



Agenda Item 15.3:

Updates by other organisations in liaison

Agenda Item 15.3h:

Update from the IEC

IEC activity report 2021 for OIML



IEC in the digital age

Benjamin Franklin once said “By failing to prepare, you prepare to fail”. Preparing of course means planning for the future. It also means building sufficient agility into structures and processes to be able to seize new opportunities and to quickly adapt to new situations and conditions.

At the IEC we rely on accurate understanding of the drivers of change to build future scenarios. How will technological innovation, regulatory changes or changes in our business model affect us?

We always try to be prepared for the unforeseeable, but nobody anticipated the Coronavirus pandemic. However, so far, our overall preparedness has allowed us to navigate the pandemic surprisingly well.

The IEC is a member-led and multi-layered organization, driven by a global community of experts with diverse backgrounds and interacting with an increasingly broad range of stakeholders in developing and developed countries. All of this is integral to our DNA.

Our stakeholders, which include industry, governments and regulators, international and regional organizations, and academia, provide us with a unique and broad mix of perspectives, insights and expertise that keeps our work relevant and our impact global.

COVID-19 update

The impact of COVID-19 on IEC business continuity and financial operations has been closely monitored and managed since March 2020 when the WHO declared a global pandemic. Overall, the IEC did very well. It exceeded financial expectations for both standards and the Conformity Assessment (CA) Systems and stayed on track in terms of standards publications and CA services.

Both the IEC Central Office Standards Department and the IEC CA Systems put in place mechanisms early on to deal with the sudden travel restrictions and conversion to virtual meetings. The Standardization Division regularly communicated with experts, supported them to maintain schedules by moving to online meetings and by enabling Technical Committee (TC)/Subcommittee (SC) Chairs to hold online plenary meetings. A broad survey showed that most experts were able to cope quite well with the pandemic.

The CA Systems adopted measures as necessary to enable virtual peer assessments with regard to qualification and re-qualification of certification bodies and testing laboratories. They also provided the necessary support to allow certification bodies to continue to issue certificates and maintain surveillance requirements.

Overall, the IEC as a community showed a high level of resilience and flexibility during this unprecedented year, which demonstrates the strong sense of togetherness in our Association.

With this spirit, we also decided to provide free access to some IEC publications to help countries tackle COVID-19, for example by enabling increased production of critical care ventilators. The IEC did so in tandem with ISO.

Although devised as a response to very demanding circumstances, in many ways the business continuity plan has driven us forward. Much of what we experienced and learned since the beginning of 2020 will affect how we work in the future. Our mindsets have evolved, and we have been able to develop a stronger, more digital culture.

Digital transformation

Digitalization is a key driver for the convergence of technologies and a necessary enabler for the integration and interoperability of information and communication technologies. Standards and related conformity assessment services are becoming even more critical elements to build up and secure interoperable and cost-effective solutions and systems across a broad range of application domains.

The IEC is embracing digitalization both in terms of the products we develop and the way in which they are created. International standards are developed through global cooperation and consensus building. This takes time and involves many people from industry, academia and governments from around the world. To make this process more efficient, we are currently implementing new tools and agile processes including, for example, online authoring. This harmonized platform, developed as a joint project with ISO, will allow several authors from different places to collaborate on the same document. Rather than focussing on formatting, they will be able to focus on content, producing semantically rich and structured standards.

On the operational front, we have set up a new technical committee – TC 129 – to develop standards on robotics for electricity generation, transmission and distribution systems. In addition, the TC will provide standards for edge computing, as well as for the analysis of the data acquired by these robots.

A new standardization evaluation group (SEG), SEG 12, is developing a roadmap for standardization in the area of bio-digital convergence.

