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

SECOND OPEN CALL

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Disclaimer

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About StandICT.eu

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Finally, we would like to thank our all **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, Joel Meyers** and **Fiona Delaney, Arkopaul Sarkar.**

Foreword

We are extremely proud to publish this second issue of our 'Following the Fellows' series which once more bears testimony to the **palpable impact** generated by European ICT experts within international Standardisation Developing Organisations' Working Groups, thanks to financial support provided through the ***StandICT.eu 2023 Fellowship Programme***, to the tune of three million Euro delivered over a set of 9 Open Calls as part of the broader mission of the StandICT.eu 2023 Coordination and Support Action, funded by the European Commission's H2020 Framework Programme.

The goal of these regular publications is to place the work carried out by our fellows centre centre stage and to illustrate the demonstrable outcomes that excellent research can make to both society and to the economy. 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. In addition, **as a further improvement to this edition**, we have correlated the information provided with feedback from our fellows on the efforts that need to be made to **improve legislation and policy-regulation in their corresponding area of expertise**.

The *StandICT.eu 2023 Fellowship Programme* constitutes the first component of StandICT.eu 2023's mission. Delivery of the "***EUOS – Observatory for ICT Standardisation***", an interactive platform that will monitor the global ICT Standardisation landscape, embodies the second. The EUOS will also provide landscape analysis and gap analysis reports, through a number of ad hoc, rotating, Technical Working Groups in key identified domains with the ultimate goal of providing the community of ICT experts with accurate coverage of relevant and timely ICT Standards **into which the results of the fellowships will also feed and contribute**.

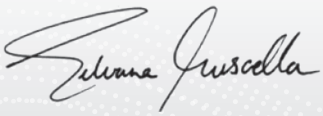
Finally believe that this Report responds to the recommended approach under Horizon Europe to implement a more **evidence-based impact**, presenting the tangible results available from each activity in a timely fashion, as the result of careful and continuous monitoring of the impact that each successful applicant is making to European priorities and European contributions. Further liaison and ex post analysis with the National Standards Associations and contributions to other H2020 or from Horizon Europe projects will respond and document what share of implementation of European standards have been adopted as national standards by Member states as a result of the work carried out that will make up a final Monitoring Impact Report to serve also Standard Developing Organisations in understanding their priorities going forward through to 2022-2023.

Special thanks in putting together this booklet go to External Advisory Group who, as always, have provided 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 have vetted the numerous applications received in response to the calls, to our Partners, Dublin City University and AUSTRALO key to the monitoring activities, our project officers at the European Commission of DG Connect for their continued support and, of course, to our fellows for the dedicated months of work behind each contribution and impact.

Silvana Muscella

CEO, Trust-IT Srl

StandICT.eu 2023 Project Coordinator



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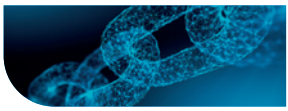

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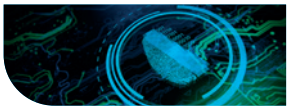

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Introduction

This report provides an immersion to user empowered outcomes of the StandICT.eu 2023 Open Call #2 from the perspective of fellows that were selected and funded in this call and it follows the report dedicated to Open Call #1 (issued in August 2021)[1].

The series of reports serves the overarching objective of showcasing success stories of the funded fellowships detailing the addressed standards and landscapes, how these will fill in the identified gaps as well as impact the related stakeholders and society. Standardisation plays a vital role in creating a fair market-based competition and help ensure the interoperability of complementary products and services. Standards reduce costs, improve safety, and enhance overall competition. Their critical action in protecting health, safety, security, and the environment, make standards important to the public and consumers as well.

One of the key-purposes of StandICT.eu 2023 is to support the activity of competent European ICT experts to contribute to the modernisation and consolidation of the European standardisation system, ensuring it is better oriented towards meeting the EU's main interests, policy priorities, core principles and values, notably towards a speedy and seamless green, digital and industrial transition, in a timely manner by addressing the topical domains listed in the Rolling Plan for ICT Standardisation[2], with a view to build a bridge between EU policies and standardisation activities in the numerous field of information and communication technologies (ICT) and, most importantly, for increased convergence of standard-makers' efforts towards achieving EU policy goals.

The primary purpose of this document is to share with you the results attained through the work carried out by the funded expert, and to shed lights on 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 as a whole.

This report illustrates the outputs of the second Open Call out of the total 9 envisaged in the project, and each call will have a dedicated impact report with the goal to share the timely 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.

It should be noted that at the time of writing a few of the fellowships funded under the second Open Call are still underway.

In this report, firstly, the Open Call #2 is presented with key facts and figures, then the fellowship outcomes are presented in the targeted technology areas addressed by the OC #2 fellows:

- Blockchain
- 5G and Fixed Network
- Cybersecurity
- Artificial Intelligence
- FinTech
- Quantum Computing
- Internet of Things
- Semantic Interoperability
- eHealth
- Other ICT Vertical Sectors

1 https://zenodo.org/record/5179890#.YY0i_GDMI2z
2 https://joinup.ec.europa.eu/collection/rolling-plan-ict-standardisation/rolling-plan-2021

Overview of the Second Open Call

The second StandICT.eu 2023 Open Call, from the 9 OCs series was launched on the 11th of January 2021 and closed on the 11th of March 2021. 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 "**Culture, Creativity and Inclusive Society**" as its leading theme with a view to contribute to promote the tangible role of Standards in pursuit of EU goals and priorities on enhancing democratic governance and citizens participation, and safeguarding and promotion of cultural heritage, and to respond to multifaceted social, economic, technological and cultural transformations. **The Open Call was however completely open to a broad range of ICT domains and treated as equally valid**.

Fellowship profiles

This second Open Call totalled 68 eligible applications received out of which 37 have been selected for funding, with an overall 303,700 Euro granted. After the evaluation procedure by external experts, the selected projects rated a very good average quality score (the minimum threshold to access funding was 7,27 score in a 1 to 10 scoring scale), just slightly lower than the one marked in OC #1. The funded applications provided an extensive geographical coverage with 11 different EU countries represented plus 2 representatives of H2020 associated countries, with a satisfying balance across the key technologies and priority topics of the second call, and with a wide spectrum of SDOs that will benefit of their competences and skillset.

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The second Open Call featured the introduction of the new eligible topics for applicants in the priority list of ICT domains: Edge Computing , Ontologies and Open Data Standards.

As the figure shows, Blockchain replaced Cybersecurity as leading topic addressed by our fellows (with 7 proposals vs 5), followed by 5G, Quantum Computing (new entry) and Artificial Intelligence. Noteworthy to underline the increasing submission of applications related to new and arising ICT domains as Semantic Interoperability, Trusted Information and Augmented Reality (witnessed also among the rejected proposals).

Engaged SDOs, Organisations and European Projects

67% of the fellows' effort will be devoted to work within Global SDOs, while the remainder will contribute to European SDOs. Under this Open Call the fellows seem to come from widespread background, seamlessly distributed across multiple sectors mainly SMEs, Research institutions and IT Consultancy firms. 12 European funded research projects are related to the presented StandICT.eu fellowships as presented in the table below.

