Delivering
supply chain
confidence

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Introduction

Modern supply chains are increasingly complex as companies seek to optimize costs while retaining flexibility.

Supply chains that stretch across multiple countries and sites pose major challenges in terms of quality, compliance with regulations and standards relating to safety, as well as environmental and social responsibility. Procurement is often responsible for up to 70 % of companies' expenditure[1], so any disruption could affect profitability, in addition to brand reputation and customer loyalty.

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1)   Source : Chartered Institute of Procurement and Supply.

The main challenges are :

- Although businesses have been producing items with goods sourced from around the world for many years, supply chains are now significantly more complex in terms of the speed, scale, depth and breadth of global interactions
- The global nature of supply chains and retail markets means that businesses must operate in multiple and often differing regulatory environments
- Determining the quality, authenticity and traceability of raw materials, components or subassemblies requires credible and trustworthy information
- As innovation accelerates and the products' life cycle shortens, markets become more unpredictable, exerting increased pressure on supply chains
- Businesses need to manage their exposure to risk or disruption from data security breaches or system failures
- Effective selection of sustainable suppliers should focus not just on their financial stability, but also on their corporate social responsibility performance and ethical practices

Standards and conformity assessment provide tools to deliver supply chain confidence.

What are standards?

Standards define safety
and performance requirements
as well as how products,
processes and people
interact with each other
and their environments.
They provide requirements,
specifications, guidelines
or characteristics that can
be used consistently to ensure
that materials, products,
processes and services are fit
for their purpose.

While the term "standard" can mean different things to different people, dependent on geography, age and industry, a standard is in essence an agreed way of doing something. Whether that "something" is producing an item, delivering a service or managing a process, standards provide a reliable basis for creating shared expectations. Standards developed by the **International Organization for Standardization (ISO)** and the **International Electrotechnical Commission (IEC)** undergo rigorous consensus gathering from across the world involving experts from business, regulators and policy makers, consumers and other relevant stakeholders. Consequently, standards form the cornerstone of economies worldwide, simultaneously reducing risk while increasing consumer protection. As industries adopt a more global outlook, the need for standards that are compatible between international economies becomes ever more crucial. Yet in order for a standard to be deemed effective, it must be easy to recognize whether a product, service or process conforms to that standard.
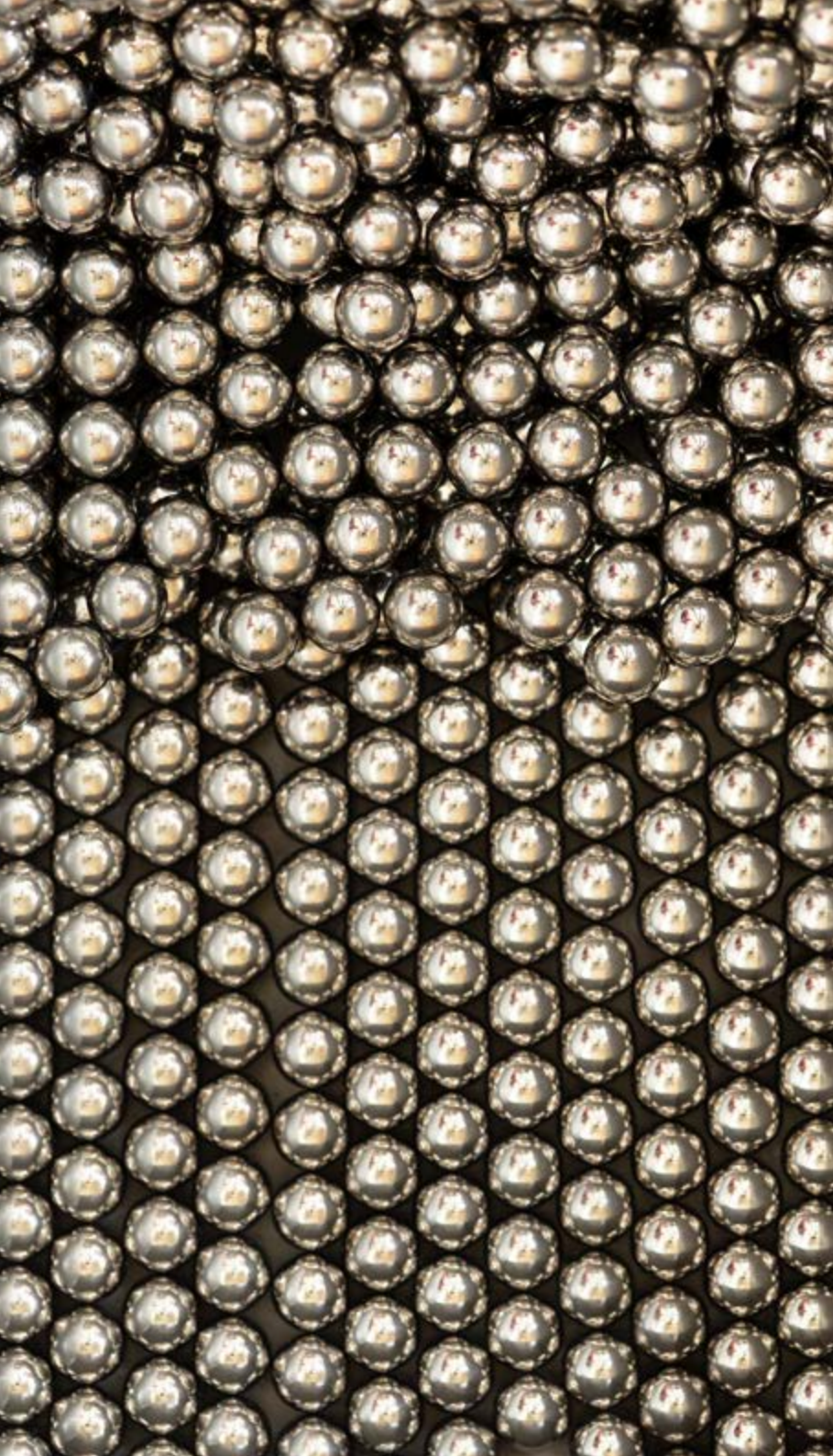
What is conformity assessment ?

