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GLOBAL QUALITY AND STANDARDS PROGRAMME

CREATING VALUE WITH STANDARDS

Special focus on the wood manufacturing industry in Ukraine

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DISCLAIMER

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INTRODUCTION

Voluntary consensus-based standards are written by experts and relevant stakeholders. They identify national, regional, and international best practice for products, processes, and services.

They enable the use of technology across borders and systems and play an important role in facilitating international trade by reducing barriers such as technical regulations. Harmonization of standards across countries, by using internationally recognized standards, can play a key role to enhance trade between nations, by allowing companies to sell their goods and services across borders without having to adapt goods and services to local market requirements.

From the point of view of exports, research[1] shows that the use of international standards can bring the following benefits to exporting companies:

1. Standards **drive trade** by providing a signal of quality to consumers and trade partners.
2. International standards create a **'common language'** for potential trading partners.
3. Standards support international commerce by **lowering barriers to trade**, **reducing production costs** and offering opportunities for **economies of scale**.

[1] Swann, International Standards and Trade-A Review of the Empirical Literature (2010) https://www.oecd-ilibrary.org/trade/international-standards-and-trade_5kmdbg9xktwg-en

4. Standards encourage trade by **reducing transaction costs**.

Even when there is an initially negative cost-impact of an importing-market standard, over time, firms and governments tend to show substantial ability to adapt and prosper in the new environment, and the standard can be the catalyst for higher productivity and quality.

Timely and harmonized standards can play a pivotal role in shaping the digital transformation process amidst the Fourth Industrial Revolution. Standards can facilitate the ongoing digitalization of industry by enhancing productivity and efficiency, promoting compatibility and interoperability between products and processes through common language, while guaranteeing minimum levels of quality and safety.[2]

Furthermore, standards can serve as accelerators of change as they promote innovation and the uptake of new digital technologies and spread knowledge through codification.

Whilst the use of standards brings benefits, these benefits can be seen as favoring larger multinational companies. Small and medium-sized enterprises (SMEs) may not have been represented in the drafting of those standards and their use may be proportionally more onerous. Nevertheless, SMEs have much to benefit from the use of standards[3] including:

1. Helping improve the quality of goods and services
2. Helping drive growth, cut costs, and increase profits
3. Providing business an edge over competitors
4. Opening export markets for goods and services
5. Opening doors to new customers and strengthening existing customer relations
6. Helping compete with bigger enterprises
7. Enhancing credibility and securing customer confidence
8. Sharpening business processes and increasing efficiency
9. Strengthening marketing pitch
10. Helping comply with regulations

Through the quality and standards related activities of the United Nations Industrial Development Organization (UNIDO), SMEs are encouraged to use standards to assist with exports of children's furniture and windows, especially to the EU. To gain insight into UNIDO's important work concerning quality and standards, read about the Global Quality and Standards Programme (GQSP), funded by the Government of Switzerland through its State Secretariat for Economic Affairs (SECO) and highlighted in the publication Improving Trade, Changing Lives.

Case studies have shown that if technical standards are not applied, then serious product safety issues can occur, leading to withdrawal from the market.

At the same time the use of standards by Ukrainian SMEs can benefit their products, processes and the ability to sell their products in new markets. This is borne out by a survey of Ukrainian SMEs that showed:

» 98% of respondents felt that the use of standards led to improved quality/reliability of products or processes.

» 91.5% of respondents felt that the use of standards had led to improved processes (saving time and costs for the main processes).

» 89.4% of the respondents felt that the use of standards has contributed to accessing new markets.

This publication sets out some of the key benefits for the use of standards, especially in the context of SMEs.

The first part of the brochure sets out the evidence and materials that are available to show the qualitative and quantitative benefits of standards gathered from across the globe.

The second part of the brochure relates specifically to information about the benefits of standards in Ukraine. A survey of standards users was conducted which clearly shows that SMEs consider the use of standards to have benefitted their business activities. The section covers how to access standards and how to participate in Ukrainian standardization activities and includes details of how UNIDO promotes the wood industry in Ukraine.

The annexes provide further detailed information including a mapping of the benefits of standards to a company's value chain; case studies of companies that have applied the ISO methodology for assessing the benefits of standards, including cases of wooden furniture and wooden windows; a list of ISO committees in which Ukraine is participating; details of the UNIDO webinar raising awareness of the importance of implementing standards in the furniture and the window sector, together with case studies of where the absence of standards in the manufacture of children's furniture products can lead to serious product safety concerns. The final annex is a workflow that provides useful online resources for Ukrainian SMEs on their path to using standards and getting involved in the development of standards.

Throughout the text we provide links for more useful and detailed information. Readers must be aware that these websites may change, and some links may unexpectedly become inactive. In case that happens, we recommend to search the internet by using the reference to the document, which usually leads to the updated source.

[2] UNIDO Standards and digital transformation – Good governance ins a digital age (2021) https://www.unido.org/sites/default/files/files/2021-10/Standard_digital_transformation_ONLINE_FINAL.pdf
[3] ISO 10 good things for SMEs (2014) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100283.pdf

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GLOBAL OUTLOOK: ECONOMIC BENEFITS OF STANDARDS FOR SMES

WHAT ARE STANDARDS?

In essence, a standard is an agreed way of doing something. It could be about making a product, managing a process, delivering a service, or supplying materials—standards can cover a huge range of activities undertaken by organizations and used by their customers.[4]

There are various types of standards, characterized by the context in which they are developed. Unwittingly, different types are often referred to interchangeably and it is important not to confuse them.

[4] https://www.bsigroup.com/en-GB/standards/Information-about-standards/what-is-a-standard/

International standards are voluntary consensus-based documents. This means that they have been developed through a process of general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments.[5]

The foreword of the ISO/IEC Directives, Part 1,[6] notes that consensus is an essential procedural principle, requiring the resolution of substantial objections in meetings or by correspondence. It is "a necessary condition for the preparation of (standards) that will be accepted and widely used". The aim is to resolve substantive issues before the final stages of development.

The International Organization for Standardization (ISO) therefore defines a standard as a document **established by consensus** and approved by a recognized body that provides for common and repeated use, rules, guidelines or characteristics for activities or their results aimed at achieving the optimum degree of order in a given context.[7]

The World Trade Organization (WTO) Technical Barriers to Trade (TBT) Agreement defines a **standard** as *a document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which conformity is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process, or production method.*[8]

The WTO TBT Agreement defines a **technical regulation** as a *document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process, or production method.*[9]

[5] ISO/IEC Guide 2:2004 Standardization and related activities – General vocabulary https://isotc.iso.org/livelink/livelink/Open/8389141
[6] ISO/IEC Directives, Part 1 Edition 2023; ISO - Publicly available resources
[7] ISO/IEC Guide 2:2004, clause 3.2
[8] WTO Technical Barriers to Trade Agreement Annex 1, § 2 https://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm
[9] WTO TBT Agreement, Annex 1, § 1

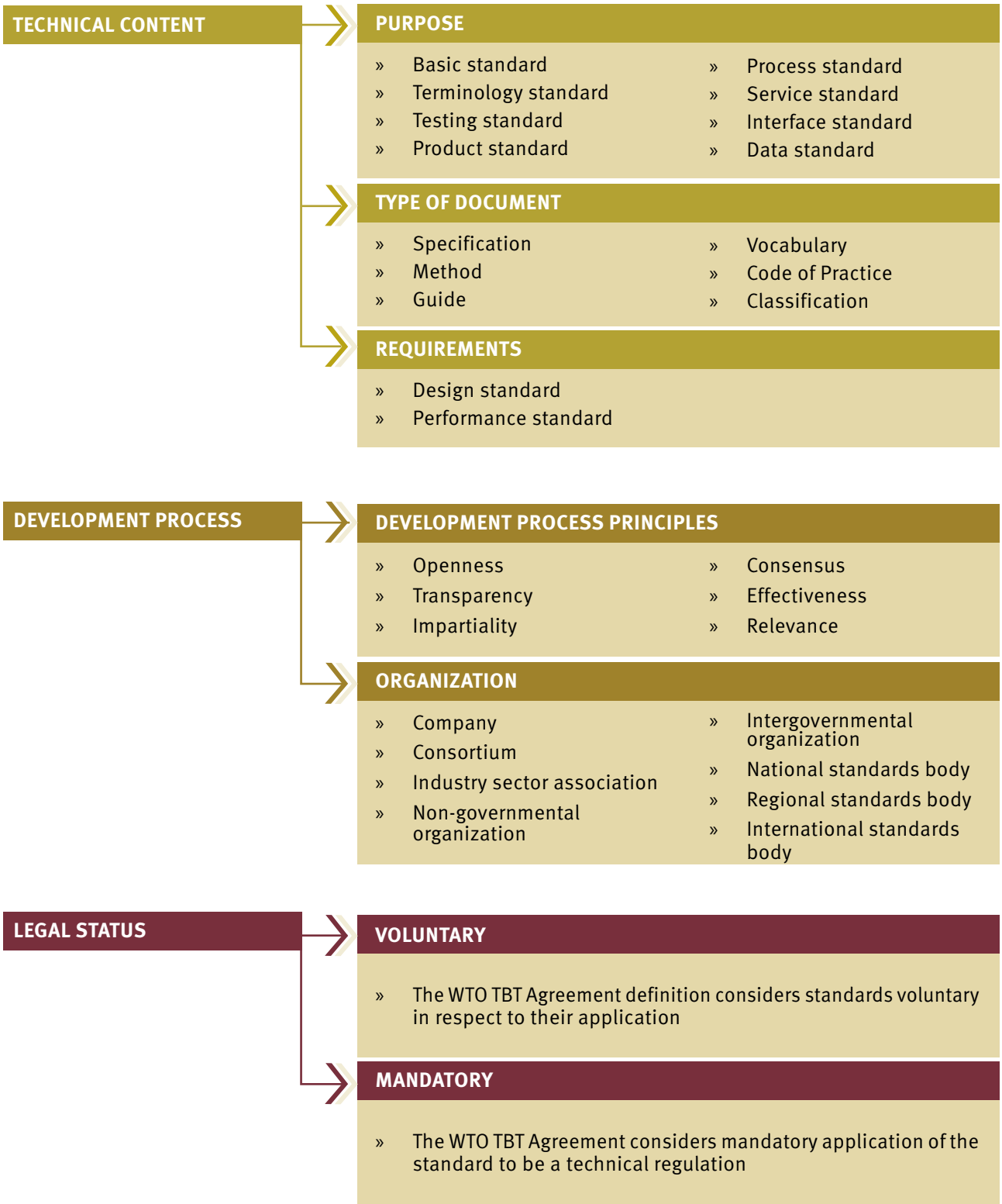
TABLE 1: DIFFERENCE BETWEEN TECHNICAL REGULATIONS AND STANDARDS

TECHNICAL REGULATIONS	STANDARDS
Status: Compulsory	**Status:** Voluntary
Responsibility for drafting: Ministries, regulatory authorities	**Responsibility for drafting:** Recognized standards organizations
Motivation and purpose: Protect citizens and the environment; market failure	**Motivation and purpose:** Demand by economic operators and other interested parties
Development process: Initiative by authorities; Consultation of interested parties yes, but consensus not a binding requirement; Coherence analysis; Regulatory impact analysis; WTO Notification of drafts where required	**Development process:** Standards bodies support and facilitate the process which is initiated by interested parties; Consensus-based process; Publication of draft standards for public review
Revision/Update: Regular review of approved legislation (which is often very time-consuming)	**Revision/Update:** Regular review of approved standards every 3 to 5 years as part of normal maintenance
Compliance: Authorities enforce regulations or retain final responsibility in case of delegation to other bodies	**Conformity (conformity assessment):** First, second and third-party attestation (the last by certification and inspection bodies)
Exception: Mandatory standards Standards can be incorporated into law and made compulsory regarding their implementation. Such standards can then be referred to as "mandatory standards", which means that they continue to share the other characteristics of standards, but that their legal status has been changed from *voluntary* to *mandatory*. Such standards constitute one type of "technical regulation".	

Standards can be classified considering three primary dimensions, namely (i) technical content of the standard; (ii) the development process, i.e. how the standard has been developed and who has developed it; and (iii) legal status, i.e. whether the standard is voluntary or mandatory, as shown below.[10]

[10] ISO Good Standardization Practice (2019) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100440.pdf

FIGURE 1: THE STANDARDS ENVIRONMENT



NOTE: For definitions of the above see ISO/IEC Guide 2
Source: ISO

PRIVATE STANDARDS

Defining a 'private standard' is almost impossible for there exists a multitude of norms, guidelines, codes and initiatives with different types of communication and verification mechanisms that are collectively considered as private standards.[11] It is important to stress that private standards are something other than the technical regulations and national, regional or international voluntary standards such as might be encountered in trading with any partner.

These standards can be related to product characteristics (affecting, e.g. quality and safety) or social and environmental issues concerning production processes and company policies.

In supply chains, buyers of products and services often impose such standards on supplying companies. The overall economic impact may be very substantial, as the buyer companies and consortia concerned have large purchasing power and market influence.

Private standards[12] can be broken down into three categories:

Consortia standards – which are often developed by a sector-specific consortium (i.e. GLOBALG.A.P.).

» Civil society standards or Voluntary Sustainability Standards (VSS) – established as an initiative by a non-profit organization usually as a response to concerns over social and environmental conditions (i.e. Forest Stewardship Council®, FSC®).

» Company-specific standards – which are developed internally and apply to the whole supply chain of a company (i.e. codes of conduct).

The International Trade Centre has developed the Standards Map database tool which enables users to identify and compare over 300 standards for environmental protection, worker and labour rights, economic development, quality and food safety, as well as business ethics.[13]

Unlike ISO or CEN standards, private standards are usually freely available for use by interested parties. On the other hand, allegations of conformity to those standards and use of their specific marks can only be made through recognized auditing providers or require certification by accredited certification bodies and may have additional license costs for the use of logos and allegations of conformity to these standards.

In what concerns Voluntary Sustainability Standards, ISEAL alliance, www.isealalliance.org, establishes principles and codes of good practice that support sustainability systems to improve how they operate and deliver greater impact, having a particular focus on credible practices. ISEAL recognizes sustainable systems by defining credible practice for sustainability systems based on emerging global consensus; convening forums for collaboration, sharing of experience and collective action; delivering expertise, advice and training; and facilitating and promoting innovation to strengthen sustainability systems.[14]

[11] UNIDO Making Private Standards Work for You A guide to private standards in the garments, footwear and furniture sectors (2010) https://www.unido.org/sites/default/files/2010-10/UNIDO_%20Guidelines_web_0.pdf

[12] https://www.unido.org/our-focus/advancing-economic-competitiveness/meeting-standards/private-standards

[13] https://www.standardsmap.org/en/home

STANDARDS AND QUALITY INFRASTRUCTURE

The verification of conformity of products and services with national and international requirements asks for a well-designed collaborative network. This network is known as quality infrastructure (QI). It consists of various institutions that provide quality related services for the public sector, economic actors, and the consumer.

The quality infrastructure of a country is defined as:[15]

The system comprising the organizations (public and private) together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services, and processes.

The quality infrastructure is required for the effective operation of domestic markets, and its international recognition is important to enable access to foreign markets. It is a critical element in promoting and sustaining economic development, as well as environmental and social well-being.

It relies on:

» metrology

» standardization

» accreditation

» conformity assessment

» market surveillance

Standards play an important role not only for manufacturers of products and providers of services, but also for the quality infrastructure itself. Standards are needed for the development of measurements, for testing methods, and for defining certification and accreditation requirements and methods.

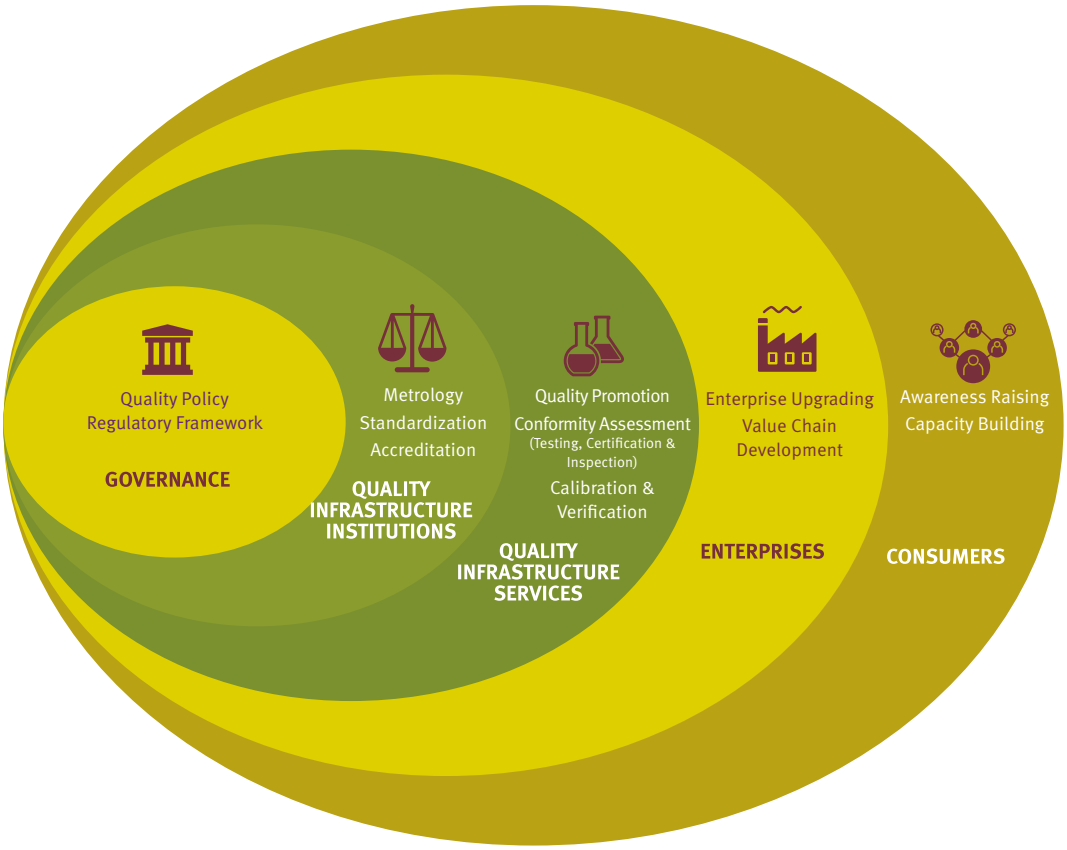
Below is a diagram showing how the national quality infrastructure interacts with the value chains and the international system, and how all the elements of QI rely on standards.[16]

[14] Who we are (isealalliance.org)

[15] International Network on Quality Infrastructure (INetQI); home - INetQI https://www.inetqi.net/documentation/quality-infrastructure-definition/

[16] Physikalisch-Technische Bundesanstalt 2014

FIGURE 2: QUALITY INFRASTRUCTURE - SYSTEMIC VIEW



STANDARDS AND SMES

Small and medium-sized enterprises (SMEs) employ around 60–70% of workers in most countries.

There is no generally accepted definition for what constitutes an SME. Definitions vary across countries and organizations. The most common criterion for an SME is the number of employees but other criteria are also used, including total net assets, sales, and investment level.[17]

Research in Europe[18] has identified the obstacles that prevent SMEs from profiting from standards and standardization:

» Most SMEs, particularly the smaller ones, **lack the necessary resources** (both financial and human) to commit to long-term strategies and investments.

