



International  
Electrotechnical  
Commission

2019  
Annual Report



# Digital transformation



# Message from the IEC General Secretary & CEO



Philippe Metzger with Frans Vreeswijk (left)

For an organization to succeed, it must align behind common goals. At the IEC, we have a clear purpose – to ensure the safety, reliability and interoperability of electrical and electronic technology. Our standards together with conformity assessment provide the tools to achieve this mission. They also enhance international trade, facilitate access to electricity for everyone and enable a more sustainable world.

To be truly successful, an organization relies upon the strength of its community. I am still in the process of learning about the IEC community, but it is already clear to me that the IEC represents an impressive accumulation of expertise that ensures that we can fulfil our mission. The diversity within the community, as well as the competencies of our members, make us well placed to tackle the opportunities and challenges facing our world.

Digital transformation affects all areas of our lives. The opportunities abound as do the uncertainties linked to cyber security, data privacy and the ethical use of technology. The IEC can provide common ground, and solutions, to help address these concerns.

Sustainability is another issue where the IEC can make a positive contribution. IEC International Standards underpin all the 17 UN Sustainable Development Goals. They help address the requirements of a circular economy, encourage energy efficiency and the widespread adoption of renewable energy. Coupled with conformity assessment, they ensure the safety and reliability of all electrical and electronic devices and systems.

The achievements of the IEC in 2019 under the leadership of my predecessor, Frans Vreeswijk, are testimony of a capable organization. At a time when we are experiencing an unprecedented global health crisis, many challenges lie ahead of us. I am proud to be a part of the IEC community as we are adapting to the future on this journey together.

**Philippe Metzger**

IEC General Secretary & CEO

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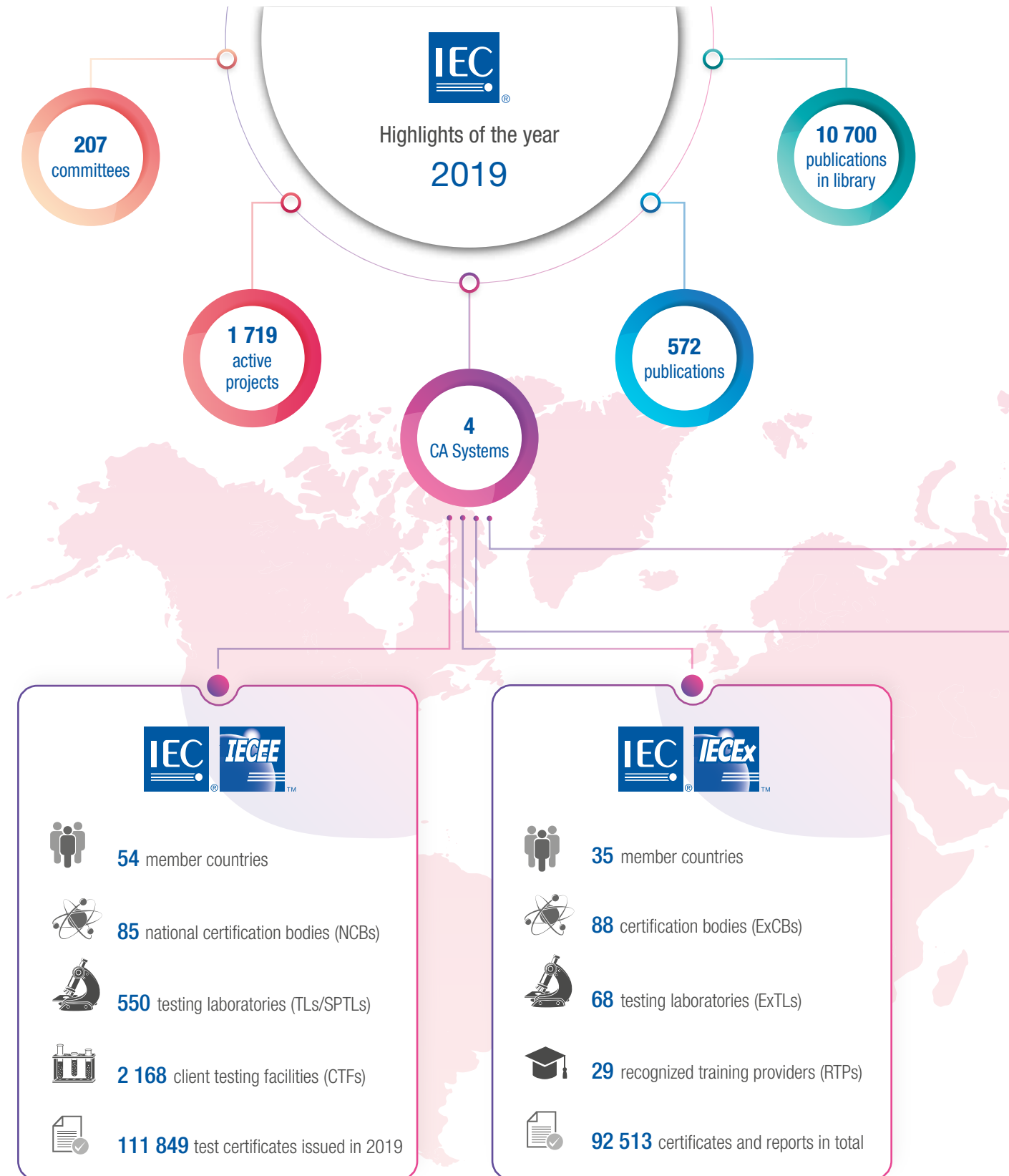
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# Highlights of the year



IEC is the world's leading developer of international standards for electrical and electronic technologies and the only organization providing a globally standardized approach to testing and certification.



**11** member countries



**27** certification bodies



**67** certification body branches



**8 433** certificates in total

IEC is a neutral, independent, not-for-profit membership organization. Each IEC member engages to represent the needs of all national stakeholders in electrotechnology and has a single vote in the Commission.

For over 110 years, IEC has supported innovation, global trade and development.

IEC International Standards and IEC Conformity Assessment Systems power the world. They provide the technical foundation that ensures the performance, safety and interoperability of electrical and electronic products used around the globe. Thousands of experts contribute to the IEC and ensure the continued relevance of IEC work.

In 2019 the IEC issued 572 publications and over 100 000 conformity assessment certificates. Attendance at meetings skyrocketed and the IEC is reaching more people and expanding its audiences, from young professionals and regulators, to international organizations and academia.

Safety and sustainability remain key priorities. The IEC has continued to provide standards and certification for renewable energy systems and publishes the technical basis for a circular economy and increased energy efficiency.

IEC Standards remain at the forefront of innovation with new standards published in such areas as artificial intelligence, cloud computing and wearable technologies. With the digital environment becoming more prominent, IEC has issued standards that help protect privacy and boost security. With its four conformity assessment systems – IECEE, IECEx, IECQ and IECEx – the IEC can ensure that systems, devices and components match the requirements of its standards.



**14** member countries



**9** certification bodies (RECBs)



**29** testing laboratories (RETLs)



**7** inspection bodies (REIBs)



**111** certificates issued in 2019



When the MoMa in New York City reopened in October 2019 following a lengthy renovation, it featured the IEC power symbol in its ground floor exhibition. Symbols, such as this one, can communicate a message across language and cultural barriers.



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# Advancing the SDGs

The United Nations defines 17 Sustainable Development Goals (SDGs) at the core of its blueprint for building a better world by 2030. The SDGs serve as a call to eradicate poverty and address societal ills while also stimulating economic growth and protecting the environment.

IEC work in standardization and conformity assessment is essential for achieving all of the UN SDGs. The UN recognizes energy, and especially electricity, as the cornerstone for the achievement of all the SDGs; it is indispensable for the development of every nation and economy. IEC provides the technical foundation for the entire energy chain and all equipment that is driven by electricity. It improves the safety of devices, workers and populations, enables energy efficiency gains and helps increase the resilience and long-term viability of infrastructure.

## Overcoming barriers to trade

Countries are increasingly interdependent. Most products are no longer manufactured in a single country, they are made in the world. The globally harmonized, commonly agreed technical rules that are imbedded in IEC International Standards allow companies and countries to efficiently participate in global value chains, ensuring that products are consistently reliable and safe. IEC International Standards also form the basis for testing and certification and allow electrical and electronic devices to enter many markets around the world.

The World Trade Organization (WTO) recognizes that international standards, together with conformity assessment, play a critical role in improving industrial efficiency and help reduce technical hurdles to global trade.



UN SDG 5 aims to achieve gender equality and empowerment of women and girls by 2030. As part of this effort, the United Nations Economic Commission for Europe (UNECE) has developed the *Declaration for Gender Responsive Standards and Standards Development* of which IEC is an original signatory.

By signing this declaration, the IEC demonstrates its commitment to gender equality and enhancing the inclusiveness and openness of its standards and standards development process to everyone.

# Sustainability

IEC standardization and conformity assessment work helps improve resource use and minimize the negative impact that electrical and electronic products can have on the environment. In 2019, IEC work focused on energy efficiency, renewable and clean energy and implementing aspects of the circular economy.

