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Editorial

This SMB Newsletter brings together a number of items which may be of interest to the standardization community in IEC. We start off with articles from two of the Advisory Committees; that from ACEE describes IEC activities on Energy Efficiency, whilst that from ACEA presents the Circular Economy in IEC work.

The article from Guilaine Fournet, Head of Sales and Business Development in IEC, presents the IEC sales department and how it has evolved over the years.

Jim Matthews, DMT Convenor, highlights the main changes in this year’s edition of the ISO/IEC Directives, and Richard Schomberg presents the history of one of IEC’s first Systems Committees, on Smart Energy.
We then have a guest contribution from the ETSI Director-General, Luis Romero, relating to the revised MoU between IEC and ETSI.

Antoinette Price, IEC Communications Officer, writes about the 22nd Global Standards Collaboration meeting that was held in Montreux, Switzerland on 26-27 March, hosted by IEC and ISO.

Finally a few farewell words from Jack Sheldon, who will be leaving IEC at the end of May, after a little over 36 years at Central Office.

As always, your feedback and comments are welcome.

Ralph Sporer, SMB Chair

ACEE, Advisory Committee on Energy Efficiency

IEC launched strategic activities in energy efficiency in 2007 to respond to the general concern for sustainable development. The objective was to launch a group that could stimulate, guide and coordinate the energy efficiency activities in all IEC TCs.

Created in 2013, ACEE coordinates IEC activities related to energy efficiency and is responsible for the assignment of horizontal energy efficiency aspects and requirements.

ACEE deals with energy efficiency matters which are not specific to one single technical committee of the IEC and provides guidance for implementation in a general perspective and for specific sectors. As Energy efficiency cannot be considered only at the product level, but also for an application or a system, ACEE encourages a systems perspective for the development of standards for energy efficiency and provides support for system considerations.

Energy efficiency is key to addressing the challenge to support energy policies while preserving the environment. Many energy efficient technologies and solutions are already available and cost-effective; nevertheless, a variety of barriers inhibits the deployment of these technologies and impedes harvesting their energy efficiency potential. Standardization can play an important role to help overcome these barriers and to disseminate and promote energy efficient technologies, solutions and services.

IEC Guides 118 and 119 were published in 2017. These guides aim is to give advice to technical committees.

- **IEC Guide 118 Edition 1, Inclusion of energy efficiency aspects in electrotechnical publications.**
  This Guide is intended for technical committees and gives guidance on how to consider energy efficiency aspects when preparing IEC publications.
  Its purpose is:
  - to describe the contributions of IEC publications on energy efficiency;
  - to describe the concept of an energy efficiency aspect; and
  - to provide categories and a list of energy efficiency aspects to be considered by technical committees.
  This Guide promotes the use of a structured and systematic approach when addressing energy efficiency in the context of standardization.

- **IEC Guide 119 Edition 1, Preparation of energy efficiency publications and the use of basic energy efficiency publications and group energy efficiency publications.**
  This Guide defines procedures for the preparation of energy efficiency publications and describes the relationship between Technical Committees with group energy efficiency functions

All IEC TC/SCs are warmly invited to download and make use of these two Guides when addressing any Energy Efficiency considerations. ACEE experts are available for any additional information, presentations. 
Link to the Guides on the IEC website.
The two concepts Boundary definition and System approach.

**Boundary definition**
It should be defined in terms of intended use (relevant applications), energy inputs, outputs, driving parameters other than internal process parameters, Key performance indicator (KPI) related to EE, interactions between components of the system, possible interactions with other systems. Boundaries can include a device, a product or a system depending on the application considered.

**System approach**
The energy efficiency of a complex system needs to be analysed using a system approach instead by seeking to optimize the performances of each single component. This means that it is advisable to consider wider boundary descriptions including several services and components to achieve further improvements. In these cases, several TCs will need to collaborate to sufficiently deal with the product (including systems, processes) under consideration.

**ACEE Technical article and Case Study were published in 2018.**
To provide some support & illustrations to IEC members, ACEE has recently published one technical article on “Introduction to Energy Efficiency”, and one case study on “Energy Efficiency on Motors”. Any IEC member can download them from the ACEE webpage at [www.iec.ch/acee](http://www.iec.ch/acee).