» Their **management is largely involved in daily operational practice**, and there is no time nor money available for activities not directly related to the primary process.

» They tend, therefore, to have a **short-term view of their business** and rarely anticipate change such as future regulations or the development of new standards. This also makes SMEs a notoriously difficult group to target with communication schemes.

» Most of them tend to discuss strategy and **keep informed within a limited, stable network of suppliers, trade associations and consultants**. This is why it is important to take advantage of the SME network to reach them.

Unlike larger organizations, SMEs tend to lack the infrastructure to deal with standards and standardization such as a specialized standards or quality department which makes adoption and implementation of standards more difficult within the organization.

This can lead to the following consequences:

» Lack of awareness that standards exist, in particular standards specific to their industry.

[17] https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/guidance-for-writing-standards-for-smes.pdf provides examples of definitions from various sources

[18] SME Access to European Standardization – Enabling small and medium-sized enterprises to achieve greater benefit from standards and from involvement in standardization. https://www.researchgate.net/publication/259005422_SME_access_to_European_standardization_Enabling_small_and_medium-sized_enterprises_to_achieve_greater_benefit_from_standards_and_from_involvement_in_standardization

» They may not see added value of standards for their enterprise. They may regard standards as a necessary evil rather than a powerful tool with which to meet their business objectives.

» They may not be able to find relevant standards.

» They may not be able to obtain the standard, i.e. they may not know where to purchase it or be able to afford it.

» They may not understand the standards due to the technical content and language, references to other standards, or a lack of information on the context of the standard.

» Because of the inherent complexity or lack of knowledge or skills, SMEs may not be able to implement the standards and gain any benefits.

» The SME may not be aware of the benefits of implementing a standard and therefore may not be willing to risk resources necessary for implementation.

SME PARTICIPATION IN STANDARDIZATION

SMEs tend to have a low representation in the process of drafting standards.[19]

The barriers that may prevent them from getting involved in standardization include:

» SMEs may know about standards, without understanding that these are developed in a process in which any company can get involved.

» Even when an SME knows it can become actively involved in standardization, it may still have trouble assessing whether it is worth the investment.

» SMEs that do become interested in standards development may still have difficulty tracing the relevant standards development projects by their national standards body.

» Lack of resources (money, time, skills and knowledge).

» The role of individuals in standardization can be decisive. Is an SME able to delegate a highly qualified person, in terms of both knowledge and skills, who can make a difference?

» Involvement in standardization is a long-term investment. Is the SME able to evaluate the effectiveness of its involvement?

» An SME may wish to initiate a new standardization activity because it needs standards to make its invention a market success, yet starting a new project from scratch can be difficult.

» Compared with larger companies, SMEs are less likely to be able to absorb travel and participation costs.

[19] See reference in Note 17

Annex 6 of this document sets out a useful online resource workflow to help Ukrainian SMEs address these issues.

WRITING STANDARDS WITH SMES IN MIND

SMEs are present in the majority of sectors. As do other users, SMEs benefit from the technical expertise of standards in the elaboration of which they may not have been present. They may have to adapt to the existing solutions, and may have a weaker position in their product or service markets because of larger competitors and their dependency on suppliers or customers.

At both the international[20] and European[21] level, guidance documents are available to standards developers to ensure that the content of standards does not exclude SMEs from the market and avoids the distortion of fair competition.

These documents provide guidance, advice, and recommendations to standards writers on how to take into account the needs of SMEs and address the issues to be considered during the development process of standards.

The guidance documents contain:

» considerations for the development of standards that are best adapted to the needs of SMEs.

» techniques for identifying and assessing provisions in standards that may especially impact SMEs.

» ways to reduce negative impacts on SMEs resulting from some provisions in standards.

» guidelines for writing SME-friendly standards.

» a guidance document checklist.

» information on the impact that new standards can have on micro-enterprises.

Below is a checklist for standard developers to ensure that SMEs are taken into account at all stages of the standards writing process.[22] The questions in bullet points have been explained in detail in the corresponding sections of Clause 5 of the ISO and CEN/CENELEC Guides.

[20] ISO Guidance for writing standards taking into account micro, small and medium-sized enterprises' needs (2013) https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/guidance-for-writing-standards-for-smes.pdf

[21] CEN-CENELEC Guide 17 - Guidance for writing standards taking into account micro, small and medium-sized enterprises (SMEs) needs Edition 1, June 2010 https://www.cencenelec.eu/media/Guides/CEN-CLC/cenclcguide17_en.pdf

[22] ISO Guidance for writing standards taking into account micro, small and medium-sized enterprises' needs https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/guidance-for-writing-standards-for-smes.pdf

FIGURE 3: CHECKLIST FOR STANDARD DEVELOPERS

Preparation of new work item	Preparation of standard	Development of content	Structure and presentation of content	Final review
(5.2.1) Did you check the relevance of the standard for SMEs? **(5.2.2)** Did you check with all the stakeholders if there are special needs for the SMEs? **(5.2.2)** Did you evaluate whether there are SMEs among the target groups?	**(5.3.1)** Did you evaluate the cost of investment (technology, equipment, testing)? **(5.3.1)** Did you evaluate the cost of training (staff)? **(5.3.1)** Did you evaluate the cost of implementation? **(5.3.2)** Did you verify that all elements are available?	**(5.4.1)** If the performance approach is used, is it understandable? **(5.4.2)** Have you used descriptive explanations? **(5.4.3)** Is the scope of the standard precise and complete? **(5.4.4)** Did you avoid strict testing regimes? **(5.4.4)** Did you evaluate testing costs? **(5.4.5)** Did you identify simple, cost-effective ways of checking conformity to the requirements?	**(5.5.1)** Is the standard as short as possible? **(5.5.1)** If the standard is long, did you evaluate the possibility of dividing it into shorter standards? **(5.5.2)** Is the structure of the standard easy to follow? **(5.5.3)** Have you included supportive graphs, charts, etc. (when possible)? **(5.5.4)** Have you used clear language understandable by all expected standards users? **(5.5.5)** Did you minimize the number of referenced standards? **(5.5.6)** Did you provide clear information on the changes from the previous versions of the standard?	**(5.6.1)** Did you suggest a transition period reflecting the implications of the changes? **(5.6.2)** Did you evaluate the need for an implementation manual?

Benefits of standards
ECONOMIC BENEFITS FOR COMPANIES – QUANTITATIVE

It is often necessary to show the benefits of standards in both quantitative as well as qualitative terms.

ISO has developed a simple, step-by-step methodology and made available a robust set of tools to measure the economic benefits of standards. The methodology can be applied to all companies and industry sectors to identify the contribution that standards make to their performance, providing a systematic approach for assessing the economic benefits of standards for individual organizations. This methodology can be used by companies to help them understand the impacts of standards on their activities and processes and thus further improve their performance and maximize the benefits of using standards.[23]

The methodology is based on the value chain approach and can be described in four major steps, that can be adapted according to the activities of the organization.

FIGURE 4: THE 4 STEPS OF ISO METHODOLOGY FOR MEASURING THE ECONOMIC BENEFITS OF STANDARDS IN INDIVIDUAL COMPANIES

STEP 1

Analyse the value chain

STEP 2

Identify the impact of standards

STEP 3

Determine value drivers and define key operational indicators

STEP 4

Collect information and measure impact

The case studies developed using the methodology show that the use of standards can have an impact of standards on annual sales revenue typically between 0.5% and 5%.

The case studies provided evidence of **efficiency gains** across companies particularly in the areas of:

- Product design, research and development (R&D)
- Procurement, supplier management
- Production process and quality assurance
- Streamlined process management
- Lower non-conformity
- Reduction of transaction costs

The case studies also evidenced gains in terms of **process innovation**:

- Extension of coverage of operations (e.g. wider scope of delivery and larger sourcing networks)
- Use of new or improved technology in processes

Other gains related to **improved market access:**

- Standards perform a major role in the creation of new markets or opening of markets that are new to a company

The methodology has been used to develop a wide range of case studies which are available to view on the ISO website.[24] Three case studies from SMEs in Mauritius, Germany and Botswana are included in **Annex 1** of this document, as well as information on cases for children's furniture and wooden windows developed specifically for this publication.

The National Standards Body of Indonesia has also conducted research of the benefits of standards using the ISO methodology. [25] [26] [27] [28] [29]

Nanotron,[30] a German SME active in the information and communications technology (ICT) sector, increased their profit by 33% of sales by using standards. By engaging in standards development, Nanotron was able to contribute its technology, including patents, to standardization and, hence, shape the content of future standards. At the same time, it was able to bring its internal developments in line with the development of new standards.

[23] ISO Economic benefits of standards ISO Methodology 2.0 (2013) https://www.iso.org/publication/PUB100344.html

[24] ISO has created several detailed case studies and videos of companies and organizations around the world which have assessed their activities using the methodology. These include case studies of SMEs. See https://www.iso.org/benefits-of-standards-the-iso-materials.html for further information.

[25] Quantifying the economic benefit of standard on auto-electric stove for Batik small medium enterprises in Indonesia, Jun 2021 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8239720/

[26] The economic benefits of the implementation of batik Indonesian National Standard (SNI) by ISO methodology - Economic benefit standard (EBS) approach, April 2020 https://aip.scitation.org/doi/abs/10.1063/5.0000718

[27] Manfaat Ekonomi Penerapan Standar Pada Usaha Kecil Menengah Menggunakan ISO Methodologyhttps://js.bsn.go.id/index.php/standardisasi/article/view/411

[28] Ibid

[29] Ibid

[30] https://www.youtube.com/watch?v=5BDQPmhbvF8

BENEFITS OF STANDARDS FOR SMES – QUALITATIVE

As well as quantitative data for the benefits of the use of standards, there is plenty of research and analysis that show how standards improve the quality of products, processes, and services.

Firm-level surveys in developing economies found that certification to the international standard ISO 9000 achieved average productivity gains between 2.4% and 17.6% for three Central American economies, 1% for four Southeast Asian Economies, and 4.5% in China. In the UK, standards reform contributed to 13% of growth in labour productivity.[31]

The *Standards Impact Map*[32] is a generic checklist to identify benefits of standards mapped to the typical business functions (e.g. logistics or marketing and sales) of an enterprise of any size that make up a company's value chain and the typical activities undertaken in these functions. The checklist indicates over **80 potential beneficial impacts** of the use of standards across a company's value chain. See Annex 2.

ISO has published a collection of short real-life case studies[33] from managers of small businesses in 10 countries from around the world showing the benefits that SMEs can derive from using international standards that include:

1. helping improve the quality of goods and services
2. helping drive growth, cut costs, and increase profits
3. providing business an edge over competitors
4. opening export markets for goods and services
5. opening doors to new customers and strengthening existing customer relations
6. helping compete with bigger enterprises
7. enhancing credibility and securing customer confidence
8. sharpening business processes and increasing efficiency
9. strengthening marketing pitch
10. helping comply with regulations

[31] https://thedocs.worldbank.org/en/doc/516141538488797114-0090022018/original/WhyisQIimportant.pdf
[32] See reference in Note 22
[33] ISO 10 Good things for SMEs (2014) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100283.pdf

The British Standards Institution (BSI) has published the Small Business Guide to Standards34 which provides case studies from UK SMEs.

The Deutsches Institut für Normung (DIN) has video case studies from SMEs that have benefitted from the use of standards.[35]

MACRO-ECONOMIC RESEARCH INTO THE BENEFITS OF STANDARDS

Studies by national standards bodies have tried to track the impact of standards on different economies around the world. Broadly, each of these studies found that growth in the country's stock of standards was linked to economic growth.[36] [37]

Each of the studies point to mechanisms by which standards have a beneficial effect on the national economy including:

- disseminating information
- making state-of-the-art knowledge equally available to everyone
- contributing to efficiency in companies that use standards
- supporting market efficiency and facilitating innovation

The economic benefits of standardization represent about 1% of GDP in Germany, where standards made a greater contribution to economic growth than patents or licenses. Export-oriented sectors of German industry use standards to open up new markets and facilitate technological change.[38]

For the UK economy, analysis shows that:[39]

- Standards contribute £8.8 billion to the UK economy over a period of 10 years
- 38% of UK productivity growth since 2000 can be attributed to standards
- 23% of all UK GDP growth since 2000 can be attributed to standards

[34] BSI The small business guide to standards https://www.bsigroup.com/globalassets/documents/standards/smes/bsi-small-business-guide-to-standards-en-gb.pdf
[35] https://www.din.de/de/ueber-normen-und-standards/nutzen-fuer-die-wirtschaft/mittelstand
[36] ISO Standards & economic growth: ISO members' research on the impact of standards on their national economies (2021) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100456.pdf
[37] ISO Economic impact of standards: Methodological guidance (2022) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100465.pdf
[38] ISO ISO Standards – What's the bottom line? (2012) https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/bottom_line.pdf
[39] CEBR The Economic Contribution of Standards to the UK Economy (2022) https://www.bsigroup.com/en-GB/standards/benefits-of-using-standards/research-reports/

» £5.4 billion of additional UK exports per year can be attributed to standards

» 60% of SMEs and 77% of larger companies say that standards have increased their capacity to export

STANDARDS AND THE UN SUSTAINABLE DEVELOPMENT GOALS

The 17 United Nations Sustainable Development Goals (SDGs) represent an ambitious plan to enhance peace and prosperity, eradicate poverty and protect the planet by 2030. Standards represent practical technical solutions for SMEs to help achieve the SDGs. For each SDG both ISO[40] and the IEC[41] have each identified relevant standards that contribute to specific UN SDGs and can be used by companies to improve their own contributions through their products, processes, services and initiatives.

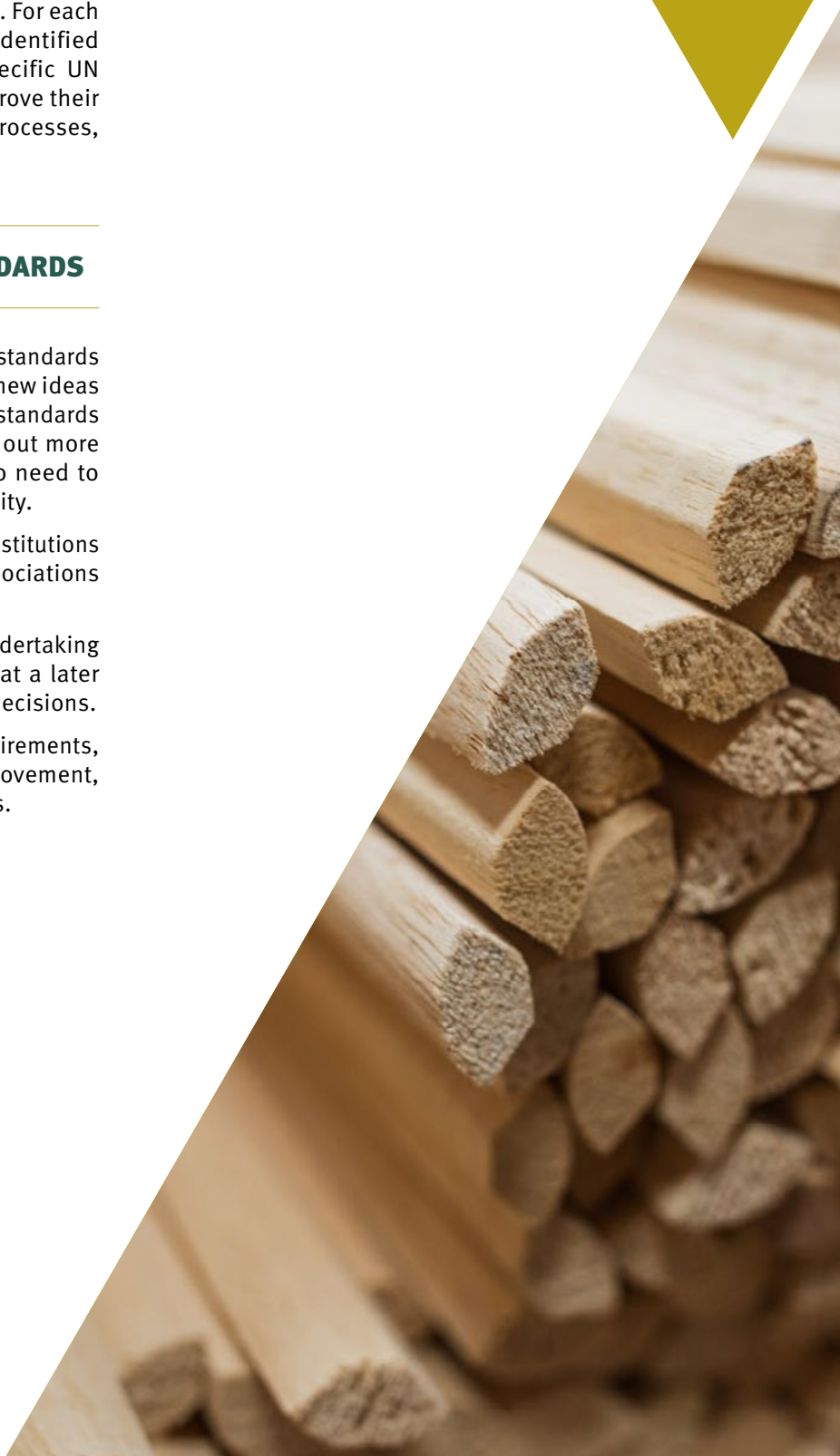
EXPLOITING THE BENEFITS OF STANDARDS

Understanding and exploiting the benefits of standards for themselves requires SMEs to be open to new ideas and interested in the benefits that the use of standards can bring. SMEs need to be curious to find out more about standards in their sector. SMEs also need to have an interest in and commitment to quality.

SMEs need adequate support from national institutions such as government agencies, industry associations and from the national standards bodies.

Using voluntary standards does not mean undertaking third party certification, this can be done at a later stage—if needed—and based on business decisions.

Standards help SMEs to meet regulatory requirements, to pursue product, service and process improvement, and to meet stringent requirement of buyers.



[40] https://www.iso.org/sdgs.html
[41] https://www.iec.ch/sdgs

2

ECONOMIC BENEFITS OF STANDARDS SPECIFICALLY IN THE WOOD-BASED INDUSTRY IN UKRAINE WITH A FOCUS ON CHILDREN'S FURNITURE AND WOODEN WINDOWS

STANDARDIZATION IN UKRAINE

State Enterprise "Ukrainian Scientific Research and Training Centre for Standardization, Certification and Quality Problems" (SE "UkrNDNC") is recognized as Ukraine's National Standards Body at national, European and international levels. It was renamed the Ukraine Standardization Agency (UAS), though both names are still in use.

SE "UkrNDNC is responsible for the following activities:[42]

- organize and coordinate activities related to the development, adoption, review (examination), revision, withdrawal and renewal of national standards.
- adopt, withdraw and renew national standards.
- prepare and approve the national standards programme.
- coordinate activities of the technical committees for standardization.
- issue national standards.
- form and maintain the national fund of normative documents.
- ensure functioning and development of the national standards system; technical review of draft standards, harmonization of national standards with international and European standards; coordinate activities of the technical committees for standardization; and provide consultations on product marking.
- provide training and skills upgrading for specialists in the area of standardization, certification, metrology and management systems, and training of scientific personnel of higher qualification.
- publish scientific journal "Standardization, Certification, Quality".