## Energy efficiency

Energy efficiency is the biggest and still largely untapped energy resource in the world. With rising energy demand, it is vital to apply technologies that allow us to use energy more efficiently and reduce energy waste. This will ensure the availability of energy for future generations and contribute to well-being and economic development. IEC International Standards allow for energy efficiency to become measurable, comparable and reportable; consistently, time after time.

IEC Standards also form the basis for the comparison of energy efficiency levels in devices and systems. The IECEE, IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components, helps verify manufacturers' energy efficiency claims based on IEC Standards. It offers the IECEE E3 programme to test and verify the energy efficiency of electrical and electronic equipment such as refrigerators, washing machines and motors.

To address trade barriers resulting from differing country regulations, the IECEE global motor energy efficiency programme, IECEE GMEE, offers a harmonized motor efficiency test method and common certification process.

### Highlights in 2019

Superconductors are materials which generate minimal energy losses when transmitting electrical power. They are an attractive option to replace conventional cables over short distances given their energy efficiency. To provide cable manufacturers with a harmonized approach, IEC has published IEC 63075 which specifies tests methods for superconducting alternating current cables.

Wireless power transfer (WPT) technology is becoming an increasingly popular method for recharging batteries. To understand energy efficiency efforts related to WPT technologies, IEC has published a technical report, IEC TR 63231, on the current efforts, standardization activities and national regulations.



IEC has updated the IEC 61892 series of standards to ensure the efficient use of energy in the electrical installations of offshore platforms. The revised standards include a number of requirements such as the efficient use of generated power, the use of high efficiency motors and variable speed drives to optimize power consumption, energy optimization through the use of brake energy or waste heat recovery and the establishment of an energy management system.

## Renewable and clean energy

Choosing sustainable sources of electrical power helps to fill the increasing gap between energy production and demand. Renewable energy (RE) accounts for a growing percentage of electricity generation in many countries and is vital to reducing greenhouse gas emissions.

IECRE, IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications, was established in 2014 to provide third party certification of renewable energy equipment and services. This conformity assessment system facilitates the trade of equipment and services in the solar, wind and marine sectors, while maintaining the required level of safety and expected performance.

### Solar

In 2019, IEC published IEC TS 62994 which provides the basic principles and general methods for assessing the environmental health and safety risk of solar photovoltaic (PV) equipment through its life cycle. Because PV equipment can contain hazardous materials, the risk assessment can be used to evaluate the potential adverse impacts to human health or the environment in order to develop policies to control and reduce them.

Third party certification of solar PV equipment and services to consensus-based international standards supports manufacturers in the RE industry, by reducing risks, streamlining costs, as well as enhancing market access. In 2019, IECRE issued the first design and commissioning certificates for a PV power plant in China. The design certificate is issued for the development phase and is intended to cover due diligence, usually of the developer, for the planning and design of a PV power plant before the plant is built.



Most off-grid solar lights are manufactured in China and exported throughout the world. To facilitate their adherence to IEC International Standards, a key IEC publication IEC TS 62257-9-5 which evaluates standalone renewable energy products for rural electrification has been made available in the Chinese language. This is the first time that an IEC Technical Specification is directly published into Chinese.

## Wind

IEC work helps strengthen disaster resilience of infrastructure through built-in safety mechanisms, processes and minimum requirements. In 2019, important updates have been made to the IEC 61400 series of standards which addresses external conditions for offshore wind turbine designs. IEC 61400-1 specifies the essential design requirements to ensure the structural integrity of wind turbines and to provide an appropriate level of protection against damage from hazards. IEC TR 61400-21-3 provides technical guidance concerning the wind turbine harmonic model.

By the end of 2019, IECRE reached an important milestone having issued over 100 certificates for wind energy equipment.

## Marine

Oceans can provide an enormous source of electrical power, which can be harnesses by using different marine power generation technologies. The second edition of IEC TS 62600-2 outlines the minimum design requirements for marine energy converters.



## Fuel cells

Fuel cells convert hydrogen and oxygen into electricity, a very clean form of electricity generation as it only emits water vapour. This technology is prevalent in the industrial sector, most notably used by forklifts in indoor spaces where the quality of the air is important. In 2019, IEC published IEC 62282-6-400 which covers the interchangeability of power and data between micro fuel cell power systems and electronic devices, and IEC 62282-8-102 which describes test methods for the performance of single fuel cells and fuel cell stacks.



## Circular economy

Interest is emerging for a circular economic model that calls for a change in current linear production and consumption. It reassesses how resources are managed throughout the entire life cycle of a product from its initial design to its use, repair, refurbishment and, eventually, to the reuse of its materials. The circular flow of materials ultimately eliminates waste and increases sustainability.

Standards serve as an important tool to promote the circular economy. They provide methods to measure the durability or upgradeability of a product or to ensure the quality of the recycled materials. As products remain in use for longer periods of time, standards can help ensure product safety, reliability and performance.

IECQ, IEC Quality Assessment System for Electronic Components, provides conformity assessment services to verify the use of hazardous substances. The IECQ green approach working group investigates and develops new services for the integration of environmental aspects including fuel cell electrophoretic deposition (EPD) within the IECQ schemes and programmes.

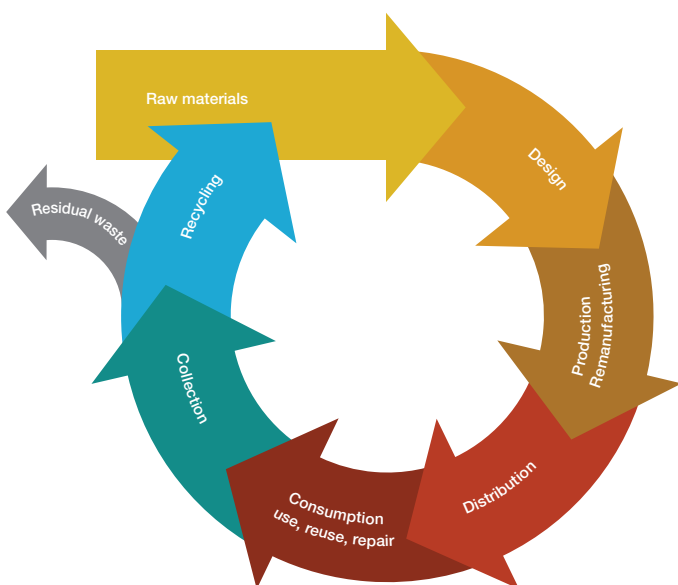
### Highlights in 2019

Maximizing the value of medical equipment through refurbishment can be one way of reducing healthcare costs. IEC 63077 defines a systematic process for refurbishing used medical imaging equipment. The safety and performance of the medical equipment can be ensured without compromising its performance, safety specification or modification to its intended use.

More than 50 participants attended a workshop organized by the IEC Advisory Committee on environmental aspects (ACEA) to better understand the impact of the circular economy and material efficiency on standardization. Topics included the regulatory and standardization activities underway around the world as well as insight from industry leaders on how they are introducing the circular economy into their business.

Throughout industry, obsolescence is the result of a lack of replacement parts or support by different companies in the supply chain. Management of obsolescence contributes to the dependability of items, which is an essential requirement for international trade and for reducing costs. The second edition of IEC 62402 establishes requirements for obsolescence management and helps companies minimize the risks associated with obsolescence.

New ways of designing products to minimize waste and facilitate recycling are being adopted by a growing number of manufacturers. The second edition of IEC 62430 specifies the requirements and processes needed to integrate environmental aspects into the design and development of electrical and electronic products.



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# Innovative technologies

## Artificial intelligence

Artificial intelligence (AI) technologies, which include machine learning and neural networks, depend on the collection and analysis of great volumes of data. These technologies are evolving rapidly and are being used in a growing number of industries. Decisions that were once made by humans are gradually being made by machines. Big data and AI enabled systems are helping to accelerate the digital transformation where they are often deployed together to deliver key insights enabled by advanced data analytics.

IEC and ISO are developing foundational international standards for AI in areas such as big data, AI trustworthiness, use cases and applications and governance implications. In 2019, the publication of ISO/IEC 20546 provided an overview and vocabulary to establish a common understanding of what constitutes big data.

Ethics and societal concerns, such as trustworthiness, privacy, security and algorithm bias, are hot topics, as AI embraces many aspects of daily life. Important questions need to be answered to ensure AI technologies deployed are safe and secure, and that decisions made by autonomous and AI systems are fair and beneficial for all. The new IEC standardization evaluation group SEG 10 will examine the ethics in autonomous and AI applications.

## Cloud computing

Cloud computing is an enabling technology based on the principles of shared devices, network access and shared data storage. It is the latest and most efficient form of distributed computing which has been in continual evolution over the past 60 years.

The IEC has developed several foundational standards in cloud computing together with ISO. This includes a series of standards, ISO/IEC 19086 to help customers with their acquisition of cloud computing services and the creation of service level agreements. A new standard in this series, ISO/IEC 19086-4, provides the requirements for the security and privacy aspects of cloud service level agreements.

Given the complexity of cloud computing, the IEC and ISO have published a free technical report, ISO/IEC TR 22678, which provides guidance to non-technical experts involved in the development of cloud computing policy.

