StandICT.eu 2023

ICT STANDARDISATION OBSERVATORY AND SUPPORT FACILITY IN EUROPE

FOLLOWING THE FELLOWS

IMPACT REPORT FROM FUNDED APPLICANTS TO THE STANDICT.EU 2023 FELLOWSHIP PROGRAMME

EIGHTH OPEN CALL

Editors:

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Disclaimer

About StandICT.eu

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Acknowledgements

Our consortium, formed by **Trust-IT as the coordinator, Dublin City University and AUSTRALO Marketing Lab**, is grateful to all experts of our StandICT.eu 2023 community for their competent work. This booklet is a tangible reflection of your continuous dedication in ICT Standardisation - Thank you!

StandICT.eu 2023 would also like to thank Carlos López Rodríguez, StandICT.eu 2023 Project Officer & Policy Officer in ICT Standardisation at DG Connect European Commission, for his leadership and guidance. The **External Advisory Group (EAG)** provided invaluable support throughout the course of the project. Our appreciation for their effort and commitment goes to: **Ray Walshe (EAG Chair), Stefan Hallensbellen, Brian McAuliffe, Lindsay Frost, Jens Gayko, Karl Grun, Enrico Scarrone, Nuria de Lama, Tom de Block, Martin Chapman, Fergal Finn, Ana Garcia Robles, Stefan Weisgerber, Jochen Friedrich, Antonio Conte, Omar Dhaher, Barbora Greplova, and Stefano Nativi**. Finally, we would like to thank all our EUOS Technical Working Groups (European Observatory for ICT Standardisation) chairs and members for the investment in gathering expertise and producing outstanding landscape reports of the standardisation status across different ICT sectors. We warmly thank the TWG chairs guiding this work: **Lindsay Frost, Ismael Arribas, Matthias Pocs, Dimosthenis Kyriazis, Jeroen Broekhuijsen, Antonio Kung, Claude Baudoin, Joel Myers, Arkopaul Sarkar, Georgios, Karagiannis, Brian McAuliffe and Fiona Delaney.**

Foreword

The European Green Deal & the New Industrial Strategy for Europe call for a strong EU presence in international Standardisation development. The recent significant shifts in the geopolitical environment call for increasing the intensity of the EU presence in international standardisation committees. Building up a strong and sustainable pool of European Standardisation competent professionals who are ready to engage in European and International Standardisation is crucial. With this we are pleased to contribute to this already engaged community through the "*Following the Fellows*" series Impact Reports, now in its 8th edition, proving a tangible testimony of the impact generated by European ICT experts working in collaboration with international Standardisation Developing Organisations (SDOs), thanks to the financial support provided through the StandICT.eu 2023 Fellowship Programme, as paramount part of the broader mission of the StandICT.eu 2023 Coordination and Support Action, funded by the European Commission's H2020 Framework Programme.

The main purpose of these regular publications is to display the work carried out by our fellows and illustrate the demonstrable outcomes that excellent research can make to both society and to the economy (SMEs or industry at large). Therefore, we attempt to substantiate how each effort on which the fellows are engaged provides a potential benefit to society and contributes to the achievement of specific, desired, societal outcomes as a result of the ICT Standardisation efforts.

Special thanks in putting together these regular publications go to our External Advisory Group who provide high-level input to fine-tune the topics covered by the Open Calls, as well as the dedicated work of our External Pool of Evaluators who scrupulously vet the numerous applications received in response to this call, to our Partners, Dublin City University and AUSTRALO Marketing Lab key to the monitoring activities, our project officers at the European Commission of DG Connect for their relentless support and, of course, to our fellows for the strenuous months of work behind each activity and reporting to help deliver the results herein.

Silvana Muscella

StandICT.eu 2023 Project Coordinator
& CEO, Trust-IT Srl

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Introduction

This report provides an immersion into the outcomes of the StandICT.eu 2023 Open Call #8 from the perspective of fellows that were selected and funded under this call. Our team is delighted to showcase the eighth series of StandICT.eu 2023 success stories of the funded fellowships detailing the addressed standards and landscapes and how these will fill in the identified gaps as well as impact toward the related stakeholders and society. The results obtained by our fellows fully respond to many of the objectives set out in the EU Strategy on Standardisation. They mainly prioritise and address standardisation needs in strategic ICT areas, enhance European leadership in global standards, support innovation and, finally, improve the overall integrity of the European standardisation system.

Standards are at the core of the EU Single Market and global competitiveness and play a fundamental (even if sometimes invisible) function in our daily life. They can ensure the interoperability of products and services, reduce costs, improve safety, and foster innovation.

At the same time, standards act as powerful drivers for innovation and growth by helping researchers bring their innovation to the market and spread technological advances, as standards make their results transparent and ensure high quality. One of the key purposes of StandICT.eu 2023 is to support the activity of European ICT experts to contribute to the modernisation and consolidation of the European standardisation system as well as to the valorisation of their research outputs, with a view to efficiently respond to the EU's ambitions towards Resilience and Green Transition of the European societies. These two thematic areas that were the focus of the announcement of the 8th Open Call.

The primary purpose of this document is to share the results attained through the work carried out by the funded experts, and to showcase the most relevant outcomes, creating awareness of the potential impact and repercussions of such impact on commerce, industry, governmental policies and strategies and the society. This open call is the eighth one out of 9 StandICT.eu 2023 Open Calls. Each open call will have a dedicated impact report with the goal to timely share the key findings, contributions, and observations with StandICT.eu community, the European Commission, the Multi-Stakeholder Platform, the SDOs, and even beyond, with all interested actors of our ever-growing StandICT.eu 2023 community.

In this report, the Open Call #8 is presented with key takeaways and figures, then the fellowship outcomes are presented in the targeted technology areas, as defined in the Rolling Plan for ICT Standardisation 2023, addressed by the 39 funded Fellows.

In this funding batch, **in total 39 fellowships** were granted, tackling the four policy areas as defined in the *European Rolling plan for ICT Standardisation*[1]:

- **Key enablers and security: 21 fellowships** focusing on cybersecurity (8), Artificial Intelligence (7), e-Identification (3), Identity management (2) and Quantum technologies (1).
- **Sustainable growth: 10 fellowships** focusing on Smart cities (3), Smart grids (1), BIM (1), Building Trust (1), Circular economy (1), Clean planet (1), EMC radiation (1), Intelligent transport systems (1).
- **Innovation for Digital Single Market: 5 fellowships** focusing on blockchain and distributed ledger technology (3), global standards governance (1) and ontologies (1).
- **Societal challenges: 3 fellowships** focusing on eHealth (2) and justice (1).

1 https://joinup.ec.europa.eu/collection/rolling-plan-ict-standardisation/rolling-plan-2023#:~:text=The%20Rolling%20Plan%20for%20ICT,towards%20achieving%20EU%20policy%20goals.

Overview of the Open Call #8

The eighth StandICT.eu 2023 Open Call was launched on the 5th of September 2022 and closed on the 7th of November 2022. The StandICT.eu Open Calls target European ICT standardisation experts contributing to the international SDOs, work groups and/ or technical committees at any of the priority topics, as taken from the Rolling Plan for ICT Standardisation. This Open Call identified "*Resilience and Green Transition*" as its leading theme: the development of open technical specifications and standards to support the fight against the increasing Climate change and environmental degradation is a critical asset to the European Union and to the world, thereby benefitting from the knowledge of industry, experts, SMEs as well as environment organisations and the will of the sectors involved to decarbonization through the wide-spread use of standards in the market. To overcome these challenges, the European Green Deal is Europe's new growth strategy, which will transform the Union into a modern, resource-efficient and competitive economy and this will need the deployment of modern, effective, interoperable and widely accepted standards. The Open Call was, however, completely open for applications tackling a broad range of ICT domains (as encompassed in the ICT Rolling Plan for Standardisation) and treated as equally valid.

Fellowship Profiles

This eighth Open Call totalled 70 eligible applications received out of which 39 were selected for funding, with an overall 350,000 Euro granted. Once more, this open call confirmed the excellent high quality of most of the submitted proposals, marking a noticeably high average quality score (the minimum threshold to access funding was 7,60 score in a 1 to 10 scoring scale). The funded applications provided an extensive geographical coverage with 15 different EU or associated countries (with most representants from France, Spain, Germany, and the

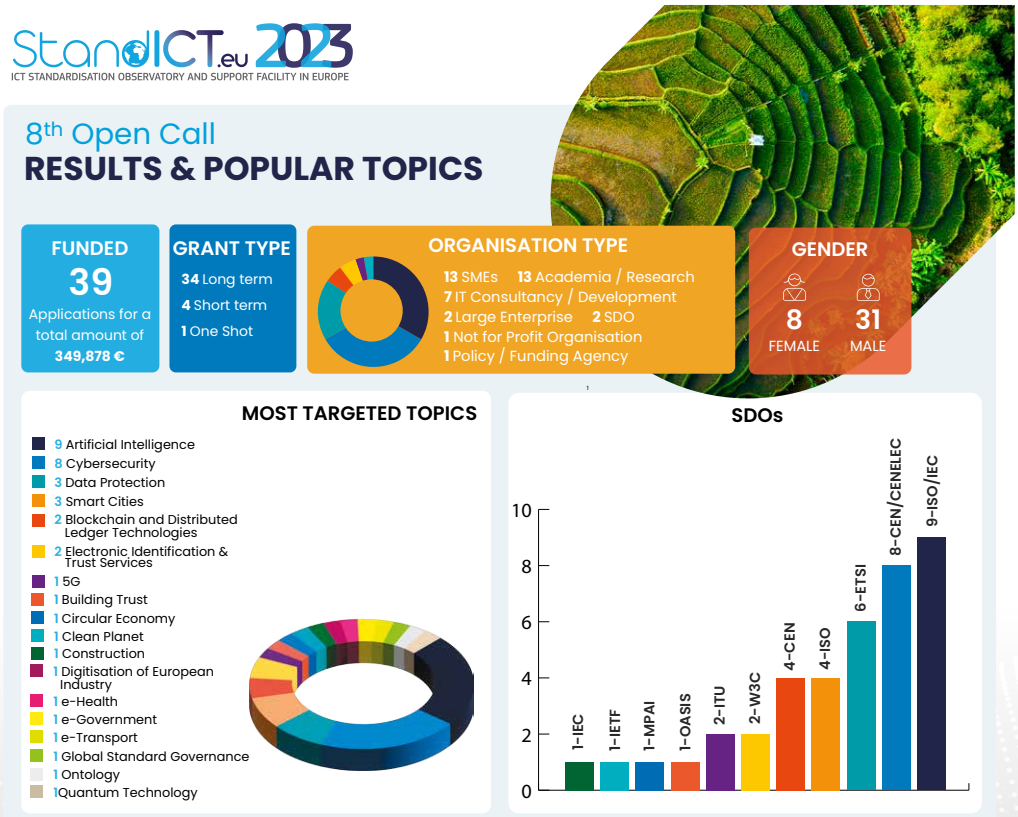


Figure 1 - Overview of the #8 Open Call key results and insights

United Kingdom). The retained fellowships represented with a satisfying balance across the key technologies, and with a wide spectrum of SDOs that will benefit of the competence and expertise of the applicants. As outlined in Figure 1, major part of the submitted applications and granted fellows has chosen their focus in Key Enablers and Security, in trending areas as Cybersecurity, and Artificial Intelligence. This funding batch is marked by a great variety of vertical ICT areas covered by the fellowships, namely smart cities, circular economy and clean planet that belong to the announced focus areas of this specific call. .

Engaged SDOs, Organisations and European Projects

46% of the fellows' work contribute to the activities of Committees or Working Groups operating in global SDOs, namely in ISO, IEC, ISO/IEC, ITU, IEEE, IETF, while the remainder works with European Standardisation Organisations (ESOs), namely in ETSI, CEN, CEN/CENELEC, and other groups/initiatives engaged in standardisation (notably W3C, MPAI and EITCI). One of the most evident benefits that SDOs can take advantage of is the wide and solid know-how of the funded experts that can be instrumental to achieve a better understanding of standards and/or speed up the overall standards development process (and their underlying design), trade-off and compromising during the development procedure, and the operating conditions and environments they are intended to serve. Moreover, SDOs can leverage the expertise of the fellows in view of building consensus within key areas of technology. Finally, 17 European and 2 national funded research projects (see Table 1) are strictly related to the engaged work in the OC #8 fellowships, with a focus on different horizontal and vertical technologies.

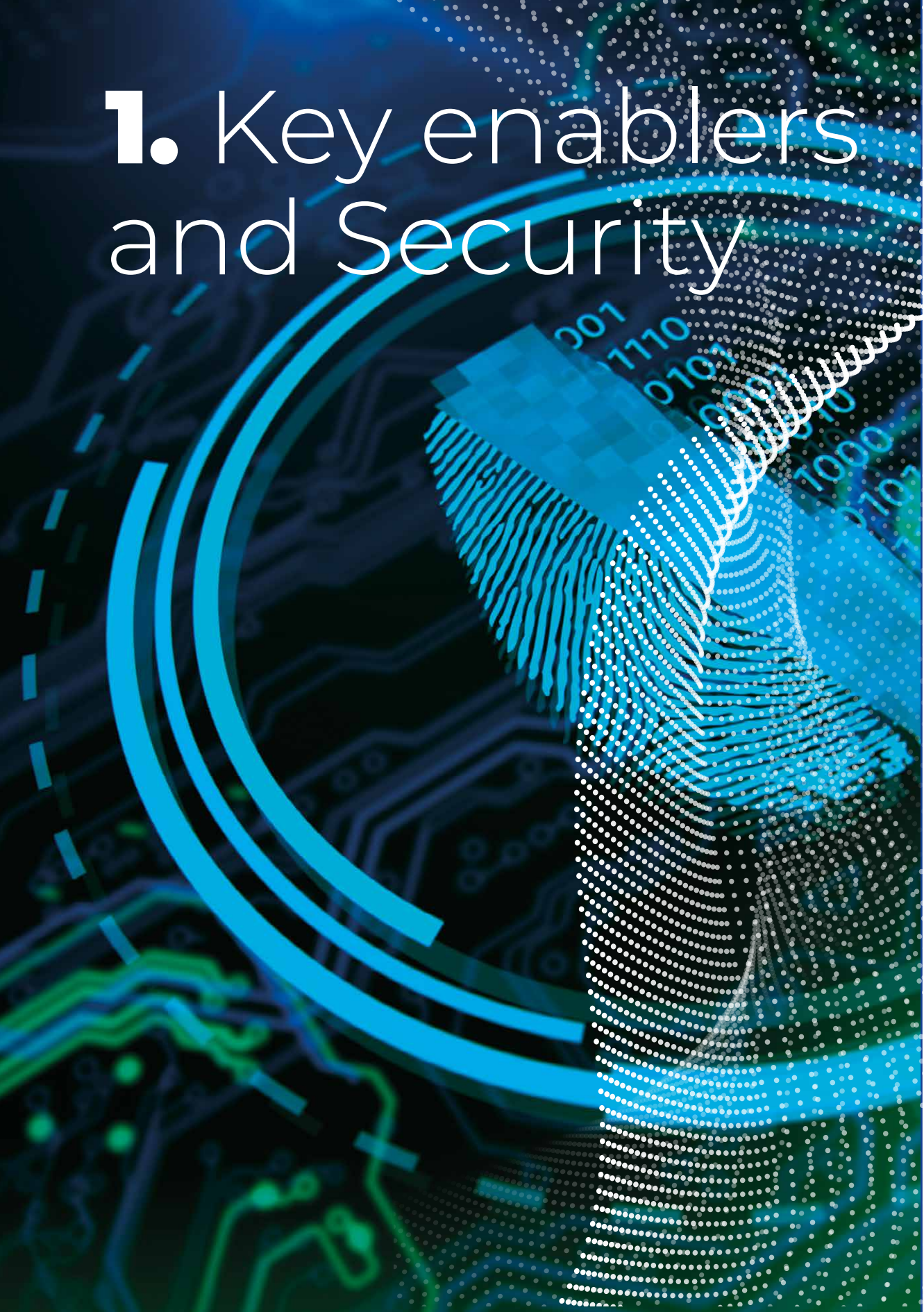
Table 1. Projects related to OC8 Fellowships

Name	Project	Funding Programme
Agnieszka Rządkowska	AI in smart grids integration (grant no. NCN/03/N/HS5/03833)	National Funding
Markus Sabadello	TRACE4EU	EBSI-DIGITAL-2022
	VECTOR	HorizonEurope
Andrea Basso	AI4MEDIA	HorizonEurope
Nicolae Paladi	HARPOCRATES	HorizonEurope
Leandro Navarro	Chistera Leading Edge	ERA-NET
Amelie Gyrard	FIESTA-IoT	HorizonEurope
	AI4EU via open call 825619	HorizonEurope
	InterConnect	HorizonEurope
	OpenSensingCity	National Funding
Dr. Susanne Guth-Orlowski	MaDiTraCe	HorizonEurope
	Battery Pass	HorizonEurope
	CIRPASS	HorizonEurope
Marios Angelopoulos	Ideal Cities	Horizon2020

Name	Project	Funding Programme
Alberto Abella	DOME. Distributed Open Marketplace for Europe	HorizonEurope
Alpo Värri	COVend	HorizonEurope
Marco Azpúrua	21NRM06 EMC-STD of the European Partnership on Metrology	HorizonEurope
Vasileios Mavroeidis	PHOENI2X	HorizonEurope
	CONCORDIA	Horizon2020

Now, we are delighted to share with you the insights from our granted fellows' work – and we truly hope that these results encourage you to follow even more closely all activities that the StandICT.eu 2023 initiative leads in the Fellowship Programme but also on the European Observatory for ICT Standards (EUOS, www.standict.eu/euos) - via the Technical Working Groups (TWGs) delivering up-to-date landscape and gap analysis (www.standict.eu/landscape-analysis-reports), Standards Academy (www.standict.eu/index.php/euosacademy) and policy recommendations to help shape together and reinforce the European and international ICT standardisation arena.

1. Key enablers and Security



Data sovereignty AI algorithms classification for data spaces

Alberto Abella
Data modelling expert, FIWARE foundation
Germany
Short-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

Gaia-X data sovereignty

Role

Member

Addressed EU standardisation priorities and gaps

With this fellowship, I address the availability of AI algorithms to process customer data. Currently the data providers in data spaces must 'trust blindly' on the AI services and their algorithms that they do exactly what they claim and nothing else with the user's data. Independently if they are personal data or non-personal data.

The proposed standard address this confidence by proposing a classification in 3 categories depending on the storage and individual access to the user's data. These categories are:

- No storage.
- Storage of aggregated data.
- Storage of individual data.

However, there is another dimension hardly addressable, when an AI algorithm, besides providing results, use the user data for the incremental training of the AI models. Thus, although no individual data is stored, the algorithm's weights embed this information into the service. It is not clear if this should be regulated or unless warned when using the algorithm. The AI Act of the EU addresses the concept of high-risk AI services. But the stress is made on the AI systems that pose significant risks to the health and safety or fundamental rights of persons, and not much on the fair use of data. The principle of accountability and transparency also present on the AI Act implicitly impacts on the data sovereignty but without specific regulations. However, the AI Act promotes a conformity assessment mechanism for high-risk AI systems, and potentially this structure could cooperate or assume the certification on data sovereignty. Additionally, the sandboxes in support of innovation of the AI Act could be also used for the testing of the AI service to provide such certification.

Concerned ICT Standards and contribution to the related landscape

The objective of this fellowship is to draft a report, based on experts' interviews, classifying data sovereignty AI algorithms. It aims to support future standardisation activities within GAIA-X, BDVA and FIWARE. This report reviews relevant standards and explores notably the works of the ISO IEC JTC 1 SC 42 appointed in 2019 to develop AI standards. But none of the 4 standards planned or published cover specifically the data sovereignty of AI services. Also, there is an emerging group SO/TC 211/AHG 10 belonging to ISO/TC 211; but currently is more focused on the population of large GIS datasets into data spaces than in the AI services to be applied on them.

Moreover, the approach of the ISO/IEC 38505-1:2017 Information technology — Governance of IT — Governance of data — Part 1: Application of ISO/IEC 38500 to the governance of data is for the internal management of data which is different from the application of AI services to external data but some of their principles are useful.

Impact

Impact on SMEs

Currently, the main companies that offer artificial intelligence (AI) services are large corporations that are not based in the European Union (EU). These companies have an advantage because they are well-known and prestigious, but there is no certification process to determine how trustworthy their AI services are. If there was a standard way to measure how well an AI service preserves data sovereignty, it would level the playing field between services offered by small and medium-sized enterprises (SMEs) and those offered by the large corporations. This would require a standardisation process and the creation of a testing service for algorithms, which does not currently exist. As a result, SMEs and other consumers are often pushed towards using the popular services offered by the large corporations.

Impact on Society

There is no doubt that AI systems and their services have considerable potential for growth, with double-digit increases being typical. As a result, unless these concerns impede their deployment, it is likely that they will be rapidly adopted by every company and public service in the EU.

Furthermore, data sovereignty intersects with private data, but the concerns surrounding non-personal data must also be scrutinised. While private data is subject to different regulations, the standardisation of AI algorithms and services could prove beneficial for both types of data. The AI Act of the EU prohibits certain practices, such as social scoring, but its practical enforcement remains inadequate. Additionally, the AI Act emphasises the need to prevent any negative impact on citizens, while data leakage could lead to other consequences.

Regarding the potential societal impact, it is premature to provide an accurate estimate. However, given the rapid development of AI technology, there is a pressing need for a standardised approach to address this challenge.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

A new standard is required, this is what my fellowship work supports. This needed standard would pose a certification schema where an independent entity should provide test/sandbox environments to test the AI services. As a result, certification should be attached to the service to demonstrate its compliance with the standard. Given the exponential pace of the developments in AI, an agile standardisation approach should complement the usual standardisation approach based on the agile standardisation principles: don't just standardise, but be agile and standardise.

These principles aim to create a more flexible and efficient standardisation process that can keep pace with the rapid development of new technologies, such as AI. This approach has been successfully proven in the smart data models initiative:

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical specifications and technical reports on reference material and on development of a new standard.

What future efforts or activities are still necessary for your area of application?

The concern regarding the usage of users' data by AI algorithms is rapidly increasing with the widespread adoption of these systems. The analysis of this issue necessitates both prompt action and a viable solution that does not hinder the EU from leveraging these technologies to enhance productivity and ultimately the well-being of its citizens. One potential solution is the implementation of independent certification for algorithms and their associated services. However, the efficacy of this approach remains to be demonstrated as these services continue to evolve. Hence, it is imperative to establish a task force and a pilot program to assess the feasibility of this proposed solution and potentially extend it beyond the EU's borders.

Online references related to the fellowship work

https://github.com/smart-data-models/data-models/blob/master/MANIFESTO.md

https://smartdatamodels.org.

Continuing support as the Secretary for ETSI ISG Securing Artificial Intelligence

Alex Cadzow
Senior Cybersecurity and Human Factors Researcher
Cadzow Communications Consulting Ltd.
United Kingdom
Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

ETSI World Class Standards

ETSI ISG SAI – Group Securing Artificial Intelligence

Role

Secretary

Addressed EU standardisation priorities and gaps

My fellowship contributes to the work of ISG SAI that meets actions points of AI under the EC Rolling Plan 2022 these include:

Action 4: Considering the cross-sectoral aspects of the proposed AI Regulation and the interactions between the AI Regulation and existing or future sectorial safety legislation (for example the proposed new EU Regulation on machinery products), ESOs shall devote specific attention to the elaboration of standards on the methodology of risk assessment of cyber-physical products powered by AI and on the testing framework. This has been achieved by SAI's published and in-development reports on 'The Role of Hardware in Securing AI and 'Artificial Intelligence Computing Platform Security Architecture".

