to facilitate and bring to bear U.S. positions in the international standardization arena. AHAM believes that having a strong program of domestic performance and safety standards for appliances helps lay the foundation for taking positions regionally and internationally that are in the best interest of its membership. This approach allows for the development of world-class products that can be sold worldwide.

**BINATIONAL HARMONIZATION**

Canada is one of the U.S.’s largest trading partners, and having harmonized standards and regulations makes it easier for products to be certified for sale in both countries. AHAM has worked extensively with UL and CSA to develop harmonized safety standards for a number of white goods as well as floor care products. Harmonized standards are key for home appliances that are sold across North America.

Almost as important as the standards themselves is the process for developing them. To minimize non-tariff barriers to trade, standards processes should be open and transparent. Moreover, the faster a standard can be developed or amended, the sooner safer products can enter consumers’ homes. Thus, AHAM has worked extensively with both UL and CSA to refine and

(continued)
Steads & Trade – A Multi-prong Approach (continued)

improve the standards development process through the use of Kaizen events and other Lean tools to allow us to work collaboratively in an efficient and timely manner. Through this process, the binational standards harmonization process has been reduced by about six months. That reduction enables AHAM to publish needed safety improvements faster and allows manufacturers to plan and incorporate the changes into their products in a planned and timely manner. This, in turn, leads to a shorter time necessary to bring the improved products to market.

COOPERATION & OUTREACH
For the last 20 years, AHAM has participated in and supported the efforts by the Office of the U.S. Trade Representative (USTR) and the International Trade Administration of the Department of Commerce to reduce technical barriers to trade. AHAM has participated in the Industry Trade Advisory Committee (ITAC) system by having membership on ITAC Committee 16, a horizontal committee of many industries, to advise the U.S. Secretary of Commerce and the USTR on trade agreements.

AHAM’s previous vice president of technical operations and standards, Wayne Morris, chaired ITAC 16 for over 10 years and still serves as an advisor.

More than 100 advisors to the ITAC system of committees volunteer their time and knowledge to help ensure that government trade emissaries have the critical information on the types and the economic impact of these barriers to trade. The ITAC system gives these volunteers information on the emerging issues and partners with them to seek creative ways to solve barriers before they become major trade issues.

AHAM has been a strong supporter of and participant in the Regulatory Cooperation Council between the U.S. and Canada. Specifically, AHAM advocated for the addition of energy efficiency to the agenda (including test procedures) and works with both the U.S. and Canadian governments to ensure harmonization of minimum efficiency levels and test procedures. It is critical that these standards and test procedures are harmonized not just in substance, but also on compliance timelines so that manufacturers can deliver products in a North American market.

AHAM also supports and advocates for regulatory best practices in North America. Government agencies should provide notice of potential regulations and allow for stakeholder comment, including from other governments. Those comments should be open for the public to review. Decisions should be based on sound data and the regulatory decision-making process should be open and transparent. The same is true for the standards setting process. Similarly, procedures for accreditation of conformity assessment systems should be open to reduce non-tariff barriers to trade.
Participating in the Young Professionals (YP) Workshop at the IEC 81st General Meeting was an honor and an enriching experience. As a group, we came away energized to continue our work in standards development, with the new international connections we made with other YPs from around the world. We have an enhanced understanding of the standards creation process, including the role of national vs. industry interests. We each plan to take what we learned back to our respective work in standards.

THE WEEK’S HIGHLIGHTS
The workshop started with an evening welcome reception, where we had the opportunity to meet other YPs from many countries and from industries ranging from medical to consumer electronics to energy. We also had the honor of meeting the IEC Officers, who took the time to introduce themselves to the Young Professionals and share their experiences at the IEC and anecdotes from their careers.

The next night included informative sessions and panels about the IEC and its governing structure, as well as IEC’s plans for modernizing standards development and distribution. In the afternoon, we had observed a meeting of the Standards Management Board, as well as a Technical Committee meeting. The day concluded with the IEC Opening Ceremony, including welcome remarks from local governmental officials and the Russian National Committee, and a performance of Swan Lake by a Russian ballet company.

The second day of the YP workshop included one its key highlights: the mock Technical Committee (TC) exercise. The YPs were broken up into smaller groups of about 20 for a simulated meeting of a TC tasked with developing a standard for electronic baby robots (i.e., an educational toy). Within each group, 2 or 3 YPS represented the interests of various groups, including the baby robot manufacturers, a consumer safety advocacy group, researchers, and consumers. The goal was to work through prepared comments on the standard and find consensus on the changes that needed to be made for the forthcoming revision, providing us the chance to practice our negotiation skills and making the case for a particular technical stance or expert opinion as stakeholder representatives.

The second day concluded with an informal networking opportunity, during which we attended the Tri-National Delegation Meeting hosted by the U.S., Canada, and Mexico. We had the opportunity to meet senior members of the USNC, and after, at an informal gathering, hear about each member’s journey within the standards world. We absorbed their advice on participation in standards development and conformity assessment – the things they do not teach you in “school.” For example, we learned to never underestimate the importance of “coffee breaks” during committee meetings, which provide the opportunity for establishing compromises among key stakeholders who might otherwise be at an impasse.