## IoT

Internet of Things (IoT) is fast becoming the intelligence of everything. It involves the integration of smart physical entities – or “things” – with IT systems through networks, using electronic devices such as sensors and actuators to collect information.

ISO/IEC 21823-1 defines the framework for the interoperability of IoT systems. All those involved in building and using IoT systems can have a common understanding of interoperability and how it is applied.

Increasingly used to monitor equipment and collect data, smart sensors gather information that make it possible to save energy, improve productivity and allow for preventive equipment maintenance. IEC 60747-19-1 specifies a control scheme in the terminal module of the smart sensing unit so that users can define their parameters.





The 71<sup>st</sup> Engineering Emmy Awards recognized the experts from IEC, ISO and ITU for their work on JPEG, one of the world's best-known still-image formats. Introduced in 1992, JPEG has been universally adopted to preserve high-quality imagery in digital production.

## Holographics

3D conveys depth perception on the screen. Used for advertisements and increasingly for medical imaging in the healthcare sector, holographics are growing in popularity. IEC TR 62629-41-1 provides general information for the standardization of holographic displays. This technical report is intended to gather technical information on 3D displays and identify the optical measurement parameters needed to evaluate their performance.

## VR/AR technologies

Virtual reality (VR) and augmented reality (AR) are flourishing beyond the gaming and home entertainment industries. They can be used to train medical professionals and emergency workers, help designers to view and test their products before production or provide therapy to treat mental illnesses. For VR and AR headgear, IEC developed IEC 63145-20-20 which establishes the measurement methods for determining their image quality and IEC 63145-20-10 which specifies the measurement methods for determining their optical properties.

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# Going smart

## Smart cities

Cities benefit from the widespread use of data and technology. They help enhance city services, sustainability and resilience. A smart city understands how to use data and technology effectively in order to improve the quality of life for everyone living in the city.

Standards are needed for new technologies and new ways of using data as well as for the management of the entire ecosystem. Not only do they allow for the provision of competitively priced and effective products and services that can function together, they also provide clear descriptions of best practices and enable common approaches to tackle challenges.

IEC has identified over 1 800 standards that are vital for the efficient functioning of cities, in sectors such as energy, lighting, transport and city services. Given that cities are comprised of systems within systems, the IEC has adopted a systems methodology which addresses the complexity of smart cities and provides a holistic approach.

In the area of information technology, IEC partners with ISO to develop standards for smart cities. In October 2019, IEC and ISO published a new standard, ISO/IEC 30146, which provides assessment indicators and evaluation methods to measure the functionality of different information and communication

technologies (ICT) systems within a city, for example transportation, public safety and city management services.

Given the importance of collaboration between standardization organizations in the development of smart city standards, IEC organized a joint workshop for international experts in smart city standardization together with the Connected Places Catapult and the ISO and IEC joint working group on smart cities.

## Smart mobility

Reducing the dependency on fossil fuels and anticipating growth in urban populations will require new solutions for transportation, such as a comprehensive strategy that offers clean and safe solutions while benefiting from the use of new technologies.

IEC has set up the new standardization evaluation group, SEG 11, to examine the standards needed to help countries as they transition towards sustainable transportation solutions.

Electric scooters are an increasingly popular mode of transportation in cities around the world. The IEC has set up a new technical committee, TC 125, to provide standardization in the areas of safety and reliability, the protection against hazards, docking stations, recharging and recycling.





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# Cyber security and risk management



## Protecting critical infrastructure

The IEC develops standards to protect critical infrastructure, such as energy installations, transport systems and manufacturing plants, to name but a few, from cyber threats. The IEC 62443 series of standards provides a framework with which to address and mitigate the current and future vulnerabilities in industrial automation and control systems. In 2019, the IEC published IEC 62443-4-2 which provides the cyber security technical requirements for the components that make up industrial automation and control system such as network components and software applications.

To address issues related to the safety and security of industrial automation and control systems, the IEC has published IEC TR 63069 to provide guidance on the common application of the IEC series of standards for functional safety IEC 61508 and IEC 62443.

Any incident or accident at a nuclear installation can have potentially catastrophic human and environmental consequences. Given that nuclear power installations can be targets for harmful attacks, IEC has published the second edition of IEC 62645 to boost their cyber resilience. The standard is designed to prevent the impact of attacks on a nuclear power plant's instrumentation, control and electrical power systems.

## Cyber security conference

The IEC was a partner of the Vienna Cyber Security Week organized by the Energypact Foundation, where it provided a conference track on the theme *Protecting Critical Infrastructure*. Other partners included the ITU, the Austrian Federal Economic Chamber, and the Austrian Institute of Technology.

The five-day conference brought together over 700 stakeholders in critical infrastructure to exchange insights and best practices for digital system protection, as well as to build confidence and enhance awareness of cyber risks.

## Conformity assessment

Standards provide even more value when they are combined with testing and certification. IECQ is a worldwide approval and certification system that provides manufacturers with independent verification that the requirements in IEC International Standards and other specifications were met by suppliers. IECQ has explored the application of the IECQ schemes within the nuclear industry in conjunction with ISO 19443 which addresses supply chain matters within the nuclear industry.

## IEC Technology Report

Such is our reliance on the efficient and continuous supply of power that any loss of electricity would have serious implications for a wide range of vital services. The new IEC Technology Report provides best practices for protecting the electric grid against cyber attacks.



## UN recognition for cyber security best practices

The United Nations Economic Commission for Europe (UNECE) has set up an initiative on cyber security to promote the convergence of national technical regulations. The aim is to develop a shared framework based on a risk-based approach and international best practices.

At its annual meeting held in November 2019, the UNECE Working Party 6 (WP.6) approved the UN Common Regulatory Objectives Guidelines for Cybersecurity which references IEC International Standards and the IECCE and IECQ conformity assessment systems as best practices.



## Information security management

The financial impact of data breaches can run into millions of dollars for organizations, including operational costs, legal fees, possible compensation payments and fines, as well as reputational damage that can be very difficult to repair.

IEC International Standards together with testing and certification are important tools for a successful cyber security programme. Such an approach increases the confidence of stakeholders by demonstrating not only the use of security measures based on best practices, but also that an organization has implemented the measures efficiently and effectively.

The IEC, together with ISO, published ISO/IEC 27701, a new addition to the ISO/IEC 27000 family of standards, to provide organizations with the clear guidance they need to implement an information security management system. The new standard is an extension to ISO/IEC 27001 that not only specifies the

requirements for a privacy information management system, but also takes into consideration the regulatory environment in which organizations operate. Another new addition to the family, ISO/IEC 27102, provides guidelines for purchasing cyber-insurance.

In 2019, IECQ began to cover the assessment and certification to ISO/IEC 27001 for the first time. At the request of industry, IECQ provides a worldwide certification system using a benchmark approach.

## Risk management

IEC and ISO have developed a toolbox of risk management standards to help businesses prepare, respond and recover more efficiently. IEC 31010 features a range of techniques to identify and understand risk in a business or technical context. It describes the process to be followed when assessing risk, from defining the scope to delivering a report.

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# Reliability and performance

The work of the IEC helps protect people, infrastructure, economies and the environment. IEC International Standards ensure the safety and performance of electrotechnical devices and installations while the IEC CA Systems certify conformance to these internationally recognized standards.

## EMC

When a mobile device is operating, it emits radio waves that consist of radio frequency (RF) energy, a form of electromagnetic (EM) radiation moving at the speed of light. Fears that these RF fields could affect our health have prompted legislators to set limits. Many countries have adopted guidelines set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) which measure the rate at which EM is absorbed by the human body when exposed to radio waves.

The IEC has published the first edition of IEC 62209-3, a measurement procedure for the assessment of human exposure to RF fields from wireless communication devices.



## 5G technologies

Fifth-generation cellular networks, known as 5G, are set to connect not only people but also the devices in the IoT sphere. To ensure the safety of the radio emissions of these networks and devices, the IEC develops testing standards for electromagnetic emissions.

IEC TR 62669 evaluates human exposure to radio frequency fields in the vicinity of base stations. For the first time, it includes 5G base stations and small cells. The report provides a vital resource for network operators deploying 5G, as it illustrates test methods on 5G trial sites.

## Wearable devices

Wearable devices are improving health and well-being. The technology can monitor health conditions, collect health information or detect falls by older patients which can trigger an alarm for help.

Current trends call for small and flexible monitoring patches that maximize comfort and ease of wear. IEC 62951 series on flexible and stretchable semiconductor devices are crucial for enabling electronic devices and sensors to be integrated into flexible patches or clothing. IEC 62951-2 specifies test methods to evaluate the performance and reliability of flexible thin-film transistor devices. The batteries within these wearable devices need to be bendable. IEC 62899-501-1 describes test methods for flexible or bendable batteries.

Breakthroughs in dosing and delivery systems, such as wearable glucose sensors, have revolutionized the treatment of diabetes in the past few years. A continuous glucose monitor (CGM) is

inserted under the skin to measure interstitial blood sugar levels and wirelessly sends the information to a monitor.

In 2019, IEC published the first edition of IEC 60747-14-10 which specifies the terms, definitions, symbols, tests, and performance evaluation methods used to determine the performance characteristics of wearable electrochemical-glucose sensors.