Action 5: SDOs should appropriately consider cybersecurity and related aspects of artificial intelligence, to identify gaps and develop the necessary standards on safety, privacy, and security of artificial intelligence, to protect against malicious artificial intelligence and to use artificial intelligence to protect against cyber-attacks. This has been achieved by SAI's published and in-development reports on 'Data Supply Chain', 'Mitigation Strategies', 'Security Testing of AI; 'AI Explain Ability and Transparency' and 'Privacy aspects of AI/ML systems'.

Concerned ICT Standards and contribution to the related landscape

The SAI develops technical specifications and reports to address 3 aspects of artificial intelligence in standards:

- Securing AI from attack: where AI is a component in a system that needs protection.
- Mitigating against malicious AI: where AI is used to improve and enhance conventional attack vectors or create new attack vectors.
- Using AI to enhance security measures: protecting systems against attack where using AI is part of the 'solution' or is used to improve and enhance more conventional countermeasures.

The ETSI ISG SAI develops the technical knowledge that acts as a baseline in ensuring that artificial intelligence is secure. Stakeholders impacted by the activity of ETSI's group include end users, manufacturers, operators, and governments.

Recently published work included: ETSI GR SAI 009 V1.1.1 (2023-02) Artificial Intelligence

Computing Platform Security Framework, and currently going through the publication process are GR/SAI-003 Security Testing of AI and GR/SAI-007 Explicability and transparency of AI processing.

Impact

Impact on SMEs

The published work of ISG SAI is freely available to inform and aid the work of SMEs in AI if they are developers, users, testers, etc. As the work of ISG SAI develops this should enable SMEs develop and use AI that are compliant with EU AI Act.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

ISG SAI recently have approved that a '*GR Artificial Intelligence Computing Platform Security Framework*': this will be developed further and turned into a '*General Specification*' (GS) Artificial Intelligence Computing Platform Security Framework. Its scope and field of application is as the AI computing platform acts as the key fundamental infrastructure which provides an execution environment and related resources for supporting/hosting AI applications in an AI system, this work item will specify: (1) security requirements and associated security functions of the AI computing platform to mitigate security threats against the platform and its associated assets (e.g. models and data), and (2) security components and service interfaces incorporated in AI computing platform to achieve the security requirements and security functions. As a GS it will provide technical requirements supported by relevant explanatory material while a GR only contains informative elements.

Have the standardisation activities in your project led to specific deliverables?

No.

What future efforts or activities are still necessary for your area of application?

It is likely later in 2023 that ETSI ISG SAI will change from and ISG to TC within ETSI this would enable SAI to respond to the EC standardisation requests which is important with the upcoming AI Act will be coming into force in the next couple of years. As standardisation requests are already being prepared so that standards and related guidance will be ready for when the AI Act comes into force. C3L will continue to work within SAI when this change happens and being able to access support to aid our work in SAI would be beneficial.

Online references related to the fellowship work

www.etsi.org/committee/1640-sai

Standardisation of an AI Framework in the context of Motion Picture audio and Data by AI (MPAI)

Andrea Basso
CEO, Synesthesia s.r.l
Italy
Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

ISO/IEC TR 24028:2020, Information technology – Artificial intelligence
IEEE P3301MPAI

Role

Chair of the MPAI - AI Framework development committee
Vice-Chair IEEE SA BOG/CAG/AIF WG

Addressed EU standardisation priorities and gaps

The Priority tackled by this fellowship concerns the AI technologies that are yielding one of the fastest growing markets in the data analysis and service sector. It is a priority to enable industry to easily create innovative products based on AI. The challenge is related to the current development model which is in the hands of few big players and makes application redeployment difficult, monolithic, and opaque.

My fellowship focuses on the MPAI's AI framework (AIF) that enables building high-complexity AI solutions by interconnecting multi-vendor AI modules (AIMs) operating in a standard AI framework (AIF) and exchanging data in standard formats. The MPAI has benefits for different stakeholders:

- Technology providers will be able to offer AIMs to an open market.
- Application developers to access open market of AIMs.
- Consumers will be offered a wider choice of better AI applications by a competitive market.
- Society will be able to lift the veil of opacity from large, monolithic AI-based applications.

Concerned ICT Standards and contribution to the related landscape

The Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI) is an international no-profit organisation with the mission to develop Artificial Intelligence (AI) enabled digital data compression specifications, with clear Intellectual Property Rights (IPR) licensing frameworks, of Moving Picture, Audio and Data Coding, especially using new technologies such as Artificial Intelligence. The goal of its action is to facilitate integration of Moving Picture, Audio and Data coding components into systems.

Impact

Impact on SMEs

The MPAI standards, where I contribute, will facilitate innovative SMEs and in particular:

- Technology providers will be able to offer their AI technology to an open market.

- Application developers will find on the open market the AIMs their applications need.
- Innovative SMEs will have access to an open market of AI technology that can be easily deployed.

Impact on Society

Use of technologies based on Artificial Intelligence (AI) is extending to more and more applications yielding one of the fastest growing markets in the data analysis and service sector. However, industry and society must overcome hurdles for stakeholders to fully exploit this historical opportunity: the current framework-based development model makes application redeployment complicated with AI applications that generate mistrust in users. MPAI – Moving Picture, Audio and Data Coding by Artificial Intelligence – believes that universally accessible standards can have the same positive effects on society, and has identified data coding as the area where standards can foster development of AI technologies, promote use of AI applications and contribute to the solution of existing problems.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, the new IEEE P3301 WG was created stemming from the MPAI AIF Work.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to technical specifications.

What future efforts or activities are still necessary for your area of application?

The current standards in AI are in very early stage and in great need. Artificial Intelligence (AI) is a resurgent technology experiencing significant advances. Since 2017, 14 of the world's most advanced economies have announced over 86 billion EUR in focused AI programs and activities. This growth in AI and the investment underpinning it has the potential to transform the lives of European, who are already keen and early adopters of AI. Alongside this opportunity, concerns have been raised about the impact of AI on the future of work, social inclusion, and opportunity, among other issues. With these concerns, the interest in AI Standards to shape responsible design, deployment, and evaluation of AI, and facilitate global adoption, has been growing and today is perceived as a key need. Support for this effort is key for Europe to ensure that an effective and responsible AI is developed.

Online references related to the fellowship work

https://mpai.community/about/organisation/

https://mpai.community/standards/mpai-aif/mpai-application-note-4/

https://mpai.community/standards/resources/#AIF

https://sagroups.ieee.org/aifwg/

Standardising AI-enhanced nudging mechanisms in CEN/CENELEC JTC-21 WG4

Enrico Panai
AI & Data Ethicist, Sardus France
France
Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

CEN/CLC/JTC21 Artificial Intelligence WG2 Operational aspects of AI
CEN/CLC/JTC21 WG4 Foundational and societal aspects of AI

Role

Editor of the CEN-CENELEC Task force on AI-enhanced

Addressed EU standardisation priorities and gaps

There are currently no tools to mitigate the ethical risks associated with behavioural influence mechanisms generated by AI systems. However, current events show that their use can harm dignity (due to their use as performance incentives in physical labour) and the psychological or physical safety of protected groups (when in social networks, they induce unhealthy behaviour in the recipient). For example, the rapid spread of the latest GPAI models (i.e. OpenAI) has increased the generation of fake news and induced some users into risky behaviour. In practice, the ability to nudge people or create non-existent beliefs has sometimes caused serious damage. For this reason, the following activities are a priority:

- Create an environment conducive to ethical risk analysis.
- Develop a standard that takes care of protected categories, reducing the risk of manipulation.
- Encourage the use of qualitative analysis tools.
- Preventing the risk of undermining the fundamental principles of the European Union (defence of human dignity, promoting scientific and technological progress, promoting peace, its values, and the well-being of its citizens).

Concerned ICT Standards and contribution to the related landscape

As Editor of the CEN-CENELEC Taskforce on AI-enhanced nudge, thanks to this fellowship's support, I was able to chair the meeting every second week, attend the JTC21's plenary in January in Brussels, and can actively attend other JTC21 task forces (on conformity assessment, risk catalogue and AI trustworthiness characteristics in WG2 and WG4) and the ISO's working groups on ethical and societal concerns. The efforts mainly focus on the ethical processes to mitigate risks. In this perspective, direct work on AI-enhanced nudges and contributions as an AI ethicist are helping to strengthen European values in standardisation processes. In this perspective, I recently submitted a proposal (PWI) for the definition of competencies of AI ethicists.

Impact

Impact on SMEs

SMEs are becoming increasingly concerned about the risks associated with reputational damage. Reputational harm can arise from various sources that are not necessarily linked to a company's intentions, such as cybersecurity breaches or technical malfunctions. In the case of SMEs that engage in the production or extensive use of AI-related technologies, any misbehaviour of an AI model could directly result in reputational damage. The reputational risks improve when the interaction with human users involves subtle decision-making manipulations, as in the case of nudging mechanisms. SMEs can considerably reduce the risks of reputational damage by mitigating ethical risks arisen related to AI-enhanced nudging mechanisms using the set of references that the standard is going to produce (criteria, terminologies, concepts, etc.).

Impact on Society

The work we are doing on AI-enhanced nudging within Cen Cenelec JTC21 WG4 has become even more important with the spread of Large Language Models (LLM) such as ChatGPT. The risk that General Purpose AI may unintentionally generate nudges or sets of nudges that incite or modify a person's behavior against their interests is very high. The current work and that of defining the parameters to be considered to mitigate ethical risks. Everyone today can become the target of AI-enhanced nudges, precisely because LLM are rapidly becoming the interface with decision-making systems. Assessing the systems so that they do not harm people, with a focus on children and protected groups. The working group is in constant dialogue with child protection, consumer, and labor associations.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

My Project proposes the creation of a European standard on AI-enhanced nudging. However, our work has influenced the emergence of profound ethical issues related to AI. This was probably reflected in the proposals for new working groups on ethics and some changes in the latest version of the EU AI ACT.

Have the standardisation activities in your project led to specific deliverables?

The work is still at the draft development stage. In any case, part of the work is parallel to the *'An Audit Framework for Adopting AI-Nudging on Children'* that was supported by Notre Dame-IBM Tech Ethics Lab and presented at the WEF in February 2023.

What future efforts or activities are still necessary for your area of application?

A great deal of work is devoted to the study of use cases to verify the framework developed in the project.

Online references related to the fellowship work

www.cencenelec.eu/areas-of-work/cen-cenelec-topics/artificial-intelligence/

https://arxiv.org/abs/2304.14338

Support AI Foundational and societal aspects standardisation in CEN/CENELEC JTC21 (WG4)

Laurence Devillers

Professor and researcher on AI & Ethics, CNRS-LISN, Sorbonne University

France

Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

CEN-CENELEC/JTC 21/WG 4 Foundational and Societal Aspects of AI Group

Role

Convenor of the WG 4 Foundational and Societal Aspects of AI Group

Co-chair of EN AI-Enhanced Nudge

Addressed EU standardisation priorities and gaps

My fellowship tackles specific priorities for the working group 4 "*Foundational and Societal Aspects of AI*" which includes Foundational standards: Terminology & concepts/Machine learning and Societal aspects task groups: Green AI, AI Trustworthiness characterization, AI-enhanced Nudge, Transparency, Human oversight, ethics, Risks activities (including Augmented goal specification). I am also member of the WG1 for the coordination between all the WGs. In all these tasks, the priority is on new items in support of the AI Act, essentially related to AI trustworthiness characterisation and the AI risk catalogue.

Concerned ICT Standards and contribution to the related landscape

With this fellowship, I coordinate and guide the participation of EU experts in the WG4. 93 members are inscribed in the WG 4. Relevant standards are AI trustworthiness characterization, Green AI and AI enhanced nudging. There is also ongoing reflection on the definition of ethics in the WG4. The European approach to artificial intelligence focuses on respecting fundamental rights, upholding Union values, and addressing societal concerns. JTC21 should find a way to integrate ethical aspects in a viable and coherent way in JTC21 deliverables produced in the different working lines and working groups. There is a concern about considering ethical aspects in different sides of JTC21 deliverables (standards, technical specifications, etc.).

Impact

Impact on SMEs

Compliance with harmonised European standards is a means for SMEs to demonstrate conformity with the requirements of the proposed European AI Act.

Impact on Society

There is a strong concern about ethics in AI systems (both at European political and institutional level, and at European society as a whole), especially when related to European fundamental rights and societal concerns. My work supports Foundational and Societal Aspects of AI such as Green AI, AI-enhanced nudge, AI trustworthiness characteristics such as robustness, human oversight, and transparency (all those are requirements from the AI Act). I had also a collaboration with IEEE on nudging.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I am contributing to the proposal to the new standard on nudge. I am a researcher on chatbot, nudge and affective computing. A use case with Deustche Telecom about nudging in chatbots will be integrated.

Have the standardisation activities in your project led to specific deliverables?

Yes, I am contributing to a technical report on developing a new standard.

What future efforts or activities are still necessary for your area of application?

I would highly recommend having additional EU experts from EU research in standardisation groups to better support the EU position.

Online references related to the fellowship work

www.cencenelec.eu/areas-of-work/cen-cenelec-topics/artificial-intelligence/

Towards operationalizable requirements in the AI Act: boosting standardization of XAI and NLP

Lauriane Aufrant
NLP lead scientist for Defence & Security applications, Inria France
Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

ISO/IEC/JTC 1/SC 42 Artificial Intelligence/WG 1 Foundational standards
ISO/IEC/JTC 1/SC 42 Artificial Intelligence/WG 3 Trustworthiness
ISO/IEC/JTC 1/SC 42 Artificial Intelligence/WG 5 Computational approaches and computational characteristics of AI systems
CEN/CLC/JTC 21 Artificial Intelligence/WG 3 Engineering aspects
AFNOR/CN IA Intelligence Artificielle
ISO/TC 37 Language and terminology

Role

Project Leader at CEN/CLC/JTC 21 (2 projects)
Head of the French Delegation to CEN/CLC/JTC 21 plenaries
Liaison officer from CEN/CLC/JTC 21 to ISO/TC 37
Contributor at ISO/IEC/JTC 1/SC 42

Addressed EU standardisation priorities and gaps

With this fellowship, all my efforts are focused on ensuring appropriate applicability of the upcoming AI Act, in line with the draft standardisation request received by CEN/CLC/JTC 21 with respect to that regulation. Transparency is one such aspect that is key to that regulation, and the purpose is to make enough progress at international level to allow adoption of the resulting IS by JTC 21. Explainability has clearly been identified by the European Commission as not being a requirement for the AI Act, with preferences towards requirements on interpretability, so I have been working to reconcile those views and enable to leverage explainability-related material for interpretability purposes.

There are however multiple dimensions in the landscape of AI systems and AI standardisation, and it appears that even for topics that have already been covered by AI standardisation efforts (e.g. terminology, performance assessment), the existing standards do not broadly apply to all AI systems, and in particular they rarely apply to natural language processing systems. The goal of my involvement is to bridge that gap by producing the missing technical material (e.g. concepts, metrics, specific requirements) to ensure that AI Act requirements are comprehensively applicable, including for such systems.

Concerned ICT Standards and contribution to the related landscape

In the framework of my fellowship, I contribute to four major documents including (at ISO-IEC level) TS 6254 on explainable AI and IS 12792 on AI transparency, and (at CEN-CENELEC level) work item JT021002 on natural language processing tasks and preliminary work item JT021012 on the accuracy of natural language processing systems.

I am the project leader of both JT021002, for which I have been working on preparing the first working draft for the last few months, and JT021012, which has just been added to the work programme (following my proposal) and is starting now.

I am also the main contributor to TS 6254, for which I have spent the last months introducing a new, more consistent outline and helped identifying the remaining gaps in the document, while also building a way forward to unlock it from the terminological debates in which it has been stuck for long.

Regarding IS 12792, for which I am among the core few contributors, my efforts have been devoted to ensuring sustained progress on the document, by systematically investigating and addressing missing parts with respect to the standards' scope, so that a consistent scheme is built to enable appropriate documentation of AI systems.

Impact

Impact on SMEs

There is growing concern regarding the impact of the upcoming AI Act on the activity of related SMEs. The creation within CEN/CLC/JTC 21 of a dedicated group (AHG 9) to explore the case of SMEs is a token of that concern. While it is feared that many standards associated to the AI Act could create an excessive burden for SMEs to understand and implement the new requirements, on the other hand it still remains gaps in the standards' coverage of the AI landscape, and this will create huge challenges for SMEs whose products sit precisely in such areas (inability to comply). These are aspects I have taken special care of when delineating scopes for new Natural Language Processing standards I have proposed as gap fillers.

In parallel, and beyond the considerations for the AI Act, I am also including in my work continuous considerations for interoperability aspects, which appear to be key to enable easier entry into the market for European SMEs.

Impact on Society

Due to its tight interleaving with the AI Act, my work will be directly utilised in the European regulations, and thereby have a broad impact on the society at large. This includes ethical considerations such as human agency through explainability, but also consumer right protection through transparency and product comparability based on objective criteria.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I have contributed to the proposal of a new European standard on the accuracy of NLP systems (CEN/CENELEC JT021012). I have also contributed to closer collaboration between CEN/CLC/JTC 21, ISO/IEC/JTC 1/SC 42 and ISO/TC 37 on the topic of NLP and the creation of a dedicated Joint Working Group to incubate a new series of standards on NLP.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to the formal release of three drafts in May-June 2023:

- Working draft dispatch of a technical report on NLP tasks (CEN/CENELEC JT021002).
- Committee draft ballot for an international standard on transparent AI systems (ISO/IEC 12792).
- Committee draft ballot for a technical specification on explainable AI (ISO/IEC TS 6254).

What future efforts or activities are still necessary for your area of application?

Whereas the standardisation work on AI explainability and AI transparency is on track to get stable (or at least stable enough to seek voting and publication, since those remain fast-evolving topics), efforts on the NLP side are still at their beginning. With ISO/IEC/JTC 1/SC 42 is now initiating steps towards a dedicated joint working group on NLP, there will soon be an influx of new standardisation projects on the topic: accuracy of NLP systems, robustness of NLP systems, bias of NLP systems, but also a taxonomy of NLP approaches, and data formats for interoperable NLP systems are all under current consideration. Getting more NLP experts to join those efforts will be key to the success of those projects.

Online references related to the fellowship work

- www.cencenelec.eu/areas-of-work/cen-cenelec-topics/artificial-intelligence
- www.iso.org/standard/82148.html
- www.iso.org/standard/84111.html

AI Standardization road mapping

Patrick Bezombes
Independent expert
France
Long-Term Fellowship

Sector

Artificial Intelligence

Engaged SDOs, WGs and TCs

CEN-CENELEC/JTC 21/WG 1 (SAG - Strategic Advisory Group)
ISO-IEC/SC 42/AG 3 AI standardization road mapping

Role

Convenor of the CEN-CENELEC/JTC 21/WG 1 SAG - Strategic advisory group

Convenor of the ISO-IEC/SC 42/AG 3 AI standardization road mapping

Addressed EU standardisation priorities and gaps

I am convenor of CEN-CENELEC JTC 21/SAG that is preparing the JTC 21 Work Programme response to the Standardisation request (SR) from the European Commission in the context of the AI Act. As of today, the identified gaps are on AI robustness, human oversight, accuracy, transparency, logging, and conformity assessment of AI systems. A list of potential harmonised standards has been identified by SAG, with some standards already published or under development and others still to be developed either by ISO-IEC or by CEN-CENELEC.

The preparation of the CEN-CENELEC response to the AI SR has led JTC 21/SAG to develop a position paper on EU specificities in the JTC 21 standardisation Work Programme.

In addition, SAG is reaching out to "Verticals" and has sent a "letter to Verticals" explaining the challenges and the opportunities for horizontal-verticals interplay in the context of the AI Standardisation Request. This letter is also enjoining Verticals to contribute to horizontal standardisation.

Concerned ICT Standards and contribution to the related landscape

SC 42/AG 3 has developed an AI standardisation landscape with more than 210 items coming from ISO/IEC, ITU, IEEE, SAE, CEN-CENELEC. From that landscape, SAG has identified 2 standards that are critical and strategic to the Standardisation Request and that are now part of the JTC 21 work programme: a standard on "*AI risk catalogue*" and a standard on "*AI trustworthiness characterisation*".

Impact

Impact on SMEs

The upcoming AI law and the supporting harmonised standards will have an impact on European SMEs. I intervene at various forums to raise awareness of the strategic importance of standardisation in the future regulatory environment for all stakeholders, especially SMEs.

Impact on Society

As with SMEs, future harmonised standards will impact the society by providing technical requirements supporting fundamental human rights, as requested by the SR. Civil society organisations and stakeholders (like ANEC, ETUC) are contributing to SAG.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

SC 42/AG 3 activities have directly led to the launching of a TR on Synthetic Data. It is already acknowledged that this TR will generate numerous other projects.

In addition, a project on the "*Competences requirements of AI ethicist professionals*" has been presented in both SC 42/AG 3 and in JTC 21/SAG. Decision about this new item is expected soon. Another project on logging for AI systems is being discussed as well.

Have the standardisation activities in your project led to specific deliverables?

In this fellowship, I have contributed to the following deliverables:

- A SC 42 AI standardization landscape.
- A JTC 21 Work Programme in support of the AI Act.
- A letter to AI "Verticals".
- A position paper on EU specificities in the JTC 21 Work Programme.
- A TR on "Synthetic Data" in SC 42.
- Numerous items reviewed in SAG: e.g., "*Competences requirements of AI ethicist professionals*".

What future efforts or activities are still necessary for your area of application?

The SC 42 AI Standardization landscape and the JTC 21 Work Programme in support of the AI Act will both need to be maintained and updated. In addition, coordination with JTC 13, ETSI and ENISA is going to be essential in the coming months in order to identify the standards needed for AI security (which is a requirement of the AI Standardisation Request.). This will be done under the supervision of the JTC 21/SAG.

Furthermore, discussions on the interplay between horizontal and verticals standardisation are just getting started and will require a significant level of activity.

Online references related to the fellowship work

www.cencenelec.eu/areas-of-work/cen-cenelec-topics/artificial-intelligence/

www.iso.org/committee/6794475.html

Contribution to e-identification and privacy protection at CEN/CLC/JTC 13 & ISO/IEC JTC1/ SC 27 WG5's

Christophe Stenuit
CEO, Viewconcept.be
Belgium
Short-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

CEN/CLC/JTC 13 WG5 on Data Protection, Privacy and Identity Management
ISO/IEC JTC 1/SC 27 WG5 on Identity management and privacy technologies

Role

Member

Addressed EU standardisation priorities and gaps

My fellowship aims to positively influence the European market and its infrastructures by benefiting from international contributions (e.g., ISO/IEC) in the controlling of civil security and the protecting of e-identity and e-privacy. With this fellowship, I have enhanced existing references and encouraged promoting the use of these references through adoption at the European market.

