



*Education and Training about  
Standardization*

*Different needs for different roles*



# Education & training about standardization

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## Importance of standards and standardization

A standard is a **reference document** approved by a recognized standardization organization (ISO, IEC, CEN, CENELEC ...). It stems from voluntary elaboration by consensus between all stakeholders in a market or a business sector, grouping for example producers, users and consumers.

In particular, a standard makes it possible to clarify and harmonize practices as well as to determine the level of quality, safety, compatibility, performance, environmental impact for products, services, methods and processes.

Others types of reference documents are also developed by recognized standardization organizations and consortia or joint ventures may solve some special cases. This form of cooperation results in standards aimed at asserting and establishing a company's own technology among the competition on the market.

Knowing and being able to apply the standards is a requirement for all professions. These are tools for the **regulation**, but also an expression of the **state of the art**.

Standards facilitate commercial exchanges and make daily life easier. For companies, standards are therefore **strategic tools** that can open, develop, regulate or close the access to a market. The benefits of participating in standardization committees are numerous, such as for example:

- Influence the contents of a standard
- Enhance and protect companies' activities and products
- Acquire a better understanding of the actors of the market (competitors, partners, customers, users, authorities, laboratories, ...)
- Anticipate and develop future requirements for the market
- Encourage innovation

## The need for education and training

Standardization is a strategic asset for companies, industry sectors, countries and regions. To excel in standardization, proper education and training are needed. The International Federation of Standard Users, **IFAN**, observes that while standards are becoming

increasingly important, many companies and other stakeholders take insufficient advantage of them.

All level of decision-makers in public administration and private business need to understand the economic benefits of standardization. Standardization should be perceived as strategic tool to strengthen professional performance and to drive the economy, innovation and thus the competitive positioning of each enterprise. Employees of public and private organizations should be trained to use standards as means to strive for performance excellence.

These opportunities are not seized because of a lack of awareness of the importance of standards. A next reason is insufficient ability to transform awareness into relevant actions.

**Education is the solution** to both of these. This applies both to formal education at different levels (from secondary schools up to universities), continuing professional development and in-training (life-long learning).

IFAN observes a growing awareness of the need for standardization education and training but so far there is a huge gap between the education and training activities actually in place, and the quantity and quality of these activities needed by industry.

Therefore, IFAN encourages stakeholders at the national, and regional and international levels to undertake initiatives to get more standardization education and training in place.

### **IFAN's role**

IFAN, being an organization of standards users, itself contributes via its Working Group **WG16 - Education and Training** by formulating needs as perceived by standards users. Such needs should form the starting point for education and training activities.

#### **Tasks under the scope of WG16 - Education and Training:**

- Specify the knowledge about standardisation needed in different organizations & their divisions
- To support and promote initiatives in Education and Training in the standardisation field at international, regional and national levels.
- To observe initiatives and inform the communities concerned by standardisation (stakeholders, users, education professionals, experts,...) on Education and Training in the standardisation field at international, regional and national levels.
- To support, facilitate and encourage networking in this field

# 1- Objectives

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To identify the different standardization education and training needs, it is important to target, for each actor of an enterprise, the interaction of standardization with their activities.

This guide identifies, for the different main functions of an enterprise or an organization, **degrees of knowledge necessary for the topics related to standardization.**

This document is made for:

- Teachers and lecturers, for designing their curricula, lectures and courses
- Trainers inside organizations and companies for designing their courses
- Managers for the definition of their team missions and goals linked to standardization
- Human Resources managers responsible for recruitment purposes and training programs inside organizations & companies
- Organizations and projects linked to education and training about standardization

## 2- Details of needs

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### CEO and senior management

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Formulating policy and making management decisions taking into account strategic importance of standardization to the core business</li> <li>● Providing evidence of its commitment to the implementation of management systems (Sustainable and social responsibility, quality, energy,...) and continually improving their effectiveness</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the need to comply with, standards and regulations for the different marketplaces</li> <li>● strategies of standardization committee work</li> <li>● the role trade associations can play in the development of standards at the international level</li> <li>● their role in management systems and company management system policies</li> </ul> <p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● why and how standardization can help sustainable development, taking into account the strategy of a company in a moving world marketplace with limited resources.</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the way to influence the content of the standards from the company strategy perspective</li> <li>● identification of the methods and global applications of regulations, standards, normative and other relevant documents that have to comply with new products or services</li> </ul>	<ul style="list-style-type: none"> <li>● Identification of risks and opportunities</li> <li>● Global implementation process</li> <li>● External influence of lobbying process</li> </ul>

## Human resources

Responsibilities related to standardization	Necessary Knowledge	Skills
<ul style="list-style-type: none"> <li>● Ensuring that employees have appropriate competencies and skills linked to standards and technical regulations</li> <li>● Management of internal and external training process</li> </ul>	<p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the different formal qualifications specified in standards and regulations (e.g. safety reasons linked to chemical, electrical, mechanical and explosion risks)</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the role that standards and regulations play in the activities of the personnel they recruit</li> </ul>	<ul style="list-style-type: none"> <li>● Identification of required competencies</li> </ul>

