



ILNAS

TECHNICAL STANDARDIZATION

MANAGEMENT SYSTEM STANDARDS: OVERVIEW

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ILNAS

Institut Luxembourgeois de la
Normalisation, de l'Accréditation, de la
Sécurité et qualité des produits et services

 **ANEC**

Agence pour la Normalisation et
l'Economie de la Connaissance

Foreword

Technical standardization plays an important role in the support of economic development. Nowadays, almost every sector relies on standards to provide services in an efficient manner. Standards are therefore considered as a major source of benefits, and Management System Standards are particularly effective in this respect since they have impact on the whole economic ecosystem.

In this frame, the “Institut Luxembourgeois de la Normalisation, de l’Accréditation, de la Sécurité et qualité des produits et services” (ILNAS), via its [“Luxembourg Standardization Strategy 2020-2030”](#), signed by the Minister of the Economy, considers standardization as a tool of performance and excellence at the service of the economy that also strengthen national economic trust.

As such, Management System Standards as well as the domain of conformity assessment form some key elements of this trust, allowing to demonstrate that products, services, systems, processes, etc. meet specified requirements, which can notably be determined by customers or regulation.

In this context, the Luxembourg standardization strategy identifies the ISO committee for conformity assessment (ISO/CASCO), which develops policy guidelines and publishes standards on conformity assessment, as being of significant interest to support the national economy.

Thus, the [Politique normative nationale « ISO CASCO » 2022-2030](#) has been defined to guarantee national involvement in standardization activities relating to conformity assessment in line with market needs. To this end, it provides for the progressive implementation of three master projects:

- *Strengthen national involvement in the ISO/CASCO committee;*
- *Promote ISO/CASCO developments at the national level;*
- *Develop the fields of research and education related to ISO/CASCO.*

Within this global framework, the current report sets the preliminary background for understanding the importance of Management System Standards and their place in the conformity assessment process. It represents a first step for raising awareness of the importance of technical standardization for this domain to the national market and constitutes a basis for the future development of the research and education related to it. Convinced of the importance of Management System Standards and of the whole conformity assessment process, ILNAS, with the support of ANEC GIE, delivers this report with a view towards encouraging the national market’s future use of related standards and the involvement in the related standards development process, for the benefit of Luxembourg’s economy.

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Abstract

Management System Standards (MSS) have gained in popularity in recent years. They cover a variety of domains and topics, such as product or service quality, environmental performance, operational efficiency, or health and safety in the workplace.

This report is an introduction to the world of MSS. First, it explains the concept of MSS along with the presentation of its building blocks, objectives and benefits of using it. The document then outlines the topics covered by various MSS and introduces the most commonly used ones. This overview is complemented by figures showing the constant growth in the adoption of the MSS in the world and in Luxembourg, demonstrating the interest in this type of standards and related certifications. Next, the report opens up the topic of conformity assessment, discussing the role of accreditation and certification in building the chain of confidence related to the good practices outlined in the MSS.

Furthermore, to illustrate the importance of MSS, this deliverable includes testimonials from national organizations that have implemented - most of them being certified - such standards. They discuss the benefits and the challenges associated to the usage of the MSS, based on their experience, and explain the importance of being involved in the standards development process. Finally, the report highlights the possibilities offered by ILNAS to access the MSS, as well as to participate in their development.



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1. What is a Management System Standard?

1.1. Definition

ISO defines a management system as a “set of interrelated or interacting elements of an organization to establish policies and objectives, as well as processes to achieve those objectives” [1]. The management system’s “elements” refer to the organization’s structure, roles and responsibilities, planning and operation. The “objectives” can cover a variety of topics, such as product or service quality, environmental performance, operational efficiency, or health and safety in the workplace [2]. The “organization” is defined as a “person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives” and thus can be a corporation, an enterprise, a partnership, an institution, a part of a legal entity, and so on [3].

In this frame, a *management system standard* (MSS) is an overarching document, setting out requirements or guidance, which supports the governance and leadership functions in the implementation and maintenance of the management system. Generally designed for any economic sector, type and size of organization, languages, geographical, cultural or social conditions, a MSS provides requirements and/or guidelines at all levels of an organization. A general-purpose MSS can be complemented by sector-specific guidance where applicable [1] [2].

1.2. Types of Management System Standards (MSS)

ISO distinguishes between two types of MSS: those that contain requirements and those that provide recommendations. Requirements are the provisions that convey criteria to be fulfilled, and recommendations are provisions that convey advice or guidance. A MSS can be of either type or a combination of both [4] [5].

Type A

A *Type A* MSS contains requirements, such as those dictating the establishment of a risk management system. An organization that puts in place a *Type A* MSS can then claim conformance against those requirements. Some *Type A* MSS also contain guidance on the implementation of the identified requirements, thus supporting the organization [5].

Type B

A *Type B* MSS typically provides recommendations and guidance on how to achieve a specific objective, for example how to monitor and measure customer satisfaction. Recommendations in *Type B* MSS can address the requirements expressed in *Type A* MSS but can also be independent [5].

1.3. High level structure

Management System Standards contain a certain amount of requirements to the organizations implementing it. To facilitate the implementation of MSSs and enhance their consistency, ISO introduced in 2012 a high-level, harmonized structure identifying common requirements and ways to add discipline-specific ones¹. This structure had to be used by all MSSs of Type A developed or revised by ISO committees thenceforth. In 2019, IEC joined the initiative in the effort to harmonize ISO's and IEC's portfolio of management system standards. The high-level structure of a MSS is described in the Appendix 2 to the Annex SL of the ISO/IEC Directives that is publicly-available and can be downloaded for free [2] [3].