## Screens

Screens are integrated into electronic and electric devices used for viewing information as well as to interact with the device. They generally incorporate a transparent glass cover which helps protect the display from damage. IEC 61747-40-1 provides mechanical testing guidelines for cover glasses used in electronic flat panel displays in mobile devices. It primarily tests strength and damage resistance attributes.

IEC 62908-12-20 specifies the methods for measuring the performance of touch screens. IEC TS 62977-3-1 specifies the method for evaluating the optical performance of electronic displays.

## Hearing aids

According to the World Health Organization (WHO), around 466 million people worldwide have disabling hearing loss. IEC produces international standards for hearing aids, which, like any other medical devices sold around the world, need to meet the strictest performance and safety requirements.

Because electromagnetic interference can result in a degradation of audio quality when used in the vicinity of a smartphone, the IEC published a revised edition of IEC 60118-13 which specifies the requirements for electromagnetic immunity to mobile digital devices. IEC also published IEC 60601-2-66 which addresses the basic safety of hearing aids.



## Surgical robots

Robot-assisted surgery allows doctors to perform complex procedures with more precision and minimal invasiveness compared with conventional techniques. IEC 80601-2-77 specifies the basic safety requirements and essential performance of robotically assisted surgical equipment.

## Avionics

Avionics refers to the electronic systems used on aircraft. Ensuring public safety requires all flight equipment operate together according to international standards so that aircrafts can depart and land safely. Part of these safety measures is the avoidance of counterfeit or fraudulent components that could potentially malfunction. IEC 62668 is a series of standards that establishes the guidelines for avoidance, detection and mitigation of counterfeit parts in the avionics industry.

One of the four conformity assessment systems run by the IEC, IECQ, has developed a scheme for the aviation industry. The IECQ avionics parts and assembly management system is designed to evaluate that the processes of avionics equipment

manufacturers are compliant with international standards. It also provides the counterfeit avoidance programme which helps manufacturers and subcontractors avoid counterfeit parts when selecting and using components.

## Winding wires

Each day, enough winding wire is produced to go around the earth at least ten times. Winding wires are in numerous electric and electronic devices used daily serving as the unsung heroes of insulation and conductivity. The technology to produce these wires is very complex. IEC 60851-5 clarifies the continuity tests for winding wires, making them more reliable and reproducible for on and offline measurement.

## IECEE

From our homes, to offices, hospitals and other public spaces, we use electronic products such as smartphones, ovens, washing machines and medical devices every day, and we expect them to function properly and safely. That is where the testing and certification of products comes in, before they reach the markets.

The IECEE, IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components, offers different schemes that test the safety, efficiency and overall performance of electrical and electronic components, devices and equipment, to ensure they comply with standards such as those published by IEC.

IECEE also organizes peer assessor training focused on the harmonization of assessment criteria to ensure that all IECEE national certification bodies and their testing laboratories, and customer testing facilities apply IECEE rules and procedures consistently and fully comply with them. Over 120 lead or technical assessors attended an IECEE training held in 2019.

## IECEX

The IECEX, IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres, operates the only global online certificate system dedicated to the Ex sector, allowing instant verification of claims of compliance of certificates issued by more than 80 IECEX certification bodies. IECEX certificates of conformity are issued via the following three schemes: IECEX certified equipment scheme, IECEX certified service facilities scheme and IECEX certification of personnel competence scheme.

The IECEX recognized training provider (RTP) programme, launched a few years ago to assist applicants in their preparation for the certificate of personnel competence, is growing fast. The RTPs provide candidates with knowledge and understanding of



the terminology and protection concepts for electrical and non-electrical equipment used in explosive atmospheres, based on the IEC 60079 and the ISO/IEC 80079 series of international standards.

IECEX is endorsed by the United Nations through the United Nations Economic Commission for Europe (UNECE) as THE certification system for the assessment of conformity in Ex areas.

## IECQ

The IECQ, IEC Quality Assessment System for Electronic Components, is a worldwide approval and certification system that covers the supply, assembly, associated materials and

processes of a large variety of electronic components that are used in millions of devices and systems. IECQ provides manufacturers with independent verification that the requirements in IEC International Standards and other specifications were met by suppliers who hold an IECQ certification.

IECQ provides industry with a supply chain verification tool for seeking assurance that electronic components, assemblies, processes and related materials conform to declared technical standards and specifications. IECQ facilitates standardized training through IECQ training workshops and IECQ standard training course material, in support of the IECQ System and its schemes/programmes. In 2019, IECQ continued its series of training sessions, in Asia and in the US, on the IECQ hazardous substance process management scheme and on the IECQ aerospace, defense, and high performance scheme.



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# Partnerships

The convergence of technology brings new complexities. Today, no single organization can make all the necessary standards on its own. Instead, organizations need to work together to find the best solutions.

IEC cooperates with many international and regional organizations. Agreements, memoranda of understanding and pledges have been signed with over 35 partner organizations with the aim of coordinating work efforts and implementing IEC Standards. Technical liaisons have been established with over 200 organizations.



## Global Standards Collaboration

In March 2019, IEC and ISO jointly organized GSC-22 which brought together over 100 participants representing 12 standards developing organizations in the area of information and communication technologies (ICT).

Since its founding in 1990, the GSC seeks to strengthen collaboration by offering a platform for the regular exchange of work programmes and other information in a number of technical areas.

### In 2019, IEC signed:

- Collaboration pledge with the Economic Community of West African States (ECOWAS) Centre for Renewable Energy and Energy Efficiency (ECREEE)
- Renewal of cooperation agreement with the European Telecommunications Standards Institute (ETSI)
- Regional adoption agreement with the Cooperation Council of the Arab States of the Gulf (GCC) Standardization Organization (GSO)
- Renewal of memorandum of understanding with the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF)



## World Standards Cooperation

IEC works closely with ISO and ITU to promote the voluntary, consensus-based international standards system under the banner of the World Standards Cooperation (WSC).

Each year for World Standards Day on 14 October, WSC pays tribute to the collaborative efforts of thousands of experts worldwide. In 2019, a global competition called for video submissions based on the theme of *Video standards create a global stage*.



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# Our members

The value of IEC work is derived from the participation of the thousands of experts which are sent by the IEC members, the National Committees (NC). Each NC has one vote in the IEC and represents the country's interests in electrotechnical standardization and conformity assessment.

IEC had 87 member countries in 2019, with Ghana officially joining in November. Ghana has been a part of the IEC family since 2001 when it joined the IEC Affiliate Country Programme.

Albania | Algeria | Argentina | Australia | Austria | Bahrain | Bangladesh | Belarus | Belgium | Bosnia & Herzegovina | Brazil | Bulgaria | Canada | Chile | China | Colombia | Côte D'Ivoire | Croatia | Cuba | Cyprus | Czech Republic | Democratic People's Republic of Korea | Denmark | Egypt | Estonia | Finland | France | Georgia | Germany | Ghana | Greece | Hungary | Iceland | India | Indonesia | Iran | Iraq | Ireland | Israel | Italy | Japan | Jordan | Kazakhstan | Kenya | Korea, Rep. of | Kuwait | Latvia | Lithuania | Luxembourg | Malaysia | Malta | Mexico | Moldova | Montenegro | Morocco | Netherlands | New Zealand | Nigeria | North Macedonia | Norway | Oman | Pakistan | Peru | Philippines, Rep. of the | Poland | Portugal | Qatar | Romania | Russian Federation | Saudi Arabia | Serbia | Singapore | Slovakia | Slovenia | South Africa | Spain | Sri Lanka | Sweden | Switzerland | Thailand | Tunisia | Turkey | Ukraine | United Arab Emirates | United Kingdom | United States of America | Vietnam

# Embracing all countries

The IEC Affiliate Country Programme allows developing and newly industrialized countries to participate in IEC work without the financial burden of membership. It aims to enhance their involvement in international standardization and conformity assessment. Participating countries are able to adopt up to 400 IEC International Standards, participate in the IEC Conformity Assessment Systems, and receive technical expertise via workshops, training sessions and a mentoring programme.

Following the adhesion of Djibouti and Nicaragua, the IEC Affiliate Country Programme counted 86 affiliates in 2019.

Afghanistan | Angola | Antigua and Barbuda | Armenia | Azerbaijan | Bahamas | Barbados | Belize | Benin | Bhutan | Bolivia | Botswana | Brunei Darussalam | Burkina Faso | Burundi | Cabo Verde | Cambodia | Cameroon | Central African Republic | Chad | Comoros | Congo | Congo ,Dem. Rep. of | Costa Rica | Djibouti, Rep. of | Dominica | Dominican Republic | Ecuador | El Salvador | Eritrea | Eswatini, Kingdom of | Ethiopia | Fiji | Gabon | Gambia | Grenada | Guatemala | Guinea | Guinea Bissau | Guyana | Haiti | Honduras | Jamaica | Kyrgyzstan | Lao, People's Democratic Republic | Lebanon | Lesotho | Liberia | Madagascar | Malawi | Mali | Mauritania | Mauritius | Mongolia | Mozambique | Myanmar | Namibia | Nepal | Nicaragua | Niger | Palestine | Panama | Papua New Guinea | Paraguay | Rwanda | Saint Kitts and Nevis | Saint Lucia | Saint Vincent and the Grenadines | Sao Tome and Principe | Senegal | Seychelles | Sierra Leone | South Sudan, Rep. of | Sudan | Suriname | Syrian Arab Republic | Tanzania | Togo | Trinidad and Tobago | Turkmenistan | Uganda | Uruguay | Uzbekistan | Yemen | Zambia | Zimbabwe

# Outreach and learning

## IEC Academy & Capacity Building

The IEC ACB delivers continuous training and capacity building to the IEC community. It provides webinars, training seminars and workshops to train experts and attract young professionals in coordination with IEC National Committees (NCs). In 2019, over 3 000 experts joined these training events.