Concerned ICT Standards and contribution to the related landscape

With this fellowship, my goal was to contribute toward a better harmonisation of e-identity and privacy protection standardisation support in Europe. It contributed to ease the implementation of e-identity and e-privacy developments. The scope of this action includes proposing/revising/amending/reviewing standards, and progress was made on the following ICT standards:

- ISO/IEC 24760-2 about identity management architecture.
- ISO/IEC 24760-3 about identity management practices.
- ISO/IEC 24760-4, about identity management and credentials, authenticators and authentication.
- ISO/IEC 29146 about access management amendment.
- ISO/IEC 29184 about online privacy notices and consent.
- Integration of the referred standards with their amendments.
- Adoption of the referred standards as prEN.

Also, I carried out other supporting activities e.g., contributions on supporting standardisation activities in relation to, as part of the ISO JTC1 SC27 WG5, covering:

- AG5 on strategy.
- Development of threats associated with authentication and possible controls.
- Development of Data Privacy threats and Controls.

- Analysis of identification and authentication processes.

And as part of the CEN/CLC/JTC 13/WG 5:

- Participation to a CEN CLC ETSI Coordination group on eIDAS.
- Establishment of a Liaison Statement of ISO/IEC JTC 1/SC 27 WG 5 to to CEN-CENELEC JTC13.

Impact

Impact on SMEs

SMEs are more aware of risks and of controls required in IT and information protection. Recent EU GDPR, eIDA2 regulations and NIS directives developments impose a different view on IT risks, information security, data privacy protection and identity management controls, and by this a different awareness of the consequences that may fall down improper compliance to good practices. Good standard references help confidence establishment and maturity improvement in matters that until yesterday were far from SMEs' concerns.

Impact on Society

I see that the societal impact of these contributions is three-fold:

- Firstly, these standards enable secure societies protecting freedom and security of Europe and its citizens: supporting standards on e-identity and e-privacy information management ensures identity information lifecycle, identification, bound proofed identity information and authentication of citizen and societies are in place before authorised accesses to services is provided without compromising their privacy.
- Secondly, they concern cybersecurity, network, and identity information security: standards on reference architectures around e-identity and e-privacy management ensure information infrastructure has the required controls in place to protect citizen and societies while accessing and using provided services.
- Thirdly, they impact ePrivacy protection: Data protection good practice ensures any risk on identity information is mitigate during the processing of the information.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. A Part of the objectives of this fellowship is to support revisions and amendments of existing work items, and another is to support the adoption and the publicity of these work items at EU market, and by this guaranteeing the sustainability of existing references in a changing world.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to several technical reports on common terminology, reference material, and recommendations to develop new standards.

What future efforts or activities are still necessary for your area of application?

In this topic, most developed texts are achieving maturity. The referred work items are being more and more used or referred in the industry. Some efforts are still required to achieve publications. This could take up to 18 or 24 months. This activity will continue over 2023 and achieve a publication during 2023 and 2024.

Online references related to the fellowship work

www.iso.org/committee/45306.html

www.cencenelec.eu/areas-of-work/cenelec-sectors/digital-society-cenelec/cybersecurity-and-data-protection/

Trusted Cyber Threat Intelligence-Sharing framework “Trusted CTI-Sharing” - P2 Framework development

David Montero
Independent expert
Spain
Short-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

UNE CTN320/SC4/WG ACIIC. CTN320/SC4 “Controls and services security” is the mirror subcommittee in Spain for ISO/ SC27 /WG4

Role

Chairman and expert in UNE CTN320/SC4

Addressed EU standardisation priorities and gaps

The development of the standard is oriented towards the field of cybersecurity, specifically Cyber Threat Intelligence. The current gap in the related regulations, different working documents and very specific guidelines have been generated in Europe oriented towards the technical aspects of cyber threat intelligence. For example, the definition of the different intelligence sharing formats, but it has not been defined internationally how this cyber threat intelligence should be shared and managed. This standard aims to address this current gap and improve interoperability in cyber threat intelligence (CTI) sharing between public and private companies.

Finally, it aims to provide better security alert management capabilities, using meta-alerts, alerts that summarise many threats and incidents in order to understand the overall threat landscape, and to improve the context awareness and existing cyber threat intelligence sharing capabilities through automation, while remaining GDPR compliant.

Concerned ICT Standards and contribution to the related landscape

The development of this standard based on a Cyber Threat Intelligence (CTI) Sharing Management System will cover a very relevant regulatory niche that will have an impact on the standardisation of threat intelligence sharing communities and ecosystems. In this second phase of the project, funded by this fellowship I have contributed developing the necessary framework for the generation of the management system and closing the document of the standard.

Among the international standards linked to this standard are ISO/IEC 27001, ISO/IEC 27000, ISO/IEC 27002, ISO 31000, and ISO/IEC 27035.

Impact

Impact on SMEs

These contributions shape the future standards in Europe: this work represents an evolution of the current documents generated by different entities in the field of CTI sharing, but oriented exclusively to the technical field, not to the management field, going on to see the CTI exchange system as a management system.

SMEs will benefit directly from the European adoption of this standard, since one of the main weaknesses in cybersecurity of this segment is the lack of trust and resources when they try to acquire quality intelligence elements at low cost. This standard will make it possible to standardise the creation of intelligence sharing communities, lowering costs and improving the availability of intelligence elements.

Impact on Society

The emergence of intelligence sharing communities and ecosystems, such as FIRST or CIRCL, have encouraged the exchange of threat intelligence between entities, using technological platforms such as MISP. CIRCL alone has more than 1,100 entities connected to the network to share intelligence, but other private and public intelligence-sharing communities have appeared throughout the world, which have been born from private initiatives, interest groups or sectoral initiatives.

The communities that currently exist in the market are directed by the entities that have led the initiative, but they do not have community governance and management. The absence of measurement indicators, management and validation controls, in addition to criteria for defining the participation of the entities in the ecosystem, causes a lack of security and trust on the part of the participating entities, and generates a failure to fully exploit the sharing capacity of the ecosystem.

The generation of this standard that supports a management system for the exchange will have a very important social impact on the global and local communities and ecosystems for the exchange of threat intelligence, standardising the management and government of these communities.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. the second phase of the project, which is this fellowship, opens the door to define fully the new Threat Intelligence Sharing standard. I plan to define the standard in the third phase of the project, hoping to get more support from the StandICT.eu Programme to finalise this engaged action.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to technical specifications.

What future efforts or activities are still necessary for your area of application?

In this fellowship, the framework that will serve as the basis for the cyberthreat intelligence exchange management system has been completed, as well as the final preparation of the standard document. Beyond this fellowship, during the third and final phase, the necessary structure will be created at the level of definitions, controls, risks, architecture and indicators to generate the standard that it will be published for Trusted Architectures for the Sharing of Cyber Threat Intelligence.

Online references related to the fellowship work

- www.une.org/encuentra-tu-norma/comites-tecnicos-de-normalizacion/comite?c=CTN%20320
- www.iso.org/committee/45306.html

Enhancing coordination between AI & IoT focussed Cybersecurity & Privacy standards with SC27 AhG's

François Lorek
Cybersecurity expert and CEO, TRAX
France
Long-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

ISO/IEC JTC1 SC27 WG1 Information security management systems
ISO/IEC JTC1 SC27 WG4 Security controls and services
ISO/IEC JTC1 SC27 WG5 Identity management and privacy technologies
ISO/IEC JTC1 SC27 AHG2 IoT & Digital Twin related Cybersecurity & Privacy projects
ISO/IEC JTC1 SC27 AHG3 AI & BD related Cybersecurity & Privacy coordination
ISO/IEC JTC1 SC42 Artificial Intelligence
CEN/CENELEC JTC13 Cybersecurity and data protection WG2, WG4 & WG5
Head of French Delegation and French expert involved within CEN/CENELEC JTC021 Working Groups

Role

Convenor of ISO/IEC JTC1 SC27 AHG3 (AI & BD related Cybersecurity & Privacy coordination)

Convenor support of ISO/IEC JTC1 SC27 WG4 since 2015 and of AHG2 (IoT & Digital Twin related Cybersecurity & Privacy projects).

Addressed EU standardisation priorities and gaps

The coordination and synchronisation between technical committees (TC) and working groups (WG) is one of the biggest challenges to face with lots of meetings on various interdependent topics (cybersecurity & privacy, artificial intelligence) with several initiatives with different schedules at different international, European, and national scales. Priorities are given mostly by European Commission, the SDO's directives, the market's expectations, and the maturity of consensus between experts. Hopefully, lots of experts (especially European) are taking part to several cross work across TC's, SC's and WG's especially between AI (CEN/CENELEC JTC 21 & ISO/IEC JTC1 SC42) & Cybersecurity & Privacy (CEN/CENELEC JTC13 & ISO/IEC JTC1 SC27). At SC27 level, it is the reason of the establishment of Adhoc Group3 to ensure coordination on Artificial Intelligence (AI) and Big Data (BD) related security and privacy projects.

Concerned ICT Standards and contribution to the related landscape

This fellowship supports my contributions and participations to all meetings concerning Cybersecurity & Privacy as well as Artificial Intelligence (even most are very early or very late in the day, as per rules for scheduling in SDO's), whilst being able to keep delivering standard

based consulting especially for SME's which need to comply for ISO 27001 certifications mostly. It allows as well to take part to some important workshops.

Impact

Impact on SMEs

Many SMEs are about to be impacted by Cybersecurity & Privacy standards or Artificial Intelligence or are concerned by Cybersecurity & Privacy within Artificial Intelligence with a need to make their market and potential customers confident, especially in the context of forthcoming regulations at European level as well as European standardisation requests to be received by SDO's.

Impact on Society

As per its business plan (SC27 N22264), ISO/IEC JTC1 SC27 states to contribute with 23 standards to the following Sustainable Development Goals (SDG) of the United Nations, related namely to health and wellbeing, economic growth, reduced inequalities, and sustainable cities, to name a few.

For SC 27, gender and geographical balance is an important goal. ISO Global Directory lists 1905 experts as committee members, officers or liaison representatives for SC 27 including working groups. 23% of these experts are female, 77% male. 3% of the SC 27 experts come from Africa, 21% from America, 36% from Asia Pacific and 40% from Europe.

One expert from Africa, four experts from America, seven from Asia Pacific, and eleven from Europe work in SC 27 officer positions. Four out of the 23 SC 27 officers are female. Five experts from Africa, 40 from America, 92 from Asia Pacific, and 84 from Europe currently work in SC 27 editor positions. 52 out of the 221 SC 27 editors and co-editors are female. WG4 is the SC27 working group with the best balance with 46% in the latest WG4 Gender study presentation (WG4 N5657) given during SC 27 Plenary Meeting.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. Within SC27 WG4, there are currently 68 projects listed within SC27 WG4 ISO Projects including 45 published standards, 11 PWIs on going (one on Security and Privacy for IoT and one for Big Data Security and Privacy), 3 projects in Proposal phase1 project in Preparatory phase (27090, 27404, and 5181), 1 project in Committee phase (CD : 27035-4), 4 projects in enquiry phase (DIS : 27402, 27403, 27033-7, 27031), 3 projects in approval phase (FDIS : 27071, 27040, and 24392), 4 published standards (27036-3, 27035-1, 27035-2 and 27032)

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical specifications as well as technical reports on common terminology and development of a new standard.

What future efforts or activities are still necessary for your area of application?

I will continue the engaged work with the ongoing standardisation projects.

Online references related to the fellowship work

www.iso.org/committee/45306.html

www.iso.org/committee/6794475.html

www.cencenelec.eu/areas-of-work/cenelec-sectors/digital-society-cenelec/cybersecurity-and-data-protection/

Redaction of Authentic Data - Balancing data authenticity with EU data protection regulation

Henrich C. Pöhls
Senior researcher, University of Passau
Germany
Long-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

ISO SC 27 Information security, cybersecurity and privacy protection / WG2 Cryptography and security mechanisms

Role

Editor of Standard Project ISO/IEC 23264-2

Addressed EU standardisation priorities and gaps

My fellowship addresses the following aspects:

The challenge to balance strong cryptographic data authenticity mechanisms like eIDAS digital signatures, with EU data protection regulation. So called redactable signature schemes (RSS) allow just this: the signer first defines parts of a signed message. Only those parts can be removed subsequently without negatively impacting the authenticity and integrity of the remaining parts. This enables to remove sensitive information from signed medical records or signed order/waybills in supply chains. RSS create signatures that can be eIDAS compatible and thus indicate the originality and source of the parts that are still present in the signed data, while protecting the privacy of the removed ones according to EU data protection requirements.

The targeted priority is that data driven economy needs to balance data quality and trustworthiness with protection of sensitive and private data. We need authenticity and thus the ability to check the source to judge the quality of information/data and assess its trustworthiness. We also need to uphold the privacy of citizens and protect company secrets by being able to protect their confidentiality.

The identified gap concerns the fact that currently there is no agreed international standard on what mathematical cryptographically secure algorithms to use for redactable signatures. Those algorithms are part of ISO/IEC 23264-2 which I want to contribute to within this fellowship.

Concerned ICT Standards and contribution to the related landscape

ISO/IEC 23264-1 “Information security — Redaction of authentic data — Part 1: General” was already published under my editorship in 2021 and ISO/IEC 23264-2 “Information security — Redaction of authentic data — Part 2: Redactable signature schemes based on asymmetric mechanisms” evolved to DIS stage under this grant. That was a very large step forward and the project is now much closer to final publication.

Impact

Impact on SMEs

Soon the algorithms will be standardised and then companies, big or small, can implement them, free of patents in this case. Thus, they can start implementing those schemes and put them in place of existing digital signature schemes and offering a balance between the ability to protect the redacted portions from getting known (protecting privacy or trade secrets) or offering authenticity for fragments from larger sets of authentic data (protecting the data quality).

Impact on Society

The algorithms that are part of the standard ISO/IEC 23264-2 that offer the property 'detectability of redactions' would reach a level of integrity protection and guarantee a level of account- ability comparable to that of technical mechanisms that are currently legally accepted to generate qualified electronic signatures. Hence, the international standard gives the society a set of tools in the form of three standardised algorithms that allow giving an increased probative value to the signed document, while at the same time protect the overwritten contents' confidentiality. This allows to produce authentic data, e.g., by digitally signing data to protect it against undetected unauthorised subsequent modifications. In todays and near-future more and more data-driven societies authentic data is of incredible value. Think of data used for training AI systems, if from a trustworthy source and unmodified it can be used for training AI models, if not from such a source it shall be discarded. Maybe authentic data would be available, but before being used further it would require a third party to remove certain subsets from that data due to violations of privacy or trade secrets; with the schemes currently on its final steps of standardisation will allow to do that without necessarily harming the authenticity as it would be the case if normal digital signatures would be used to protect the integrity.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

This grant helped me to continue my role of an editor of ISO/IEC 23264-2 and my main activity was to create the final text of the draft international standard (DIS stage).

Have the standardisation activities in your project led to specific deliverables?

Yes, I was able to act as editor of ISO/IEC 23264-2 and my main activity was to create the final text of the draft international standard. The participation in the meetings to discuss the outstanding comments as well as to implement all of the other experts' comments allowed me to consolidate them and produce the DIS text (i.e. the specific deliverable).

What future efforts or activities are still necessary for your area of application?

From DIS there is still one step to a become published standard, which requires acting editors like me to discuss and then implement final editorial comments as well as discuss and then implement comments from the ISO ITTF editors that will perform the final typesetting. Then we will have ISO/IEC 23264-2 as an international standard that provides three algorithms for RSS, which can then be referenced for legal use, e.g., as substitutes for digital signatures because they offer the property '*detectability of redactions*'. It would then require to include these in legal documents. This might require referencing the schemes and the important property in other relevant standards.

Online references related to the fellowship work

Overview of standard 23264-1: www.iso.org/standard/78341.html

Overview of standard 23264-2: www.iso.org/standard/78342.html

Interoperable configuration and security attestation of Confidential Computing workloads

Nicolae Paladi
CEO CanaryBit.eu, Researcher, Lund University
Sweden
Long-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

IETF RATS (Remote ExecuTion procedureS)
IETF TEEP (Trusted Execution Environment Platform)

Role

Member

Addressed EU standardisation priorities and gaps

The primary challenge addressed by this standardisation activity is the fragmentation of the TEE architectures, which leads to incomparable and incompatible trustworthiness claims obtained through attestation.

Thus, end-users cannot obtain a consistent, comparable, and measurable way to assess the security guarantees of the infrastructure they use. The ongoing work takes a first step in addressing this challenge, by defining the interaction models to obtain attestation results and formats and to define principles for assessing the trustworthiness of endpoints that produce the attestation results.

Another challenge for end-users is that attestation results from competing vendors are inconsistent and incomparable, leading to a situation of "comparing apples and oranges". This challenge is addressed by defining methods to compare the security guarantees communicated by attestation results from competing vendors.

Finally, the governance of attestation services is so far not addressed by any standard. Once confidential computing becomes more widely adopted, governance of attestation services will become equally important as the governance of certificate authorities for the public key Infrastructure.

Concerned ICT Standards and contribution to the related landscape

This fellowship directly supports my contributions to the standardisation work within the IETF RATS workgroup. I am particularly focusing on several highly relevant IETF RFC (request for comments) documents, namely Remote Attestation Procedures Architecture [1], Attestation Results for Secure Interactions [2] and Reference Interaction Models for Remote Attestation Procedures [3].

Impact

Impact on SMEs

My contribution to interoperable configuration and security attestation of Confidential Computing creates a new technical landscape that European SMEs can use for innovation.

My expectation is that such standardisation work will pave the way for innovative solutions in the areas of cloud security, network security and trust services.

To further highlight this point, CanaryBit AB is a Swedish start-up that is building a confidential data collaboration service using new capabilities for extracting, verifying, and sharing trustworthy results from hardware platforms. Several other European SMEs are active in this space and will directly benefit from an interoperable and comparable format for trustworthiness attestation used by competing hardware vendors.

Impact on Society

As a concrete societal impact, I can mention the article about confidential computing in Wikipedia to which I contributed (https://en.wikipedia.org/wiki/Confidential_computing). With this contribution, my work helped increase the awareness of the security community and the public about the concepts of confidential computing and trusted execution environments.

On a very high level, my works addresses two of the UN Sustainable Development Goals (SDGs), namely:

- SDG 9 - Industry, innovation, and infrastructure, through focus on standardisation of an emerging computational technology.
- SDG 10 - reduced inequalities, by opening the pathways for competing and alternative hardware vendor implementations that allow broader access to secure and efficient computational tools.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted several technical reports on reference material, common terminology and development of a new standard as well as technical specifications.

What future efforts or activities are still necessary for your area of application?

We need a stronger participation of EU experts in critical domains such as cybersecurity and computational hardware. This is necessary to ensure the adoption of open and vendor-neutral standards that will allow alternative hardware implementations of cybersecurity features. This effort will support and complement the recently announced European thrust in microchip manufacturing.

Online references related to the fellowship work

https://datatracker.ietf.org/doc/draft-ietf-teep-architecture/

https://github.com/ietf-rats-wg/draft-ietf-rats-ar4si

https://datatracker.ietf.org/doc/draft-ietf-rats-reference-interaction-models/

https://en.wikipedia.org/wiki/Confidential_computing

SME Chairman of ECSO WG1 (cybersecurity standardisation, certification & supply chain)

Mark Miller
CEO, CONCEPTIVITY s.à.r.l.
Switzerland
Long-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

ECSO WG1 Standardisation, Certification and Supply Chain Management

Role

SME Chairman of ECSO WG1

Addressed EU standardisation priorities and gaps

The focus is Cybersecurity Standardisation specifically as this relates to SME-friendly cybersecurity standards, as this is clearly an element that has not been effectively addressed in the past. SMEs have long been neglected stakeholders in the cybersecurity standardisation process mainly since they do not usually have the resources to commit to such activities and as their voices are not heard above the large industry players who dominate the standardisation efforts. As such, a StandICT.eu grant is of great significance here, as with this grant I thus represent the SME community in an area of vital importance for their opportunity to be able to influence SME-friendly cybersecurity standards in the thinking process of those developing such standards. This was important from the viewpoint of the European Commission (especially, given the SME focus). It is important to note that ECSO WG1 makes valuable contributions to the work of CEN/CENELEC and ETSI via its cooperation with these organisations (established Memorandum of Understanding) and in fact, can be even more effective than these partners in moving forward with standardisation aspects.

Concerned ICT Standards and contribution to the related landscape

Unfortunately, during my contribution in the working group, I have seen that this group does not have the interest to pursue SME specific efforts. They rather keep pushing the interests of large companies. However, via this fellowship the SME component and the SME understanding has been injected into all the work streams, all of the working documents and all of the efforts of the working group, such that the needs of the SMEs are always in the thought process of all of the work efforts of the working group. Again, without the fellowship, all the new and even existing efforts would have been missing the SME thought process which is part of the mandate as the SME Chairman of ECSO Working Group 1.

Impact on SMEs

As the SME Chairman of this working group, the fellow is representing the needs and requirements of SMEs across Europe.

Impact on Society

SMEs are the engine of innovation in Europe and as such they represent the economic future.

Supporting and ensuring that SMEs are considered in addressing cybersecurity standards is a key and important element for the future.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

No.

Have the standardisation activities in your project led to specific deliverables?

No.

What future efforts or activities are still necessary for your area of application?

I would advise to onboard additional experts to better support the EU position. Especially, more SMEs need to be implied in the process of developing cybersecurity standards.

Online references related to the fellowship work

- https://ecs-org.eu/category/activities/standardisation-certification-and-supply-chain-management/
- www.ecs-org.eu/newsroom/ecso-and-cen-cenelec-sign-memorandum-of-understanding
- www.ecs-org.eu/newsroom/ecso-signs-memorandum-of-understanding-with-etsi

Ensuring consumer rights and data protection in RED harmonised standards

Rusnė Juozapaitienė
Technical expert, ANEC
Lithuania
Long-Term Fellowship

Sector

Cybersecurity

Engaged SDOs, WGs and TCs

CEN/CLC JTC 13 WG 8 Special Working Group RED Standardization Request

Role

Member

Addressed EU standardisation priorities and gaps

Cybersecurity has been identified as one of the standardisation priorities by the EC and standardisation bodies, as well as by stakeholders since cyber-threats affect a multitude of sectors. Cybersecurity and data protection are rapidly growing and changing technical and application domains. Consumers clearly need to be protected, and standards can ensure a higher level of applicable cybersecurity and data protection requirements.

Relevant ICT standards and contribution to the landscape

The scope of this fellowship is to contribute to harmonised standards in support of the essential requirement set out in points (d), (e) and (f) of Article 3(3) of Directive 2014/53/EU for the categories and classes specified by Delegated Regulation (EU) 2022/30 must contain technical specifications. Points (d), (e) and (f) of Article 3(3) of Directive 2014/53/EU aim at ensuring that the concerned radio equipment protects the user from cybersecurity risks.

Impact

Impact on SMEs

These harmonised standards could be used by any entity, including SMEs or even single controllers. There are no specific requirements applicable only to SMEs. Some additional guidance could be added during development of these standards.

Impact on Society

Moreover, the harmonised standards will help to ensure protection of the network, personal data and privacy as well as protection against fraud throughout the European Union and thus contribute to the free movement of certain radio equipment in the Union. Given that such standards are to be technology-neutral and performance-based, they will also contribute to ensuring equal conditions of competition among relevant economic operators, especially SMEs. Those standards will also indirectly lead to lower production costs, which would be particularly beneficial to consumers, and will contribute to technical interoperability.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

No, the project has been developing 3 HENs as requested by the EC.

Have the standardisation activities in your project led to specific deliverables?

