



**Brussels, 15 November 2024
(OR. en)**

15712/24

**MI 930
COMPET 1112
ENT 207
INTER-REP 118**

COVER NOTE

| | |
|----------|---|
| From: | Presidency |
| To: | Delegations |
| Subject: | Update High Level Forum (HLF) on Standardisation HWES 1: Education and skills - Presentation at the Working Party on Technical Harmonisation on 14 November 2024 |

This document contains a presentation by an external stakeholder and the views expressed therein are solely those of the third party it originates from. This document cannot be regarded as stating an official position of the Council. It does not reflect the views of the Council or of its members.



Update High Level Forum (HLF) on Standardisation HWES 1: Education and skills

RUDI BEKKERS

PRESENTATION AT THE WORKING PARTY ON TECHNICAL HARMONISATION, COUNCIL OF THE EUROPEAN UNION, 14 NOVEMBER 2024, BRUSSELS

Department of Industrial Engineering and Innovation Sciences

TU/e EINDHOVEN
UNIVERSITY OF
TECHNOLOGY

Outline



➔ Need, opportunities and challenges for education on standardisation

HLF HW-1: Education and skills

The edu4standards.eu Horizon project

European High Level Forum (HLF) on Standardisation

TU/e

Outline



- European ambitions call for a capable pool of experts
- But the current pool is (too) small
 - and is foreseen to shrink because of the demographic character of that pool
- The rest of the world is not standing still...

European High Level Forum (HLF) on Standardisation

TU/e

| China EaS Masterplan | | | | | | | | | | | | | |
|----------------------------|------------------------------|---------------------------|---------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---|---------------------------|--|-------------------------------|---------------------------------------|--|--------------------------------|
| Category | | Academic Education | | | | | | Non-degree Education | | | | | |
| Target Group | | Primary School | Secondary School | High School | Bachelor | Postgraduate Education-Master, PhD | Vocational Education | Training for EaS Teachers | Public | Occupational Training | Young Professionals (Next-generation) | Specialist (Domestic) | International experts |
| Tentative Approach | Practical Experience Course | √ | √ | √ | | | | | | | | | |
| | Lecture Seminar | | √ | √ | √ | √ | √ | | √ | √ | √ | √ | √ |
| | Public Elective Course | | | | √ | √ | √ | √ | | | | | |
| | Embedded Courses (Major+STD) | | | | √ | √ | √ | √ | | | | | |
| | Study Tour | | | | √ | √ | √ | | | | | | |
| | In-campus activities | √ | √ | √ | | √ | √ | | | | | | |
| | Experiential Course | | | | √ | √ | √ | | | | | | |
| | Contest | √ | √ | √ | √ | √ | √ | | | | √ | | |
| | On-line Courses | | | | | | | | | | √ | √ | √ |
| Teaching Content (example) | | Food Safety | Food Safety | Food Safety | Standard & Quality | Standard & Quality | Standard & Quality | Course Guidelines | GB 1.1 | Inter/external auditor | Standard & Quality | TC operation | International Regulation |
| | | Symbols and Signs | Symbols and Signs | Green Manufacture and Standardization | NQI | NQI | NQI | Embedded Model | Group Standard and Practice | Inspector | NQI | Standardization Project Application & Management | International Strategy |
| | | Consumer Products Safety | Consumer Products Safety | NQI | Consumer Products Safety Testing | Green Manufacture and Standardization | Metrology | Usable Resource | Enterprise Standard System | Food Safety Manager | International Standardization | Committee Management | Coordination and Communication |
| | | Public Graphics and Signs | Public Graphics and Signs | Metrology | Human Efficacy Standardization | General Testing Methods | Experimental Methods | Organization Resource | SOT Social Management of Public Services | Energy Management System | Specialty English Vocabulary | Summary and Evaluation | Specialty English Vocabulary |
| | | Metrology History | Metrology History | Experimental Methods | Coding Tech Standardization | ISO17025 | Human Factor Standardization | Assessment Method | Service Standardization | Quality Management System | Certification and Accreditation | Standards System | International Strategy |
| | | Standardization History | Standardization History | Human Factor Standardization | Green Manufacture and Standardization | Market Entry and Management system | Green Manufacture and Environment Standardization | Course Assessment | Standardization of Construction Works | Environment Management System | Coordination and Communication | GB1.1 | International Conference |
| Leading Organization | | SAC (NSB) | SAC (NSB) | SAC (NSB) | SAC (NSB) | SAC (NSB) | SAC (NSB) | SAC (NSB) | Public | Public | SAC (NSB) | SAC (NSB) | SAC (NSB) |
| | | School | School | School | School | School | School | | | | ISO/IEC | | ISO/IEC |

Challenges ahead, as identified by WS1 (summarized)



