



NBN

EDUCATION ABOUT
STANDARDISATION



Understanding standards.

Key for business and society ...

essential in education.

1. Introduction

Standards are being used every day by businesses, public bodies and other organisations as a tool for managing issues such as quality, performance, health and safety, energy efficiency, the environment, connectivity and interoperability.

This brochure explains why students should learn about standards and standardisation, and outlines the benefits of including this subject matter in further and higher education curricula.

Graduates who have acquired an awareness and understanding of standards during their studies will be more valuable to potential employers, and are better able to deal with a wide range of situations and issues they might encounter in their professional lives.

Education has a crucial role to play in enabling students to learn about standards, why they are needed, how they are developed and in what ways they are being applied.

2. What are standards?

Standards are agreed definitions or specifications of methods, products, processes or services. They provide people and organisations with a basis for mutual understanding, and are used as tools to facilitate communication, measurement, manufacturing and commerce.

Standards have existed for hundreds of years. By the end of the 18th century, scientists defined the metre as a common unit for measuring distance, and the kilogram as a common unit for measuring mass. Meanwhile the development of pendulum clocks allowed time to be measured in minutes and seconds.

In the 19th century, the industrial revolution led to the introduction of new technologies and the need for a wide range of related standards. For example, technical standards were developed for nuts and bolts – specifying different sizes of screw threads, and railways – describing the shape and width of railway tracks.

Nowadays there are many thousands of standards of various types. These include: standard specifications for materials, components, systems and services; standard units of measurement; standard test methods; standard practices and procedures; and standards for managing more complex business issues such as quality, the environment or energy efficiency.

Understanding standards and standardisation is especially important for students of science and engineering, design and architecture, management and economics, healthcare, law and related fields.

3. Why do we need standards?

Standards make life easier and safer for businesses and consumers. They are useful for optimising business performance, improving efficiency and reduce production or distribution costs.

Organisations also achieve higher customer satisfaction by applying quality standards in products or services. For consumers, compliance with a standard means that a product or service meets a number of well-defined criteria with regard to consumer safety, performance, usability or the environment.

With reference to international trade, standards ensure that products or services are better accepted in other countries. Moreover, products and services complying with European standards have access to a market of almost 600 million consumers.

Standards are valuable as a tool to support the spread of new technologies and services, and facilitating the transfer of new discoveries, inventions and innovations into the marketplace. The results of relevant research are often being taken into account during the development of new standards or the revision of existing standards.

Most people are aware of standards for building materials, paper size (such as A4), optical media (such as DVD), mobile telephones (such as GSM) and connecting cables (such as USB and HDMI). These standards ensure connectivity and interoperability so that products made by different companies can be used together, thereby giving more choice to consumers.

Many companies choose to obtain third-party certification for their products, services and management systems, as a way of demonstrating to potential customers and other stakeholders that they comply with relevant standards. Standards ensure mutual acceptance of tests, certificates and conformity assessment schemes across national borders.

Knowledge of standards can be used to make any business or organisation more performing and competitive, and better at meeting the needs of customers. Students who possess this knowledge will therefore be valued by potential employers after they graduate.

4. Benefits for academia and research

Standards are essential for scientific research and the development of new technologies. They ensure test methods are compatible so that research results will be comparable. They also act as a bridge, linking the results and conclusions of research and development activities with innovation processes and practical applications.

Standards are especially important for research institutes and universities, as they can be used to describe and replicate best practices and 'state of the art' solutions. By participating in standardisation activities, academics and researchers can network with other experts and stakeholders who are active in the same field.

5. Why should students learn about standards?

Education plays a crucial role in helping students to understand the benefits of standards. Those students who have learned about standards during their studies will be able to deal more quickly with any situation or issue in which knowledge of standards and standardisation might be needed.

Universities and other educational institutions therefore have a responsibility to ensure their students have at least a basic understanding of standards: what they are, why they are needed, who is developing them and how they are being used.

- **Science and engineering** students must know why standards are important for industry or trade, and what their relevance is in e.g. developing new products, systems or technologies, or managing a production site.
- **Design and architecture** students should understand why standards are to be considered into the design of products and the construction of buildings.
- **Management and economics** students need to understand the importance of standards in international trade, and how these standards contribute to quality of products, cost reduction, sustainability or the safety of consumers and workers.
- **Law** students will find it useful to understand how standards help companies and other organisations comply with relevant rules and legislation.

Including standardisation in higher education will increase the practical relevance of studies to the benefit of the students and their future employers.

6. Who makes standards?

In most cases, the initiative to develop a new standard is taken by businesses who consider that a particular standard would be useful as a way to address specific business needs.

In Belgium, NBN (Bureau for Standardisation) is responsible for developing and selling standards. For the standardisation process, NBN can count on more than 3,000 Belgian experts, who are actively involved in many committees and ensure that:

- standards take into account the interests and views of Belgian companies
- societal stakeholders can draw attention to consumer or environmental protection
- companies are aware of future technological developments and trends, making them more competitive

Together with its sector operators, NBN acts as the Belgian knowledge centre for all activities related to standardisation. NBN plays a societal role by helping companies, consumers, public authorities and other stakeholders to strive for greater quality within an international competitive context. We do so by offering services related to the development, publication, dissemination and use of standards.

As most standards are international, NBN works in close collaboration with international standards organisations, such as the European Committee for Standardisation (CEN) and the International Organization for Standardisation (ISO).

7. Education about Standardisation

Against this background, NBN has launched the 'Education about Standardisation' platform. Its purpose is to convey the importance of standards to university and college students.

This platform aims to:

- make university and college professors aware of the importance of standards for society and business;
- support education about standardisation with: teaching material, easy access to standards for students, etc.
- provide students with sufficient knowledge about standards, which they can later apply in their professional careers.

If you would like to participate in this platform, either as a professor or on behalf of your university or college, please contact us:

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