Not yet. The rough draft has been presented to the EC and there are ongoing discussions with the EC to reach a consensus on the approach to develop the 3 HENs.

What future efforts or activities are still necessary for your area of application?

Attending the WG 8 meetings and discussions, providing comments, ensuring that consumer needs are taken into consideration.

Online references related to the fellowship work

https://single-market-economy.ec.europa.eu/news/commission-strengthens-cybersecurity-wireless-devices-and-products-2021-10-29_en

https://ec.europa.eu/transparency/documents-register/detail?ref=C(2022)5637&lang=en

Conformity Assessment of Biometric Solutions

Raul Sanchez-Reillo
Professor, Universidad Carlos III de Madrid
Spain
Long-Term Fellowship

Sector

e-Identification

Engaged SDOs, WGs and TCs

CEN TC224 Personal identification and related personal devices with secure elements, systems, operations, and privacy in a multi-sectorial environment WG18

Role

Member and project editor

Addressed EU standardisation priorities and gaps

A certification scheme will help service providers and administrations in defining their own requirements. Also, it will reduce the need of multiple evaluations from manufacturers.

There have been previous works that are being used as the basis for this work, but when coming to the world of biometrics, and in particular face recognition, some important gaps are detected:

- Current technical standards are typically generic, covering all biometric modalities, but not going into the specific needs of a certain biometric modality (e.g., face recognition).
- In international standards (i.e., ISO/IEC), the definition of passing criteria is really challenging, as the impact is worldwide, and many local interest and needs do not allow them to be defined.
- Industry in the biometric sector is not used to certify their products, but only to carry self-assessments, which some service providers or administrations do not consider as a guarantee.
- The few initiatives currently available for certifying these products, have been developed independently, without considering a potential interoperability. The good news is that they do not differ too much among each other, and they can even be considered complementary among each other.

Within CEN/TC 224 WG18 the target is to address the following challenges:

- Generate European standards or Technical Specifications, with the specifications and criteria.
- Generate European standards or Technical Specification, with the evaluation methodology and criteria.

Obviously, these challenges will be accomplished after several years, but within this fellowship, the work will be focussed in achieving a first full draft of each of the PWIs launched.

The work will cover all main aspects required for a reliable biometric facial recognition, such as Performance, Conformance, Quality and Presentation Attack Detection (PAD).

Concerned ICT Standards and contribution to the related landscape

Both industry and society require to have a guarantee that the products they are building/using, conform to certain levels of service/quality/robustness. This assure the society the use of reliable products, building trust in them, and Industry benefit from manufacturing products that will be demanded by society. Being this valid for many technological areas, it is now being demanded for biometric products, when several applications are being deployed in the market. This is the case, but not the only one, of authenticating the citizen with the use of videoconferencing tools when applying for some services, e.g., the issuance of digital certificate, or opening a bank account.

My previous StandICT.eu fellowship (under batch 7), entitled "*Certification of biometric solutions for remote identification services*" showed the need of creating a certification scheme for biometric products, to those being used for remote identification. The approved fellowship was focussed on raising the awareness and proposing a New Work Item in CEN/TC 224/WG 18, to address this need. The work has been extremely successful and had, not only raised awareness, but has also enhanced its scope and launch the ballot of 4 proposals for PWI, which were approved.

The work has split in multiple parts, to allow building a scheme that would be biometric modality independent, as well as application independent, but also allowing room to profile such scheme to specific biometric modalities and applications.

My ongoing fellowship targets to create the content for those 4 PWIs, so that in a near future, the final draft could be ready for launching the corresponding NP to be balloted in CEN and finally published. It is expected that, with the help of this application, at least 2 of those NPs will be launched by the end of 2023.

Impact

Impact on SMEs

My contributions provide a solution in the field of electronic identification, as is based on the identification of users through biometric means. Many final solution integrators are SMEs, and they are the ones having to convince the final customer with the benefits of using their products. This is typically a challenge of these SMEs, compared to multinational enterprises. This certification scheme will allow SMEs to provide the convincing certification, to all different customers, through a single evaluation, closing the gap with big enterprises, and improving their market ratio.

Impact on Society

By providing a certification scheme for biometric solutions, society will be able to use identification solutions with a much higher trust level. Society can demand the use of products that are certified under the applicable application profile, to ensure a certain performance level, as well as robustness against fraudulent attacks.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

This project has allowed the creation of 4 Preliminary Work Items (PWIs), as to define the requirements that European applications may demand from biometric products. 4 PWIs have been defined to allow a structured and extensible definition of those requirements.

Have the standardisation activities in your project led to specific deliverables?

Several deliverables have been developed, including several versions of the above-mentioned 4 PWIs. Those 4 PWIs consist of:

- Part 1 to define the scheme.

- Part 2 to establish the data interoperability tests.
- Part 3 to explain the methodology for the evaluation of biometric performance and robustness about presentation attacks.
- Part 5 to define the tests for the evaluation of face biometric products.

Future parts will define the tests for other biometric modalities. For example, part 4 is reserved for fingerprint products.

What future efforts or activities are still necessary for your area of application?

Further versions of those 4 PWIs shall be developed, to reach the New Project status, ending up into 4 Technical Specifications published by CEN TC224.

Online references related to the fellowship work

- The PWIs are already included into the CEN TC224 Work programme, as it can be checked in https://standards.cencenelec.eu/dyn/www/f?p=205:22:0::::FSP_ORG_ID,FSP_LANG_ID:6205,25&cs=1BEC25E62B2D3FAE470A24A21A7315A0B
- This work has been publicly presented at Biometric Institute ID@Borders conference on April 20-21, 2023 (www.biometricsinstitute.org/event/idborders-and-future-of-travel-conference-2023/)

Digital Wallet for providing reliable identification services for the citizen

Raul Sanchez-Reillo
Professor, Universidad Carlos III de Madrid
Spain
Long-Term Fellowship

Sector

e-Identification

Engaged SDOs, WGs and TCs

CEN/TC 224 Machine-readable cards, related device interfaces and operations /WG 20 European Digital Identity Wallets
ISO/IEC JTC1/SC17 Cards and security devices for personal identification /AG3 Digital wallets
Role
Co-convenor of CEN/TC 224/WG 20
Convenor ISO/IEC JTC1/SC17 AG3

Addressed EU standardisation priorities and gaps

The standardisation of identity wallets has been started by some SDOs, preparing the path for the upcoming mandate. Some of the European SDOs working in topics related to the future eIDAS2 are:

- CEN/CENELEC JTC 13 - Cybersecurity and Data Protection
- CEN/CENELEC JTC 19 - Blockchain and Distributed Ledger Technologies
- CEN TC224 - Machine-readable cards, related device interfaces and operations:
  - WG 17: Protection Profiles in the context of SSCD
  - WG 20: European Digital Identity Wallets
- ETSI/ESI - Electronic Signatures and Infrastructures

Obviously, this is not an only European need, and has raised the interest of other international SDOs, considering that some countries have also started some national initiatives (e.g., Korean mobile ID project).

Within ISO, the following TCs and SCs are related to this work:

- TC 68 - Financial Services
- TC 307 - Blockchain and distributed ledger technologies
- JTC1 SC17 - Cards and security devices for personal identification

This last one, JTC1 SC17, has acknowledged the need to work on this at international level, creating an Advisory Group (AG3) to collect all available inputs, and detect the standardisation items to be started at international level.

I was chosen as co-convenor of CEN/TC 224/WG 20, and convenor of ISO/IEC JTC1/SC17 AG3. This fellowship is supporting the work in both groups, as to be able to find answers to the following questions:

- Will the wallet implement only the Primary Identity, or also Secondary identities?
- Which are the requirements for a wallet?
- How to restrict access to non-authorised identity information?

- How to allow the creation of new attributes and/or secondary identities for a specific application?
- How to make all implementations interoperable?

Concerned ICT Standards and contribution to the related landscape

In the last 10 years, the use of remote services has increased significantly. For all these services there is the need of identifying the persons claiming for that service, and doing it in an interoperable, comfortable, universal, reliable, and auditable way. Even though some of those services, in some countries, were deployed using PKIs (Public Key Infrastructures), as recommended by eIDAS, this approach was far away from being used by a significant part of the population. In addition, those initiatives for implementing eIDAS have not become interoperable.

This has led to the European Commission to request the revision of the eIDAS regulation, targeting what is commonly known as eIDAS-2. Many different technologies, protocols, procedures, etc. could be applicable and, at the same time, it might not be possible to define a single solution for all Member States. It might be better to consider several possible solutions and an interoperable infrastructure.

For achieving this main goal, the EC has created an Expert Group, which is defining a "Toolbox", (i.e., the definition of the architecture, procedures, elements, services, etc). It is expected that the outcome of this Expert Group will result in several standardisation mandates, that will have to be implemented by different SDOs (or subcommittees within those SDOs). One of the topics where standardisation mandates are expected is about the device/s to include identification data and its additional attributes. This is the focus of this fellowship. These devices could take many different shapes, which include many different technologies, such as. This kind of devices are referred now as identity wallets. The standardisation of those wallets may not only be a European need, but also an international one.

Impact

Impact on SMEs

When the European Identity Wallet will be defined, all service providers will have to adapt their services to use that wallet. Most of services providers are either SMEs or use solutions developed by SMEs, so the definition of that identity wallet will have a major impact on the activities of those SMEs, increasing their workload, and therefore, their benefits.

Impact on Society

European citizens need an interoperable secure mean to authenticate themselves all over Europe, when carrying out electronic transactions. This interoperability shall be achieved by providing the required technology, and designing the relevant processes.

With those elements defined and deployed, citizens will be able to access a huge variety of services all around the European Union, in a trusted and secured manner.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, in CEN TC224 WG20 two work items are being drafted:

- FprCEN/TR 17982 (WI=00224272) - European Digital Identity Wallets standards Gap Analysis
- prCEN/TS XXX (WI=00224276) - Guidelines for the onboarding of user personal identification data within European Digital Identity Wallets

In ISO/IEC JTC1/SC17 AG3 only an internal recommendation to the SC17 Plenary will be drafted, most likely pointing out to the future development of new standardisation projects.

Have the standardisation activities in your project led to specific deliverables?

Yes, In CEN TC224 WG20, several versions of the two work items have been delivered. For TR 179982, the final draft has already been submitted for final ballot.

In ISO/IEC JTC1/SC17 AG3, two versions of the AG3 Report have been drafted, preparing the final draft for September 2023.

What future efforts or activities are still necessary for your area of application?

Further versions of "*Guidelines for the onboarding of user personal identification data within European Digital Identity Wallets*" shall be developed, to reach final ballot process and its publication as a Technical Specification.

In ISO/IEC JTC1/SC17 AG3 it is expected that, from the AG3 Report being developed, new standardisation projects will be initiated.

Online references related to the fellowship work

- The 2 work items are included into the CEN TC224 Work programme, as it can be checked in https://standards.cencenelec.eu/dyn/www/f?p=205:22:0::::FSP_ORG_ID,FSP_LANG_ID:6205,25&cs=1BEC25E62B2D3FAE470A24A21A7315A0B

Advance Biometric System-on-Card standard ISO/IEC 17839 series

Robert Mueller
Editor and technical expert, Dr. Robert Mueller IT Consulting Germany
Long-Term Fellowship

Sector

e-Identification

Engaged SDOs, WGs and TCs

ISO/IEC SC17 Cards and security devices for personal identification
WG11 Application of biometrics to cards and personal identification

Role

Moderator of the BSoC standard

Addressed EU standardisation priorities and gaps

Interest in the BSoC technology increased significantly since the dawn of the COVID pandemic, because biometric payment cards relying on this architecture and standard enable avoiding touching a point-of-sale terminal for financial transactions. They turn transactions contact-free even for larger transaction amounts that would normally require a PIN. The application is not limited to payment but can also be used in access control and ID segments. Within the EU, contactless transactions rose significantly during the pandemic and the transaction limit for requiring a passcode has been raised to 50 EUR in several member countries. A biometric card enhances the security while improving safety and convenience by not requiring touching a terminal at all - even for higher transaction amounts. Surveys across Europe have shown that cardholders would prefer their next banking card to carry in-card biometric user authentication. Several application segments such as physical and logical access control are moving towards biometrics as a means of user authorisation. Normally, this requires a database of biometric data and poses a challenge for GDPR compliance. The BSoC technology can enable this easily because the biometric data will only be stored and processed on the individual card of the cardholder. It improves both the security and privacy of applications relying on cards.

Concerned ICT Standards and contribution to the related landscape

The Biometric System-on-Card (BSoC) multi-part standard ISO/IEC 17839 addresses the definition, architecture, physical characteristics, and logical interface of a smart card being capable to verify the cardholder using biometric characteristics. PIN codes and passwords are currently used to authenticate a cardholder (2-factor authentication) for payment and other use cases. Biometrics help eliminate remembering a password by identifying physical or behavioural characteristics. The first publication of this standard series was 2014-2016 and an amendment has been developed and published in 2021. The standard in 2021 also started a regular revision cycle which will update with the latest input from industry, academic and governmental experts. Technology has advanced since the first publication and makes this update necessary. ISO/IEC 17839 Part 2 (physical characteristics) revision is already CD stage while part 1 (core requirements) and part 3 (logical information interchange) are still in working draft.

Impact

Impact on SMEs

Standardisation of the BSoC architecture helps SMEs to develop and sell compliant products or components. Larger corporations have the capability to develop and deploy the entire ecosystem as a proprietary solution. However, this is not possible for smaller companies, and it is also not beneficial for consumers. The ISO/IEC 17839 standard series sets clear requirements for biometric cards and helps SMEs contribute to this development.

Impact on Society

The Biometric System-on-Card technology covered with the ISO/IEC 17839 standard allows improved security, safety, and convenience for cardholders. It also improves privacy significantly since the biometric capture device is part of the individual smart card and personal data will never leave it. The deployment of products following the standardised architecture has many benefits for citizens. It can also help individuals with certain disabilities to securely identify themselves and endorse transactions.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Referenced standard ISO/IEC 24787 and ISO/IEC 7816-11 have been identified partly out of date during this project and requested a revision (already on-going).

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to technical reports on the development of a revised standard.

What future efforts or activities are still necessary for your area of application?

The BSoC standard covered during this fellowship engagement has just started a regular revision cycle, which typically takes 3 years before a matured new version will be published. Progress during the first 6-12 months has been as expected and continuation of the action is required to further progress the standard.

Online references related to the fellowship work

www.iso.org/committee/45144.html

Security and privacy of biometrics for remote authentication

Julien Bringer
CEO, Kallistech
France
Long-Term Fellowship

Sector

Privacy protection
Cybersecurity

Engaged SDOs, WGs and TCs

ISO/IEC JTC 1/SC 27 Information security, cybersecurity and privacy protection/WG 5 Identity management and privacy technologies
ISO/IEC JTC 1/SC 27/WG 3 Security evaluation, testing and specification
ISO/IEC JTC 1/SC 37 Biometrics / WG5 Biometric testing and reporting
CEN/CNLC JTC 13 Cybersecurity and data protection

Role

Member, and project leader of ISO/IEC 27553-2 and of ISO/IEC 19792
Previously, co-editor of ISO/IEC 24745

Addressed EU standardisation priorities and gaps

My focus is in addressing privacy protection, cybersecurity, identity protection, and potential applications of biometrics in fintech/regtech. There are currently the following standards under development:

- in SC27: ISO/IEC WD 27553-2 - Information technology - Security techniques - Security requirements for authentication using biometrics on mobile devices: remote modes (involved as project leader)
- in SC37: ISO/IEC WD 9868 Remote biometric identification systems — Design, development, and audit (involved as contributor)
- in SC27: revision of ISO/IEC 19792 Information technology — Security techniques — Security evaluation of biometrics (involved as project leader)

Moreover, EU has a strong position on privacy of personal data, and among those information biometrics are seen as among the most sensitive ones. Based on GDPR and the standards developed in WG5 of SC27 (privacy standards, such as ISO/IEC 29100, ISO/IEC 24745 for biometric information, and authentication assurance standards, such as ISO/IEC 29115), it is important to ensure that the standards developed for specific business/domain remain consistent with these principles, and even more, that they rely on up-to-date privacy and security enhancing technologies.

Concerned ICT Standards and contribution to the related landscape

This fellowship leads and contributes to on-going projects in SC27 and SC37 related to biometrics authentication and identification to enforce highest security and privacy

requirements to protect end-users following the core principles of EU personal data protection regulation, and even further by enforcing security and privacy by technical design.

ISO/IEC JTC 1/SC27 has recently developed a new standard (publication late 2022) 27553-1 on security and privacy requirements for biometrics authentication towards remote services when biometrics information remain on a mobile device. However, there are already many deployed solutions for which some biometrics information are sent remotely, without clear guidelines or requirements, thus leading to huge risks for end-users. SC27 has recently initiated a new project 27553-2 for the cases where some info is sent to remote services. It is critical to support this project with a strong basis to lead the way toward privacy and security by technical design and to enforce the highest practices for a better protection of end-users. The activity enables to lead the development of the first working drafts for this project.

In addition, commenting and contributing to the on-going projects leveraging biometrics (and other personal information) for identification or for authentication, as ISO/IEC WD 9868 and ISO/IEC WD 19792 (revision). The master goal is to ensure security and privacy of sensitive data (of biometrics) are taken in account, to ensure consistency with the highest standards (from the transversal standard 24745 developed in ISO/IEC JTC1/SC27 Information security, cybersecurity and privacy protection), and also taking in account recent progresses in privacy enhancing technologies. This will enable to be aligned with the high requirements from EU market, at least, and even to reach additional protection by technical design.

Impact

Impact on SMEs

Helping the development of EU-friendly solutions for biometrics-based services, employing strong privacy enhancing technologies, thus going further contractual/organisational requirements, to ensure privacy and security by design. Promoting the use of the newest privacy enhancing technologies is in particular very important as sharing or leaking biometric information without appropriate protection can be very critical. This will support innovation in EU market and a common approach between the member states. And it will help the EU providers to be ahead of the competitors internationally.

Impact on Society

The topics considered in this activity are of direct impact on society as they relate to the protection of personal information in biometric systems, and the way to ensure the security of identity verification and authentication to use online services. This is also well aligned with current discussions on mandating specific security assessment scheme in EU for biometric systems.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The project is related to recently started standardisation projects, and thus no new proposal is foreseen for the upcoming year.

Have the standardisation activities in your project led to specific deliverables?

The project is related to recently started standardisation projects, new working drafts have been released thanks to the project, but final publications are not expected before one year.

What future efforts or activities are still necessary for your area of application?

There is a need to support further those standardisation projects until their publication.

In addition, there are related discussions in CEN TC224 to define EU frameworks for testing and evaluating biometric systems in European Union that require further efforts to ensure that best of the standards will be taken in account.

Online references related to the fellowship work

- www.iso.org/committee/45306.html
- www.iso.org/committee/313770.html
- www.cencenelec.eu/areas-of-work/cenelec-sectors/digital-society-cenelec/cybersecurity-and-data-protection/

Chairing the W3C RDF Dataset Canonicalization and Hash Working Group

Markus Sabadello
CTO, Danube Tech GmbH
Austria
Long-Term Fellowship

Sector

Identity management and anonymisation

Engaged SDOs, WGs and TCs

W3C® | **W3C RDF Dataset Canonicalization and Hash Working Group**

Role

Chair

Addressed EU standardisation priorities and gaps

This technology is a core building block of the growing Self-Sovereign Identity (SSI) ecosystem, with many companies and governments investing in it. It is closely connected to Verifiable Credentials (VCs).

These technologies are used by the "European Self-Sovereign Identity" (ESSIF) project, which is part of the "European Blockchain Services Infrastructure" (EBSI). ESSIF is aimed at building next-generation digital identity infrastructure that has European values built-in. Completing the deliverables of the RDF Dataset Canonicalization and Hash Working Group will be a requirement for being able to advance ESSIF into a production service.

More generally speaking, the ability to canonicalise and hash an RDF dataset is important for being able to establish security, authenticity, provenance, and trust of that data.

The current gap in the relevant ICT standards is the fact that Verifiable Credentials (and other RDF-based data) by themselves only define a data model, but no way of securing it with signatures or other types of proofs. Even though this step has already been implemented in various ways by many companies and projects, it has not actually been standardised yet (which is unfortunately something that many developers are not even aware of). That's where the work of the RDF Dataset Canonicalization and Hash WG plays an important role, since the ability to canonicalise and hash data is a prerequisite for signing it or attaching other proofs, and having a standard for doing this is very important.

Besides EBSI and ESSIF, GAIA-X (another prominent EU project) also benefit from this work since its vision of a secure and trusted data infrastructure for Europe also requires the ability to attach proofs to RDF datasets.

Concerned ICT Standards and contribution to the related landscape

The deliverables of the W3C RDF Dataset Canonicalization and Hash Working Group are related to many other standards that are either already completed or are still being worked on. Some of those other standards include Verifiable Credentials Data Model 1.0, VC HTTP API, Presentation Exchange, Self-Issued OpenID Connect Provider v2.0, Well Known DID Configuration, DIDComm Messaging, and others. These technical building blocks are used by EBSI/ESSIF and various members of the growing European Self-Sovereign Identity ecosystem. They are also used by GAIA-X, another major European initiative. It is also noteworthy to point out that another W3C Working Group for Verifiable Credentials Data Model 2.0 is progressing

well, and that the deliverables of that WG will depend on deliverables of the activity in this Fellowship Project. Besides Verifiable Credentials, other major communities that will benefit from this work are Linked Data Spaces, and the broader Semantic Web movement, since they heavily use RDF and various related technologies.

Impact (on European SMEs, related projects or in society)

Impact on SMEs

Many European SMEs are currently working on decentralised identity technologies. The work of the W3C RDF Dataset Canonicalization and Hash Working Group impacts the technologies they typically use, including Decentralized Identifiers (DIDs), Verifiable Credentials (VCs), and others. Several of these SMEs have received European grants as well, e.g. through the NGI ESSIF-Lab program.

Impact on Society

While the work of the RDF Canonicalization and Hash Working Group addresses only a small technological building block, it is the basis for many higher-level data formats and protocols in the Semantic Web, Self-Sovereign Identity, and other fields. It provides a way to secure the integrity and authenticity of arbitrary RDF data, and as such contributes to a more secure and more trustworthy web.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Not yet, despite work towards a W3C Recommendation is currently ongoing in this Working Group.

Have the standardisation activities in your project led to specific deliverables?

Yes, the activities in my project have led to the publication of a First Public Working Draft (FPWD) of the RDF Dataset Canonicalization specification.

What future efforts or activities are still necessary for your area of application?

Work is ongoing, and more Working Group time is necessary to advance RDF Dataset Canonicalization to a full W3C Recommendation. In parallel, related work is also ongoing to create new versions of the Verifiable Credentials and Decentralized Identifiers specifications.

Online references related to the fellowship work

https://w3c.github.io/rdf-canon/spec/

https://github.com/w3c/rdf-canon

Cen/Cenelec FGQT Roadmap and the QuIC Standardisation document and the Quantum Technologies Survey

Homer Papadopoulos
Research Director, NCSR Demokritos / Co-founder of Syndesis Ltd
Greece
Long-Term Fellowship

Sector

Quantum Technologies

Engaged SDOs, WGs and TCs

CEN-CENELEC FGQT QuIC Standardisation Working Group

Role

Editor

Addressed EU standardisation priorities and gaps

My fellowship addresses the following challenges:

- Conduct a state-of-the-art analysis to facilitate an EU standardisation roadmap.
- Push forward standardisation for Quantum technologies by initiating of standardisation activities (JTC 22) in three domains (quantum communication, quantum computing, quantum sensing).
- Identify the standardisation needs of the industry in the quantum technologies domain.
- Transfer of Quantum Technologies from research to market.
- Communicate the identified standardisation needs to SDOs.
- Investigate innovations and use cases in the QT field to highlight needs for standards (publication of use case for quantum communication standardisation needs).
- Prepare the SMEs that are active in the eHealth domain for the benefits of Quantum Communication technologies.