**ACEE first Group Energy Efficiency publication was published early 2019.**
Prepared by IEC TC 64 experts, IEC 60364-8-1:2019, *Low-voltage electrical installations - Part 8-1: Functional aspects - Energy efficiency is the first Group EE publication of IEC.*

> ACEE members

To learn more about ACEE and for any future participation or contribution, please contact our ACEE Officers and experts and visit our webpage at [www.iec.ch/acee](http://www.iec.ch/acee).

**Luc Boutin**, ACEE Chair, and **Philippe Vollet**, ACEE member
Are you preparing for a circular economy?

Even before the founding of the IEC in 1906, and certainly since then, the world has seen massive advances in science and technology. Every member of an IEC Committee will be aware of the part that their specialty has played in the development of these technologies and the products created using them. In every field - from medical equipment to domestic appliances, electronics, nanomaterials and beyond – what was unthinkable at the founding of the IEC is now common place.

Much of this technological progress was made by harnessing materials laid down millions of years ago. As a society, we use the Earth’s natural resources not only to provide the energy to make products work, but also to extract and create the very materials from which these products are constructed, such as metals and plastics.

The creation of ever-more technologically advanced products has also driven economic progress and provided many people with employment, both directly and indirectly. However, these advances have depleted our finite natural assets. Can we continue this way for another 100 or more years? Is this approach both environmentally and economically sustainable?

The existence of climate change is now considered a fact by the vast majority of scientists, and is primarily attributed to the burning of fossil fuels to provide energy. Some materials previously considered harmless, such as CFCs, were later found to damage the ozone layer. Recently, there has been concern regarding plastics in the environment. Hence, it is now recognized that the technological progress has been achieved at the cost of damage to the Earth we live on.

In order to mitigate this planetary damage, while not discarding the technological benefits, the idea of a circular economy is becoming increasingly embraced in various parts of the world. At its heart, a circular economy takes a regenerative approach by reducing the quantity of materials used (i.e. using less materials and increasing use of recycled content), extending the use stage of products (via improved durability, repair, refurbishing and remanufacturing), reducing the energy required to provide the desired functionality, and minimizing waste at the end of life of products (i.e. capturing components capable of being reused, increasing the recycling of materials and thereby reducing the quantity of materials sent to landfill). The circular economy requires focused technological progress coupled with appropriate economic and regulatory models.

Whether, and to what extent, the circular economy is embraced globally will have an influence on how products are created in the future and on the work and leisure activities of our children and our children's children. As the circular economy is focused on improving material efficiency, IEC standards need to evolve from considering a single use stage to multiple use stages of both complete products as well as their constituent parts, i.e. in the future products are likely to contain significant amounts of recycled materials and reused parts. Is this a challenge that IEC and you are up to?

ACEA, the Advisory Committee on Environmental Aspects, is investigating the possibility of organizing a workshop “Circular Economy and Material Efficiency initiatives and their consequences for standards” in conjunction with the next IEC general meeting in Shanghai, and a webinar. Also, in the next revision of IEC Guide 109, ACEA will provide information and guidance to the IEC standards developers how to embed material efficiency and circular economy in their standards.

Solange Blaszkowski, ACEA Chair
People behind numbers – Introducing the IEC Central Office Sales Department

IEC Publications are distributed through various channels. One of them is the IEC Central Office (CO).

A truly international team
The CO sales team is based in Geneva and is truly international. The seven staff members come from Austria, Belgium, France, Italy, Peru, and Switzerland. They cumulate a total of 111 years of experience. Their main responsibilities cover front and back office activities such as helping customers find the publications they need, quotation requests, invoicing, after-sales issues, accounting, payment allocation, monthly balance and statistics.

Core activities
Internally, the team collaborates closely with all the CO departments, in particular with finance, publishing and technical. Externally, they are in contact with the National Committees, Affiliate Country Programme participants and resellers. They manage agreements and access rights to IEC publications. The files can be used to cover different purposes: reproduction and sales, national adoptions, and internal use.

National Committees distributing IEC Standards send quarterly royalties reports. Once the reports are checked, the CO sales team issues an invoice to the relevant National Committee. One of the benefits of the Affiliate Country Programme is that participants can receive free publications for internal use. The sales team processes those special orders.

From paper to electronic files
In the late 60s more than 10 million pages were printed annually. Nowadays fewer than 338 000 pages are printed each year. Last year it amounted to less than 4% of the orders. The big shift occurred back in 1996 when IEC CO started to use Adobe PDF® as their electronic distribution format and two years later put in place a print-on-demand system.

The first IEC Webstore opened in February 1999. It has now become the main source of revenue for IEC CO direct sales. Last year it broke its record with a total of CHF 4,78 million.