The IEC Academy & Capacity Building day, which took place alongside the 83<sup>rd</sup> IEC General Meeting, demonstrated how NCs can benefit from training and professional development programmes in standardization and conformity assessment.

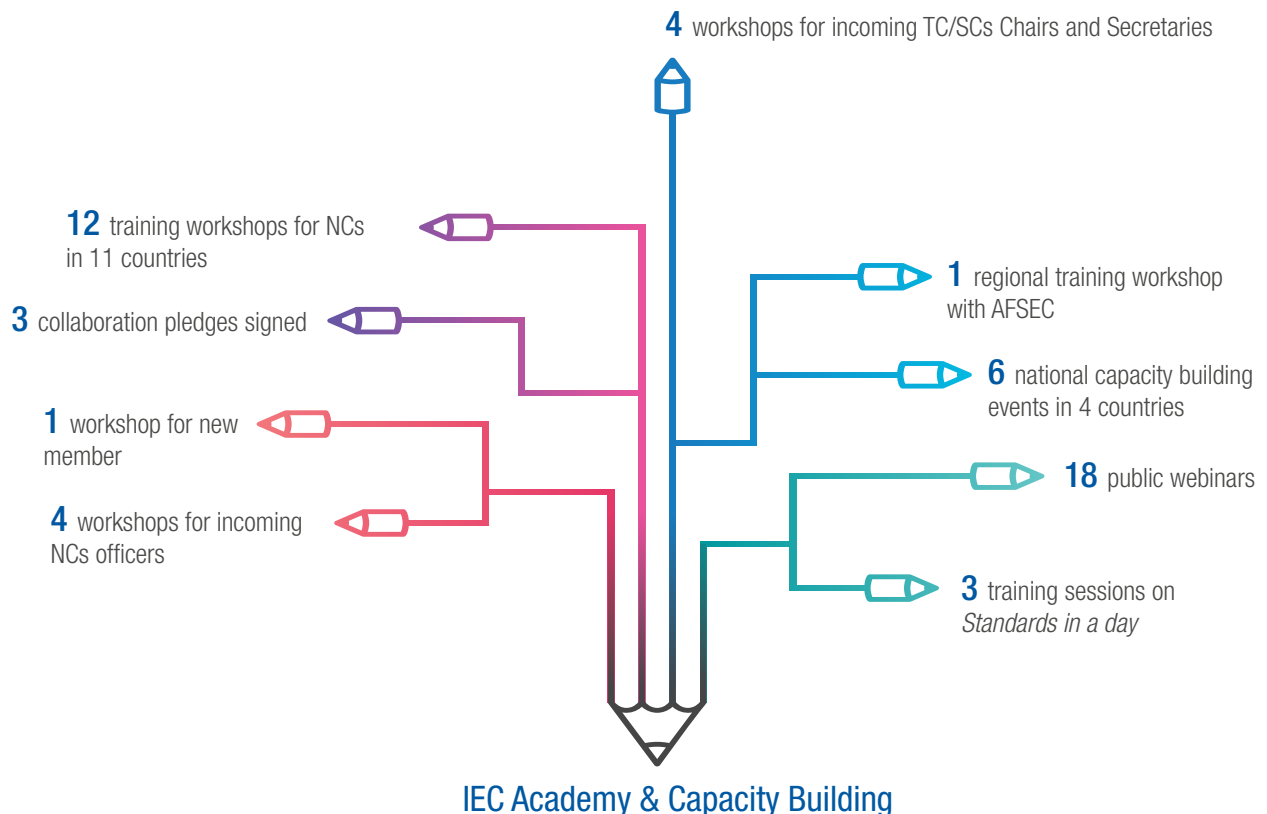
Underscoring its strong ties with academia, IEC signed collaboration pledges with Shenzhen Technology University, the DKE Next GEN programme and GOST-R Academy. As part of the pledges, IEC will work together with them to promote standardization and conformity assessment training.

## IEC Young Professionals Programme

The IEC Young Professionals Programme serves as a gateway for professionals from all over the world to learn about IEC and become more involved in its standardization and conformity assessment work.

In 2019, 87 participants representing 40 NCs attended the 10<sup>th</sup> IEC Young Professionals workshop held alongside the 83<sup>rd</sup> IEC General Meeting.

Since its debut in 2010, the IEC YP Programme has had a total of 629 participants from 51 countries.





## Focus on regulators

A regulators symposium held during the 83<sup>rd</sup> IEC General Meeting looked at how conformity assessment adds value to standards. The event highlighted the benefits of maintaining a continuous dialogue between standards developers and regulators, and noted the importance of testing medical devices to ensure conformity with standards. The safety, efficiency and reliability of medical equipment is of crucial importance to all countries and harmonized policy at the regional and international levels can facilitate trade, as well as protect consumers against unsafe technology and counterfeit goods.

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# Thomas Edison Award



Thomas Edison Award winners pictured with SMB Chair Ralph Sporer during the award ceremony. Helmut Myland was unable to attend.

IEC honours excellence and expertise of current officers involved in IEC technical committees with the Thomas Edison Award. This year, the IEC recognized the outstanding work of four experts:

- Norbert Bischof, Secretary TC 62, SC 62B, SC 62C
- Fabio Gargantini, Chair TC 61, Secretary SC 59L
- Masahide Okamoto, Secretary TC 91
- Helmut Myland, Secretary TC 20







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# Welcoming the next General Secretary & CEO



Members have appointed Philippe Metzger as the next IEC General Secretary and CEO, starting on 1 February 2020. Mr Metzger follows Frans Vreeswijk who has served as IEC General Secretary and CEO since 2012.

Mr Metzger brings to the IEC his deep understanding of technology, as well as leadership experience managing a public institution and a vision for the continued relevance of standards and conformity assessment in today's rapidly changing world.

Prior to joining IEC, Mr Metzger served as the Director General of the Federal Office of Communications (OFCOM) in Switzerland. He also held positions at the International Telecommunication Union (ITU) and the European Free Trade Association (EFTA).

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# Leadership



## James M. Shannon

IEC President  
(United States)

Mr Shannon served his three-year term as IEC President from 2017 until 2019. From 2002 to 2014, he was President and Chief Executive Officer of the US National Fire Protection Association (NFPA). Prior to that, Mr Shannon served as Attorney General of the Commonwealth of Massachusetts and was a Senior Partner at the law firm of Hale & Dorr in Boston. He was elected to the United States House of Representatives in 1978 and served in the House until 1985. A member of the Ways and Means Committee for six years, he served on the Trade, Health, and Social Security Subcommittees.

## Yinbiao Shu

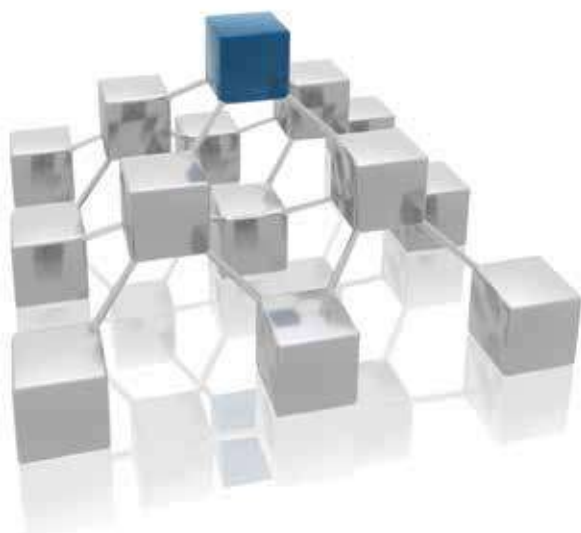
IEC President-Elect  
(China)

Dr Shu was elected to become the IEC President starting on 1 January 2020, having served as President-Elect since 1 January 2019. Prior to that, Dr Shu served as Convenor of the Market Strategy Board (MSB) from June 2012 until the end of 2018 and IEC Vice-President from 2013 to 2018 with the specific responsibility of leading both the MSB membership renewal and its technology-watch effort. At present, he is the Chair of China Huaneng Group Co., Ltd.

## Jo Cops

IEC Treasurer  
(Belgium)

Mr Cops became IEC Treasurer on 1 January 2018. Since 2012, he leads the Belgian Electrotechnical Committee (CEB-BEC) as the Secretary General. Mr Cops started his career in 1990 with Sony Belgium and subsequently held various management positions within Sony Europe, the Belgian cable operator (Telenet), and Alpha Technologies Europe, with responsibilities pertaining to sales, budgeting, pricing, marketing and strategic planning. In CENELEC, Mr Cops is a member of the Working Group Policy and the BT Efficiency group.