Table 1 – European Research Projects related to StandICT.eu 2023 OC#2 Fellowships

Research Project	Programme	Domain	Contributing StandICT.eu OC#2 Fellow
UNICOM	Horizon2020	Identification of Medicinal Products (IDPM)	Joseph Roumier
NGI DAPSI	Horizon2020	Data Portability and Services	Edward Zimmermann
NGIoT	Horizon2020	Internet of Things	Martin Brynskov
TrustEat	Horizon2020	Blockchain	Fiona Delaney
ASCLEPIOS	Horizon2020	eHealth	Nicolae Paladi
OpenQKD	Horizon2020	Quantum Key Distribution	Thomas Länger
Fair4health	Horizon2020	eHealth	Carlos Luis Parra-Calderón
Healthy Cloud	Horizon2020	eHealth	
SHERPA	Horizon2020	Smart Information Systems	Nikita Lukianets
OpenDei	Horizon2020	Industry 4.0	Antonio Kung
DAIRO	Public-Private Partnership	AI, Data and Robotics	
Ontocommons	Horizon2020	Ontology	Hedi Karray

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 framework of the Open Calls and the fellowships but also on the European Observatory for ICT Standards (EUOS www.standict.eu/euos) - via the Technical Working Groups delivering up-to-date Landscape and Gap Analysis with the ultimate goal to shaping together and reinforcing European contribution to the international ICT standardisation ecosystem.

1. Blockchain

Adapting ISO and CEN-CENELEC Blockchain / DLT Standards to Intellectual Property and Identity in Europe

Jerome Pons
CEO at Music Won't Stop
France

ISO TC307 Blockchain and DLT /WG1 Foundations

Sector

Blockchain and Distributed Ledger Technology (DLT)

Addressed EU standardisation priorities and gaps

My short-term fellowship tackles gaps for identifier and identity management since the terms are unharmonised within national, European and worldwide works (e.g. attestation, accreditation, credential). At the same time, there are a need for stronger national (in France and Spain) and European (cf. eIDAS) requirements

Other faced gaps concern intellectual property protection. I aim to contribute to this second step once the digital content under copyright is sufficiently specified in terms of identifier management (e.g. ISRC, ISWC). Again, there is a need for stronger European requirements (cf. Copyright regulation).

The priority of my project is to contribute to the prioritisation of identity management over intellectual property protection; namely, ISO/TC307 is prioritised over CEN-CENELEC/JCT-19. In the same line, AFNOR, UNE and EBSI terms would be prioritised over worldwide ones

The challenges in this work relate to the difficulties retrieving some English terms (e.g. Alastria ID), fitting the standardisation timelines differ between standardisation bodies as well as making identity and identifier definitions more harmonised especially the coverage of objects (device, digital content under copyright) and subjects (natural person, legal entity).

Concerned ICT Standards and contribution to the related landscape

My fellowship project focuses on blockchain and distributed ledger technology (DLT), and their application domains to identity management and intellectual property protection. The targeted standards are ISO/TC307 (ISO 22739:2020 Blockchain and DLT Vocabulary led by WG1 Foundations) and CEN-CENELEC/JTC19 (led by WG1 Decentralised Identity Management).

Firstly, I focused on analysing the terminology of national works (AFNOR contribution ISO/TC307/N55 and leftovers, AFNOR/NF B01-001 Blockchain, French Ministry of Interior white paper on blockchain and identity, UNE 71307-1:2020 Decentralised Identity Management Model i.e. CEN-CENELEC/JTC19/N72), European works (EBSI terminology, eSSIF-Lab glossary, Alastria ID) and worldwide works (ISO 22739:2020 and on-going revision TC307/WG1/N935, ISO 23242 led by TC307/WG2, ISO 6039 led by TC307/WG6, NIST Digital Identity, W3C DID, INATBA, Sovrin Glossary V3). Secondly, I contributed to the harmonisation of terms based on DiCoDaMo, and then, I proposed some updates (mainly to AFNOR/NF B01-001 and ISO 22739:2020).

Impact

As European SMEs are subject to stronger regulation (e.g. eIDAS, GDPR, Copyright), finetuning worldwide standards is key. The European terms related to identifier and identity management were finetuned in the ongoing revision of ISO 22739:2020 (e.g. identifier, identity, identity holder, self-sovereign identity (SSI)). I proposed the French Ministry of Interior definition of SSI, co-written with AFNOR experts, to ISO/TC307/WG1. All European SMEs will take advantage of such finetuning.

Moreover, ISO/TC307 technical committee, where my fellowship was taking place, contributes with 14 standards to the following Sustainable Development Goals (SDGs) defined by the United Nations:

- -9 Industry, Innovation, and Infrastructure
- -12 Responsible Consumption and Production

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

Yes, for a revision of a standard already under development (i.e., ISO 22739:2020).

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to technical specifications.

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

I suggest continuing the action since the harmonisation of terms related to identifier and identity management as well as intellectual property protection should be pursued and consolidated at AFNOR, UNE, Alastria ID and CEN-CENELEC/JTC19 to fully integrate European stronger regulation (e.g. eIDAS, GDPR, Copyright). Thus giving European SMEs a competitive advantage (quality of standard and regulation) thus reinforcing the European sovereignty on blockchain (including self-sovereign identity and EBSI infrastructure).

Online references related to the fellowship work.

My company “Music Won’t Stop” is participating member of AFNOR:

https://norminfo.afnor.org/structure/afnorcn-blockchain/commission-de-normalisation-blockchain/123293#membre

AFNOR is participating member of ISO / TC 307:

https://www.iso.org/committee/6266604.html?view=participation

Jérôme Pons is co-author of the French Ministry of Interior white paper on blockchain and identity:

www.interieur.gouv.fr/actualites/actu-du-ministere/technologie-blockchain-revolution-pour-lidentification

Core Standards for Blockchain and Distributed Ledger Technologies

Geoffrey Goodell
Senior Research Associate at University College London, United Kingdom

ISO/TC 307 Blockchain and DLT/WG 1 Foundations (Convenor) and CAG 1 Convenors Coordination Group
ISO/TC 46 Information and Documentation/SC 11/JWG 1 (Co-Convenor) Archives and Records Management
ISO/TC 68 Financial Services/AG 5 Digital Currencies
ISO/TC 68/SC 2/WG 17 Financial Services, Security
ISO/TC 68/SC 8/WG 3 Reference data for financial services
CEN/CLC/JTC 19 Blockchain and Distributed Ledger Technologies /WG 1 Decentralised identity management

Sector

Blockchain and Distributed Ledger Technology (DLT)

Addressed EU Standardisation Priorities and Gaps

Our projects 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.

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 'Digital Twins' and 'Identity Management and Anonymisation'.

Distributed ledger technology offers an opportunity to promote an inclusive society, 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.

Concerned ICT Standards and contribution to the related landscape

My fellowship contributes to the development and publication of the documents that are considered essential to the success of ISO/TC 307 and to standards relating to distributed ledger technology throughout the ISO TCs. In particular, standards currently under development by the other WGs of ISO/TC 307 generally depend critically upon both ISO 22739:2020 (the vocabulary) and ISO/DIS 23257 (the reference architecture). These foundational documents shall establish a consistent way of specifying key properties and concepts, and will provide a clear, consistent view of the official answers to important questions about distributed ledger technology that can be incorporated into other standards documents. I am also working to develop other standards including ISO/TS 23258 'Blockchain and Distributed Ledger Technology – Taxonomy and Ontology' ISO/TR 24332 'Information and Documentation – Blockchain and DLT concerning authoritative records, records systems, and records management.

Impact

Distributed ledger technology offers an opportunity for economic transformation. For example, in the context of supply chain management, distributed ledgers can facilitate a shared view of inventory among participants in a supply chain, which in turn can mitigate the so-called "bullwhip effect". This standardisation will enable the adoption of these technologies by the institutions and governments that are most able to put them to use in such capacities.

Furthermore, by supporting the legitimisation, acceptance, and uptake of distributed ledger technologies by public institutions and private-sector businesses, this work has supported inclusive society in the digital economy, particularly by enabling decentralised public infrastructure, including infrastructure operated by private-sector businesses, wherein participants must share a common view of the state of a system. This is akin to existing co-regulated financial networks, e.g., MiFID for securities trading, but more general and applicable across a variety of sectors including manufacturing, agriculture, public services, and more.