LOOKING AHEAD
The overall experience of the IEC’s Young Professionals Program was one filled with great opportunities and an abundance of information. However, there is always room for improvement, and to continue the success of this program, we would like to share a couple of
recommendations for the program to consider as it continues to develop:

- Full-week attendance and additional informal social events, which might provide an even richer experience of the IEC general assembly and YP workshop. This would allow for additional time to more fully establish relationships with other YPs from around the world, as well as to network with other IEC members within each YP’s industry.

- Connecting YPs to professionals from their technical areas of expertise, such as mentors, and also helping link them with appropriate TC meetings.

- Topic-based, practical workshop(s) on one or more of the following topics: negotiation strategies, including strategies for achieving consensus; project management strategies, including best practices for creating drafts and working with panels of busy experts; best practices for writing standards, such as regarding the use of language and level of detail that is appropriate for standards and also lends itself to clarity in conformity assessment; and international standards, such as best practices for converting national/regional standards to international standards, and the development of international standards in a complex geopolitical arena.

- In particular, a workshop titled “Geopolitics and the IEC” could perhaps expose the YPs to key international trends and their impact on standards development, perhaps to include a panel with representatives of various regions, discussing key regional trends in policy and industry and their effects on standards development and distribution.

Finally, we would like to thank the USNC and the IEC Central Office staff for their support of our attendance at the IEC Young Professionals Program, as well as their follow-up and outreach regarding opportunities for involvement within the USNC and IEC. We look forward to increasing our involvement within the IEC and US National Committee and encouraging our young and emerging professional colleagues to do the same.

ABOUT THE 2017 U.S. YPS
Limor Hochberg is a senior human factors specialist at UL-Wiklund, where she manages and conducts user research and usability tests for medical devices and software applications. She is currently leading the development of upcoming AAMI guidance on health IT usability, based on a government publication she co-authored for the National Institute of Standards and Technology ("Technical Basis for User Interface Design of Health IT"), and participates in several expert panels on electronic health record usability.

Luiza Kowalczyk is as senior manager, DICOM operations, at the Medical Imaging & Technology Alliance (MITA), a division of NEMA. Her specific responsibilities are related to MITA’s position as the Secretariat for Digital Imaging and Communications in Medicine (DICOM), which is the international standard for medical images and related information.

Walter Zoller, project leader, global product standards and regulations, Rockwell Automation, focuses on strategic alignment of standards and regulatory initiatives within the organization. He is responsible for monitoring domestic and international technical standards and regulations; reviewing domestic and international environmental, process, and trade regulations for impact to product distribution; and engaging embedded personnel to establish compliance strategies for internal business units as well as enterprise-wide initiatives. He currently serves as the USNC representative and Assistant Secretary to IEC SC 65B, Measurement and control devices, and as Secretary to ISO TC 184, SC 5, Interoperability, integration, and architectures for enterprise systems and automation applications.

THE 2017 YOUNG PROFESSIONALS COHORT.
USNC Young Professionals Webinar Just Announced for April 4 – Register Now and Spread the Word!
An Introduction to the USNC and IEC: A Call to Action for Young Professionals

This free webinar is a great introduction to the work of the USNC and IEC for young and emerging professionals in the field of electrotechnology. The 1.5-hour presentation and discussion will highlight the positive benefits of USNC participation to both young professionals and their employers. We will discuss the many ways to become involved in the USNC and the endless opportunities that await to help shape the future of international standardization and conformity assessment in electrotechnology.

USNC/IEC Young Professionals are hand-picked by the USNC to represent the U.S. as future leaders on the IEC global platform. Coming from businesses or companies that are already using or benefiting from the IEC’s International Standards or its conformity assessment systems, they can only gain from being directly involved in the IEC world. Please join us on Wednesday, April 4, 2018, from 1:00 to 2:30 p.m. (EDT).

Click here to register. Registration deadline is March 30.

Registration is now open for the U.S.-German Standards Panel 2018 on April 10-11 in Washington, DC. Co-hosted by ANSI, the German Institute for Standardization (DIN), and the German Commission for Electrical, Electronic & Information Technologies of DIN and VDE (DKE), the standards panel event will be focused on securing future technologies, cybersecurity, and other challenges and solutions for smart manufacturing, mobility, and agriculture. The two-day event will take place at FHI 360 Conference Center (1825 Connecticut Ave NW, Washington, DC).

The April 10 session will run from 9:00 a.m. to 6:00 p.m., and the April 11 session will run from 8:30 a.m. to 12:00 p.m. Panel discussions will focus on issues related to cybersecurity and privacy, blockchain and distributed ledger technologies, and smart contracts as related to these three key topic areas: Smart Manufacturing, Smart Mobility, and Smart Agriculture

Interested stakeholders are encouraged to register online by COB March 21, 2018. A working DRAFT agenda is available on ANSI’s Sharepoint for reference with more information. Register here.
The USNC Council may, from time to time, grant Honorary Life Memberships to individuals in recognition of loyal and valuable service to the USNC and the fields of standards development and conformity assessment. And now the USNC is pleased to announce that it has granted Honorary Life Membership to Donald Heirman.