Concerned ICT Standards and contribution to the related landscape

This fellowship has three main objectives:

- Firstly, I was acted as an editor on a volunteering basis on the CEN-CENELEC FGQT roadmap document. The FGQT group prepare the ground for the CEN-CENELEC JTC22 with the aim to start producing standards for the Quantum Technology domain (communications, computing and sensing).
- Secondly, I am co-leading the Standardization working group of QuIC and within this realm my group working together with CEN-CENELEC FGQT, Euramet EMN-Q, Industry, and the project QuCaTS prepare a Survey to elicit Industry standardisation needs in the Quantum technology domain.
- Thirdly, as a member of the CEN-CENELEC FGQT I contributed to the main document as well as to the use cases document with a specific use case that identifies the need for standardisation of QKD interfaces with PQC for the healthcare vertical.

Impact (on European SMEs, related projects or in society)

Impact on SMEs

My fellowship contributions will impact the SMES working in QT field since it will elicit the needs of the European industry towards standardisation needs and the results of the survey will act as a game-changer for the development of the "Quantum" community.

Furthermore, the EU should start preparing the SMEs that are active in the eHealth domain for the benefits of Quantum communication and create the tools for Quantum communication use cases. Finally, this will increase the achievable innovation potential of SMEs working in the healthcare vertical by providing easy access to Quantum technologies through standardised web services.

Impact on Society

My fellowship can have a significant impact on society by facilitating the standardisation of Quantum Technologies (QT) in the EU. Standardisation is crucial for the widespread adoption of new technologies and can lead to increased efficiency, improved interoperability, and reduced costs of QT technologies. Therefore, diffusion of QT technologies has the potential to have a significant social impact in several domains like:

- ensuring more secure communication links,
- accelerate the discovery of new drugs leading to the development of new treatments for diseases and potentially save lives,
- improve climate modeling supporting efforts to reduce greenhouse gas emissions,
- enabling faster and more efficient training of artificial intelligence (AI) models solving more complex problems in a wide range of fields, including medicine, finance, and manufacturing.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

My project has led to the development of the Survey on Quantum Technologies Standardization from the Quantum Flagship coordination action "QUCATS". The analysis of the survey will identify the most urgent needs and will generate recommendations for developing new standards quantum technologies.

Furthermore my project supported the editing of the "*FGQT Q04 Standardization Roadmap on Quantum Technologies – Release 1*" that provided recommendations for standards in the QT domain and contributed with a use case in the FGQT Q05 Quantum Technologies Use Cases – Release 1 where we identified the need for standardisation of QKD interfaces with PQC for the healthcare vertical and we proposed the standards that need to be implemented for the specific use case.

Have the standardisation activities in your project led to specific deliverables?

My activities contributed to the following four deliverables:

1. Survey on Quantum Technologies Standardization.
2. FGQT Q04 Standardization Roadmap on Quantum Technologies – Release 1.
3. FGQT Q05 Quantum Technologies Use Cases – Release 1.
4. Publication of the paper: Towards European standards for quantum technologies.

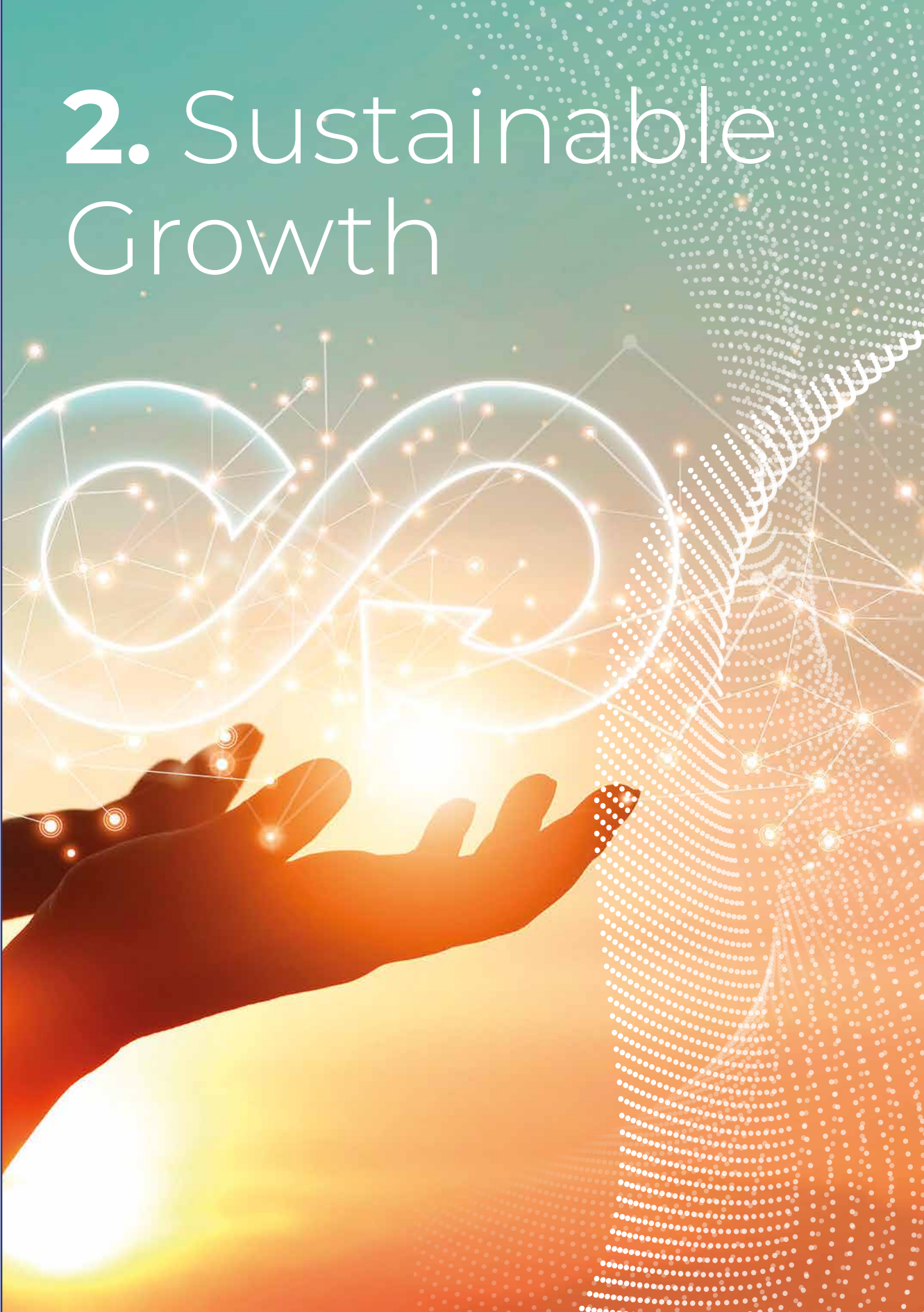
What future efforts or activities are still necessary for your area of application?

Future efforts concern the analysis of the collected data from the survey and generate the recommendations. Based on the FGQT publications to start developing some first standards within the realm of the Cen-Cenelec JTC22 group. The first meeting of the newly founded CEN/CENELEC Joint Technical Committee JTC 22 took place in Berlin recently. JTC 22 will address quantum technologies standardisation on a European level (EU 27 plus 7 European countries, which are not in the EU, will address all aspects of quantum technologies).

Online references related to the fellowship work

- Survey on Quantum Technologies Standardization : www.linkedin.com/posts/european-quantum-industry-consortium-quic_survey-on-quantum-technologies-standardization-activity-7024284684125659136-VlzW/?originalSubdomain=gr
- FGQT Q04 Standardization Roadmap on Quantum Technologies – Release 1 : www.cencenelec.eu/media/CEN-CENELEC/AreasOfWork/CEN-CENELEC_Topics/Quantum%20technologies/Documentation%20and%20Materials/fgqt_q04_standardizationroadmapquantumtechnologies_release1.pdf
- FGQT Q05 Quantum Technologies Use Cases – Release 1 : www.cencenelec.eu/media/CEN-CENELEC/AreasOfWork/CEN-CENELEC_Topics/Quantum%20technologies/Documentation%20and%20Materials/fgqt_q05_quantumtechnologiesusecases_release1.pdf
- Publication of the paper: Towards European standards for quantum technologies: https://epjquantumtechnology.springeropen.com/articles/10.1140/epjqt/s40507-022-00150-1

2. Sustainable Growth



Publish FprEN 17549-2

Pierre-François Jullien
CEO, Atalane
France
Long-Term Fellowship

Sector

Building Information Modelling

Engaged SDOs, WGs and TCs

CEN TC442 Building Information Modelling WG2 Exchange information

Role

Member of CEN/TC442/WG2/TG3-2

Addressed EU standardisation priorities and gaps

FprEN 17549-2 is a technical Model View Definition (MVD) of EN ISO 16739-1:2020. It aims to set a comprehensive digital structure to store and exchange Construction Object Data Views. It is intended for software publishers for the construction sector as well as professionals in this sector using their software.

This standard includes the structures that shall be used to:

- Link the objects and properties to their semantic definitions through data dictionaries.
- Express requirements and describe configurable construction objects using declarative expressions.
- Organise the data exchanged during business workflows.

This standard selects a few technical IFC classes to leverage the maximum potential from Building Information Modelling (BIM):

- Firstly, it aims to provide access to dynamic business semantics. For this it uses the complementarity between the underlying EN ISO 16739-1:2020 standard and the EN ISO 12006-3 for data dictionaries, thereby outsourcing business semantics of the schema. The use of EN ISO 12006-3 is extended to the negotiation of Data Templates to agree on a common language prior to data exchanges. These data exchanges can concern construction projects as well as catalogues of construction products.
- Secondly, it aims to ease concurrent engineering by allowing the expression of requirements. For this it highlights the use of constraints especially in the perspective of data exchanges related to business processes (EN ISO 29481-2) and the traceability of decisions in models. These constraints make it possible to express requests relating to construction projects or product catalogues. At last, they may also be used to describe configurable products.
- Finally, it aims to integrate into workflows as described in EN ISO 19650-1.

These three aspects make it possible to achieve interoperability of data used in software for the construction and operation sector.

Concerned ICT Standards and contribution to the related landscape

My fellowship contributes to the publication of prEN 17549-2. With EN ISO 16739-1:2020 exists an open language to design, transfer and maintain construction models. prEN 17549-2 is a simplification of EN ISO 16739-1:2020 from an information technology point of view and as

such is a Model View Definition (MVD). It focuses on core classes and relies on external data dictionaries to describe business semantics.

The CEN formal vote of FprEN 17549-2 began in December 2022 and finished in January 2023. From January to June 2023, I have been or will formulate personal comments to AFNOR, lead the AFNOR PPBIM/GE2 to formulate the AFNOR comments and assist the project leader and CCMC in taking the comments into account.

Impact

Impact on SMEs

FprEN 17549-2 allows SME software companies to develop BIM software: it is a subset of EN ISO 16739-1(IFC), so its implementation will be straightforward:

- the number of classes in the standard is reduced from 876 to 73.
- any software compliant with EN ISO 16739-1 will be immediately compliant with prEN 17549-2.
- it contains no business classes but only technical classes. So, the standard should be robust and subject to few changes in the future.

FprEN 17549-2 reduces the costs of software acquisition as the implementation of prEN 17549-2 by software vendors is much simpler than the implementation of EN ISO 16739-1. Training will also be cheaper as software will use the user's vocabulary.

Impact on Society

FprEN 17549-2 helps construction companies to work with their own vocabulary. It uses the concepts defined by the construction industry (through normative processes) and stored in EN ISO 12006-3 data dictionaries. It means that software will use users' language.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The new project standard ISO 16757-5 will be based on EN 17549-2. It aims at defining a standardised way to represent BIM product catalogues.

Have the standardisation activities in your project led to specific deliverables?

FprEN 17549-2 has been approved during its formal vote. The document has been finalised and reached stage 60.60.

What future efforts or activities are still necessary for your area of application?

EN ISO 16739-1, EN ISO 12006-3 and EN 17549-2 are complementary standards. Two steps will be necessary to achieve the goal of a complete standardised process:

- Transform EN 17549-2 in an ISO standard.
- Develop a standardised API (Application Programming Interface) that will allow BIM software to directly exchange data instead of exchanging files through mail.

Online references related to the fellowship work

https://standards.cencenelec.eu/dyn/www/f?p=205:7:0::::FSP_ORG_ID:1991542&cs=100E563A3950D53807585F6A443ACB202

Energy Saving Green Use Case Standardization using Telco Data Sharing

Muslim Elkotob

Principal Solutions Architect and Standardization Expert, Vodafone Germany

Long-Term Fellowship

Sector

Building Trust

Engaged SDOs, WGs and TCs

ETSI TC INT Technical Committee on Core Network and Interoperability Testing
ETSI ISG AFI Industry Specification Group on Autonomic Future Internet
ITU-TU
IEEE INGR
TM Forum

Role

Member

Addressed EU standardisation priorities and gaps

The core priority areas I chose for this project include, Privacy Protection, Industry 4.0, Big Data, and Building Trust. This work starts with Security in 5G and Beyond, and systematically supporting End-to-End autonomic security management and intelligent, dynamic orchestration and coordination among operators (CSPs) via Federation of GANA Knowledge Planes. It then builds on this to target the topics of establishing a Telco Data Sharing basic trusted model and connecting stakeholders to the Data Space, backed by use-case demos focusing on trusted AI, steering roaming, federated service catalogues, and data anonymisation and ingestion were the focus, and finally backed by several activities that support standardisation and drive technology in the priority areas.

Related to this fellowship work, I have identified two gaps followed by two challenges:

- The lack of systematic data sharing models among telcos and other stakeholders for improving performance or targeting vertical or use-case specific targets (such as energy efficiency, green economy).
- The absence of mature use-case models and their standardisation for achieving green-economy and energy-saving targets; in addition, the absence of systematic collaboration between stakeholders for driving such use cases and their objectives makes this gap even wider.
- Getting the right governance model and building it into the architectural blueprint for Data Sharing and Telco Data Sharing is a tough challenge.
- Getting the right metrics, parameters, data pieces and process steps for each energy-saving use-case to best capture the requirements and shape the target behavior at the required performance level is another significant challenge that requires a lot of effort to be overcome.

Concerned ICT Standards and contribution to the related landscape

Telco data sharing which is the key enabler for the energy-saving use-cases and their standardisation falls within the area of big data analytics and data-driven services. This area is known, but what it lacks is a standardised mechanism and ideally a framework for data sharing among interacting stakeholders and leveraging data and data-driven services.

ICT standards and pre-standards based on initiatives in this respective area include:

- Gaia-X: with Gaia-X, representatives from business, science and politics on an international level create a proposal for the next generation of data infrastructure: an open, transparent, and secure digital ecosystem, where data and services can be made available, collated and shared in an environment of trust.
- IDSA: The International Data Spaces Association is on a mission to create the future of the global, digital economy with International Data Spaces (IDS), a secure, sovereign system of data sharing in which all participants can realise the full value of their data. IDS enables new "smart services" and innovative business processes to work across industries while ensuring that the self-determined control of data use (data sovereignty) remains in the hands of data providers.

Some ICT standards to which I have personally contributed to, and that serve as a boost and foundation for this work, especially when it comes to Federation, Architectural Bits and Pieces (e.g. APIs, layered models) serving the project blueprint, and use-case driving aspects (data design, dynamics) include:

- ITU-T Recommendation Q.4068: Open APIs for interoperable testbed federations.
- ETSI TR: INT AI in Test Systems and Testing AI models; Testing of AI with definition of quality metrics.

Impact

Impact on SMEs

This project supports the evolution of new ecosystems and value chains around data driven services and data sharing; those ecosystems are more diversified and open and not dominated around the central element of a CSP (Communication Service Provider) with a single vendor and integrator. Ecosystems for data sharing open the space in an inclusive manner for smaller players, especially of the ISV (Independent Software Vendors) type in addition to other SMEs that are specialised in software algorithms (e.g. in AI, ML, and other relevant areas). Furthermore, new SMEs and smaller players in-line with the Green Initiative and following Environmental Directives will have a higher chance for inclusion and participation the ecosystems as they evolve impacted by this project work.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, a new Work Item (WI) in ETSI TC INT/AFI has been set-up to accommodate the results of the work on Energy Saving Green Use Cases Standardisation Using Telco Data Sharing. This Work Item, which is still work in progress, already contains recommendations and design guidelines for forming data spaces to be shared by Telcos and other stakeholders that carry data items related to capturing the state of energy efficiency as well as the technical and business parameters for modelling it.

Have the standardisation activities in your project led to specific deliverables?

The Work Item (WI) in ETSI is currently placed as a TR (Technical Report) Deliverable which serves as a pre-standard document for one or more subsequent TS (Technical Specification) deliverables that build on it, and that are considered mature ready-to-use standards.

Furthermore, I have been contributing to this subject on Use Cases for Energy Saving using Asset Federation (and Data Sharing) in the ITU-T Focus Group on Testbeds Federations for IMT-2020 and beyond (FG-TBFxG) in the Working Group 1 (of which I am Chairman) in Deliverable D1.1 (Technical Report).

What future efforts or activities are still necessary for your area of application?

The areas of Green Energy-Saving Use Cases and Telco Data Sharing are both relatively new and still have a long way to go. This project, building on the interworking of those two trends faces the challenge of being new in a very impacting way. So with initial benefits and synergies taking shape with this work, and the pre-standardisation work in ETSI and ITU-T gaining pace, there is still work to do in this area in various SDOs, and this work will build on the already accomplished work in this project.

Online references related to the fellowship work

- www.data-infrastructure.eu/GAIAX/Navigation/EN/Home/home.html
- https://internationaldataspaces.org/
- www.itu.int/rec/T-REC-Q.4068-202108-I/en
- https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59456
- https://extranet.itu.int/sites/itu-t/focusgroups/tbfxg/output/TBFxG-O-042-R1.docx
- https://extranet.itu.int/sites/itu-t/focusgroups/tbfxg/output/TBFxG-O-026.docx

ICT procurement standard for circular ICT devices

Leandro Navarro
Professor, Universitat Politècnica de Catalunya
Spain
Long-Term Fellowship

Sector

Circular Economy

Engaged SDOs, WGs and TCs

ITU Q7/SG5 EMF

Role

ITU-T Q7SG5 co-rapporteur

Addressed EU standardisation priorities and gaps

The work is linked to the effort towards more sustainable ICT products and more circular processes. The gap is in developing ICT product and service public procurement principles that facilitate the transition to a circular economy.

The main challenge is the definition of ways that public procurement of ICT can help reduce demand, extend usage, and reduce and process e-waste by defining and recommending principles and procurement criteria to meet these goals.

The European Commission approved in 2021 a voluntary green public procurement criterion for computers, monitors, tablets, and smartphones. This standardisation activity is intended to relate to that voluntary criterion and build on many other proposals by different international groups (including public procurers, procurement consortia, and UN agencies related to different aspects of ICT such as labour, environment, ICT). The expected outcome will be to propose a concerted approach for a common set of standard principles and develop guidelines to implement these. This is very relevant in the European framework where green public procurement is strong and well organised (e.g. electronics Watch, The global and Fair ICT Pact) and should be applicable globally. This is so since the market for ICT products is global.

The support from StandICT.eu Programme is key to supporting and advancing the work of this work item, done by me as co-editor of this work item in ITU-T and coordinated in my role as co-rapporteur of Q7/SG5.

Concerned ICT Standards and contribution to the related landscape

The support from StandICT.eu fellowship programme is helping in my role as editor and co-rapporteur to develop a standard for circular public procurement of ICT goods. The work item in ITU-T is called L.ICT_PROCURE. It has been consented to in the ITU SG5 plenary and will be ITU-T L.1061.ITU-T L. Supplement 20 (L.Sup.20) Green public ICT procurement, published in 2015, provides technical guidance to public administrations/public sector to improve their procurement practices to purchase green ICT goods and services. However, the evolution of the sustainability of ICT and particularly in the circular economy, requires a new standard. ITU-T has approved a new work item to develop a global standard on green public procurement of ICT that builds upon the content of L.Sup.20, to update and expand on crucial circular economy objectives, to provide a set of “green” procurement recommendations (standards) for ICT equipment to:

- Maximise usable life;
- Minimise any resulting amount of e-waste produced, and the adverse effects of e-waste, and
- Increase recyclability, thereby contributing to the circular economy.

Impact

Impact on SMEs

The standard will facilitate innovative European SMEs to offer compliant ICT products for public procurement, either new or second-hand (refurbished).

Impact on Society

Circular public procurement is a primary driver for the adoption of circular economy in ICT not only in the public sector but in all societies, as public procurement has a driving effect on the market.

The resulting standard from ITU-T L.ICT_PROCURE work item will support legislative initiatives in the EU (in a potential collaboration with ETSI) to provide the basis for implementing green public procurement in Europe and globally. Combined with legislative measures from the European Union, and ICT procurement guidelines, this standard can consolidate strong and rapidly introduced green procurement in Europe, which is critical for the change it can bring to transform the whole ICT sector, also globally, as mentioned before, and contribute to try align climate change to the best (lowest) climate change trajectories defined by IPCCC and help minimise the associated environmental and human disasters.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The work item in ITU-T is called L.ICT_PROCURE. It has been consented to in the ITU SG5 plenary and will be ITU-T L.1061.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to a technical report on a development of a new standard.

What future efforts or activities are still necessary for your area of application?

The standard is in the approval track of ITU. Some editorial clarifications may be expected at most, sometimes comments from an ITU country representative, but final approval with perhaps any minor modifications is the most likely outcome.

Online references related to the fellowship work

www.itu.int/md/T22-SG05-230209-TD-GEN-0620/en

www.itu.int/en/ITU-T/Workshops-and-Seminars/2023/0214/Pages/default.aspx

Fintech In Sustainable Banking Products

Shakira Bedoya

Senior Risk Officer, Asset Management Business Controls and Product Management, Danish Standard foundation

Denmark

Long-Term Fellowship

Sector

Clean Planet

Engaged SDOs, WGs and TCs

ISO/TC68
ISO/TC207
ISO/TC322

Role

ISO/TC322 Sustainable finance Liaison

Member in the other committees

Addressed EU standardisation priorities and gaps

This fellowship addressed the gap concerning the lack of adequate integration of ICT standards for sustainable products and services. Therefore, the priority is the establishment of a common European approach towards technological innovation in green financial products. However, the challenge is that we need to improve the alignment between ICT standards and the requirements and needs of financial services, specifically in sustainable products.

Concerned ICT Standards and contribution to the related landscape

I focus on two ISO standards, namely:

- ISO/AWI TS 32211 (Principles and guidelines for development and implementation of sustainable finance products and services).
- ISO/CD TS 23526 (Security aspects for digital currencies).

Impact on Society

FinTech is recognised as a great enabler of sustainable products in areas such as: Financial inclusion, lower costs of delivery, access to capital markets, selection of investors and improvement of risk management (PWC 2021). Currently, there is a strong need to foster standardisation that could enhance the use of Fintech in sustainable banking products.