More generally, blockchain and distributed ledger technologies, which are directly enabled by the ISO and CEN/CENELEC standards supported by my work, enable the development of a fairer digital economy, both by providing a means of public oversight and accountability of system operators, as well as by improving the efficiency of exchange of certain kinds of information, such as supply chain data.

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

Yes, it supports the development of the following standards: ISO/FDIS 23257, ISO/TS 23258, ISO/WD 22739, ISO/WD TR 24332, ISO 24165-1, ISO 24165-2, ISO/TS 23526

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes. Under my convenorship: (international standards) ISO/FDIS 23257 'Reference Architecture' is now in the Approval stage (50.00)., and ISO/WD 22739 'Vocabulary', the revision to ISO 22739:2021, is under development and close to submission for the Committee stage.

Technical specification: ISO/TS 23258 'Taxonomy and Ontology' that is now under publication (60.00).

Technical report: ISO/WD TR 24332 "Blockchain and DLT concerning authoritative records,

records systems, and records management" that is making steady progress toward committee sage.

Also, I contributed as an expert to the development of ISO/TS 23526 'Security Aspects for Digital Currencies' which is advancing toward the Committee stage.

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

I aim to continue the engaged work to advance the standardisation of distributed ledger technology, digital currency, and other areas of financial technology is something that I hope to continue with the help of StandICT.eu. My current plan is to apply for additional funding in the forthcoming open calls.

Online references related to the fellowship work

https://committee.iso.org/sites/tc46sc11/home/projects/ongoing/blockchain-and-records-managemen.html

Participation in the standardisation of decentralized identity management and self-sovereign identity

Yanis Kyriakides
Founder of Change Digital
Belgium

CEN-CLC-JTC19 JTC 19 Blockchain and Distributed Ledger Technologies
ISO/TC 307 Blockchain and DLT /JWG 4 Security, privacy and identity
ISO/TC 307 Blockchain and DLT /WG 6 Use Cases

Sector

Blockchain and distributed ledger technology (DLT)

Addressed EU Standardisation Priorities and Gaps

One important area of activity in the standardisation at the international and European levels is the identity, privacy and security of data. Standardisation in the area of Blockchain and DLT helps citizens and businesses to better manage their intellectual property, lead to a higher level of security on control and data accessibility with lower investment requirements, develop use cases favourable to an open, transparent, and efficient exchange of information, fight fraud and facilitate the verifiability and transparency of information, and fight unfair international competition - a real opportunity for a fairer market for all at the European level.

My short-term fellowship contributes to bridging the gap between existing identity systems and the need for decentralized identity management systems, taking into consideration the relevant European initiatives (EBSI, ESSIF, eSSIF-Lab) and the various standardisation organisations working on this topic (ISO/TC 307, CEN-CLC-JTC19).

Concerned ICT Standards and contribution to the related landscape

As a member of the working groups ISO/TC 307/JWG 4, ISO/TC 307/WG6 and CEN-CLC-JTC19, my fellowship contributes to providing content, review, and comment to the ongoing standardisation documents, especially for the following 3 working items:

- CEN/CLC/JTC 19/NWI: NWI Proposal “Decentralized Identity Management Model based on Blockchain and other Distributed Ledgers Technologies. - Reference Architecture”
- ISO/TC 307/JWG 4/ TR 23644 “Blockchain and distributed ledger technologies – Trust Anchors for Decentralised Identity Management”
- ISO/TC 307/WG6/ TR6039 Identifiers subjects and objects for the design of blockchain systems

My contribution supports prioritizing and developing standards in decentralized identity management and self-sovereign identity and making sure that standardisation reflects the learning and meet the objectives of the ongoing European initiatives.

Impact

The standardisation related to my project will contribute to boosting transparency, accountability, inclusiveness, and legitimacy of governance, improving levels of trust in Europe. This activity is important if we want to avoid severe limitations for the business and technical development that are not in line with the European Union regulatory frameworks that support the Digital Single Market.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it supports the development of existing, planned or new standards and relates to the European Commission's proposal for amending Regulation (EU) No 910/2014 [1] as regards establishing a framework for a European Digital Identity SEC(2021) 228 final [2], referred to in the present document as eIDAS 2.0.

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

Yes, but it's still under discussion whether a new WG/TC within the CEN/CLC/JTC19 will be created to support the development of the new standard CEN/CLC/JTC 19/NWI: "Decentralised Identity Management Model based on Blockchain and other Distributed Ledgers Technologies. - Reference Architecture".

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

Yes, to two technical reports:

- ISO/TC 307/JWG 4/ TR 23644 "Blockchain and Distributed Ledger Technologies – Trust Anchors for Decentralised Identity Management"
- ISO/TC 307/WG6/ TR6039 "Identifiers Subjects and Objects for the Design of Blockchain Systems"

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

In support of the European commission's recent proposal to establish a framework for a European Digital identity, the new work item proposed by CEN/CLC/JTC19 aims to develop a reference architecture for decentralized identity management. The contribution of experts for this standard will be needed in the coming months to lay the foundation for our future EU digital Identity Wallet, aligned with the proposed eIDAS 2 Regulation.

Online references related to the fellowship work

www.iso.org/committee/6266604/x/catalogue/p/0/u/1/w/0/d/0

Contribution to Joint ISO/TC 307 - ISO/IEC JTC 1/SC 27 WG, ISO/IEC JTC 001/SC 17 and DIGITAL SME

Ljupcho Antovski
Professor at the Ss. Cyril and Methodius University
Macedonia

ISO/IEC JTC 001/SC 17 Cards and security devices for personal identification
Joint ISO/TC 307 Blockchain and DLT and ISO/IEC JTC 1/SC 27 WG Security, Cybersecurity and Privacy Protection

Sector

Blockchain and Distributed Ledger Technology (DLT)

Addressed EU standardisation priorities and gaps

My fellowship contributes to the work and related priorities in three specific standardisation groups:

- ISO/IEC JTC 001/SC 17 is mentioned in the ICT Standardisation Rolling Plan 2021 plan as an international body that has produced the standards in this area. Moreover, the committee is very active and at this moment there are several standard updates, resolutions, and interest in liaison with ETSI SCP. The participation in this committee is in line with the Ac5ons 1-3 in EC RP especially addressing issues like security for apps, access and accessibility, management and portability of customer data, and transparency.
- Joint ISO/TC 307 - ISO/IEC JTC 1/SC 27 WG - works in one of the priority areas that has been recently added to the ICT Standardisation Plan that calls standard developing organisations to identify potential standardisation needs. Since the European Commission has established a liaison with ISO TC 307, this activity will support this action.
- DIGITAL SME Task Force on Blockchain and DLT -The new European DIGITAL SME Alliance Task Force aims to bring together Blockchain and DLT innovators, experts, and policymakers.

Concerned ICT Standards and contribution to the related landscape

My fellowship aims to strengthen the European presence and protect the European interest by joining and contributing to the ISO committees and Digital SME TC mentioned above. The work of these committees is in direct relation to the priority areas in Innovation for the Digital Single Market with a focus on “Blockchain and Distributed Digital Ledger Technologies” and “Fintech and Reg-tech Standardisation”.

Impact

SMEs are directly impacted by the engagement of the new European DIGITAL SME Alliance Task Force that aims to bring together Blockchain and DLT innovators, experts and policymakers to network, discuss blockchain-related opportunities and challenges, and shape the European blockchain ecosystem.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

My project contributed to the development of two new standards: ISO/NP 7603 - ed.1- id.8284 and ISO/IEC CD 23465-1 - ed.1- id.78003.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to a technical report and a recommendation for new/revised standards.

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

The work in the technical committees is ongoing, so further funding support is would be beneficial to continue the engaged efforts.

