



European Standardization Organizations

HSbooster: Training on the European Standardization System

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Life used to be simple.....



...then a bit more complicated



So, industry & standardization became close...



Today, standardization challenged to address needs from many angles...



....and perspectives...



Standards...only one part of the picture



Standardization Bodies Supporting Digital Transformation



| Home/Building | Manufacturing/ Industry Automation | Vehicular/ Transportation | Healthcare | Energy | Cities | Wearables | Farming/ Agrifood |
|---------------|---------------------------------------|------------------------------|------------|--------|--------|-----------|----------------------|
| | | | | | | | |
| | | | | | | | |

Horizontal/Telecommunication

Source: AIOTI WG3 (IoT Standardisation) – Release 2.6

Many challenges....



Ever shorter time to market & faster innovation

Digital transformation of industry

Private R&D, **outstripping** publicly-funded R&D,

Young generation of researchers & innovators in start-ups

Companies going **direct to market**

Competing priorities: go green – digitize – innovate to compete – lead/keep up/catch up

Global challenges – security, climate change, energy, social cohesion.....

European Standardization System



- ▶ CEN, CENELEC and ETSI recognised as European Standards Organizations ([Regulation EU 1025/2012 Amended by EU 2022/2084](#))



Standardization in various business sectors



Standardization in the Electrotechnology sector



Telecommunications, broadcasting and other electronic communications networks and services