New functions are introduced on a regular basis always with the same goal in mind: increase user friendliness. The latest improvements allow customers to check the status of previously purchased publications.

In 2018, the best year ever, 13 446 invoices were issued for a total gross sales of CHF 6,45 million.
Many years of customer service
Permanent contact with customers allows the team to collect end users’ needs and requirements. All emails sent to info@iec.ch, inmail@iec.ch, and sales@iec.ch are processed by the team. Each year they reply to around 14 000 emails.

> The IEC CO sales department in 1967

...and today
Valérie Pesse, Kartheinz Ulmer, Guilaine Fournet, Séverine Dalmaz, Stéphanie Tissières Tiano, Marcela Gomez and Hélène Horta.

Technologies continue to evolve but one thing will always remain: a team spirit. The sales department serves the whole standardization community and strives to offer the best quality.

Guilaine Fournet, Head of Sales and Business Development

Highlights of the 2019 ISO/IEC Directives

As we approach spring in the northern latitudes and autumn in the southern ones, it is a global time of change. This includes the release of new versions of the ISO/IEC directives and the IEC Supplement in May of each year. The IEC DMT and the ISO/IEC JDMT work to prepare updates, but only as needed. This year, the Part 2 of the Directives is unchanged, so the current version (Part 2 / Edition 8 – 2018) remains in force.

Updated versions of the ISO / IEC Directives Part 1 (Edition 15: 2019) and the IEC Supplement (Edition 13: 2019) are now released and in force. Since last year, there is an integrated (Part 1 + IEC supplement) document which makes reading the directives in a single volume much easier. Requirements common to ISO and IEC are in plain text, and requirements unique to IEC are highlighted in blue.

A list of changes from the previous editions is included in each document, and redlined versions highlighting specifics will also be available for open download.

All changes to the Directives are decided by the SMB based on inputs, questions of principle, ad-hocs and their policy discussions. The DMT works to take the SMB decisions made and implement them into draft language, then submit text for SMB approval. Once approved there is an editing process for the next edition throughout the year, which is reviewed and once checked, prepared for release each May.

In general, the DMT, along with our ISO counterparts, are trying to discuss and reconcile differences between the primary Directives and the IEC, ISO and JTC 1 Supplements. Where possible, we have worked to narrow differences, align terminology, and reach agreement to move items into the Shared Directives, shrinking the unique items in the supplements.
An overview of the changes for Part 1 and IEC Supplement Edition 15:

- **Advisory Groups**: clarification of some of the requirements around composition, setting up and disbanding advisory groups (Part 1: 1.13.2, 1.13.6)
- **Standardization Evaluation Groups (SEGs)**: Added language to describe the role and activities of SEGs (Supplement: 1.2.10)
- **Comments on FDIS With Positive Vote**:  
  - Add language to implement the SMB Decision allowing comments with a positive FDIS vote, and requiring them to be non-actionable, to be used for future revisions. (Supplement: 2.7.2)
- **Liaisons**:  
  - Clarification of procedure for establishing Category A and Category B Liaisons to be sure that the process and requirements are clear (Part 1: 1.17.2.1)
  - Change the references to Delegates and Observers to more clearly and consistently refer specifically to “Liaison Representative” (Part 1: B.4.2.2)
- **Technical Specification (TS)**:  
  - Added language to make it clear that TS may have normative elements. (Part 1: 3.1.1)
  - Removed the clause allowing TS to be a “failed FDIS” as a fallback. If a project fails at FDIS, it now must be relaunched as a new project. (Former Part 1: 3.1.1.2)
- **Publicly Available Specification (PAS)**:  
  - Clarify who can submit a proposal for a PAS, to reflect the broader range of possibilities that exist in current practice (Part 1: 3.2.2)
  - Implement the SMB decision that set the lifetime of a PAS to a two year period, with one possible additional two year extension (no more than four years total). Previously it was a three year period, renewable once. (Part 1: 3.2.4)
- **Management Standards**:  
  - Historically, Management System Standards have existed primarily in ISO, but in principle, could be developed in IEC. Two annexes, previously in the ISO Supplement, are moved to the Part 1 Directives and seen as applying to IEC, when a committee wished to develop such a deliverable. The ability of producing MSS standards in IEC is purely voluntary, and no current types of IEC standards are changed or converted by the addition of these two Annexes. (Part 1: New Annexes L & M)
- **Terminology work**:  
  - TC 1 continues to refine and update the process for terminology work. The SMB approved changes to Supplement; Annex SK based upon their recommendations.
- **Editorial and clarifications to current text**:  
  - Update language in the Foreword concerning Consensus, to better align with Part 1: 2.5.6. (Part 1: Foreword, Clause B)
  - Align proper citation in Directives Part 2: (Part 1: Annex D.2j, Annex E3; Supplement Annex SD)
  - Clarify intent regarding non-registered experts, changing “may not” to “shall not” (Part 1: 1.12.2)
  - Clarify process for change of National Body committee memberships (Part 1: 1.7.3)
  - Clarify language for draft agendas and committee drafts circulated prior to a meeting. (Part1: E.5.1)
  - Consistently change timing for voting periods from months to weeks (Supplement: Annex SB)