The process of conformity assessment demonstrates whether a product, service, process, claim, system or person meets the relevant requirements.

The organizations that perform conformity assessment activities are known as conformity assessment bodies (CABs) and cover all industry sectors and activities, from calibration institutes, medical and testing laboratories, bodies performing inspection (the examination of a design, product, service, process or installation), bodies confirming information (by validation or verification), to bodies that certify management systems, products or persons.

Virtually every sector relies on certification, inspection, testing or measurement services to promote its proficiency on a wide range of issues such as quality or health and safety. According to the **Organisation for Economic Co-operation and Development (OECD)**, 80 % of trade involves elements of testing, calibration, inspection and certification activities. How do you ensure a CAB is competent and trusted ? These organizations rely on standards that can be found in the **ISO/IEC 17000 series** of standards for conformity assessment, the so-called **CASCO Toolbox**.

One of the most widely used examples is **ISO/IEC 17025**, *General requirements for the competence of testing and calibration laboratories*, which is the international reference for laboratories carrying out testing and calibration. Testing is used in public health and safety, commerce, manufacturing, construction, environmental monitoring, transport, agriculture, forensic sciences, telecommunications, etc. ISO/IEC 17025 enables laboratories to demonstrate that they are technically competent, impartial and consistently able to produce valid and reliable results.

The CASCO Toolbox also includes **ISO/IEC 17020**, *Conformity assessment – Requirements for the operation of various types of bodies performing inspection*, which is the standard for recognizing inspection bodies. Inspection is used in a variety of sectors, including agriculture, transport, health, construction, telecommunications, etc. Activities such as the checking of environmental permits, inspections related to agri-food products and industries, technical inspections of road vehicles, the reception of supplies or the management and control of municipal licences are just some of the services provided by the inspection bodies. Fulfilling ISO/IEC 17020 ensures that inspection bodies consistently carry out competent and impartial inspections.