Time and contribution to TR6277 Data flow model for blockchain and DLT use cases

Fiona Delaney
CEO, Origin Chain Networks
Ireland

ISO TC307 WG6 Blockchain and DLT use cases.
ISO/CEN-LEC JWG19 Blockchain and DLT
Blockchain and distributed ledger technology (DLT)

Addressed EU standardisation priorities and gaps

There is a gap in understanding governance, legal and technical interoperability issues in DLT business and technical applications. My fellowships will contribute to a technical report offering an analytical framework from which to review and categorise data flow in distributed and decentralised systems and applications, facilitating strategic risk assessment and more.

Concerned ICT Standards and contribution to the related landscape

My project focuses on four specific blockchain and DLT ICT Standards:

- ISO TR 6277 Data Flow Model for Blockchain and DLT Use Cases:
- ISO TS 23257 Blockchain and Distributed Ledger Technologies — A Reference Architecture
- ISO TR 6039 Blockchain and Distributed Technologies - Identifiers of Subjects and Objects for the Design of Blockchain Systems
- IEEE 2418.3 BLOCKCHAIN IN AGRICULTURE WORKING GROUP - Standard for the Framework of Distributed Ledger Technology (DLT) Use in Agriculture

Impact

There is a requirement for upskilling in decentralised businesses and applications. This technical report offers a means to enhance knowledge and provide a shared or common framework for understanding. SMEs are more nimble and agile than the largest industry or government players. Providing tools that benefit early adopters, those first to market helps SMEs adapt and thrive in the new decentralised economy/ marketplace.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it has been identified that a proposal for a new DLT Data flow TS is an expected outcome arising from this Second Open Call Fellowship - entitled Co-editorship and Contribution to TR6277 Data Flow Model for Blockchain and DLT Use Cases.

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, the project contributed to a Draft Technical Report including:

- Reference Data - analysis of existing and emerging standards relating to data flow modelling in distributed cloud-based systems where blockchain and DLT are already, or have potential to be, deployed.
- Recommendations for new/revised standards - a proposal for a new TS is an expected outcome of this TR.
- Reference material - a data flow model and framework derived from novel assessments and consideration of existing standards concerning data flow modelling.

Moreover, this TR6277 is developing a data flow model and framework for blockchain and DLT use cases with robust descriptive capabilities to enhance BDLT application design and interoperability and to support BDLT system analysis. Developing a clear understanding of data types and flows in use cases allows for better-designed systems; better governance and risk management provision and a sound basis from which to perform interoperability modelling where use cases may require interoperability between BDLTs in an orchestrated systems environment.

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

In line with the original proposal, the TR6277 document will go to its first ballot after the ISO TC307 November (2021) Plenary.

Without preempting the outcome of that ballot, it is left to resolve in the correct fashion, all comments by consensus within the correct procedures of ISO.

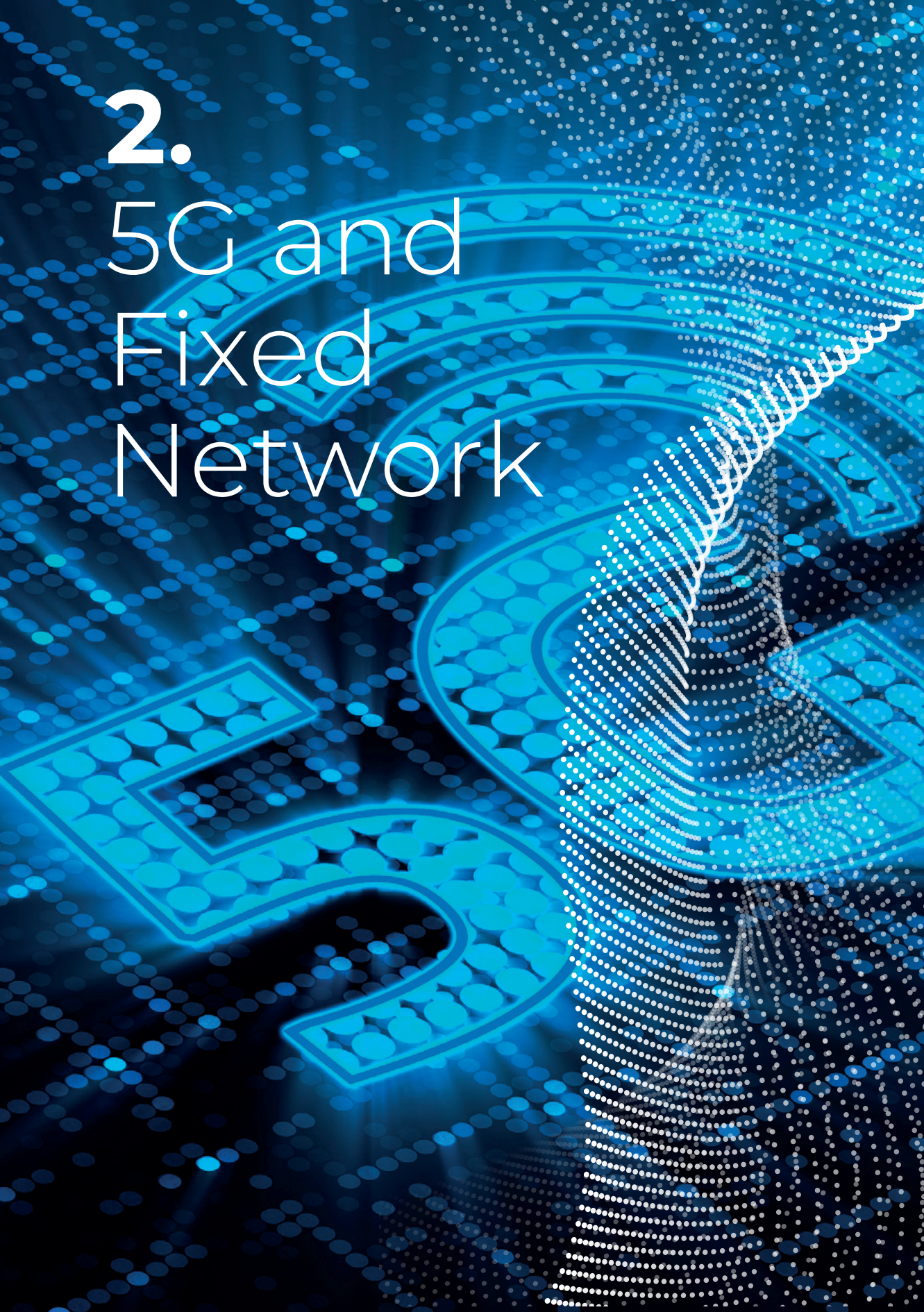
The co-editors of TR6277 Xiaodan Tang and myself are pleased and grateful for the knowledgable and high-value contributions from across the international community. The TR has shaped up to include concept and case studies that reflect the diverse needs and strategies from (for the most part) EU and Asian territories.

Online references related to the fellowship work

www.iso.org/standard/82158.html

www.iso.org/standard/75093.html

www.iso.org/standard/81978.html



2. 5G and Fixed Network

Application portability across Confidential Computing workloads

Nicolae Paladi

CEO and co-founder of CanaryBit, Researcher at Lund University
Sweden

IETF Trusted Execution Environment Provisioning (TEEP) WG7

Sector

Cybersecurity and interoperability of computing systems

Addressed EU standardisation priorities and gaps

In terms of gaps and challenges, I am focusing on the following aspects:

- Portability of applications deployed in confidential/trusted computing environments;
- Remote integrity and confidentiality attestation of platforms and workloads;
- Technological fragmentation and incompatibility among the emerging solutions for confidential/trusted computing;

In terms of priorities, my fellowship the following aspects;

- Enabling improvements in the security of digital systems;
- Improving the interoperability and reducing the lock-in effects of technological fragmentation.