## Shawn Paulsen

IEC Vice-President  
 Chair of Conformity Assessment Board (CAB)  
 (Canada)

Mr Paulsen began his three-year term as Chair of the Conformity Assessment Board (CAB) and IEC Vice-President on 1 January 2018. At present, he is the Manager of Conformity Assessment within the CSA Group in Canada. Previously he was the Chief Electrical Inspector in the Department of Public Safety for the New Brunswick Provincial Electrical Regulator and was the Provincial representative on national codes, standards and conformity assessment committees. Mr Paulsen was a member of the CAB from 2012 to 2017 and has wide experience in both technical and policy standards work having been involved with a number of Canadian and international activities.

## Kazuhiko Tsutsumi

IEC Vice-President  
 Convenor of IEC Market Strategy Board (MSB)  
 (Japan)

Dr Tsutsumi began his three-year term as IEC Vice-President on 1 January 2019 with the specific task of strengthening the role and activities of the Market Strategy Board (MSB) to enhance IEC capacity to respond effectively to market and society needs. Dr Tsutsumi is also Convenor of the MSB. Prior to that, Dr Tsutsumi has served as a member of the IEC Council Board from June 2017 until the end of 2018 and member of the MSB from 2015 to 2017. At present, he is Corporate Advisor at Mitsubishi Electric Corporation, where he has worked for more than 35 years.

## Ralph Sporer

IEC Vice-President  
 Chair of IEC Standardization Management Board (SMB)  
 (Germany)

Dr Sporer began his first three-year term as Chair of the Standardization Management Board (SMB) and IEC Vice-President on 1 January 2017. He joined the Siemens Company in 1996 and is at present Manager for Standardization and Regulation after having held various positions in research and development and consulting within the company. Dr Sporer was Chair of the IEC Advisory Committee on energy efficiency from 2013 to 2016 and has also been chairing the European Smart Grid Coordination Group since 2010.

## Frans Vreeswijk

IEC General Secretary & CEO  
 (The Netherlands)

Mr Vreeswijk became IEC General Secretary and CEO on 1 October 2012, having served as Deputy General Secretary since March 2012. Prior to joining IEC Central Office, he worked for 30 years for Philips in the Netherlands, Austria and the US, notably in research, healthcare and consumer electronics. Previously he was President of the IEC National Committee of the Netherlands (NEC) and served on the IEC Council Board and Standardization Management Board (SMB) as well as representing the Netherlands in CENELEC.



# Ambassadors

IEC ambassadors help reach key stakeholders in industry, government and academia to endorse IEC work. They are appointed by the IEC Executive Committee (ExCo) for a two-year term, renewable twice.



**Hiromichi Fujisawa**

Advisor  
Perceptual Computing Laboratory  
Waseda University

Appointed IEC Ambassador to reach out to regulators in the area of conformity assessment and to enhance the involvement of academia in IEC work



**Lim Say Leong**

Technical Director  
Sunlight Electrical

Appointed IEC Ambassador to represent IEC interests in the area of energy efficiency



**Jingyi Hu**

Director, Internet of Things (IoT)  
Research Centre  
China Electronics Standardization  
Institute (CESI)

Appointed IEC Ambassador to represent IEC interests in the areas of IoT and smart manufacturing



**James E. Matthews  
III**

Director of worldwide standards  
engineering activities for multiple  
business divisions across  
Corning Inc.

Appointed IEC Ambassador to represent IEC in the areas of the systems approach to standardization and ICT activities



**Richard Schomberg**

Vice-President, Smart Energy  
Standardization  
EDF Group

Appointed IEC Ambassador to represent IEC interests  
in the area of smart energy

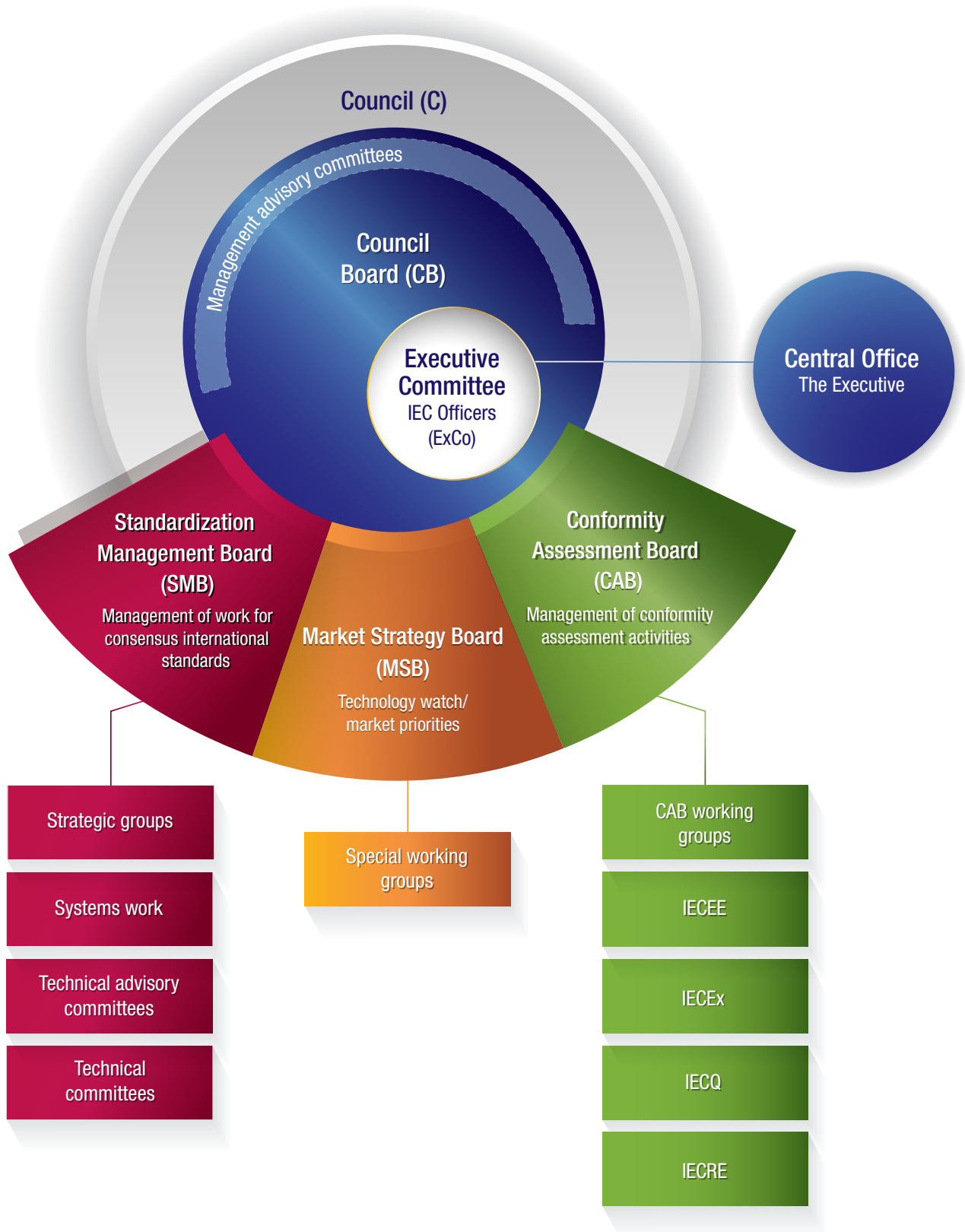


**Hao Wei**

Director General  
China Information Security  
Certification Center

Appointed IEC Ambassador to represent IEC interests  
on issues related to cyber security

# Governance structure





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# Financial highlights

The IEC is financed by a combination of membership dues and revenues from the sales of its publications, certificates and services.

In the IEC Statutory Accounts, total membership dues amounted to CHF 12.70M (CHF 11.20M for IEC Standards & Services and CHF 1.50M for IEC CA Systems) while net revenues from sales and royalties came to CHF 12.44M.

This – along with IEC CA Systems operations and other miscellaneous income – resulted in a total net operational income of CHF 28.64M. With total operational expenditure for the year at CHF 27.90 M, of which personnel costs represented CHF 20.47M, the IEC produced an operational result for 2019 of CHF 0.74M. Taking into account depreciation and the net financial result, an allocation of CHF 2.95M was attributed to capital & reserves: CHF 1.36M for IEC Standards & Services, CHF 0.68M for IEC CA Systems and CHF 0.91M for the Guarantee Fund.