The high-level structure notably imposes the following aspects to be considered by an organization [3]:

CONTEXT OF THE ORGANIZATION
Understand the issues that can impact the organization, as well as the needs and expectations of interested parties, in order to determine the boundaries and applicability.
LEADERSHIP
Demonstrated commitment from the top-management with respect to the scope of the MS that translates into a relevant policy, integration of the MS in the business processes, assignment of roles and responsibilities and proper communication around it.
PLANNING
Analyze the risks and opportunities for an organization in order to set the objectives and establish a course of actions to achieve them.
SUPPORT
Determine and provide the resources, guarantee the necessary competence, set up proper communication and create and update documented information needed for the establishment, implementation, maintenance and continual improvement of the MS.
OPERATION
Specify, implement and control the processes needed to execute the planned actions and reach the objectives.
PERFORMANCE EVALUATION
Monitor, measure, analyze and evaluate the MS and its processes to assess its performance with respect to the execution of the planned actions and achievement of objectives, which should be complemented by internal audits and management reviews to guarantee that the MS is effectively implemented and maintained and remains appropriate with respect to the strategic direction of the organization, respectively.
IMPROVEMENT
Continually improve the suitability, adequacy and effectiveness of the MS and apply corrective actions to deal with nonconformities.

¹ "Discipline-specific" is used to indicate specific subject(s) to which a management system standard refers, such as energy, quality, records, environment, etc. [1]

1.4. Integrated use of MSS

Thanks to the high-level structure, all the MSS can work together. An organization can establish one single management system that meets the requirements of two or more MSS simultaneously in an integrated manner. Thus, it can reach its objectives in different areas of operation. To support organizations willing to adopt the overarching approach, ISO published a guidance on [“The integrated use of management system standards \(IUMSS\)”](#) [2].

In total, there are four different types of ISO documents that support organizational management. Since MSSs set out general-purpose requirements or guidance for a given domain, they can be complemented by other management standards that are introduced below. In summary, they can either help to address sector-specific requirements or provide additional implementation guidance [2].

Sector-specific MSS

As the name suggests, a sector-specific MSS provides additional requirements or guidance for the application of a generic management standard in a specific economic or business sector. These are, for example, specific requirements for a quality management system in organizations providing medical devices ([ISO 13485:2016](#)) or supplying products and services to the petroleum, petrochemical and natural gas industries ([ISO 29001:2020](#)), or in local governments looking to meet the needs and expectations of their citizens/customers ([ISO 18091:2019](#)) [2].

Management System-related standards and implementation guidance

These standards provide further guidance and/or requirements on the MSS or the specific aspects of a management system, or on related supporting techniques. Examples of these standards are guidelines for auditing of management systems, in general ([ISO 19011:2018](#)) or for a specific domain, such as food safety ([ISO 22003-1:2022](#)) or information security ([ISO/IEC 27007:2020](#)).

Management standards

Management Standards are intended to support the implementation of specific aspects of an organization's management system. The examples of these are risk management guidelines ([ISO 31000:2018](#)), guidance on social responsibility ([ISO 26000:2010](#)) or guiding principles for the governance of IT for the organizations ([ISO/IEC 38500:2015](#)).

1.5. Benefits of MSS

Why is it interesting to implement a MSS? What are the benefits of having a Management System put in place in an organization? Here are some of the reasons [6] [7] [8] [9]:

Harmonize and optimize organizational practices. The implementation of a MSS allows organizations to improve their operational processes and reach their objectives efficiently and effectively by defining goals, planning activities carefully, and sharing information with all parties involved.

They talk from experience

Using ISO 9001, ISO 14001 and ISO 45001 helped us to structure and harmonize Quality-Safety-Environment practices within the group. By implementing the management system, we could achieve better traceability of documented information and reinforce information feedback with continuous improvement.

Youcef Si Larbi,
Responsable Qualité, LSC Engineering Group

Reduce duplication of effort and therefore costs. When planning actions to improve the effectiveness and efficiency of business as per MSS requirements, decision-makers get the opportunity to select cost-effective strategies.

Reduce risks and increase performance and profitability. A MSS requires putting in place proper risk management and continuous improvement processes to ensure the necessary changes are made in a timely manner to maintain the required levels of performance.

They talk from experience

ISO 9001:2015 helps structuring thinking about risks. Thanks to the mandatory risk management framework, we integrated the identification of our weak places and the mitigation strategies. Thus, we know where to pay attention to. And when a risk becomes a reality, we know exactly what to do.

Dmitry Lozhnikov,
Quality Manager, Astron Buildings LLC

Improve internal and external communication. By design, a MSS stipulates that the requirements of all stakeholders, both internal and external to the organization, are taken into account, captured in the company policy and communicated to all relevant parties.

Facilitate access to market and increase market acceptance. A MSS is a collection of international good practices for a given domain. Thus, compliance with a MSS can facilitate and increase access to the market. Moreover, demonstrated compliance with a MSS is a sign of continuing quality control, covering all the stakeholders in the supply chain, which is helpful to gain the market's trust. In addition, if the certification against a MSS is delivered by an accredited conformity assessment body, the organization will benefit from a certificate recognized worldwide, which facilitates access to the foreign market (more about certification and accreditation in the section 4).

They talk from experience

Thanks to ISO 9001 certification we could gain in market share with certain clients.