Concerned ICT Standards and contribution to the related landscape

The funded application is supporting my contributions to standards on confidential/trusted computing, which is part of a wider domain of standardisation of security technologies.

Within this field, I am contributing to the following standards drafts:

- Trusted Execution Environment Provisioning (TEEP) Architecture;
- Attestation Results for Secure Interactions.

Impact

My contribution paves the way for a standardized, cross-platform approach to the data portability of confidential computing workloads. This will reduce the negative effects of the fragmented landscape of confidential computing solutions, will reduce costs for enterprises, and will create new business and innovation opportunities for European SMEs.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, my project supports the development or revision of a standard already under development: ETF Trusted Execution Environment Provisioning (TEEP) Architecture (very close to adoption) and IETF Attestation Results for Secure Interactions (early stage).

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to the development of a new standard: IETF Trusted Execution Environment Provisioning (TEEP) Architecture (very close to adoption).

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

I would recommend the continuation of the engaged action and encourage the participation of more European experts because I believe that stronger involvement in this area is necessary to support the EU position. Currently, the standardisation process in IETF is dominated by participation from North America and China, representing the largest vendors and enterprises. As a result, there is insufficient focus on interoperability. For the EU it is paramount to have a stronger voice focusing on interoperability and cross-vendor portability since this is an important pathway to digital sovereignty.

Online references related to the fellowship work

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

https://datatracker.ietf.org/doc/draft-voit-rats-attestation-results/

Low latency networking to improve digital inclusion

John Grant
Standards Technical Expert at Nine Tiles
United Kingdom

ETSI ISG NIN (Industry Specification Group / Non-IP Networking)
ETSI TC DECT (Digital Enhanced Cordless Telecommunications)
ISO/IEC JTC1/ SC6 Telecommunications and information exchange between systems /WG7 Network, transport and future network

Sector

Low Latency Networking

Addressed EU standardisation priorities and gaps

My fellowship focuses on the ETSI ISG NIN's work that follows on from ISG NGP which was set up to find solutions for several problems that mobile operators had identified with the IP-based technology underlying LTE. These included: protocol overheads causing inefficient use of spectrum; the difficulty of providing consistent low latency; security issues; and addressing limitations including lack of mobility support. NIN's technology solves all these problems while also being much easier to manage, with many functions that require intervention in conventional networks being automatic. It also interworks with IP (both v4 and v6) and is suitable for use with SDN, providing a migration path from current technology. Networking equipment is significantly simpler, and therefore cheaper to manufacture and less power-hungry, than IP routers with equivalent performance.

Concerned ICT Standards and contribution to the related landscape

I am the chair of ETSI ISG NIN that provides a focus for the activity to develop new protocols to provide several benefits including the virtual elimination of delays in forwarding real-world signals, more efficient use of spectrum and processing power, and better security. As well as over fibre and copper wires, the NIN protocols need to be available over wireless, and NIN is investigating how they would be used over wireless standards including 5G New Radio and DECT-2020.

Work items are in the process of being created for ETSI GS NIN 004 "Carriage of Flexilink flows over DECT 2020 New Radio" and ETSI GS NIN 005 "Signalling messages and protocols", also an ETSI TR "DECT-2020: a guide for implementers". A trial of NIN's technology over 5G NR following ETSI GR 002 "Implementing Non-IP networking over 3GPP cellular access" by a university is being organised. The technology is also being standardised in ISO 21558-1 and 21559-1.

Impact

The development and implementation of these protocols offer a chance for the evolution of networking technology to something much more responsive to the needs of humans and industrial systems. This provides the opportunity for SMEs working in relevant vertical markets to produce systems that have much better performance and are also easier to manage. It also provides an opportunity for more agile SMEs to build a business supplying the new technology.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Yes, this project has contributed to the creation of two new standards that are still under development: ETSI GS NIN 004: Carriage of Flexilink flows over DECT 2020 New Radio and ETSI GS NIN 005: Signalling messages and protocols.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, in addition to the creation of two new standards mentioned here above, the project contributed to a technical report ETSI TR 103 884: DECT-2020 guide for implementers that is still under development.

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

The standards in this field are mature and the work is progressing in ISG NIN but I consider that more participation of European experts in the group would be a benefit to better support the EU position.

Online references related to the fellowship work

- www.etsi.org/technologies/non-ip-networking
- www.etsi.org/committee/nin
- www.etsi.org/technologies/dect
- www.etsi.org/committee/dect
- www.brighttalk.com/webcast/12761/510705

Develop Standardisable Framework: Industry Guide to Implementing GANA Autonomic IPv6 Based 5G Networks

Ranganai Chaparadza
Senior IT Consultant at Altran Capgemini for Vodafone and other Network Operators
Germany

ETSI INT AFI WG Autonomic Management and Control (AMC) Intelligence for Self-Managed Fixed and Mobile Integrated Networks (AFI)
IEEE INGR Future Networks Initiative (FNI) Standardisation Building Blocks (SBB) Roadmap WG
IEEE INGR Future Networks Initiative (FNI) Systems Optimization WG,
IEEE INGR Future Networks Initiative (FNI) Testbeds WG
TMForum Multi-SDO Initiative

Sector

Smart 5G Networks

Addressed EU standardisation priorities and gaps

The work related to this short-term fellowship is about guiding the industry to develop a Framework (Guide) to Implementing Autonomic/Autonomous IPv6 based 5G Networks, by leveraging the ETSI GANA Multi-Layer AI / Multi-Layer Autonomic Management and Control Model and IPv6 Capabilities and Extensions that enable to Build Autonomic Networks. The Framework prescribes how to introduce software components called Autonomic Functions (ETSI GANA Decision-making-Elements (DEs)), e.g., Autonomic-QoS-Management-DE, Autonomic-Security-Management-DE, etc., in the 5G Architecture and its associated Management and Control Architecture. Such a framework does not exist yet in the industry. As 5G deployments are taking momentum as well as the considerations for the Benefits IPv6 brings to 5G and GANA Autonomics, this Framework closes an important gap in Network Automation Standards for 5G.

Concerned ICT Standards and contribution to the related landscape

With this project, I contribute to the ICT Standards landscape in the following way: The work has a significant impact on the broad scope of Standards for Network Automation in Emerging and Future networks (e.g. 5G and Beyond) that are intelligent and autonomous in the way they operate—thanks to the use of autonomics paradigm and associated Artificial Intelligence (AI) Algorithms. The Standards activities on Autonomic/Autonomous (ANs) in various SDOs/Fora are increasingly adopting the ETSI GANA Framework and Principles, and this means they work on the Framework on Autonomic/Autonomous IPv6 based 5G Networks: powered by ETSI GANA Multi-Layer Autonomics and Multi-Layer AI-Algorithms and IPv6 Capabilities, shall complement ongoing efforts in developing complementary ETSI GANA based frameworks that address other autonomic management and control areas. The Framework that is being developed in this funded application can be adopted in the work on ANs in the various SDOs.

Impact

The ETSI GANA Framework has defined a Market Place Concept for Suppliers and Consumers of GANA Software for Autonomic Management and Control (AMC) of Networks called GANA Decision-making Elements (DEs), GANA Knowledge Plane (KP) Platforms and associated AI Algorithms for AMC. ETSI White Paper No.16: different players (e.g. SMEs) can play the role of supplier of GANA Components for AMC for specific networks. GANA MarketPlace offers huge opportunities for SMEs to be suppliers of GANA software.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, this project has led to a specific recommendation or proposal for the development of a new standard. Also, a New Work Item has been created in ETSI to develop a "Framework for Implementing Autonomic/Autonomous IPv6 based 5G Networks, leveraging the ETSI GANA Multi-Layer AI / Multi-Layer Autonomic Management and Control Model and IPv6 Capabilities and Extensions that enable to Build Autonomic Networks". The Framework is to serve as Industry Guide to Implementing Autonomic 5G Networks, powered by ETSI GANA Multi-Layer Autonomics and AI and IPv6.