An effective management system is today an essential business ingredient and having it audited and certified to a standard brings a number of benefits. Some industry sectors have even created their own management system standards. The automotive industry, for example, has **IATF 16949**, the aerospace industry has **AS9100**, the food industry has **FSSC 22000** and the telecommunications industry has **TL 9000**. Certification bodies that use the **ISO/IEC 17021 series** are able to ensure competent audit teams, with adequate resources, following a consistent process and delivering impartial results. The series includes standards for the audit and certification of quality, environmental, event sustainability, asset, business continuity, road traffic safety, sustainable development in communities, anti-bribery, facility management, and occupational health and safety management systems.

ISO/IEC 17024, *Conformity assessment – General requirements for bodies operating certification of persons*, sets up the requirements a certification body needs to comply with to demonstrate it is competent to certify persons for a specific scope. It helps ensure that bodies operating certification schemes for persons operate in a consistent, comparable and reliable manner. This certification is used in sectors as diverse as healthcare, construction, IT, manufacturing, safety and finance and helps to ensure that individuals in a particular field have the necessary knowledge, skills and abilities to perform their work well.

ISO/IEC 17065, *Conformity assessment – Requirements for bodies certifying products, processes and services*, is a means of providing assurance that products, processes or services comply with specified requirements in standards and other normative documents of a certification scheme. Certification according to ISO/IEC 17065 is available for a wide range of products including metallic materials, domestic appliances, construction materials, electrical materials, wind farms, forest products, artisanal products, food and primary-sector products and different types of services, such as tourist establishments, etc. This standard allows certification bodies to demonstrate that they operate certification schemes in a competent, consistent and impartial manner. This facilitates the acceptance of certified products, processes and services on a national and international scale.

The newly published standard **ISO/IEC 17029**, *Conformity assessment – General principles and requirements for validation and verification bodies*, contains general principles and requirements for the competence, consistent operation and impartiality of bodies performing validation/verification as conformity assessment activities, which is understood to be a confirmation of reliability of information declared in claims. Potential applications can include claims relating to construction technology, energy management, financial management, industrial automation systems, software and systems engineering, artificial intelligence, information technology, healthcare products and medical devices, machine safety, safety and design engineering, and social responsibility.

Confidence in CABs is paramount if the results of their assessments are to be used by regulators, manufacturers or end users. CABs can also look to accreditation processes and have their competence assessed by independent and impartial organizations, called accreditation bodies. Accreditation thus provides an additional layer of trust and gives confidence that conformity assessment results, e.g. certificates and test reports, issued by one CAB are effectively equivalent to those offered by another.

What is the role of accreditation ?

Accreditation is the independent evaluation of conformity assessment bodies against recognized standards to ensure their impartiality, competence and consistency.

Conformity assessment and accreditation, therefore, play an important role in reducing the costs of trade and doing business, enhancing technology transfer and increasing investment. They also enable businesses to integrate into global supply chains, as product quality can be demonstrated through a common " technical language " needed to establish trust between business partners[2]. A report, produced by the World Trade Organization Economic Research and Statistics Division, stated that the inappropriate use of conformity assessment accounts for 10 % of specific trade concerns. Accreditation provides an opportunity to address this issue.

2)   Source : World Bank.

Delivering confidence in the supply chain

Given the complexity of today's supply chains, reassurance in the measurements, tests, inspections and certifications that are performed in another jurisdiction or market sector is essential.

Without a level of confidence, the free exchange of goods and services risks being hampered by technical barriers or varying levels of quality, thereby increasing costs for importers and consumers. Such complexity also makes it cost-prohibitive for governments or regulators to carry out all the laboratory testing, inspection and certification necessary to protect public health, safety and the environment. A solution that is increasingly being adopted is for governments to establish regulations which specify requirements to be met and procedures to be employed for demonstrating compliance, with the option for private-sector providers to earn recognition to carry out the confirmation of compliance processes.

Conformity assessment is used to demonstrate that products and services meet standards or technical specifications. In the regulated sector, conformity assessment demonstrates compliance with legislative requirements and, in the voluntary sector, it provides assurance to consumers and importers that the products and services they procure meet specification. Illustrations of how this works in practice for supply chains in different sectors, including food, construction, automotive and textile, can be found here : **go.iso.org/supplychainconfidence**.