By participating in the work of Danish Standards (DS) my objective is to sustain standardisation by participating in two committees: ISO/TC 68 (Financial Services - specifically in the working groups of Fintech and Sustainable Finance), ISO/TC 322 (Sustainable Finance- specifically in the working groups of Fintech and Sustainable Financial Products and Services).

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I am actively contributing to ISO/AWI TS 32211 (Principles and guidelines for development and implementation of sustainable finance products and services).

Have the standardisation activities in your project led to specific deliverables?

No. For the moment, I focus on attending major meetings related to this work, including ISO/TC 309 Plenary Week (April 2023) and the plenary meeting ISO/TC 68 (Financial Services) in Sydney Australia (May 2023) as a liaison representative of the Sustainable Finance Committee.

What future efforts or activities are still necessary for your area of application?

As the European Banking Authority has demonstrated, the use of FinTech in the provision of financial products and services is extremely important for credit institutions, investment firms, payment, and electronic money institutions. The nexus between FinTech and Sustainable Products is yet to be addressed by ISO standards. In my view there is a strong need to increase knowledge and alignment between various TCs as well as to increase the participation of experts in standardisation work.

Online references related to the fellowship work

- www.iso.org/committee/49650.html
- https://www.iso.org/committee/7203746.html
- www.iso.org/committee/54808.html

Metrology for Emerging Electromagnetic Compatibility Standards: Applications

Marco A. Azpúrua
Associate Professor at Universitat Politècnica de Catalunya
R&D Manager at EMC Barcelona
CISPR Expert
Spain
Long-Term Fellowship

Sector

EMC Radiation

Engaged SDOs, WGs and TCs

CISPR/CIS/B/WG 1
CISPR/CIS/B/WG 7
IEC TC 82 Solar photovoltaic energy systems
IEC TC 88 Wind energy generation systems
ECSS

Role

Member

Addressed EU standardisation priorities and gaps

This fellowship tackles the following:

- Absence of an appropriate EMC testing method for assessing electromagnetic emissions of large-size and high-power equipment that cannot be tested on a standardised test site.
- Associate technical challenges of EMI measurements in uncontrolled electromagnetic environments. Influence of ambient noise in test results.
- Definition of specifications for alternative measurement instruments that would allow for time-domain EMI measurements using the direct sampling approach.
- Creating a reference test method for EMI measurements in situ and at defined sites, a completely new and controversial concept from the EMC standpoint.
- To engage with industrial stakeholders in the renewables energy sector and also in the space sector in order to put into practice the methodologies proposed and gain support towards standardising them.

Concerned ICT Standards and contribution to the related landscape

The Industrial, Scientific and Medical sector is the primary beneficiary of the initiative to develop new EMC standards for atypical equipment. The primary target standard in the scope of the project is CISPR 37, which is expected to have a broader influence on applications such as renewables and wireless power transfer. The development of new EMC standards will have significant economic benefits due to their strategic importance in contributing to the Gross Domestic Product and European jobs. These standards contribute to enforcing the EMC Directive 2014/30/EU, thus protecting the radio spectrum and wireless communication from unintended electromagnetic emissions.

Impact

Impact on SMEs

First, there are EMC specialised consultancy firms and many of which could be classified as SME. Those SMEs will be able to grow through new types of testing services when alternative procedures for demonstrating compliance with the EMC directive are in rule. This will allow for a completely new business area. I know this because I am the founder of a company in this sector (EMC BARCELONA). Many of our clients in Catalonia and Spain are willing to have their products tested on-site or at a defined site. Secondly, some of the alternative test methods proposed in the standards I am contributing allow for new and affordable methodologies that both SMEs and large businesses will benefit from in their own product certification process. This will translate into reduced costs, fewer noncompliance risks and a shortened time-to-market for their products.

Impact on Society

The energy crisis and the EU's efforts to transition to cleaner energy generation (Green Deal) involve the widespread deployment of renewables. Such energy-generating systems use high-power electronic elements that produce unintentional electromagnetic interference. Having appropriate standard test methods to assess the electromagnetic compatibility of atypical products (wind turbines, whole PV installations, etc.) will boost this industry sector and accelerate its uptake on society and its environmental benefits. Conversely, having appropriate standards and requirements applicable to atypical equipment tested in situ prevents the generation of radiofrequency emissions capable of degrading and blocking communication systems and other wireless applications.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. CISPR 37 is an entirely new standard. We just finished discussing Committee Draft 2, and it is expected to enter consultation with national committees during the summer 2023. Then, considering inputs from this project, other standards are in revision process, like IEC 62920 and IEC 61400-40**.**

Have the standardisation activities in your project led to specific deliverables?

Internal reports and presentations were prepared for each meeting during the fellowship. I lead a task force to finalise CD2. Likewise, several conference papers (EMC Europe 2023) have been delivered as part of the work. Some of their content has been adapted for Annexes on CISPR 37.

What future efforts or activities are still necessary for your area of application?

There is a significant concern about the lack of guidelines for photovoltaic systems installation from the EMC point of view. There is a current call for experts to work on a Technical Report and a Guideline to tackle this situation. Moreover, an increasing number of experts agree (including me) with the importance of moving away from the current rule-based approach for EMC compliance determination and prioritising EMC risk assessments. This will require entirely different standard considerations, and we may have to look at the experience in sectors like medical for adoption their methodologies.

Online references related to the fellowship work

https://www.iec.ch/ords/f?p=103:14:305829547397299::::FSP_ORG_ID:23355

https://www.iec.ch/ords/f?p=103:14:305829547397299::::FSP_ORG_ID,FSP_LANG_ID:3223,25

www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1276

www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1282

Further standardization tasks for improving Vulnerable Road Users' safety

Michelle Wetterwald

Senior standardisation expert in networking and mobile communications,

NETELLANY

France

Long-Term Fellowship

Sector

Intelligent Transport Systems

Engaged SDOs, WGs and TCs

ETSI World Class Standards | ETSI TC Intelligent Transportation Systems (ITS) WG1

Role

Member

Addressed EU standardisation priorities and gaps

In this fellowship, I contributed to ETSI TC ITS Technical Committee. TC-ITS started standardising Cooperative-ITS (C-ITS) technologies in 2008. Since then, it has developed several facilities (service) layer entities serving ITS applications to help prevent vehicle hazards in diverse situations. The VRU awareness standard was developed in three parts which were last revised and published in April 2021 (part of my StandICT.eu Open Call 1 fellowship). From the beginning, the VRU topic generated a lot of discussions and comments, internally during ETSI meetings and from external stakeholders interested in the topic.

The published VRU standard is considered as stable; however, several industrial delegates wanted to refine Part1 of the standard which describes VRU-related use cases, adding use cases.

Another standard under revision in TC ITS is the ITS Common Data Dictionary (CDD) which specifies the detailed format and meaning of each and every data element used in the ITS cooperative messages to ensure interoperability. The initial VRU message specification was published before the Rel-2 CDD revision started, and somehow triggered it. All the specified VRU message data elements were recently moved to the new Rel-2 CDD, during a close coordination between the beneficiary and the CDD editor as part of my StandICT.eu Open call 6 fellowship. It is now necessary to retrofit this activity on Part3 of the VRU standard (TS 103 300-3) to align it with the new CDD and remove the data elements that were moved out or modified during that work.

Concerned ICT Standards and contribution to the related landscape

The work of this fellowship will enhance the capability of ETSI standards to improve European citizens' safety and prevent injuries and fatalities on roads (ETSI TC ITS). Vulnerable Road Users or VRUs (pedestrians, cyclists, motorcyclists, large animals) account for a large percentage of road fatalities. The ETSI VRU standard is the most comprehensive standard on that topic published so far. The American standard (SAE J2945/9) is being updated and harmonised after the ETSI publication. I have led the team that prepared a standard (ETSI TS 103 300) for Intelligent Transport Systems (ITS) VRU awareness. All three sub-parts of this standard were finalised and maintained as part of previous fellowships. Therefore, this fellowship aimed at

finalising the enhancement of Part 1 (TR 103 300-1) with new use cases and harmonising Part 3 (TS 103 300-3) with the new ITS Rel-2 Common Data Dictionary (CDD). It also supports the finalisation of the peer CPS (Collective Perception Service) specification.

Impact

Impact on SMEs

The ITS domain is a very varied eco-system, where SMEs can contribute. Especially since the work in this fellowship takes place at service level, there are several SMEs which develop the software and commercialise it to support the ITS exchanges. So, even if the direct contributors in the discussions are large companies, SMEs are indirectly impacted by these actions as they will be able to develop new services complying with these standards.

Impact on Society

This work supported the protection of Vulnerable Road Users (VRU) through the edition of a standard in the cooperative ITS domain, directly with the VRU standard and indirectly with the CDD and Collective Perception Service where I gave a hand to the standard rapporteurs. The initial target of cooperative ITS (C-ITS) was on motorized transport (mainly cars, trucks, etc.). However, Vulnerable Road Users or VRUs (pedestrians, cyclists, motorcyclists, large animals) account for a large percentage of road fatalities. To enable the European objective of zero fatalities by 2050, it is important to extend C-ITS to protect the VRUs when at risk on the roads. From the beginning, the VRU topic generated a lot of discussions and comments at ETSI, internally during meetings and from external stakeholders interested in TC-ITS and has become an important societal topic in many worldwide organisations, up to the UN.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, this project directly involved the development of two revised standards (Part 1 and Part 3 of the VRU standard). It triggered the preparation of a new companion testing standard.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical specifications.

What future efforts or activities are still necessary for your area of application?

The updates of the two target parts of the standard were successfully completed during this fellowship. Both revised documents were published. The work is continuing with the preparation of a companion testing standard, through a project led by ETSI. As stakeholders are starting to implement and test this standard, updates will probably pop up. Furthermore, TC ITS is currently organising the release 2 framework, to enable a future-proof set of specifications. When the framework will be finalised, it will probably require a new update of all three parts of this standard.

Online references related to the fellowship work

www.etsi.org/technologies/automotive-intelligent-transport

https://www.etsi.org/committee/1402-its

IoT Semantic Interoperability Specialization to Smart Cities and AI

Amelie Gyrard
Principal Research & Innovation Consultant, Trialog
France
Long-Term Fellowship

Sector

Smart cities

Engaged SDOs, WGs and TCs

ISO/IEC SC 42
ISO/IEC 5392 KERA
IEC Syc Smart Energy WG6
IEEE Std 1872.2-2021 Autonomous Robotics Ontology

Role

Member and contributor,

ISO/IEC 21823-3 IoT semantic interoperability co-editor

Addressed EU standardisation priorities and gaps

In this fellowship, I focus on the contribution to the standardisation of IoT Interoperability by ensuring integration of SAREF and other European contributions into ISO/IEC 21823-3 IoT semantic interoperability where my role is the co-editor.

I am engaged in the contribution to the standardisation of AI architecture by ensuring integration of European contributions on AI and interoperability (e.g. BDVA, IDSA, AIOTI, and H2020 projects such as IoT large-scale projects) into ISO/IEC JTC1/SC42 AI 5392 Knowledge Engineering Reference Architecture (as a contributor).

Concerned ICT Standards and contribution to the related landscape

The objective of this fellowship is to include European contributions on semantic interoperability ISO standards such as ISO SC41 IoT and Digital Twin and ISO SC42 AI, with a focus on smart cities. The following contributions will be made:

- Advancing standardisation of energy ontology through contributions on SAREF.
- Contribution to the standardisation of IoT Interoperability by ensuring integration of SAREF: SAREF-Core, SAREF4City and other European contributions into ISO SC41 IoT and Digital Twin: ISO/IEC 21823-3 IoT semantic interoperability (as co-editor); ISO/IEC 21823-4 IoT Syntactic interoperability and ISO/IEC 20924 IoT Definition and Vocabulary.
- Use cases from European projects will be provided on smart cities. Contribution to the standardisation of AI into ISO/IEC SC42 AI by ensuring integration of European contributions on AI and interoperability (e.g. BDVA, IDSA, AIOTI, and H2020 projects) such as ISO 5392 Reference Architecture of Knowledge Engineering Reference Architecture and ISO SC42 AI WG5 OKER (Ontologies Knowledge Engineering Representation).
- Contributions to IEC SyC Smart Cities, WG 1 (Terminology): Technology Report - Ontology standards in Smart Cities, IEC SyCSmartCities - Systems Reference Deliverable (SRD) Smart city system ontology -- Part 1: Gap analysis.

Impact

Impact on SMEs

My company Trialog is an SME based in France, and we are directly impacted by my contribution. In addition, the standards under consideration will benefit to all the Smart Health ecosystem, including SMEs.

Impact on Society

These contributions to standards related to smart cities will foster an interoperable environment for the Internet of Things, working with ESOs and international SDOs. We continue developing consensus under the umbrella of the Alliance of IoT innovation (AIOTI), targeting reference architectures, protocols and interfaces, the promotion of open application programming interfaces (APIs), support of innovation activities related to reference implementations and experimentation and the development of missing interoperability standards. Moreover, as part of its progress review, the European Commission will assess if further steps are needed to tackle identified interoperability failures, and if necessary, consider using legal measures to recommend appropriate standards.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I have contributed to several standards that are either underdevelopment or published. The three following standards are under development:

- IEC IEC/SRD 63476 Ed.1: SyCSmartCities/273e/CD: (SRD) - Smart city system Ontology - Part 1: Gap Analysis.
- IEC SyC Smart Cities, WG 1 (Terminology): Technology Report - Ontology standards in Smart Cities.
- ISO/IEC 5392 Knowledge Engineering Reference Architecture (KERA).

And the two following standards are published:

- JTC1-SC41/167/CDV - ISO/IEC 2 1823-3:2021 Internet of things (IoT) — Interoperability for IoT systems — Part 3: Semantic interoperability.
- IEEE Std 1872.2-2021 Autonomous Robotics (AuR) Ontology.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical on development of new standards.

What future efforts or activities are still necessary for your area of application?

The standards under development need to be published.

Online references related to the fellowship work

www.iec.ch/ords/f?p=103:38:204067302915002::::FSP_ORG_ID,FSP_APEX_PAGE,FSP_PROJECT_ID:13073,23,105136

https://standards.ieee.org/ieee/1872.2/7094/

www.iso.org/standard/81228.html

www.iso.org/standard/83752.html

Lifts and Escalators in Smart Cities

Gero Gschwendtner

Prof. Mechanical Engineering (HTL St. Pölten) and Independent Consultant, Gschwendtner

Austria

Long-Term Fellowship

Sector

Smart Cities

Engaged SDOs, WGs and TCs

ISO/TC 178 Lifts, escalators and moving walks
CEN/TC 10/ WG 2

Role

Chairman ISO/TC 178

Convenor CEN/TC 10

Addressed EU standardisation priorities and gaps

Up to last year, for the escalator and elevator industry there was, except for the cybersecurity standard, no specific ICT standard available, as the beginning of the standardisation work within ISO/CEN for lifts and escalators it was the philosophy to integrate all topics in the main product standards ("product bible": ISO 8100-1/2 and EN 115-1, being published soon as ISO 8103-1). Only then over the years, when specific topics became too complex, additional standards, supporting the main product standard have been developed.

It was realised that ICT was not covered in several details as long as technology is developing too fast. Therefore, it was decided, to analyse this situation and define a strategy for the future to take care on this topic and to close this gap in the future.

The new standards/ technical specifications are the topics with the highest priorities. In parallel, the main product standards ("product bible") have to be maintained as some generic ICT aspects as well as the cross references to the "real" ICT standards have to integrated there. This is in the same way valid for the energy standards, which have a very important role within smart cities and the Risk analysis standard, which is the baseline for bringing absolute new technologies on the market and must consider this new aspect.

In general challenging for ISO/TC 178 and the whole lifts and escalator industry is the situation, that China has currently several local standardisation projects where they are working with relative high speed, as their release process, with less parties involved, is faster than the CEN and ISO process. This makes it very important to ensure that SAC continues to actively participate in ISO and takes over all ISO standards.

Concerned ICT Standards and contribution to the related landscape

Lifts, escalators and moving walks are essential elements in providing safe access to buildings. Strong focus there is on safety, accessibility, energy and environment and highly relevant for the future ISO/TC 178 activities are also focusing now to a strong extend to ICT.

ISO/TC 178/WG 12 was found in 2019 and within 3 years they published the new "ISO 8102-20 Electrical requirements for lifts, escalators and moving walks - Part 20: Cybersecurity". WG

12 started on “NP TS 8100-9 “Remote software updates for Lifts and escalators” where it is planned to discuss both information and operational technology (IT/OT) viewpoints.

In addition, ISO/TC 178/WG 13 is carried out a study in the field of new technologies to be used within lifts and escalators and make a proposal to ISO/TC 178 including:

- How ISO/TC 178 defines its position in this technology?
- Envisaged work items to be registered.
- Organisation structure including possible new WGs to be established.
- In addition to the above-mentioned agreed project on ISO/NP TS 8102-21 it was also decided to create a technical report for Building Information Modelling considering ISO 19650-1:2018 impact (ISO/NP TS 8100-10).

Finally, ongoing work on the products standards and risk analysis continue with the following items: ISO/WD 8100-1, ISO/WD 8100-2, ISO/WD TS 8100-3, ISO/DIS 25745-1, ISO 25745-2:2015/CD Amd 1, ISO/PWI 14798-1, ISO/PWI TR 14798-2, EN-115-1.

Impact

Impact on SMEs

My group, ISO/TC 178 has a liaison to ELA European Lift Association and to SBS - Small Business Standards with EFESME (European Federation for Elevator Small and Medium-sized Enterprises aisbl). Both associations are highly interested in this topic, they have hence a liaison and with this they also participate actively at the ISO/TC 178 meetings as well as at the relevant WG meetings. Chairing those meetings and with this giving them also relevant time in the meeting to talk and bring up their issues is essential for them.

Impact on Society

Lifts, escalators and moving walks are essential elements in providing safe access to buildings. Worldwide, there are more than 18 million lifts and escalators in operation (with still nearly half of it in Europe) and more than 1 million new units are installed every year. 325 million passengers riding elevators each day around the world. For escalators and moving walks there are more than 1 million in expectation and more than 10 billion rides done per day.

During the next few decades, the number of people aged 65 years and above is estimated to increase by nearly 33%, while increase in people in the age group of above 80 years will be two times the present number. As the average age of the population increases, accessibility becomes the key factor, necessitating all multi-floor buildings to be provided with vertical transportation systems such as escalators, elevators, stair lifts, and platform lifts.

Lifts, escalators and moving walks are considered as means of transport and therefore represent an essential component of the functional life of the buildings in which they are installed. Contrary to most public means of transport, they are intended for free use and operation by their passengers, which makes the integration of safety an essential concern.

The expected benefits lie first on safety for passengers. The standards create a baseline for safety in the broadest context and this contribution is very valuable. In addition, accessibility and energy efficiency is covered by this work where also the UN sustainability goals are integral part of those standards. Within this focus is given on the sustainability goals 7,8,9,10,11,12,13.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I have contributed in revising several standards as well as starting two new standardisation projects, namely:

- ISO/NP TS 8100-10 Lifts for the transport of persons and goods — Part 10: Building Information Modelling.
- ISO/NP TS 8102-21 Electrical requirements for lifts, escalators and moving walks — Part 21: Software.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical specifications and technical reports.

What future efforts or activities are still necessary for your area of application?

The engaged standardisation efforts are at the preliminary phase, and the work must be continued. For all those items there is a high commitment from all ISOTC/178 members, and it is also the expectation of all our stakeholders that this work will be continued.

Online references related to the fellowship work

- www.iso.org/committee/53970.html
- www.cencenelec.eu/areas-of-work/cen-sectors/mechanical-and-machines-cen/industrial-machinery/

Leading the development of ITU standards for IoT applications in smart cities and communities

Marios Angelopoulos
Associate Professor, Bournemouth University
United Kingdom
Long-Term Fellowship

Sector

Smart cities

Engaged SDOs, WGs and TCs

ITU-T Study Group 20

Role

Co-Rapporteur

Addressed EU standardisation priorities and gaps

My work in ITU addresses the priorities of the call about smart cities and communities/ technologies and services for smart and efficient energy use, and citizen-centric digital public services and EMC radiation. The work is highly relevant to the European Commission's strategy for Europe as the development of standards provisioning the use of crowdsourcing methodologies is aligned with one of the nine initiatives mentioned in a recent report by the European Commission DG Communications Networks, Content & Technology to lead the way is 'empowering cities and communities across Europe through "better public services for citizens, better use of resources and less impact on the environment". Furthermore, crowdsourcing methods enable the re-purposing of privately owned digital assets (such as smartphones). They are therefore in line with sustainability and the transition to a Circular Economy as described in the Green Deal.

Concerned ICT Standards and contribution to the related landscape

My StandICT.eu fellowship supports my engagement and contribution to the International Standardisation Union (ITU), one of the most prominent and impactful SDOs in ICT with a global outreach to policy makers, Industry and Academia. In particular, the fellowship supports me as co-rapporteur of Question 5, "Study of emerging digital technologies, terminology and definitions" in ITU-T Study Group 20 "Internet of Things, smart cities and communities". Currently, SG20/Q5 has five active work items covering blockchain terms and definitions for IoT, digital transformation, and smart oceans. Furthermore, I also lead the editorship of a work item for ITU Technical Report YSTR.P2P-CC, "Current state of P2P crowd charging platforms and corresponding market needs".

Impact

Impact on SMEs

According to Allied Market Research, the Wireless Power Transfer market is projected to be worth USD 35 Billion by 2030 at a 27 CAGR. The development of international standards will help provide SMEs, policy makers and regulators with common references thus helping overcome market barriers such as technology fragmentation, thus promoting market growth.

Impact on Society

As a UN specialised agency, ITU collaborates closely with other organisations to deal with issues pertaining climate change, energy efficiency, e-waste, rapid urbanisation, and the promotion of sustainable development. In this context, ITU takes an active role in promoting and addressing the Sustainable Development Goals (SDGs) through the use of ICTs. P2P crowd charging platforms will enable consumers to better manage energy consumed by their personal electronic devices, such as smartphones. This will help mitigate battery aging of their devices, thus significantly extending the useful lifetime of electronic devices leading to reduced costs and electronic waste. This supports UN's Goal 7: Affordable and Clean Energy, Goal: 12 Responsible Production and Consumption, Goal: 13 Climate action, and Goal 11: Sustainable Cities and Communities.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The project has supported my role as Rapporteur of Q5 "Study of emerging digital technologies, terminology and definitions" of ITU-T Study Group 20 "Internet of things (IoT) and smart cities and communities (SC&C)". It has also supported my role as Editor of a work item on "Current state of P2P crowd charging platforms and corresponding market needs" that aims to map the existing commercial and technological landscape of P2P crowd charging platforms and the need for corresponding standards.

Have the standardisation activities in your project led to specific deliverables?

The project has supported ongoing work on ITU-T Q5/20 work item on "Current state of P2P crowd charging platforms and corresponding market needs" that aims to map the existing commercial and technological landscape of P2P crowd charging platforms and the need for corresponding standards.

What future efforts or activities are still necessary for your area of application?

In the area of P2P crowd charging platforms there is a need for international standards to help further promote the adoption of corresponding technologies and further market growth.

