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D5.3 – 1st Standards Assembly Report (Report on future Standardisation Education Workshop)

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Table of Contents

EXECUTIVE SUMMARY	5
1 INTRODUCTION	5
2 FUTURE STANDARDISATION EDUCATION	8
2.1 STANDICT.EU 2023 & EUROPEAN COMMISSION WORKSHOP: FUTURE STANDARDISATION EDUCATION	8
2.2 OUTCOMES FROM THE EVENT.....	11
3 KEY CHALLENGES IN STANDARDISATION	12
4 RECOMMENDATIONS TO SUPPORT STANDARDISATION	13
5 CONCLUSIONS	15

Table of Figures

Figure 1 Landscape Report Published	7
Figure 2 Future Standardisaiton Education Workshop - Session 1	8
Figure 3 Future Standardisaiton Education Workshop - Session 2	9
Figure 4 Future Standardisation Education Workshop - Session 3	10
Figure 5 Future Standardisation Education Workshop - Session 4	10

Glossary

ICT	Information and Communication Technologies
EUOS	EU Observatory on Standardization
EUOS-SSR	EUOS Searchable Standards Repository
TWGs	Technical Working Groups
IoT	Internet of Things
EC	European Commission
EURAS	European Academy for Standardisation
STAIR	STANDARDIZATION, Innovation and Research
HEIs	Higher Education Institution
KPI	Key Performance Indicator
SDO	Standards Development Organisation
AI	Artificial Intelligence
ML	Machine Learning
DPP	Digital Product Passport
DLT	Distributed Ledger Technologies
CSA	Coordination and Support Action

Executive Summary

The project StandICT.eu 2023 kicked off on 1st September 2020, and was continuously supported by representatives at the European Commission involved at DG CONNECT, DG GROW and DG RTD over the past three years. The project has achieved, as its mandate requested, a strong, engaged and vibrant Standardisation community primarily in ICT. The project has provided more visibility to European Standardisation competent professionals eager to engage in European and International Standardisation.

1 Introduction

From 2020 to now, the StandICT.eu 2023 project has successfully launched, closed and evaluated eight Open Calls. The StandICT.eu Fellowship Programme has led to the funding of 298 projects for approximately 2.535 million euros of the 2.95 million euros earmarked for Financial Support to Third Parties.

Until 14th February 2023, 1,640 users have registered, and 30 discussion groups are engaged on the website. Moreover, 2,190 available standards have been uploaded to the EUOS Searchable Standards Repository (EUOS-SSR). There are thirteen Technical Working Groups (TWGs) and over 140 active experts engaged in these groups. Six Landscape Reports and one White Paper have been published, with thousands of views and downloads. (See Figure 1)

A variety of standards activities has been organised, and achievements have been produced, which is a neutral, reputable, pragmatic and fair approach to support European and Associated states presence in the international ICT standardisation scene. For instance, ETSI Research Conference: Maximizing the Impact of European 6G Research through Standardization (6th-8th Feb 2023), Walk & Talk Webinar - Digital Transformation through Standardisation: IoT and Edge (13th Dec 2022), EU Standardisation Priorities - Quantum Technologies – Walk & Talk webinar series (13th Oct 2022), etc.

The latest initiative in the StandICT.eu portfolio of activities targeted Future Standardisation of Education. This intense 3-hour workshop on 18th January 2023 was organised at a crucial time when the European Green Deal & the New Industrial Strategy for Europe and the geopolitical

This report draws from the main takeaways of the dedicated event “**Future Standardisation Education Reflections and Recommendations**”¹ which took place on the **18th January 2023** in replacement of the originally planned “Standards Assembly”. This document also displays some of the achievements from our funded fellows within the various technological

¹ <https://www.standict.eu/events/future-standardisation-education-workshop>

domains where standards are critical including Digital Twins, Blockchain & DLT, 5G, Digital Product Passport, Artificial Intelligence, Fintech and RegTech, Spatial Computing, Geospatial Standards and eHealth. The results from these domain areas are chosen in the efforts in defining multiple landscape and gap analysis reports, StandICT.eu delivers, through the work within the TWGs targeted specific, important technologies supporting the EU Green Deal and the Industrial Strategy for Europe. The European Commission together with global and European Standardisation Organisations have worked hard to identify solutions on how standardisation can allow stakeholders at all levels to develop a shared understanding and increased standardisation knowledge at large that can cover respectively technological, innovation-supportive and societal aspects that include the potential of standards to safeguard EU core values.

