



focus

#123

Your gateway to International Standards

A high-angle photograph of Geneva, Switzerland, showing the city's architecture, the Lake Geneva, and the Jet d'Eau fountain. The scene is captured during the golden hour, with warm sunlight illuminating the buildings and the water. A stone tower is visible on the left side of the frame.

Making history



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#123



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ISOfocus

July-August 2017

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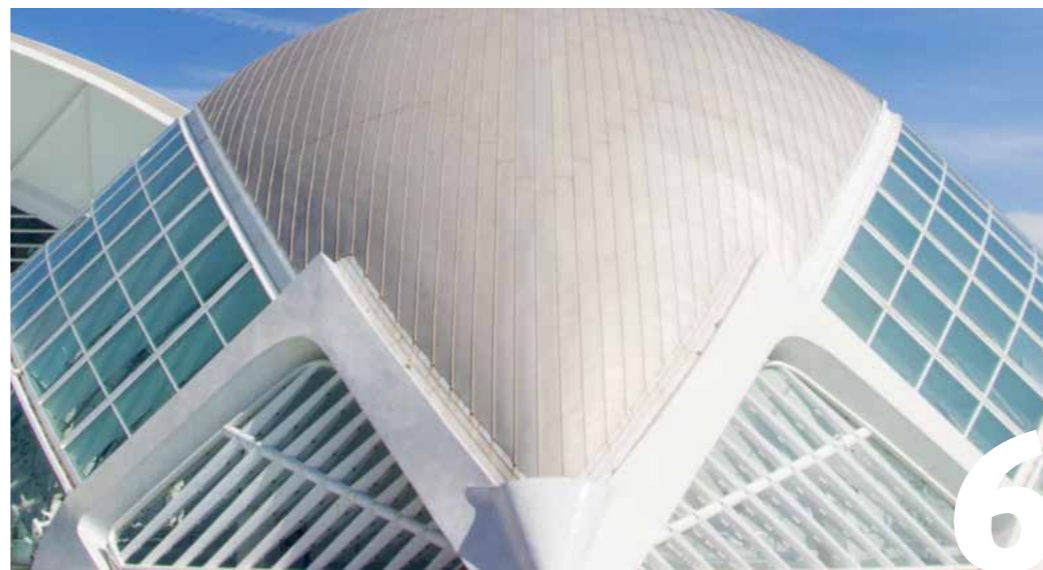
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70 years and going...



Dr Zhang Xiaogang, ISO President.

In 2017, ISO is celebrating 70 years of activity. It is an opportunity to reflect – to look back on ISO’s history and take stock of its enduring achievements. It is also an opportunity to spotlight where ISO, and the international community as a whole, needs to redouble its efforts to meet current and future challenges across the three pillars of sustainable development.

Only when we work together,
can we overcome
shared challenges.

strong !

Much has changed since we first opened our doors 70 years ago, but with passion and determination, we have built a strong, resilient organization ready to withstand, and adapt to, the uncertainties of today’s dynamic, interconnected world. From the birth of the first ISO standard in 1951 to our emblematic management systems standards and our latest adaptation for educational institutions, ISO has been unrelenting in its drive to succeed.

But the need for collaboration, for putting our differences aside and searching for consensus – core building blocks of the ISO process – remains as important as ever. Only when we work together can we overcome shared challenges.

Many of the challenges we face today have been included in the United Nations Development Agenda with its Sustainable Development Goals (SDGs). Launched in 2015, these goals set ambitious targets for the next 15 years and will help concentrate international action to end poverty, protect the planet and ensure prosperity for all.

There are many standards and tools that can help organizations and companies all over the world to address this agenda. As an example, ISO has International Standards that help users to measure and reduce their carbon footprint, to safely reuse wastewater for irrigation, to develop sustainable procurement practices, to tackle bribery and corruption within their organizations, and many, many more. In addition to tackling challenges, International Standards also serve as the foundation of the global

economy and are the fundamental building blocks for innovation and competitiveness on the global stage. They will help us ensure industry growth areas, including the development of innovative technologies such as smart cities, the Internet of Things and cyber security, as well as the continuing shift to a services-based economy. This is because they represent the state-of-the-art knowledge of experts in their respective fields. But importantly, due to their international nature, we can also be confident that they are applicable everywhere. They represent a common goal and a common path to reach it, on an international scale.

Against this complex backdrop, ISO is at an important juncture as it celebrates its 70th anniversary. We have seven decades of exceptional work and achievements, but very challenging times lie ahead of us as we seek to build a better and safer future for all. We believe that our efforts in this regard will ultimately lead to greater socio-economic development and stimulate economic growth as we tap into new and diverse growth areas for the development of standards.

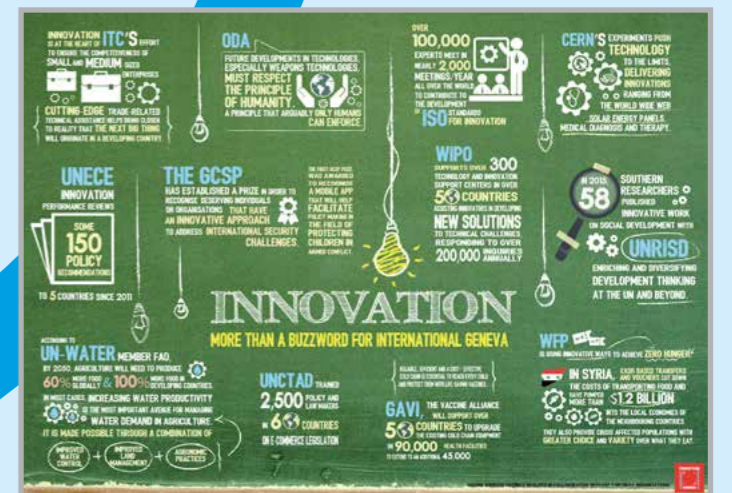
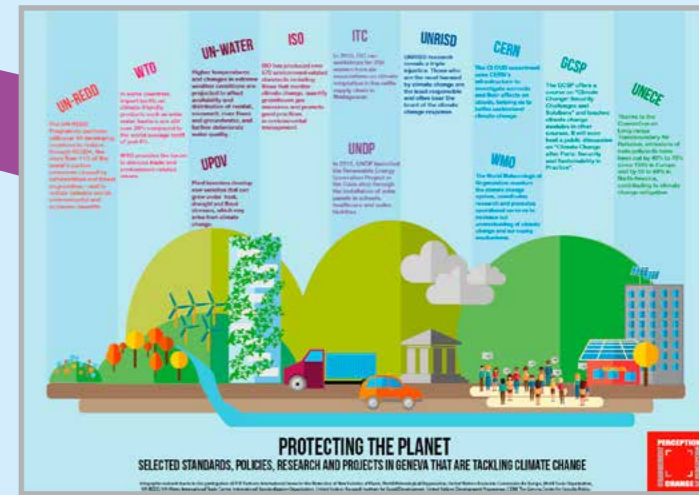
The story of ISO is still being written, and as the next chapter unfolds, I am confident that it will chronicle our continued success despite the changing tides in our rapidly evolving world. ISO looks forward to tackling these challenges, and overcoming them with the continued support of our 163 members from around the world, our passionate and committed experts, our long-time regional and international partners, as well as our valued customers. ■

Picture of collaboration

What better way to illustrate how the work of international organizations complements and builds on each other's than by showing that we are on the same page? Literally. That is the inspiration behind a series of infographics created by the Perception Change Project (PCP).

The goal of the United Nations-led PCP initiative is to showcase the collective effort of international organizations and partners in Geneva to further peace, human rights and well-being in the world. Infographics are just one of their many creative activities. In order to bring this information together and find innovative and powerful ways to share it, the PCP established a network of communicators from over a hundred international organizations, including ISO. The illustrations are disseminated through social media, newspapers and posters. By speaking with one voice, international organizations can pool their audiences together and cast a wider net, while emphasizing the complementarity of their work in the context of humanitarian assistance, peacekeeping and global health in everyday life. It's no surprise that ISO is an enthusiastic participant in this initiative. Back in 1949, when the organization held its very first General Assembly, it adopted a resolution underscoring the importance of forging links with international organizations and the United Nations. Collaboration has been at the heart of who we are from the beginning.

www.geneve-int.ch/infographics



*Why the future
belongs to*
STANDARDS



by Elizabeth Gasiorowski-Denis

A quick glance at the accelerating technological change over recent years, and the subsequent upheavals, could be enough to make us all fear for the future of the global economy. However, there are good reasons to be hopeful: the rapid changes in today's interconnected world call for a renewed interest in international standards, making them more important than ever.



Change is nothing new. Nobel laureate Bob Dylan sang that “the times they are a-changin’...” back in 1964. The difference today is the pace of change. In his book, *Thank You for Being Late: An Optimist’s Guide to Thriving in the Age of Accelerations*, Thomas Friedman sees the world at a turning point. He believes that technology, globalization and climate change are reshaping our institutions – and rapidly. As his subtitle notes, this is an “age of accelerations” and we all need to keep up or risk getting left behind. Given Friedman’s thinking on “accelerations” in technology and the disruptions it can cause, it is tempting to consider the impact on the “institution of standardization”. First, what is the rightful place of international standards in today’s global economy? Second, does cross-organization collaboration offer any clues about the nature and impact of world trade? To answer those questions, consider the simple fact that globalization is connecting economies and cultures throughout the world like never before. Globalization is one of Friedman’s forces in the “age of accelerations”. But globalization is meaningless if you don’t have international standards. What does it mean to globalize if you can’t fall back on standards when trading globally? I put this to Erik Wijkström, Counsellor, Trade and Environment Division of the World Trade Organization (WTO), and Paramita Dasgupta, Practice Manager for Trade & Competitiveness for the Asia Region at World Bank Group, and spoke to them about the

impact these changes are having on international standards – and the role of international standards in our economic future.

“Made in the World”

Evidence of the radical changes Friedman describes in his book is all around us, in every part of our lives. Today, companies divide their operations across the world, from the design of the product and manufacturing of components to assembly and marketing, creating international production chains.

More and more products are “Made in the World” rather than “Made in the UK” or “Made in France”. Globalization is connecting economies and cultures worldwide. A car sold in Canada, for example, can be designed in France, with parts from Australia. A pair of pants sold in the United Kingdom can be made from South African cotton by factory workers in Thailand.

The nature of global trade is shifting once again. Wijkström says: “In a world with lower tariffs and lower transportation costs, trade patterns have changed, production has become more fragmented and dispersed; bits and pieces of products are produced in several countries, across several firms, before

they come together as a final product for the consumer – a pattern of trade often referred to as global value chains.”

He argues that this trend makes the use of international standards even more important. Compliance with such standards, he says, “provides vital confidence to buyers and sellers along the value chain that inputs are compatible and safe”.

As successes or failures in one place affect people around the globe, this interdependency has profound consequences for international standards. However, the real breakthrough is coming about as their use is gaining traction in global trade.

Wijkström says that standards are so pervasive that explaining their usefulness is often best done by pointing at problems that arise from their absence. For example, plugs that don’t fit, paper jams in printers – or, imagine laptops with different types of ports for flash drives, or credit cards with different dimensions.

Changing patterns in global trade magnify the importance of these issues, he says. “A zero tariff does not help if the product traded does not ‘fit’ with another piece of equipment or component, or if there is a lack of confidence that the product is safe or of sufficient quality.”

The benefits of implementing standards – in hard figures

Implementing standards consistently provides benefits for companies, regardless of their size, business sector or which country they are based in.

Economic benefits

The benefits of using standards are valued at between 0.15% and 5% of annual sales revenues, in terms of contribution to company gross profit or EBIT (Earnings Before Interest and Taxes).

The bottom line

Quantified benefits include:

- Streamlining internal company processes
- Decreasing waste and internal costs
- Increasing the efficiency of R&D
- Innovating business processes
- Reducing risk
- Enabling international expansion
- Supporting development of new products and markets

These findings are taken from case studies published in the book *Economic benefits of standards*. You will find more information about these and other case studies on our “Benefits of standards” Web page.

Germany
Siemens AG



impact on
the company's
EBIT
in the switch
technology
business sector

(Vol. 1, pp. 244, 253)

Singapore
NTUC Fairprice



SGD 13.6 million

in operational
savings
from
1999 to 2009

(approx. USD 9 800 000
at May 2017 exchange rates)

(Vol. 1, pp. 68, 71)

Challenges and barriers

However, the picture is not all rosy. While trade liberalization has helped to lower tariffs to international trade, the importance of non-tariff measures in countries around the world has increased. Compared to tariffs, these measures are sometimes less transparent and often have ambiguous effects on trade. Nevertheless, government laws, regulations, policies or practices may be entirely justified – such as those limiting pesticide residues in food (food safety) or toxins in toys (child health). WTO rules strive to reduce as far as possible measures that *unnecessarily* impede market access while not undermining those that are effective in achieving their public policy objectives.

The recent focus in the WTO's Committee on Technical Barriers to Trade (or TBT Committee) on how to demonstrate compliance with standards, says Wijkström, “underscores the difficulties with non-tariff barriers”. In practice, he adds, this might be about removing measures that involve too much red tape or time spent waiting at the border (Trade Facilitation Agreement), avoiding duplicative testing requirements (Technical Barriers to Trade Agreement), or ensuring that pesticide residue limits are not set arbitrarily but are based on sound science (Sanitary and Phytosanitary Agreement).

But here's the thing, Wijkström cautions: an inability to show compliance with requirements in standards and regulations may become a significant hurdle for companies wanting to participate in international trade, effectively “disconnecting” participants from value chains. “The smaller players (developing country SMEs) are particularly vulnerable,” he says; “for them the cost of compliance or demonstrating conformity – or even simply getting information about requirements in foreign markets – can become disproportionately high”.