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

Yes. The fellowship has fostered the collaboration of ETSI TC INT AFI WG and ETSI ISG IPE, by starting to form a special Joint Sub-Group of experts from the two groups to work together on the Framework. A Liaison has been established between the two Groups in September and a Joint Workshop is expected in October 2021. The Sub-Group (though not standalone) is aimed at bringing experts together, ETSI TC INT experts and ETSI IPE ISG ETSI Member experts on Autonomics, 5G and IPv6 to start designing the Framework. ETSI TC INT members will bring competence on ETSI GANA Autonomics Framework and 5G Competence into the Sub-Group while experts from ETSI ISG IPE will bring competence on IPv6 and other related IETF protocols, in the joint work on the targeted Framework.

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

Yes, a Technical Report, as the targeted type of the new Standard, will be produced by the New Work Item.

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

This engaged action should be continued; such a framework does not exist yet in the industry, and so, as 5G deployments are taking momentum as well as the considerations for the Benefits IPv6 brings to 5G (capabilities that IPv4 cannot provide) and GANA Autonomics, this Framework closes an important gap in Network Automation Standards for 5G.

Autonomics solutions that should then be developed based on the Framework are part of the broader scope of Autonomic Management and Control (AMC) solutions that enable network(s) to operate autonomously (without the need for human interventions).

Bringing together 5G, IPv6, ETSI GANA Autonomics and AI, means a lot of work still needs to be done for the Launched Framework now under development in ETSI as started by this project.

Online references related to the fellowship work

The New Work Item is accessible here and a Draft is now under development:

- https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=63527
- https://ieee-wf-5g.org/future-networks-towards-2031/#IP6
- https://ieee-wf-5g.org/program/
- https://portal.etsi.org/Meetings.aspx#/meeting?MtgId=42851
- www.etsi.org/events/1885-2021-10-8th-ucaat-user-conference-on-advanced-automated-testing#pane-2/
- https://iotweek.org/program-2021/

3. Cybersecurity

Cybersecurity and Privacy Standardisation within ISO/IEC (JTC 1 / SC27) and CEN/CENELEC (JTC 13)

Lionel Vodzislawsky
Independent IT Consultant
France

ISO/IEC JTC1 SC27 Information security, cybersecurity, and privacy protection / WG1 Information security management systems and WG4 Security controls and services
CEN/CENELEC JTC13 Data Protection / WG5 Privacy and Identity Management

Sector

Cybersecurity and Personal Data Protection

Addressed EU standardisation priorities and gaps

My fellowship deals with the standards produced by ISO/IEC JTC1 SC27 that are one of the main entry points of the work done at the European level, through CEN/CENELEC JTC13 and ETSI TC CYBER.

The objective is to avoid duplication of work between the ISO/IEC level and the European level, for several reasons (efficiency, interoperability, compliance with the Vienna Agreement, etc.).

In these strategic areas of cybersecurity and privacy, strong European participation in the work of SC27, next to the strong participation from the US, Chinese and Japan, is very important to get international standards that fit the European requirements.

Moreover, within CEN/CENELEC JTC13, the development of standards that fill the gap between international standards (i.e., ISO/IEC 27701) and the European context (especially, the GDPR) is very important to be able to use as much as possible international standard without "reinventing the wheel", but by just adding the required refinements for the European specificities.

Concerned ICT Standards and contribution to the related landscape

ISO/IEC JTC1 SC27 is the international committee in charge of the standardisation of cybersecurity. Among the standards under development/maintenance in SC27, my fellowship activity is mainly focused on the following standards:

- 27005 (information security risk management)
- 27031 (ICT readiness for business continuity)
- 27035-1, -2, -4 (information security incident management)

CEN/CENELEC JTC13 is the equivalent at the European level of the ISO/IEC JTC1 SC27. In addition to SC27 standards, this committee develops some specific European standards. A New Work Item Proposal "Privacy Information Management System per ISO/IEC 27701 – Refinements in the European Context has been launched, which is my main activity within this committee.

At the French level (AFNOR), the mirror committee to ISO/IEC JTC1 SC27 and to CEN/CENELEC JTC13 is the "Standardisation Committee on Cybersecurity". My participation and contributions at the international level are done through this mirror committee, as a member of the French delegation.

Impact

As my company is an SME and many of my clients are SMEs, I always consider the SME perspective and constraints when I work on a standard. This is especially important for the standard ISO/IEC 27005 on information security risk management, as the control of cyber risks by SMEs is fundamental but must be adapted to their context and their resources. A standard like 27005 shall take that into account and propose a methodology that SMEs can easily apply.

In addition, the main societal impact is directly linked to the digitization of society that was accelerated by the pandemic (teleworking, e-commerce, click and collect, etc.). Therefore, the management of cyber risks is more and more a fundamental challenge at the different levels of society (states, companies, citizens, etc.). It is then important to have practical standards that can support this for the various actors and be adapted to their types, sizes, and capacities.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it contributes directly to the new ISO/IEC standard NWIP JT013037 on "Privacy Information Management System per ISO/IEC 27701 – Refinements in European context" that will become a new European Standard.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, this project has contributed to several deliverables to:

- the revision of existing ISO/IEC standards (27005, 27035-1, 27035-2, 27031)
- the new ISO/IEC standard 27035-4
- NWIP JT013037 on "Privacy Information Management System per ISO/IEC 27701 – Refinements in European context" = new European Standard.

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

For all the above-mentioned uptake activities, it is then very important to continue the effort:

- The two standards 27005 and 27035 are at the Committee Draft stage, with an objective of finalization and publication for the end of next year.
- The NWIP JT013037 is at a preliminary stage, but with an accelerated schedule, to publish the standard also end next year.

Online references related to the fellowship work

www.cenelec.eu/dyn/www/f?p=104:7:2398521608481301::::FSP_ORG_ID,FSP_LANG_ID:2307986,25

www.iso.org/committee/45306.html

QKD Common Criteria Certification and Intermediate Review and Assessment

Thomas Länger
Independent Expert
Austria

ETSI Industry Specification Group for QKD (ISG-QKD)
CEN/CENELEC Focus Group Quantum Technologies (FGQT)

Sector

Security in Quantum Key Distribution

Addressed EU standardisation priorities and gaps

There is a gap in coordination between the ETSI and ISO activities towards Common Criteria certification of the QKD link: I participate in CEN/CENELEC Focus Group Quantum Technologies (10 online meetings) where I am contributing a QKD sec. cert. roadmap to its QT standardisation roadmap. In addition, I am participating in FGQT's current activity of restructuring its roadmap.

Furthermore, through my experience from more than a decade working in QKD security certification, I identified specific organisational and technical issues, and these include the problem of selecting a realistic use case as the basis for the certification and to solve this I am proposing an "end user-driven" approach. Other issues being addressed are the discussion of a potential modular certification approach and a proposal for the certification of QKD protocols.

Concerned ICT Standards and contribution to the related landscape

My fellowship provides input and feedback to SDOs working on the security certification of the QKD link. In the ETSI ISG-QKD, a contracted party currently prepares a certifiable Common Criteria Protection Profile which will become standard ETSI GS QKD 016 "Quantum Key Distribution (QKD); Common Criteria Protection Profile for QKD". I participated in 9 ISG-QKD online meetings during the project period, where I submitted written comments and participated in the discussion.

Also, I have joined the Austrian Standards Institute mirror group of ISO/IEC JTC1 SC27, where WG3 develops two connected standards ISO/IEC 23837 "Security reqs., test and evaluation methods for QKD - Part1: Requirements" and Part 2 "Test and evaluation methods", to be able to join development activities in future SC27 meetings, while at the moment I am only studying these standards through an ISG-QKD liaison with SC27 WG3, where I also contributed to liaison statements between ETIS and ISO.