SECTORS



Chemicals



Construction



Consumer



Defence and Security



Digital society



Electrotechnology



Energy and Utilities



Food and Agriculture



Healthcare and Health and Safety



Household appliances and HVAC



Mechanical and machines



Mining and metals



Services



Transport, vehicles and packaging

TOPICS



Accessibility



Artificial Intelligence



Ecodesign / resource efficiency



eMobility



Energy efficiency and Management



Environment and sustainability



Personal Protective Equipment



Public Procurement



Smart grid



Smart house



Smart metering



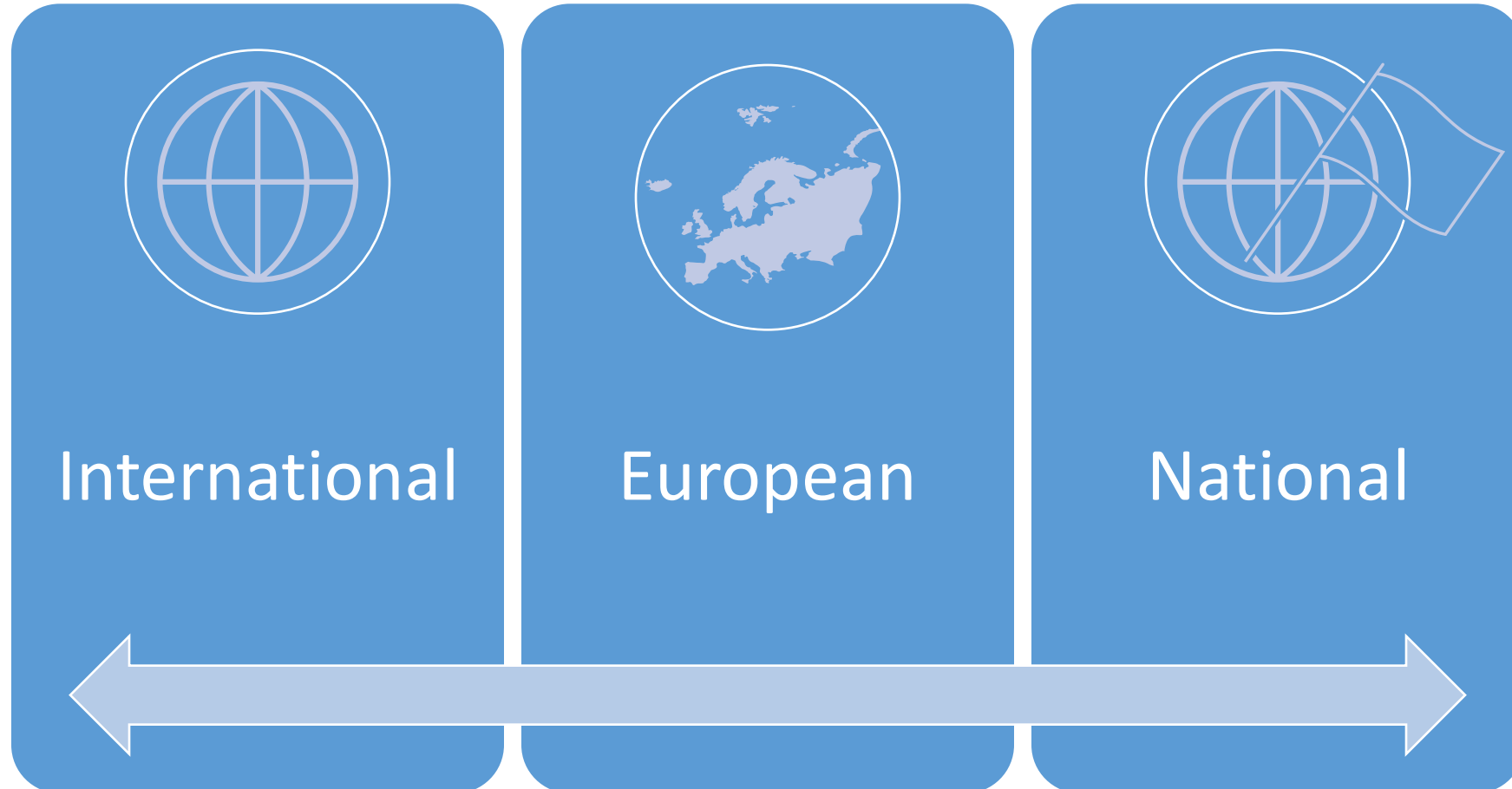
Quantum Technologies

5 Goals

1. EU and EFTA recognize and use **strategic value** of European standardization system
2. Customers & stakeholders benefit from **state-of-the-art digital solutions**
3. Increase the **use and awareness** of CEN and CENELEC deliverables
4. The CEN and CENELEC system to be the **preferred choice** for standardization in Europe
5. Strengthen our leadership and ambition at the international level



Standardisation System



CEN-CENELEC PORTFOLIO

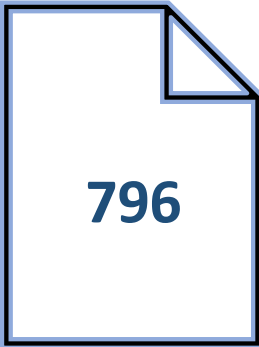


European Standards

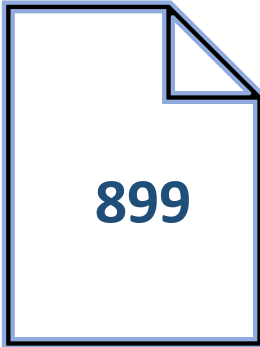
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Technical Specifications

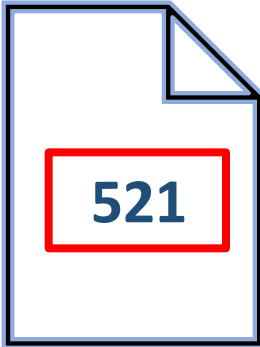


Technical Reports

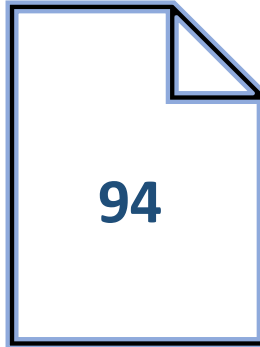


Workshop Agreements

CWA



Guides



CEN and CENELEC Standards in relation to international standards:



34% of CEN Standards are identical to ISO

74% of CENELEC standards are identical to

IEC

(* Excluding CRs and ENVs)

CEN-CENELEC approach towards R&I



Identify new topics for standardization – use & reinforce channels and sources to identify new standardization opportunities/needs

Integrate standardization & research – bring standardization closer to research – raise profile, build links....integrate

Building capacity – ensure CEN-CENELEC system (structures, processes) equipped to engage with research and innovation



Celebrating contribution Standards+Innovation Awards

- ▶ Award scheme in place 2019
- ▶ 4 categories:
 1. Individual researcher/innovator
 2. Research project
 3. Young Researcher
 4. Technical Body Officer
- ▶ Nominations by CEN & CENELEC members



Facts & Figures

Horizon 2020



142 Projects with NSBs/NCs partners



26 Liaisons between research projects and technical committees



70 published CEN-CENELEC deliverables

Horizon Europe (2021-2022):