Balance sheet as at 31 <sup>st</sup> December 2019	2019	2018
	CHF	CHF
<b>Assets</b>		
<b>Current assets</b>	<b>50 569 953</b>	<b>50 418 712</b>
<b>Cash &amp; cash equivalents</b>	<b>9 741 455</b>	<b>10 669 021</b>
<b>Securities</b>	<b>32 696 144</b>	<b>30 795 814</b>
Securities (IEC pool investment)	24 969 514	24 085 325
Securities (guarantee fund)	7 726 630	6 710 489
<b>Accounts receivable</b>	<b>2 732 218</b>	<b>3 080 779</b>
Publications and royalties	1 358 678	1 292 622
Membership dues (all years)	501 660	896 600
CA products receivable	871 879	421 502
Pension fund	0	470 055
<b>Other receivables</b>	<b>108 163</b>	<b>119 210</b>
<b>Prepaid expenses and accrued income</b>	<b>5 291 973</b>	<b>5 753 888</b>
<b>Long term assets</b>	<b>4 696 844</b>	<b>2 441 672</b>
Rental guarantee	136 570	136 565
Tangible fixed assets, net	141 965	102 753
Intangible assets in progress	3 351 492	2 202 354
Trademarks	1 066 817	0
<b>Total assets</b>	<b>55 266 797</b>	<b>52 860 384</b>
<b>Liabilities, capital &amp; reserves</b>		
<b>Current liabilities</b>	<b>11 848 236</b>	<b>12 386 912</b>
<b>Short-term liabilities</b>	<b>9 642 978</b>	<b>8 121 015</b>
Suppliers	850 219	302 758
Royalties to be paid	7 263 824	7 108 525
Corporate accounts (note + revenue recognition)	206 676	236 889
Current account with pension fund	523 272	0
Social charges and insurances to be paid	91 671	24 737
Accrued liabilities	707 316	448 106
<b>Deferred income</b>	<b>396 481</b>	<b>371 676</b>
Membership dues received in advance	396 481	371 676
<b>Provisions</b>	<b>1 808 777</b>	<b>3 894 221</b>
Provision for untaken holiday	353 890	387 274
Provision for extraordinary expense	585 515	2 637 575
Provision for IECEx & IECQ	869 372	869 372
<b>Capital &amp; reserves</b>	<b>43 418 561</b>	<b>40 473 473</b>
<b>Free capital</b>	<b>16 063 618</b>	<b>15 383 162</b>
Capital fund IEC Standards & Services	9 339 861	9 339 861
Capital fund IEC CA Systems	6 723 757	6 043 300
Capital fund IECEE	4 426 646	4 143 156
Capital fund IECEx	2 150 353	1 841 177
Capital fund IECQ	378 937	352 954
Capital fund IECRE	(232 179)	(293 987)
Other free capital	0	0
<b>Designated funds</b>	<b>18 847 972</b>	<b>17 492 119</b>
<b>Designated funds IEC Standards &amp; Services</b>	<b>17 947 972</b>	<b>16 592 119</b>
Reserve for operational & financial risk	1 277 493	277 493
Reserve for fluctuation of investment portfolio	1 300 000	1 300 000
Reserve for equipment depreciation & renewal	1 940 696	2 028 350
Reserve for standards development & business platform	2 896 000	2 896 000
Reserve for general meeting	800 000	800 000
Reserve for masterplan implementation	2 983 436	2 539 930
Reserve for innovation	6 750 346	6 750 346
<b>Designated funds IEC CA Systems</b>	<b>900 000</b>	<b>900 000</b>
IECEE reserve for risks on surcharges	900 000	900 000
<b>Guarantee fund</b>	<b>8 506 971</b>	<b>7 598 192</b>
<b>Total liabilities, capital &amp; reserves</b>	<b>55 266 797</b>	<b>52 860 384</b>

Due to rounding, numbers presented throughout this document may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures

Statement of income & expenditure as at 31 <sup>st</sup> December 2019		2019	2018
		CHF	CHF
<b>Income</b>			
Membership dues		12 702 068	12 457 461
<b>IEC Standards &amp; Services</b>		<b>11 239 633</b>	<b>11 222 433</b>
<b>IEC CA Systems</b>		<b>1 462 435</b>	<b>1 235 028</b>
IECEE		836 435	607 528
IECEX		200 000	197 500
IECQ		307 000	298 000
IECRE		119 000	132 000
<b>Net sales</b>		<b>2 749 313</b>	<b>2 722 765</b>
IEC Standards & Services gross sales		6 265 737	6 454 275
Commission & other expenses		(139 038)	(144 410)
Royalties to NCs		(3 385 825)	(3 595 320)
IEC CA Systems sales		8 439	8 220
<b>Net royalties</b>		<b>9 686 650</b>	<b>9 707 362</b>
Gross royalties		12 933 684	13 238 284
Royalties to NCs		(3 247 034)	(3 530 922)
<b>IEC CA Systems operations</b>		<b>3 438 880</b>	<b>3 698 606</b>
IECEE		764 866	1 031 365
IECEX		475 758	644 619
IECQ		1 827 403	1 662 472
IECRE		370 853	360 150
<b>Other income</b>		<b>60 858</b>	<b>41 612</b>
<b>Total operational income</b>		<b>28 637 769</b>	<b>28 627 806</b>
<b>Expenditure</b>			
<b>Personnel expenses</b>		<b>20 468 877</b>	<b>19 668 545</b>
<b>IEC Standards &amp; Services personnel</b>		<b>17 654 847</b>	<b>16 997 365</b>
Gen Sec office & admin		5 386 299	4 921 689
Standards development		6 927 015	6 714 087
Promotion		2 409 405	2 789 660
IT		2 932 128	2 571 929
<b>IEC CA Systems personnel</b>		<b>2 814 030</b>	<b>2 671 180</b>
IECEE		1 111 961	1 037 697
IECEX		442 192	421 136
IECQ		956 000	911 852
IECRE		303 877	300 495
<b>Rent &amp; maintenance</b>		<b>984 123</b>	<b>927 422</b>
<b>IEC Standards &amp; Services</b>		<b>836 060</b>	<b>777 848</b>
<b>IEC CA Systems</b>		<b>148 063</b>	<b>149 574</b>
<b>Office &amp; administration</b>		<b>3 605 210</b>	<b>3 172 399</b>
<b>IEC Standards &amp; Services</b>		<b>2 535 536</b>	<b>2 093 930</b>
IT		938 595	596 161
Legal & audit		263 915	300 074
White papers		119 658	153 367
Other office & administration		1 213 368	1 044 328
<b>IEC CA Systems</b>		<b>1 069 674</b>	<b>1 078 469</b>
IECEE		254 232	241 994
IECEX		107 995	211 140
IECQ		660 041	571 302
IECRE		47 406	54 033
<b>Communications &amp; printing</b>		<b>629 544</b>	<b>756 509</b>
<b>IEC Standards &amp; Services</b>		<b>562 921</b>	<b>686 755</b>
Communications		450 790	567 335
Printing		112 131	119 420
<b>IEC CA Systems</b>		<b>66 623</b>	<b>69 754</b>