## Marketing

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Specify the standards and regulations needed by the market for products, services, processes, etc.</li> <li>● Formulating policy and making management decisions taking into account strategic importance of standardization to the core business</li> <li>● Influencing the contents of standards and technical regulations</li> <li>● Manage business intelligence</li> <li>● Facilitate the implementation of management systems (Sustainable and social responsibility, quality, energy,...) and continually improving their effectiveness</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● their role in management systems and company management system policies</li> <li>● strategies of standardization committee work</li> </ul> <p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the need to comply with standards and regulations for the different marketplaces</li> <li>● the value of compliance with standards in a competitive world marketplace</li> <li>● the value and methodology of obtaining business knowledge about the development and use of standards and regulations</li> <li>● why and how standardization can help sustainable development, taking into account in the strategy of a company in a moving world marketplace with limited resources</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● identification methods and global applications of regulations, standards, normative and others relevant documents that have to be complied with for new products or services</li> </ul>	<ul style="list-style-type: none"> <li>● Identification of standards and technical regulation per area</li> <li>● Monitoring standards and technical regulation for anticipating their evolution</li> <li>● Mapping the general standardization developments to the strategies of the organization in order to define actions.</li> <li>● Understanding how to participate in the standardization process</li> <li>● Ability to relate sustainable management systems to the marketing of products or services</li> <li>● Teaching skills in standards.</li> </ul>

## Sales

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Presenting to their customers the regulations and standards that are applicable on the market</li> <li>● To convince customers that the products or services are performed in accordance with newest or hardest standards and regulations</li> <li>● Communicate information about standards and regulations needed by the market to the marketing team</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● key standards and regulations present on the market and product range</li> <li>● the need to comply with standards and regulations for the different marketplaces.</li> <li>● the value of compliance with standards in a competitive world marketplace</li> <li>● the value and methodology of obtaining business knowledge about the development and use of standards and regulations</li> <li>● why sustainable development should be taken into account in the strategy of a company in a moving world marketplace with limited resources</li> </ul>	<ul style="list-style-type: none"> <li>● Identification per area the relevant standards and technical regulations</li> <li>● Ability to relate sustainable management systems to the marketing of products or services.</li> </ul>

## R&D and innovation

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Apply in the development process the requirements needed by the regulations and standards (including eco-design) on products, services, processes,</li> <li>● Influencing the contents of standards &amp; technical regulations</li> <li>● Manage business intelligence in standardization</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the value of compliance with standards in a competitive world marketplace</li> <li>● Understanding the interplay between innovation, intellectual property, and standards</li> </ul> <p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the content of relevant standards</li> <li>● the need to comply with standards and regulations for the different marketplaces</li> <li>● why sustainable development should be taking into account in the strategy of a company in a moving world marketplace with limited resources</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the value and methodology of obtaining business knowledge about the development and use of standards and regulations</li> <li>● identification methods and global applications of regulations, standards, normative and others relevant documents that have to be complied with for new products or services</li> </ul>	<ul style="list-style-type: none"> <li>● Identification and implementation of standards and technical regulation per area and/or project.</li> <li>● Identify conflicts with patents and standards or gaps in existing standards</li> <li>● Understanding how to participate in the standardization process</li> <li>● Teaching skills in standards.</li> </ul>

## Laboratories

Responsibilities related to standardization	Knowledge Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Apply in the test process the relevant standards for the products, services, processes, etc.</li> <li>● Apply in the tests procedures the requirements needed by the regulations and standards on products, services, processes</li> <li>● Identify and apply conformity assessment systems and regulatory requirements</li> <li>● Facilitate the implementation of management systems (Sustainable and social responsibility, quality, energy,...) and continually improving their effectiveness</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the content of relevant standards</li> <li>● the value of compliance with standards in a competitive world marketplace</li> </ul> <p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● compliance with standards and regulations for the different marketplaces</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the value and methodology of obtaining business knowledge about the development and use of standards and regulations</li> </ul>	<ul style="list-style-type: none"> <li>● Identification and implementation of standards and technical regulation per area and/or project.</li> <li>● Understanding how to participate in the standardization process</li> </ul>

## Purchasing

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Identification of regulations &amp; standards needed for supplier selection and contracting processes</li> <li>● Integrate their strategic importance when formulating policy and making management decisions</li> <li>● Facilitate the implementation of management systems (sustainable and social responsibility, quality, energy,...) and continually improving their effectiveness</li> </ul>	<p><b>A substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● why should sustainable development be taken into account in the strategy of a company in a moving world marketplace with limited resources</li> <li>● contracting and the process and systems that underpin contracting (ex: quality insurance, brand labelling, ...)</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● identification of methods and global applications of regulations, standards, normative and other relevant documents that have to comply with new products or services</li> </ul>	<ul style="list-style-type: none"> <li>● Identification of standards and regulation requirements to submit to suppliers</li> </ul>