To address this problem, the WTO, United Nations Department of Economic and Social Affairs (UN DESA) and International Trade Centre (ITC) have all joined forces and recently launched a new alert facility called ePing aimed at helping stakeholders (government, industry, SMEs, and civil society) keep track of product requirements in foreign markets. This is also why the WTO advocates the use of international standards. “Indeed, the use of relevant international standards is strongly encouraged in WTO disciplines because they can provide a sound basis for aligning government regulation, and, moreover, they often represent a high degree of consensus on how to deal with specific technical issues in an efficient (and often less trade-restrictive) manner,” Wijkström says.

More and more products are “Made in the World”.

The screenshot shows the ePing website interface. At the top, it says "ePing SPS & TBT notification alert system" with logos for WTO, ITC, and UNCTAD. Below the header is a navigation bar with "search notifications", "help", "subscribe", and "login". The main content area features a world map with arrows pointing to various regions, and the text "Keep track of product requirements in foreign markets". Below this is a section titled "What is eping?" which explains that WTO members establish SPS and TBT regulations, and the ePing system allows users to stay updated. At the bottom, there are three columns: "Search notifications" (with a search icon), "Register for alerts" (with a bell icon), and "Collaborate" (with a group of people icon). The footer includes "ePing ©2016 About us Copyright Disclaimer Contact" and "Photo: DESA/ITC/WTO".

China
Xinxing Ductile Iron
Pipes Co. Ltd

Nearly
CNY 68 million
financial impact
on
selected
business
functions

(approx.
USD 10 772 700
at May 2012
exchange rates)

(Vol. 2, p. 235)

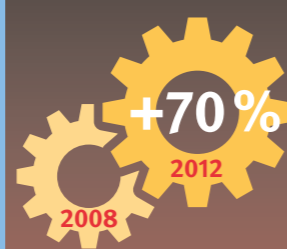
Brazil
Festo Brasil



30%
saving in procurement
costs for
standards-based goods
vs
non-standards-based
goods

(Vol. 1, p. 139)

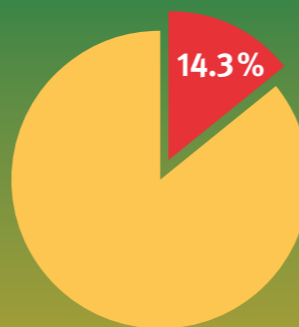
Egypt
Juhayna Food
Industries S.A.E.



70%
increase in
manufacturing
efficiency from
2008 to 2012

(Vol. 2, p. 75)

South Africa
Pretoria Portland Cement
Company Limited
(PPC Cement)



14.3%
savings on
total R&D costs

(Vol. 1, p. 239)

Optimism prevails

To understand the new phase of global trade that lies ahead, it's important first to understand how international standards can help. Paramita Dasgupta says standards are integral to international trade, and trade is a critical component of achieving economic growth.

“Standards build confidence in the quality and safety of traded products (especially those from developing countries) by proving that they adhere to certain requirements, level the playing field on environmental issues, help protect consumers from harmful practices, and help small and medium enterprises compete internationally by spreading technology and best practices.”

The shifting tectonics of the modern economy make a clear case for the important role that international standards can play in driving sustainable and inclusive development, tackling inequality and helping to address some of the biggest social and environmental challenges targeted by the United Nations' Sustainable Development Goals (SDGs).

Dasgupta says the international community has pledged to tackle market access barriers in a sustained and systematic fashion. For example, SDG 17 on strengthening the global partnership for sustainable development includes a commitment to increase the exports of developing countries and to enhance market access for exports from least-developed countries. As it happens, she adds, some of the SDG 17 targets related to trade entail or presuppose the completion of the WTO's Doha Development Agenda, a round of trade negotiations that seek to improve market access for exports from developing countries as one of the main objectives.

International standards
will be a growing factor
in our economic future.

Using international standards in shaping our response to the SDGs in our interconnected economy could prove to be the best decision the world has ever made. In particular, if the international collaboration on the SDGs bears fruit, the most marginal members of society will be rewarded. The success will be a win-win for all.

The importance of standards adoption across many dimensions is well known, says Dasgupta. “International standards have a big impact in that they support sustainable economic growth, help to provide good regulatory practice, and promote open international trade by reducing technical barriers – all of which are top priorities for the World Bank Group.”

She goes on to say that, in our fast-changing world, including that of standards, partnerships are essential for organizations like ISO to adapt to market access challenges. “The World Bank Group's partnership with ISO is an excellent example: it gives our clients access to ISO's technical expertise. Our joint priorities include analytical activities, technical assistance, joint training and events,” she says.

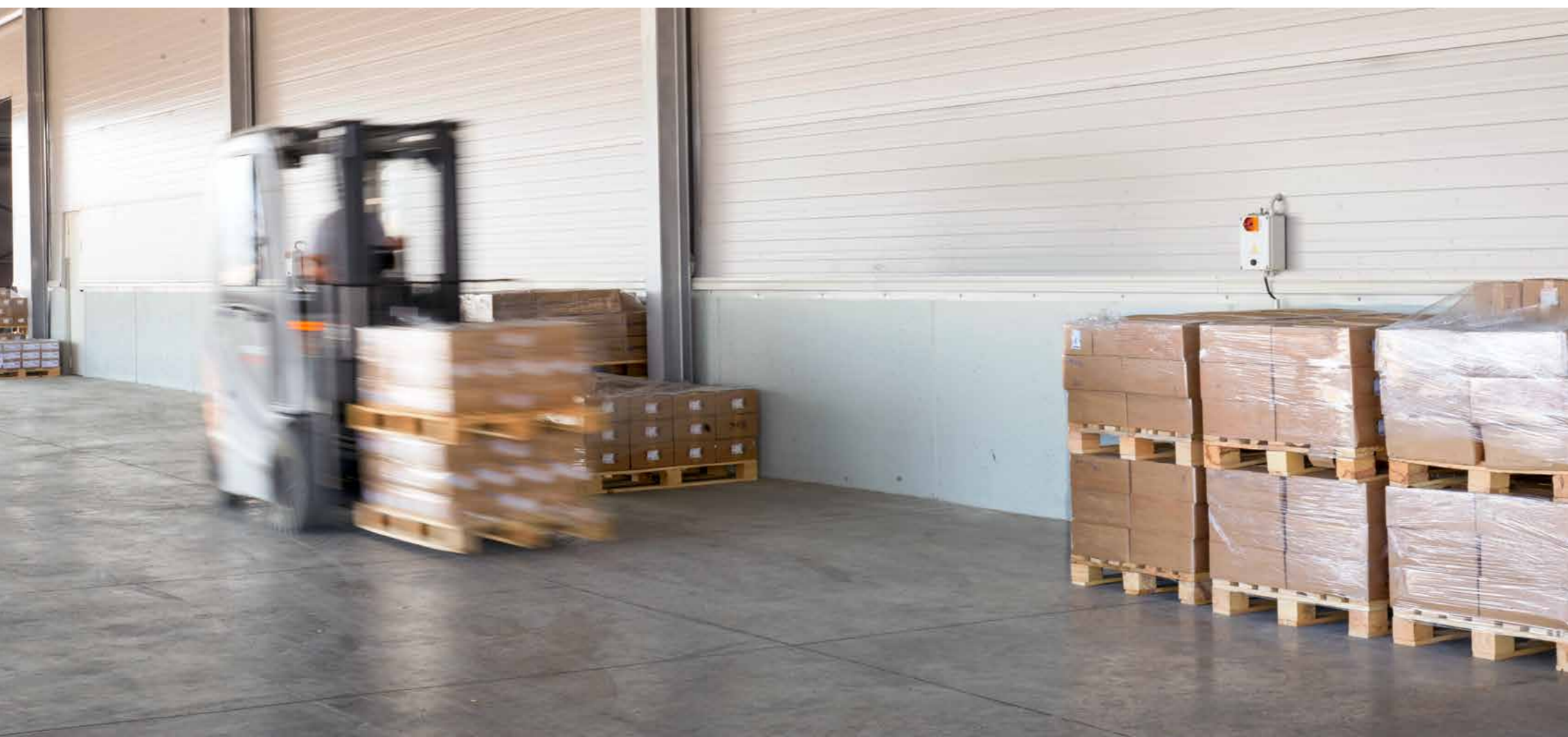
The World Bank Group also believes that private-sector collaboration is central to the standards agenda. There is a shift underway in how development partners design and implement activities to help developing country firms use standards to participate in trade. There is now a recognition that public-private partnership is no longer an option – it is essential.

Looking forward

Of course, a world with barriers-to-trade deals does not mean the end of trade. Instead, as Dasgupta points out, this calls for new alliances across institutions and international collaborations. Converting the promising world agenda into actual accomplishment will require the world to move forward. In other words, success will require partnerships.

We are all beneficiaries of open, fair trade. We are all beneficiaries of international standards, key to economic growth and sustainable development in a world bound ever closely together. We do not live in a perfect world; but we do live in a perfectible one. History shows that, over the long run, we have collectively made progress – and change – work.

Together, we can reduce trade barriers and create a more stable and transparent trading and investment environment, and so effect real change for our people and the world. International standards will be a growing factor in our economic future. So, let's work together to keep up, or be left behind... ■



Economists have reasons to be cheerful

ISOfocus sat down with renowned economist and economics consultant Simon Baptist to discuss the state of our global economy. What he says seems to very much support – encourage, even – the widespread use of International Standards to help meet the challenges of new technologies and benefit the global economy.



Simon Baptist,
Global Chief Economist,
The Economist
Intelligence Unit.

Simon Baptist is the Global Chief Economist at The Economist Intelligence Unit (EIU). He is responsible for providing intellectual leadership for the EIU's coverage, for ensuring that its economic and political analysis and forecasts are the best available for international decision makers, and for managing a global team of economists, consultants and editors. Here are a few highlights from the interview.

***ISOfocus*: The global economy is changing. How can an organization like ISO support, or adapt to, these changes?**

Simon Baptist: Standards play an important role in achieving the benefits from a globalized economy; for example, by allowing customers in different markets to be confident in product quality or to assist regulators in harmonizing approvals. Bringing more countries and sectors into widespread use of International Standards will be useful, as will staying on top of the challenges posed by new production technologies, such as robotics and artificial intelligence (or AI), and emerging needs for standardized procedures around increasingly important issues such as data.

What do you feel hopeful about for the future?

I am still optimistic about the long-term potential of emerging markets such as China. Urbanization has a long way to go in many places and this can lead to a lot of new opportunities as even basic urban jobs tend to be higher productivity than subsistence agriculture. City dwellers can also be more easily connected to infrastructure and, therefore, to the global export markets that almost all emerging countries need to reach to propel people to middle- and higher-income status. Many economists worry about whether productivity growth in the next century is going to be permanently lower than we have seen in the previous century because the impact of new communications, the Internet and other technologies might not have the same impact on economic growth as the inventions of the past hundred years – think about the impact of central heating and air conditioning on productivity as compared to Facebook! I am not as pessimistic on that point as some, but I do think that perspective is too focused on the US and other developed markets. Countries like Nigeria, India, Vietnam or China still have a lot of growth potential in the coming 30+ years just using existing technologies.

At *The Economist*, you often make predictions about future trends. When did you get it wrong?

This is an easy one! Last year, I was surprised both by the vote of the UK to leave the European Union and by the election of Trump as US President. That's probably not a very interesting revelation as most forecasters were on the wrong side of those two events. More subtly, I didn't see the resurgence of nationalism in Asia and the slowdown in progress on issues such as democracy and human rights that we have seen over the past 12 to 18 months.

You recently moderated the Global Manufacturing and Industrialization Summit in Abu Dhabi about the future of manufacturing. How can standards tackle some of the global challenges we face today within the manufacturing sector?

I think the manufacturing sector faces three main challenges today. The first is how to ensure that new processes, which many have dubbed "Industry 4.0", contribute positively to global society and assist people's aspirations for better jobs and living standards. There is a future where robotics and AI, for example, play out into increased productivity, cheaper goods and more leisure time, but they could also result in widening inequality and unemployment. Industry needs to engage with governments to develop policy frameworks that will allow the positive outcome to be achieved. Standards developed to be consistent with such policies would be a good contribution.

Second, environmental sustainability will be an increasing challenge. This is not just about climate change, although that is an important element. Ecosystems everywhere are under huge pressure and the manufacturing sector – directly or through its supply and usage chains – is critical to any solution. Detailed, transparent and verifiable standards for environmental impact along the entire chain could help.

Finally, the manufacturing sector has been a big beneficiary of open markets and is at risk if the current upsurge in nativist sentiment in many countries leads to a reduction in openness between countries. I think those involved in manufacturing need to more actively and publicly make the case for why such openness is beneficial, and to ensure that the value created by it is shared and appreciated. ■



ISO celebrates 70 years

by Sandrine Tranchard

The year 2017 is ISO's 70th anniversary!

With a current portfolio of over 21 500 standards, ISO plays a crucial role in supporting all the important technological, environmental and social changes taking place in the world. Here, we look at the main highlights of ISO's history over the last seven decades and how these have shaped the organization to be what it is today.



In 1946, delegates from 25 countries meet in London to discuss the future of standardization.

Our story began in 1946 when delegates from 25 countries gathered in London to discuss the future of standardization. A year later, on 23 February 1947, ISO officially came into existence. In this post-war era, the founding members saw International Standards as a key to the world's reconstruction efforts.