Supporting supply chains through international recognition

Global agreements between accreditation bodies facilitate the acceptance of products and services across borders, thereby creating a global infrastructure to support trade, regulatory approval processes and confidence in the supply chain.

These arrangements, which cover economies that represent 96 % of global GDP[3], are managed by the **International Accreditation Forum** (IAF), in the fields covering accreditation of certification bodies, and the **International Laboratory Accreditation Cooperation** (ILAC), in the areas of laboratory and inspection body accreditation. This system helps to ensure work carried out by accreditation bodies is consistent across the globe and maintains International Standards from one accreditation body to others. As a result, products and services tested, inspected or certified once under the IAF and ILAC umbrellas can be accepted everywhere with equal confidence.

Research conducted by the **Centre for Economics and Business Research** in the UK stated that GBP 6.1 billion of additional UK exports per year can be attributed to standards and accredited conformity assessment. It reports that procurers have confidence that products will be safe and fit for purpose, so they are more widely accepted. The system removes arbitrary technical barriers to trade and improves confidence and transparency throughout complex and multinational supply chains.

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3) Source : World Economic Forum.

Increasing recognition

In recent years, there has been a growing trend towards greater recognition of standards and conformity assessment.

The acceptance of the arrangements by governments and regulators, private schemes and trading partners can be at the national, regional and global levels. For example, recent European Union (EU) trade agreements signed with Japan, Canada, Switzerland and Tunisia cite the use of accredited conformity assessment to ensure harmonized free trade.

The **Gulf Cooperation Council** (GCC) operates a single-market regulatory system referencing accreditation as an essential tool for the implementation of the regulatory system and is used in all regulations to assure the competence of notified bodies. **APEC** (Asia-Pacific Economic Cooperation) endorses accreditation to underpin the conformity assessment component of the APEC agreements. **ASEAN** (Association of Southeast Asian Nations) has included accreditation in the ASEAN sectoral

MRA (mutual recognition agreement) for electrical and electronic equipment as a means of demonstrating that the specified requirements are met. At the national level, 173 countries participate in IEC activities with most of those accepting certificates issued from IEC CA (Conformity Assessment) Systems as proof of conformity with required standards. The EU, GCC and APEC also recognize and accept certificates issued from IEC CA Systems.

The mainstream acceptance of standards and conformity assessment by both pan-regional bodies and domestic regulators within individual governments also helps World Trade Organization member governments to meet their responsibilities under the **Technical Barriers to Trade Agreement and the Sanitary and Phytosanitary Measures Agreement**.

Using conformity assessment in supply chains

Some examples illustrating the benefits of using internationally recognized conformity assessment tools in supply chains and procurement, which cover a variety of sectors and countries, are provided in the next pages.

You can find more case studies and research from:

- The Business Benefits platform **https://business-benefits.org/**
- The Public Sector Assurance platform **https://publicsectorassurance.org**
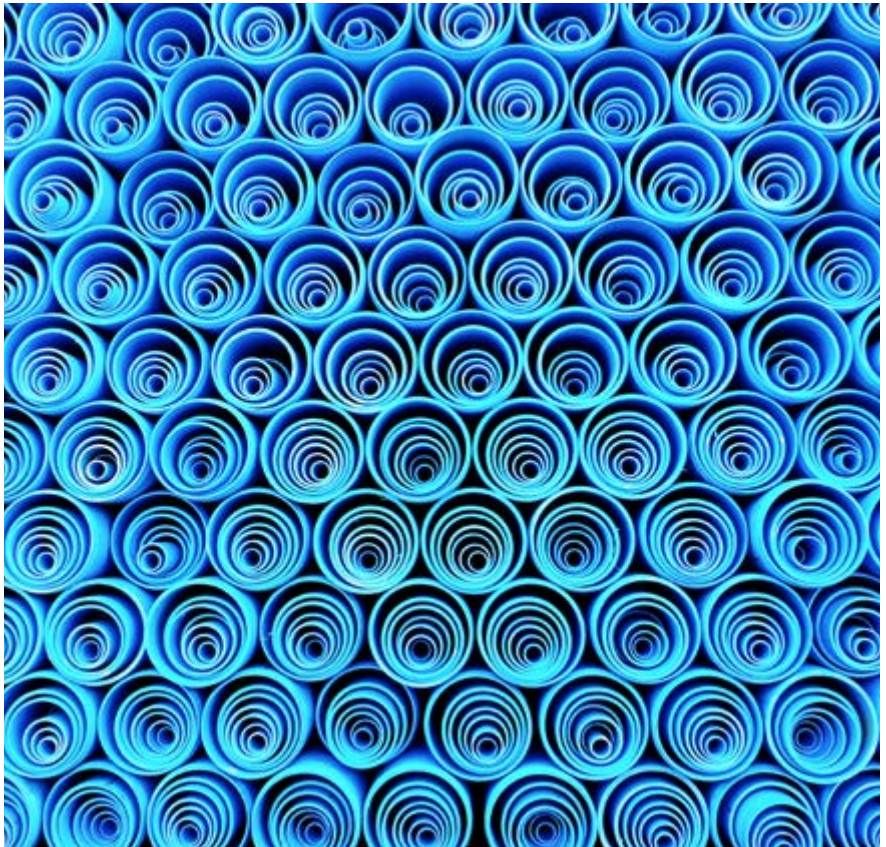
EXAMPLES