- Include a diverse set of scientific disciplines
- Include different educational levels, inc. professionals
- Cover the diversity of standardisation contexts
- Creating awareness
- Creating incentives
- Find a way to include standardisation in curricula at educational institutions
- Take stock of and bring together scattered knowledge
- Mobilize the necessary teachers' expertise
- Link teaching efforts with companies / practitioners
- Make available teaching content/materials; depositories
- Ensure access to standards documents in the teaching context

European High Level Forum (HLF) on Standardisation

TU/e

Outline



Need, opportunities and challenges for education on standardisation

HLF HW-1: Education and skills



The edu4standards.eu Horizon project

European High Level Forum (HLF) on Standardisation

TU/e

Challenges ahead, as identified by WS1 (summarized)



- Deliverable 1: HLF pledge
- Deliverable 2: Delf conference (get together the stakeholders!)
 - Educators
 - European standardisation bodies
 - HLF members
- Deliverable 3: Towards a student certificate

European High Level Forum (HLF) on Standardisation

TU/e

Deliverable 1: HLF pledge



- On 30 November 2023, 47 HLF members signed a pledge
- committing themselves to take one or more concrete actions to contribute to the education of the new generation of European standardisation professionals,
- E.g. providing training opportunities for students and young graduates or developing educational modules on standardisation for business, law or engineering degrees.



European High Level Forum (HLF) on Standardisation

TU/e

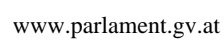
Deliverable 1: HLF pledge



What has been already achieved in the pledge?

European High Level Forum (HLF) on Standardisation

TU/e



| | Name | 1. Internships | 2. Engagement in std. work | 3. Promotion & awareness | 4. Develop education | 5. Develop expertise via VET | Data sources |
|---------------------------------|---|----------------|----------------------------|--------------------------|----------------------|------------------------------|--------------|
| Member states and/or their NSBs | Austria | Yes | Yes | Yes | Yes | Yes | H, C |
| | Belgium | | Yes | Yes | Yes | Yes | H, C |
| | Czechia | | Yes | Yes | Yes | | C |
| | Danmark | Yes | Yes | Yes | Yes | | C |
| | France | Yes | Yes | Yes | Yes | Yes | H, D, C |
| | Germany | [Planned] | Yes | Yes | Yes | Yes | H |
| | Greece | Yes | Yes | | | | D, C |
| | Ireland | Yes | Yes | Yes | Yes | Yes | H, C |
| | Italy | Yes | Yes | Yes | | | D, C |
| | Latvia | | Yes | | Yes | Yes | H, . |
| | Lithuania | | | Yes | | | D, C |
| | Luxembourg | Yes | Yes | Yes | Yes | Yes | H, D |
| | Malta | | Yes | Yes | | | H |
| | Netherlands | Yes | Yes | Yes | Yes | | H, D, C |
| | Poland | Yes | Yes | Yes | Yes | Yes | H, D, C |
| | Slovakia | Yes | Yes | Yes | Yes | | D, C |
| | Slovenia | [Planned] | Yes | Yes | Yes | [Planned] | |
| | Spain | Yes | Yes | Yes | Yes | Yes | H, D |
| Other HLF members | European DIGITAL SME Alliance | Yes | | | | | H, D |
| | T&D Europe | Yes | Yes | Yes | Yes | | H |
| | Small Business Standards (SBS) | Yes | | Yes | Yes | | H, D |
| | DIGITALEUROPE | Yes | | Yes | Yes | | H, D |
| | SMEUnited | Yes | Yes | Yes | Yes | | H |
| | Eindhoven University of Technology (TU/e) | | | Yes | Yes | | H |
| | European Consumer Voice in Standardisation (ANEC) | | Yes | | | | H |
| | CEN | Yes | Yes | Yes | Yes | | H, D |
| | CENELEC | Yes | Yes | Yes | Yes | | H, D |
| | ETSI | | Yes | Yes | Yes | Yes | H, D |
| | Environmental Coalition on Standards (ECOS) | Yes | | Yes | | | H, D |
| | ETUC | | | Yes | | Yes | H, D |

Data is on finalized, ongoing or (sometimes) planned activities. Sources: HLF Survey (H), data collection among CEN CENELEC members (c), and voluntary input Delft conference.

1. Provide training opportunities for students and young graduates, such as internships (examples)

19 organisations offering **one to six internships**

- Several organisations specifically offer openings for young professionals (with business associations)
- One traineeship specifically on standardisation and internet security
- One traineeship for the winner of a SME Essay Competition
- Topics include:
 - Regulation and standards
 - **Societal impact** of standards
 - Standardization and conformity assessment
 - Review of the digital platforms needed to support the work of standards
 - Impact of standardization on their **environmental performance**
 - Standardisation and **internet security**
 - **Translation** services in standardization
 - Involvement of SMEs in the **renewable and alternative energies** value chain
 - SME representation in standardisation at European level
 - AI in standardization and standardization business models
 - **Critical raw materials** and material efficiency

2. Promote the engagement of students and young graduates in standardisation-related work (examples)

Guide researchers into pre-standardisation; project for students and junior workforce

University students can participate in the translation and development standards.