According to the minutes of the first ISO Council meeting in June 1947, Howard Coonley, President of ISO (1947-1949), in his opening address, declared that the international standardization movement was of great significance to the reconstruction, progress and future peace of the world. He said that in his country – the United States – as in many other countries, the immediate post-war period had shown a greatly broadened interest in the benefits of standardization, which was now expanding rapidly into new fields of endeavour. The presence at this meeting of representatives from other international organizations was a clear indication of the growing support for standards.

The importance of forging links with other organizations was further underscored at ISO's first General Assembly, held at the Maison de la Chimie in Paris in 1949, when a unanimous

resolution was passed to officialize the relationship between ISO and the United Nations.

This was highlighted again at ISO's third General Assembly in Stockholm, in 1955, by Sune Carlson, the personal representative of the Secretary-General of the United Nations: "I could give you many more examples of how a lack of standards and quality grading hampers the economic development of underdeveloped countries, but this is not necessary. The task in front of us in those international organizations which are faced with problems of technical and economic development is immense, and we in the United Nations must, for the solution of these problems, lean heavily on your organization." (See interview with the current Director-General of the United Nations Office at Geneva on page 54.)

Back in 1947, the purpose of the fledgling organization was to facilitate the coordination and unification of standards developed by its member bodies, all of which were national standardization entities in their respective countries. The founders decided that the organization would be open to every country wanting to collaborate – with equal rights and equal duties.

These founding principles still hold true today and the ISO family has blossomed to include 163 members from almost every country in the world. Standardization has come a long way and ISO International Standards, which now cover almost all aspects of technology and business, will continue to ensure positive change in an evolving world.

The first steps

Following the creation of the organization, 67 groups of experts (called technical committees) were set up in specific technical fields, such as screw threads, marine technology, food, textiles, paints and laboratory equipment, with a mandate to develop International Standards. This led to the birth in 1951 of the first ISO standard (called “Recommendations” at the time): ISO/R 1:1951, *Standard reference temperature for industrial length measurements*, developed by technical committee ISO/TC 3, *Limits and fits* (now dissolved). The standard became ISO 1 and is now under ISO/TC 213.

The founding members
saw International Standards
as a key to the world’s
reconstruction efforts.

Participants take a photo break during the third ISO General Assembly in Stockholm, Sweden, in 1955.



The committee Chair, Iain Macleod, says: “The impact of the work of ISO/TC 213 is immense. This committee is responsible for the standards which are used by industry and manufacturing organizations all over the world. Under the Danish stewardship of the last 20 years, ISO/TC 213 has developed a science of specification and verification which is still evolving today. Never before has it been possible to define specification requirements so precisely; never before has it been possible to validate those requirements so completely.

“Earlier this year, the United Kingdom took over the secretariat of ISO/TC 213, which has always been a very active committee with close links to industry. Going forward, we have a lot to do, but also have great enthusiasm and energy for tackling it, and I have no doubt that the next 20 years will be at least as productive as the last.”

The ISO portfolio has now expanded to include over 21 500 standards supporting all the important technological, environmental and social changes that have taken place in the world.

ISO President Dr Zhang Xiaogang says: “For 70 years, ISO has made standards that have shaped our history and accompanied the world’s greatest innovations. From the standardization of materials, components and equipment for the aerospace or automotive industry to the measurement of environmental pollutants, from establishing a management system to ensure food safety in the supply chain to creating guidelines for human-robot interaction, international standardization has always evolved with the needs of industry and society.”

Expanding the community

ISO has worked hard over the years to broaden its circle of stakeholders, bringing different groups to standardization, such as consumers or developing countries. The 1950s saw a number of new ISO member bodies join the organization from the developing world. To respond to those members’ needs, ISO set up in 1961 the ISO Committee for developing country matters (DEVCO), which helps them get the most out of standards development work. Today, three-quarters of ISO’s members are from developing countries, and ISO makes available a number of programmes to build their capacity because “International Standards need international participation”.

Léna Dargham, the DEVCO Chair, in her opening remarks at the 50th DEVCO meeting in 2016, said: “DEVCO as a policy committee has played an important role during more than 50 years in supporting developing countries in standardization matters by identifying needs, recommending actions to help meet them, and monitoring the implementation of the Action Plan for developing countries. But this committee is also a forum for the discussion of all aspects of standardization, and for the exchange of experience among developed and developing countries.”

Helping to improve the satisfaction and safety of consumers is another vital role of standards. Integrating their views in standards development is, therefore, essential because these real-life perspectives help to ensure that issues such as safety and quality are adequately addressed.

The ISO family
has blossomed
to include 163 members
from almost every
country in the world.



Standards for all

SDG 6
Water services
Efficient irrigation
Water footprint
Wastewater reuse

water

SDG 7
Energy management
Smart grid
Renewable energy technologies
Energy efficiency of buildings

energy

SDG 9
Innovation management
Sustainable buildings
Advanced technologies
Accessibility and usability

infrastructure

SDG 10
Social responsibility
Consumer protection
Break barriers to trade
Occupational health and safety

best practice

SDG 11
City indicators
Smart community infrastructures
Intelligent transport systems
Disaster management

smart cities

SDG 13
Environmental management
Environmental labels and declarations
Climate actions
Quantifying greenhouse gas emissions

climate change

SDG 14
Offshore wind energy
Sustainable fisheries and aquaculture
Onboard waste management
Marine environment protection

the sea

SDG 15
Environmental product evaluation
Chain of custody of wood products
Soil quality
Sustainable machinery for agriculture and forestry

biodiversity

SDG 2
Food safety management
Packaging and labelling
Product quality
Traceability

food

SDG 3
Health care efficiency
Surgical instruments
Quality of medical devices
Safe medical practices

health

Sustainable Development Goals

2016 2030

The importance of consumer leverage was endorsed by the creation, in 1978, of a Council Committee on Consumer Policy, now officially known as the ISO Committee on consumer policy (COPOLCO), to promote and encourage consumer interests in standards.

Håkan Murby, ISO President (2007-2008), at the opening ceremony to commemorate the 30 years of COPOLCO on 28 May 2008, said: “This longevity demonstrates the long-standing commitment of ISO to have international standardization support the quality and safety of products and services, now increasingly offered to consumers on a global basis.

“Since its establishment in 1978, COPOLCO has been a spur and a pioneer for the ISO system, promoting the involvement of consumer interests and identifying consumer issues and concerns that international standardization may contribute to addressing.”

In response to producers’ increased need to demonstrate that their products and services meet national or international standards, ISO set up the ISO Committee on Certification (CERTICO) in 1970, to be replaced in 1985 by the ISO Committee on conformity assessment (CASCO). Although ISO does not perform certification, it develops standards that are used by independent certification bodies, giving credibility to the service they offer and the certificate they award. The standards developed by CASCO, and jointly published by ISO and the International Electrotechnical Commission (IEC), cover a broad range of topics including testing laboratories, marks of conformity, accreditation and the mutual recognition of conformity assessment results.

Of the committee’s achievements over the years, Frank Makamo, Chair of CASCO, reflects: “Today, the ISO/CASCO ‘toolbox’ of International Standards provides a harmonized and consistent approach to conformity assessment at the global level. This facilitates trade by allowing conformity assessment bodies to demonstrate that they operate competently. Structured to be proactive and responsive to the changing needs of consumers and industry, CASCO looks forward with enthusiasm to addressing the challenges of the next 47 years.”

Effective and wide-reaching stakeholder engagement has always been essential in maintaining the relevance of International Standards. To ensure a strong relationship between standards and innovation, ISO has built collaborative ties with a network of global and regional organizations, including a partnership with the IEC and the International Telecommunication Union (ITU). It has also forged links with more than 700 international organizations working in fields related to standardization. Furthermore, the contribution of large and small businesses, regulatory authorities and governments worldwide is fundamental to the proper functioning of ISO. (See article on page 48.)

Challenges for the future

“For the past 70 years, ISO has developed standards that drive industrial progress, promote global commerce and improve health, safety and the environment. But this is just the beginning,” says ISO President Dr Zhang. “Looking to the future, it is clear that our world faces many challenges that cut across national borders. Climate change, water scarcity, cyber security and large-scale migration are just some of the issues we face today that require integrated international action.”

Many of these challenges have been included in the 17 Sustainable Development Goals (SDGs) adopted by the United Nations as part of their 2030 Agenda for Sustainable Development. Launched in 2015, the SDGs set ambitious targets for the next 15 years and will help concentrate international action to end poverty, protect the planet and ensure prosperity for all.

“The ISO community has many standards that can help organizations and companies address this agenda,” Dr Zhang says. “We are ready to provide efficient tools to help the different communities worldwide face up to these challenges and shape a better world.” The future of standardization is promising. ■

70 years of historic moments

For 70 years, we have made standards that drive industrial progress, promote global commerce, and improve health, safety and the environment. Get ready to discover some of our highlights.

The first ISO standard was published in 1951. Our journey to today's more than 21 500 standards began with ISO/R1:1951, *Standard reference temperature for industrial length measurements*.



As ISO grew, the Central Secretariat moved to the International Centre in rue de Varembé, Geneva, spread over two sites.



ISO's first President, Howard Coonley.



In 1949, ISO moves into offices in a small private house in Geneva.



Creation of DEVCO, the ISO Committee for developing country matters



COPOLCO is created to promote consumer interests in standardization.

The ISO Council appoints an ISO Committee on Certification, CERTICO, replaced by CASCO in 1985

Introducing ISO 9001 for quality management

ISO 14001 for the environment is born

ISO 26000 – taking social responsibility seriously



ISO/IEC JTC 1/SC 29 wins an Emmy Award.



Bringing ISO staff together under one roof.



Moving on again...



ISO's Technical Management Board holds its 50th meeting.



Congratulations to ISO!



Another milestone is reached: ISO's 100th Council meeting.

ISO 50001 fuels energy efficiency

2015 2016 2017

Silent game changers of the tech revolution



by Maria Lazarte

We can no longer envision a world without computers or the Internet, but in 2017 this is old news.

Much more exciting developments are in the pipeline.

From virtual reality to artificial intelligence,

if we are to be ready for what is to come, we must

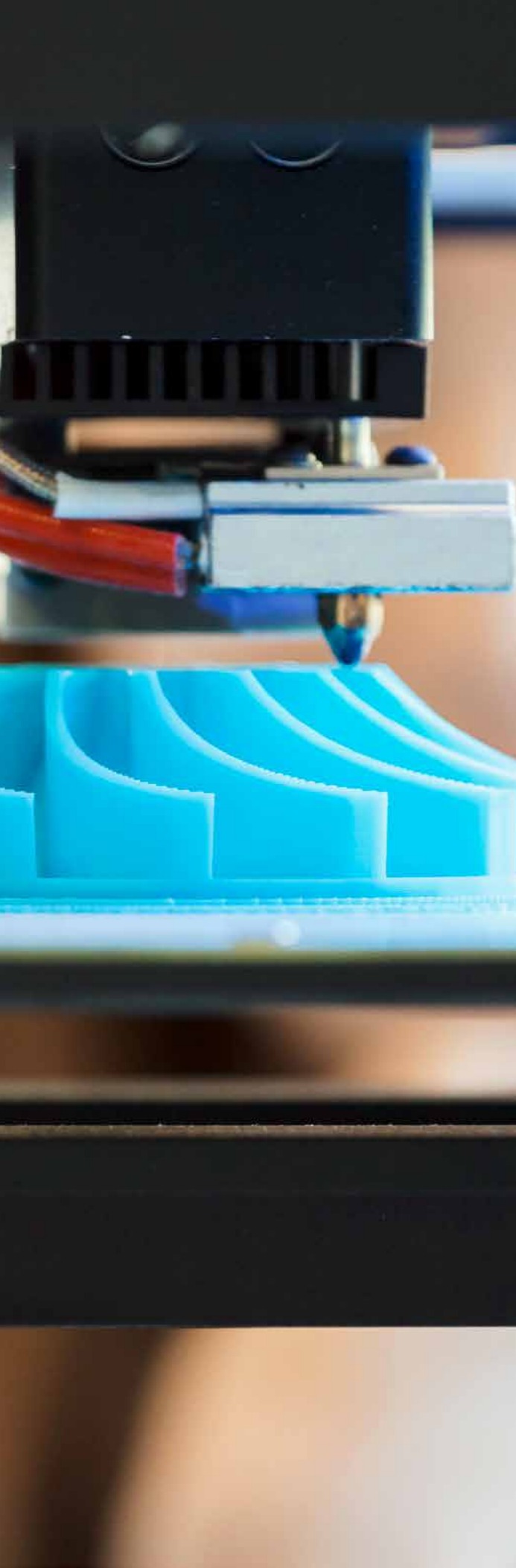
first understand how we got here, and acknowledge

the silent game changers that paved the way.

Standards
will ensure
that technology
remains accessible
to the greater
number.

It's as close as we will get to real-life magic: our very own superpower to turn dreams into realities. Technology is how we push past natural limitations to transform our lives and the world. The sky and the deepest oceans are no longer out of reach. With technology we can go further and higher. We can make more with less. It is a powerful weapon against disease and disability. It can mean comfort, safety and connection, and, in some cases, destruction.

Our relationship with technology began when humans first turned natural resources into basic tools. But what is unprecedented today is the speed of innovative breakthroughs, which have been gaining momentum and evolving to dramatically change the way we live. For example, with the advancement of additive manufacturing – best known to the lay person as 3D printing – some parents of children with missing limbs have been able to “print” simple prosthetics from the comfort of their homes at a fraction of the price and time.



A UK-based start-up called Open Bionics recently took this to another level with a prototype for a 3D-printed functioning bionic hand that will dramatically bring down the prohibitive cost of this life-changing device. The technology of our sci-fi novels is finally taking off. Only last year, the Solar Impulse aircraft proved that it is possible to fly around the world with the power of the sun. And Facebook made headlines when it announced that it is working on a way for us to operate our smartphones with the power of our minds. So what's next?