125 Call for project proposal relevant for standardization



72 CEN and CENELEC Technical Committees linked with the scope of identified calls

Standardization for emerging technologies

- ▶ CEN-CLC/JTC 19 Blockchain and Distributed Ledger Technologies
- ▶ CEN-CLC/JTC 20 Hyperloop systems
- ▶ CEN-CLC/JTC 21 Artificial Intelligence
- ▶ CEN-CLC Focus Group Quantum Technologies
- ▶ CEN-CLC Focus Group Organ on Chip



Standards & Technology Readiness Levels (TRL)

Knowledge development

Technology development

Business development

TRL 1

Basic principles observed

TRL 2

Technology concept formulated

TRL 3

Experimental proof of concept

TRL 4

Technology validated in lab

TRL 5

Technology validated in relevant environment

TRL 6

Technology demonstrated in relevant environment

TRL 7

Prototype demonstration in operational environment

TRL 8

System complete and qualified

TRL 9

Actual system proven in operational environment

Semantic standards

facilitate efficient communication in basic research investigating new technologies

Measurement & testing standards

allow progress towards first product-related developments

Interface standards

allow the interoperability of components integrated into product or process technology

Product & service specific standards

define the characteristics of a product/service and their performance thresholds (such as quality and safety)

Links with R&I....some numbers



| Type of Link | 2023 | 2020-2023 |
|--|-----------|------------|
| Project-TC Liaisons | 0 | 16 |
| CWAs addressing research findings | 6 | 58 |
| Other Work Items addressing research findings (TS, TR) | 2 | 75 |
| Bibliographic references to research | 21 | <i>WIP</i> |
| Letters of Support to research projects | 2 | 62 |
| Horizon Europe projects linking research with the CEN-CLC standardization system (HSBooster, etc.) | TBC | - |
| Members (NSBs/NCs) participation in research projects | 18 | 100 |
| Total | 49 | 311 |

English title

Big Data in Aquaculture

Interface control document for provision of EGNOS/EDAS/multi-GNSS based services for tracking and tracing the transport of goods

Interface control document for provision of EGNOS/EDAS/multi-GNSS based services for tracking and tracing the transport of goods

Joint implants - Part 1: Novel methods for isolating wear particles from joint replacements and related devices

Joint implants - Part 2: Tiered toolkit approach to evaluate the biological impact of wear particles from joint replacements and related devices

Materials modelling - Terminology, classification and metadata

Guidelines on evaluation systems and schemes for physical security products

Smart CE marking for construction products

City Resilience Development - Information Portal

City Resilience Development - Maturity Model

City Resilience Development - Operational Guidance

Terminologies in crisis and disaster management

Industrial Symbiosis: Core Elements and Implementation Approaches

Interoperability of security systems for the surveillance of widezones

Authenticity and fraud in the feed and food chain - Concepts, terms, and definitions

General guideline on real drive test methodology for compiling comparable emission data

Design and Construction Codes for Gen II to IV nuclear facilities (pilot case for process for

English title

- General guideline on real drive test methodology for compiling comparable emission data
- Design and Construction Codes for Gen II to IV nuclear facilities (pilot case for process for evolution of AFCEN codes)
- Urban search and rescue (USaR) robotic platform technical and procedural interoperability - Guide
- The Description and Assessment of Good Practices for Smart City solutions
- Core Principles and Approaches for Licensing of Standard Essential Patents
- Principles and guidance for licensing Standard Essential Patents in 5G and the Internet of Things (IoT), including the Industrial Internet
- Mapping of Future needs of standardisation in the paper and board sector for food contact applications
- Innovative and adaptable envelopes over existing façades in building refurbishment - Design, economic assessment, logistics and installation guidelines
- Articulated industrial robots - Elastostatic compliance calibration
- Bionic Aircraft - Optimized ALM support structures made from Al alloys
- Bionic Aircraft - Quality control of metal ALM parts using the Ultrasonic Technique
- Engineering materials - Electronic data interchange - Mechanical test data
- Verification of performance levels of Galileo Enabled mass-market receivers
- Journalism Trust Initiative

English title

Privacy of monitoring technology - Guidelines for introducing ambient and wearable monitoring technologies balancing privacy protection against the need for oversight and care

Crisis and disaster management - Semantic and syntactic interoperability

Building a common simulation space

Ships and marine technology – Specification for bunkering of methanol fuelled vessels

Good practice recommendations for making Climate Adaptation Plans for fisheries and aquaculture

European Criteria for Quality Internships

Systematic assessment of innovative solutions for crisis management - Trial guidance methodology