Youcef Si Larbi,
Responsible Qualite, LSC Engineering Group

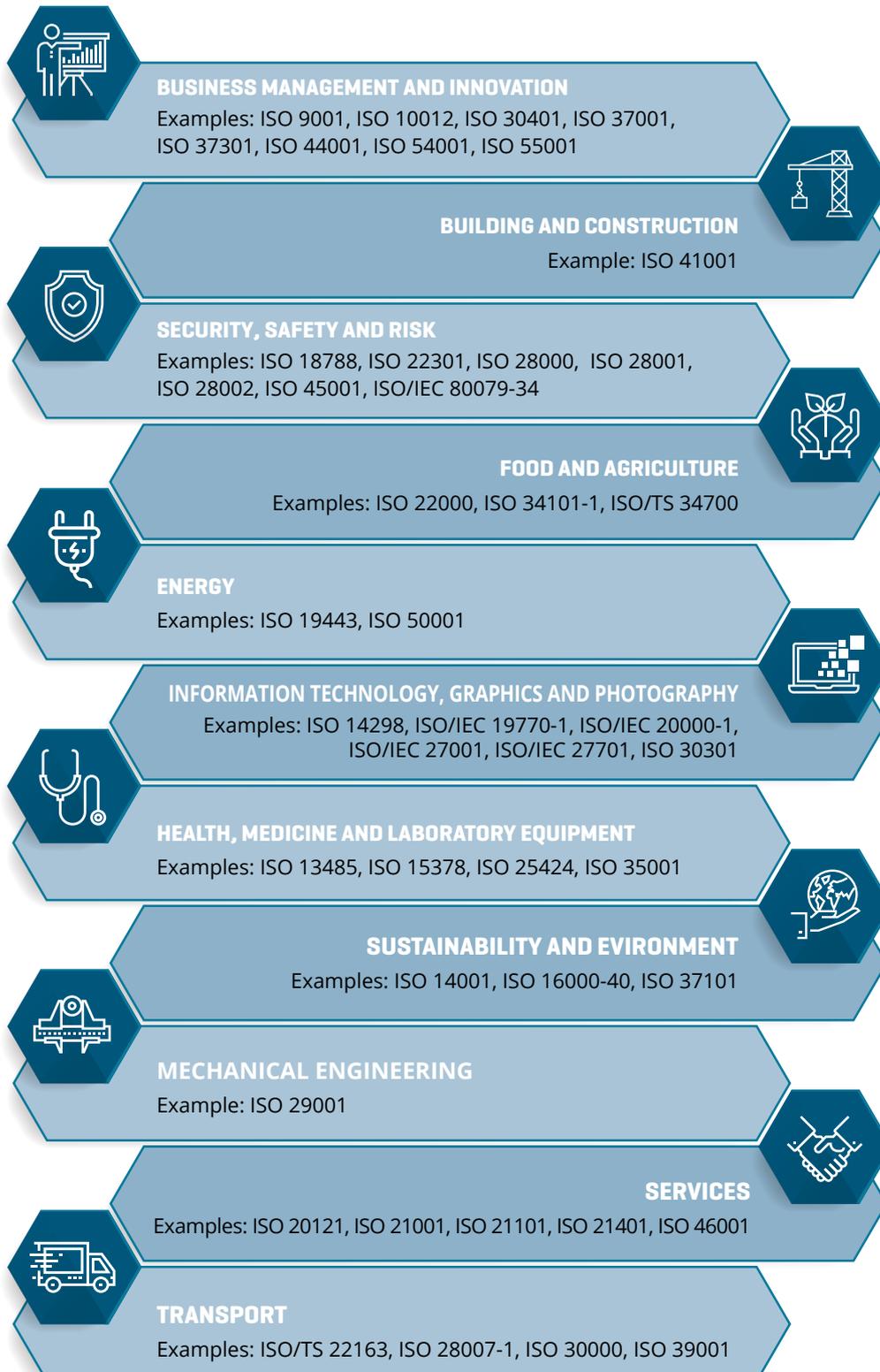
In 2018 we had an external audit regarding the GDPR. We were advised to start following the ISO guidelines in order to start implementing a concrete information security management. As we were at that time a fast growing mid-sized company, we decide to go further and today we run the Management System efficiently. Even if we are not certified yet, we already see some results coming.

Antonello Caggiano,
Senior Manager, Value Partners S.A.

Focus on sustainable development. Implementation of different MSS, targeting economic (quality), environmental and social objectives, in an integrated manner helps organizations to become more sustainability-oriented and gain in performance. "MSS requires organizational commitment to developing the principles of sustainability, namely, to guarantee the quality of its products and services, ensure the preservation of the environment, and provide for the safety and health of employees, without neglecting social responsibility, ethical principles, and risk-based thinking" [9].

2. Examples of MSS

2.1. Topics covered by existing MSS



2.2. Popular MSS²



ISO 9001:2015

Quality management

Developed by [ISO/TC 176/SC 2](#) *Quality systems*, ISO 9001:2015 specifies requirements for a quality management system when an organization:

- needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and
- aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.



ISO 14001:2015

Environmental management systems — Requirements with guidance for use

Developed by [ISO/TC 207/SC 1](#) *Environmental management systems*, ISO 14001:2015 specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance. ISO 14001:2015 is intended for use by an organization seeking to manage its environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability.

ISO 14001:2015 helps an organization achieve the intended outcomes of its environmental management system, which provide value for the environment, the organization itself and interested parties. Consistent with the organization's environmental policy, the intended outcomes of an environmental management system include:

- enhancement of environmental performance;
- fulfilment of compliance obligations;
- achievement of environmental objectives.