As part of the EU-Ukraine Deep and Comprehensive Free Trade Agreement (DCFTA), Ukraine began approximating its standards to the EU in 2016 and introduced various legislative amendments, among them The Law of Ukraine "On Standardization" of June 05, 2014 № 1315-VI[43] which sets out the government agency responsible for formulation and implementation of the national policy on standardization, under the Ministry for Development of the Economy, Trade and Agriculture attributions.

The Law states that the national policy on standardization is based on a balanced application of the following principles:

- impartial adoption of national standards based on consensus;
- voluntary application of national standards, unless otherwise required by regulatory acts;
- conformity of national standards with law;
- the priority of adopting international and regional standards as national in Ukraine;
- adoption and observance by standardization adopting entities of the Code of Good Practice for the Preparation, Adoption and Application of Standards under the Agreement on Technical Barriers to Trade of the World Trade Organization, which represents an annex to the Marrakesh Agreement of 15 April 1994 establishing the World Trade Organization.

A detailed description of SE "UkrNDNC" activities is on the official website uas.org.ua.[44] A list of frequently asked questions can be found at http://uas.org.ua/ua/pitannya-vidpovidi/.

SE "UkrNDNC"/UAS, under the English acronym of DSTU, represents the interests of Ukraine in international standardization within the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) as a full Member Body.

The rights of a Member Body[45] include:

- Participating in developing international standards including voting and commenting on draft international standards as well as holding secretariats and convenorships and proposing new work items for standards development
- Participating in developing policy
- Selling ISO standards and publications, using copyright and the ISO name and logo
- Participating in governing ISO

SE "UkrNDNC" is a **companion standardization body to the European Committee for Standardization (CEN) and European Committee for Electrotechnical Standardization (CENELEC)**. It is also signatory (as the National Standards Organization) of the Memorandum of Understanding with European Telecommunications Standards Institute (ETSI).

[42] General information about the role of UkrNDNC can be found at http://uas.org.ua/en/zagalni-vidomosti-pro-dp-ukrndnts/

[43] Details of the technical regulatory system in Ukraine including standardization, conformity assessment, accreditation and metrology can be found at: https://www.me.gov.ua/Documents/Detail?lang=en-GB&id=4d124447-546e-4fe8-bc1b-e1da490da1ee&title=TechnicalRegulationSystemOfUkraine-standardization-ConformityAssessmentAndAccreditation-MetrologyAndMetrologicalActivity-

[44] For further detail see Gerasymchuk S. European Standardization in Ukraine August (2017) https://eap-csf.eu/wp-content/uploads/Final-Draft-analysis-Ukraine.pdf and also Starikova N. Ukraine's Participation in European Organisations for Standardisation CEN and CENELEC (2013) http://www.inogate.org/documents/4.%20Starikova%20ENG.pdf

[45] ISO ISO Membership Manual (2015) https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100399.pdf

A Companion Standardization Body (CSB) status is a cooperation framework with CEN and CENELEC offered to National Standardization Bodies (NSBs) and National Electrotechnical Committees (NCs) that are not eligible to become a CEN and/or CENELEC Member or Affiliate. It enables technical alignment with the countries of the European Economic Area (EEA) in a flexible manner, allows participation in CEN and/or CENELEC standardization work and contributes to facilitating trade between the country of the applicant NSB/NC and Europe.[46]

Rights of a CSB include:

» To participate, without voting rights, in the CEN and/or CENELEC;

» To participate in an unlimited number of Technical Bodies as an observer;

» To reproduce and sell, within its own country, drafts stemming from those Technical Bodies where they have observership;

» To have direct access to CEN and CENELEC repositories of standards and other publications;

» To adopt European Standards (EN) as national standards.

The table below shows the total number of active European deliverables notified as adopted by Ukraine by year.[47]

TABLE 2: NOTIFIED EUROPEAN STANDARDS ADOPTED BY UKRAINE

2013	2014	2015	2016	2017	2018	2019	2020	2021	Jun2022	Jan2023
52	47	2024	3193	3573	3771	5132	4806	5046	4851	4857

The table below shows numbers of active CEN and CENELEC deliverables adopted by Ukraine by the business sector by January 2023.[48]

TABLE 3: NOTIFIED EUROPEAN STANDARDS BY BUSINESS SECTOR

BUSINESS SECTOR	ADOPTIONS BY BUSINESS SECTOR
Chemicals	267
Construction	607
Consumer	138
Defence and security	161
Digital society	153
Electrotechnology	789
Energy and utilities	281
Food and agriculture	109
Healthcare and health and safety	543
Household appliances and HVAC	379
Mechanical and machinery	952
Mining and metals	102
Services	73
Transport and vehicles	303
Total	4857

[46] The concept of a Companion Standardization Body with CEN and CENELEC Edition 4, 2016-06-15 https://www.cencenelec.eu/media/Guides/CEN-CLC/cenclcguide13.pdf

[47] CEN and CENELEC Global Outreach Report (January 2023) globaloutreach_january2023.pdf (cencenelec.eu)

[48] See reference Note 46

UKRAINIAN NATIONAL TCS

Technical committees play a key role in standardization. Under the auspices of the national standards body (NSB), a technical committee is the group responsible for the development and the drafting of standards. The draft is then ratified and published by the NSB. All stakeholders interested in the draft standard are entitled to participate. Stakeholders are composed of experts in a specific field representing industry, professional associations, government, trade unions, consumers as well as other stakeholders.

Technical committees ensure representation of the national standard body at international level in ISO and CEN mirror committees.

The catalogue of technical committees of Ukraine[49] lists 161 different **national technical committees** (TCs). The catalogue (in Excel format) lists the TC number, the topic of standardization as well as the contact details of the chair, the deputy chair, and the secretary of each TC.

The range of topics covered by the TCs covers the whole of Ukrainian economy and includes TC 18 Forest Resources, TC 151 Furniture and TC 300 Door and Windows.

The annual programme for the development of national standards by the TCs is published on the UAS website, along with regular updates as to its progress and amendments.[50] The details of the national standards to be developed, including development schedule and list of standards, is included in Sheet 1 of the annual programme.

In Sheet 2 of the same programme and its updates, it can be found the predicted number of international (ISO) and European (EN) standards that Ukraine intends to adopt, translate or confirm in the current year.

Funding for the development and adoption of the International and European standards as well as the development of the national standards comes from a mix of state ministries and from private business entities.[51] (Sheet 3)

The annual programme specifies 490 standards projects planned for development in 2023,[52] identical to the relevant harmonized European standards published on the official website of CEN and CENELEC, conformity with which provides a presumption of conformity of products, related processes or production methods or other facilities with requirement acts of EU legislation. The work programme also specifies which piece of European legislation the standards will address. (Sheet 3)

The annual work programme sets out the number of standards development projects planned for each of the national TCs. (Sheet 6)

Detailed description of SE "UkrNDNC" activities is on the official website uas.org.ua.[53] A list of frequently asked questions can be found at http://uas.org.ua/ua/pitannya-vidpovidi/.

UKRAINE IN INTERNATIONAL STANDARDIZATION

At the International level, UAS or DSTU actively participate as P-member in 123[54] ISO and ISO/IEC committees[55] and/or subcommittees, developing international standards in a whole range of different business sectors from information technology, aircraft and space vehicles to blockchain and distributed ledger technologies.

As a participating member in an ISO technical committee, UAS and its national stakeholders commit to participate actively in the standards development and standards revision work, with an obligation to vote on all questions formally submitted for voting within the technical committee or subcommittee, on new work item proposals, enquiry drafts and final drafts of international standards, systematic review ballots of exiting documents of the responsibility of that committee, and to contribute to meetings.[56]

Ukraine also follows closely, as an observing member (O-member), the work of 249[57] other ISO and ISO/IEC committees and/or subcommittees[58] in several different areas such as robotics and risk management and safety. As an O-member in a technical committee or subcommittee, UAS and its national stakeholders can follow the work as observers, receive committee documents, submit comments and attend to meetings, but do not have the right to vote.

[49] Technical Committees – SE "UkrNDNC" (uas.gov.ua)
[50] Програма робіт з національної стандартизації – 2023 – ДП "УкрНДНЦ" (uas.gov.ua)
[51] State Service of Ukraine for Emergencies (SES of Ukraine), Ukravtodor State Agency of Motor Roads of Ukraine,
State Enterprise "Financing of Infrastructure Projects" (SE "FININPRO"), Ministry of Economy, Ministry of Environmental Protection and Natural Resources of Ukraine, Ministry of Defence Ukraine Ministry of Health of Ukraine, Business entities (organizations, enterprises, institutions, associations, etc.)
[52] See note 50

[53] For further detail see Gerasymchuk S. European Standardization in Ukraine August (2017) https://eap-csf.eu/wp-content/uploads/Final-Draft-analysis-Ukraine.pdf and also Starikova N. Ukraine's Participation in European Organisations for Standardisation CEN and CENELEC (2013), Microsoft PowerPoint - 4. Starikova ENG [Compatibility Mode] (inogate.org) http://www.inogate.org/documents/4.%20Starikova%20ENG.pdf
[54] Data from August 2023
[55] https://www.iso.org/member/2172.html?view=participation&t=PT
[56] ISO/IEC Directives, Part 1 Procedures for the technical work — Consolidated ISO Supplement — Procedures specific to ISO, Vo3/2023iso.org/sites/directives/current/consolidated/index.html
[57] Data form August 2023
[58] https://www.iso.org/member/2172.html?view=participation&t=OT

UkrNDNC and its stakeholders also participate in the International Electrotechnical Commission (IEC), as member of 11 committees and an observer member of 153 committees.[59]

A National Body may, at any time, begin or end membership or change its membership status from P-member to O-member or vice versa in any committee.

Ukraine has held important leadership position in the ISO system as a member of the ISO Council in 2004–5.[60]

The Secretariat for the ISO Technical Committee 218 *Timber* is currently held by DSTU.[61] The committee creates global standards for round, sawn and processed timber, and timber materials for use in all applications, including terminology, specifications, and test methods. Application for timber structures is excluded and covered by ISO/TC165. Presently, the committee has published 54 international standards and is in the process of developing two more (for updated information see ISO/TC 218 – Timber, https://www.iso.org/committee/54976/x/catalogue/). The committee has participating members from 23 different countries, together with observing members from 41 countries.

The secretariat entails the role of the committee manager, providing day-to-day management and administrative services for the work of the technical committee and the chairperson, responsible for the overall management of the technical committee, including any subcommittees and working groups.

Ukraine is an observing member of ISO technical committees on furniture, doors, windows and curtain walls, and timber structures, as well as other relevant committees for the wooden industry, such as paints and varnishes, glass and wood-working machines.

Ukraine is a participating member of ISO/TC176 Quality management and quality assurance, and ISO/TC 207 Environmental management, responsible for the publication of ISO 9001:2015 Quality management systems - Requirements and ISO 14001:2015 Environmental management systems – Requirements, two management system standards commonly used by organizations.

[59] https://www.iec.ch/dyn/www/f?p=103:33:611961299497237::::FSP_ORG_ID,FSP_LANG_ID:1030,34, data from August 2023
[60] ISO Historical record of ISO membership since its creation (1947) https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/historical_record_of_iso_membership_1947_to_today.pdf
[61] https://www.iso.org/committee/54976.html

ACCESS TO STANDARDS

Standards are sold to cover the cost of its development process by the standards bodies, as is European and international practice.

The online store for purchasing standards (including national, ISO, ASTM, DIN and IEC standards) is located on the website of the national standardization body. The price of a standard depends on the number of pages in the document, calculated by multiplying the number of pages by the price per page. A list of prices for key standards is available. Paper versions or electronic versions can be purchased online on the UAS website (uas.org.ua).

Alternatively, it is possible to read any standards documents (without the possibility of copying and photographing) in the physical premises of UkrNDNC.

According to the legislation of Ukraine, the standards referenced in normative documents—laws, regulations, orders of the parliament and the government—are publicly available. They can be accessed for free online from the UAS website.

It is also possible to view and comment on draft standards. Notice of the development of draft standards is posted on the website of UAS. Any interested party can contact the responsible TC and obtain draft national standards for comments.

UAS also has an online search tool where interested parties can search Ukrainian standards by key terms and definitions and to help identify the relevant standards they may need.

At the international level, it is possible to search for standards on the ISO website using the search function.[62] In addition, the ISO Online Browsing Platform[63] enables you to search and access limited parts of an international standard including the foreword, introduction, scope, terms and definitions and bibliography of an international standard. For European standards developed by CEN, the information on published standards and standards under development is also available and can be searched by technical committee.[64]

[62] https://www.iso.org/home.html
[63] https://www.iso.org/obp/ui
[64] CEN - List of CEN Technical Bodies (cencenelec.eu)

PARTICIPATING IN STANDARDIZATION

The national technical committees comprise thousands of experts from the public and private sectors in their specific fields of expertise. By participating in the development of standards, interested parties can benefit from:

» Ensuring timely development of national standards necessary for their particular industry or sector, influencing content and ensuring the standards meet their needs.

» Receiving originals of texts of international and European standards.

» Participating in international or European TCs as P-member or O-member.

» Identifying priority areas of standardization.

» Obtaining the most up to date information in the field of standardization.

New collective and individual members can participate in the work of the existing TC. They must notify their wish to participate. The catalogue of technical committees of Ukraine contains the contact details of all the TCs.[65]

An individual member who intends to become a member of the TC shall submit an application stating that they intend to participate in the work of the TC, as well as their name, surname, place of work, position (if any) and term, to which they intend to participate in the work of the TC. The decision on the admission of a new member to the TC is made by voting of the members of the TC.

The standards development process, with explanations of the different stages, is set out in Sheet 7 of the annual work programme.[66]

Training to be an effective participant in national standardization is conducted by UAS.

National delegates or experts who participate in the development of international standards can ensure that these standards reflect the needs of Ukrainian stakeholders. ISO has produced a short handbook *My ISO Job*[67] which provides general background information about ISO and the standards development process; explains what is expected of you as a participant in ISO including the ISO code of conduct; and gives a list of the tools and resources available.

If there is a new standard that you would like to be developed, check the official website of SE "UkrNDNC" in the section Standardization - Work Program.[68] An interested party may submit proposals to the National Standardization Program. If there is a new area of standardization, within which your organization would like to see Ukrainian stakeholders develop and publish standards, it is possible to propose the establishment a new technical committee.

A list of ISO Technical Committees and subcommittees related to the wooden sector and the type of participation by DSTU, participant or observer, is presented in Annex 3, as well as the list of related CEN Committees. In case you are interested in participating in any of these committees, contact should be established with the Ukrainian technical committee that ensures participant or observation membership.

[65] See note 48
[66] See note 49
[67] https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/my_iso_job.pdf
[68] See Note 49

USE OF STANDARDS – STAKEHOLDER PERCEPTIONS

A survey of standards users was conducted across a range of industry sectors, in Ukraine in November 2021. **72.5%** of respondents were from SMEs. **76.5%** of respondents were already participating in the committees of the National Standardization Authority.

The results show that many of the respondents perceive that the use of standards brought some advantage (either to a small, important, or very important degree) to their products, processes, and services.

95.5% of respondents felt that standards had led to a reduction/rationalization of diversity in the use of products and raw materials.

91.5% of respondents felt that the use of standards had led to improved processes (saving time and costs for the main processes).

88.6% of respondents felt that the use of standards led to simplified contracts with suppliers and associated cost reductions.

97.8% of respondents felt that the use of standards led to improved quality/reliability of products or processes.

82.6% of respondents felt that the use of standards led to improved safety of operations.

91.3% of respondents felt that the use of standards led to simplified conformity with the requirements of technical regulations.

89.4% of the respondents felt that the use of standards has contributed to accessing new markets.

Specifically, respondents estimated that the use of standards had led to:

» 10–15% reduction of energy consumption

» 10–15% reduction of household waste due to their recycling

» 25% improvement of the quality of the educational process

» increase in sales of devices by 10%

» 20% reduction in losses

» 30% increase in exports

At the same time, respondents also noted specific problems with the use of standards, namely:

» High purchase price

» Cost of an external audit to confirm conformity with the standard

» The presence of differences among standards

» References to invalid or obsolete standards

» Adoption of standards in English by the cover method, which adds ambiguity to the interpretation of the text of the standards

» Lack of communication with the Standardization Body

USE OF STANDARDS, CERTIFICATION AND QUALITY INFRASTRUCTURE IN UKRAINE

Certification is the provision by an independent body of written assurance, a certificate, that the product, service, process or system in question meets the requirements defined in a specific standard.

Certification is a voluntary process and an organization can benefit from the use of standards without applying for certification, except when it becomes a legal, regulatory or contractual requirement. CE marking is an example of a mandatory certification for certain products to enter in the European Market, as it is the case with children's furniture and windows. UNIDO developed two Guidelines "CE marking for furniture. European requirements and potential for Ukraine" and "CE marking for windows. European requirements and potential for Ukraine".

Certification may be a condition to access certain markets, or to be a provider in a sector industry. It is often a competitive advantage to establish partnerships with relevant customers, namely retailers and construction companies. For the customers, certification can be a valuable tool to establish confidence in the provider and in the products and services.

Accredited certification is conducted by independent, impartial, and technically competent certification bodies which add credibility and confidence by demonstrating that your organization, product or service meets the expectations of your customers. As any other investment, potential benefits and gains must be weighed against expected costs.

Accreditation of certification bodies is done against internationally recognized standards developed at ISO CASCO,[69] the committee responsible in ISO for conformity assessment policies, guides and standards that establish the requirements for test laboratories, inspection and verification bodies, and certification of persons, products, services and management systems. Accreditation is done through regular assessments against these standards by authorized and recognized accreditation bodies.

NAAU[70] is the National Accreditation Agency of Ukraine. Accreditation ensures, amongst other things, that test laboratories and certification, inspection or verification bodies have technical competence to perform their activities and provide their services in an independent and impartial manner, following the requirements set out by the relevant standards.

NAAU is a category A-member of European co-operation for Accreditation (EA), a full member of the International Accreditation Forum (IAF), and a full member of the International Laboratory Accreditation Cooperation (ILAC) and signatory of the respective relevant multilateral agreements (MLA), which means that NAAU complies with European and International accreditation rules and ensures international recognition of its accreditations. An accredited certificate by NAAU is considered as equivalent by accreditation provided by and consequently of the certificates issued under accreditation, which is critical to ensure that an organization certified in a certain region is internationally recognized. The list of accredited test laboratories and certification bodies accredited by NAAU, and their respective scope, is available on their website.[71]

Information on the accredited test methods, and certified organizations with respective standards and scope is made publicly available by the accredited test laboratories and certification bodies.

ISO MANAGEMENT SYSTEM STANDARDS IN UKRAINE

Management system standards are a particular type of standards that set guidance or requirements for managing a particular theme and are commonly used by organizations seeking to demonstrate confidence in their products and services or their management practices.

The first ISO management system standard published was ISO 9001. Quality management systems. Requirements, which is presently in its 5th edition, published in 2015.

The ISO 9001:2015 specifies requirements for a quality management system when an organization:

[69] ISO - ISO committee for conformity assessment (CASCO)
[70] Національне агентство з акредитації України (naau.org.ua)
[71] Register of accredited CABs (naau.org.ua)

a) needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and

b) 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.