Changing tides

It's becoming harder to imagine that there is anything that we cannot achieve if we're given enough time. Which makes us wonder: How is our relationship with technology changing? What are the consequences for people? Has access to technology become a human right? Before any of these can be answered, we must understand how we got here in the first place.

Interestingly, the advent of International Standards played an unexpected part in this high-tech boom. Without the solid base they provided for healthy and successful innovation, it would have taken us much longer to get to where we are today. Take two of the most basic benefits of standardization – compatibility and interoperability. These are what allow credit cards to be read by any machine around the world, computer files to be understood by different programmes, and devices to connect with other devices. Without them, new technologies would not work with existing technologies, the Internet of Things would not be possible, and the adoption of grid-based innovations, like electric cars, would be much more complex.

Of course, humans have been relying on standard measurements, processes, and technology in general, since ancient times. But when ISO came into being 70 years ago, something unique happened. For the first time, standards on several technical fields – from screws to aircraft – were being consistently developed with the best expertise the world had to offer, and subsequently adopted at a global level. Hence the scale of their benefits was multiplied exponentially and it became possible to pool together research, talent and capacity from all corners of the world.

Great minds think alike

From the beginning, ISO did not work in a vacuum. It was set up as a network of national standards bodies and has always worked closely with international

The advent
of International
Standards played
an unexpected part
in this high-tech
boom.



organizations and other key stakeholders. Its partnership with the International Electrotechnical Commission (IEC), for example, gave birth to one of the largest and most prolific committees for technology standards, namely ISO/IEC JTC1, *Information technology*. In fact, the earliest ISO committees were predominantly technology-related and, because standards made it easier to specialize on parts and applications, manufacturers did not have to build their entire product from scratch. A vehicle producer, for example, could outsource its tyres, thereby reducing costs and streamlining investments. From nuts and bolts, to cars and ships, International Standards have always reflected the technology of their times and supported the development of mass production and economies of scale. Today, shared knowledge, like that found in standards, and open systems have diversified and democratized innovation. Take smartphones as an example. Ready-made operating systems (OS) such as Android allow phone manufacturers to focus their resources

on hardware. Developers no longer need to think which tools we may want on our device as anyone can create an application for us to download, be it a flashlight, an altimeter or even a GPS speaking in Arnold Schwarzenegger's voice.

Of course, this is only possible when OS developers release the application programme interface (API), which offers a common language that everyone can use. The idea of a shared language is also at the heart of standardization, so much so that there are hundreds of ISO standards dedicated to terminology, vocabulary and unified measurements. This might not sound revolutionary, but can you imagine international collaboration without such standards? In 1999, NASA lost a Mars orbiter worth USD 125 million because a partner engineering team used imperial units while the space agency relied on the metric system. The device exploded in mid-air soon after launch. The consequences of not being on the same page can be catastrophic.



Only the beginning

And yet we are still only scratching the surface of how ISO standards can fuel innovation. For standards allow plenty of scope for originality, while enabling reproducibility, maintaining quality and ensuring safety.

When nanotechnology first became popular in the 1980s all the way to the early 21st century, it caused a great deal of controversy and fear. This uncertainty often makes investors wary of unknown technologies, but ISO standards can allay some of these doubts and bolster trust by setting parameters to guide safety and test quality. The group of experts in ISO/TC 229, *Nanotechnologies*, have been working on such standards for some time.

Likewise, and despite its great potential, the so-called 3D-printing industry is still struggling to compete with the accuracy of traditional manufacturing. For Jörg Lenz, Chair of ISO/TC 261 on additive manufacturing, “the industry really needs International Standards to provide clarity and dispel concerns, to provide reliability, acceptance and safety, and to further push the technology in the market”. International Standards can help guarantee a level of reproducibility and give business and manufacturers some much needed assurance.

If standards development is left too late, however, we risk the emergence of parallel systems, added complexity and unnecessary waste. Of course, all standards need to maintain a level of flexibility, and adapt as the technology evolves, to avoid hindering the innovation process. One area that is prone to suffer from this void is that of unmanned aircraft systems (UAS) – sometimes called drones – which are appearing on the horizon in all sectors from agriculture to pizza delivery.

At the moment, there are very few uniform design standards, rules and regulations for communication protocols, navigation and control. Cortney Robinson, Director of Civil Aviation Infrastructure at the Aerospace Industries Association in the USA, believes that if we don’t do something now, the complexity of this situation will only increase in the course of time and potentially diminish the net societal benefits.

As growing numbers of UAS share the same airspace as traditional, manned aircraft, we need to make sure they won’t pose a serious risk to people, property, or other aircraft. “International Standards are critical in creating the global commercial market for drones... while maintaining

safety and increasing airspace efficiency,” explains Cortney. By sharing knowledge, ISO standards for drones will also encourage more innovators to get involved, which means the technology will evolve faster. This is also good news for consumers, for whom more competition means lower costs, as well as for regulators, who can reduce any regulatory overreach and the strain on their resources by relying on industry standards.

Another advantage of standardization is market access. When robotics venture CYBERDYNE first started working on next-generation cyborg-type robots for workers and caregivers, it was among the first to comply with the safety requirements of ISO 13482 in the early stages of the design process. The company knew this standard for personal care robots would reassure potential users, making it easier to distribute its product. “ISO is very important for promoting new designs,” said CYBERDYNE’s CEO, Prof. Yoshiyuki Sankai, “we couldn’t have done it without ISO”.

Pushing the limits

By offering the foundation and added layer of confidence that help our greatest minds probe the limits of innovation and science, standards have been the silent game changers of this tech revolution. André Borschberg, co-pilot of the Solar Impulse flight, says of his round-the-world expedition powered by the sun’s energy: “The Wright brothers did not have the benefits of standards... If they would have had them, I’m sure they could have done it quicker. And maybe they could have gone further. That is what we do today and that is the reason why we progress.”

Going forward, innovators will continue to mould and change our world at an ever increasing pace. But whatever we do, we must resist falling into the trap of “technology for technology’s sake” or limiting its reach to the “happy few”. International Standards have an invaluable role to play as they raise the important questions around safety, sustainability, environmental impact, and perhaps even human cost. By encouraging healthy competition and bringing down costs, standards will ensure that technology remains accessible to the greater number, so that a significant part of humanity is not left behind. We must not lose sight of the fact that, at the heart of innovation, there are people trying to make lives better. Let us not turn these dreams into nightmares. ■

Standards
allow plenty
of scope
for originality.





The rise of being “social”

by Clare Naden

The social responsibility movement started with debates about corporations having a responsibility to society – it is now recognized that people, planet and profit are mutually inclusive.

Since these early discussions, the concept has seen many transformative moments, including the launch of ISO 26000, a standard which has gained traction and credibility in less than a decade.

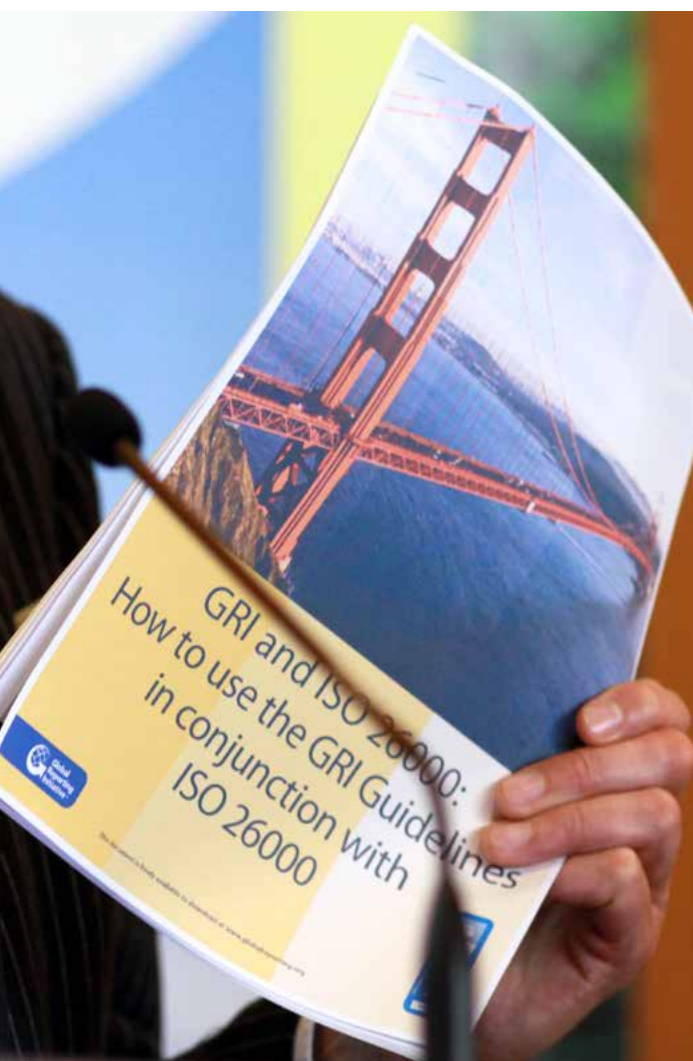
“I thought I was the only one struggling to reconcile my career with the demands of family, but after this session, hearing from managers and other colleagues, I can see how it is possible to enjoy both raising children and my job!” Fujii is just one of a number of Japanese women working at global electronics company NEC Corporation, who attended an event supporting female career opportunities in a country where women’s active involvement in the workplace is sorely lacking.

To achieve its goal, NEC Corporation turned to ISO 26000, the world’s first voluntary standard on social responsibility, which has helped thousands of organizations operate in an environmentally, socially and economically responsible way. Since its publication seven years ago, ISO 26000

has been adopted as a national standard in over 80 countries (and counting!) and its text is available in some 22 languages. It is also referenced in more than 3000 academic papers, 50 books and numerous doctorates, and is used by organizations of all shapes and sizes including Petrobras, Air France, British Telecom, NEC, NovoNordisk and Marks & Spencer, to name a few.

For some organizations, including NEC, this wasn’t the first dip in the waters of social responsibility; but for others, the standard has helped catapult the concept into the future, to the extent that it is now being recognized by the European Commission as a key tool for promoting progress in all areas of social responsibility, and one which is at the root of their social responsibility strategy.

**ISO 26000
has been adopted
as a national
standard in over
80 countries.**



The emergence of “social”

In the early years of ISO’s founding in 1947, manufacturers were the main users of ISO standards. Nuts and bolts, that’s what we did! But in the 1970s, the organization began paying attention to consumer needs, chiefly because consumers were making their voices heard and demanding that their requirements be taken into account. Heeding the call, ISO created the ISO Committee on consumer policy (COPOLCO) in 1978 to encourage and facilitate the involvement of consumers in the standardization process.

From that moment on, the consumer experience became a key driver in standardization, and although COPOLCO’s early priorities were still largely based on consumer products like bicycles and dishwashers, by the 1990s the focus had expanded to more socially oriented issues, such as services, accessibility and safety. It was then that standards and guidelines on aspects like ageing societies began to emerge, with documents such as the ISO/IEC policy statement “Addressing the needs of the elderly and persons with disabilities in standardization work”, published in 2001.

“COPOLCO always has its ear to the ground to channel what consumers want and need into standards work,” says Dana Kissinger-Matray, Secretary of COPOLCO. “ISO’s evolution towards more ‘social’ oriented standards, taking into account society’s broader expectations, extends beyond specifications for products or components and coincides with consumers’ growing influence on market requirements.”

Unsurprisingly, it was COPOLCO that, in 2002, recommended the development of a standard on social responsibility, before the matter was eventually taken up by the ISO Technical Management Board (TMB). The mandate stated in the original New Work Item Proposal was clear: “The standard should assist organizations in addressing their social responsibilities while respecting cultural, societal, environmental and legal differences and economic development conditions.”

“At the time, corporate social responsibility (CSR) was the new buzz word,” recalls Staffan Söderberg, Vice Chair of the working group on social responsibility that developed ISO 26000. The movement grew rapidly, particularly in the US, where various tax breaks and incentives compensated companies that met with certain sustainability or environmental criteria.

Yet when the proposal for the standard was put out to ISO members, the general feeling was: “Why should it be about corporates only?” And so corporate social responsibility became simply “social responsibility”.



Leadership of the ISO working group on social responsibility (from left): Co-Secretary **Eduardo Campos de São Thiago**, Vice Chair **Catarina Munck af Rosenschöld** (2005), Chair **Jorge E.R. Cajazeira**, and Secretary **Kristina Sandberg**.

A model of cooperation

In 2005, the ISO working group got down to business under the twinned leadership of ISO’s members for Brazil (ABNT) and Sweden (SIS). It was a marathon effort, and one that is still known as the largest stakeholder consultation on social responsibility ever held. It took five years and eight international meetings in the far corners of the globe, from Australia to Chile to Thailand, to handle the 25 000+ written comments received from the 450 experts representing 99 countries and 40 international organizations. Other stakeholders included representatives of the Global Reporting Initiative, Consumers International and the United Nations Global Compact.

The making of ISO 26000 is one of ISO’s most impressive examples of consensus building to date, with experts giving willingly of their time and energy to negotiate, consider, discuss and develop the standard that is so widely used today. All decisions were made by general consent and the focus was placed on balanced participation of developed/developing countries through twinning arrangements, stakeholder categories, language and gender.

A representative from the European Commission was present at every meeting, taking notes, recalls Söderberg. Then in 2011, a year after ISO 26000 was published, the European Commission launched its new CSR Communication, which states that CSR is “the responsibility of all enterprises for their impacts on society” – very similar to the definition given in ISO 26000 – and refers to it as one of the sets of guidelines and principles upon which its strategy was built.