Impact

My work supports the qualified practical application of Quantum Communication Technologies. The use of QKD secured communication links can e.g., provide the highest protection for (private) networks used in critical infrastructures of societal relevance (energy grids, pipeline networks etc.). QKD can secure dedicated communication networks, e.g., between branches of a government, with an unprecedented level of long-term security. The security certification of a QKD link only makes a practical deployment in the scenarios possible.

Moreover, my contributions can provide important feedback to ongoing security certification activities in QKD standardisation, and inform future rounds of PP writing by SDOs (and/or QKD system producers). The results of the activity may help speed up the process towards usable PPs for QKD systems and open new discussions by pointing to specific problem zones.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it supports the current development of DGS/QKD-016 "Common Criteria Protection Profile for QKD" in the ETSI Industry Specification Group for QKD (ISG-QKD).

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

Yes, my fellowship contributes to the setup of the newly founded CEN/CENELEC Focus Group Quantum Technologies (FGQT) where I am active in TWG 6 responsible for the restructuring of the FGQT Quantum Standards Roadmap.

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

Yes, the deliverable D-FINAL "QKD Common Criteria Certification –Intermediate Review and Assessment" was finalised in November 2021.

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

The maturity level of the standards in this topic is preliminary but on a straight path towards maturity. Therefore, I see that this action should be continued, and I plan to follow up these engaging activities, especially adding an end-user driven use case in the QKD security certification roadmap, which will be treated in the forthcoming FGQT meetings.

Online references related to the fellowship work

www.etsi.org/committee/1430-qkd

www.commoncriteriaportal.org/

Editor of the ISO SC27 WG3 Technical Report: Towards Creating an Extension for Patch Management

Javier Jesús Tallón Guerri
COO and Technical Director at JTSec, Spain

ISO-IEC ISO SC27 Information Security, Cybersecurity, and Privacy Protection / WG3 Security Evaluation, Testing and Specification

Sector

Security patch management

Addressed EU standardisation priorities and gaps

This proposed patch management extension addressed in my fellowship has the following advantages for the different stakeholders: firstly, easing the re-evaluation process, therefore helping regulatory bodies in mandating re-evaluations when needed. And secondly, helping users resolve the dilemma of "keeping the evaluated version vs. moving to the patched version", by providing some degree of assurance on the patched TOE by assessing, during the initial evaluation, especially:

- Helping developers by providing a standard way to assess the security of their patch development and deployment processes, as well as standard requirements to define the patching capabilities of their products.
- Helping certification bodies with a set of options they can provide within their policies to the customers (i.e., developers) to offer flexible and modern certification approaches.

Concerned ICT Standards and contribution to the related landscape

I contribute to creating a patch management extension for ISO/IEC 15408 and ISO/IEC 18045. This has been for years a challenge for the whole Common Criteria community and is now a basis for the new European EUCC scheme (see Candidate EUCC Scheme V1.1.1 Annex 15).

In the past months, it has evolved from Technical Report to Technical Specification, acquiring a more mature state. This work is being done in the framework of ISO/IEC subcommittee 27 Working Group 3, where I lead the editing of the project.

The work shows how a product may include a patch management mechanism assessed within its certification, and, in case a new vulnerability affecting the product is discovered, users can apply updates with the assurance that the patch installation mechanisms and the processes applied by the manufacturers to generate the patch have been evaluated during the initial certification.

Impact

Patch Management will be allowed under the new EUCC scheme, created in the framework of the CyberSecurity Act. This will bring the opportunity to lower the costs of recertification which is particularly important for SMEs.

Moreover, the creation of a Patch Management methodology will allow a better expansion of the certification market and will allow Europe to have a great tool to improve the cybersecurity certification processes. As a consequent direct effect, it will be easier for the citizens to access products whose cybersecurity has been tested and certified by a trust-able third party.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, the project has evolved from Technical Report to Technical Specification. Potentially in the future, it may be integrated into the ISO/IEC 15408 standard.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to technical specifications.

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

In the last months, the proposal has evolved from Technical Report to Technical Specification. This means that it will be a more formal document and therefore, it will need a higher degree of consensus, so we will still require to keep working on refining the new concepts introduced.

Online references related to the fellowship work

www.enisa.europa.eu/publications/cybersecurity-certification-eucc-candidate-scheme-v1-1.1

Contribution to e-privacy and e-identity standards at CEN/CLC/JTC 13 WG5 and ISO/IEC JTC 1/SC 27 WG5

Christophe Stenuit
Founder and Security Strategist at Viewconcept.be
Belgium

ISO/IEC JTC 1 SC 27 Information Security, Cybersecurity, and Privacy Protection / WG5 Identity Management and Privacy Technologies
CEN/CLC JTC 13 Cybersecurity and Data Protection / WG 5 on Data Protection, Privacy and Identity Management

Sector

Civil security and e-privacy

Addressed EU standardisation priorities and gaps

This project aims at positively influencing 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-privacy. My contributions enhance the existing references and promote the use of these references through adoption in the European market.

Concerned ICT Standards and contribution to the related landscape

As a part of the funded fellowship, I contribute to developing appropriated architecture models and practices. The scope of this activity includes and revising/amending/reviewing existing standards and creating new standards. Progress was made on the following ICT standards:

- ISO/IEC 24760 about identity management
- ISO/IEC 29146 about access management
- ISO/IEC 29115 about entity authentication assurance
- ISO/IEC 29184 about online privacy notices and consent
- ISO/IEC 27560 about PII principal consent record information structure

Impact

SMEs are better aware of risks and of controls required in IT and information protection. Recent EU GDPR regulation and NIS directive developments impose a different view on IT risks, information security, data privacy protection and identity management controls. Therefore, a different awareness of the consequences may cause improper compliance with good practices. In consequence, good standard references help confidence establishment and maturity improvement in matters, yesterday far from SMEs' concerns.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Yes, my activity supports the development of new contributions, revisions, and amendments of existing ISO/IEC standards. I also support the adoption of international standards in the European market.

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, my project contributed to deliverables that are new working drafts of projects within the engaged SDOs. When finalized, these work items will be a new Technical Specification, a revised standard and amendments of other standards that cover terminology, architecture, and practice, and the adoption of an international standard at the European market.

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

In this field, most of the developed standards are achieving maturity, other work items are still at draft stage and others are nearly published (e.g. ISO/IEC 29146 about access management). I would suggest the continuation of the engaged action, since the referred work items are being more and more used or referred to in the industry.

Moreover, since some efforts are still required to achieve publication, which could take up to 18 or 24 months. This activity will continue over 2022, and achieve a publication during 2022 and 2023.

Online references related to the fellowship work

https://www.iso.org/committee/45306.html

Standards for Cybersecurity Certification

Roland Atoui,
Cybersecurity Expert at Red Alert Labs
France

CEN/CLC JTC 13 Cybersecurity and data protection/ WG 6 Product security
ISO/IEC JTC 1/SC 27 Information security, cybersecurity, and privacy protection / WG4 Security controls and services
SRAHG Standardisation Request Ad-Hoc Group

Sector

Cybersecurity Certification for IoT and Radio Equipment Devices

Addressed EU standardisation priorities and gaps

One part of my fellowship cover working with SRAHG activities focusing latterly on several gaps and challenges, topics such as the tests methods style that could be accepted by the European Commission (verifiable and reproducible), the scope of applicability of the RED directive (definition of Radio Equipment, what's In and what's Out, etc.), the legal definition of the "Intended use", how the proposed standards should be structured, etc.