Electrotechnical

The **IEC Quality Assessment System for Electronic Components** (IECQ) is a worldwide approval and certification system covering the supply of electronic components and associated materials and assemblies (including modules) and processes. It uses quality assessment specifications that are based on International Standards prepared by the International Electrotechnical Commission (IEC).

The IECQ is about assurance and cost-cutting. Electrical and electronic products include many, sometimes hundreds of individual parts comprising components and subassemblies. Every manufacturer wants to be assured that the electronic parts used in their products are of the required quality and reliability. To minimize incoming inspection costs and eliminate the quality auditing of suppliers, they can choose component suppliers who hold IECQ product certifications for their components.

Automotive

The automotive sector is one of the most highly regulated, having a significantly widespread impact on the lives, safety and livelihoods of people of all backgrounds and locations throughout the world. The **IATF 16949** standard establishes a quality management system designed to enable suppliers of automotive parts and assemblies to manufacture product meeting all requirements in this challenging environment.

Selecting suppliers with IATF 16949 certification gives automotive original equipment manufacturers (OEMs) confidence that their supply chains have the processes and systems in place to meet the stringent automotive product requirements. The **International Automotive Task Force** (IATF) draws on the experience of automotive OEMs and automotive industry groups to develop quality assurance requirements applicable to all commodities, parts or systems, including electronic components, for automotive manufacturing.

China Energy Conservation Program (CECP)

The **China Energy Conservation Program** (CECP) is a voluntary certification programme aiming to save energy and reduce emissions through stimulating manufacturers to produce more resource-efficient products and helping consumers to make more sustainable purchase decisions. The CECP catalogue covers 18 product categories ranging from energy- to water-related products, such as electrical and electronic equipment, lighting appliances and shower sets.

The CECP is an important certification related to China's government procurement. Products in the CECP catalogue are categorized into two different groups, i.e. a "mandatory group" and a "preferential group". Products in the "mandatory group" must have CECP certification to be accepted in any of China's government procurement programmes. For products falling under the "preferential group", CECP certification can help get some advantages in governmental procurement in China.

China Environmental Labelling Program (CELP)

The **China Environmental Labelling Program** (CELP) is a third-party voluntary certification which was launched by NEPA (National Environmental Protection Agency, the predecessor of the **Ministry of Ecology and Environment of China**) as early as 1993. It then joined the **Global Ecolabelling Network** in 2008. Based on ISO 14024 (environmental labels and declarations), CELP is a type of "leadership certification" aiming to promote sustainable consumption and production and hence green development in China. As many as 98 product categories have been put into the CELP catalogue, covering a number of industry sectors such as automobile, electronics, construction, textile chemicals, etc. Products certified with CELP, if falling into the product categories on the CELP government procurement list, will have priority over non-certified products when competing in government procurement projects. More and more product categories have been included in the government procurement list for environmental labelling products, such as office equipment, household appliances, furniture and building materials.