ISO 26000 has proved
it is a force to be
reckoned with.

Sweet smell of success

Seven years on, ISO 26000 has helped thousands of organizations improve their social responsibility strategy, including those which, like NEC, had previously established policies in place. Hitoshi Suzuki, formerly general manager for CSR at NEC and now President of NEC's Think Tank IISE that conducts research on sustainability issues, claims that, when it came to managing the supply chain and engaging with stakeholders, ISO 26000 took the company a lot further.

"We got to know our suppliers better, to see how they work and could thus identify areas for improvement, particularly around working conditions and occupational health and safety management," says Suzuki. "We then recommended corrective measures and worked together to see how these could be implemented."

Marks & Spencer (M&S) proved another great pioneer of sustainability with the launch of its "Plan A" in 2007 to help protect the planet by sourcing responsibly, reducing waste and helping communities. But it couldn't achieve these goals without the support of its suppliers. So in 2013, the company turned to ISO 26000 for guidance on how to promote respect and fair practices throughout its supply chain.

M&S works with suppliers in 70 countries employing around two million workers across 20 000 factories and 20 000 farms, so this was no small feat. Yet the initiative had a tremendous impact, particularly in the company's retail arm where some of its biggest clothing manufacturers in India, Sri Lanka and Bangladesh were invited to integrate ISO 26000's principles of social and environmental sustainability into their business strategy.

But ISO 26000 is by no means limited to large global private companies and is used by organizations of all sizes worldwide. Examples abound like the Association of Upper Egypt for Education and Development (AUEED), an NGO working to empower local communities that turned its environmental and social policies around thanks to the standard.

Seeds of sustainability

On 25 September 2015, the United Nations General Assembly adopted the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development, a set of aspirational goals to end poverty, protect the planet and ensure prosperity for all. These aspirations are echoed in ISO 26000 whose principles of social responsibility contribute directly to these goals.



Staffan Söderberg, Vice Chair of the working group on social responsibility, speaking about ISO 26000 at a press conference in Geneva, Switzerland, in 2010.

ISO 26000 has helped
thousands of organizations
improve their social
responsibility strategy.

The ISO standard is developed around clauses and core subjects that set out how organizations should approach social, economic and environmental issues. These help organizations understand, analyse and address issues of social responsibility, defining priorities for action and integrating responsible behaviour through the organization and its relationships.

In its seven years of existence, ISO 26000 has proved it is a force to be reckoned with and has become the inspiration behind a number of other standards. These include ISO 37001 on anti-bribery management systems designed to instil a culture of honesty, transparency and integrity in organizations, or the recently published ISO 20400 whose sustainable procurement guidelines are fully based on ISO 26000. New projects are also in the works, including an International Workshop Agreement (IWA 26) aimed at helping organizations integrate the social responsibility principles of ISO 26000 with other ISO management systems standards.

In less than a decade, observes Staffan Söderberg, "ISO 26000 has given rise to more integrated thinking behind such documents as ISO Guide 82, a guide to help standards writers address sustainability issues in standards. It has not only helped make the world more sustainable and socially responsible, it has really taken standardization a step forward in that arena, too." For Fujii, juggling work and family life, and big international corporates juggling supply chains and their impact on the environment, this can only be a good thing. ■

What is social responsibility?

Social responsibility is the responsibility of organizations for their impact on society and the environment, as evidenced through transparent and ethical behaviour that:

- Contributes to sustainable development, including the health and welfare of society
- Takes into account the expectations of stakeholders
- Is in compliance with applicable law and consistent with international norms of behaviour
- Is integrated throughout the organization and practised in all its relationships

Extracted from ISO 26000:2010



A stroll down Quality Street

by Garry Lambert

Thirty years ago, ISO 9000 started the management systems standard (MSS) revolution, inspiring over 60 ISO standards for better management across key sectors including safety, security, health, medicine, energy, information technology and the environment. We look at highlights in the MSS journey and ask: “What has been the impact on user organizations?”



“ISO 9001 has performed miracles for us. It shows who really delivers, what works and, preventively, where problems may develop.”

Newspaper publisher, Finland.

“ISO 14001 has helped us to improve our environmental impact significantly. In 2014 alone, we cut our carbon emissions by more than 23 tonnes, our dust production by more than 20 tonnes and we reused 116 m³ of water.”

Construction company, Spain.

1987 was the start of something big. Thirty years ago, ISO 9001, the world’s first management systems standard (MSS), was introduced. Not only has it become the most successful and widely used of all ISO MSSs, but it was the precursor to a range of over 60 ISO management standards that have raised levels of management practice, efficiency and effectiveness in industrial, service and business organizations around the world.

This article looks at some of the highlights in the fascinating journey to the ISO MSSs of today, which now offer organizations tremendous opportunities for implementing an integrated multi-standard management system that can be fully embedded at the highest level in any organization worldwide. It is certainly a

far cry from the early days of stand-alone quality management systems frequently perceived as a “bolt on” for manufacturing companies only!

To date, well over 1.5 million ISO MSS certifications¹⁾ have been issued in 170+ countries around the world, and millions more organizations apply ISO’s management standards to achieve operational improvements, meet regulatory requirements and enhance the bottom line. Given its longevity, it is not surprising that ISO 9001 for quality management alone accounts for more than one million certifications, followed by over 320 000 ISO 14001 certifications for environmental management systems.

1) The ISO Survey of Management System Standard Certification 2015.

“We saw a quality improvement of 85% in five years after implementing an ISO 9000-based system (QS 9000) for our production suppliers.”

A “Big Three” auto manufacturer, USA.

“How have we benefitted from ISO 9000? Savings of 27% in direct overheads and 15% in variable costs have been achieved, and we have reduced our raw material costs by 4%.”

Flour mill operator, New Zealand.

“Our worldwide ISO 9000 certification gives us a competitive advantage in the global marketplace, especially as more countries adopt ISO standards.”

Major express courier/transportation service, USA.

“ISO 9002 registration has definitely given us an edge in the marketplace versus companies that are not registered.”

Pharmaceuticals multinational, USA.

ISO 9000 and the start of it all

ISO 9001 was the quality management system (QMS) standard that started it all, spurred by market pressures to ensure products and services consistently meet customers' requirements and quality is continually improved. Thirty years on, this first management standard has inspired over 60 ISO standards for better management across key sectors.

But it has not been all plain sailing. When the ISO 9000 family of QMS standards was first published, it was received with mixed feelings. Some saw it as appropriate for the manufacturing world only. Others feared it would stifle the creativity and innovative spirit of companies struggling to implement a system perceived, at first, as rigid and bureaucratic.

However, ISO 9001 and quality management received a huge boost in the late 1980s when then UK Prime Minister Margaret Thatcher challenged British Industry to match Japan in design and quality, as Charles Corrie, Secretary of technical subcommittee ISO/TC 176/SC 2, *Quality systems*, who was closely involved in the development of ISO 9001, recalls. “Mrs Thatcher provided the impetus by assigning significantly enhanced levels of funding to establish a national quality programme that encouraged companies to implement ISO 9001. Awareness of the value of quality management soared, and 80% of the early ISO 9001 certifications took place in the UK. In the years that followed, UK industry closed the quality gap with Japan dramatically, thanks in no small way to the impact of ISO 9001.”



“A key benefit of ISO 14001 is that it enables us to gather all of the organization's eco-efficient actions into a coherent plan.”

Aerospace manufacturer, Europe.

“During 2014, we achieved energy conservation savings equal to 6.7% of our consumption on a global basis.”

(commenting on its global ISO 14001 EMS)

Multinational business machine corporation, USA.

A benchmark year

ISO 9001 has undergone substantial revision since 1987, first in 1994, then in 2000 and 2008, and most recently in 2015. The latest upgrade was in response to big changes in technology, business diversity and global commerce in the 15 years since the 2000 revision, and also to reflect the increased prominence of the services sector.

The year 2015 was a benchmark year. The breakthrough was the publication of the 2015 editions of ISO 9001 and ISO 14001 incorporating a new high-level structure (HLS). Developed by ISO, the HLS provides identical structure, text and common terms and definitions for all future ISO MSSs. Now, all ISO's management systems standards could be aligned, facilitating full integration of several standards into one management system in a single organization.

“Emphasis on understanding the internal and external business environment (context), leadership and linkages with the strategic direction of the organization and risk-based thinking makes ISO 9001:2015 and the other HLS-based MSSs ‘real’ management systems that address both direction and control, strategic thinking and operational excellence,” says Dick Hortensius, Senior Consultant Management Systems, NEN Environment & Society, at the Netherlands Standardization Institute, who contributed to the development of ISO's quality and environmental standards.

“It's the environment, stupid!”

During the early 1990s, environmental awareness was gaining momentum – protecting the planet was becoming a priority. An environmental twist on Bill Clinton's 1992 campaign slogan “It's the economy, stupid!” would have been most apt that year when the need for a global environmental management system (EMS) standard was first tabled at the 1992 Earth Summit in Rio, Brazil. That defining event put sustainable development firmly on the political agenda and gave the impetus for the development of ISO 14001.

First published in 1996, ISO 14001 has been hailed as the world's most successful environmental management system standard, helping organizations large and small to deliver business and environmental improvements, cut costs and improve compliance management. Revisions in 2004 and most significantly in 2015 with the incorporation of the MSS-integrating HLS and the concept of “life-cycle thinking” have ensured that the ISO EMS has kept pace with the dramatic increase in environmental awareness driven by overriding concerns about climate change.

“We are proud to say that all our facilities are accredited to ISO 9001, ISO 14001, ISO/TS 29001 and ISO/IEC 17025, creating a framework in which to expand globally.”

Pipeline manufacturer, India.

“We used 3.21 l of water per litre of beverage produced in 2004, but by year to date 2011, water usage was down to 2.2 l of water per litre – that’s a 31 % improvement over the period.”

(of the ISO 14001

EMS implementation

across 75 bottling plants

in 28 countries)

Major soft drinks bottling company, Greece.

The mother of all standards

ISO 9000 and ISO 14000 were the catalysts for the world’s most comprehensive family of management systems standards, developed by expert teams from across business, industry and government to respond to clear needs for standards that would make the world a better, safer, more sustainable and less wasteful place.

Some of these “primary” management standards have spawned whole families of related standards and sector-specific versions such as AS 9100, the aerospace version of ISO 9001, TL 9000 for the telecoms community, and QS 9000 for the automotive industry. If the number of global certifications is a measure of success, then several ISO MSSs stand out by the sheer numbers of organizations that use them. Following the leaders ISO 9000 and ISO 14000, here are some of the most widely specified ISO MSSs :

- **ISO 50001 (energy management).**
Introduced in 2011, ISO 50001 has already enabled over 12000 certified organizations to integrate energy efficiency into their daily operations, helping them save money, conserve resources and tackle climate change.
- **ISO/IEC 27001 (information security).**
Some 28000 certified organizations around the world use ISO/IEC 27001 to keep their information assets secure from any of the growing security risks – such as cyber-attacks – facing business today.
- **ISO 22000 (food safety management).**
Well over 32000 organizations in the food chain use an ISO 22000-certified system to identify and control food safety hazards and contribute to the safety of the global food supply chain.
- **ISO 13485 (medical devices).**
To date, over 26000 organizations in the medical devices industry use ISO 13485 to provide medical devices and services that meet customer and regulatory requirements.

“The addition of ISO/IEC 27001 with its focus on security and ISO/IEC 20000 with its focus on service has allowed us to enhance our management system with a baseline for today, yet focused to tomorrow.”

Information systems provider, USA.

“Since implementation of ISO 50001, team mates have been more proactive with submitting energy reduction ideas. As an example, we are fitting new lamps and we estimate to save at least 180 kW and 1 532 768 kWh in one year.”

Tyre manufacturer, USA.

“ISO 22000:2005 implementation has not only led to improved food quality and safety, but also to reductions in cost of production and in waste.”

Humanitarian foundation feeding meals to nearly one million children daily, India.



“ISO/IEC 27001:2005 implementation enables the bank to identify and analyse the risks, and do everything possible to prevent their occurrence.”

Bank, Russia.

“Export sales growth has been a remarkable 400%, not least because we are now able to participate in contract tenders as an ISO 9000-registered company.”

Electronics manufacturer, India.

“We have significantly reduced rework from 15% to 1%-2%. And without doubt, ISO 9001 registration has served as an instrument for opening up markets to us.”

Chemicals producer, Venezuela.



Full of surprises

Far from being dull and bureaucratic, many more ISO management systems standards combine practicality with innovation in surprising ways. ISO 20121:2012, for example, brought event sustainability management to the 2012 Olympic Games in London, and was also used to turn the 2013 Eurovision Song Contest in Malm, Sweden, into a sustainable event.

Last year saw the introduction of ISO 37001:2016 – the world’s first international anti-bribery management systems standard – while application of ISO 9001 now extends to electoral organizations at all levels of government, and to local government with the publication of ISO 17582 and ISO 18091. And the much anticipated ISO 45001, due out early next year, will be ISO’s first standard for occupational health and safety management.

“We operate our quality, environmental, food safety and information security management systems in accordance with ISO 9001, ISO 14001, ISO 22000 and ISO/IEC 27001, and gain significant benefits from each.”

Wine producer, Spain.

Has it all been worth it?

So has all the hard work by standards development experts in dozens of ISO technical committees over 30 years been worth it? Since ISO 9001 was first introduced, ISO has published hundreds of case histories from organizations large and small, private and public, manufacturing and service, and from most countries of the world, recording their experiences in implementing ISO MSSs, and the responses have been overwhelmingly positive. The following comments from Cisco Systems and Nestlé are the most recent:

“A study of TL 9000-certified providers of wireless infrastructure products demonstrated that, between 2008 and 2016, the across-the-board decrease in the number of items returned after purchase, for any reason (whether a defect or failure to meet customer expectations), resulted in close to USD 1 billion in annual cost avoidance.” – Sheronda Jeffries of Cisco Systems, representing QuEST Forum, a global quality organization for the telecom community.