Overall, there are fewer changes in this year’s edition of Part 1 and the Supplement compared to last year, and Part 2 remains unchanged. Looking forward, there are editorial changes being already collected for Part 2, so an updated edition is likely for 2020. It is almost a certainty that there will be a new edition of the IEC Supplement with information coming from SMB work around the IEC Systems work, and as ISO and IEC have more discussions, slimming the annexes could drive a new version of Part 1 as well.

As the DMT, we welcome your comments and suggestions on how to make the Directives clearer and become more understandable. Any specific suggestions should be sent to the DMT Secretary, Pierre Sebellin.

*Jim Matthews, DMT Convenor*
Systems Committee Smart Energy to support TCs driving their evolution for the benefit of the industry

Working together in a connected world

Increasingly, industry projects need to apply a combination of standards, in order for products and systems to run smoothly. The technology must be interoperable at different levels and between diverse domains, while remaining secure and safe. This can be complex when standards developed by different standards development organizations (SDOs), and even different groups within a given SDO have varied semantic models and reference architectures.

IEC Systems Committee Smart Energy (SyC SE) aims to provide industry with a consistent, thorough and easy to use portfolio of Standards, while supporting the Technical Committees which are the ones actually developing the Standards. IEC SyC Smart Energy (SyC SE) began in 2009 as a strategic group. It has since evolved into a Systems Committee with six task groups covering generic smart grid requirements, roadmap, standards development plan, methodology and tools, TCs forum and more. Drawing on almost a decade of experience, the SyC SE has developed a new operational model based on a series of workshops with ten TCs that are most relevant to smart energy.

A new approach

Moving with the times, the operational model considers the fact that systems are constantly evolving and require continuous feedback and input to be able to adapt to the latest market requirements.

Additionally, many TCs have increasing liaisons with other TCs and SDOs as they work on multiple projects, and they can be involved with several SyCs. Consequently, SyCs would greatly benefit from using similar or a common business model.

... which adds value

The added value of the operational model will be achieved with a new approach to the Standards development process itself and include:

- A combination of use cases analysis and mapping (top-down) with resolving inconsistencies identified by TCs, industry or SyC members (bottom-up). The SyC provides a constant framework of processes, methods, tools and use cases collection, analysis and mapping to produce roadmaps and development plans with associated TCs.

- Closing loops, meaning ensuring a control and reaction by relevant groups whenever their activities or deliverables are implied in systems work. Forums organized on a regular basis getting together at the same place and time representatives of the relevant groups on targeted systems situations is the way forward. Forums for IEC TC/SCs make it possible to "close loops" inside IEC, while other types of Forum will "close loops" externally to IEC such as with Standards users, regional regulatory and other organizations, as well as SDOs for telecommunication and internet players.

- Additional feedback mechanism allowing a new type of registered members (TC/SCs and also some non-IEC members) to provide comments during the validation process of SyC deliverables.

Find out more about SyC Smart Energy at the following link on the IEC website.

Richard Schomberg, Chair SyC Smart Energy
ETSI renews cooperation with IEC

Long-time partners

Longstanding business working relationships need to be refreshed in light of the latest technologies, market demands and even societal transformations.

The first partnership agreement between ETSI and IEC dates from 1995. At the time, digital technology was in its infancy with the world's first GSM call placed in 1991 and SMS following soon after, paving the way to the next generations of telecommunications which, from 1998, would be developed by the Third Generation Partnership Project (3GPP). Today, 5G is underpinning a vast array of use cases, applications and consequently technologies that we would not have thought of at the time...and yet there is much more to come. ETSI has developed many building blocks of 5G while acting within the larger scope of Information and Communication Technologies (ICT). IEC has been the driver in various fundamental key technologies including power generation, transmission and distribution, electricity access, batteries, home appliances, medical equipment, semiconductors, fibre optics, nanotechnology or multimedia. Today all these technologies are increasingly relying on ICT in their evolution.