The standard is applicable to any kind of organization, regardless of its size, type, sector or products and services provided. ISO 9001 proved to be a successful standard, and the concept of developing a management system standard to other specific themes of an organization is still expanding with ISO 14001 Environmental management systems. Requirements with guidance for use and ISO 45001 Occupational health and safety management systems. Requirements with guidance for use being the most frequently adopted by organizations. ISO management system standards adopt a common structure and the same text for common requirements, and the Plan-Do-Check-Act approach to management.

Certification to an ISO management system standard is voluntary, but information on certified organizations is a good indicator of its adoption and relevance in the global market. Each year, ISO conducts a survey of accredited certifications for a range of management system standards,[72] presenting data by standard, country, and sector. The participation on the Survey by the certification bodies is voluntary and the data may not reflect all certificates issued, which make yearly comparisons difficult. The following table shows the data reported for Ukraine by the end of year 2022.

In 2022 in Ukraine, for the agriculture, fishing, and forestry sector, there were 11 certificates for ISO 9001 and for ISO 14001 each, along with 4 certificates for ISO 45001. In the wood and wood products manufacturing sector, which eventually includes wooden window producers, there were 10 certificates for ISO 9001 and 1 for ISO 14001. For manufacturing not elsewhere classified, which may include furniture, there are 7 certificates for ISO 9001. If we compare this information with information from other countries and sectors (see ISO Survey results freely available on the ISO website) we realize that these are not sectors that have a high number of certificates issued. Nevertheless, it is difficult to draw conclusions from this number without having more information on the sectors' dimension per country.

More insights on can be gained by comparing data from Ukraine with other countries by accessing the ISO survey results.

[72] ISO Survey 2022 ISO - The ISO Survey

USE OF STANDARDS - WOOD PRODUCING INDUSTRIES IN UKRAINE

UNIDO has conducted a detailed study[73] of the wood and processed wood value chain in Ukraine to facilitate market access for Ukrainian producers. The analysis includes an overview and a list of the relevant European standards required for both the children's and school furniture and for window sectors.

The document includes an analysis of the existing quality infrastructure for furniture in Ukraine including a list of accredited institutions providing furniture product testing as well as institutions providing furniture product certification. The analysis also includes a list of accredited laboratories in Ukraine providing testing for windows.

UNIDO also organized a series of webinars for stakeholders setting out case studies of where standards have not been followed in the manufacture of furniture. The details of the webinars and the case studies can be found in Annex 4.

[73] UNIDO Ukraine - Strengthening the quality and standards compliance services for wood and processed wood Value Chain Study (2020). https://hub.unido.org/sites/default/files/publications/UKRAINE_VALUE%20CHAIN%20STUDY_GQSP%20Ukraine.pdf

TABLE 4: UKRAINIAN ACCREDITED MANAGEMENT SYSTEM CERTIFICATES IN 2022 ISO SURVEY

Standard	Title	Certificates	Sites
ISO 9001:2015	Quality management systems - Requirements	1,507	1,949
ISO 14001:2015	Environmental management systems - Requirements	334	460
ISO/IEC 27001:2013	Information technology - Security techniques - Information management systems - Requirements	87	126
ISO 22000:2018	Food safety management systems - Requirements for any organization in the food chain	256	265
ISO 45001:2018	Occupational health and safety management systems - Requirements with guidance for use	254	326
ISO 13485:2016	Medical devices - Quality management systems - Requirements for regulatory purposes	33	51
ISO 50001:2011&2018	Energy management systems - Requirements with guidance for use	17	90
ISO 22301:2019	Security and resilience - Business Continuity management systems - Requirements	2	12
ISO 20001-1:2018	Information technology - Service management - Part 1: Service management system requirements	1	1
ISO 28000:2007	Specification for security management systems in the supply chain	0	0
ISO 37001:2016	Anti-bribery management systems - Requirements with guidance for use	6	6

USE OF VOLUNTARY SUSTAINABILITY STANDARDS IN WOOD PRODUCING INDUSTRIES IN UKRAINE

Forest Stewardship Council®,[74] FSC®, is an international, non-profit organization established in 1993 and dedicated to promoting environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

As a pioneer of sustainable forestry certification, FSC bases its forest management standards worldwide on 10 principles developed to be relevant to different kinds of forest ecosystems and in diverse cultural, political, and legal settings, that require any managers of certified forests to:[75]

1. Comply with all applicable laws.
2. Maintain or improve the social and economic well-being of workers.
3. Uphold the rights of Indigenous Peoples.
4. Maintain or improve the social and economic well-being of local communities.
5. Manage their products and services in a way that maintains or improves their long-term economic viability, social benefits, and environmental benefits.
6. Maintain, conserve, and/or restore the ecosystem services and environmental values of managed forests; and also avoid, repair, or mitigate negative environmental impacts.
7. Establish a management plan that outlines their economic, environmental, and social policies and objectives.
8. Demonstrate progress toward meeting these objectives.
9. Maintain or improve high conservation values.
10. Ensure that all management activities comply with FSC principles and criteria.

Based on these 10 universal principles, national initiatives involving relevant stakeholder develop their own standards, applying these principles to their specific context, as it is the case of FSC Ukraine (Домашня сторінка FSC Україна | Forest Stewardship Council, https://ua.fsc.org/ua-uk). FSC has more than 150[76] million certified hectares (ha) of forest worldwide 9.5 million ha of which are in Ukraine,[77] corresponding to 92.3% of all Ukrainian forest. The majority of forest designated for commercial use is certified.

Through chain of custody standards, FSC created a mechanism to certify all the supply chain of wood-based products from a certified forest to the end user, providing a credible guarantee that products that are sold with an FSC claim come from certified well-managed forests, FSC 100%; recycled materials, FSC Recycled; or a combination of materials from certified forests, recycled materials and/or controlled materials,[78] FSC Mix.

FSC chain of custody certification is a voluntary certification that can be applied to all companies in the supply chain of wood-based products, from logging, through processing and trade. All change in ownership of the product in the supply chain of an FSC certified product requires the implementation of the chain of custody system by the organization, its certification by an accredited certification body[79] and a valid license agreement between the certified organization and FSC.

FSC chain of custody standards are public and freely available in Document Centre | FSC Connect, https://connect.fsc.org/document-centre. You can also contact FSC Ukraine to enquire on the availability of translated documents. FSC STD 40-004 is the basis for chain of custody certification that sets the requirements to ensure and demonstrate traceability of FSC products to the forest. It also includes requirements related to health and safety and core labor requirements. It may need to be complemented by other standards when applied to multi-site organizations (FSC STD 40-003), organizations procuring reclaimed material (FSC STD 40-007) or organizations that need to purchase controlled material (FSC STD 40 005).

FSC project certification is a type of certification developed to answer the increasing demand for wood and wood-based materials in construction, due to the sustainability of wood when compared to other construction materials. The construction sector found important that when projects use certified FSC materials, those can be recognized as certified. FSC STD 40-006 defines the requirements that organizations applying this standard to one or multiple projects shall fulfill to demonstrate the origin of the wood products and make a claim on the certified project. It can be applied in new construction projects as well as rehabilitations, exhibitions, festivals, and works of art, amongst others. It is a flexible solution that allows for full project certification, component certification (e.g. wooden structure or certification or windows and doors) or percentage certifications. This type of certification intends to increase the demand of certified wooden construction materials, and ultimately the sustainability of forest management.

[74] www.fsc.org
[75] FSC Standards | Forest Stewardship Council
[76] About us | fsc.org; August 2023
[77] FSC Facts & Figures in Ukraine | Forest Stewardship Council
[78] Controlled wood is a non-certified wood whose origin to non-controversial sources is verified to be able to be combined with FSC certified and/or recycled materials, see Chain of Custody Certification | Forest Stewardship Council (fsc.org)
[79] ASI, Assurance Services International, is responsible for the accreditation process. You can search accredited certification bodies in Find an ASI-accredited CAB (asi-assurance.org)

All forest management, chain of custody and project certified organizations and respective scopes can be found at FSC public dashboard available in FSC Public Certificate Search | FSC Connect, https://connect.fsc.org/fsc-public-certificate-search, where you can search by several fields, such as country, product or tree species. The database provides you information on the certificate holder, address, certificate codes, validity, and applied standards, allowing to look for providers of material, search for potential clients in the supply chain, and communicate to customers the certification status and scope.

As of 23 July 2023, there were 342 valid chain of custody certificates in Ukraine,[80] out of more than 55,000 certificates globally.[81]

PEFC, the Programme for the Endorsement of Forest Certification, is a global alliance on national forest certification systems, constituted as a non-profit and non-governmental organization, based in Geneva, Switzerland. PEFC promotes sustainable forest management through third party certification. PEFC has more than 280 Mha of forest certified all over the world and more than 20,000 chain of custody certificates.[82] In Ukraine, the Association National Voluntary Forest Certification System is the PEFC representative, having its national forest management standard endorsed by PEFC on 19 June 2021.[83] PEFC ST 2002 is the international chain of custody standard that establishes the link from the forest to the market, tracking forest and tree based products from sustainable sources to the final product. In addition, this standard includes management requirements, including on health, safety and labor issues.[84] The standard is freely available in PEFC website, https://woodcertification.com.ua/en/.

An organization needs to be certified by a certification body accredited by an accreditation body member of IAF to be able to sell materials with a PEFC claim or PEFC logo. Accredited certification bodies operating in Ukraine can be found on the international PEFC website, as well as certified organizations in forest management and chain of custody, and more information about the standards (www.pefc.org).

FSC certification and PEFC certification are both voluntary schemes. Usually, decisions to certify according to one or both schemes are influenced by requests from customers and the markets as well as availability of purchasing certified raw materials.

ENTREPRENEURSHIP AND EXPORT PROMOTION OFFICE

The role of the newly created Entrepreneurship and Export Office is to promote the development and the support of small and medium-sized enterprises, and support and promote the export of goods, works and services of Ukrainian manufacturers.

The Office provides:

» market reports

» support for small and medium-sized enterprises

» assistance in establishing cooperation and partnership between Ukrainian and foreign business

» promotion of Ukrainian goods and services abroad

» development of export competencies of Ukrainian business

More details can be found at https://business.diia.gov.ua/eepo.

Furniture:

More than 50% of the products produced by the Ukrainian furniture industry are exported, most to EU countries (i.e. Poland, Germany). There are more than 5,000 enterprises in the furniture industry, with more than 100,000 employees. The Export Portal section on the furniture industry contains research on the furniture market of the countries of the world including:

» United Kingdom - Furniture Market Overview: https://export.gov.ua/industry/review/16

» USA - Furniture Market Overview: https://export.gov.ua/industry/review/15

» Trends in the Global Furniture Market: https://export.gov.ua/industry/review/30

» Trade opportunities in Israel for Ukrainian companies in the furniture sector: https://export.gov.ua/industry/review/17

Windows and doors:

In 2018–2019, the Office prepared a study on the priority markets for export for companies of the Ukrainian Door Association. This is available on request.

[80] FSC Facts & Figures in Ukraine | Forest Stewardship Council
[81] About us | fsc.org
[82] Discover PEFC - PEFC - Programme for the Endorsement of Forest Certification
[83] Ukraine celebrates the endorsement of its national system - PEFC - Programme for the Endorsement of Forest Certification
[84] Standards and Guides - PEFC - Programme for the Endorsement of Forest Certification

ANNEX 1

ISO ECONOMIC BENEFITS SME CASE STUDIES

CASE STUDY 1 Lobatse Clay Works[85]

Lobatse Clay Works (LCW) began operating in 1992 as a joint venture between the Botswana Development Corporation (BDC) and an American company, Inter-Kiln. In 2004, Inter-Kiln diversified and BDC gained total ownership of LCW. The company produces mainly face bricks, but also windowsills and pavers, which are categorized as special bricks. LCW boasts an output of over 30 million items per year and has been a major partner in building Botswana's infrastructure.

Company name: Lobatse Clay Works (PTY) Ltd. (LCW)

Country: Botswana

Industry: Construction and construction materials

No. of employees: 175

Revenues/profits: BWP 64 million/BWP 34 million (USD 9.73 million/USD 4.6 million) (in 2010)

Main products/services: Bricks (face bricks, pavers, windowsills)

Main use of standards: Standards were used extensively in production, the business function covered by the assessment.

Most important standards used:

- BOS 28, Burnt clay masonry units (based on South African national standard SANS 227), which defines requirements for product characteristics and test methods
- BOS ISO 9001, Quality management systems
- BOS OHSAS 18001, Occupational health and safety management systems

(At the time of the assessment, LCW was preparing for ISO 9001 certification)

Economic benefits generated by standards: BWP 1685 289 (USD 256,213) annually, corresponding to 2.63% of company sales revenue or 4.96% of company EBIT (in 2010).

Key qualitative benefits: The reduction in number of products bolstered efficiency; communication within the LCW production unit was made easier; and the training of staff was improved by referring to standards.

[85] Direct link to ISO case study https://www.iso.org/files/live/sites/isoorg/files/standards/benefits_of_international_standards/case_studies/factsheets/ebs_factsheet_-_lobatse_botswana.pdf

What were the major benefits for LCW of using standards?

Using standards allowed LCW to:

- Calibrate its equipment and keep it in good working order
- Increase the conformance rate of raw materials received from suppliers
- Improve the production process, minimizing product failures
- Reduce the number of incidents causing health and safety issues

How did standards lead to these benefits?

Standards have helped LCW to focus its operations on a limited number of brick types, which it produces to a consistently high quality. Quality procedures defining its processes, from the excavation of clay soil to the production of the final bricks and their packaging, storage, and delivery to customers, have helped the company streamline its production processes and optimize production runs with fixed settings of the equipment. Adherence to BOS 28, which defines specifications for different types of bricks, has been key to ensuring consistent quality.

CASE STUDY 2 Nanotron[86]

Nanotron is a small-sized engineering company founded in Berlin, Germany, in 1991 and active in the global information and communication technology (ICT) sector. With the support of venture capital, Nanotron started up its own technology development in 2001 and was able to build a patented technology based on CSS (Chirp Spread Spectrum), a spread-spectrum technique that uses wideband linear frequency modulated chirp pulses to encode information. Its first product, the nanometer, was introduced in 2004 to enable the implementation of wireless networks.

Company name: Nanotron Technologies GmbH

Country: Germany

Industry: Information and telecommunication

No. of employees: 25

Revenues/profits: USD 4.5 million/N.A. (in 2010)

Main products/services:

Nanotron's current product portfolio focuses on physical position localization: wireless products that help to protect and find people, animals and valuable assets by transmitting information about their location.

Main use of standards:

» Product design

» Marketing and sales

Most important standards used:

» ISO/IEC 24730, Real-time locating systems

» IEEE 802.15.4, Low-rate wireless personal area networks

» DIN EN ISO 9001, Quality management systems

Economic benefits generated by standards: USD 1.48 million (close to 33% of sales revenue in 2010).

Key qualitative benefits: Involvement in standards development and early adoption of standards established the company's technology leadership within its field.

What were the major benefits for Nanotron of using standards?

Using standards allowed Nanotron to:

» Become an industry leader for remote sensing and real-time location devices

» Specify product requirements precisely on the basis of standards

» Increase customer confidence in Nanotron products by basing them on standards

» Reduce product development costs

» Increase the accuracy of product descriptions and technical documentation

» Optimize company internal processes

How did standards lead to these benefits?

By engaging in standards development, Nanotron was able to contribute its technology, including patents, to standardization and, hence, shape the content of future standards. At the same time, it was able to bring its internal developments in line with the development of new standards.

A portfolio of products based on international standards enables Nanotron—which is a small company—to reassure potential customers as to the long-term reliability of its technologies and generate the confidence to invest in its products. Nanotron was able to exploit its technical leadership image and the network of relations it had developed through its standardization work by establishing commercial relations and licensing its technology to large multinational companies.

[86] Direct link to ISO case study https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/ebs_factsheet_-_nanotron_germany.pdf

CASE STUDY 3 PPP PSL[87]

PPP PSL is part of the Desbro Group of Companies, a conglomerate active in manufacturing and trading activities in a variety of sectors in Mauritius, Reunion, Madagascar, South Africa, Kenya, Uganda, Tanzania, the Seychelles and the United Arab Emirates.

PPP PSL manufactures plastic pipes and fittings made of PVC-U in sizes ranging from 20 mm to 250 mm. PPP PSL also manufactures polypropylene (PP) single-wall corrugated pipes in small sizes for electrical conduit applications, and has a subsidiary company involved in the manufacture of polyethylene (PE) pipes.

Company name: Plastic Pipes and Products Piping Systems

(PPP PSL) Ltd.

Country: Mauritius

Industry: Pipes and piping systems

No. of employees: 140

Revenues/profits: MUR 241.3 million/MUR 24.1 million

(USD 8 million/USD 800,000) (in 2011) *

Main products/services: Plastic pipes and fittings for water supply, sewerage, drainage and conduits for electric wires. Doublewall pipes for telecommunication and sewerage applications.

Main use of standards:

» Procurement, including the testing of raw materials

» Production and process monitoring

» Final inspection

What were the major benefits for PPP PSL of using standards?

Using standards allowed PPP PSL to:

» Reduce costs by reducing waste and the number of rejected products and reworks

» Use energy efficiently and apply efficient procurement practices

» Operate a highly reliable production chain

Most important standards used:

Various standards with specifications for products and testing methods, such as:

» ISO 1452, Plastics piping systems for water supply and drainage

» ISO 3633, Plastics piping systems for soil and discharge

» ISO 4435 and EN 13476, Plastics piping systems for underground drainage and sewerage

» ISO 9001, Quality management systems

» Other standards on product and testing requirements

Economic benefits generated by standards: MUR 5.4 million (USD 177,700) without structured wall pipes and MUR 11.1 million (USD 364,300) including structured wall pipes. The first figure amounts to 4.5% of revenues, the latter to 9.2%.

Key qualitative benefits: Standards allowed PPP PSL to be continuously innovative and a leader in its domestic market

How did standards lead to these benefits?

PPP PSL uses standards systematically in order to reach a stable production process and to save materials by reducing waste as well as other resources, such as energy. These savings contribute to rises in gross profit. As the first company in its field in Mauritius, PPP PSL applied a European standard for structured wall pipes which allowed it to manufacture pipes with a double-wall structure that saves on materials while maintaining the same level of performance and reliability as traditional pipes. Using standards has enabled PPP PSL to successfully undergo testing and gain quality marks for its products, which in turn contribute to its strong market position. This has become increasingly important in Mauritius where the market is becoming highly competitive, particularly due to low-cost imports from East Asia.

PPP PSL is an active participant in standards committees in Mauritius. This enables it to influence the development and adoption of new standards while keeping abreast of developments in standardization on the international scene.

[87] Direct link to ISO case study https://www.iso.org/files/live/sites/isoorg/files/standards/benefits_of_international_standards/case_studies/factsheets/ebs_factsheet_-_ppl_psl_mauritius.pdf

CASE STUDIES IN THE FIELD OF CHILDREN'S FURNITURE IN ROMANIA

The children's furniture industry in Romania is in a continuous improvement and development process, with the aim to compete with large and experienced manufacturers of children furniture from all over the world. Furniture factories in Romania are mainly SMEs that have design departments interested in designing children's furniture in a safe, useful, resistant, and attractive way.