“As a global food company, Nestlé is very much involved in the process of science-based international standard setting. We are using various ISO standards like ISO 22000 in our factories and we do believe that such international food safety standards play a significant role and can be used to improve food safety outcomes.” – Dr Ludovica Verzegnassi, Corporate Regulatory & Scientific Affairs Department, Nestlé. ■

Talking about **my generation**

by Barnaby Lewis



Over the course of its seventy-year history, ISO has undergone a remarkable transformation, keeping pace with, and redefining its role in, a fast-changing world. But how have personal attitudes and responsibilities changed over the same time? We go family-style on a big platter of environmental issues.

More often than not, it's the simple things in life that give us reason to pause and consider how lucky we are. Last Sunday, after getting up early (thanks again, Baby James) and busily chopping, mashing, seasoning and roasting my way through the morning, I experienced this small gratitude-filled hiatus at the sight of three generations of family gathered around my kitchen table.

I zone back to the present when a friend's five-year-old points to the kitchen tap that I've left running over a lettuce in the sink. "Turn it off! Water is precious!" He's right, of course. Even in Switzerland (whose green and grassy landscape is adequately rained on all year round), water is a resource that needs to be conserved, like any other. I smile and shut off the tap, as my father-in-law affectionately rolls his eyes at me. "I don't know where they get it from. School, I suppose. They're so eco-conscious these days."

The theme of the environment, and how our relationship to it has changed over the years, gives us a lot to talk about as plates are passed around and glasses filled and emptied. I reflect on the story of ISO and its own evolution toward standards that touch all aspects of our environment, from reducing toxic substances to sustainable growth. How have society's ideas about ecology influenced standards from their industrial beginnings to becoming a benchmark for protecting the planet?

Mum knows best

The journey begins in 1947, with my mother. She was born just after the War, and came into the world at a time when loss and destruction were slowly being ousted by progress, reconstruction and, above all, hope. It's no coincidence that this was the same year that ISO was founded. Re-growth simply couldn't have happened without a coordinated effort, and all the rebuilding had to begin with factories, jobs, houses and infrastructure. The role that ISO had to play was clear.

Mum explains how, looking back, "we were growing up in a new time of plenty. So shutting off taps, switching off lights, and the gloomy, make-do austerity of the war was maybe forgotten. We had labour-saving gadgets and white goods, the miracle of television, unheard-of leisure time and affordable travel". If the world's resources seemed inexhaustible, it was understandable: 70 years ago, the world population was just 2.4 billion. That's less than the combined population of India and China today.

My brother-in-law, Étienne, an environmental engineer at Switzerland's National Arboretum in Aubonne, gives some useful context to the debate: "Today, there are so many things that we have to concern ourselves with. We're only just beginning to understand the way that these things interrelate. But back in 1947, it was the dawn of environmental awareness.

"In fact, one of the first pieces of major environmental legislation was passed at that time in the USA, to control the use of pesticides. Their use was really taking off at that time as farming industrialized."

We could all fit on Jamaica (theoretically)¹⁾

In 1977, 30 years after ISO was created, I helped to bump world population to 4.2 billion. I remember taking rides as a kid in the back of our estate wagon with the family dog. This was years before rear seat-belts were mandatory. In fact, I had children of my own by the time ISO 13216 gave rise to the now-famous "ISOFIX" term associated with safe child transport. My father-in-law adds: "Back then, air pollution was such a remote concept. Even lighting up a cigarette at the wheel of the family car was considered an OK way to while away a stressful traffic jam! And fuel economy was a political issue prompted by the 'oil crisis' that led to the demise of 'proper' cars." (Though he is very proud of his latest-generation hybrid and its ultra-low emissions determined according to ISO 23274.)

The concept of sustainability and acceptable trade-offs between economic, social and environmental factors wasn't widely understood either. Despite awareness of its toxicity, lead was added to petrol to help preserve engines. It wasn't until 1986 that Japan led the way (no pun intended) in cleaning up vehicle fumes, and by 1988 ISO 9158 had set a standard for petrol pumps to deliver cleaner, unleaded fuel.

1) If each person took up around 1 m², then 4.2 billion people would require about 4 200 km². Jamaica is around 10 000 km², so even accounting for cliffs, waterfalls and other terrain that could not be stood upon, we could just about fit. Possibly. Maybe ISO's Jamaican member BSJ knows the answer?

The way to move on
is by openly discussing
the alternatives,
informed by experts.

The wake-up call

Things were starting to change fast. I remember eating iodine pills in the wake of Chernobyl and losing sleep over scientists' discovery of a 'hole' in the ozone layer and a floating trash pile in the Pacific Ocean as big as a country. But at the same time, as I was learning about these things, I felt general awareness growing.

People were starting to talk about these issues. Étienne is more specific: "There was hope when the decade came to a close, with a ban on ocean dumping, the creation of the Intergovernmental Panel on Climate Change and the effective ban of CFCs. The 1990s started with the Earth Summit in Rio, setting an environmentally focused agenda." Government, society and even business were taking a new turn, while ISO stepped up to very different sorts of challenges to the ones faced in 1947. ISO 14001 on environmental management arrived in 1996 and has since become one of the most widely used and recognized International Standards.

Great things happen

The discussion goes on, and as dessert makes way for coffee, I share my own part of the journey. In 2007, I came to Switzerland to work for the International Organization for Standardization. ISO was 60 years old and an established force in solving the global issues that defined much of my generation's thinking. I had school-aged children by then, and their arrival helped to push the number of people on the planet to a staggering 6.5 billion.

Ten years on, the population is still growing and the youngest are asking questions about how to manage resources in the fairest way possible. It's clear, sitting around the table, that everyone has a different perspective, but that we can still progress. The way to move on, and determine the best course of action, is by openly discussing the alternatives, informed by experts. That's what gives me confidence about ISO's ability to remain relevant at 70, and long into the future, as the next generation looks for solutions to problems that we, like our grandparents before us, could never have imagined. ■



The culture of collaboration



Given the penetration of almost every business sector by international standards, collaboration among international standards organizations is a top priority. Here, we learn from ISO's World Standards Cooperation partners – IEC and ITU – why today's modern economy calls for a culture of collaboration and what they're intending to do about it.



Chaesub Lee, Director of the ITU Telecommunication Standardization Bureau.

When it comes to collaboration, ISO promotes cooperation with other standards developing organizations. Working together enables us to better meet the needs of our customers who benefit from a coordinated approach in international standardization. What's more, it eliminates duplicated effort and helps make the international standards landscape less complex and costly for all stakeholders.

One example is the World Standards Cooperation (WSC), which promotes collaboration among ISO, the International Electrotechnical Commission (IEC) and the International Telecommunication Union (ITU). Established in 2001, the WSC aims to strengthen and promote international standardization through specific policies and initiatives. From celebrating the annual World Standards Day to jointly organizing international events, collaboration among the three organizations yields innovative solutions – for the benefit of all.

To celebrate ISO's 70th anniversary, ISO asked its WSC partners why collaboration is key. Here, IEC General Secretary Frans Vreeswijk and Chaesub Lee, Director of the ITU Telecommunication Standardization Bureau, highlight the power of collaboration, how working together strengthens and advances the international standards system, and why there's a need for renewed commitment to tackle tomorrow's challenges.



Frans Vreeswijk, IEC General Secretary.

ISOfocus: What do you make of the expression “The future belongs to those who collaborate”? How does collaboration make us – IEC, ISO and ITU – stronger?

Frans Vreeswijk: I fully agree with this statement. We are living in a society where companies are more competitive than ever but have to collaborate more than ever before to deliver solutions for increasingly complex systems where regulations need to cross borders to allow citizens to benefit from better, safer products and services.

This requires new approaches to standardization and collaboration is the key. The fact is, no single organization will be able to develop all the standards that are needed for increasingly complex challenges. To take into account all the different aspects, we need to combine our specific know-how beyond traditional boundaries. This also requires a different attitude where sometimes an organization leads and at other times it contributes expertise to standards published by another organization. Such an approach avoids duplication, creates synergies and results in faster and better outcomes.

The IEC and ISO have collaborated for many years, both at the technical and the management level. With the World Standards Cooperation (WSC), the three organizations successfully promote the international standards system and organize important joint events.

Chaesub Lee : ITU is the United Nations specialized agency for information and communication technology (ICT). The ITU community agrees with this expression wholeheartedly. Collaboration has become all-important in the ICT sector.

Standardization brings cohesion to innovation, codifying the common understandings that enable innovators to take iterative steps forward. This cannot be achieved without standards bodies adopting a cohesive model of behaviour.

The collaboration of IEC, ISO and ITU is fundamental to the aims of international standardization. As the three leading international standards bodies, the cohesion of our work is critical, and we provide leadership in promoting the collaboration of the many bodies that make up the standardization ecosystem.

What are the critical challenges for international standards today? What do they need to tackle most?

FV : As mentioned earlier, we are facing massive societal challenges related to broad urbanization, transportation, lack of reliable electricity access, climate change and water scarcity, to name but a few. These challenges can only be addressed if we look at systems as a whole. It is no longer enough to focus only on technology, or management, or policies or ITC. We need to approach them holistically and, in this context, standards from the IEC, ISO and ITU, but also others, are needed.

CL : As we approach 2020, one of the most important areas of ITU work will be our international standardization of IMT-2020 (5G) systems. ITU is assisting government, industry and academia in building a 5G environment where we will all have access to highly reliable communications and trusted ICTs will be core to innovation in every industry sector. 5G networks will need to support an enormous number and diversity of ICT applications, each with very different requirements, so 5G standardization requires input from a broad spectrum of industry players.

Internet of Things (IoT) technologies will form a key part of this 5G future. IoT will enable us to map our economies in the virtual world, with data-driven insight helping us to determine where innovation could lead to greater efficiency and sustainability. This highlights the importance of efficient data management. In our knowledge-driven modern economies, data is quickly becoming our most valuable natural resource. Common technical standards will help us to draw maximum possible value from our fast-growing wealth of data by preventing the emergence of data “silos” in different segments of our economies.



One of this year's big events being organized by IEC, ISO and ITU is the Smart Cities Forum in Barcelona, Spain, in November 2017. What does this mean from a standards perspective and what are your priorities for the outcome? What do you hope or envision can be achieved to support smart city innovation and engagement?

FV : By 2050, close to 70% of the world population will be living in urban areas. Cities are among the most complex systems on earth. As the initiator of the first World Smart City Forum that was held in Singapore in 2016, I hope that we are able to agree on ways in which standards from IEC, ISO, ITU and others will help move cities to greater smartness. I also hope that we will be able to make more city leaders understand why standards are essential for smart cities and how each of our organizations contributes in this space.

CL : The transition to smart cities has fast become a key policy point to administrations worldwide, recognizing that cities are a key battleground in our fight for sustainability. The World Smart Cities Forum is emblematic of the proactive approach that IEC, ISO and ITU are taking to the task of understanding emerging standardization demands.

City leaders are working to address challenges to the efficiency and sustainability of city processes. They are well aware of the problems they need to solve, but are often unaware of how technical standards could help solve them.

Here we see the value of the model employed by the World Smart Cities Forum. The Forum asks city leaders to share their perspectives on the challenges most relevant to their cities. Standards bodies listen and learn, helping us to raise awareness of how technical standards will help city leaders to achieve their smart-city ambitions.

Are there any other challenges facing global business today in which this kind of collaboration would be needed?

FV : Going forward, collaboration will be a must for businesses and standards organizations alike. This is not a zero sum game... it is a win-win for all. As for cities, the challenges are complex and the expertise of many is needed.

CL : The ICT sector has gained a diverse range of new stakeholders in recent years as other industry sectors have scaled up their use of ICTs as “enabling technologies” to increase efficiency and innovate their service offerings. A wide variety of industries are now in demand of ICT standards, and ITU is building collaboration with energy and water utilities, the automotive industry, the healthcare sector, the financial services industry and local governments pursuing smart-city strategies.

Supporting this ICT-enabled convergence of industry sectors is not without its challenges. Different industry sectors have different business cultures, regulatory frameworks and product development processes and life cycles. The ICT sector and its supporting standards bodies are opening new lines of communication with other industry sectors, working to understand their priorities and define new modes of collaboration. The model employed by the World Smart City Forum has potential to assist us in this endeavour, asking the ICT sector's new collaborators to support ICT standards efforts by highlighting the challenges most relevant to their business.

What is the one collaboration effort in the last 70 years that you feel epitomizes our successful partnership? And why?

FV : To put forward a single effort as an example is near impossible, the reason being that ever since ISO was founded in 1947, our two organizations have been coordinating standards work continuously at the technical and management levels. We owe this in part to our first IEC General Secretary, Charles Le Maistre, who was also the head of the British Standards Institution (BSI) until 1942; he was instrumental in the founding of ISO. In 1926, he led the effort to establish the International Federation of the National Standardization Associations (ISA) and in 1944 took on the role of Secretary-General of the UNSCC, another international standardization organization. Following Le Maistre's advocacy, these two organizations joined forces and, soon after, ISO was born.

CL : The video coding standardization, driven by the ISO/IEC Moving Pictures Expert Group (MPEG) and ITU-T Study Group 16 (Multimedia), stands out among our greatest collaborative successes. This work has been influential to an extent that almost all video we view, over any medium, is coded using the standards developed by this long-standing collaboration.