## Production

Responsibilities related to standardization	Necessary knowledge	Skills
<ul style="list-style-type: none"> <li>● Apply the regulations and standards needed for supplier selection and contracting process</li> <li>● Integrate their strategic importance when formulating policy and making management decisions</li> <li>● Facilitate the implementation of management systems (sustainable and social responsibility, quality, energy,...) and continually improving their effectiveness</li> </ul>	<p><b>Substantial knowledge of :</b></p> <ul style="list-style-type: none"> <li>● the content of relevant standards</li> </ul> <p><b>Good knowledge of :</b></p> <ul style="list-style-type: none"> <li>● Role of production staff in management systems and company management system policies</li> <li>● why sustainable development should be taken into account in the strategy of a company in a moving world marketplace with limited resources</li> </ul>	<ul style="list-style-type: none"> <li>● How to apply quality, environment and safety directions of the management system in production</li> </ul>

## Quality, environment, safety and social responsibility management systems

Responsibilities related to standardization	Knowledge necessary	Skills
<ul style="list-style-type: none"> <li>● Identify the role of standards and regulation in the development of products, services, processes</li> <li>● Understand the use of conformity Assessments systems and regulatory requirements</li> <li>● Make the difference between management systems for their best use as needed</li> <li>● Facilitate, if useful, the implementation of other management systems (energy, risk management...) and continuously improving their effectiveness</li> </ul>	<p><b>Substantial knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the content of relevant standards (quality, environment, safety (and others if applicable in the company) management systems.</li> <li>● the need and the value of compliance with standards in a competitive world marketplace</li> </ul> <p><b>Good knowledge of:</b></p> <ul style="list-style-type: none"> <li>● quality, environment, safety (and others if applicable in the company) management systems.</li> </ul> <p><b>Some knowledge of:</b></p> <ul style="list-style-type: none"> <li>● the value and methodology of obtaining business knowledge about the development and use of standards and regulations</li> </ul>	<ul style="list-style-type: none"> <li>● How to determine quality, environment and safety directions of the management system?</li> <li>● How to organize a global management system?</li> <li>● How to determine sustainable and social responsibility directions of the management system?</li> <li>● How to organize your sustainable and social responsibility project with taking into account your existing management systems?</li> </ul>

## Standardization

Responsibilities related to standardization	Knowledge necessary	Skills
<ul style="list-style-type: none"> <li>• All responsibilities related to standardization</li> <li>• Defining the standardization strategy in accordance with the organization strategy.</li> <li>• Supporting and writing the standards</li> <li>• Informing marketing, development, sales and prescription of main standards and regulations evolutions impacting their products/markets</li> </ul>	<p>All knowledge previously listed</p>	<ul style="list-style-type: none"> <li>• Identification of risks and opportunities</li> <li>• Identification of standards and technical regulation per area</li> <li>• Mapping the general standardization and technical developments regulation to the strategies of the organization in order to define actions</li> <li>• Teaching skills in standardization and standards.</li> </ul>

## Summary of needs

This table gives a specific prioritization to typical functions. Depending on the type and size of the organization and the type of product or services, this table has to be interpreted.

In case that, in some organization, the segmentation may be different, the prioritization has to be adapted.

Knowledge Functions	Standardization role	Standards identification process	Integration of the content for relevant standards	Take into account sustainable development	Integration of management systems	Product compliance		Standardization lobbying		Business intelligence in standardization
						Issues	Methods	Issues	Methods	
CEO & senior management	***			**	***	***		***	*	
Human resources	*		***							
Marketing	***	*	*		***	**		**	**	**
Sales	***	***	***	***	***	***	***	***	***	***
R&D and Innovation		*	**	**	**	***		**	**	*
Laboratories			**		**	***	***	**	**	*
Purchasing		**		**	**					*
Production	***	***	***	***	***	***	***	***	***	***
Quality, Environment, Safety Social responsibility			**	**	**	***				*
Standardization	***	***	**	**	**	**	**	**	**	**

Legend :

***	Substantial knowledge
**	Good knowledge
*	Some understanding

This IFAN guide describes for each generic function in an organization, the responsibilities, the relevant knowledge need and the required skills.

This is an example only, the processes and flow will differ, depending on the business of each organization or enterprise.

## Possible methods to apply training/education

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Education and training about standardization cannot be applied in the same way for all functions of an organization.

The multiple needs and constraints lead to the application of different degrees and different forms of training.

There exists a large range of different tools and methods for training about standardization.

The table below is an example of possible methods of training inside a company:

Functions \ Methods	General information module	Information about existing requirements	Case studies, benchmark	Practical studies and exchanges	Specific courses with exchanges
CEO & senior management					
Human resources					
Marketing					
Sales					
R&D and Innovation					
Laboratories					
Purchasing					
Production					
Quality, Environment, Safety Social responsibility Standardization					

## Contact

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For more information or any contributions related to education about standardization, do not hesitate to contact the working group **WG16 – Education and training**:

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