Outdoor fitness equipment certification

The rising popularity of public gyms and outdoor exercise stations has increasingly stressed the need for safe outdoor fitness equipment of the highest quality. Like playground equipment, outdoor fitness stations are installed in easy-to-access and regularly unsupervised public spaces. In China, the regulations on the management of the distribution of outdoor fitness equipment, issued by the **State General Administration of Sports of China**, mandate that all equipment purchased by government departments and built for free use of the public is certified by the nationally recognized equipment quality certification body.

Railway

The **IRIS certification** is the worldwide business management system scheme specific to the rail sector, which covers the whole supply chain delivering rail products. Procurement is one of the key parts of the requirements to ensure quality throughout the whole supply chain.

The focus of conformity assessment being on customer satisfaction and process performance, as well as on process improvements, the system thus contributes to bringing transparency and trust in the sector. The fulfilment of an IRIS certification is voluntary; nevertheless, the key players in the rail sector have committed to request the certification within their supplier base, taking into consideration different criteria based on the identified market risks of the purchased product, such as strategic relevance, spent volume, product criticality, turnover with the rail sector and supplier performance.

A conformity assessment based on IRIS certification supports the decision to source products, from the approval of a new supplier, through the supplier selection for a specific project, until the project execution and the delivery of quality products/services.

Railway-dedicated products in China

In 2003, the railway product certification system was established based on the Product Quality Law of the People's Republic of China (PRC) and Regulation on the Administration of Railway Safety, and product certification became the main route to market admission for railway products.

In 2012, the MOR (Ministry of Railways) and CNCA (Certification and Accreditation Administration of the PRC) jointly published the *Certification Management Measures for Railway Products*.

In 2014, **China Railway** issued the certification management measures for railway-dedicated products of China Railway and the catalogue of certified and accepted railway-dedicated products of China Railway. Railway product certification is an important measure to provide confidence in the quality and safety of railway-dedicated products.

UK local councils

UK local councils use accredited surveyors to carry out asbestos surveys on their estates. Accreditation to **ISO/IEC 17020** (requirements for inspection bodies) ensures that surveyors are competent, independent and impartial. This supports councils in their due diligence and selection of suppliers to ensure they receive reliable reports without the need for reworking.

Safety Schemes in Procurement (SSIP)

Safety Schemes in Procurement (SSIP) is a forum that aims to support small businesses by streamlining prequalification and reducing health and safety assessment costs and bureaucracy in the supply chain.

SSIP Registered Membership is open to third-party health and safety assessment schemes such as those run by major contractors or trade associations. Registered Member schemes benefit from a two-way mutual recognition with other registered member schemes and certification assessment bodies via the existing UKAS SSIP Sector Scheme.

Evidence taken from the SSIP Portal validates savings to industry since 2016 at over GBP 124 million following the mutual recognition agreement in place with all forum members. The SSIP scheme provides procurement managers with access to over 71 000 organizations that have been verified by the health and safety assessment process. Accreditation verifies compliance with legislation and supports consistency between member schemes.

Supply Chain Security Management Systems Certification (SCSMS)

Accreditation bodies assess certification bodies' competence to deliver certification of supply chain security management systems (**ISO 28000**). The standard requires organizations to establish, implement and continually improve a security management system, including aspects critical to security assurance of the supply chain. These aspects include risks such as threats from terrorism, fraud and piracy that have serious implications for businesses.

Quality and traceability of Intermarché's supply chain

French supermarket chain Intermarché uses a **platform** that enables it to identify, analyse and monitor all suppliers, components and production sites in its supply chains, which involves over 4 200 suppliers located in 41 countries at all levels.

The platform can map all the different entities involved in the supply chain, collect and verify suppliers' certifications and make targeted recommendations based on each supplier's control of the process. This enables the company, both as a producer and retailer, to identify product origins and reduce risks.

About **ISO**

ISO (International Organization for Standardization) is an independent, non-governmental international organization with a membership of 165* national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges.

ISO has published more than 23 000* International Standards and related documents covering almost every industry, from technology to food safety, to agriculture and healthcare.

For more information, please visit **www.iso.org**

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