It was therefore time to renew our collaboration. Ubiquitous connectivity and the growing importance of the Internet of Things as well as topics such as Smart Cities or Digitization of Industry come immediately to mind as practical areas of cooperation between both standards bodies.

The accelerating convergence of information and operational technologies (IT/OT convergence) also demands for increased involvement of multiple stakeholders and closer collaboration between standards development organizations. Areas of mutual interest include topics as diverse as environmental engineering, eHealth, satellite radio systems, wearable devices, augmented reality, IT security or Internet of Everything with IEC bringing its expertise in electrotechnical systems to ETSI ICT experts.

ETSI and IEC have distinct business models and different modes of distribution of specifications which do not stand in the way of collaboration. This cooperation agreement allows a nominated observer from one organization to attend meetings of the other and foresees the possibility of joint technical work.

Artificial Intelligence, new area of mutual interest?

As we discuss new industry sectors in an IoT environment and future telecommunications generations where communication between billions of objects is the challenge, we wanted to highlight the Artificial Intelligence Summit we held in ETSI last April. With nearly 200 participants from various sectors, the AI Summit was the place to network with academia, industry, government representatives from around the world and the European Commission. It was noted in the wrap-up session that applying AI in any domain will require us to consider security, ethical, societal and trustworthiness issues carefully before allowing full AI autonomy. It may be a new topic of mutual interest for both our organizations, leveraging the work of IEC SEG 10, the group in charge of Ethics in Autonomous and Artificial Intelligence Applications.

Luis Jorge Romero, ETSI Director-General
22nd Global Standards Collaboration meeting

The Global Standards Collaboration (GSC) held its 22nd meeting in Montreux, Switzerland on 26-27 March, hosted by IEC and ISO. Over 100 participants representing 12 leading global information and communication technologies (ICT) standards development organizations (SDOs) attended.

The event covered diverse aspects related to smart sustainable cities and artificial intelligence (AI).

“Artificial intelligence offers a lot of promise and will give us a lot of opportunities in terms of how we live, work and play, but it also comes with some challenges, such as trusting and transparently explaining its decisions to the end-user”, said Wael William Diab, who chairs the IEC and ISO joint technical committee on AI (ISO/IEC JTC 1/SC 42), and chaired the GSC session on AI, “SDOs play an important role in addressing these concerns and provide an opportunity for global standards to accelerate adoption of AI in support of the digital transformation.”

Learning algorithms and machine learning are some of the technologies at the heart of artificial intelligence (AI). They are being used increasingly in daily life. For instance, to help healthcare professionals make better decisions for patients and drive higher efficiencies in smart manufacturing, by providing insights for production planning.

The list of applications is numerous and growing, including retail, consumer, financial, digital assistants, connected cars, smart grids, market intelligence and more.

Why the whole AI ecosystem must be considered

AI isn’t a single technology, it’s a collection of technologies with numerous and diverse stakeholders, who are approaching the deployment of AI systems from a business angle, in other words, with a focus on customer needs, segments, services, products and regulatory requirements. While these technologies bring many benefits, they also raise a number of concerns.

“Broadly speaking, these aspects are related to trustworthiness, ethics and societal concerns which must be addressed early on in standards and technology development, so that technology can be deployed widely. This is why SC 42 is taking a very broad approach and looking at the entire AI ecosystem”, said Diab.

The session covered:

- General and overview presentations on AI providing an update on the various work programmes of the SDOs in this area
- Areas related to the implication and concerns of deploying AI, such as societal concerns, ethics, governance and trustworthiness, along with proposed solutions, standards and mitigation
- Application areas, representative use cases and related technologies (big data, analytics), to better understand requirements coming from these domains
- Potential synergies and collaboration opportunities between GSC members

From developed to emerging markets

Participants gave updates on their work, offering diverse perspectives and insights. While some of the challenges differed from regions and countries, the concerns were largely the same.

Yutaka Miyake from the Telecommunication Technology Committee (TTC) talked about the need for transparent and trustworthy AI and machine learning, as Japan implements its “Society 5.0” plan for a super smart society. Miyake highlighted the need to uphold the social principles of AI, which must remain human-centric and accountable, while allowing fair competition for sustainable economic growth and innovation. He also raised challenges around data privacy and security, for example the hackability of facial recognition systems, as well as algorithm bias, which could lead to unfair decisions.