6 PhD students involved in technical standardisation through the research programmes

Young professionals program with workshops, summer camp, high school competition, and technical conference

Master MSc project with 4 English students; 12 students visiting gov' standards forum

Free participation professors (all levels) in national standardization activities.

Students attending plenary meetings of international standardization committees

Each university in our country will have the opportunity to nominate one doctoral student who will receive free access to one technical committee relevant to their PhD research.

Annual trophy for a teacher and her/his class who have worked on a collective project dealing with standards and their benefits.

Personal certificates according to ISO EN 17024 provide students with the opportunity to acquire knowledge in standardisation and also prove this.

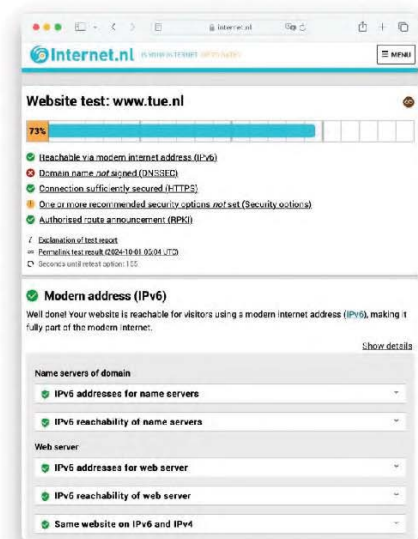
3. Promote standardisation education by means of awareness campaigns (examples)

| |
|---|
| PR round table /w best practices, practitioner interviews for students , webinar for Young Professionals, Academic Standardization Days (with edu4standards) |
| Presentations / National awareness at NSBs (multiple) |
| Variety of events, reports and engaging material |
| Skillshare sessions on (internal) association level |
| Awareness campaigns; workshops, events and training sessions for SMEs; thematic informative materials |
| Access to standards agreement , National Standardisation Award, open door days, events |
| IEC Young Professionals (YP) program, Awareness campaigns (prize; online game) |
| University awareness program, utilisation standards in teaching |
| Young Ambassadors of Standardization |
| Tools like Internet.nl |
| Pilot awareness campaigns (esp. new enabling technologies & competitive oversight) |
| Collaboration on thematic public exhibitions for broad audience; planned publicly available e-learning modules |



IS YOUR INTERNET UP TO DATE?

European High Level Forum (HLF) on Standardisation



4. Develop dedicated educational modules on standardisation for business, law or engineering degrees (examples)

Developed **ETSI textbook**

Dedicated training for our member & expert community

One-to-one focussed training for new ETUC experts; courses on "English standardisation vocabulary/jargon"

A **MOOC** reaching 3500 B.Sc. students yearly; In-company trainings in semiconductor sector

2 **MOOCs**, 550 attendants

eLearning program based on ISO IWA 30-1 & 2

Pilot University Certificate ('15-'19), MSc with strong emphasis on standardisation

Autumn school, extracurricular activity

Summer school on to semantic standardisation & legal / policy aspects; Masterclass for policy officers

Modules and seminars for business, law or engineering degrees. Including specific soft skills training

Modules for business, law or engineering degrees (>2000 students, 2023); plan for "micro-certifications"

5. Develop standardisation expertise through Vocational and Education Training (VET) (examples)

eLearning platform with easily accessible tutorials for vocational training

Three target groups: Public Authorities, Professionals and Universities.

3 VET trainings provided, 13 more proposed; preparation of High School campaign; several courses with national entities

Targeting students and teachers from secondary schools with competition

Pilot visit of **secondary school students** to NSB

Training 150 experts per year in NSB

Basics of standardization and conformity assessment **incorporated into teaching curricula** for vocational schools (introduced in 215 professions) in 2019. Approximately **1,200 teachers** took part in workshops.

Deliverable 2: Delft conference (17-18 June 2024)



Education s standardisation in Europe

A conference organised by the High Level Forum (HLF) on European Standardisation

17-18 June 2024, Delft, The Netherlands

The success of the European standardisation system depends on the involvement of experts from industry, public administration, civil society, research and education. This High Level Forum will make the point of those behind the system in the field of standardisation to make their common interests and vision clear. You can see more on education on standardisation in industries, universities, research, and non-profit.

This event brings together national and European standardisation bodies, academic institutions, industry, government, and EU Member States and other stakeholders to discuss the challenges but also road forward solutions.