Mr. Heirman, president of Don Heirman Consultants, is an internationally known expert in electromagnetic compatibility (EMC) and an esteemed leader in the electrotechnical sector. He is a dedicated member of the USNC and the USNC’s Technical Management Committee. He is a strong advocate for the next generation of electrotechnical standardization leaders, effectively reaching out to IEC young professionals with interest in EMC, teaching relevant coursework at Purdue University, and presenting regularly on the importance of active participation in standardization. In October 2007 he was named chair of the IEC International Special Committee on Radio Interference (CISPR), and also serves as chair of the IEC’s Advisory Committee on EMC (ACEC). And in November 2008 he was presented with the prestigious Lord Kelvin Award for exceptional contributions to IEC standardization activities. Beyond his extensive IEC work, Mr. Heirman is immediate past chairman of ANSI ASC C63 and chairman of the C63.4 working group, and is chair or a principal technical contributor to numerous EMC standards committees within IEEE. He is a lifetime Fellow of IEEE, and has previously served as president of the IEEE Standards Association (SA), member of the SA Board of Governors, and member of IEEE’s Board of Directors and Executive Committee.

A voting member of the U.S. Smart Grid Interoperability Panel (SGIP) and its Testing and Certification Committee, Mr. Heirman also chairs the SGIP Electromagnetic Interoperability Issues Working Group. And he serves as the consultant on smart grid matters for the conformity assessment section of the American Council of Independent Laboratories. In 2017 he received ANSI’s Elihu Thomson Electrotechnology Medal, which honors an individual who has contributed in an exceptional, dedicated way to the field of electrotechnology standardization, conformity assessment, and related activities at the national and international levels.
IEC Launches IEC Academy for Easy Access to Webinars, Training, Workshops

The IEC recently launched the IEC Academy website to provide easy access to high-quality training and make it more frequent, predictable, and convenient for the entire IEC community. The site offers a library of reference materials as well as extensive e-learning resources and webinars. Upcoming webinar topics include Conformity Assessment, Best Practices for Working Group Convenors and Project Leaders, and IEC Systems Committees and Technical Committees.

The USNC encourages all of our constituents to visit the IEC Academy website at www.iec.ch/academy.

DECISION DEPOT

This quarterly column provides access to recent decisions regarding IEC and USNC policies and procedures that directly affect our members. Click the links below to access the recent decisions.

- SMB DECISION LIST SMB/6250/DL
- CAB DECISION LIST CAB/1699A/DL
- IEC COUNCIL DECISION LIST C/2065/DL

DOCUMENTS OF INTEREST

Stay up on the latest policies, documents, and other resources from the USNC, IEC, ANSI, and other partners in the standards and conformity assessment community.

- XML conversion at the IEC – The story so far
- SMB Newsletter – December 2017
- IEC White Paper – Edge intelligence
- IEC Blog – LVDC projects pave the way for standardization
- IEC Blog – New and refurbished hydropower projects require extensive testing
- IEC e-tech – The future’s intelligent
Thank You to the Organizations Already on Board as IEC 2022 Sponsors

For only the seventh time since 1904, the United States is gearing up to host the IEC General Meeting, 31 October – 4 November, 2022, in San Francisco. Organizations with a stake in all areas of electrotechnology are invited to demonstrate their commitment to international standardization and conformity assessment through sponsorship of the ten-day event.

For more information, see the [IEC 2022 Sponsorship Brochure](#) or contact Kendall Szulewski-Francis at ksfrancis@ansi.org or 212-642-4965.
Mark Your Calendar for Upcoming Meetings & Events

2018

16 – 20 April
COPANT Meetings
Montego Bay, Jamaica

1 – 3 May
CAPCC/TMC/Council
Dell: Round Rock, TX

15 – 17 May
PASC/APCF Meetings
Okayama City, Japan

10 – 11 June
CAG, CAB Meetings
Geneva, Switzerland

11 – 12 June
CAG, SMB Meetings
Geneva, Switzerland

13 June
IEC Council Board
Geneva, Switzerland

Week of 10 September
CAPCC/TMC/Council
TIA: Arlington, VA

12 September
Industry Event: Standards and the Protection of Critical Infrastructure
Washington, DC

September/October
FINCA Meetings
Mexico City, Mexico

22 – 26 October
82nd IEC General Meeting

22 October: SMB, CAB
24 October: CB
26 October: Council
Busan, Republic of Korea

2022

31 October – 4 November
86th IEC General Meeting
San Francisco, CA, USA

Hosted by the USNC!

For additional event info, visit www.ansi.org/calendar and search for “USNC” or “IEC”

UPCOMING 2018 ISSUES OF THE USNC CURRENT

Q I IEC Communications and Cultivating International Relationships
Q II Cybersecurity
Q III Stakeholder Involvement
Q IV Regional Partnerships (FINCA, COPANT, APCF, PASC, etc.)