In this study we were able to collect information from two companies, one in the children's furniture sector and the other in the sector of school furniture, about the standards they use and how they use them, their benefits and the difficulties they encounter. The ISO methodology for economic benefits could not be applied completely to obtain a quantified percentage of revenues, although a lot of important insights were gathered and are shared here. We also provide some additional information on the wooden furniture industry in Romania.

The presentation highlights the benefits and utility of using European standards in the design and manufacturing of children's and school furniture to:

» promote children's furniture that is appealing to the customer, useful, durable, reliable and safe.

» increase the possibility of entering international markets for children's furniture

» face the competition of European and international products in the Romanian market.

Overview:

Children's furniture is a special and delicate category of furniture and must be treated accordingly. For customers, children's furniture needs to:

» look good and attract the eye,

» be useful and functional,

» be resistant and durable,

» be safe, i.e. present no risks, especially to the children.

European standards for children's furniture are a good source of information for manufacturers, considering that European requirements are very strict in the field of product safety. Together with ISO standards they are the most important source of information in the design and manufacture of children's furniture in Romania.

European standards appeared as a need to raise our children in the safest and easiest possible way. The requirements have been developed in response to information on a multitude of accidents suffered by children, from newborns to teenagers. As presented by the Consumer Product Safety Commission (CPSC),[88] for a large number of children treated in emergency services for injuries, approximately 73% were directly associated with accidents with children's products, with special relevance of highchairs.

Standards for children furniture in their entirety represent an economic gain for any manufacturer. Below we list the usefulness of these standards for three business functions in the manufactures of children's and school wooden furniture company value chain.

Utility of standards for product designer:

Provide general indications on size requirements of children's furniture and their components, depending on their age and the intended use of the product (e.g. internal dimensions children's beds by age group).

Provide precise indications regarding the design of children's furniture from the point of view of the various injury risks for children to avoid a series of incidents like suffocation, falling, pinching, swallowing, climbing over certain railings, slipping from the seat:

» specific dimensions for different age groups of children,

» distances between fixed or moving elements,

» dimensions of any holes or gaps,

» dimensions of the elements that can be swallowed by children,

» characteristics of the hardware to be used for assembly,

» characteristics of the finishing materials that are applied to the furniture elements that children can put in their mouths,

» characteristics related to stability of the product;

» detailed information, warnings and recommendations regarding the assembly, use and risks on children's furniture to be contained in assembly manuals, and suggestive labelling.

Provide information on the types of screws that can be used to assemble the cradle for children. According to EN 130, 8.11.1, direct tightening screws (e.g. self-tapping screws) shall not be used for the removable elements of cot/cradle.

[88] Article "Consumer Product Safety Standards for Children's Furniture" on Consumer Product Safety Standards for Children's Furniture (ansi.org)

ATTENTION: the series of standards contain Annexes related to National Deviations. These refer to certain requirements that are different from the European requirements at the national level, because they are regulated by National legal acts. For example: in the EN 716-1 Furniture – Children's cots and folding cots for domestic use, clause 5.4.1, the distance between two adjacent crossbars of the mattress must not allow the passage of a 60 mm cone, while according to the Swedish legislation on Product Safety Acts, this distance must not allow the passage of a 25 mm cone.

Likewise, if a company considers exporting furniture to other regions, or countries outside the European Union, they will need to consider different standards and requirements.

Utility of standards for production:

- Processing precision so that the following risks do not occur due to drilling deviations:
  - the product cannot be assembled as it will not screw completely
  - the product disassembles as screw may fall during use of the furniture
- Quality on mechanical processing so that the following risks do not occur:
  - the product should not cause scratches due to sharp edges
  - the product should not cause scratches due to the unpolished edges (unfaceted or unrounded)
- The importance of the finishing process and products used so that it does not present a risk of poisoning for children who put anything in their mouths.
- Appropriate packaging, so that the products do not get damaged and do not allow the detachment of small components during transport, that could be swallowed by children.

Marketing utility:

Children's furniture products that meet standards requirements and have gone through a certification process, have a certificate of conformity with European standards that allows the manufacturers to use CE marking in its products, giving consumers confidence that the products have quality, are reliable and safe. Potential liability costs due to potential injuries are also reduced. Note that CE marking for children's furniture is mandatory for products that are sold in the European market and therefore is a condition to access that market.

And, even if the manufacturer is considering exporting to other markets with different standards and regulations, it will be much easier to comply with those, once your products are already complying with European standards.

WHAT ARE THE ECONOMIC BENEFITS?

The main benefit of applying European standards for children furniture and obtaining CE marking is the possibility to sell them in the European market, with the consequent impact on direct sales, possibilities for exportation or to be qualified as a provider of furniture to major clients, such as retailers. Liability costs are also reduced, by demonstrating compliance with technical regulations.

Other benefits are gained with the use of standards.

Increasing the productivity in the design and purchasing processes:

In percentage terms for the analysed companies, it was estimated that the design time of a children's furniture product is reduced by at least 10%, with the reduction of the associated costs.

Design of different products becomes easier and quicker. The technical specifications in the standard reduce time for design, regarding the establishment of the technical characteristics and the inclusion of the necessary and mandatory parameters that must be respected.

By using the standards:

- the time required for market research regarding dimensional characteristics, mandatory requirements and regulations is reduced
- costs associated with hiring of a specialist consultant are avoided, and these are higher than the costs of standard
- precise information on materials and components is sent to the suppliers, making purchases easier and reducing the risk of erroneous purchase

Reducing time for procurement:

As an output of the design process and in result of the standards requirements, product specifications for raw materials and components are clearly specified. This enables for the:

- reduction in market research time for suppliers
- reduction in the number of suppliers to those who can provide certified components
- reception of materials to be simplified as they are usually accompanied with product specifications and test results, when relevant

An example: Purchasing screws for assembly. According to EN 1130, 8.11.1, direct tightening screws (e.g. self-taping screws) shall not be used for the removable elements of a cot/cradle.

By clearly indicating the type of screw indicated by the design service, the time for purchasing the hardware is reduced and the purchase of a screw that may prove inadequate in terms of standardized requirements is avoided.

Increasing productivity in the manufacturing process:

Design specifications are more concise and detailed, enabling a more rigorous manufacturing process that can be streamlined, reducing processing time and nonconformities.

An example:

Standards for children's furniture indicate admissible dimensions for gaps and openings. In the mechanical processing the distance between the vertical elements of the sides and the ends of a children cot (according EN 716-2) are clearly defined for the drilling operation of the upper/lower crossbars of the side frames and the ends of the cot. For drilling the crossbars, a single adjustment will be made for the positioning of the drillings head, at a single established distance, according to standard requirements. Additional adjustments will be avoided, for positioning the holes at different distances.

As an effect of this solution, it was observed in one of the analysed cases, that the drilling time operation in the manufacturing process was reduced by approximately 30-50%.

Increasing efficiency in marketing:

Children's furniture users are not usually furniture specialists and may not understand very well the notion of conformity with a standard. For them what is important is the effect of the standard requirements in terms of quality and safety of the product. The presentation of a CE marking in the product or the presentation of the Conformity Certificate (which has a test report or a document of conformity with a standard) gives them increased confidence in the product.

Conclusions:

European standards on children furniture are mandatory for CE marking meaning that they become part of technical regulations that imply not only its use, but certification by an accredited certification body, in order to be able to sell the product in the European market with the required CE marking.

This means that the manufacturer accepts a series of rules and restrictions to its products, dimensional,

constructive and health and safety related, demonstrates its conformity through regular testing of the product and auditing of its processes by independent accredited laboratory/ certification body.

There are costs to be considered related to investments and changes that may be required: new production equipment, new raw materials and components, agreed suppliers, training of personnel for an effective way of working in the production department, as well as testing and certification costs.

However, these rules, restrictions, and costs:

- increase the quality of the product and the ability of the company to provide them consistently
- promote a better organization of the work and superior control over production
- reduce overtime costs by reducing time for several business functions, improving processes and reducing waste
- enable the organization to sell in the European market, to compete with other organizations in their home market or even to become a supplier of a retailer company
- considering that standards are periodically revised and improved, its adoption contributes to the gradual and staged increase in the quality and reliability of the products and support manufacturers to introduce those changes in a timely and more efficient manner

The attitude of wooden furniture producers in Romania towards standards is to use those required by their customers or that become technical regulations in the markets, as is the case of CE marking. Romanian furniture producers are mainly SMEs.

Nevertheless, the ISO Survey on management system standards shows interesting numbers for Romania. Although certification to ISO standards is voluntary, the ISO Survey is an annual indicator that allows us to infer on the use of standards in different countries.

TABLE 6: VALID CERTIFICATES IN ROMANIA ACCORDING TO ISO SURVEY FOR 2022[89]

Standard	Title	Certificates	Sites
ISO 9001:2015	Quality management systems -Requirements	11,886	14,641
ISO 14001:2015	Environmental management systems -Requirements	6,174	7,631
ISO 45001:2018	Occupational health and safety management systems - Requirements with guidance for use	3,481	4,226

According to the ISO Survey, for ISO 9001 Romania is the 13th country with more certificates, globally.

There is not a specific code in ISO Survey for furniture or wooden furniture. European accreditation codes 6 - Manufacture of wood and wood-based products and EAC 23 Manufacture not where else classified (that includes furniture) are the sectors that may include production of furniture. EAC 6 is included here as many carpentries also produce furniture.

For these, information provided in ISO Survey is as follows:

TABLE 7: VALID CERTIFICATES IN ROMANIA EAC 6 AND EAC 23

	ISO 9001	ISO 14001	ISO 45001
EAC 6 Wood and wood-based products	79	45	27
EAC 23 Manufacturing not elsewhere classified	64	38	19

When consulting ISO Survey 2022 information for ISO 9001 and comparing with other countries, we can see that for wood and wood-based products, Romania occupies the seventh position out of 91 countries with certification in this sector. For manufacturing not elsewhere classified Romania occupies the 24th position out of 109 countries with certifications in this sector. In both sectors numbers of certificates are close to those for countries in the same region like Bulgaria, Czech Republic, Germany and Turkey, among others.

[89] ISO Survey 2022

National Standard SR 770: 2020, Furniture. Quality requirements:

The National Romania Standard **SR 770:2020, Wooden furniture. Quality requirements,** establishes the "technical quality requirements and performance requirements that shall be met by solid wood or wood-based materials furniture or in combination with other materials (metals, plastics, glass or others). The standard was revised 2020, for updating some European requirements.

The SR 770:2020 standard is an informative guidance with indications regarding national, European and international standards related to furniture. The standard relates the information of different standards to the different business functions, making them easier to use. The role of this standard is to create a standardized information base for all stages of furniture manufacturing and sales, namely design (materials and technical solutions), purchase, production process, delivery and information for customers, all to support the principle of quality conditions.

The information is grouped as follows:

» Standards related to general requirements for all types of furniture: raw materials and components, coatings and finishes, quality of the execution of the furniture and the information to the consumer about the product.

This information can be used in procurement and purchase, throughout the furniture's manufacturing process, as well as in the information provided to the customers.

» Standards related to furniture compliance with technical regulations from the point of view of safety and mechanical resistance. These standards present the testing methods for all types of furniture: storage furniture, dining and office furniture, chairs, beds, children's furniture; test parameters and compliance requirements.

This information is useful in the design stage of the furniture, but cannot be usually verified during the manufacturing process. These verifications are carried out in specialized laboratories.

Example: Chapter 4.6 of SR 770:2020 "Technical requirements specific to children's furniture" indicates, outside the general quality requirements (in chapter 4.1):

» standards and standard clauses that contain dimensional characteristics

» standards and standard clauses that contain the safety, resistance and durability requirements

» standards and standard clauses that contain information, recommendations, and warnings regarding children's furniture

This standard is very well received by the furniture industry in Romania, including children's and school furniture because it provides information on the requirements they need to comply with since the beginning to the end of the process, in an easier way than having to consult all the standards.

CASE STUDIES IN THE FIELD OF WOODEN WINDOWS IN PORTUGAL AND SPAIN

CASE STUDY CARPIN – Sociedade Técnica de Carpintarias, S.A./ Carpin-Casais Wood and Metal

CARPIN is a company of Grupo Casais, Engenharia e Construção (construction and engineering, one of the major construction companies in Portugal) established in 1999 with the aim to autonomize productive sections of industrial type.

CARPIN has a multidisciplinary team, able to respond to the most demanding projects in the field of carpentry, with a strong quality reputation, a wide range of products and rigor in meeting the deadlines and technical specifications of each project.

Their customers are construction companies for which they provide the full indoor and outdoor carpentry, which includes windows. They also have a smaller section of metalwork. They work by job order and are responsible for production and installation.

CARPIN values are rigor, humanism, seriousness, and innovation. CARPIN has an accredited certified management system for quality, according to ISO 9001, CE marking for a large type of wooden windows (among others), FSC® and PEFC chain of custody certification.

CARPIN operates in the Portuguese market as well at international level for markets as Gibraltar, Angola, France, United Kingdom, Belgium, Argelia, and Mozambique.

CARPIN was founded in 1999. In 2004 they implemented a quality management system that was certified against ISO 9001:2000 in 2005. In 2010 they obtained their first CE marking for windows and doors and, more recently, in April 2023, FSC® and PEFC Chain of custody certification.

CARPIN was selected for being a major player in the wooden carpentry in Portugal and a user of standards with a successful history of growing business at national and international levels.

Market trends: Portuguese market for windows is dominated by aluminium and PVC windows. Wooden windows are a niche for reconstruction on historical sites and architecturally designed buildings of higher quality, such as country luxury resorts. Nevertheless, CARPIN has a growing demand for wooden windows and was able to develop its market. There is a trend, internationally and at the national level, to increase the use of wood in construction, due to the better thermal insulation as well as its role in storing carbon, thus being a construction material that has a positive role in carbon neutrality, for which traceability of wood to a responsibly managed forest is an important condition.

Company name: CARPIN – Sociedade Técnica de Carpintarias, S.A

Address:

Rua dos Marcos, 30 Edifício 3

Mire de Tibães

Apartado 2702

4700-565 Braga

Portugal

Website: www.carpin.pt/en

Country: Portugal

Industry: Construction, including carpentry for outdoor and indoor

No. of employees: 90

Revenues/profits: $6.5X10^6$ EUR (2022)

Main products/services: outdoor carpentry (windows, window blinds, shutters, doors, pergolas), indoor carpentry (stairs, wooden panels, wardrobes, doors and fire-resistant doors, etc.), furniture for hotels, schools and hospitals. CARPIN also has a metal work line of production for external metalwork like handrails, gates and coating, and internal metalworks like tables, frames and stalls.

Main use of standards:

CE marking is a market regulatory condition for windows. Standards are extensively used in design and development, production, procurement function for selection of suppliers and specification of components and materials.

ISO 9001 is used in all functions of the organization and is the framework of all management.

Most important standards used:

- Standards required for CE marking for windows. (since 2010)
- ISO 9001:2015- Quality management systems. Requirements (certified since 2004)
- FSC-STD-40 004 V3-1 Chain of custody certification (since 2023)
- PEFC ST 2002:2020 Chain of custody of forest and tree-based products. Requirements (since 2023)

Economic benefits generated by standards:

As standards have long been implemented in CARPIN, comparison with non-application of standards was not possible to be quantified. Nevertheless, the following benefits bring either reduction of costs or increase in sales:

ISO 9001 is a condition to work with several constructors and an access to international markets.

FSC and PEFC are valued by sustainable construction schemes like BREEAM and LEEDS, used by many of their clients.

CE marking is a regulatory condition for the European market, without which they would not be able to sell windows or doors.

The quality of the product and the timely delivery enables CARPIN to differentiate the price of their products (within the limited constraints of a competitive market).

CE marking reduces design and budgeting times to set the offer to the client.

Both process approach of ISO 9001 and the defined requirements for windows set by CE marking improve process control, reduce non-conforming products and associated waste, time and energy costs.

Key qualitative benefits:

Quality and timely delivery are key reputational values of CARPIN, for which both CE marking and the consistent application of ISO 9001 quality management system have been instrumental in building and maintaining CARPIN reputation over time.

What were the major benefits for CARPIN of using standards?

Using ISO 9001 allowed CARPIN to:

- Improve in a more effective way. When something wrong is identified (a non-conformity or a complaint) the team gathers to make an extensive analysis of what might be the cause and how to prevent recurrence. Only then they define and implement corrective actions. They learn with failures and improve. This is a very powerful tool worth mentioning.
- Flexibility and adaptability to the changes in the organization and its context are easier to implement with the quality management system, which has been a constant over time and now accelerated by digitalization initiatives.
- Better internal and external communication.
- Better sharing of knowledge and knowledge management within the organization.
- Process control according to ISO 9001 allows better information of production steps, verifications and validations, keeping records of all stages.
- Availability of records of past projects has proved to be very useful.

Using CE marking allowed CARPIN to:

- Reduce number of providers to those that can provide certified components for the windows, establishing partnerships.
- Reduce time for reception of products as they come with the certificate.
- Better communication flows internally and externally.
- Reduce liability risks for safety reasons.
- Reduce time for design of windows and budgeting of projects.
- Improve production control.

Using FSC and PEFC chain of custody certification allowed CARPIN to:

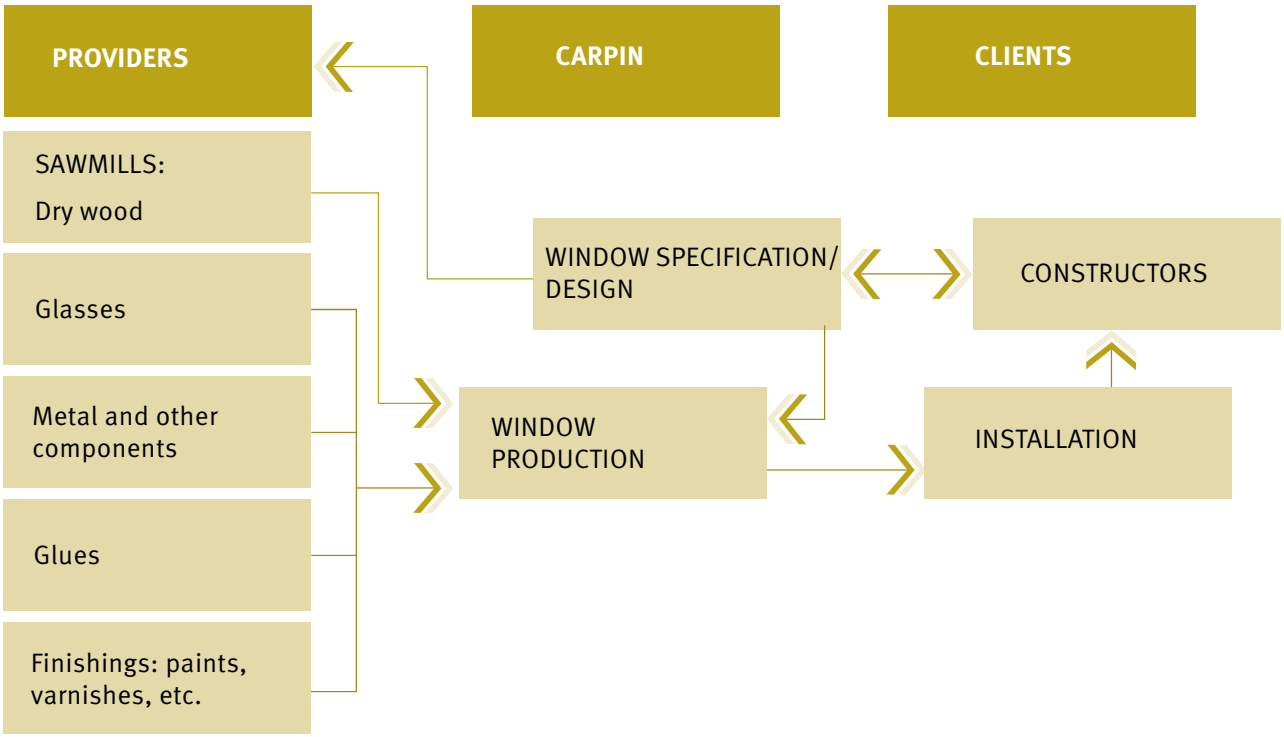
- Access specific markets and clients.
- Improve the sustainability of their wood supplies by increasing the supply of wood from well managed forests. This certification is recent, and sales are still limited, but there are good expectations for future developments.

