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

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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
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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

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- 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...

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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) School	SAC (NSB) School	SAC (NSB) School	SAC (NSB) School	SAC (NSB) School	SAC (NSB) School	SAC (NSB)	Public	Public	SAC (NSB) ISO/IEC	SAC (NSB)	SAC (NSB) 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

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Need, opportunities and challenges for education on standardisation

HLF HW-1: Education and skills



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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

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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.



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Deliverable 1: HLF pledge



What has been already achieved in the pledge?

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	Name	1. Intern- ships	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.

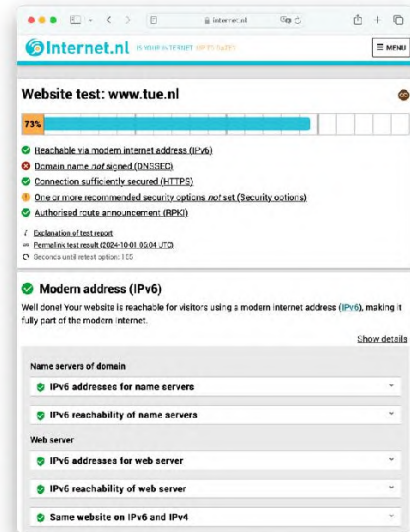
3. Promote standardisation education by means of awareness campaigns (examples)

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



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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 standards in Europe

A conference organised by EC 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 science. This High Level Forum will make the point of view of these stakeholders in the field of standardisation in Europe. Its current activities include: "How can we make our education on standardisation in Europe more visible, more relevant, and more job?"

This event brings together national and European standardisation bodies, academia, the legal, labour, standardisation, representatives of EU Member States and other stakeholders to discuss the challenges but also good practice solutions.

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

Monday 17 June	
08:00	Registration, coffee
09:00	Opening address Representative addressing the standardisation community, business, and standardisation bodies
10:00	Coffee/tea
10:30	Parallel workshops: A. A new European student certificate on standardisation B. Incentives for teachers and students
12:00	Networking reception (until 13:00)
Tuesday 18 June	
09:00	Private conversations, students and of National Standardisation Bodies (NSBs) and their most successful activities, but also their challenges
10:30	Coffee/tea
11:00	Parallel workshops: C. Training standards for the American for the 2024 Industry Act D. The objective of education on standardisation
12:30	Lunch & poster session
13:30	The role of personal games
14:00	Coffee/tea
14:30	Actual playing of serious games & poster sessions
16:30	Recap talk from parallel workshops & wrap-up
17:00	Closing networking reception (until 18:00)

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

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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

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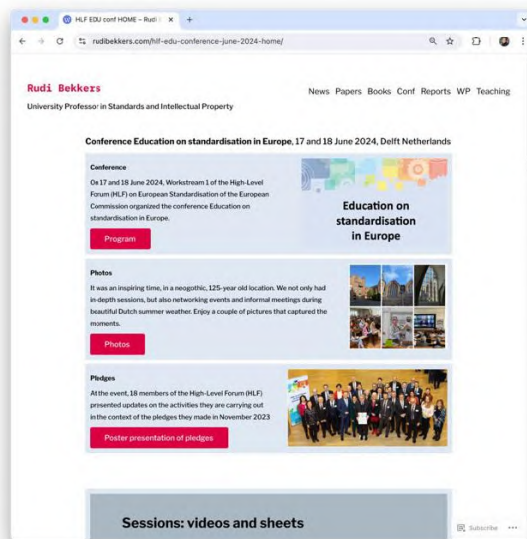
Deliverable 2: Delft conference (17-18 June 2024)



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



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



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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



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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

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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.)



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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.

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