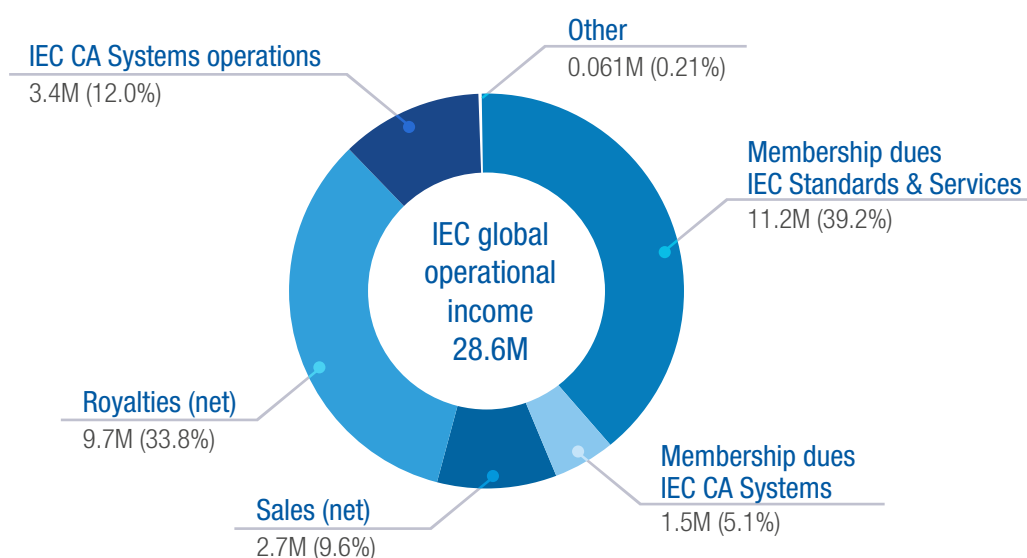
## Financial highlights

Meetings & travel expenses	2 211 173	2 154 510
<b>IEC Standards &amp; Services</b>	<b>1 741 810</b>	<b>1 644 427</b>
Meeting	382 716	304 928
Travel	1 305 391	1 281 586
Special events	53 703	57 913
<b>IEC CA Systems</b>	<b>469 363</b>	<b>510 083</b>
IECEE	217 354	191 191
IECEX	82 460	89 457
IECQ	119 157	171 459
IECRE	50 392	57 976
<b>Total operational expenditure</b>	<b>27 898 928</b>	<b>26 679 385</b>
<b>Operational result</b>	<b>738 841</b>	<b>1 948 421</b>
<b>Depreciation</b>	<b>(87 653)</b>	<b>(45 972)</b>
<b>Net financial revenue</b>	<b>2 293 900</b>	<b>(993 986)</b>
IEC Standards & Services	1 046 664	(501 022)
IEC CA Systems	338 457	(97 847)
Guarantee fund	908 779	(395 117)
<b>Operational &amp; financial result</b>	<b>2 945 088</b>	<b>908 463</b>
<b>Operational &amp; financial result before allocations</b>	<b>2 945 088</b>	<b>908 463</b>
<b>IEC Standards &amp; Services</b>	<b>1 355 853</b>	<b>938 633</b>
<b>IEC CA Systems</b>	<b>680 457</b>	<b>364 947</b>
IECEE	283 490	32 089
IECEX	25 983	85 373
IECQ	309 176	199 883
IECRE	61 808	47 602
<b>Guarantee fund</b>	<b>908 779</b>	<b>(395 117)</b>
Extraordinary expense	0	2 800 000
<b>Extraordinary result</b>	<b>0</b>	<b>(1 891 537)</b>
<b>Allocations</b>		
<b>Allocation from reserves for extraordinary expense</b>	<b>0</b>	<b>2 800 000</b>
Reserve for operational & financial risk	0	2 800 000
<b>Operational &amp; financial result</b>	<b>2 945 088</b>	<b>908 463</b>
<b>Allocations (to)/from capital &amp; reserves</b>	<b>(2 945 088)</b>	<b>(908 463)</b>
<b>Capital fund IEC Standards &amp; Services</b>	<b>0</b>	<b>0</b>
<b>Capital fund IEC CA Systems</b>	<b>(680 457)</b>	<b>(364 947)</b>
Capital fund IECEE	(283 490)	(32 089)
Capital fund IECEX	(309 176)	(199 883)
Capital fund IECQ	(25 983)	(85 373)
Capital fund IECRE	(61 808)	(47 602)
<b>Guarantee fund</b>	<b>(908 779)</b>	<b>395 117</b>
Other free capital	0	1 260 934
<b>Designated funds IEC Standards &amp; Services</b>	<b>(1 355 853)</b>	<b>(2 199 567)</b>
Reserve for equipment depreciation & renewal	87 653	45 972
Reserve for operational & financial risk	(1 000 000)	0
Reserve for masterplan implementation	(443 506)	(2 245 539)
<b>Annual position after allocations</b>	<b>0</b>	<b>0</b>

	2019				2018			
	CHF		CHF		CHF		CHF	
	IEC total	IEC Standards & Services	Guarantee fund	IEC CA Systems	IEC total	IEC Standards & Services	Guarantee fund	IEC CA Systems
<b>Operational income</b>								
Membership dues	12 702 068	11 239 633	0	1 462 435	12 457 461	11 222 433	0	1 235 028
Sales (net)	2 749 313	2 740 874	0	8 439	2 722 765	2 714 545	0	8 220
Royalties (net)	9 686 650	9 686 650	0	0	9 707 362	9 707 362	0	0
IEC CA Systems operations	3 438 880	0	0	3 438 880	3 698 606	0	0	3 698 606
Other	60 858	60 858	0	0	41 612	41 612	0	0
<b>Total operational income</b>	<b>28 637 769</b>	<b>23 728 015</b>	<b>0</b>	<b>4 909 754</b>	<b>28 627 806</b>	<b>23 685 952</b>	<b>0</b>	<b>4 941 854</b>
<b>Operational expenditure</b>								
Personnel	20 468 877	17 654 847	0	2 814 030	19 668 545	16 997 365	0	2 671 180
Rent & maintenance	984 123	836 060	0	148 063	927 422	777 848	0	149 574
Office & administration	3 605 210	2 535 536	0	1 069 674	3 172 399	2 093 930	0	1 078 469
Communications & printing	629 544	562 921	0	66 623	756 509	686 755	0	69 754
Meetings & travel	2 211 173	1 741 810	0	469 363	2 154 510	1 644 427	0	510 083
<b>Total operational expenditure</b>	<b>27 898 927</b>	<b>23 331 174</b>	<b>0</b>	<b>4 567 753</b>	<b>26 679 385</b>	<b>22 200 325</b>	<b>0</b>	<b>4 479 060</b>
<b>Operational result</b>	<b>738 842</b>	<b>396 841</b>	<b>0</b>	<b>342 001</b>	<b>1 948 421</b>	<b>1 485 627</b>	<b>0</b>	<b>462 794</b>
Depreciation	(87 653)	(87 653)	0	0	(45 972)	(45 972)	0	0
Financial income (net)	2 293 900	1 046 664	908 779	338 457	(993 986)	(501 022)	(395 117)	(97 847)
<b>Operational &amp; financial result before allocations</b>	<b>2 945 089</b>	<b>1 355 852</b>	<b>908 779</b>	<b>680 458</b>	<b>908 463</b>	<b>938 633</b>	<b>(395 117)</b>	<b>364 947</b>

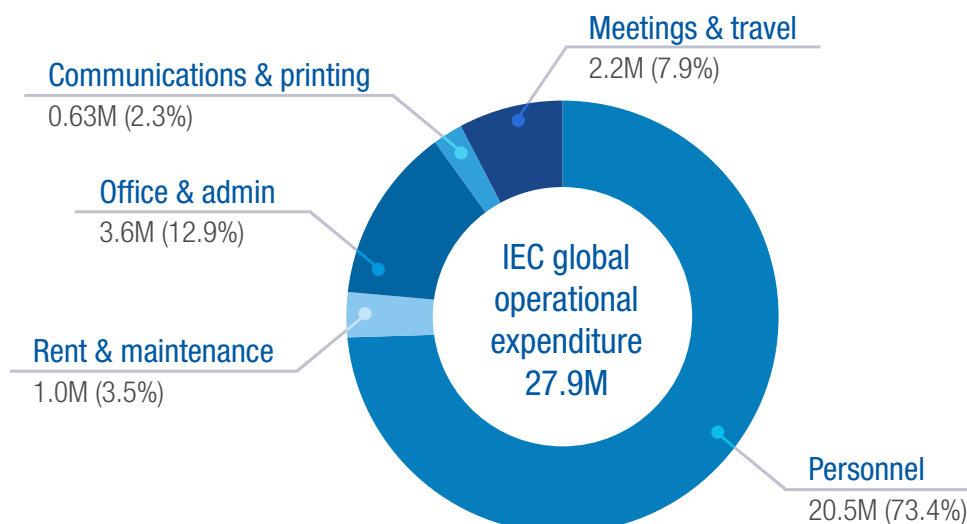
## IEC – Global operational income

The major component of IEC income (87.8%) is derived almost equally from membership dues and net sales & royalties of IEC Standards. Income from IEC CA Systems represented 12.01% of global revenue.



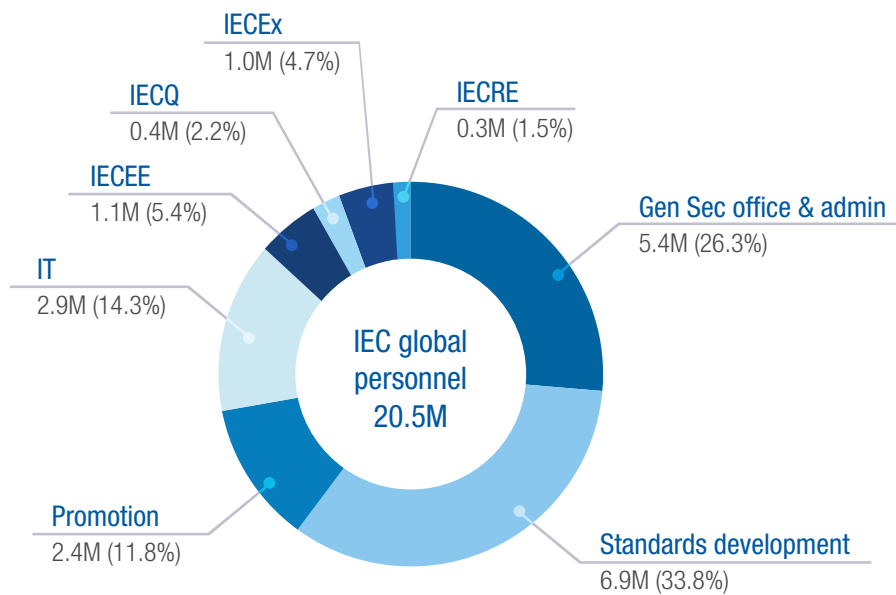
## IEC – Global operational expenditure

As a service organization dealing almost exclusively in intellectual property, it is logical that personnel should account for the majority (73.4%) of IEC expenditure.



## IEC – Global personnel

A breakdown of personnel costs shows that the largest concentration of effort and expenditure is centred on the development of IEC Standards.



In a move to increase transparency, comprehension and comparability of its financial data, the IEC decided to transition to Swiss GAAP accounting standards during 2018. Swiss GAAP was adopted to give management, members and the community a better overall insight into the operations of the IEC, thus facilitating communication, understanding, planning and decision-making.





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# Further information

Please visit the IEC website at [www.iec.ch](http://www.iec.ch) for further information. In the “About the IEC” section, you can contact your local IEC national committee directly. Alternatively, please contact the IEC Central Office in Geneva, Switzerland or the nearest IEC Regional Centre.

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