How did standards lead to these benefits?

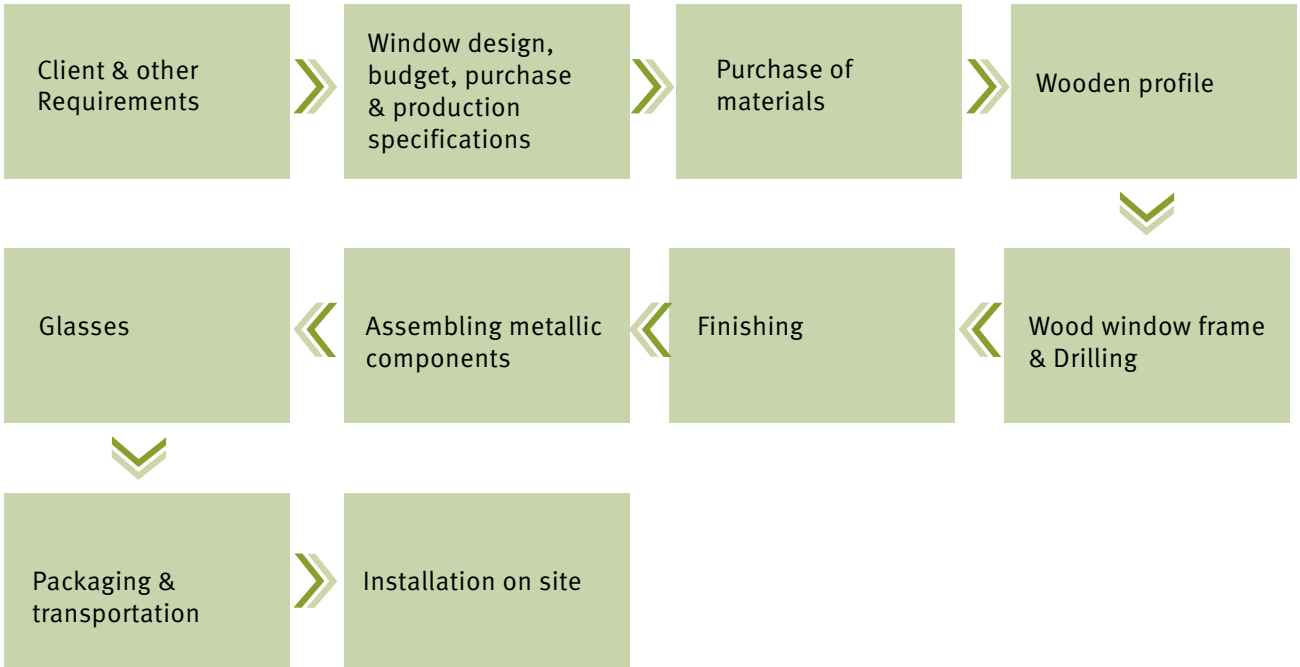
- Standards have helped CARPIN to focus on the customer and statutory and legal requirements of their products and demonstrate conformity of its products to its customers and other interested parties.
- The implementation of ISO 9001 requirements led to an effective management system for all the organization that is constantly adapting to changing conditions and new challenges, and serves as the basis to all management.

CARPIN VALUE CHAIN

Industry value chain for CARPIN can be described the following way



THE WINDOW PROCESS IN CARPIN



Note: CARPIN ensures most of the installation on the construction site, although some customers may do the installation by themselves.

CASE STUDY CARPINTERÍA ESTELAR, S.L.

Carpintería Estelar is a familiar business founded in 2005 by Manuel Mosteiro, a very experienced professional in carpentry and production management, and his sons. This carpentry provides all types of carpentry for the interior and exterior, which includes wooden windows. Their main clients are construction companies for whom the ability to have a sole provider for carpentry is critical. In less extent they can accept private clients. They work by job order for specified projects, and they are responsible for manufacturing and installation. They are located in "A Estrada, Galicia", a hub for furniture and carpentry production, close to Pontevedra, and they only sell for the Spanish market.

The organization uses those standards that are a condition to operate in its market, such as CE marking. PEFC and FSC are a condition or access specific clients and provide them a competitive edge in relation to other carpentries.

Market trends:

In Spain, demand for wooden windows is made specially for historical protected areas and reconstruction of buildings. In Pontevedra, where Carpintería Estelar is located, and in Galicia in general, there is a tradition of large wooden windows. The government has a financing program for wooden windows.

Wooden windows are still a market niche, but there is a trend in Spain for construction in wood. PEFC and FSC chain of custody certification are required as a condition to apply to tenders by institutional clients, such as the local government and universities.

Organization: Carpintería Estelar, S.L.

Address: Calle Bolos S/N, 36680, A Estrada, Pontevedra, Spain

Website: https://estelarsl.com

Country: Spain

Industry: Wooden indoor and outdoor carpentry

Number of employees: 40

Revenue (2022): approximately $4x10^6$ EUR, of which 20 % from windows

Main products: They provide all indoor and outdoor wooden carpentry for buildings and particular houses.

Main use of standards:

Window CE marking is used in product design, product specification of materials and components for suppliers, and production control.

FSC and PEFC chain of custody is applied from the selection of wood supplier, reception, production and sales, ensuring traceability of wood-based materials to responsible forest management.

Main standards used:

» European standards for windows (CE marking).

» FSC-STD-40 004 V3-1 Chain of custody certification (since 2016)

» PEFC ST 2002:2020 Chain of custody of forest and tree-based products. Requirements

Economic benefits of using standards:

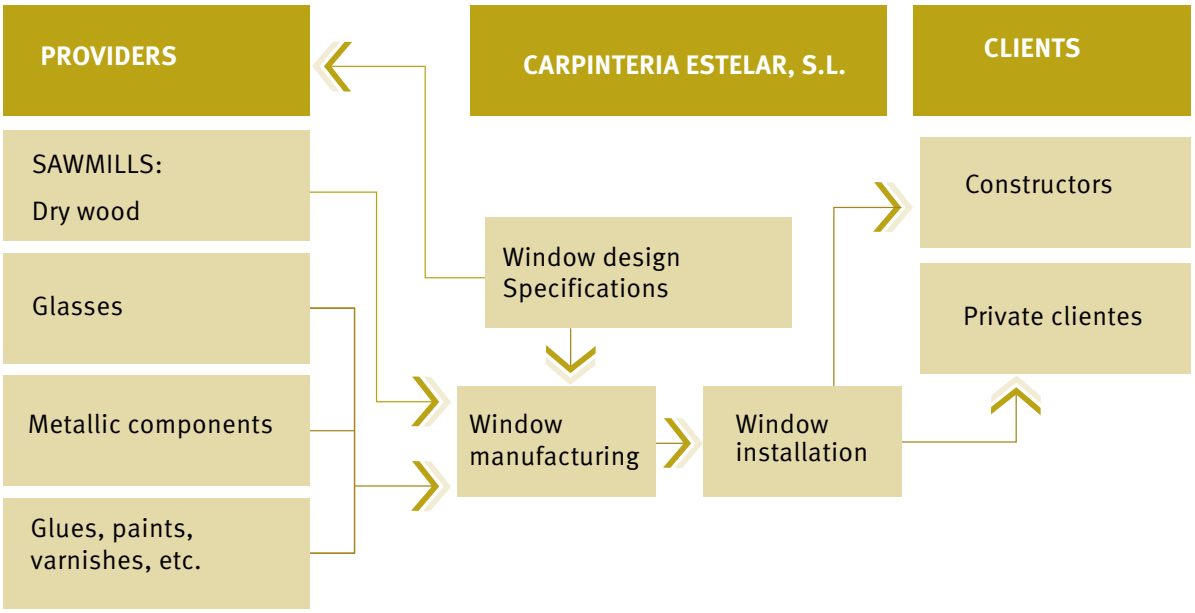
Sales of windows is approximately 20% of all sales, but it cannot be seen in isolation, once the main competitive advantage of Carpintería Estelar is the ability to be the sole provider of carpentry in a project, which would not be possible without CE marking. Therefore, use of standards is a business condition.

Furthermore, CE marking enabled Carpintería Estelar to differentiate from micro companies that, under Article 37 of Construction Products Regulation can use simplified procedures for CE marking.

PEFC and FSC certification enabled access to public tenders providing an edge over competitors and access to usually large projects.

CE marking for windows requires certified or very well specified components, which has reduced the number of suppliers and made reception easier and quicker. Time of procurement and reception has been reduced as well as nonconformities associated with products and the subsequent wastes of material, time and energy.

INDUSTRY VALUE CHAIN OF CARPINTERÍA ESTELAR, SL



WINDOWS MANUFACTURING PROCESS AT CARPINTERÍA ESTELAR, S.L.

Carpintería Estelar Businness functions

MANAGEMENT			
SALES			
DESIGN & BUDGET			
PROCUREMENT			
INBOUND LOGISTICS – RECEPTION & STORAGE	PRODUCTION	PACKAGING &TRANSPORTATION	INSTALLATION ON SITE

LESSONS LEARNED ON THE USE OF ISO METHODOLOGY FOR EVALUATING ECONOMIC BENEFITS OF STANDARDS IN THE CHILDREN'S FURNITURE AND WOODEN WINDOW SECTOR

The ISO methodology 2.0 for assessing the economic benefits of standards is a well-documented methodology to calculate economic benefits in 4 stages: analysis of the value chain, identify the impact of standards, determine value drivers and define key operational indicators, and collect information to measure impact. The methodology is supported by a toolbox that can be downloaded from the ISO website (www.iso.org) and that can help organizations implement it.

It can provide powerful information on the benefits of standards to individual organizations and is relatively simple to implement. Information provided by the tool is relevant for management decisions and can help organizations to select further improvement initiatives.

Nevertheless, the application for children and school furniture in Romania and wooden windows in Portugal and Spain in SMEs, encountered some obstacles and difficulties. By sharing our lessons learned we hope that organizations can benefit from them.

It was found that:

1. Organizations in these sectors are mainly SMEs with time and resource constraints, as largely explained in the main body of this publication.

Lesson learned: All of us, individual, SMEs and larger enterprises have time and resource constraints. Organizations need to determine its priorities and allocate time and resources to achieve their intended outcomes. If, for the decision to use a standard the potential economic benefit is critical, time and resources should be allocated to determine the potential cost savings or gains of using that particular standard. Standards Impact Map, in Annex 2 can help organizations to identify the focus areas where it might be relevant to determine existing costs and potential gains.

2. Organizations willing to share information were able to provide accurate information on their value chain and their processes. They easily identified the economic and qualitative impacts of standards, but they were not able to provide information on key operational indicators that allowed to quantify the economic impact.

Lesson learned: This indicates that, for a successful application of the methodology by organizations, it is relevant that performance indicators and measures are designed and implemented at early stages of the implementation of standards, enabling for quantifying cost savings and gains.

3. The only organization in the condition to provide information on operational indicators was a company applying ISO 9001 with a set of quality performance indicators. As they had a long history for certification, a comparison to a scenario of no use of standards was no longer possible, although they were quite able to identify the main gains and cost savings. Even with the key operational indicators available, quantification of cost savings due to reduced waste, energy and time was not possible in the timeframe set for the project, as no specific measures were in place at operational level.

Lesson learned: Use of ISO 9001 process approach enables organization to have relevant performance indicators, but these may not be enough for the quantification of economic benefits. Organizations may need to relate performance indicators to business account information. Example: quantity of products rejected. To estimate the cost organizations need not only to consider the cost of materials wasted as they need to estimate the cost of time and energy spent in processing the product plus the eventual cost of disposing of the wasted non-conforming product.

CONCLUSIONS

The use of a standard is a strategic decision for an organization and corresponds to an investment either in time, resources or money. If the quantification of economic benefits is relevant for that decision, time and resources should be allocated to define the measures needed to determine those benefits. Nevertheless, existing literature on economic benefits of standards already indicates several gains on using standards

ISO made available a methodology for quantifying the economic benefits of the use of standards. The application of this methodology requires the organization to establish operational indicators and collect information to measure performance.

Considering the new challenges related to climate change, circularity and carbon neutrality, quantification of benefits of the use of standards related to savings associated with reduction of waste, time and energy as well as efficiency gains in several business functions can become increasingly important for organizations, for which this tool can be of great help.

Organizations should consider its application from the moment they consider using a standard.

ANNEX 2

STANDARDS IMPACT MAP - BUSINESS FUNCTION PERSPECTIVE

ISO Methodology toolbox 07 (version 2013-09)			
Standards Impact Map (Business Function-Perspective)			
Functions	**Activities**	**Impacts**	**Description**
Inbound logistics	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better training of personnel	Inbound Logistics staff can be trained better because relevant specifications for both products and services are standardized.
		More efficient logistics	Inbound Logistics can be conducted more efficiently due to the reduced number of types of supplies.
	In-house logistics	More efficient receiving of supplies	Standardized documentation, packaging, labels or tags of supplies makes receiving more efficient.
	Warehousing	Reduced warehousing needs	Due to the high availability of standardized products, fewer supplies need to be stored in the warehouse.
Production / Operations	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better training of personnel	Production/Operations staff can be trained better because relevant specifications are standardized, for both products and services.
		More efficient processing	Due to the reduced number of types of non-standardized products, Production/Operations can become more efficient.
	Processing	More efficient assembly	Assembly processes are more efficient due to the modular product architecture.
		Better quality of equipment and supplies	Higher quality of equipment and supplies based on standards reduces the failure rate and related correction costs.
	Quality assurance	Better quality management	Quality management based on standards can be implemented more effectively.
	HSE (health, safety and environment)	Reduced disadvantages from regulations	Influence in standard-setting process helps to reduce disadvantages from regulations.
		Better health/safety/ environmental compliance	HSE management based on standards can be implemented more effectively.
Outbound logistics	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better training of personnel	Outbound logistics staff can be trained better because relevant specifications for both products and services are standardized.
		More efficient logistics	Reducing the number of product types means that Outbound Logistics can be conducted more efficiently.
	Packing/shipping	More efficient packing and shipping	Standardized documentation, packaging and labels make packing and shipping goods more efficient.
Marketing & Sales	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better training of personnel	Marketing & Sales staff can be trained better because relevant specifications for both products and services are standardized.
		More efficient marketing activities	Marketing & Sales activities can be conducted more efficiently if there are fewer product types.
	Market analysis, research	Better competitor information	Since competitor's products have standardized specifications, market research can be conducted more efficiently.
	Marketing activities, client development	Better customer information	Communicating product and service specifications and requirements to potential customers is more effective when referring to standards.

Marketing & Sales	Contracting	More efficient contractual agreements	Defined specifications of the company's products and customer requirements makes concluding contractual agreements easier.
	Sales	Higher sales	Sales are higher due to customer confidence in standardized products and services.
		Increased competition	The market share is lower due to more competitors on a market for standardized products and services.
		Reduced time-to-market	For products and services based on standardized components, the time-to-market and market share are higher due to earlier access to technical information.
		Benefits from participating in standard-setting process	A larger market share can be achieved through the promotion of the own technology to become standard and the acquisition of customers.
Service	Customer care and technical support	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better customer communication	You can communicate information about products and services to customers more effectively by using standardized specifications.
		Better training of personnel	You can train Service staff better if you have standardized specifications of products and services.
		More efficient customer care	Fewer types of non-standardized products make Service activities more efficient.
		Reduced consultation needs	Improved quality of standardized products means less consultation required.
Management & Administration	General management, financing, accounting, controlling	More efficient transfer of internal information	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		More efficient training of personnel	You can train staff better if you have standardized specifications of products and services.
		More efficient management	Management & Administration can be conducted more efficiently due to the reduced number of types of products and services.
		Benefits from potential strategic partnerships as a result from relationship build-up during standardization process	Benefits from potential strategic partnerships arise as a result from relationship build-up during standard-setting process.
		Comparison with best practices of competitors	The awareness of activities of competitors who use the same standardized technologies can induce internal improvements.
	Legal	Reduced liability costs	Liability costs can be reduced if conformity with standards is demonstrated.
	Facility management	More efficient transfer of internal information	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		More efficient training of personnel	You can train Facility Management staff better if you have standardized specifications of products and services.
		More efficient management of facilities	Facility Management activities can be conducted more efficiently if there are fewer types of products and services.
	Risk	Better identification of future trends and influence on standards	The access to information and the influence in the standard-setting process helps to prevent negative developments.
		More secure future sales and supplies	Operational risk is reduced if products and services are based on standards, because standardized products can be sold for a longer period of time and supplies are available for longer.

Management & Administration	IT	More efficient transfer of internal, operational information	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		More efficient training of personnel	You can train IT staff better if you have standardized specifications of products and services.
		More efficient IT activities	Fewer types of non-standardized products make IT activities more efficient.
	HR	More efficient training of personnel	You can train staff better if you have standardized specifications of products and services.
		More available trained personnel	There is more potential personnel available on a market for standardized technology.
		Reduced HR requirements	HR requirements are reduced with a reduced number of types of products and services, production complexity and types of employees in production.
Engineering / Construction	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Clearer product specifications	Standardized specifications of the suppliers' products and customer requirements make it easier to collect relevant information.
		Better training of personnel	You can train R&D staff better if you have standardized specifications of products and services.
		More efficient Engineering	Fewer types of non-standardized products make R&D activities more efficient.
		Additional personnel costs	Additional personnel costs arise from participating in the standard-setting process.
	Knowledge management	More efficient internal standardization	It is cheaper to implement standards within a company by using open consensus-based standards instead of developing internal standards.
	Design	Reduced project development cost	Project development costs are reduced because standards provide technical information free of charge.
		Availability of replacement components	Critical replacement components are more readily available on the market for standardized products (which reduces costs).
		Additional costs from adopting standards	There are additional costs due to the product and process requirements specified in standards.
	Construction	More efficient assembly	Assembly processes are more efficient due to the modular product architecture.
		Better quality of equipment and supplies	Higher quality of equipment and supplies based on standards reduces the failure rate and related correction costs.
		Better quality management	Quality management based on standards can be implemented more effectively.
		Better health/safety/ environmental compliance	HSE management based on standards can be implemented more effectively.

