

STS Conference Graz  
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**It's not only about  
technology!  
Educating future standards  
professionals**


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## Project: Education for Standardisation in the EU


-  HORIZON Coordination and Support Action
-  Duration: January 2024 - December 2026
-  The **overall objective** is to innovate education of standardisation within European Higher Education Institutes.
-  **5 key strategic objectives:**
  - 01** Develop and pilot an innovative teaching concept for standardisation (ITCoS)
  - 02** Raise awareness through events (ex. Academic Standardisations Days)
  - 03** Expand higher education courses on standardisation
  - 04** Build a community of standardisation educators and learners
  - 05** Establish an EU Student Standardisation Association

- 🌐 **Coordination:** Fraunhofer-Gesellschaft
- 🌐 17 partners (universities, HEIs, standardisation bodies and associations, and SMEs) from 11 countries

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## Outline

*Part I. Why the education on standardisation should include non-technical aspects?*

*Part II. How to include non-technical aspects in education about standardisation?*


## *Part I. Why the education on standardisation should include non-technical aspects?*

*An EU Strategy on Standardisation Setting global standards in support of a resilient, green and digital EU single market COM(2022)0031:*




 "The special status of the European standardisation organisations comes with responsibilities. More than ever, standards do not only have to deal with technical components, but also incorporate **core EU democratic values and interests**, as well as **green and social principles**."

## What values?



**Article 2 of the EU treaty explicitly states 6 values:**

 “The Union is founded on the values of respect for **human dignity, freedom, democracy, equality, the rule of law** and respect for **human rights**, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.” {Article 2, Consolidated version of the Treaty on European Union, 2016}

## What values?

-  **The EU's human-centric approach:** putting people's needs and fundamental rights at the heart of the digital transformation; closing digital divides.
-  **Digital and green skills:** accelerating the "twin" digital and green transitions to achieve resilient, sustainable, and competitive EU economy.
-  **Gender-responsiveness:** promoting equality and inclusivity by addressing gender-specific needs.

## Non-technical aspects as a "gap" in education on standardisation:

-  Numerous EU policy documents emphasise the importance of non-technical facets of standardisation to achieve better regulation, protect public interests, and promote European values.
-  However, the current practice and the body of knowledge for teaching standardisation do not (explicitly) accommodate these aspects, thereby creating a gap.



## Value-Sensitive Standardisation: The Case of Sex Robots



Sex robot Harmony by Abyss Creations

## Examples of standards / products / services that negatively correlate with values / green & digital transitions / are/aren't gender-responsive

- 🌐 PPE: body armour is historically produced in “unisex” models but is designed and optimised for male bodies (NATO Standardization Agreement (STANAG) 2920)
- 🌐 VR glasses: the first MVP design was not ergonomic for women until one of the team members, female, gave her feedback on using them.



## EU POLICY DOCUMENTS REGARDING STANDARDISATION: GREEN, DIGITAL SKILLS AND GENDER EQUALITY

-  EU STRATEGY ON STANDARDISATION
-  THE NEW EU INDUSTRIAL STRATEGY
-  GREEN DEAL
-  DIGCOMP 2.2
-  GENDER EQUALITY STRATEGY

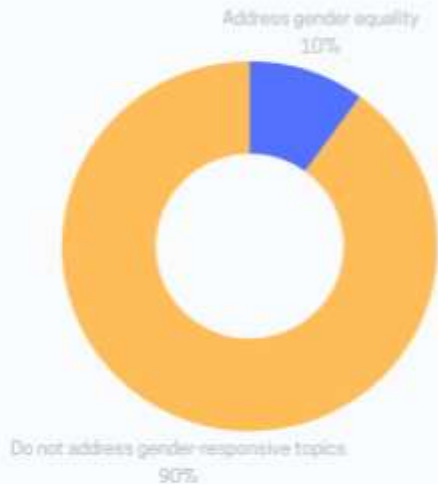
## Existing methods of teaching

- 🌐 European Market Needs for Education in Standardisation/Standardisation-related Competence (2017), Fraunhofer
- 🌐 ISO IWA 30-1 Competence of standards professionals, Part 1: In companies (2019)
- 🌐 ISO IWA 30-2 Competence of standards professionals, Part 2: In standards-related organisations (2019)
- 🌐 DigComp 2.2: The Digital Competence Framework for Citizens (2022)
- 🌐 Standards-Based Career and Technical Education Curriculum Model (2022)
- 🌐 GreenComp: The European sustainability competence framework (2022)

- 🌐 The existing materials **lack the consideration of non-technological principles** (like European values and interests). Thus, we **expand** the existing body of knowledge with **value-oriented learning outcomes**. This means we will translate the universal values and principles as promoted by the EU into specific contexts of standardization.

The **lecturers** involved in education about standardisation **do not always/at all know/understand** how the **EU-desired values**, as well as the **Gender Equality** and **Green Deal Strategy and DigComp** can be meaningfully (and to what extent) **incorporated** in their teaching.