Online references related to the fellowship work

www.itu.int/net4/ITU-T/lists/loqr.aspx?Group=20&Period=17

Launching Standards for the AI Assisted Smart PV

Agnieszka Rządkowska

Chair of the European Solar Network

Member of the Board of the International Solar Energy Society, International Policy Director for Smart Energy, European IT Certification Institute, Belgium

Long-Term Fellowship

Sector

Smart Grids

Engaged SDOs, WGs and TCs

EITCI SMART-PV-SESG

Role

Coordinator for Smart Energy at EITCI Institute

Addressed EU standardisation priorities and gaps

One of the gaps in the current smart energy standardisation efforts is lack of defining standards on applying AI to smart PV systems. Accordingly with the EU Rolling-Plan 2022 ICT standards in energy are focused on smart grid management, grid-balancing, and devices interfacing. Dynamically growing smart PV market sees however a lot of AI-based innovation for solar cells from multiple vendors. Relevance of continued efforts upon this engagement concerns the EU Rolling-Plan 2022 for ICT standardisation overviewing needs for digital standards in support of the EU policy for Smart Grids and Smart Metering, with a direct focus set on AI enabled smart PV solar systems. This fellowship aimed at advancing and detailing the recommendations of technical standardisation efforts for many already identified domains of AI applications to PV systems (in terms of AI assisted optimisation of solar cells designs and production phases, planning of optimal solar cells systems deployments and optimisation of solar cells operation in smart power grids systems). The AI enabled smart PV technologies develop very rapidly and international standardisation efforts help to navigate this progress and its uptake in products.

Concerned ICT Standards and contribution to the related landscape

With this fellowship, I contributed in advancing reference standards development combining recent progress in Artificial Intelligence based on various approaches such as neural networks and machine learning with the management of renewable energy generated in grid-connected photovoltaic (PV) systems along with their operation-and-maintenance (O&M) and their smart on-grid integration and control. Moreover, continued standardisation efforts in smart PV assisted and enabled by novel AI solutions is expected to contribute to growing digital energy standards inventory and support wider uptake of AI enabled energy technologies of crucial importance for the EU climate and energy policy framework, especially in view of recent emphasis on joining the digital agenda and the green agenda as two major pillars for the EU development strategy.

Also, continuation of standardisation efforts aims at defining higher level of abstraction for possible domains of the state-of-the-art AI applications in smart PV systems of all scales (from residential installations to PV power plants). This continued work aims at support technical

development of the SESG accepted technical reference standards in AI assisted smart PV. Efforts also address to integration of the AI assisted smart PV standardisation work with other mature and early-phase-development standards for smart energy and smart grids in general.

Impact

Impact on SMEs

The smart energy is currently not only an important market trend of a dynamic growth and rapid technological development, but also a central axis in the EU's Green Deal strategy joining ICT and energy sectors as the foundation for the EU development facing serious energy challenges. The green transformation is currently considered to be an important aspect of the European energy security, especially in view of the international situation, the Russian invasion on Ukraine and the now upscaling energy crisis concerning hydrocarbons. Regarding these challenges the European Commission strategically plans to secure advancing renewable energy technologies further enabled by ICT and a leading global position of the EU in smart energy, transforming the global warming and the international situation challenges into a growth opportunity for EU SMEs driving European innovation with a focus on smart energy. The current action's implemented international standardisation efforts will support EU SMEs in uptaking AI enabled PV technology by fostering innovation in this regard and navigating the large landscape of AI PV applications.

Impact on Society

AI assisted smart PV systems generally enhance the efficiency and performance of solar energy. By optimising operation of PV panels, AI can maximise energy generation (on many planes, from the materials science, design and production phases, through optimised deployments, up to smartly managed operation and maintenance), leading to an increased renewable energy adoption, and hence aiding reduction of the reliance on fossil fuels (which is especially important in the context of energy crisis caused by the Russian invasion on Ukraine), as well as helping to mitigate the environmental impact of energy production and addressing the problem of the related climate change. Standardisation driven adoption of AI enabled smart PV technology will support transition to a cleaner and a more sustainable energy future globally.

Discussion on the AI assisted smart PV standards social impacts took place on the 2022 SET (Strategic Energy Technology) Plan Conference where the European Commission invited me as a speaker. This is a major European energy policy event, shaping the EU's energy future.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The action resulted with reference specifications and recommendations of the EITCI SMART-PV-SESG (Smart Energy Standards Group hosted by EITCI) established in 2019 and acting as a cross-SDO WG with members including contributors to relevant smart energy WGs of international SDO/SSOs promoting cooperation in smart PV standards drafting & dissemination. The recommendations proposed extensions to the IEC Committee Draft 8B/77/CD, as well as in the S2 standard, former EFI (with FAN) and the SMEST2, to, CENELEC / IEC-TC CLC/TC-82 (Solar photovoltaic energy systems) and the CLC/TC-57 (Power systems management and associated information exchange) for power systems control equipment and systems including EMS (Energy Management Systems) and SCADA (Supervisory Control And Data Acquisition), as well as international development of new standards solely dedicated to AI assisted smart PV.

Have the standardisation activities in your project led to specific deliverables?

This fellowship has supported further advancement and dissemination of reference specifications for the AI Smart PV systems definitions, concepts, architectures, use cases, as well as technical specification of related processes and devices. Action results were published

and disseminated via the SESG Workgroup and by the author on relevant conferences, including the presentations given as an invited speaker on the European Commission's SET PLAN 2022 Conference, ESOF2022 conference on advances in Net Zero Energy technologies and the EuroSun 2022 conference. The results of the action were also included in the PhD thesis that I am working on.

What future efforts or activities are still necessary for your area of application?

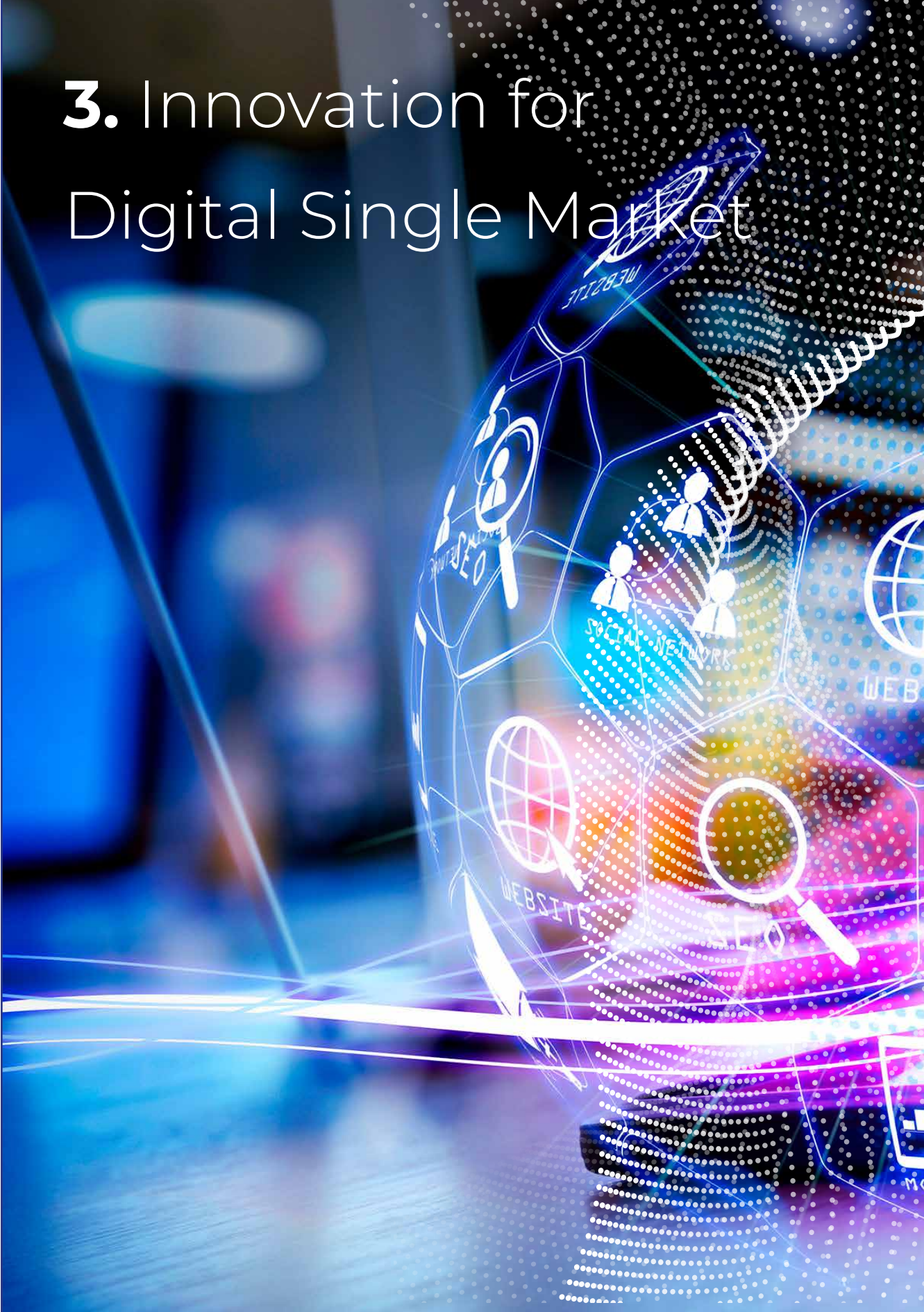
Design, production, and operation PV efficiencies are critical do enabling wide adoption of solar energy directly translating to cost-to-energy ratios of solar cells. New developments lead to solar cells devices in a single-junction technology reaching on average ca. 25% efficiency. AI can be very helpful in supporting further material science progress in PV. However, another way to make solar cells more efficient is to support their deployments, operations, and maintenance with vast data processing capabilities of AI models. The action delivered recommendations and references identify preliminarily concepts, architectures and use cases for AI in Smart PV systems, along with further technical specifications of processes and actual systems. It is clear however that for an industrial adoption these recommendations must be further developed towards increasing technical details upon experts' cooperation. With multiple companies developing proprietary technologies utilising AI in PV systems increasing efficiencies of energy conversion and smart grid integration, a consensus can be noticed that the rapidly developing AI enabled smart PV requires further efforts in standards setting under extending international cooperation.

Online references related to the fellowship work

https://eitci.org/technology-certification/sesg

www.setplan2022.eu/speakers/

3. Innovation for Digital Single Market



Contribution to European ICT standardization strategy and redesign of the governance model for ETSI

Angel Boveda
Managing Director, WIRELESS PARTNERS S.L.L.
Spain
Long-Term Fellowship

Sector

Global standard governance

Engaged SDOs, WGs and TCs

ETSI World Class Standards

ETSI BOARD TREND, BOARD GOV, and BOARD PROCESS

Role

ETSI elected BOARD member

Champion in BOARD TREND, member in BOARD GOV

Addressed EU standardisation priorities and gaps

The European Commission has already raised its concerns on the current Governance model in ETSI. Such concerns are fundamental on the limitations for inclusiveness of SMEs and other societal stakeholders and on the unbalance of the current voting system.

My participation in the debate will be in the direction of creating a balanced and fair ecosystem where the voice of small members is heard and not silenced by large players. I am supporting the position of small members (SMEs) and other societal stakeholders in the standards ecosystem. I will also support the interest of European industry. The conclusion of this debate will influence the shape of the European ICT standards ecosystem during the next decade.

I participated actively in BOARD GOV from the beginning. My proposals were always in the direction of protecting the interest of SMEs in the ETSI ecosystem and specifically on reducing voting power gap between large members and SMEs, currently excessive and unacceptable (45 or more to 1).

The proposed solution to the governance model, currently in the final stages before approval, is based on an original and relatively simple idea (increasing voting power of all members by a fixed number of votes) that I proposed by first time. Therefore, my contribution has been fundamental in current design of future governance model.

Concerned ICT Standards and contribution to the related landscape

My fellowship contributes to my involvement in the three different ETSI Boards. At BOARD TREND, I am one of the rapporteurs of the ETSI White Paper on Technology Radar. I have provided a draft for the section on Wireless Area and Private Radio Networks. This White Paper will be a published deliverable.

BOARD GOV and BOARD PROCESS are working on the new Governance model for ETSI. These WGs has discussed many topics and have recorded the conclusions on a series of internal ETSI documents. These documents have been the basis for final “for decision” proposals that have been submitted or will be submitted to the ETSI GA and SCM (Special Convened Meeting) for final decision. At the end, these proposals will end being part of the published ETSI statutes, Rules of Procedures and Technical Working Procedures.

Impact

Impact on SMEs

At BOARD GOV, and BOARD PROCESS, I worked towards the protection of SMEs in the ETSI statutes, Rules of Procedure, and other elements of the ETSI Governance model. This is of paramount importance for the participation of small SMEs in standards. With previous system the voting power difference between a large industry member and a SME has been as large as 100 to 1, or more. With the new system, this figure has been reduced to a maximum of 10 to 1. This allows SME to effectively participate in standardisation and consortium of SMEs to be in position to speak "face to face" with other industry actors.

Impact on Society

The already noted impact and benefit in SMEs automatically translates to all societal stakeholders. SME, user representatives and their associations can now participate effectively in standardisation with a better balance of political rights. The same applies to annex III organisations.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

At ETSI BOARD and BOARD GOV, the proposed solution to the governance model, currently in the final stages before approval, is based on an original and relatively simple idea (increasing voting power of all members by a fixed number of votes) that I proposed by first time. Therefore, my contribution has been fundamental in current design of future governance model.

Have the standardisation activities in your project led to specific deliverables?

At ETSI BOARD TREND, I proposed the addition of a section covering the area of wireless area and private radio networks. I was appointed editor. This section has been added and will be part of the Technology Radar report (ETSI White Paper 45) to be published during 2023.

What future efforts or activities are still necessary for your area of application?

The work on ETSI Governance model and, specifically, the role of SMEs and other societal stakeholders in standardisation will continue during next Board mandate (2024-2027).

The work of ETSI Technology evolution, under current White Paper 45 or others, will also continue during next Board mandate (2024-2027).

Online references related to the fellowship work

https://portal.etsi.org/board.aspx?tbid=6&SubTB=6#/

Develop European & International standards reports in DLT Infrastructure & Interoperability systems

Caroline Thomas
ISO Working Group Convenor and Technical Expert, ISO
United Kingdom
Long-Term Fellowship

Sector

Blockchain and DLT

Engaged SDOs, WGs and TCs

ISO TC307 Blockchain and DLT

Role

Convenor

Addressed EU standardisation priorities and gaps

There are several gaps and challenges within the fast-growing global environment of emerging DLT/blockchain systems and consortiums.

The challenge is to address standards for interoperable systems, through creating these new blockchain infrastructure systems. Examples include linking up supply chains across retailers and suppliers (eg: BSN), or governments services across citizens and government departments (eg: EBSI).

The gaps include addressing how these platforms are being applied in different ways across countries and business sectors. For example, there are multiple blockchain types (different ICT suppliers or consortium versions) and an extensive range of government and commercial applications.

Concerned ICT Standards and contribution to the related landscape

My fellowship contributes to the ICT Standards landscape in the DLT/blockchain technical sector, and its evolution to create interoperable systems through new commercial consortiums and government platforms. Examples of these systems include the European Blockchain Services Infrastructure (EBSI), which is the first public sector blockchain infrastructure in Europe, enabling cross-border services for public administrations, businesses, citizens to verify information and make services trustworthy.

Another example is the Blockchain-based Service Network (BSN), set-up by the Chinese government, as “one-stop shop” to deploy blockchain applications in the cloud.

The standards I am dealing with include the international ISO TC 307 / WG6 Use Cases (TR3242:2022) and build on published and ongoing DLT work in TC307 including Interoperability, Governance and Data Flows and the European CEN/CENELEC JTC19 Blockchain and DLT.

Impact

Impact on SMEs

The cost of entry to large blockchain systems is a key challenge for SMEs to build their business, scale to an interoperable standard, and build standards and resilience in their systems (eg: privacy via GDPR/eIDAS). The growth of interoperable DLT platforms provides a faster pathway to adoption and growth of SME businesses. At TC307 WG6, we reach out to SME communities as a key source of market trends to inform standards development.

Online references related to the fellowship work

https://ec.europa.eu/digital-building-blocks/wikis/display/EBSI/Home

https://bsnbase.io/g/main/index

Core Standards for Blockchain and Distributed Ledger Technologies

Geoffrey Goodell
Lecturer, University College London
United Kingdom
Long-Term Fellowship

Sector

Blockchain and DLT

Engaged SDOs, WGs and TCs

ISO/TC 307 Blockchain and distributed ledger technologies / WG 1 Foundations
ISO/TC 307/AG 3 Digital currencies
ISO/TC 46 Information and documentation/SC 11 Archives/records management/JWG 1
ISO/TC 68 Financial services/AG 5 Digital currencies
ISO/TC 68/SC 8 Reference data for financial services /WG3
CEN/CLC JTC 19 Blockchain and distributed ledger technologies /WG 1

Role

Convenor of ISO/TC 307 / WG1, AG3 and of ISO/TC 46/SC 11/JWG1
Expert member of ISO/TC 68/AG 5, ISO/TC 68/SC 8/WG 3 and CEN/CLC JTC 19/WG 1
head of delegation for UK ISO/TC 307 and CEN/CLC JTC 19

Addressed EU standardisation priorities and gaps

In addition to having a direct impact on the 'Blockchain and Distributed Ledger Technologies' topic area, our work implicitly relates to 'Fintech and Regtech Standardisation', particularly in the context of digital currencies, as well as 'Citizen centric digital public services', 'ePrivacy', 'Identity Management and Anonymisation', 'Privacy protection', and 'Smart Contracts'.

Concerned ICT Standards and contribution to the related landscape

First and foremost, the workplan of this fellowship implicitly includes the workplans of ISO/TC 307/WG 1, ISO/TC 46/SC 11/JWG 1, and ISO/TC 307/AG3, which together comprise efforts to advance publication and development of the following documents:

- the revision to ISO 22739:2020 'Blockchain and Distributed Ledger Technologies - Vocabulary', which is currently in the Enquiry stage;
- ISO/WD TR 24332 'Blockchain and Distributed Ledger Technology in relation to authoritative records, records systems, and records management', launched in February 2019, approved by both technical committees in May 2019, and which we plan to publish this year; and
- the delivery of a report to ISO/TC 307 at its plenary in November 2022.

With this fellowship, I also intend to facilitate two aspects: firstly, the development of standards in CEN/CLC/JTC 19/WG 1 related to decentralised identity management. And, secondly, a closer relationship between ISO/TC 307 and ISO/TC 68, particularly covering areas related to digital currency. We note that the dependence of regulation upon international standards suggest that standards that we develop will be of particular interest to financial regulators,

central banks, and the financial industry, particularly financial businesses concerned with providing services to facilitate payments, clearing, and custody of assets.

Impact (on European SMEs, related projects or in society)

Impact on SMEs

These contributions are 'foundational' in the sense that they will establish the core logic and unifying themes that shall form the basis for significantly all future standards development inside ISO as it relates to distributed ledger technologies. My activity through direct involvement in ISO/TC 307 and ISO/TC 68, as well as the advisory group ISO/TC 307/AG 3, can pave the way for future standardisation in core areas related to digital currencies and digital assets, such as vocabulary and taxonomy.

Impact on Society

Distributed ledgers are a core enabling technology for a plethora of applications that are useful to businesses:

- Such applications include tracking the provenance of assets, achieving decentralised agreement in creating documents, streamlining the reconciliation of transactions, and facilitating the transfer of value via tokenisation.
- In recent years, distributed ledger technology has achieved wide adoption in a variety of contexts in Europe and globally, in applications ranging from digital marketplaces to supply chain provenance and much more.
- These applications facilitate and enhance a wide variety of commercial activities among European businesses.
- These applications feature prominently in active development of European regulations, including but not limited to eIDAS, as well as ECB initiatives on the development of a digital euro. Systems for payments and identity management will ultimately require regulation, which in turn will rely upon our efforts.

Distributed ledger technology offers an opportunity to promote better management of data within public services, including for accounting and records management, as well as for electronic payments, particularly in the context of digital currencies, which represent an opportunity for central banks and financial regulators to provide a public payment mechanism that citizen-consumers can use independently of potentially exclusive custodial relationships. To provide citizen-consumers with democratic, cash-like bearer instruments, the value of tokenisation should not be understated, as the use of cash in much of the EU is declining, raising the question of whether our cash infrastructure will be economically sustainable over the long-term.

Distributed ledger technology facilitates the creation of digital bearer instruments through tokenisation, leveraging the immutability characteristic of the ledger that arises as an emergent property of agreement among participants in a decentralised system. There is an opportunity, therefore, to create digital tokens that can be held outside custodial accounts, which in turn allows for a cash-like means of payment that can be used in digital contexts such as e-commerce and cashless retail point-of-sale systems.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

This will not be known until after the TC 307 plenary in June 2023. TC 307/AG 3, which I convene, is advising TC 307 on possible new standards related to digital currency.

Have the standardisation activities in your project led to specific deliverables?

Within TC 307/WG 1 Blockchain and distributed ledger technologies – Foundations, we have completed a study on DLT testing standards, which we shall present at the TC 307 plenary in Cyprus. We also advanced ISO/DIS 22739 Blockchain and distributed ledger technologies –

Vocabulary, the revision to ISO 22739:2020, to the enquiry stage. Publication was unanimously approved by all voting members who did not abstain, subject to resolution of DIS ballot comments, which we shall begin next month.

Within the context of TC 307/AG 3 Blockchain and distributed ledger technologies – Digital currencies, TC 307 experts conducted ongoing research and coordination activities with other technical committees in preparation for the development of new standards related to digital currencies, with a focus on vocabulary, taxonomy, and the characterisation of the design space for digital currencies.

Within ISO/TC 46/SC 11/JWG 1 Archives/records management – Blockchain, we continued work on ISO/WD TR 24332 Information and documentation — Blockchain and DLT in relation to authoritative records, records systems, and records management, which is quite nearly ready for circulation via committee internal ballots in ISO/TC 46/SC 11 and ISO/TC 307. (We anticipate that this will be submitted for CIB by the end of June 2023.) This work has taken over three years and reflects the consummation of opinion among global experts within this WG on a highly contentious topic with the potential to change records management forever.

What future efforts or activities are still necessary for your area of application?

Once the present set of tasks are done, several tasks remain, including:

- Finalise the new version of ISO 22739 for publication.
- Create NWIPs for standards on digital currencies, and coordinate with other applicable technical committees, particularly TC 68, to identify the correct structure for collaboration, and begin work on the new digital currency standards.
- Resolve CIB comments on ISO/WD TR 24332, submit it for a DTR ballot, and ultimately publish it.
- Continue to develop standards in related areas, such as digital wallets, digital token identifiers, non-fungible tokens, and so on.

Online references related to the fellowship work

www.iso.org/committee/6266604.html

www.iso.org/committee/48750.html

www.iso.org/committee/49650.html

Develop European & International standards reports in DLT Infrastructure & Interoperability systems

Caroline Thomas
ISO Working Group Convenor and Technical Expert, ISO
United Kingdom
Long-Term Fellowship

Sector

Blockchain and DLT

Engaged SDOs, WGs and TCs

ISO TC307 Blockchain and DLT

Role

Convenor

Addressed EU standardisation priorities and gaps

There are several gaps and challenges within the fast-growing global environment of emerging DLT/blockchain systems and consortiums. The challenge is to address standards for interoperable systems, through creating these new blockchain infrastructure systems. Examples include linking up supply chains across retailers and suppliers (eg: BSN), or governments services across citizens and government departments (eg: EBSI).