R&D	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Clearer product specifications	Standardized specifications of the suppliers' products and customer requirements make it easier to collect relevant information.
		Better training of personnel	You can train R&D staff better if you have standardized specifications of products and services.
		More efficient R&D	Fewer types of non-standardized products make R&D activities more efficient.
		Additional personnel costs	Additional personnel costs arise from participating in the standard-setting process.
	Knowledge management	More efficient internal standardization	It is cheaper to implement standards within a company by using open consensus-based standards instead of developing internal standards.
	Research	Reduced research needs	Research needs are reduced because standards provide technical information free of charge.
		Reduced research needs from participating in standard-setting process	Research needs are reduced because additional information is obtained during standard-setting process.
	Product development	Reduced product development costs	Product development costs are reduced because standard technical information is available for free.
		Reduced product development costs from participating in standard-setting process	Product development costs are reduced because additional information is obtained during standard-setting process.
		Availability of replacement components	Critical replacement components are more readily available on the market for standardized products (which reduces costs).
		Additional costs from adopting standards	There are additional costs due to the product and process requirements specified in standards.
Procurement	All activities	Better internal information transfer	Using standardized documents and specifications makes passing on internal information about products and services more efficient.
		Better training of personnel	You can train Procurement staff better if you have standardized specifications of products and services.
		More efficient procurement activities	Fewer types of non-standardized products make Procurement activities more efficient.
	Screening and selection of suppliers	More efficient screening of specifications of standardized products	Due to the standardized specifications of the suppliers' products and the internal requirements, it is easier to collect relevant information.
	Negotiating and contracting	More efficient contractual agreements	Defined specifications of suppliers' products make concluding agreements easier.
		More competition	More competition in the market drives down the costs of supplies.
		Larger quantities	Costs of supplies are lower because larger quantities of the same type can be purchased for standardized components.

ANNEX 3

ISO AND CEN COMMITTEES RELATED TO WOOD SECTOR

A3: TABLE 1 ISO TECHNICAL COMMITTEES RELATED TO THE WOOD INDUSTRY

ISO	Secretariat	Title	Standards published	Standards in development	Ukraine	Scope
TC35	**NEN**	**Paint and varnishes**	**294**	**56**	**P member**	Standardization in the field of paints, varnishes and related products, including raw materials.
SC 9	Holland	General test methods for paints and varnishes	184	32		
TC 89	**DIN**	**Wood-based panels**	**24**	**1**	**P member**	Standardization in the field of panels such as fibreboards, particle boards and plywood based on lignocellulosic materials (derived from wood or other materials) including terminology, classification, dimensions, test methods and quality requirements.
SC 1	Germany	Fibre boards	3	0		
SC2		Particle boards	2	0		
SC3		Plywood	19	1		
WG5		Test methods				
TC 136	**UNI**	**Furniture**	**28**	**6**	**O member**	Standardization in the field of furniture including: terms and definitions; performance, safety and dimensional requirements; requirements for specific components (such as hardware); test methods. By furniture is meant free-standing or built-in units that are used for storing, lying, sitting, working and eating. Excluded: such units with corresponding functions that are dealt with by other ISO technical committees.
AG1	Italy	Advisory group on cooperation with IEC/TC 61				
WG1		Chairs - Methods for Test				
WG2		Tables - Methods for Test				
WG3		Storage units - Test methods for determination of strength and durability				
WG4		Beds - Methods of test				
WG6		Children's and nursery furniture				
WG7		Mattresses - Methods of test				
WG8		Furniture surfaces - Methods of test				
WG9		Hardware for furniture - Methods of test				

TC162	**JISC**	**Doors, windows and curtain walling**	**21**	**1**	**O member**	Standardization in the field of doors, doorsets, windows, and curtain wall including hardware, manufactured from any suitable material covering the specific performance requirements, terminology, manufacturing sizes and dimensions, and methods of test.
WG 3	Japan	Terminology				
WG 4		Windows and doors				
WG 5		Curtain walls				
TC165	**SCC**	**Timber structures**	**51**	**6**	**O member**	Standardization concerning structural applications of timber, wood-based panels, other wood-based products, and related lignocellulosic fibrous materials including: requirements for design; structural properties, performance, and design values of materials, products, components, and assemblies; and test methods and requirements to establish related structural, mechanical and physical properties and performance.
WG 2	Canada	Structural glued wood products				
WG 7		Connections and assemblies				
WG 10		Characteristic values and design specifications				
WG 11		Solid and mechanically laminated timber products				
WG 12		Structural use of bamboo				
TC 218	**SEUkrNDNC**	**Timber**	**54**	**2**	**Secretariat**	Standardization of round, sawn and processed timber, and timber materials in and for use in all applications, including terminology, specifications and test methods. Excluded: those applications of timber as covered by ISO/TC 165 “Timber structures”.
WG1	Ukraine	Terminology				
WG2		Round timber				
WG3		Sawn and processed timber				
WG4		Test methods				
WG5		Parquet and wood flooring				
WG6		Wooden products				
WG7		Wood residue and post-consumer wood				

TC 287	**ABNT**	**Sustainable processes for wood and wood-based products**	**1**	**5**		Standardization in the field of the woof and wood-based industries, including sustainability aspects and renewability, chain of custody, timber tracking and timber measurement, across the entire value chain from biomass production to the finished wood and wood-based products, and including the use phase and end of life. Excluded: those applications covered by ISO/TC 6 “Paper board and pulps”; ISO/TC 89 “Wood-based panels”; ISO/TC 165 “Timber structures”; ISO/TC 218 “Timber”; and ISO/TC 207 “Environmental management”.
CAG	Brazil	Chair’s Advisory Group				
WG1		Chain of Custody of wood and wood-based products				
WG2		Measurement methods and tracking				
WG3		Sustainability aspects				

The following table presents the ISO management systems technical committees for which there is accredited certificates issued in Ukraine and have potential application in the wood industries sector.

A3: TABLE 2 ISO MANAGEMENT SYSTEMS TECHNICAL COMMITTEES

ISO	Secretariat	Title	Standards published	Standards in development	Ukraine	Scope
TC 176	**SCC**	**Quality management and quality assurance**	**23**	**3**	**P member**	Standardization in the field of quality management (generic quality management systems and supporting technologies), as well as quality management standardization in specific sectors at the request of the affected sector and the ISO Technical Management Board. Note: ISO/TC 176 is also entrusted with the advisory function to all ISO and IEC technical committees to ensure the integrity of the generic quality system standards and the effective implementation of the ISO/IEC sector policy on quality management system deliverables.
SC 1	Canada	Concepts and terminology				
SC 2		Quality systems				
SC 3		Supporting technologies				
CSAG		Chair's strategic advisory group				
STTF		Spanish translation task force				
TF		ISO 9001 Auditing practices group - APG				
TG 1		Communications and product support				
TG 2		ISO 9001 Brand Integrity				
TG 4		Emerging trends in quality				
WG 6		Application of ISO 9001 in policing organization				

TC 207	SCC	Environmental management	67	19	P member	Standardization in the field of environmental management to address environmental and climate impacts, including related social and economic aspects, in support of sustainable development. Excluded: test methods of pollutants, setting limit values and levels of environmental performance and standardization of products. Note 1: TC 207 is focused on environmental management systems, auditing, verification/ validation and related investigations, environmental labelling, environmental performance evaluation, life cycle assessment, climate change and its mitigation and adaptation, ecodesign, material efficiency, environmental economics and environmental and climate finance. Note 2: Where appropriate, the ISO/TC 207 works in cooperation with existing committees on subjects that may support environmental management.
SC1	Canada	Environmental management systems				
SC2		Environmental auditing and related environmental investigations				
SC3		Environmental labelling				
SC4		Environmental performance evaluation				
SC5		Life cycle assessment				
SC7		Greenhouse gas and climate change management and related activities				
DCCG		Developing Countries Coordination Group				
SLG		Strategic Leadership Group				
STTF		Spanish translation task force				
TCG		Terminology Coordination Group				
TF 1		Communications				
TG 1		Sustainable Finance Coordination				
TG 2		Circular economy coordination				

TC 283	**BSI**	**Occupational health and safety management**	**4**	**2**	**P member**	Standardization in the field of occupational health and safety management to enable an organization to control its OH&S risk and improve its OH&S performance.
CAG 1	United Kingdom	Chair's advisory group				
DCCG		Developing countries co-ordination group				
STTF 1		Spanish translation task force				
TG1		Communications				
TG2		Terminology and clarifications				
TG4		Emerging themes on OH&S management				
TG5		Auditing practices group				
TG6		Preliminary work for future revision of 45001				
TG7		Small organizations				
TG8		OHS risks arising from climate change				
WG4		Performance evaluation				
WG5		Infectious disease				
TC 301	**ANSI**	**Energy management and energy savings**	**23**	**3**		Standardization in the field of energy management and energy savings.
CAG	United States	Chair's advisory group				
WG 1		Energy management				
WG 16		Zero net energy				
WG 17		Energy audits				
AHG 10		Energy management system prioritizing GHG emission reduction				
AHG 11		Relationship between energy performance and energy-related GHG emissions				
AHG 12		Development of ISO 14019				
AHG 13		Integrated District Energy System (IDES)				
TG 2		Communication task group				
TG 3		Terminology task group				
TG 5		Maintenance of requirements documents				
STTF 1		Spanish translation task force				

ANNEX 3: TABLE 3 CEN TECHNICAL COMMITTEES RELATED TO THE WOOD AND WINDOW SECTOR

CEN	Secretariat	Title	Standards published	Standards in development	Scope
TC 33	**AFNOR**	**Doors, windows, shutters, building hardware and curtain walling**	**158**	**27**	Definition of functions of doors, windows, shutters, building hardware, and curtain walls and performance levels and classification associated with these functions and characterize the usage including the ability to meet the essential requirements (of the Construction Products Directive), tests, requirements and, if necessary, the essential dimensions, terminology, symbols, packaging, marking and labelling.
WG 1	France	Windows and doors			
WG 3		Blinds and shutters			
WG 4		Building hardware			
WG 5		Industrial, commercial and garage doors and gates			
WG 6		Curtain walling			
WG 7		Burglary resistance			
WG 9		Powered Pedestrian Doors (PPD)			
TC 38	**SIS**	**Durability of wood and wood-based products**	**56**	**22**	Standardization of natural or conferred durability of wood or wood-based products against biological agents and their characteristics associated with exposure.
WG 21	Sweden	Durability -Classification (use classes-natural durability)			
WG 22		Performance - Assessment and specifications (treated wood -wood preservatives)			
WG 23		Fungal testing (basidiomycetes-microfungi)			
WG 24		Insect testing -(beetles - termites)			
WG 25		External factors and preconditioning			
WG 26		Physical/chemical facts (analytical methods)			
WG 27		Exposure aspects			
WG 28		Performance classification			

TC 124	AFNOR	Timber structures	42	12	Preparation of standards for the structural use of timber, covering: test methods for the determination of strength and stiffness for solid timber, glued laminated timber, mechanical joints, wood-based panel products, timber structures and their components; solid timber: preferred sizes, strength grading and strength classes system (including glued laminated timber), evaluation of mechanical properties; glued laminated timber: essential requirements, production requirements and control, structural full size finger joints; mechanical fasteners.
WG 1		Test methods			
WG 2		Solid timber			
WG 3		Glued laminated timber			
WG 4		Connectors			
WG 5		Prefabricated wall, floor and roof elements			
WG 6		Wood poles			
WG 7	France	Preparation of the revision of harmonized standards			
TC129	**NBN**	**Glass in Building**	**85**	**14**	Standardization in the field of glass used in building including: » definitions of all types of glass products, basic and processed; » definition of characteristics; » test methods for measurement of characteristics; » calculation methods for characteristics; » requirements, e.g. durability; » classifications, e.g. anti-bandit glazing; and » glazing methods.
WG1		Basic glass products			
WG2		Toughened, heat strengthened and enamelled glass			
WG3		Laminated glass			
WG4		Insulating glass units			
WG5		Coated glass for mirrors			
WG6		Coated glass for windows			
WG8		Mechanical strength			
WG9		Light and energy transmission, thermal insulation			
WG10		Sound insulating glazed assemblies			
WG11	Belgium	Fire resistant glazed assemblies			
WG12		Glass in building - Assembly rules			
WG14		Security			
WG16		Bonded glazing			
WG17		Management			
WG18		Filmed glass			
WG19		Acid etched glass and sand blasted glass			
WG20		Health, Hygiene, Environment and Sustainability			
WG21		Digital communication of glass in building characteristics			

TC139	**DIN**	**Paints and varnishes**	**340**	**55**	Standardization in the field of paints, varnishes and related products. Establishment of methods of test and requirements for coating materials and coatings. Definition of terms.
...	Germany	Several WG, including specifications and test methods			
WG 2		Coating systems for wood	16		
TC 142	**UNI**	**Woodworking machines - Safety**	**34**	**10**	Standardization of design and manufacture in the field of safety of machines and tools for the processing of wood and similar materials, destined for processing by the machines and tools, taking account of the European Machinery Directive, and of the purpose for which the machine is intended for use. Similar materials are wood materials (chip board, fibre board, plywood, etc.) cork, cane, shell, amber, ivory, horn and wood substitutes. Conditioning means, e.g. drying, steaming, impregnation.
WG 10	Italy	Chip and dust extraction systems			
WG 13		Common requirements and safety of integrated fed machines			
WG 14		Safety of manually fed machines			
WG 8		Tooling			
TC 175	**AFNOR**	**Round and sawn timber**	**64**	**12**	Standardization of round and sawn timber in all uses, including timber prefabricated products and excluding structural aspects.
WG 1	France	General matters, definitions, measurement methods			
WG 2		Sawn timber			
WG 4		Round timber			
WG 5		Environmental topics			
WG 32		Specific user requirements - Timber in joinery			
WG 33		Specific user requirements - Timber in flooring			
WG 34		Specific user requirements -Timber in packaging and pallets, and other timber products			
WG 37		Specific user requirements - Timber in stairs			
WG 38		Specific user requirements - Timber in cladding and panelling			
WG 39		Specific user requirements - Fire retardant treated wood			

TC 207	UNI	Furniture	85	24	Standardization in the field of all furniture (including mattresses, mechanical aspects of the electrically operated furniture, excluding transport furniture), considering, where appropriate: » terminology; » safety and health; » product environmental sustainability and sector-specific applications of circular economy principles; » test methods and requirements for end products, parts, components, surfaces, surface finishes and furniture hardware; » dimensions. Standards for raw materials are excluded.
WG 1	Italy	Requirements for domestic furniture			
WG 2		Requirements for children's and nursery furniture	6		
WG 3		Office furniture			
WG 4		Requirements for outdoor furniture			
WG 5		Requirements for non-domestic furniture			
WG 6		Requirements for educational furniture	3		
WG 7		Requirements and test methods for furniture surfaces			
WG 8		Requirements and test methods for hardware for furniture			
WG 9		Test methods			
WG 10		Requirements and tools for furniture circularity			

ANNEX 4
GQSP WEBINARS

The GQSP Ukraine programme has organized a series of online webinars providing detailed information on the standards and regulations for the EU market for furniture and windows.

The webinars were provided by the Bern University of Applied Sciences and Forza.

WORKSHOP 1

19 May 2021, **European Product Safety Directive**

Video recording of the Workshop:

Ukrainian: https://www.youtube.com/watch?v=OSHbG9WVPk4&ab_channel=NGOFORZA

English: https://www.youtube.com/watch?v=5kXUAkFoRKc

WORKSHOP 2

22 June 2021, **European Construction Products Regulation (CPR) and ДСТУЕН 14351-1 Windows and doors - Product standard**

Video recording of the Workshop:

Ukrainian: https://www.youtube.com/watch?v=agFyplIoeX8

English: https://www.youtube.com/watch?v=kBxw5JeTuew

WORKSHOP 3

21 October 2021, **Wooden Windows (Standards and certificates, legal issues, client requirements and product fitness for purpose)**

Ukrainian: https://youtu.be/9pxk5Gh4FhY

English: https://youtu.be/4gSazIPOJos

WORKSHOP 4

4 October 2021, **Furniture**

Ukrainian: https://www.youtube.com/watch?v=LzzytYwUNuU

English: https://www.youtube.com/watch?v=-3L1C6SvbxE

The repository content is available for viewing and downloading.

ANNEX 5
PROBLEMS WITH APPLYING EU STANDARDS

CASE STUDIES FROM THE FURNITURE MAKER'S WORKSHOP

Standards embody industry best practice, including methods for testing products. European standards support the application of the European product safety Directive (GPSD, Directive 2001/95/EC) ensuring consumer safety. This has the objective of ensuring that products placed on the European market are safe. It is the responsibility of manufacturers and importers to ensure that testing is carried out in accordance with relevant standards.

According the to the GPSD, producers are obliged to place only safe products on the market. A product shall be presumed safe as far as it conforms to applicable harmonized European standards, or voluntary national standards transposing the European standard.

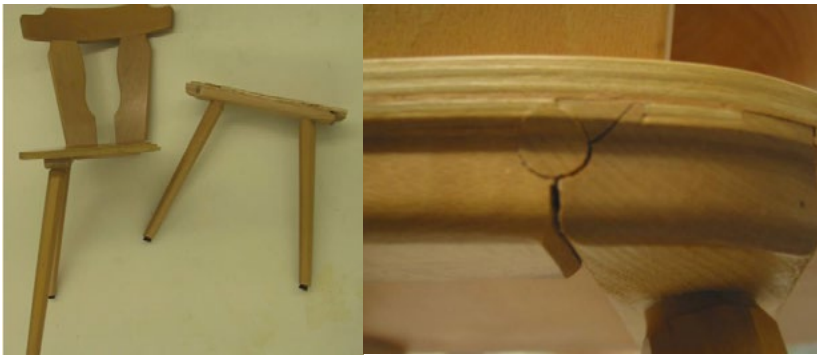
The GPSD workshops provided the following case studies in which testing to the relevant European standards was not carried out resulting in serious injuries for consumers.

CASE STUDY 1 – CHAIR FOR PRIVATE USE

An incident occurred in which a person lost a finger when a garden chair accidentally folded.

An investigation by a test laboratory found that, due to the incomplete engagement of the folding mechanism, dangerous shear and crush points occurred. The investigation determined that the company lacked a valid test certificate in accordance with current standards.

CASE STUDY 2 – RESTAURANT CHAIR



An incident occurred to a diner at a restaurant when the chair on which the diner sat collapsed, leading to permanent health restrictions.

The laboratory tested two similar chairs against the relevant EN standards, and both also collapsed. This led to the conclusion that the injury could have been prevented had the chairs been tested in accordance with the standard.

CASE STUDY 3 – BUNK BED

The risk of strangulation or injury was found in this product due to the design of the safety barrier which could lead to a child getting their head stuck. The product was found not to comply with the relevant European standard: EN 747-1:2012+A1:2015 Furniture - Bunk beds and high beds - Part 1: Safety, strength and durability requirements, and EN 747-2:2012+A1:2015 Furniture - Bunk beds and high beds - Part 2: Test methods. This European Standard specifies requirements for the safety, strength and durability of bunk beds and high beds for domestic and non-domestic use.

CASE STUDY 4 – CHILDREN'S HIGHCHAIR

A risk of injury was found due to the highchair being insufficiently stable, as it could easily tip over backwards, potentially harming a child. Furthermore, there was a risk that a child could slide out of the seat and get stuck with their head caught between the seat and the armrest, which could lead to strangulation.