Monday 17 June

- 13:00 Registration, coffee
- 13:30 Opening address: Perspectives on standardisation from academic, business, and standards topics
- 14:00 Coffee break
- 14:30 Parallel workshops:
 - A. A joint European standardisation on standardisation
 - B. Standards for teachers and students
- 17:00 Networking reception (until 18:00)

Tuesday 18 June

- 9:00 Plenary conference: standardisation of National Standardisation Bodies (NSBs) and their mutual cooperation in future but also their challenges
- 10:30 Coffee break
- 11:00 Plenary conference: Looking ahead to the European Standardisation Act (ESA) in the context of education on standardisation
- 12:30 Lunch & poster session
- 14:30 The role of national bodies
- 15:00 Coffee break
- 15:30 Actual playing of scenarios & poster sessions
- 16:30 Reporting back from parallel workshops & wrap-up
- 17:00 Closing reception reception (until 18:00)

The event is organized in partnership with the annual meeting of EURAS, the European Academy for Standardisation (June 19-22, 2024) also in Delft.

- Bring together HLF members, academia, and NSBs
- Discuss opportunities and actions
- Create a community

European High Level Forum (HLF) on Standardisation

TU/e

Goals oriented workshops:

- A cross-European student **certificate** on standardisation
- **Incentives** for teachers and students
- Linking standardisation education to the **Academies for Net-Zero Industry Act**
- **SME perspectives** on standards education: vocational training & life-long learning

European High Level Forum (HLF) on Standardisation

TU/e

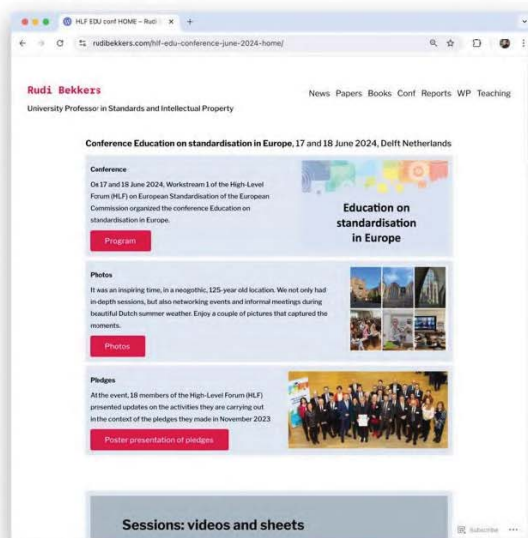
Deliverable 2: Delft conference (17-18 June 2024)



Deliverable 2: Delft conference (17-18 June 2024)



Deliverable 2: Delft conference (17-18 June 2024)



TU/e

Deliverable 3: Towards a student certificate



- To create a larger pool of standardisation experts, we need recognition, promotion, awareness, and smooth the market between offer and demand on the job market.
- WS1 works on a **student certificate**, aimed at studies on the BSc and MSc level, and harmonised across Europe.
 - Helps students to communicate their knowledge and interest in standards and standardisation,
 - Helps future employers to identify candidates with that knowledge.
 - Helps teachers to market their courses (incentive)
 - Helps SSO and other stakeholders



European High Level Forum (HLF) on Standardisation

TU/e

Deliverable 3: Towards a student certificate



Initial ideas:

- Supported by ESOs and NSBs
- Covers BSc and MSc levels, at both university and HEI
- Starts with 'standardisation essentials' module
- Future more advanced levels, up to ISO IWA 30-1/2
- Well-defined quality (ILO – Intended Learning Goals)
- Builds on existing efforts
- Fits in a variety of disciplinary contexts
- Handout ceremony helps to cement contact and network.
- Open to any standardisation teacher; flexible approach

European High Level Forum (HLF) on Standardisation



TU/e

Deliverable 3: Towards a student certificate



Status:

A first detailed draft has been produced and circulated within HW1, the HLF, and selected external experts for comments and review (8 Oct. 2024)

Several parties, including CEN, CENELEC and ETSI (who could be managing the scheme on the European level) provided input.

On 9 January 2025, HW1 will be conveyed in Brussels (also hybrid) with the goal of having an agreed working draft.

In February/March 2025 we will organize an in-depth discussion session, involving also external stakeholders (NSBs, educators, etc.)



European High Level Forum (HLF) on Standardisation

TU/e

Outline



Need, opportunities and challenges for education on standardisation

HLF HW-1: Education and skills

The edu4standards.eu Horizon project



European High Level Forum (HLF) on Standardisation

TU/e

Empowering Standardisation through Education in Europe

Innovating how standardisation is taught in European Higher Education



The workstream is well underway, with several deliverables finalized, and one in progress

Message to the EU Member States:

We see the certificate as a key step, but it cannot be made a success by the HLF in isolation. It also requires active steps of Member States and NSBs, supporting the certificate and making efforts to include teaching on standardisation in national/ institutional teaching curricula.

European High Level Forum (HLF) on Standardisation

TU/e