As AI becomes embedded in 5G networks in India, it will help improve agriculture, broaden access to education and healthcare for some 60% of remote populations, and be deployed in smart cities and
infrastructure. Presenter Samar Shailendra from the Telecommunications Standards Development Society (TSDSI) noted the need to focus on continuity of services and coverage, as well as security. He also talked about ethics regarding job security and stressed that AI should complement people rather than replacing them.

The next generation of phones will not be smart, they will be intelligent, enabled with AI and combined with next generation communication networks. They will use huge amounts of data and need to access information more accurately, quickly, automatically and intelligently. Thomas Li from the China Communications Standards Association (CCSA) emphasized the importance of getting AI right, noting that standards will need to include AI ethics, security, service application programming interfaces, as well as performance of AI vision, hearing and conversation.

Final comments
Diab concluded, “it was fantastic to see all these SDOs in one room, where the number of ideas and ongoing projects for AI are very impressive”, adding that “standards provide an open platform for innovation and a venue to address the needs and concerns of diverse stakeholders to help advance some of these strategic initiatives we’ve been talking about these last few days”.

About GSC-22
GSC brings together SDOs from around the world, to promote global cooperation for ICT standardization. Since 1990, it has provided a regular exchange of work programmes and other information in different technical areas.

Find out more about GSC-22 and its members.

Antoinette Price, IEC Communications Officer
A farewell to IEC

After 36 years working at the IEC Central Office it is time for me to take my retirement and so here are a few thoughts that come to me as I prepare to leave and empty the office.

When I first started at IEC it was totally paper driven. Everything we did came in paper form. Communications were largely in the form of letters, which in many cases took several weeks to reach us (and obviously the replies took a similar time to go back). Urgent messages were sent by telex (for those of you who haven’t seen one, here you go).

As I started, the great innovation was the fax machine, though we had to justify its use each time.

All documents had to be prepared and copied using stencils and Roneos and we had an army of people preparing the stencils and another working the Roneo machines. I remember that at the peak we were processing around 40 tons of paper per year and we were one of biggest clients of UPS in the French part of Switzerland.

Of course this paper had to be shifted within the office too, and our manuscripts for publication together with all the supporting documents (“secretariat”, “six-months rule”, “two-months procedure” they were called at that time, CDs CDVs FDIS came in much later) used to be kept in large yellow envelopes, held together with elastic bands which regular broke apart, strewing large amounts of paper all over the place.

There was no IT in the office. That came in the later 1980s when we started tracking projects in an elementary database. Until that time, I had used index cards to track what was going on in my committees. I implemented that database and discovered recently that the current project database still uses some structural elements from that period, though obviously the technology has gone through several generational iterations.

The internet came in the mid-90s and the IEC never looked back. E-mail gave us instant communications, without having to worry about time-zones, always an obstacle for phone calls. The world-wide-web as it was called, gave us instant document dissemination and today the IEC couldn’t carry out its business without the many applications that our IT department has developed which have been built on to that.

I’ve also been very much touched by the hundreds of contacts I have made with people from all round the world in my 36 years in IEC. It’s been an incredibly enriching experience for me. I’ve also had the opportunity to visit a significant number of National Committees over the years, even visiting some countries before they became members of the IEC and hence contributing to increasing the IEC family.

Linked to my career in IEC, I have experienced many things, but maybe the following stand out:

- The opportunity to fly twice on Concorde. I realized at the time that this wasn’t going to happen too often and was able to visit the cockpit, in flight (this was prior to 2001).
- Visiting the National Committee of the DPR of Korea. Relatively few people will have had the opportunity to visit Pyongyang.
- Many of you will remember that a group of four returned after the 2017 GM by train from Vladivostok to Moscow, taking the trans-Siberian express.

I leave the IEC knowing it has a rich future in front of it, obviously with challenges, but they will be in the safe hands of my colleagues. As for me, I will now have more time for my choral singing, activities in local politics and finally properly exploring some of the places I’ve visited in the past, but seen little more of than an airport, a metro or taxi, a hotel room and a meeting room.

Jack Sheldon, IEC Standardization Strategy Manager
Jack Sheldon, Ralph Sporer and Jim Matthews at the IEC General Meeting in Busan in October 2018