The product does not comply to EN 14988:2018 Children's highchairs - Requirements and test methods.

CASE STUDY 5 – CHAIRS FOR EDUCATIONAL INSTITUTIONS - STABILITY

A child at school sits on a chair, in the picture above, and turns towards the front.

When the chair is subjected to testing in a specialized laboratory, it fails test results for stability, presenting the risk of "forward instability".

The instability exposes the child to other injuries when sliding and falling from the chair, including the possibility of hitting their head on the desk in front of them or the chair fall onto their back.

To meet the standard requirements for educational institutions, a chair should not tip over when a weight of 60 Kg is applied in the front of the seat.

The product, the school chair, did not comply to EN 1729-2:2012+A1:2015, Furniture. Chairs and tables for educational institutions. Part 2: Safety requirements and test methods.

CASE STUDY 6 – SEATING FOR CHILDREN - GAPS AND OPENINGS

During tests on a child chair in a furniture testing laboratory it was found that there is a risk for trapping the child's finger in an opening.

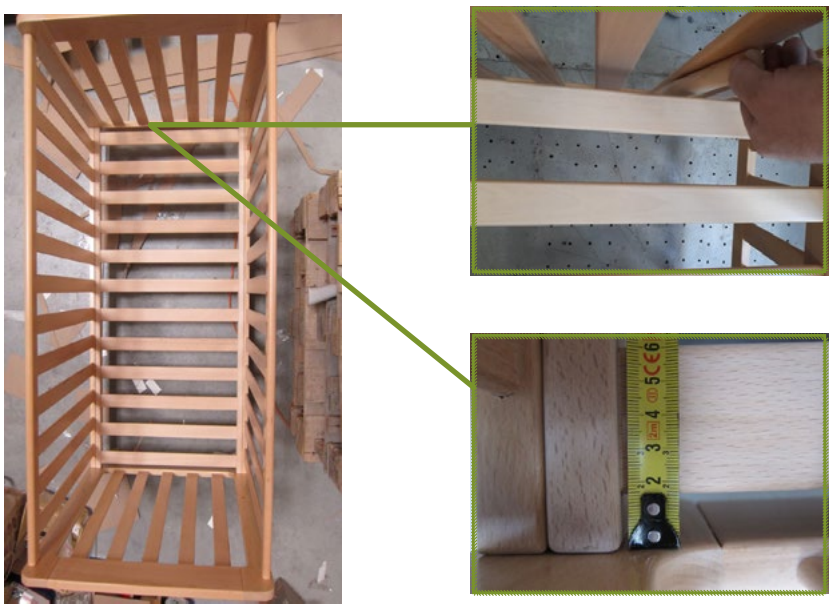
Children are curious and want to explore their surroundings, often finding holes and gaps are particularly interesting. The child may not always be able to remove their finger from such openings.

The danger is associated with the stopping of blood circulation when the finger becomes trapped.

According to the standard requirements any openings must be smaller than 7 mm.

The product did not comply to EN 17191:2021, Children's furniture. Seating for children. Safety requirements and test methods.

CASE STUDY 7 – CHILDREN COTS - DISTANCE BETWEEN COT BASE AND SIDES AND ENDS



The gap between the mattress support and the side of the cot is greater than 25 mm.

This poses a potential hazard where a child's hand may become trapped if they cannot easily remove their hand from the holes or gaps.

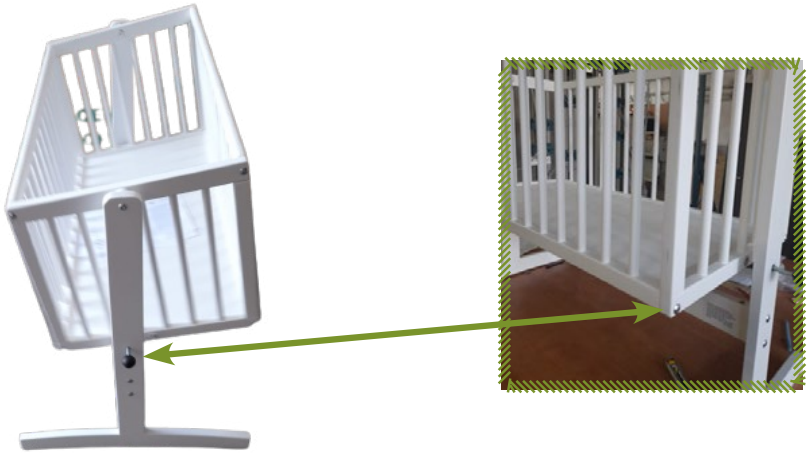
The product did not comply with the relevant European standard: EN 716-1+AC:2019, Furniture. Children's cots and folding cots for domestic use. Part 1: Safety requirements.

CASE STUDY 8 – CRIBS

a) Shearing and crushing risk

The risk of shearing and crushing or other injury was found in this product due to the distance between the frame and the body of swinging cradles which is smaller than 25 mm (standard requirement).

b) Risk of suffocation

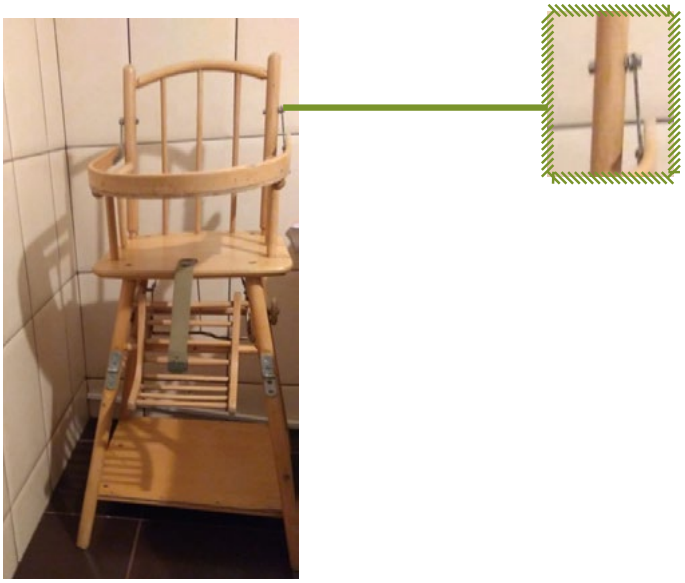


During tests on a crib conducted in an accredited furniture testing laboratory, it was found that a child faces the potential danger of suffocation or physical injury if the crib flips over while sleeping. Although the crib is equipped with a locking mechanism, there is no visible warning label aimed at mitigating this risk (for example “Block the rocking of the crib when the child sleeps” or “Do not use this product without first reading the instructions”).

The product did not comply with the relevant European standard: EN 1130:2019, Children’s furniture. Cribs. Safety requirements and test methods.

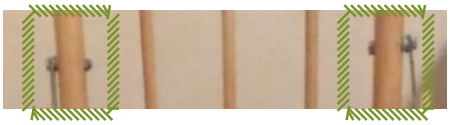
CASE STUDY 9 – HIGH-CHAIR

a) Shearing points



There is a risk of the shear points to appear when moving the mobile table. A child could inadvertently trap or crush their fingers between the hardware and the backrest element. This distance between these components has to be greater than 12 mm.

b) Protruding parts



On the same chair, there is a risk of injury when children have access to the nuts and screw head, as the screw head may potentially harm a child's finger. To prevent this, it is important to ensure that the screw head is not within reach of the child's finger.

The product did not comply with the relevant European standard EN 14988+A1:2020, Children's highchairs - Requirements and test methods.

CASE STUDY 10 – PLAYPEN – HEIGHT OF BARRIERS

It was found that there is a risk of the child climbing or getting hurt from falling or venturing outside the playpen without supervision.

The distance between the base and the horizontal element is shorter than 600 mm as required in the relevant European standard EN 12227+A1:2010, Playpens for domestic use. Safety requirements and test methods.

The product did not comply with the relevant European standard EN 12227+A1:2010, Playpens for domestic use. Safety requirements and test methods.

CASE STUDY 11 – PLAYPEN – CHOKING AND INGESTION

A potential hazard was identified related to the insecure locking mechanism, as they can lead to the ingestion of small components. It was found that there is a risk of ingestion of a small part due to the unsafe locking mechanisms. By forcing the door open, a component of the locking mechanism can become separable. Children may place these separable parts in their mouth, which could result in swallowing and potential suffocation.

The product did not comply with the relevant European standard EN 12227+A1:2010, Playpens for domestic use. Safety requirements and test methods

CASE STUDY 12 – WARNINGS

Even if children's furniture has been tested and is in accordance with the standard requirements, it is mandatory to warn the user about the possible risks that may arise during the assembly and utilization of the products. There have been many instances in which absence of warnings resulted in issues with the product's use.

In this context we emphasize the necessity of clearly indicating the warnings that must be marked on the various components of the furniture. Organizations shall seek to stay informed about current labelling and warning requirements.

All warnings shall:

» be visible and permanent (not detachable), during use

» remain legible

For children's highchairs, according to EN 14988+A1:2020, Children's highchairs- Requirements and test methods

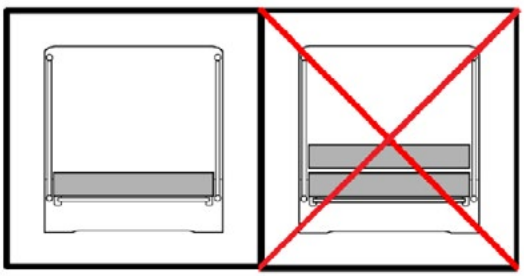
The user must know and be careful not to leave the child alone and unattended.

The warning shall be accompanied by the below graphical symbol.

For children's cots, according EN 716-1+AC:2019, Furniture- Children's cots and folding cots for domestic use. Part 1: safety requirements

If the cot's mattress is an integral part of the folding cot, the user must be warned not to use a second mattress because there is a risk of suffocation.

The warning shall be accompanied by the below graphical symbol marked or written on the mattress as a text.



If the cot's mattress is not an integral part of the folding cot, the maximum thickness of the mattress to be used shall be marked or written as a text.

For bunk beds and high beds, EN 747-1: 2015, Furniture-Bunk beds and high beds. Part 1: Safety, strength and durability requirements

For bunk beds and high beds, the user must be warned of the following:

» not to be used by children under six years, for the high beds or any upper bed of a bunk bed

» the bunk bed or high bed must be attached to the building structure or to a wall

The warnings must be visible during use and shall be accompanied by a pictogram.

For changing units, according EN 12221-1+:2008+ A1:2013, Child use and care articles. Changing units for domestic use. Part 1-Safety requirements

The user must know and be careful not to leave the child alone and unattended.

The warning shall be accompanied by the below graphical symbol:

For safety barriers, according EN 1930:2011, Safety barriers. Safety requirements and test methods

All children's furniture has to be accompanied by assembly instructions.

The assembly instruction shall contain:

"WARNING- Incorrect installation can be dangerous".

"WARNING- Do not use the safety barrier if any components are damaged or missing".

"WARNING- The safety barrier must not be fitted across windows".

"WARNING-Never use without wall cups". (if the product requires wall cups)

For baby cribs, according EN 1130:2019, Children's furniture. Cribs. Safety requirements and test methods

The crib is used only for children until they can sit unaided or for those who cannot pull or push themselves up on their hands.

For the cribs there is a list of warnings, such as:

"WARNING- This is a mattress, do not add a second mattress, suffocation hazards".

"WARNING- Stop using the crib as soon as the child is able to sit unaided, pull itself up or push up on its hands and knees".

"WARNING- Do not use this product without reading the instructions first".

ANNEX 6
SMES STANDARDS RESOURCE WORKFLOW

Resource Workflow to assist Ukrainian SMEs to benefit from using standards and getting involved in standards development.

This workflow is based on challenges for SMEs highlighted in ***SME access to European standardization - Enabling small and medium-sized enterprises to achieve greater benefit from standards and from involvement in standardization.***

USING STANDARDS			GETTING INVOLVED IN STANDARDS DEVELOPMENT		
Challenge for SMEs	**Solution/ Workflow**	**Resource**	**Challenge for SMEs**	**Solution/ Workflow**	**Resource**
Lack of awareness SMEs may be unaware that standards exist, in particular standards specific to their industry.	Show SMEs where they can find out more about standards	UAS website: http://uas.org.ua/en/zagalni-vidomosti-pro-dp-ukrndnts/ CEN/CENELEC website: https://www.cencenelec.eu/ ISO website: https://www.iso.org/home.html IEC website: https://iec.ch/homepage	**Lack of awareness** SMEs may know about standards, without understanding that these are developed in a process in which any company can get involved.	Show SMEs where they can find out more about the standards development process	**UAS Frequently asked questions:** http://uas.org.ua/ua/pitannya-vidpovidi/ Ukraine Standards Users Survey Results **ISO/IEC GUIDE 17:2016** Guide for writing standards taking into account the needs of SMEs: https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/guidance-for-writing-standards-for-smes.pdf

Importance of standards for SMEs SMEs may be unaware of the added value of standards for their enterprise. They may regard standards as a necessary evil rather than a powerful tool with which to meet their business objectives.	Show how standards can add value to an SME's business processes	**Ukraine Standards Users Survey Results** **Annex 2 Standards Impact Map – Business Function Perspective** **ISO- 10 Good things for SMEs:** https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100283.pdf **BSI - The small business guide to standards:** https://www.bsigroup.com/globalassets/documents/standards/smes/bsi-small-business-guide-to-standards-en-gb.pdf **CEBR - The Economic Contribution of Standards to the UK Economy:** https://www.bsigroup.com/LocalFiles/en-GB/standards/BSI-standards-research-report-The-Economic-Contribution-of-Standards-to-the-UK-Economy-UK-EN.pdf	**Awareness of the importance of involvement** Even when an SME knows it can become actively involved in standardization, it may still have trouble assessing whether it is worth the investment.	Show how standards can be written with SMEs in mind Show how SMEs can benefit from being standard makers not just standard takers	**Ukraine Standards Users Survey Results** **Video case study from SME on the importance of Participation:** https://youtu.be/5BDQPmhbvF8

Tracing the right standard			**Tracing standards projects**		
SMEs may have problems finding the relevant standards, or knowing whether a standard is still in effect.	Show where and how SMEs can search for standards	**UAS Search Tool:** http://uas.org.ua/ua/bank-danih/natsionalniy-bank-terminiv/ **ISO Advanced Search Tool:** https://www.iso.org/advanced-search/x/ **ISO Online Browsing Platform**: https://www.iso.org/obp/ui **IEC Advanced Search Tool:** https://webstore.iec.ch/advsearchform **CEN/CENELEC Advanced Search Tool:** https://standards.cencenelec.eu/dyn/www/f?p=205:105:0:::::	An important reason for SMEs not getting involved in standardization is often simply a lack of knowledge about the process. SMEs that do become interested in standards development may still have difficulty tracing the relevant standards development projects.	Show how and where SMEs can search for ongoing and upcoming standards projects	**UAS Annual Work programme for the development of standards:** http://uas.org.ua/ua/services/standartizatsiya/programa-robit/ **UAS involvement in ISO technical committees: https:**//www.iso.org/member/2172.html?view=participation&t=PT **UAS involvement in IEC technical committees: https:**//www.iec.ch/dyn/www/f?p=103:33:705703267959984::::FSP_ORG_ID,FSP_LANG_ID:1030,25 **List Ukrainian technical committees:** http://uas.org.ua/ua/services/standartizatsiya/tehnichni-komiteti-ukrayini/

Obtaining standards			**Getting involved**		
SMEs may have difficulty getting hold of a standard because they are unaware of the distribution points, because of the price of a standard, or simply because they end up buying the wrong standard (through inadequate description of its contents).	Show where SMEs can purchase standards Show where SMEs can get free copies of standards	**Purchase standards from UAS website:** http://uas.gov.ua/ **Price list for UAS standards:** http://uas.gov.ua/ **Free access to Ukrainian standards referenced in regulations:** http://uas.gov.ua/standardization/natsionalni-standarty-na-yaki-ye-posyla/ **Information where standards can be read:** http://uas.gov.ua/ **ISO Online Store: https:**//www.iso.org/store.html & FAQs: https://www.iso.org/store.html **IEC Webstore: https:**//webstore.iec.ch/	Lack of resources (money, time, skills and knowledge) are another reason to refrain from participation.	Show how SMEs can make a case to get involved in standards development	**List Ukrainian technical committees**: http://uas.org.ua/ua/services/standartizatsiya/tehnichni-komiteti-ukrayini/ **Benefits of participation in Guide** **Ukraine Standards Users Survey Results** **ISO Methodology Case Studies in Annex 1** **BSI - The small business guide to standards**: https://www.bsigroup.com/globalassets/documents/standards/smes/bsi-small-business-guide-to-standards-en-gb.pdf

Comprehension SMEs may not properly understand a standard due to the technical content and language, the unavailability of a version in the national language, the abundance of references to other standards, or a lack of information on the context of the standard.	Show SMEs where they can get advice and support on understanding the content of a standard	**UAS Training or publications** **ISO Online Browsing Platform:** https://www.iso.org/obp/ui **ISO Guidance Documents for SMEs: https:**//www.iso.org/iso-and-smes.html	**Effective involvement** Being involved does not imply that the involvement is effective. Other participants may ignore an SME simply because it is an SME. Issues presented by a multinational may—consciously or unconsciously—carry more weight. Research, however, shows that the role of individuals in standardization can be decisive. Is an SME able to delegate a highly qualified person, in terms of both knowledge and skills, who is able to make a difference?	Show how SMEs can be most effective in their participation in standards development	**My ISO job publication:** https://www.iso.org/publication/PUB100037.html **UAS training**
Implementation Most of the benefits, of course, come from the implementation of the standard. SMEs may have difficulty implementing standards, either because of their inherent complexity or due to lack of knowledge or skills.	Show SMEs where they can get information on how standards can benefit their business and how they can be implemented	**UAS training** **ISO Guidance Documents for SMEs:** https://www.iso.org/iso-and-smes.html **Case Studies** **Annex 2 Standards Impact Map – Business Function Perspective** **ISO Methodology Case Studies in Annex 1**	**Initiating new activities** An SME may wish to initiate a new standardization activity, because it needs standards to make its invention a market success. Yet starting a new project from scratch can be difficult.	Show how SMEs can go about suggesting a new standards project	**Proposal for the establishment of a new technical committee:** http://uas.org.ua/ua/natsionalniy-fond-normativnih-dokumentiv/prays-list-na-okremi-vidannya/

Evaluating implementation Achieving business goals is the chief motivation for implementing a standard. An SME may therefore wish to evaluate the potential benefits of implementation to derive lessons that will help implement standards in the future and gain feedback for the standards developers.	Show how SMEs can evaluate the benefits of standards	**Ukraine Standards Users Survey Results** **ISO Methodology Case Studies Economic benefits of standards in Annex 1** **Annex 2 Standards Impact Map – Business Function Perspective**	**Evaluating of benefits of participation** Involvement in standardization is a long-term investment. Cost precedes benefits, but continuous focus on benefits is a must during the process. Is the SME able to evaluate the effectiveness of its involvement?	Show how SMEs can evaluate the benefits of standards	**Video case study from SME on the importance of Participation:** https://youtu.be/5BDQPmhbvF8 **ISO and SMEs:** https://www.iso.org/iso-and-smes.html **ISO Methodology Case Studies in Annex 1**

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

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