### Addressing the topic of standards and gender, including gender-responsive standards



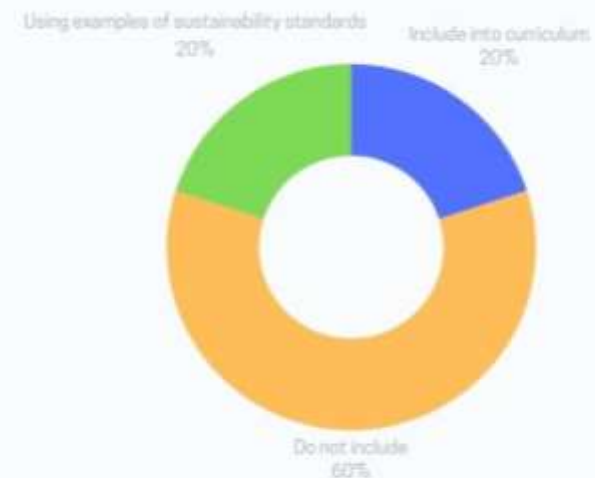
9 out of 10 universities do not cover topics of Gender equality in their curriculum

### Addressing digital skills related to standardisation



9 out of 10 universities do not address digital skills relevant for standardisation

### Addressing green skills related to standardisation



6 out of 10 universities do not address green skills relevant to standardisation

*Part II. How to include non-technical aspects in education about standardisation?*



## The Innovative Teaching Concept of Standardisation (ITCoS)

- Human-centred approach
- European values
- Green & Digital & Gender





### What is it?

- ⑩ **Guide/compendium** for teaching EU core values, digital, green and gender skills in standardisation.
- ⑩ **Complementary material** to already existing teaching resources on standardisation.

### Who is it intended for?

- **Existing lecturers** on standards/standardisation to overcome topical gaps in education about standardisation.
- **New lecturers** on standards/standardisation education to start teaching on the topic.



**Intended Learning Outcomes (ILOs): knowledge, skills and attitudes**



**Identification** of existing methods, content, manuals, and other educational resources for teaching about standardisation to identify gaps in knowledge



**Interviews & Expert talks** with SDOs, industry and education representatives



**“505” and “101” guidelines**

For existing (highly skilled lecturers on standardisation education) and for new lecturers (who do not have skills for teaching about standardisation)



**5 pilots** (Bachelor level, Master level, summer school, in-company training, the Pan-European EARTO pilot)

## EDU4Standards ILDs Framework

### *Four-dimensions\**:

- **Dimension 1:** Core values (Competence areas)
- **Dimension 2:** Competences
- **Dimension 3:** Levels of proficiency (EQF)
- **Dimension 4:** Examples of knowledge, skills, attitudes

\* The structure is taken from DigComp & GreenComp.

## Examples of knowledge/skills/attributes as formulated in existing frameworks

Knowledge of the process and procedure for standards development;

To know the standardisation institutions and their processes

Technical knowledge in a specified sector;

To know the basic terms used in standards and standardisation

Ability to organize a committee;

To be able to understand the impact of standardisation processes

Knowledge of international standardization activities and related organizations;

Ability to determine whether a standard(s) needs to be newly established or revised;

Ability to prepare standards development plans;

Ability to search and purchase external standards;



Sources:

European Market Needs for Education in Standardisation/Standardisation-related Competence (2017), Fraunhofer  
 ISO IWA 30-1 Competence of standards professionals, Part 1: In companies (2019)  
 ISO IWA 30-2 Competence of standards professionals, Part 2: In standards-related organisations (2019)

## Our approach:

Dimension 1	Dimension 2
Core values	Competences
1. Human dignity	1.1. Respecting others
	1.2. Caring for the well-being of others
	1.3. Protection from harm
2. Freedom	2.1. Exercising one's autonomy
	2.2. Protecting privacy and personal data
3. Democracy	3.1. Disclosing relevant and useful information
	3.2. Raising awareness by participation
	3.3. Assuming responsibility
4. Equality	4.1. Promoting gender equality
	4.2. Promoting non-discrimination and fairness
5. The rule of law	5.1. Cherishing tradition
	5.2. Building and enhancing trust and trustworthiness
6. Sustainability	6.1. Promoting environmental well-being
7. Universalism	7.1. Universal values

## Dimension 4

Competence: Protecting privacy and personal data		
Knowledge	Skills	Attitudes
<b>K1:</b> Knows the concepts of privacy and data protection	<b>S1:</b> Able to make a distinction between privacy and data protection	<b>A1:</b> Inclined to ask critical questions to better understand the privacy implications of a specific technology
<b>K2:</b> Knows the concepts of personal, non-personal and sensitive data	<b>S2:</b> Able to make a distinction between personal and non-personal data	<b>A2:</b> Willing to advocate for data minimisation
<b>K3:</b> Knows the roles in data processing (controller, processor, data subject) and their corresponding responsibilities and rights	<b>S3:</b> Able to distinguish between sensitive and non-sensitive data	<b>A3:</b> Recognises the risks of not considering privacy when working on standards for information technologies



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# Thank you!

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