ITU H.264 | MPEG-4 (Advanced Video Coding) remains the most deployed video compression standard worldwide. Its dominance led to our three organizations receiving a Primetime Emmy Award in 2008.

The successor to ITU H.264 | MPEG-4 is known informally as High Efficiency Video Coding (HEVC) and standardized as ITU H.265 | ISO/IEC 23008-2. HEVC needs only half the bit rate of ITU H.264 | MPEG-4, designed to accommodate advancing screen resolutions as high-end products and services outgrow the limits of current network and display technologies. This collaboration continues. The successor to HEVC is anticipated for 2020. As has become customary, this next-generation video codec is expected to deliver double the video compression power of HEVC. ■

MEDAL FOR QUALITY

Dr Nigel Croft, Chair of ISO technical subcommittee ISO/TC 176/SC 2, *Quality Systems*, has been awarded the American Society for Quality's Freund-Marquardt Medal for 2017. This is presented annually to nominees who have applied quality principles to the development, implementation and literature of management standards. The citation on Dr Croft's award reads as follows: "For his passion, dedication and leadership in the application of quality management principles to the development, promotion and implementation of quality management system standards on a global scale, for over 20 years."



Nigel Croft's involvement in standards development began in 1995, when he joined the Brazilian delegation to ISO/TC 176, *Quality management and quality assurance*. He was Task Group Leader for the Introduction of the ISO 9001:2000 standard, and coordinated the development of the transition policy for that standard in collaboration with ISO/CASCO and the International Accreditation Forum. After serving as the TC 176 liaison representative to both CASCO and the IAF, and as co-convenor of the TC 176 Conformity Assessment Liaison Group, he was appointed Chair of TC 176/SC 2 in 2010.



BELT AND ROAD FORUM FOR INTERNATIONAL COOPERATION

During the Belt and Road Forum for International Cooperation (BRF), hosted in Beijing, China, on 14 May 2017, ISO President Dr Zhang Xiaogang moderated the topic discussion on "Connectivity of Development Policies and Strategies – Connotation, Significance and Practice", as part of the BRF Thematic Session on Connectivity of Development Policies and Strategies. The discussion was joined by 22 high-level government officials from more than 20 countries.

The BRF Thematic Session on Connectivity of Development Policies and Strategies featured keynote speeches by National Development and Reform Commission (NDRC) Chairman He Lifeng, United Nations Secretary-General António Guterres and President of Switzerland Doris Leuthard. From the international, regional and national perspectives, the Thematic Session focused on the importance, objectives and content framework of the connectivity of development policies and strategies, as well as the practice and inspiration of such connectivity for regional cooperation.

The speakers elaborated on the connotation and significance of co-building the Belt and Road initiative and promoting the connectivity of development policies and strategies, and shared their respective practice and experience.

The Thematic Session attracted 360 representatives of about 180 ministers and leaders of regional and international organizations.



BELIZE UNVEILS ITS NEW METROLOGY LABORATORY

The Belize Bureau of Standards (BZBS) in the Ministry of Economic Development, Petroleum, Investment, Trade and Commerce, in collaboration with the Government of Belize and the European Union (EU), officially opened its new Metrology Laboratory in April 2017 at Power Lane, Ministry of Works Compound, in the country's capital of Belmopan.

The laboratory will be responsible for setting measurement standards to ensure equity in the marketplace and as a reference for calibration services throughout the country. It was constructed with funding from the EU and the Belize government under the Belize Rural Development Project (BRDP II), at an approximate cost of EUR 1.4 million. This included the physical structure and laboratory equipment.

The facility currently has six laboratories that are equipped to make reliable metrological measurements principally of mass, volume, length, temperature and pressure. The Metrology Laboratory is the first of its kind in Belize and is the first purpose-built, state-of-the-art metrology facility within the Caribbean Community (CARICOM).

Belize now joins other countries in the Caribbean region, such as Jamaica and Trinidad and Tobago, in offering metrology services. José E. Trejo, Director of the Belize Bureau of Standards, says the Bureau will begin work immediately "to obtain international recognition for these capabilities and eventually increase the range and accuracy to meet the needs of its clients such as regulators, industry, manufacturers, exporters and consumers".

GENEVA SPOTLIGHT ON HUMANITARIAN STANDARDS INITIATIVES

How are standards being used to help the humanitarian sector? The question was raised during a panel discussion entitled "Humanitarian Standards Initiatives – the Big Picture", organized by the Geneva Humanitarian Connector* in May 2017 in Geneva, Switzerland. Apart from ISO standards, many standards initiatives exist that are used by humanitarian organizations.

How are these standards, and related tools and mechanisms, being used? Are they fulfilling their intended purpose? What further developments may be on the horizon? The event gave an overview of the various standards, their relationship and how they complemented each other.

Many members of the humanitarian community have been involved with the numerous standards efforts and quality and accountability initiatives – but most exchanges occur at the technical level. This event was an opportunity to consider the bigger picture: to look at what has triggered these developments, what they are meant to achieve, and how they may be developed further. It also gave an overview of the conceptual similarities/differences of standards and how they relate to each other.

Through an informal moderated conversation, participants from IFRC, ICRC, HQAI, PHAP, Sphere, CHS Alliance and ISO shared key insights from their experiences with these initiatives, reflected on larger trends, and shared their hopes and concerns for the future. To complement the perspectives from within the humanitarian community, Daniele Gerundino, the Director of the ISO Academy, also shared current insights regarding International Standards and quality and accountability efforts.

* The Geneva Humanitarian Connector is a networking, information-sharing and outcome-oriented facilitation platform primarily targeted to the humanitarian community in Geneva.



CONSUMERS CALL FOR ACTION ON ROAD-SAFETY SOLUTIONS

The ISO Committee on consumer policy (COPOLCO) outlined actions to decrease the alarming number of road traffic casualties worldwide at an international workshop "Road Safety by Design" on 17 May 2017, ahead of its plenary meeting in Kuala Lumpur, Malaysia.

Each day, some 3 500 people die in road-related crashes – amounting to 1.3 million deaths annually – 90% of which occur in low- and middle-income countries. The United Nations Decade of Action calls for halving this statistic by 2020, targeting cars, bicycles, motorcycles and pedestrians, as well as utility vehicles that have been unsafely retrofitted to carry passengers.

Experts from the ISO technical community, research institutes and international agencies such as the United Nations Economic Commission for Europe (UNECE) and the Global New Car Assessment Programme (NCAP) provided helpful knowledge to address this situation.

Participants recommended national approaches and international cooperation to share best practices. They stressed the importance of international road safety standards, consumer groups' engagement with government agencies towards safety goals (with a mention for manufacturers to include safety features for all markets) and achieving road safety targets through national awareness-raising programmes that promote good practices and discourage risky behaviour.

A related capacity-building event on 16 May, organized by the ISO Academy and COPOLCO, also contributed ideas and issued a "call for action" outlining challenges and priorities for developing countries.

GROWING THE SERVICES SECTOR WITH ISO STANDARDS

The second ISO services workshop, in cooperation with the ISO Committee on conformity assessment (CASCO), was held on 28 April 2017 in Vancouver, Canada. It brought together 140 stakeholders to discuss the challenges, gaps and opportunities for standardization in the services sector.

Special emphasis was placed on conformity assessment issues. Participants discussed whether more flexible rules for service standards are needed, including how best to deal with management systems (the questions of the exclusion principle and "light" quality management system), and whether the existing conformity assessment (CA) schemes are adequate to respond to the needs of the services sector.

Despite a heated debate, the consensus was that the existing processes and rules are very sound and flexible enough to provide deliverables that meet market needs. Where CA is concerned, it is more a case of improving communication about its benefits and better educating consumers than about changing anything. The discussions and outcomes of the workshop will influence the future direction of the ISO strategy for service standardization.

For more details, keep an eye out for the full workshop report, to be released soon.



UN & ISO

together
we make
a difference



Michael Møller,
Director-General
of the United
Nations Office
at Geneva.

Photo : UN/P. Albouy

UN organizations participate in many ways in the work of ISO.

On the occasion of ISO's 70th anniversary,

Michael Møller,
Director-General

of the United Nations
Office at Geneva, sits

down for a one-on-one
interview with *ISOfocus*.

Here, he reveals his inspirations, the greatest challenges of today's world, and his boundless commitment to making a difference.

The 70th anniversary of ISO is at the same time the anniversary of ISO and the United Nations (UN) working together. The UN has been actively engaged with ISO since its inception in 1947. Over the past seven decades, ISO's engagement with the UN has undergone profound changes, both in terms of the variety of actors and the evolving priorities. But the long-established history of collaboration between our two organizations has been essential to tackling some of the world's most global challenges, and will continue to be a transformative force in the future as we prepare for the implementation of the UN's Sustainable Development Goals, the global roadmap that will guide our collective work by 2030.

Today, over 700 international and regional organizations have formal liaison relations with ISO technical committees. The true value of these partnerships is not only the technical expertise, but also the connections across institutions that have been built up over the years. From food safety to civil aviation to the environment, UN organizations participate in many ways in the work of ISO. The active involvement of UN experts shaping ISO standards and supporting them in the implementation stage is central to achieving worldwide success. Here, Michael Møller, Director-General of the United Nations Office at Geneva, assesses the long-standing relationship between ISO and the UN, and highlights the experience, practices and lessons learned for continued engagement.

ISOfocus: The UN collaborates with hundreds of organizations, including NGOs such as ISO. In what ways do ISO standards provide solutions to the work of the UN and its agencies and programmes?

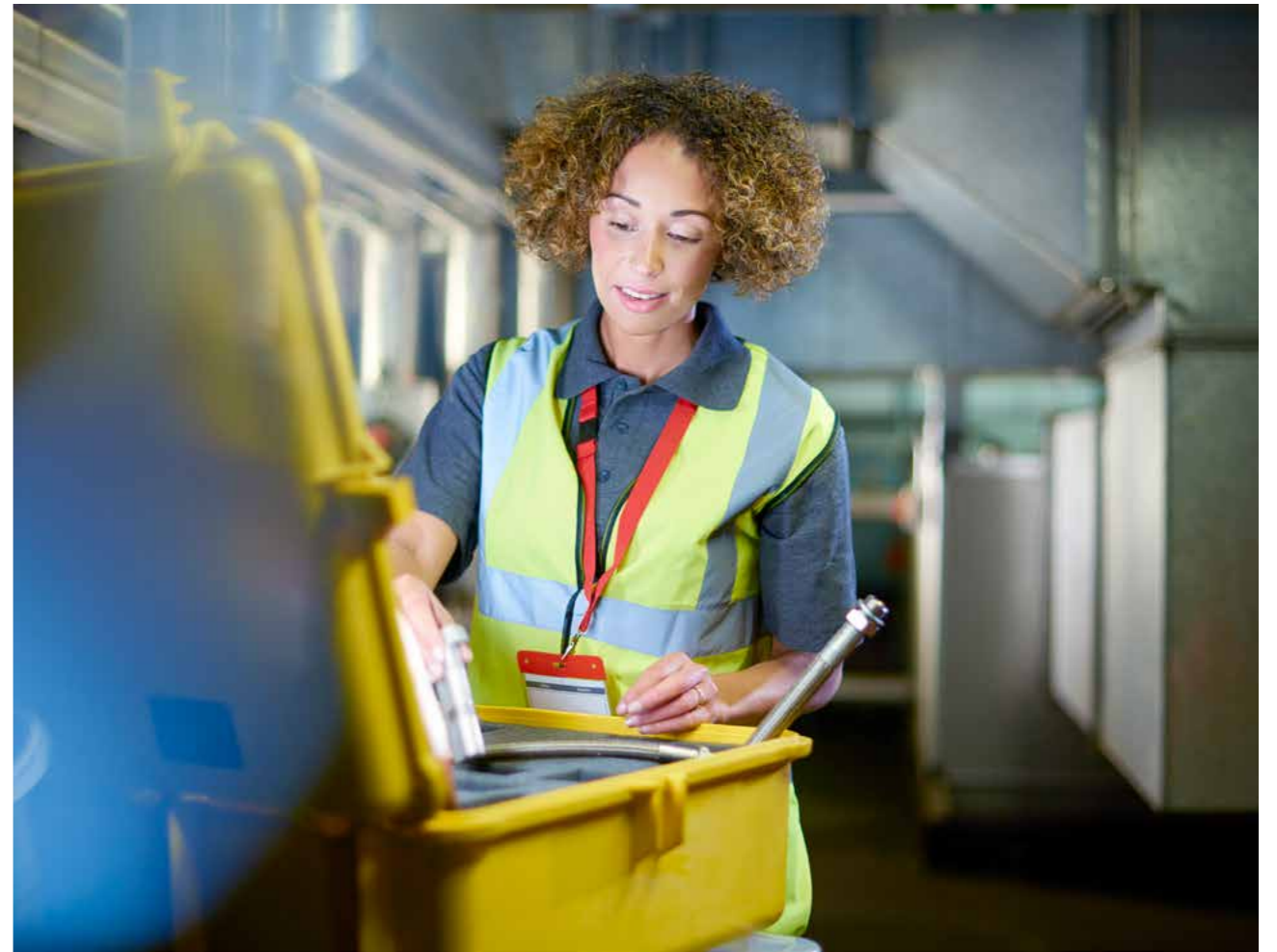
Michael Møller: Let me start by saying that the UN is itself a normative organization. Under the UN umbrella, Member States develop standards in a number of areas, including motor vehicles, electronic business and agricultural quality, among others. The UN adopts global policy frameworks, such as the Sustainable Development Goals (SDGs) of the 2030 Development Agenda, the Sendai Framework for Disaster Risk Reduction, the Paris Agreement and the New Urban Agenda.