² The links to standards refer, where possible, to the international documents adopted by European standards development organizations and then by ILNAS as national standards. Any differences that were introduced to the international documents are clearly identified or it is explicitly stated that no changes were made.

**ISO/IEC 27001:2013****Information technology — Security techniques —
Information security management systems — Requirements**

Developed by [ISO/IEC JTC 1/SC 27](#) *Information security, cybersecurity and privacy protection*, ISO/IEC 27001:2013 specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system within the context of the organization. It also includes requirements for the assessment and treatment of information security risks tailored to the needs of the organization.

NOTE: Two technical corrigenda and one amendment were provided to this standard in 2014 and 2015.

**ISO 22000:2018****Food safety management systems — Requirements for any organization in the food chain**

Developed by [ISO/TC 34/SC 17](#) *Management systems for food safety*, ISO/IEC 22000 specifies requirements for a food safety management system (FSMS) to enable an organization that is directly or indirectly involved in the food chain:

- to plan, implement, operate, maintain and update a FSMS providing products and services that are safe, in accordance with their intended use;
- to demonstrate compliance with applicable statutory and regulatory food safety requirements;
- to evaluate and assess mutually agreed customer food safety requirements and to demonstrate conformity with them;
- to effectively communicate food safety issues to interested parties within the food chain;
- to ensure that the organization conforms to its stated food safety policy;
- to demonstrate conformity to relevant interested parties;
- to seek certification or registration of its FSMS by an external organization, or make a self-assessment or self-declaration of conformity to this document.

This document allows any organization, including small and/or less developed organizations (e.g. a small farm, a small packer-distributor, a small retail or food service outlet) to implement externally-developed elements in their FSMS.

**ISO 45001:2018****Occupational health and safety management systems — Requirements with guidance for use**

Developed by [ISO/TC 283](#) *Occupational health and safety management*, ISO 45001:2018 specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance.

ISO 45001:2018 is applicable to any organization that wishes to establish, implement and maintain an OH&S management system to improve occupational health and safety, eliminate hazards and minimize OH&S risks (including system deficiencies), take advantage of OH&S opportunities, and address OH&S management system nonconformities associated with its activities.

ISO 45001:2018 helps an organization to achieve the intended outcomes of its OH&S management system. Consistent with the organization's OH&S policy, the intended outcomes of an OH&S management system include:

- continual improvement of OH&S performance;
- fulfilment of legal requirements and other requirements;
- achievement of OH&S objectives.

ISO 45001:2018 does not state specific criteria for OH&S performance, nor addresses issues such as product safety, property damage or environmental impacts. Nevertheless, it enables organizations to integrate other aspects of health and safety, such as worker wellness/wellbeing.

**ISO 13485:2016****Medical devices — Quality management systems — Requirements for regulatory purposes**

Developed by [ISO/TC 210](#) *Quality management and corresponding general aspects for medical devices*, ISO 13485:2016 specifies requirements for a quality management system where an organization needs to demonstrate its ability to provide medical devices and related services that consistently meet customer and applicable regulatory requirements. Such organizations can be involved in one or more stages of the life-cycle, including design and development, production, storage and distribution, installation, or servicing of a medical device and design and development or provision of associated activities (e.g. technical support). ISO 13485:2016 can also be used by suppliers or external parties that provide product, including quality management system-related services to such organizations.

NOTE: This is a sector-specific standard and thus does not comply fully with the high-level structure.

**ISO 50001:2018****Energy management systems — Requirements with guidance for use**

Developed by [ISO/TC 301](#) *Energy management and energy savings*, this document specifies requirements for establishing, implementing, maintaining and improving an energy management system (EnMS). The intended outcome is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance and the EnMS. This document:

- is applicable to activities affecting energy performance that are managed and controlled by the organization;
- is applicable irrespective of the quantity, use, or types of energy consumed;
- requires demonstration of continual energy performance improvement, but does not define levels of energy performance improvement to be achieved.

**ISO 22301:2019****Security and resilience — Business continuity management systems — Requirements**

Developed by [ISO/TC 292](#) *Security and resilience*, this document specifies requirements to implement, maintain and improve a management system to protect against, reduce the likelihood of the occurrence of, prepare for, respond to and recover from disruptions when they arise. This document is applicable to all types and sizes of organizations that:

- implement, maintain and improve a BCMS;
- seek to ensure conformity with stated business continuity policy;
- need to be able to continue to deliver products and services at an acceptable predefined capacity during a disruption;
- seek to enhance their resilience through the effective application of the BCMS.

NOTE: This standard is available for free.

**ISO/IEC 20000-1:2018****Information technology — Service management — Part 1: Service management system requirements**

Developed by [ISO/IEC JTC 1/SC 40](#) *IT service management and IT governance*, this document specifies requirements for an organization to establish, implement, maintain and continually improve a service management system (SMS). The requirements specified in this document include the planning, design, transition, delivery and improvement of services to meet the service requirements and deliver value. This document can be used by:

- a customer seeking services and requiring assurance regarding the quality of those services;
- a customer requiring a consistent approach to the service lifecycle by all its service providers, including those in a supply chain;
- an organization to demonstrate its capability for the planning, design, transition, delivery and improvement of services;
- an organization to monitor, measure and review its SMS and the services;
- an organization to improve the planning, design, transition, delivery and improvement of services through effective implementation and operation of an SMS;
- an organization or other party performing conformity assessments against the requirements specified in this document;
- a provider of training or advice in service management.