The report demonstrates key challenges and recommendations in Standardisation considering ICT and non-ICT sectors.

Publication Date: **May 20, 2021**



Publication Date: **Nov 23, 2021**



Publication Date: **Feb 3, 2022**



Publication Date: **May 22, 2022**

Publication Date: Oct 13, 2022



Publication Date: Nov 29, 2022



Publication Date: Dec 13, 2022



Figure 1 Landscape Report Published

2 Future Standardisation Education

2.1 StandICT.eu 2023 & European Commission Workshop: Future Standardisation Education

On 18th January 2023, StandICT.eu 2023 in collaboration with the European Commission, organised a stimulating, three-hour Workshop on “Future Standardisation Education” covering the principal results and impacts that StandICT.eu 2023 and other invited projects EU funded projects, such as HSbooster.eu and Stand4EU, have achieved. Moreover, compelling insights from CEN and CENELEC, the STAIR initiative and ETSI activities on Standardisation and education were highlighted.

The event displays an outstanding deliverable that collaborates and synergizes with the PPPs and other associations. It is also joint efforts between educators from EU universities /Higher Education Institutions who already integrate standardisation-related content in their curricula with coordinated cooperation with industry to help design an innovative teaching concept of standardisation for Europe and look to its global partners who have best practices in place.

The event was organised around four main sessions summarised below.

Session 1, “*Defining Standardisation needs, priorities and contributions provided at the European level*”, is dedicated to an overview of the EC’s ongoing activities and Standardisation priorities. (See Figure 2)

ONLINE WORKSHOP

Future Standardisation Education

Reflections & Recommendations

Session 1: Defining standardisation needs, priorities and contributions provided at the European level

Moderator
 Silvana Muscella, CEO, Trust-IT & StandICT.eu Coordinator

Helen Köpman,
 Deputy Head of Unit Digital Innovation & Blockchain at European Commission DG CNECT

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Figure 2 Future Standardisation Education Workshop - Session 1

Session 2, “A snapshot of some key European Standardisation activities and their main achievements”, showcases the work that various projects and organisations have put in place with the support of the European Commission and the European Standardisation Organisations to identify solutions on how Standardisation can allow stakeholders at all levels to develop a shared understanding and increased Standardisation knowledge at large that can cover respectively technological, innovation-supportive and societal aspects that include the potential of standards to safeguard EU core values.

ONLINE WORKSHOP

Future Standardisation Education

Reflections & Recommendations

Session 2:
 A snapshot of some key European Standardisation activities and their main achievements

Moderator
 Nicholas Ferguson,
 Senior Project Manager,
 COMMpla
 (HSbooster.eu
 Coordinator)

Eurico G. Assunção,
 Deputy Director, EWF
 (STAND4EU)

Livia Mian,
 Innovation Project Manager,
 CEN-CENELEC

David Boswarthick,
 Director of New Technologies,
 ETSI

Ray Walshe,
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 Director)

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Session 3, “Interactive discussion on how technologies are impacted by Standardisation - A voice to the experts”, features a set of European Standardisation competent professionals. These experts eager to engage in European and International Standardisation, who are deeply involved in StandICT.eu activities via their funded fellowship and the multiple landscape and gap analysis reports targeted around specific, critical technologies supporting the EU Green Deal and the Industrial Strategy for Europe.

Figure 3 Future Standardisation Education Workshop - Session 2

Figure 4 Future Standardisation Education Workshop - Session 3

Session 4, “Attracting tomorrow’s professionals to contribute to Standardisation” is also organised addressing Training, Educational and Standardisation efforts and new calls published under the Horizon Europe Programme dedicated to this. Session 4 focuses on joint efforts between teachers of EU universities / Higher Education Institutions who already integrate Standardisation-related content in their lectures with coordinated cooperation with industry to help design an innovative teaching concept of Standardisation. Universities are vital in shaping the digital transformation and ensuring that we have the skills we need in Standardisation as they will guarantee the future generation of standardisation experts.

Figure 5 Future Standardisation Education Workshop - Session 4

2.2 Outcomes from the Event

There are three challenges in Standards Education, which have emerged based on the workshop outcomes.