The gaps include addressing how these platforms are being applied in different ways across countries and business sectors. For example, there are multiple blockchain types (different ICT suppliers or consortium versions) and an extensive range of government and commercial applications. The work on the ISO/TR6277 draft report is helping to address the interoperability of data flows as they transact between on-chain and off- blockchain systems.

The work on the ISO/TR039 provides a common list of Identifiers of Objects and Subjects (eg: IBAN for books, ANNA for finance) that enable consistency across Blockchain/DLT systems for interoperability with existing technical systems.

Concerned ICT Standards and contribution to the related landscape

With this fellowship, I contribute to the ICT Standards landscape in the DLT/blockchain technical sector, and its evolution to create interoperable systems through new commercial consortiums and government platforms.

Examples of these systems include the European Blockchain Services Infrastructure (EBSI), which is the first public sector blockchain infrastructure in Europe, enabling cross-border services for public administrations, businesses, citizens to verify information and make services trustworthy. Another example is the Blockchain-based Service Network (BSN), set-up by the Chinese government, as “one-stop shop” to deploy blockchain applications in the cloud.

The standards I am dealing with include the international ISO TC 307/ WG6 Use Cases (TR3242:2022) which build on published and ongoing DLT work in TC 307 including Interoperability, Governance and the European CEN/CENELEC JTC19 Blockchain and DLT.

As Convenor WG6 I am also responsible for ISO/TR 6039- Blockchain and DLT -Identifiers of subjects and objects for the design of blockchain systems, and ISO/WD2 TR6277-Blockchain and DLT –Data flow model for blockchain and DLT use cases.

I am a regular contributor to EU and global SDOs, by liaising and presenting to encourage knowledge sharing to enable consistent standards development in rapidly emerging technologies.

Impact

Impact on SMEs

The cost of entry to large blockchain systems is a key challenge for SMEs to build their business, scale to an interoperable standard, and build standards and resilience in their systems (eg: privacy via GDPR/eIDAS). The growth of interoperable DLT platforms provides a faster pathway to adoption and growth of SME businesses. At TC307 WG6, we reach out to SME communities as a key source of market trends to inform standards development.

Impact on Society

The support for societal impacts is reflected where ISO Standards are assigned to the UN Sustainable Development Goals (UN SDGs). The role of interoperable standards is a cornerstone to enable a globally connected society. It is worthy of noting that all the Technical Reports and use cases mentioned in this report, are classified against the impact of relevant UN SDGs.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. My work has contributed to specific recommendations through ISO Plenary Resolutions for New Standards and across two ISO Technical Groups.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have contributed to technical report of development of a new standard as well as to technical specifications.

What future efforts or activities are still necessary for your area of application?

I recommend continuation of action is essential as within ISO TC307/WG6 one of the three projects are in final review before publication this year. These Reports underwrite a lot of related work in Blockchain, and there are NWIP applications coming through from the June 2023 Plenary where I have been invited to provide my technical expertise.

Furthermore, there is industry demand to address the evolution of to create interoperable systems through new commercial consortiums and government platforms. Examples of these systems include the European Blockchain Services Infrastructure (EBSI), and China's BSN. The work on TR6277 Data Flows provides detailed foundation work and use cases to inform how data, transactions and governance may interact across different technologies systems and businesses.

All the above are key areas of interest to the European ICT sector, and the EU value such as data governance, privacy, and human rights. These areas attract a high amount of international interest and experts leading direct standards development, so it is important that the European voice is heard and has impact in global ICT standards.

Online references related to the fellowship work

- Co-editor: Trust in the European digital space in the age of automated bots and fakes www.standict.eu/news/trusted-information-digital-space
- Co-editor: ISO/TR 3242:2022 – Blockchain and distributed ledger technologies – Use Cases Summary. www.iso.org/standard/79543.html

- Convenor: ISO/TR 6039- Blockchain and distributed ledger technologies -Identifiers of subjects and objects for the design of blockchain systems. www.iso.org/standard/81978.html
- Convenor: ISO/WD2 TR6277-Blockchain and distributed ledger technologies –Data flow model for blockchain and DLT use cases. www.iso.org/standard/82158.html

Finalization of the ISO key Big Datacube standards

Peter Baumann
CEO, rasdaman GmbH
Germany
Long-Term Fellowship

Sector

Big Geo Data

Engaged SDOs, WGs and TCs

ISO/IEC TC211 WG6 Geographic Imagery

Role

Project editor

Addressed EU standardisation priorities and gaps

Big Earth Data today often consist of spatio-temporal raster data. In standardisation terms, these are addressed by the notion of coverages, a general concept for mathematical "fields" describing space/time raster data (commonly called "datacubes"), such as 1D sensor data, 2D satellite imagery, 3D x/y/t image timeseries and x/y/z geophysical data, 4D x/y/t/z atmosphere and ocean data.

In my previous StandICT.eu fellowship, the ISO candidate datacube standard 19123-1 "Coverage Fundamentals" was established which defines coverages at a high conceptual level. In the current activity, target is the companion specification 19123-3 "Coverage Processing Fundamentals" (due to the complexity of the coverage domain focus in the first place is on raster data, so datacubes, also recognising their prime practical importance). Both together establish a high-level data and processing model suitable for harmonisation of the manifold standards available in the field by allowing mappings from one to another following an agreed set of common concepts.

In this fellowship, both *19123-1 Geographic information — Schema for coverage geometry and functions — Part 1: Fundamentals* and *19123-3 Part 3: Processing fundamentals* have been brought to full adoption as IS (International Standard). Additionally, the Open Geospatial Consortium (OGC), a key geo standardisation body, has expressed interest in both as OGC standards. This is currently an ongoing discussion.

Concerned ICT Standards and contribution to the related landscape

As a part of this fellowship, I have written entirely ISO TC211 19123-3 and accompanied it during the complete ISO adoption process. Further, manifold communication with technical experts from a variety of domains and bodies have been conducted.

Impact

Impact on SMEs

A solid conceptual foundation for data cubes establishes a basis for interoperable Earth services by giving guidance and interoperability to product developers. This opens business opportunities for tool and service providers, allows service providers to stand up interoperable services, and allows users to rely on a choice of clients able to attach themselves to these services.

Impact on Society

Better standards allow better tools and services, allowing us to gain better understanding and insight on our planet. Analysis of timeseries and fusion of multiple data sources, from in-situ to orbit, are critical enablers. The 19123-x family of specifications establishes state of the art concepts and definitions for exploiting spatio-temporal data sources for a better understanding of technology, environment, and human impact.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes, I have written entirely ISO TC211 19123-3 and accompanied it during the complete ISO adoption process.

Have the standardisation activities in your project led to specific deliverables?

Yes.

What future efforts or activities are still necessary for your area of application?

The ISO working group in charge of coverage standardisation plans to modernise ISO 19123-2, the Coverage Implementation Schema, for establishing an interoperable, conformance-testable coverage definition based on the concepts of the new 19123-1.

Online references related to the fellowship work

- https://committee.iso.org/sites/tc211/home/projects/projects---complete-list/iso-19123-1.html
- https://committee.iso.org/sites/tc211/home/projects/projects---complete-list/iso-19123-3.html

Contribution to the TWG and subsequent activities regarding the DPP regulation

Susanne Guth-Orlowski
DPP, Web3, and Standards Expert, W3C ECRIM
Germany
Short-Term Fellowship

Sector

Blockchain and DLT

Engaged SDOs, WGs and TCs

W3C ERCIM

Role

Member

Addressed EU standardisation priorities and gaps

With this fellowship, I have contributed in the StandICT.eu Technical Work Group (TWG) on Digital Product Passport (DPP) that produced a landscape analysis on ICT standards related to the DDP. Moreover, this working group addressed the challenge that to implement a digital product passport, standards should be used to avoid silo solutions or vendor lock in. Or said differently, standards will secure investments, allow interoperability, scalability, as well as fruitful competition. Related to this work, within W3C, I have helped defining the basic data model for the Open Digital Rights Language, which is part of the listed standards for the DPP area.

Concerned ICT Standards and contribution to the related landscape

Sustainability and digitisation of industry and market are two major challenges in these times, driven in a variety of places. The upcoming Ecodesign for Sustainable Products Regulation (ESPR) addresses both. Regarding this, the StandICT.eu project was asked by the European Commission to prepare a landscape of standards in view of the need of Digital Product Passports (DPP). So, a Technical Working Group Digital Product Passport (TWG DPP) was established in September 2022. I was one of the experts together with several representatives of standardisation organisations compiling existing research and making inquiries.

The outcome is a StandICT.eu report on the DPP standards landscape. The landscape analysis report on the Digital Product Passport lists 186 international and European standards from recognised standardisation bodies - according to EC 1025/2012 directive - and further 78 standards from other standards developing organisations. The produced document and list are thought as a contribution to the current discussion and should help the development of the subject matter by the EU Commission, the existing initiatives, such as the CIRPASS or Battery Passport Project, as well as the later treatment in the European Standardisation Organizations CEN, CENELEC and ETSI.

Impact

Impact on SMEs

Standards in the DPP area are giving SMEs security about the investment they make around DPPs. Standards also allow competition and thus a lower pricing in the long run.

Impact on Society

To allow the society to live in a green, healthy environment, resources need to be more carefully used and reused. The industry must avoid waste, pollution, and negative social impacts when manufacturing products. To measure the impacts and mitigate against them, but also to carry information about a product, information needs to be made available to all actors in a value chain and beyond; this is done by the digital product passport. To make it successful, it needs to be based on standards. Best would be if the EU could partly fund its implementation to keep entry barriers for all value chain actors low.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Partly, the produced DPP standards landscape report is supporting the upcoming standards mandate for DPP.

Have the standardisation activities in your project led to specific deliverables?

Yes, the result is a technical report listing reference material and data.

What future efforts or activities are still necessary for your area of application?

I strongly recommend pursuing the engaged work. The identified standards should be brought to live. Now it is just a list of standards, but it is unclear how to combine them to fully implement the DPP. I suggest a standard analyses with prototype implementations, that can then be open sourced.

Online references related to the fellowship work

www.standict.eu/digital-product-passport-standards-report

www.ercim.eu/activity/projects/cirpass

4. Societal Challenges

Participation to ISO/TC215 meetings in Sapporo, Japan

Alpo Värri
Research director in the Faculty of Medicine and Health Technology, Tampere University
Finland
One Shot fellowship

Sector

eHealth

Engaged SDOs, WGs and TCs

ISO/TC215 Health Informatics
CEN/TC251 Health Informatics

Role

Convenor of CEN/TC251/WG II

Addressed EU standardisation priorities and gaps

There is currently no standard which would be compatible with respect to the EU Medical Device Regulation in the design of medical device software. The Medical Device Directive compatible standard IEC 62304 Medical Devices – Software life cycle processes was attempted to be revised in ISO/TC215/JWG7 but the DIS failed in ballots too many times and the situation is in a state of confusion.

The CEN/TC251 originated *ISO/TS 82304-2 Health software — Part 2: Health and wellness apps — Quality and reliability* which is now awaiting revision. The revision should address the improvement proposals in the approved DIS ballot and other improvements discovered in the field. The medical devices are not yet plug-and-play interoperable with each other. This area needs a lot of work and it is coming to ISO/TC215 from the IEEE 11073 committee. I am participating the IEEE 11073 Personal Health Devices group work which is not so far from the work of ISO/TC215 WG11.

My work on the ISO 41064 Standard Communication Protocol – Electrocardiography (SCP-ECG) is coming to a closure in the FDIS ballot ending on 2023-05-25. This document provides a data format specification by which all ECG recordings can be exchanged in an interoperable way. This requires, however, that the ECG device begins to implement this standard.

Concerned ICT Standards and contribution to the related landscape

I am a convener of a working group and thus a member of the management team in the CEN/TC251 Health Informatics. At the global level, there is the ISO/TC215 Health Informatics for the same purpose. The CEN/TC251 and ISO/TC215 co-operate in such a way that the majority of the CEN/TC251 standards originate from ISO/TC215 but there are some documents in ISO/TC215 which originate from CEN/TC251.

This one-shot fellowships' purpose was to attend the ISO/TC215 meetings in Sapporo, Japan. This meeting was just one in a long series of ISO/TC215 meetings that I attended to coordinate the health informatics standardisation work between CEN/TC251 and ISO/TC215. When the CEN/TC251 people show their faces in the ISO/TC215 meetings, CEN/TC251 will not be so easily forgotten. On the other hand, visiting the ISO/TC215 meetings gives me material to report

about in the CEN/TC251 meetings. This participation in ISO/TC215 meetings prevents the establishment of harmful overlapping but contradictory standards in ISO/TC215 and CEN/TC251. The standards worked on in the following ISO/TC215 working groups are typically within the scope of my WG II in CEN/TC251: WG 2, WG 11, JWG7 and the Task Force 5 in artificial intelligence.

The standards that are currently in development in ISO/TC215 include but are not limited to the following:

- WG2: ISO/FDIS 41064 *Health informatics — Standard communication protocol — Computer-assisted electrocardiography*. This is the CEN/TC251 standard EN 1064-2020 that I have been actively promoted in ISO/TC215 to update the existing outdated ISO 11073-91064.
- WG2: ISO/AWI TR 5615 *Health informatics — Accelerating safe, effective and secure remote connected care and mobile health through standards-based interoperability solutions addressing gaps revealed by pandemics*.
- WG11: ISO/CD TS 6201 *Health Informatics - Personalized Digital Health Framework*.
- WG11: ISO/TR 11147 *Health informatics - Personalized digital health - Digital therapeutics health software systems*.

Impact

Impact on SMEs

The ISO/TS 82304-2 Health software — Part 2: Health and wellness apps — Quality and reliability defines a single and good way to evaluate the quality of health and wellness (mobile) apps. If all European countries would begin to use this standard to approve and recommend health apps, the SMEs producing these apps would not need to adapt their product to many national apps' evaluation frameworks.

There is an emerging new class of products in the area called digital therapeutics. These products are typically developed by innovative SMEs. The TR11147 we have worked on in ISO/TC215 defines the area and it is a step towards a standard for the requirements for high quality digital therapeutics products. When such a standard exists and companies, including SMEs, implement it, the consumers can trust these products more and it opens markets to these products.

Impact on Society

ISO/TC215 produces standards for health informatics. These standards aim at improving interoperability of health information systems. Interoperability makes it possible to transfer health data automatically from one information system to another thus freeing the health care personnel to manually type the data into another system from another system giving more time to take care of patients. The health information security standards improve the privacy of protected health information. Health software quality standards make the systems easier to use and reduce the number of use errors. All the above contributes to the improvement of health care.

Have the standardisation activities in your project led to specific deliverables?

Yes, I have drafted technical reports; my WG 2 approved disposition DIS ballot comments of DIS41064 led to the production of the FDIS version for the currently ongoing ballot. My participation in the technical discussions in the Sapporo meetings have marginally improved those projects that I participated discussing but these discussions have not led into a finished deliverable in this single TC215 meeting. Standardisation projects last typically 2-3 years and a single TC or WG meeting is just one step in the process.

What future efforts or activities are still necessary for your area of application?

The IEC 62304 Medical devices – software life cycle processes should be revised as soon as possible. The revision of the ISO/TS 82304-2 Health software — Part 2: Health and wellness apps — Quality and reliability is also considered useful. The work on the TR11147 Digital therapeutics should be continued with a project to make a technical specification or an international standard. The IEC 62304 revision would support the EU Medical Device Regulation and it would provide clear guidelines to the industry on how medical device or health software should be designed. The revision of 82304-2 would improve its quality and facilitate its uptake in the field. The establishment of a standard to digital therapeutics would make easier to distinguish the quality products from questionable products.

Online references related to the fellowship work

https://sites.tuni.fi/hi-standards/standard-news/

Support for Chair of ETSI TC eHealth

Suno Wood
Chair of ETSI TC eHealth,
United Kingdom
Long-Term Fellowship

Sector

eHealth

Engaged SDOs, WGs and TCs

ETSI World Class Standards | ETSI TC eHealth

Role

Chair of ETSI TC eHealth

Addressed EU standardisation priorities and gaps

With this fellowship, I continue working in my Technical Committee, "eHealth" where our ongoing activities continue to address present concerns which have arisen following the Covid-19 pandemic. Medical practitioners and service providers alike have noted the public interest in AI for its use in eHealth. In short, AI for eHealth is now supporting the work of public health authorities to make effective policy decisions in the provision of standards to support diagnostics, treatment, monitoring, and control of long-term illness. We are aware of the need for security and confidentiality while recognising the huge benefits that the data processing power of AI can bring to the medical world.

Concerned ICT Standards and contribution to the related landscape

The ETSI TC eHealth group is committed to supporting the EC in the implementation of the AI Act, together with other technical groups at ETSI. eHealth is an important area of concern for the ICT Standards landscape as it provides many areas for development of standards in the future provision of health services. There are also societal interests and concerns.

This fellowship will have a direct influence on the work of our group and the support which we can give to others also working in this field, such as ETSI OCG-AI. A new Work Item will address the role of AI as an accelerator for eHealth data processing. It will consider ethical, security and privacy dimensions to identify future areas for detailed work on appropriate standards. We have also contributed text to the ETSI review of the draft AI act. See Work Items DEG/eHEALTH-0016 (EG 203 922), AI and eHealth; DTR/eHEALTH-0015 (TR 103 817) 3PFT.

Impact

Impact on SMEs

In our TC, we welcome SMEs to our meetings and workshops and find that they often have very pertinent views on our activities. We provide a forum for discussion where SMEs can expand their knowledge and contacts in a field which requires active knowledge of a very wide range of societal interests and technical issues but where standards provide a leveller for activities in common.

Impact on Society

The impact on society of the development of eHealth services cannot be overstated. Conventional health service provision has long been struggling with underfunding and underinvestment against a background of growing political and societal unease and

resistance. Every world citizen may be defined as a potential user with implications for the hospital and medical systems in developed countries and poorer nations alike.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

Yes. In two areas – AI and the active attention on new European legislation and matters which continue to arise from the recent Covid-19 pandemic crisis.

Have the standardisation activities in your project led to specific deliverables?

We are now preparing Work Items DEG/eHealth-0016 (EG 203 922), AI and eHealth; DTR/eHEALTH-0015 (TR 103 817) 3PFT.

What future efforts or activities are still necessary for your area of application?

We continue to encourage and develop new lines of communication with other groups. Our "Hub for Health" has been a model for new discussions. We plan to contribute more articles and a workshop to take this work further. We have agreed to contribute to conferences to be held July 4-6 2023 by ETSI on IoT (Smart M2M) and the ETSI Cyber Week, October 16-20 2023. We will especially continue to cooperate closely with ETSI TC Cyber and will contribute where appropriate.

(Note the relevance to eHealth (23) 059006 Cyber Design Practices Against Technology Enabled Coercive. See D0CX of the recent discussions in ETSI TC Cyber – a Cyber Work Item that is being shared with TC eHealth to seek contributions, comments and feedback).

Liaison also continues with ISG SAI on their output submitted to us for consideration, eHealth (23)059005. eHealth is a subject which requires long-term research and development as it literally affects us all and may bring health advantages, economic and societal, across the globe. This StandICT.eu fellowship is playing a key role in supporting the initiatives of our ETSI T.C. eHealth is not a single entity but rather a merging of many information and communications technologies and this fellowship is enabling a wider approach and a positive development for the standards landscape.

Online references related to the fellowship work

- www.etsi.org/committee-activity/activity-report-ehealth?highlight=WyJlaGVhbHRoIiwiZWhlYWx0aCdzIiwiZWhlYWx0aCcuIl0=
- www.etsi.org/search-results?typeOfSearch=website&q=ehealth ;
- www.etsi.org/images/files/Magazine/Enjoy-ETSI-MAG-July-2020.pdf

ICT-PRODUCTIVITY in JUSTICE: Productivity and Automation in Justice ICT areas for the Digital Era

Javier Peris
Chief Knowledge Officer, Business&Co.®
Spain
Long-Term Fellowship

Sector

Justice

Engaged SDOs, WGs and TCs

ISO/IEC JTC 1/SC 40 IT
UNE CTN 71

Role

President of UNE-SC40
Expert in ISO/IEC JTC 1/SC 40

Addressed EU standardisation priorities and gaps

This fellowship is focused on a gap that ICT standards are not particularly focused on human factor welfare. We are creating a standard in the field of productivity in which there is a lot of scattered and dispersed knowledge. Also, with my work, I am addressing the following challenges:

- Use the Justice sector as an arena for identifying the productivity-related needs of ICT professionals.
- Understand the existing obstacles and difficulties in personal productivity in the ITC areas.
- Understand the existing obstacles and difficulties in teams' productivity in the ITC areas.
- Understand the existing obstacles and difficulties in departmental productivity in the ITC areas.
- Connect relevant productivity best practices in a reference model.
- Define a productivity layer that complement current ICT processes, complement but not compete.
- Define a productivity guideline easy to understand and to inspire.
- Define a holistic productivity reference model that take in account the domains: people, team, department and tools.

Concerned ICT Standards and contribution to the related landscape

This fellowship is focused on the achievement of a new series of ICT standards related to capture human factor existing best practices related to productivity. This a new standard (or set of standards) on productivity and efficiency in ICT. It is focused on helping people to be happier and more effective in their work, while reducing their stress. The new standard will combine aspects of time management, productivity, and the value they provide from ICT professionals, teams, and departments. By solving the severe productivity problem in ICT, it will help technology areas to develop their value-creating and transformational potential in their organizations. It has special interest in the justice ICT areas, with great ICT transformation potential.

Related to European and global standardisation, the new productivity standard opens a new field of standardisation for ISO/IEC, in three domains of people, teams and department. Now productivity will become a new discipline in enterprise management, as before were quality, governance, service management, security, etc. The new standard is justice and ICT focused. In addition, this field could be extended to other sectors, departments, or organisations beyond ICT. Moreover, ISO/IEC's incursion into the standardisation of the humanistic perspective by solving deep-rooted problems of people in their work will enable ISO/IEC to improve its image in society.

Impact

Impact on SMEs

Creating a management system standard that helps ICT professionals, teams, and departments to be more productive, focused on value creation and with better time management. Starting with justice sector, which is one of the most backward in its digital transformation. The standard will also be applicable for any ICT area in any SMEs. Achieving high levels of performance in ICT areas will also allow SMEs to accelerate their digital transformation.

Impact on Society

There are no standards dedicated directly on helping ICT professionals organise their lives. This standard will help professionals to better organise their goals and work, which will improve work-life balance. As professionals improve their organisational and productivity skills in ICT areas, this improvement will spread to other areas of the company and to society in general.

Has your project directly involved or led to a specific recommendation or proposal for developing new or revised standards?

The project prepares the material for a new of efficiency standard. This standard improves the ICT efficiency and will create the baseline on which any different standards could be implemented, without organising the work of professionals is not possible to implement new standards.

Have the standardisation activities in your project led to specific deliverables?

Yes, my fellowship project has generated an efficiency work model (ISO technical specification) generating solutions at four levels:

- ICT-PROFESSIONAL Productivity work model.
- ICT-TEAM Productivity work model.
- ICT-DEPARTMENT Productivity work model.
- TOOLS, IA & AUTOMATION use guidelines.

What future efforts or activities are still necessary for your area of application?

Once the working models have been defined, the next step is to carry out a pilot experience to adjust the working model. It is also necessary to manage its recognition and publication at national and international level.

Online references related to the fellowship work

www.iso.org/committee/5013818.html

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