**ISO 37001:2016****Anti-bribery management systems — Requirements with guidance for use**

Developed by [ISO/TC 309](#) *Governance of organizations*, ISO 37001:2016 specifies requirements and provides guidance for establishing, implementing, maintaining, reviewing and improving an anti-bribery management system. It is designed to help an organization to prevent, detect and respond to bribery and comply with anti-bribery laws and voluntary commitments applicable to its activities. ISO 37001:2016 addresses the following in relation to the organization's activities:

- bribery in the public, private and not-for-profit sectors;
- bribery by or of the organization;
- bribery by the organization's personnel acting on the organization's behalf or for its benefit;
- bribery by the organization's business associates acting on the organization's behalf or for its benefit;
- bribery of the organization's personnel in relation to the organization's activities;

- bribery of the organization's business associates in relation to the organization's activities;
- direct and indirect bribery (e.g. a bribe offered or accepted through or by a third party).

ISO 37001:2016 is applicable only to bribery. It does not specifically address fraud, cartels and other anti-trust/competition offences, money-laundering or other activities related to corrupt practices.

2.3. Upcoming MSS

As any standard, MSS are subject to regular review. Thus, some of the existing MSS are being updated. For example, the following MSS updates were in preparation at the time of writing of this report:

- [ISO/CD 21001](#) Educational organizations — Management systems for educational organizations — Requirements with guidance for use (to replace the one published in 2018);
- [ISO/CD 55001](#) Asset management — Management systems — Requirements (to replace the one published in 2014).

New MSS to provide requirements or guidance for new, not yet covered, domains also keep emerging. To provide a few examples:

- [ISO/IEC CD 42001](#) Information Technology — Artificial intelligence — Management system;
- [ISO/DIS 31101](#) Robotics — Services provided by service robots — Safety management systems requirements;
- [ISO/CD 7101](#) Health Care Quality Management System Standard.

3. MSS in numbers

Each year ISO conducts a survey to assess the adoption of MSSs. They count the number of valid certificates that organizations declare to have received through a certification process³ [10] [11]. Certification allows organizations to demonstrate compliance against requirements stated in a MSS and is discussed in the section 4. This section provides some statistics about the certificates delivered upon demonstrated compliance with the MSSs, based on the data from ISO surveys. The number of certificates per year corresponds to a number of valid certificates as of 31st of December of the year of survey issued either during that year or in two years preceding it and still valid on the 31st December.

3.1. Continuous growth of the usage of MSS

Figure 1 shows the evolution of the adoption of the three most popular MSSs world-wide, over the 2010-2020 period. Are considered:

- ISO 9001 Quality management systems — Requirements
- ISO 14001 Environmental management systems — Requirements with guidance for use
- ISO/IEC 27001 Information technology — Security techniques — Information security management systems — Requirements

The numbers mainly show consistent growth of the number of certificates. The drop in 2018 is due to the survey methodology, as explained by ISO⁴.



Figure 1: Evolution of the number of certificates for ISO 9001, ISO 14001 and ISO/IEC 27001 over 2010-2020 worldwide [11]

³ ISO Disclaimer: “The ISO Survey is not a database. The providers of the data are the certification bodies accredited by IAF members and they participate on a voluntary basis. The level of participation fluctuates from one edition of the survey to another and can impact the survey results especially at the country level. Interpretations of the results and any conclusions on the trends should be made with these considerations in mind.”

⁴ Such changes cover mostly the multi-site organizations and multi-sector certificates. For example, instead of counting multiple times a certified organization that has multiple sites, it is now counted once, and the number of sites remains as a separate indicator.

3.2. Adoption of MSS in Luxembourg

Figure 2 shows the evolution of the adoption of the three most popular MSSs (ISO 9001, ISO 14001 and ISO/IEC 27001) in Luxembourg during 2010-2020. Starting from 2011, the number of ISO 9001 certificates remains constantly over 150 with peaks of over 250 certificates in 2013, 2015 and 2018. The number of certificates for ISO 14001 varies from 70 to 128 in 2013-2020, while it was only 19 in 2010. The number of certificates for ISO/IEC 27001 has grown from 5 in 2010 to 27 in 2019, with a drop to 17 in 2020.

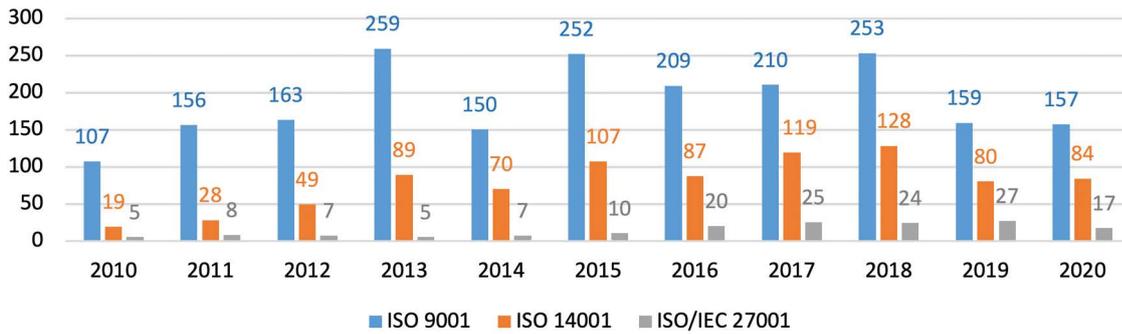


Figure 2: Evolution of the number of certificates for ISO 9001, ISO 14001 and ISO/IEC 27001 over 2010-2020 in Luxembourg [10]

Figure 3 presents the number of certificates hold by organizations in Luxembourg in 2020 for various MSSs. The leading number of certificates (157) was delivered for the conformity against ISO 9001. The second place (84 certificates) goes to ISO 14001, demonstrating the attention the organizations in Luxembourg pay to environmental questions. ISO 45001 for occupational health and safety is on the third place with 32 valid certificates, leaving the fourth place to ISO/IEC 27001 for which 17 certificates were issued. For other management systems, less than 10 certificates per standard were delivered.