Firstly, there is an obvious need to increase the number of students educated in standardisation. The requirement for this type of profession is growing, many of the more seasoned experts in the field, albeit contributing immensely, are retiring, and therefore this needs to be implemented with innovative teaching methods in European universities and HEIs.

Secondly, market participants are not very happy with what is happening in education. The number of students is falling, and it is challenging to attract new students.

Lastly, the multidisciplinary nature of standardisation also presents a challenge in bringing this topic into the curricula of universities, as this touches so many domains.

Recommendations to address the identified challenges are illustrated below.

- Ensure greater recognition of Standardisation activities, via dedicated metrics and KPIs to support, e.g. academic/career progression
- New teaching approaches should address society and take into account EU policies such as the Green Deal.
- Education bridges a gap between researchers, industry, academia and SDOs. Therefore, it should have at least two levels of engagement, both from the universities and from the professionals:
 - There is no simple way to engage Higher Education Institutions in standardisation. Academia is about not only engaging researchers, students and teachers but also programme managers/decision makers. A long term strategy is needed which takes a 10-15 year horizon plan to deliver the requisite number of standards professionals for future European market needs.
 - To get the industry onboard, it is vital that professionals are involved as instructors and share their experience via teaching activities. In addition, there is a need to create industry clusters to improve knowledge exchange and ensure that demand and supply are both involved. This will have a favorable spillover effect on the various communities.
- In addition to thoughts of promoting curricula and courses, standardisation could also be provided as a module of “soft skills” as part of courses on another discipline for example such as IoT.
- To attract new talent, an idea could be creating a professional body such as engineering to give this some traction as a career.

3 Key Challenges in Standardisation

All the Standard activities have generated a rich discussion on the current standardisation challenges in Europe, considering both ICT and non-ICT sectors. The following key challenges in standardisation have arisen according to our events' outcomes.

- ❖ In some standards scenarios, e.g. the standards manufacturing has two very stark contrasts: Standards have been in use for a long time for that areas and are pretty consolidated in the market. If subject to routine updates, on the other hand for new technology it is an entirely different situation where innovation and development of new processes are. For instance, additive manufacturing is at a completely different stage of maturity. They are new or yet to have been developed. Therefore, these gaps need to be identified and addressed.
- ❖ A key challenge is managing to combine efforts in Europe, creating a common basis and looking to the future forward how digital standards will be developed and used.
- ❖ Attracting the European portfolio of projects into the SDO ecosystem and to raise public awareness about standardisation and accelerating the integration of new and emerging technologies into the work programme of SDOs.
- ❖ Monitoring what is happening in the scene nationally and internationally to ensure there is no duplication of efforts.
- ❖ Many standards already exist. Individuals or organisations, or researchers need to understand how they can get involved and where to go to find the existing standards.
- ❖ Many domains are interlinked, particularly across ICT. This means that a silo approach to Standardisation will not work.
- ❖ While it can be difficult to involve every individual from every stakeholder group in the standards development process due to lack of funding and or time, collaboration and not isolation is key to ensure the standards being developed reach maturity quickly. .
- ❖ It is sometimes difficult to escalate national priorities to a European and International level due to language barriers from the contributors.
- ❖ Often, especially in new domains, no consensus on terminology and/or vague terminology exists. This results in multiple groups using different terms for the same things and using similar terms to describe different contexts.
- ❖ The current liaison-only approach to shared standardisation objectives is suboptimal as an interface and results in minimal collaboration among SDOs in overlapping areas.
- ❖ There is no single "Get Started" space for experts who want to get involved, leading to dispersed groups and soloed funding.

4 Recommendations to Support Standardisation

The funded experts and the participants at our standard activities, which could be considered to boost the significance of Standardisation at a European level, have provided recommendations and reflections.

Recommendations to encourage standards adoption

- ❖ To ensure broad adoption of the hundreds of existing standards, also listed in the EUOS Standards Observatory, we need a more collaborative approach to guide and correct the implementation of standards and we need the involvement of innovators early in the process
- ❖ Removing duplication and intensifying effort involving all of the actors across the board is definitely the way forward to harmonise standards, not just in ICT, but in other sectors, this can lead to improved standards and new standards.
- ❖ The research sector is crucial to Standardisation. European Union-funded projects and European Standardisation Organisations are playing a pivotal role in making sure this happens and making sure that the right incentives and recognition are evident.
- ❖ Communities around Standardisation priorities are key. Participation requires passion to address challenges, practical support to newcomers and visibility of progression in addressing challenges.
- ❖ Democratising knowledge, independent of different companies or countries Ensure standards support European regulations and policies.
- ❖ Any standard involving UN Human Rights should be labeled or marked for additional review.