Sustainable Energy Retrofit Process Management for Multi-Occupancy Residential Buildings with Owner Communities

Reference model for distribution application for microgrids

Anaerobic digestion plants - Feasibility assessment methodology for integrating a Volatile Fatty Acid Platform Technology

Engineering materials - Electronic data interchange - Instrumented indentation test data

Measurement of Worker Satisfaction in Automated Systems - Methodology CEN Workshop Agreement

Recommendations for a modular and cross-cutting Power Take-Off for wave energy direct drive linear solutions

Methodology, procedure and equipment required for the laboratory testing of a modular and

English title

Measurement of Worker Satisfaction in Automated Systems - Methodology CEN Workshop Agreement

Recommendations for a modular and cross-cutting Power Take-Off for wave energy direct drive linear solutions

Methodology, procedures and equipment required for the laboratory testing of a modular and crosscutting Power Take-Off for wave energy converters

Lower-limb wearable devices - Performance test method for walking on uneven terrain

Lower-limb wearable devices - Performance test method for walking on uneven terrain

High temperature accelerated ageing of advanced ceramic specimens for solar receivers and other applications under concentrated solar radiation

Test method for determination of the essential work of fracture of thin ductile metallic sheets

Measurement of diffusible hydrogen in metallic materials - HELIOS 4 HOT PROBE method

Responsibility-by-design - Guidelines to develop long-term strategies (roadmaps) to innovate responsibly

Design Circular Framework Setting - Composite recovery design solutions in the automotive industry

Dismantling methods and protocols in a Circular Economy Framework - Composite recovery in the automotive industry

Materials characterisation - Terminology, metadata and classification

Guidelines for the assessment of resilience of transport infrastructure to potentially disruptive events

English title

Materials characterisation - Terminology, metadata and classification

Guidelines for the assessment of resilience of transport infrastructure to potentially disruptive events

Guidelines for the development and use of safety testing procedures in human-robot collaboration

Specifications for Digital Scenarios for Crisis Management Exercises

Lens-based adaptor system for coupling fibre optic to infrared semiconductor lasers

Guidelines for Traditional Micro-SMEs' GDPR Compliance

Requirements for acquiring digital information from victims during Search and Rescue operations

Requirements and Guidelines for a complete end-to-end mobile forensic investigation chain

Guidelines for effective social media messages in crisis and disaster management

Basic CBRN training curriculum for first responders and medical staff including first receivers

Extraction, production and purification of added value products from urban wastes - Part 1: Production and purification of ectoine obtained from biogas

Evaluation of exercises - Implementation Guidelines

Test method for the evaluation of the adhesive properties of fibre reinforced polymer composite joints

Methodology to quantify the global agricultural crop footprint including soil impacts

Digital health innovations – Good practice guide for obtaining user consent for personal health information

Key factors for the successful implementation of urban bio-waste selective collection schemes

English title

Digital health innovations – Good practice guide for obtaining user consent for personal health information

Key factors for the successful implementation of urban biowaste selective collection schemes

uMediation Grammar: a standard to enable migrants integration

Future of social responsibility

Aquaculture hatchery production of low trophic species

City Resilience Development - Guide to combine disaster risk management and climate change adaptation - Historic areas

State of the art on the integration process of new physical assistance technologies such as exoskeletons

Guidelines for design of advanced Human - Robot Collaborative cells in personalized Human - Robot Collaborations systems

Biomechanical risk assessment: Guideline for introducing and implementing real-time instrumental-based tools for biomechanical risk assessment

Sustainable Nanomanufacturing Framework

TRAIN4SUSTAIN Competence Quality Standard

Characterization of a hybrid heat pump module

Guidelines for an integrated approach of building retrofitting projects based on enhanced shallow geothermal technologies

English title

Valorization of light hydrocarbons - One-pot method for the preparation of nanocatalysts for non-oxidative dehydrogenation (nODH) of light alkanes

European Connected Factory Platform for Agile Manufacturing Interoperability (EFPFInterOp)

Urban search and rescue - Guideline for the application of a test method for innovative technologies to detect victims in debris

How standards help research

Impact and market access: apply standards - new ones increase impact and market access. Generate trust – research outcomes more accessible to industry and societal actors.



Network: participate in standardization - enlarge R&I network – downstream stakeholders sharing the standardization works

Recognition: help researchers gain recognition - acknowledge participation in standardization - include references to scientific publications in standards.



Thank you for your attention

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