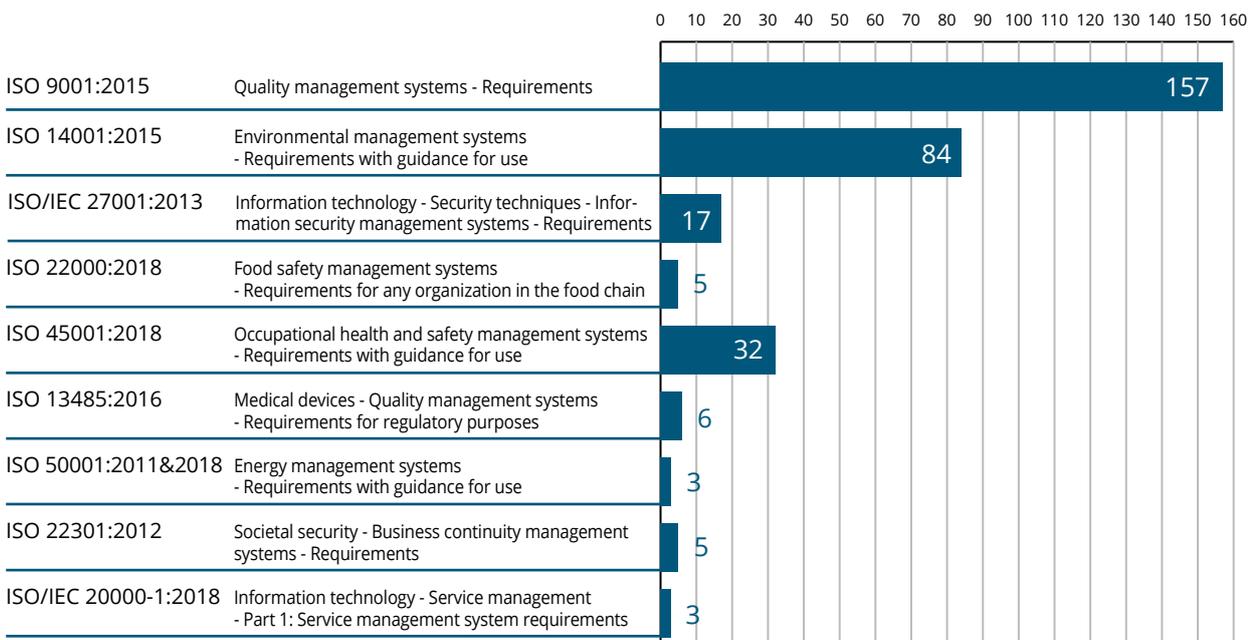


Figure 3: Number of certificates hold by organizations in Luxembourg in 2020 for different MSS

4. Conformity assessment: Chain of confidence-building

4.1. Conformity assessment process

Section 3 mentions the certification as a means to demonstrate compliance against requirements stated in a MSS. Certification is one of the activities that falls within the frame of conformity assessment, which is defined by ISO as a “demonstration that specified requirements are fulfilled” [12]. Other activities include testing, inspection, validation and verification, depending on the type and the object of conformity assessment [12]. The requirements against which conformity is demonstrated can be defined in standards, such as MSS, or other specifications. This report focuses mainly on the process of conformity assessment against the requirements stated in a MSS, covering certification and accreditation activities.

In principle, the assessment of conformity can be performed at different levels [13]:

- First party – self-declaration of conformance made by an organization,
- Second party – declaration made by an entity tied with the organization by a professional relation, such as client, customer, supplier, etc.
- Third party – declaration made by an independent organization – such as a conformity assessment body (CAB) - that issues a certificate as a proof of successful demonstration of conformity.

In case of a third-party conformity assessment, an organization can select a body to perform the assessment. To enhance the value of the obtained certificate of conformity, they can opt for an accredited body that has proven its competency, reliability, impartiality and compliance with best practices through a process called accreditation [13] [14]. If a conformity assessment body was accredited by a member of the [International Accreditation Forum \(IAF\)](#), the subsequent certificate delivered in recognition of conformity assessment is recognized and accepted throughout the world [14]. To guarantee the quality and transparency of the accreditation bodies, the peer evaluation takes place among them.

Thus, a third-party conformity assessment contributes to a subsequent confidence-building and increasing trade benefits for the organizations. It starts from the willingness of an organization to implement the requirements stated in the MSS, or in other specifications. These requirements represent state of good practices and as such benefit the quality of organization’s operations. Then, by opting for a third-party conformity assessment the organization demonstrates to all its customers the quality of its operations in a transparent way.

In the following sections, the certification and accreditation processes are defined in a more formal way.