SMART standards

In the future, standards will become fully customizable and readable by machines as well as humans. The IEC SMART Standard Concept was developed to advance the digitalization of the IEC, its processes and its deliverables. The concept aims at applying existing service architecture methodologies to standardization and conformity assessment, with the ultimate goal of making the IEC a truly digital and future-proof organization. It also paves the way for the IEC to provide Standards as a Service (SaaS) that will not only be machine readable, but also machine interpretable and updatable. The role of artificial intelligence and related data mining techniques in supporting the processing of standards by machines will be key to this evolution. A new Council Board Task Force with an open-ended timeframe has begun its activities in Q3 2021. One of its very first activities is to produce a roadmap of IEC SMART deliverables to be developed over the coming years.

This requires a holistic approach including commercial and legal considerations. We are dealing with a very fundamental and transformational challenge that is at the core of our future as an organization. It requires the commitment of all and partnerships with other organisations, notably ISO.

Cooperation

In electrotechnology, the speed of innovation has accelerated to a point where no individual company or organization can develop everything alone. And while companies are fiercely competitive, they must now collaborate more than ever to deliver the broad solutions for increasingly complex systems.

What's true for industry is also true for standardization: IEC, ISO and ITU closely cooperate to avoid contradictions in standards and ensure compatibility between different standards whenever possible, including in new technology areas.

While collaboration between IEC and ISO has been effective for a very long time given that we have in common many members and most of our Directives, we have also taken several initiatives to increase the cooperation with ITU. We have put in place cross-cutting joint initiatives such as the World Standards Cooperation (WSC), the Strategic Programme Coordination Group (SPCG), the Climate Change Coordinating Committee (CCCC) and the Smart City Strategic Task Force, to name just a few. We are also a founding member of OCEANIS, which was initiated by IEEE and which explores AI ethics.

AI

Artificial intelligence has been another important focus of our work this year, with SEG 10 concluding its work on ethical aspects and eight new standards published by SC 42, in the joint IEC and ISO technical committee. Another 23 AI-related standards are under development. We are also producing an international workshop with the Swiss Department of Foreign Affairs as we continue to explore opportunities for strengthening the dialogue between regulators and experts in standardization and conformity assessment. This is vital to make certain that we continue to address the needs and concerns of society and is to be followed by a high-level conference in Geneva next year.

Wider adoption of AI technologies and systems will depend to a large extent on effective risk management. In fact, finding appropriate approaches to the governance of AI poses some of the more fundamental questions of our era. Involving IEC in the elaboration of the right answers goes to the core of our mission.

We have set up the joint technical committee JTC 1/SC 42 with ISO to look at the entire AI ecosystem. The resulting ISO/IEC Standards provide guidelines on managing risk faced by organizations during the development and application of AI techniques and systems. They are already assisting organizations in integrating risk management for AI into significant activities and functions, as well as describing processes for effective implementation.

We have achieved a lot over the past 12 months, but we cannot afford to rest on our laurels. Digital technologies are continuing to transform the worlds of work and leisure.

Internet of things

We live in a society that is permanently connected, where at any moment we can send and receive text, audio and video messages and where encounters, including business meetings, can happen virtually. In manufacturing and the electrical grid, sensors and monitors connected to the Internet of Things gather, analyze and communicate data with other devices to improve output, quality and consistency.

IoT is fast becoming the intelligence of everything as it is combined with AI to transform data into knowledge. The technology is impacting a huge number of sectors, and not only with the devices we use in our cities and homes, but also the transmission and distribution of electricity. To meet the needs for standards in this area, we have set up jointly with ISO, JTC 1/SC 41 on Internet of Things and Digital Twin.

Smart Manufacturing

Smart Manufacturing is one of the IOT applications, or more specifically IIOT, the Industrial Internet of Things. Given the wide array of subjects relating to Smart Manufacturing we have created a System Committee on Smart Manufacturing. It is currently developing a Smart Manufacturing Standards Map catalogue, which will enable the mapping and linking of standards related to the various aspects of smart manufacturing.

Cyber Security

Cyber security is often associated with IT and often led by IT with a focus to protect data flow in the virtual world.