International standards – as developed by ISO and other standards-setting bodies – complement these frameworks because they contain hands-on guidance for companies, administrations and communities. They are widely used, both on a global and national level, to translate political priorities into practical action on the ground. For example, last year, in Paris, governments took sweeping commitments on climate change, and standards developed by ISO help plant managers monitor and reduce toxic discharges into the atmosphere. For this reason, international standards organizations often participate – in their capacity as observers – in the making of the UN global frameworks. Both ISO and its “sister” organization, the International Electrotechnical Commission (IEC), were present at the World Conference on Disaster Risk Reduction and witnessed the adoption of the Sendai Framework, which has numerous references to standards throughout its text. Preparing for, and reacting to, extreme events such as disasters requires the highest level of trust and interoperability among responders and that is something standards bring to the table.

More than 20 UN organizations actively participate in the work of ISO technical committees. How does this collaboration add value to your work and contribute to tackling some of today’s global challenges?

UN organizations participate in many ways in the work of ISO. One of the UN Economic Commission for Europe (UNECE) intergovernmental bodies, UN/CEFACT, which works in the area of electronic commerce, has developed 40 UNECE Recommendations and 440 UN/CEFACT standards, helping to make trade simple, accessible and sustainable. Many of these documents have actually become ISO standards. One of these Recommendations is the use of one of the very first templates replacing paper documents by a concise electronic message, the UN/Layout Key, and the standard that allows to quickly and securely exchange electronic documents, UN/EDIFACT, used by more than 100 000 companies in the retail sector alone. This is one example of the joint UNECE and ISO activities under the eBusiness Management Group and the ISO technical



committee on processes, data elements and documents in commerce, industry and administration (ISO/TC 154). Standards also have a great potential for the empowerment of women and girls. In particular, women entrepreneurs should be empowered to use standards that embody innovative best practice and cutting-edge specifications. At the same time, I am aware that women are currently under-represented in the activities related to the development and implementation of standards. I believe that women deserve an equal say in the technologies that drive our future. For this reason, UNECE has recently launched an initiative on “Gender-Responsive Standards” in full cooperation with standards bodies such as ISO and a number of UN agencies and NGOs, as well as the Geneva Gender Champions network. I hope ISO will give the initiative its full support so that standards may fully reflect women’s needs and priorities and contribute to the realization of the Agenda 2030, specifically as regards its Goal 5 for the achievement of gender parity. Working closely with ISO adds value to our work in this area, aimed at developing solutions to help small companies access business opportunities and do business across borders, for an inclusive globalization. Close cooperation with ISO is essential in order for these products to be aligned and correctly interlinked for the benefit of governments, businesses and traders around the world.

Global solidarity is needed to address global challenges.

As another example, the UNECE has developed recommendations on how to use risk management standards – including those developed by ISO – in developing and enforcing regulations. This helps our Member States, for example, identify and remove from the market dangerous and non-compliant products that pose a risk to consumers, workers, and communities living alongside potentially dangerous plants. It also helps converge technical regulations across countries and eliminate barriers to trade.

To reach the Sustainable Development Goals by 2030, what standards development partnerships are needed globally to achieve our collective roadmap for a safer, fairer and more sustainable planet?

Making good use of the best practice contained in standards is key to supporting the transition to a more sustainable way of life. A number of joint activities are already underway. In the area of energy, UNECE is developing energy efficiency standards for buildings. The process has begun with the development of framework principles for energy efficiency in buildings and has embraced all stakeholders, including ISO, who have worked on standards for building components.

A key priority for further joint work is advocacy. We already work with ISO and other standards bodies to empower UN Member States in using international standards in policy work. UNECE and ISO have, for example, co-organized awareness-raising events on topics including the referencing of standards in regulations and their application in specific sectors. One recent initiative is looking at how to use standards as part of integrated policy solutions to reduce the impact of the apparel and clothing industry on the environment.

A second area is building capacity for the implementation of standards. UN organizations and standards-setting bodies have developed powerful initiatives such as the “Make my city resilient” campaign or the “Global Alliance for clean cookstoves”, among others. New partnerships can start by identifying areas where standards have a key role to play in implementing specific SDGs and other global frameworks.

If these standards exist, then we can act together to support businesses, communities and governments as they bear the short-term cost of integrating standards in everyday decisions, management practice and regulatory frameworks. Where they do not, ISO and UN organizations can work together to develop new ones.

Both ISO and the UN were created after the war, when peace was sought through the establishment of international institutions. What are your expectations for peace in the next 70 years?

Every individual has a role to play in building peace, and all of us in governments, international organizations, the private sector, academia, civil society and the public are working to create a sustainable, peaceful future.

UN organizations
participate in many ways
in the work of ISO.

In this framework, the United Nations will continue to help establish international rules, find solutions to complex problems, adopt ambitious development plans and claim for the well-being of those who are forgotten.

In the Huffington Post’s blog, you recently wrote: “We have to rekindle global solidarity as an enabler of innovation and prevention”. Could you please explain what you mean by this? What is required from world leaders in order to achieve a better world?

Global solidarity is needed to address global challenges such as humanitarian needs in situations of conflict and man-made or natural catastrophes, to prevent the negative consequences of climate change, or to deal with migration. None of these can be solved by one country or one organization alone. We are working in Geneva to put into practice global solidarity through different means, for example humanitarian appeals like the one for Yemen in April 2017. Our humanitarian and development agencies need to be innovative in employing the limited resources and tools at their disposal in order to provide aid and enable progress on the ground. Showing solidarity towards marginalized areas and populations helps alleviate hunger or mediate conflict over natural resources, thus preventing local crises from developing into full-blown emergency situations.

Within our organizations, we must be ready to change and adapt in order to find innovative solutions. We need to lead the way in addressing complex problems through multilateral cooperation, whether it means working closely with academia, building on the latest research, or with the private sector, using the latest technology. We need to stand as an example of global solidarity, supporting innovation and searching for ways to incorporate prevention. ■





Why TWINNING

IS WINNING

by Elizabeth Gasiorowski-Denis

What's so good about twinning? Here, six ISO members – movers and makers in their respective fields – answer the question with bite-sized stories that are filled with big lessons others can put into action today. Discover why twinning is a winning strategy for all ISO members.

Once a month, either in a conference room or via a Web meeting, Prudence Asamoah-Bonti¹⁾ sits down for an hour or so with Laura Mout. Both women are involved in ISO's first committee for sustainable and traceable cocoa, a new field of expertise for ISO. But Asamoah-Bonti is relatively new to International Standards development, while Mout is one of the experts in the sector. Their monthly meetings began three years ago, just after ISO's member for Ghana (GSA) agreed to work together with the Netherlands (NEN) on a newly established subcommittee on cocoa (ISO/TC 34/SC 18), which is jointly managed by ISO members for the Netherlands (NEN), along with key cocoa-producing countries Côte d'Ivoire (CODINORM) and Ghana (GSA). Together with the European Committee for Standardization's (CEN) technical committee on sustainable and traceable cocoa (CEN/TC 415), whose secretariat is held by Danish Standards (DS), ISO's member for Denmark, they are developing the series of standards ISO 34101, *Sustainable and traceable cocoa beans*, which aims to address some of the challenges faced within the cocoa sector. Mout, AgroFood & Consumer Consultant at NEN, is the mentor under the ISO twinning programme, a concept developed to facilitate the participation of developing country members in specific standardization projects. That makes Asamoah-Bonti the "twinee". You will not find twinee in a dictionary, but you hear it increasingly in standards circles. Twinning, particularly for developing countries keen on International Standards, is on the rise (see also the *ISO Action Plan for developing countries 2016-2020*).

1) After playing a key role in the start of the "twinning" between GSA and NEN, Prudence Asamoah-Bonti handed her responsibilities over to MacMillan Prentice as a Twinned Secretary for ISO/TC 34/SC 18 on cocoa.



Reasons to twin

So why do we need twinning? One reason is that the ISO standards development game is big, complex and, most importantly, international. At ISO, for example, over 70% of the membership is from developing countries, yet many still face challenges that mean they are not as active in the development of standards as they would like to be.

“Although ISO is seen as a worldwide organization,” says Mout, “many of the committees are still led by people from the western world and international experts often come from developed countries.” She underlines that twinning aims to bring about a greater balance in the ratio of participation and leadership in international standards development. Developed and developing country members both benefit, and “learn from each other’s strategies, skills, experiences, cultures and more”.

Improving participation of developing countries will improve the “internationalness” of ISO standards. Increasingly, the issue is being seen not as one of standards development (creating them in the first place), but

of quality (getting all the right people around the table). Ensuring the worldwide representation of ISO members and key people is crucial to maintaining effective, high-quality global standards – making ISO a unique and truly international organization.

For Mout, it all comes down to the content of the standards: “Because of the strength of the twinning arrangement with cocoa-producing countries, we can contribute to the future of cocoa and the livelihood of many cocoa farmers and their families around the world.” In addition, Asamoah-Bonti and Mout both emphasize the importance of a dedicated team so that twinning is a real “winning” cooperation. To quote an African proverb: “If you want to go fast, go alone. If you want to go far, go together.”

ISO started a formal twinning programme in 2002, with Ghana and the Netherlands among its latest volunteers. The twinned pair – between a developing country ISO member and a developed country ISO member – have been collaborating with one another at the secretariat level since 2014 (see Box “All about twinning”).

The programme is open to any ISO member interested in strengthening communication and building commitment and good relationships with other ISO members. The developed countries that dedicate their time to these twinning partnerships provide their knowledge and know-how. The result: the transfer of vital expertise and skills in a partnership that may not otherwise be possible.

Will you be my partner?

Twinning relationships typically start as simply as this: One member approaches a more experienced member and asks, “Will you be my partner?” That is pretty much how it began for Ludvig Hubendick at the Swedish Standards Institute (SIS) and Peace Ababo at the Rwanda Standards Board (RSB)²⁾ for their twinning arrangement in working group WG 1 of ISO project committee ISO/PC 283, *Occupational health and safety management systems*. Three years ago (in 2014), Ababo popped the question to the then RSB Director, Dr Mark Cyubahiro Bagabe. He agreed, and they signed up for a twinning partnership with SIS.

The two members had their first “major” twinning session in September 2015, when the committee met to progress the Draft International Standard of ISO 45001 on occupational health and safety management systems. More than 100 experts from 30 ISO member bodies and 10 liaison organizations attended the historic meeting in Geneva, Switzerland.

Managing meetings of this size and magnitude is a bit complicated, admits Björn Nilsson, SIS Project Manager and current Secretary of the ISO/PC 283 working group. “There [are] lots of discussion, consensus-building and important decisions to be taken fast. At the same time, you need to make sure that everything you’re documenting is solid. Honestly, I am not sure how that would have been possible without a co-secretary,” he says.

For Ababo, Hubendick’s co-secretary, the opportunity to process comments and produce a new Draft International Standard through this twinning arrangement was a priceless learning experience. She wanted, and received, honest assessments of her strengths and weaknesses, and learned about the actual secretariat work. Ababo says her twinning sessions have “helped me use the ISO IT tools, deal with comments, deadlines, and ensure that no country misses a vote”.

2) Björn Nilsson at SIS has since taken over from Ludvig as Secretary of ISO/PC 283/WG 1 and Jane Nyamvumba has replaced Peace as the working group’s Co-Secretary.

It is about
ISO members
helping
ISO members.

Knowledge transfer

Twinning is viewed as a development opportunity for less experienced members and as a way to pass on the knowledge of more seasoned members. “The Swedish Standards Institute (SIS) is a specialist in standards that promote health and safety,” says former RSB Director Dr Mark Cyubahiro Bagabe. “We have the same interest in protecting people and the environment. The country also respects national positions, respects national policies – and we value this.”

That is a big reason many developing country members are joining the twinning programme, says Legesse Gebre, Standards Development Director at the Ethiopian Standards Agency (ESA), which received on-site training by the Austrian Standards Institute (ASI) as part of its arrangement.

“We learned a lot from our twinning,” Gebre says. “The good knowledge, principles, commitment and understanding on the side of ASI were invaluable. And the progress made was fast and easy – all in all, the twinning has been a remarkable benefit to ESA.”

The knowledge transfer is not only one-way though, says Karl Grün, ASI Standards Development Director, who believes ASI receives at least as much out of the twinning relationship as ESA does. “What we learned from our twinning relationship,” analyses Grün, “is to never take simple things in standardization for granted.” It is a two-way street, he says: “We are both partners united by diversity in a global standardization family.”



All about twinning

There are four twinning arrangements that countries can choose from depending on need, context and desired outcomes:

- Twinning between participating (P) members
- Twinning between Convenors and Co-Convenors
- Twinning between Chairs and Vice-Chairs
- Twinning between Secretariats and Co-Secretariats

To discover how these work, see the brochure **Guidance on twinning in ISO standards development activities** or contact your Technical Programme Manager (TPM) or the Technical Management Board (TMB) secretariat (tmb@iso.org) at the ISO Central Secretariat.

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Bringing members together

Today, twinning is a very important way of bringing members together – something that helps to create the sense of a “common ISO”. But twinning also still serves its original purpose of fostering the capacity building and participation of developing countries in the standards development process. Getting ISO members to partner, discuss and tackle difficult subjects in a friendly atmosphere builds expertise, skills and organizational knowledge – all for the benefit of the international standards community.

And in our age of globalization – with its challenges and opportunities – twinning plays a significant role in bringing people and communities together in the wider world with a greater sense of shared responsibility (i.e. towards the Sustainable Development Goals, a set of targets for future international development created by the United Nations). It is about ISO members helping ISO members, one member at a time, and is an excellent way of creating truly globally relevant standards. After all, developing high-quality standards through its global membership is what ISO’s work is all about. ■