4.2. Certification

“Certification is the provision by an independent body of written assurance (a certificate) that the product, service or system in question meets specific requirements” [15]. In order to claim conformance with requirements, an organization needs to provide evidence. Such evidence is generally provided during an audit. If an organization successfully passes the assessment by a third-party, an audit results in a certification. As such, audit can be performed by first or second party, but in this case, it does not result in certification. Moreover, and with respect to MSS, since certification is an assurance of meeting the requirements, a certificate can only be delivered upon the compliance with Type A MSS [5] [13] [15].

4.3. Accreditation

Accreditation is a “third-party attestation related to a conformity assessment body, conveying formal demonstration of its competence, impartiality and consistent operation in performing specific conformity assessment activities” [12]. Thus, an accreditation body performs the accreditation to assess the conformity assessment body. Depending on the object of conformity, different standards can be used by accreditation body to evaluate the conformity assessment body [13]. In case of MSS, [ISO/IEC 17021-1 Conformity assessment — Requirements for bodies providing audit and certification of management systems — Part 1: Requirements](#) is used.

An accreditation body itself needs to be compliant with the requirements stated in the international standard [ISO/IEC 17011 Conformity assessment — Requirements for accreditation bodies accrediting conformity assessment bodies](#). They are being evaluated by the peers against this standard based on the peer evaluation procedure based on IAF and regional (European co-operation for Accreditation - EA - in Europe) guidance. Peer evaluation is a guaranty of mutual recognition of accreditation bodies.

Figure 4 shows the whole confidence-building chain, taking as example the context of certification against a MSS and including the stakeholders involved and the standards used.

CHAIN OF CONFIDENCE-BUILDING

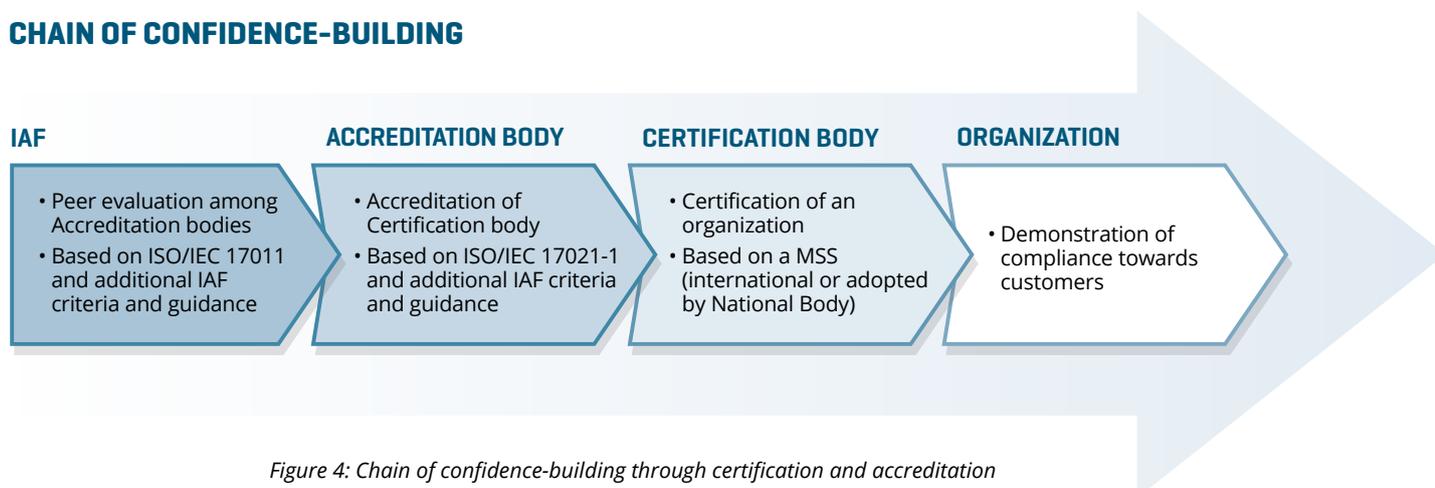


Figure 4: Chain of confidence-building through certification and accreditation

4.3.1. ISO/CASCO Committee on conformity assessment

Standards for the conformity assessment are produced by [ISO/CASCO](#) Committee on conformity assessment. Its primary role is to study means of assessing the conformity of products, processes, services and management systems. CASCO also prepares international guides and standards relating to the practices of conformity assessment and promotes their appropriate use. CASCO is meant to support and improve national and regional conformity assessment systems and increase their mutual recognition. In this frame, they collaborate with other technical committees, namely with those developing the Management System Standards, to ensure a consistent and harmonized approach to the development of standards that are subject to conformity assessment.

4.3.2. Accreditation body in Luxembourg

In Luxembourg, the national accreditation body is OLAS, Office Luxembourgeois d'Accréditation et de Surveillance. OLAS is part of European and International accreditation network, and as such undergoes peer evaluation based on [ISO/IEC 17011](#) and additional IAF guidance and benefits from mutual recognition among accreditation bodies. In this frame, the conformity assessment bodies accredited by OLAS deliver certificates that are valid across Europe and internationally. The organizations that receive such certificates gain simplified access to European and international market.

OLAS conducts the accreditation process and maintains the [list of accredited national organizations](#).

They talk from experience

Eurofoil Innovation Centre was accredited from 2012 till May 2022 by Office Luxembourgeois d'Accréditation et de Surveillance (OLAS). This accreditation was internationally recognized thanks to the mutual recognition agreements of which OLAS is a signatory. In this context, the accreditation represents a pledge of technical competence and trust for all stakeholders. This is particularly a major asset for activities relating to automotive products for which the Eurofoil France site is ISO/TS 16949 certified.