However, critical infrastructure and the automated environment in factories or refineries have security requirements that are part of the real world. They rely on operational technologies (OT) to ensure the correct execution of automated actions. When these technologies fail, they impact the lives of people and integrity of the environment.

To mitigate against cyber attacks and system failures, IEC publishes standards which enable an industrial automation and control system security programme. It is dedicated to the operational technologies found in industrial and critical infrastructure, such as power utilities, water management systems, healthcare and transport systems.

Governance review

The IEC is also preparing for the future by updating its own governance system; this has been a major undertaking in 2020 and 2021 on which our Members have approved during this year's IEC General Meeting. The new Statutes and Rules of Procedure are designed to allow the IEC to provide members with access to accurate, timely data and information, as well as to provide for more transparency on who makes decisions and allow a clearer view on accountability and interaction between governing bodies, advisory bodies and NCs. The aim is to increase efficiency and to improve how we meet members' needs and requirements of the future and make us become more diverse and inclusive.

Future IEC strategy:

As we are ending the third year of the implementation of the current IEC Masterplan, we are in the midst of the preparations for the future IEC Strategy. The Strategic Plan Task Force (SPTF) under the leadership of our Treasurer, Jo Cops, is aiming at a strategy that looks at the shorter- and longer-term outlook for IEC. One that can constantly evolve to fit our needs for many years to come. This is of crucial importance to ensure the future relevance of the IEC. The task force has the ambitious goal of finalizing the new strategy by the end of the year and has consulted and involved all IEC Members and leading entities on the way.

Addressing societal concerns

Long before the SDGs were published by the UN in 2015, IEC work in standardization and conformity assessment has been providing the foundation that allows countries to put in place sustainable, resilient infrastructures and apply global best practices to manage quality and risk. IEC work already impacts targets and indicators of all 17 SDGs.

However, since our work is highly technical, many of the stakeholders who discuss SDGs remain unaware of how the IEC contributes. To make these contributions more visible to the outside world, we have put in place a special Council Board Task Force under the leadership of Vimal Mahendru from India, who is also the IEC Ambassador for SDGs.

As an additional step, we asked the IEC Technical Committees to indicate which standards impact which SDGs. This information has been added to the zone dedicated to SDGs on the IEC website.

Next, we will focus on SDGs where the IEC already does much relevant work. However, rather than providing a list of standards, we plan to identify practical use cases and identify all “ingredients” needed to realize them. The idea is to prepare a kind of “cake mix” that comes with clear instructions, allowing users to achieve consistent, measurable outcomes. It will make IEC’s contributions to the attainment of the SDGs more targeted and deliberate.

Expanding our global reach

Overall, IEC’s role in and contribution to global governance is underestimated. IEC work is benefitting a growing number of stakeholders. With de-carbonization and the emerging all-electric society, the IEC is in a unique spot to raise its profile through its high-quality work, but also by communicating its contributions effectively.

To increase IEC awareness and involvement by developing countries, we created the Affiliate Country Programme in 2001 and are delighted to celebrate its 20th anniversary this year. The programme enables developing countries to participate in IEC work and the IEC Conformity Assessment Systems without the financial burden of membership. Over the years, it has helped numerous countries to increase the quality of their infrastructure. They have gained the necessary technical expertise to participate in international standardization work, as well as a deeper understanding of conformity assessment and the capacity to apply testing and certification.

Inclusivity is the cornerstone of the Affiliate Country Programme. The countries participating in the programme gain access to IEC International Standards and other publications. They learn how to set up a national electrotechnical committee and benefit from mentoring. They can contribute to IEC work and participate in the annual IEC General Meeting and Affiliate Forum. This is building for the future. Their insights, experience and knowledge will help ensure that the standards of tomorrow stay relevant.

Staying relevant means transforming digitally and that means developing smart standards and conformity assessment services. The future of the IEC is where the future needs of society and the economy will be.