Recommendations to support Standardisation in various ICT domains

- ❖ **Digital Twins:** Use CSA calls to capture types of twins, their structures & reusable building blocks for specific domains; Develop a set of best practices for the use of standards in digital twin implementations (to help bring twin examples to methodology & developing the supporting tools to create a transition path); Go from twin examples to methodology & developing the supporting tools to create a transition path; Define “common good” twins versus Intellectual Property twins; Better define “good” decisions for sustainability, resilience & competitiveness.
- ❖ **Blockchain, DLT and emerging technologies:** Create access to new technologies facilitating a dialogue with active companies. In this field, innovation management often happens in the workplace, which should be integrated as part of the standardisation dialogue. We should extend opportunities for industry, academia and in particular

startups/ SME participation and contribution to SDO activities. Expert time in research and networking new standards as they emerge is the greatest contribution to the SDO community and should continue to be nurtured as best it can be. Positive opportunities to collaborate and share knowledge are beneficial, and opportunities such as those emerging in TC307 WG6 - Blockchain and DLT use cases, which are industry-facing, inviting startups local to plenary meetings and globally through national body relationship management are approaches worth elaborating upon.

- ❖ **5G:** Identify strategic USPs of each SDO in a specific area covered by other SDOs as well; Leverage the strengths of each and let contributions/strengths complement each other; Incentivize/ encourage joint activities and small projects that are inter-stakeholder with the specific focus on standardizing an important aspect or asset of a technical setup
- ❖ **DPP:** Need for common vision, Need for research on details, Need for training for market actors. The EC initiative for a digital product passport (DPP) should be based on standards developed by EU industry for data exchange in industrial value chains. This would enable a data economy based on EU values and a central element of European sovereignty for data based business models
- ❖ **AI and ML:** Creating standards for pre-trained models and incentivizing developers/ML engineers to share these models across industries; Creating standards for datasets and incentivizing developers/ ML engineers to share them across industries; Imposing standards on AI/ML inputs outputs so that we focus on the outcomes of the models instead of the process of how this model was built; Imposing standards on transparency of AI/ML components (training datasets, boundaries, code sharing) making systems more predictable/interoperable/trustable
- ❖ **ICT Management Standards:** Europe's digital, green and industrial transformation needs the best standards in technology, but these must be accompanied by new standards in the ways of managing services, productivity and contribution of technology to business.
- ❖ **ICT in general:** ICT people must matter for future standards, ICT management standards must be developed according to how technology standardisation evolves.
- ❖ **eHealth:** Discussions on standards should always include an awareness of the European respect for Human Rights issues which may arise as a result of new technologies being employed in the health environment.

Recommendations on the Standardisation processes and methods

- ❖ Address “real problems” and not invent problems for Standardisation to solve. Prototyping should be done in advance of Standardisation (trying our solutions before doing the standards work);

- ❖ Make sure the standards we release are implemented with ease (toolkits, tool samples, coding);
- ❖ Interoperability standards should be prioritised as a baseline goal;
- ❖ Create standards for pre-trained models and incentivize developers/ML engineers to share these models across industries;
- ❖ ICT Management Standards: Europe's digital, green and industrial transformation needs the best standards in technology, but these must be accompanied by new standards in managing services, productivity and contribution of technology to business.

5 Conclusions

The standard events have demonstrated the synergies and collaborations with the PPPs and other associations, the success stories of StandICT.eu-funded fellows, and the impact of some applications within a societal, economic and technological context.

The ultimate goal of the standard activities is to help engage more interest and direct engagement from Europeans in the Standardisation process from academia, research and industry and hope to have achieved this with these activities.

To position Europe as a global standard-setter, it is crucial to build a robust and sustainable pool of European professionals ready to contribute to European and international Standardisation.

The StandICT.eu project with an expanded partner network can now deliver on strategy and policy, and experts support and training to provide EU Leadership in International Standardisation. This ecosystem building of the next generation of European standards professionals will increase our leadership potential in emerging technology domains and increase the presence of EU values in international standards development.