Alexandre Fallet,
R&D Laboratory Manager, Eurofoil Innovation Centre

5. Why should any organization use a MSS: Testimonials from Luxembourg

Rudy Kech,

Chief Operating Officer and IMS Manager, CRI Group a VASS company

Inside CRI Group before VASS Acquisition, we built an Integrated Management System (IMS) based on 3 standards, ISO 9001:2015 QMS, ISO/IEC 20000-1:2018 SMS and ISO/IEC 27001:2013 ISM for which we are certified.

MSS is a fantastic management tool which allows the definition of the AS-IS (current image of the company) and transition towards a TO-BE (target) defined with the team and agreed by the top management.

One of the key success factors is the Leadership, commitment, and support of the top management with respect to the management system. Without it, the enforcement of MSS becomes very tricky.

Many managers are interested by the ISO standards but are reluctant to spend money to build and maintain it. Therefore, the first challenge is to convince the top management of the added value of ISO standards for their specific needs. In the ICT consulting business for the For-EU Institutions, some of the certifications are mandatory to answer the biggest calls for tender:

- ISO 9001 is often requested directly as a certificate or via relevant Quality procedures.
- ISO/IEC 20000 and ISO/IEC 27001 are more and more appreciated for cybersecurity calls for tender.
- it is possible that ISO 14001 could be requested in the future to match EU environmental objectives.

Introduced by Management system, policies and procedures are wonderful communication tools that allow to clearly document the management expectations/rules.

The ISO Management system shall be agile with processes directly implemented in the tools and easy to update. It shall be subject to discussion and feed back of the team using it to take into account improvement recommendations but also to ensure people feel part of the process. This improves the engagement rate.

People don't like to read long procedures. Nevertheless, regular training targeted on knowledge gaps allows to get the adherence of the team to the recommended best practices.

In conclusion: The Integrated Management System (IMS) is an important management tool. While the IMS is implemented in the relevant tools in an agile way, it enables a transparent guidance for the collaborators, operational efficiency, but also the automation of repetitive tasks.

Hanna Lteif,

Director, Numen Europe

Working in digital transformation and digital documents management, we have been certified ISO 9001 since 1998, ISO/IEC 27001 since 2014 and PSDC since 2017.

The implementation of quality management system allowed us to harmonize the procedures and good practices proper to our activities. Moreover, having it all written down helps to preserve the quality of services in the long run, independently of people involved in the process. The information is preserved and everyone has access to it. It makes also the onboarding of the new teams easier.

There is also an economic aspect. On the one hand, more and more clients require the certification (PSDC or ISO/IEC 27001) to be sure the services and products they receive are compliant with the regulation. On the other hand, even if our core business is more oriented towards PSDC, being certified ISO/IEC 27001 (which is a basis to PSDC anyway) opened new market opportunities to us.

Of course, implementing Management Systems does not come without challenges. The complexity of the system can increase rapidly and it can be challenging to maintain it and keep the personnel up to date. Regular communication is really important to address the potential issues. It comes with a certain cost, obviously, but it helps us to continuously improve the quality of our services.

Dmitry Lozhnikov,

Quality Manager, Astron Buildings

Astron Buildings is certified ISO 9001 and the Quality Management System is well integrated in the company.

All the processes, procedures and instructions are assembled in a quality manual, which represent a substantial body of knowledge. It is complemented by technical manual containing specific technical instructions. Both documents are available across our various international locations allowing to harmonize the work realised on different sites. Each time a new person joins the company, the onboarding process starts with the quality and technical manuals. Also, it's a good basis to exchange about good practices and discuss necessary updates among personnel. Yes, over the years our Quality Management System has become rather complex and one of the challenges we are facing now is how to simplify it, but with the involvement and good will of the top management we are on a good track.

Moreover, when participating in tendering it is easy to demonstrate how we achieve the quality of our products and services to convince potential clients. The certification is not always required in a tender, although it really depends on a country, but it serves as a warranty that the client will be satisfied by the quality of service.

Starting from 2015, the concept of risk management was introduced in the Quality Management System. We found it very helpful addition. Structured thinking about risks allows to be prepared to all kinds of situations and handle them properly if they become a reality.

6. Standardization opportunities in Luxembourg

A proper understanding of the stakes associated with technical standardization, including Management System Standards and conformity assessment standards, is key to adopting the appropriate position across the standardization landscape and benefit from all the related opportunities. In this frame, ILNAS aims at facilitating the appropriation of technical standards by the national stakeholders and their participation in the standardization process, for the benefit of the national economy.

6.1. How to access MSS?

In Luxembourg, multiple options are available to get to know the content of the MSS:

Reading stations: across the country, nine reading stations are set through which any interested party can search for and read the published standards. This is a useful option when a person is interested to get a first appreciation of the contents of a standard.

ILNAS e-Shop: when an organization wants to put in place a management system, or is preparing for a certification, it can buy published standards from ILNAS e-shop. Also, in case of a revision of a standard, a pre-final version before publication is available during a specific period of time for public consultation.



6.2. Who can participate in standards development in Luxembourg?

In order to be aware of any revision of a MSS or to follow the progress of MSS in development, organizations in Luxembourg can register experts in the technical committees where the relevant standards are developed. Not only the experts will be able to keep up to date but also to contribute to the content of the future standards, defending organization's interests.

Any interested stakeholder can get involved through ILNAS by becoming an active national standardization delegate free-of-charge. Interested experts can easily request to ILNAS their registration using a dedicated [form](#).



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