Moreover, related to the ISO 27402 activity, several challenges are still ahead to move the status of CD to the next level. Challenges are of both technical and organisational nature, such as the scope of the standard and whether it should cover the industrial IoT devices as well, how risk analysis should be conducted from bottom-up (device to system) or top-down (system to device), and finally how the whole standard would be related to the ETSI EN 303 645 baseline security requirements for IoT consumers.

Concerned ICT Standards and contribution to the related landscape

The work ongoing in the CEN-CENELEC JTC13 WG6 providing inputs to the Standardisation Request Ad-Hoc Group (SRAHG) on the RED Directive covering Cybersecurity has led to a list of standards and got mostly the agreement of all parties (CEN-CENELEC and ETSI).

In the framework of this project, I also contribute to ISO 27402 activities intended to provide a device baseline of security and privacy requirements for IoT. Along with my fellows in AFNOR, we have provided our vote and comments. This work is progressing in the right direction, but some challenges are still ahead of us especially when it comes to how it will fit with the ETSI EN 303 645 standard or the other way around.

Furthermore, my contributions as a cybersecurity and certification expert were focused on suggestions, guidance, and comments related to the definition of security requirements, interpretation of text and regulation, mapping to existing standards such as the ISO 15408, IEC 62443, Eurosmart TR on IoT, ETSI 303 645.

Impact

Setting up a baseline security requirement will simplify access to markets for SMEs and allow them to compete in the EU single market. In addition, these will support them in increasing their cyber resilience and therefore their sustainability.

In addition, this work has also a direct societal impact as it aims to improve the security of IoT devices and Radio Equipment Devices across the EU, thus improving trust and security awareness of users of such products and services across different domains. Indeed, cyberattacks on IoT infrastructure could have much more severe impacts than what we used to see in the IT world until now. Since IoT devices can interact with us humans, but also with the environment through sensors and actuators, these impacts are more tangible and could target the safety in addition to the security of our connected society. These could disrupt critical services such as energy or water, or even have psychological effects on people who could become easily anxious if they learn that baby monitors could be used to observe their private life and potentially ease a robbery. With our work, end-users will benefit from more secure products and vendors will reduce their exposure to cyber and subsequent insurance risks.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it led to the development of Recommendations for new Standards "Draft SReq" report on RED Cybersecurity BT N 12477 and BT168/DG12133/IN.

Has your fellowship contributed to developing a new Working Group (WG) or a new technical committee (TC)?

Yes, I contribute actively to the Standardisation Request Ad-Hoc Group (SRAHG).

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

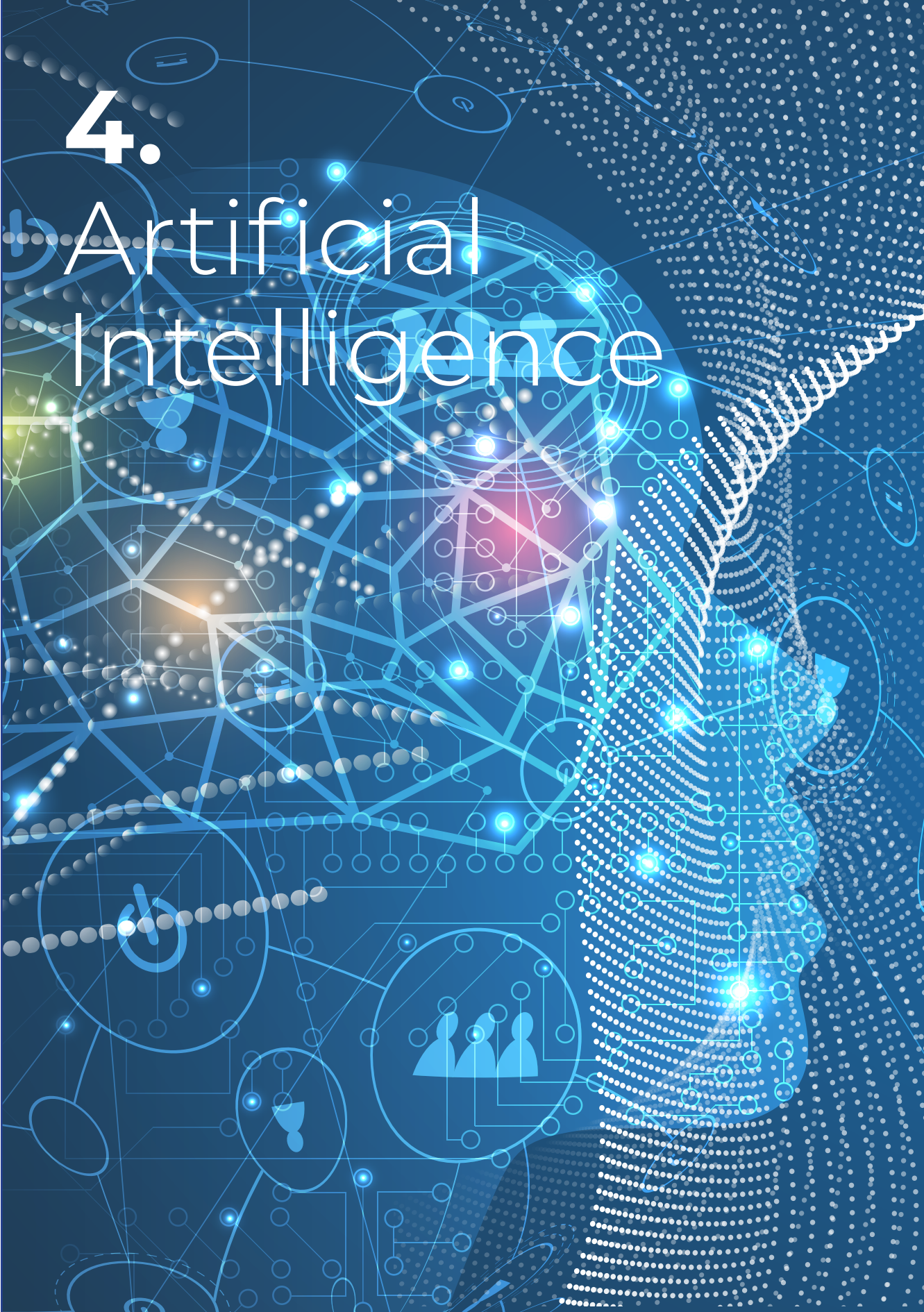
Yes, to technical reports including recommendations for new/revised standards and development of a new standard.

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

The work progressed efficiently over the past few months. This has been perceived positively by all stakeholders which encourage us as experts to continue such work until it becomes mature enough to be adopted. Therefore, I encourage the continuation of the action towards achieving our initial goal, but also to derive new initiatives/standards aiming to answer new market demands.

Online references related to the fellowship work

www.iso.org/standard/80136.html



4. Artificial Intelligence

Support as the Secretary for ETSI ISG Securing Artificial Intelligence

Alex Cadzow,

Senior Research in Cybersecurity at Cadzow Communications Consulting Ltd.

United Kingdom

ETSI The Securing Artificial Intelligence Industry Specification Group (ISG SAI)

Sector

Securing Artificial Intelligence

Addressed EU standardisation priorities and gaps

The rationale for ISG SAI is that autonomous mechanical and computing entities may make decisions that act against the relying parties either by design or because of malicious intent. The conventional cycle of risk analysis and countermeasure deployment represented by the Identify-Protect-Detect-Respond cycle needs to be reassessed when an autonomous machine is involved.

As part of this project, I contribute to ISG SAI aiming to address three aspects of AI in the standards domain:

- Securing AI from attack e.g., where AI is a component in the system that needs defending.
- Mitigating against AI e.g., where AI is the 'problem' (or used to improve and enhance other more conventional attack vectors).
- Using AI to enhance security measures against attack from other things e.g. AI is part of the 'solution' (or used to improve and enhance more conventional countermeasures).

Concerned ICT Standards and contribution to the related landscape

The ISG SAI will develop technical specifications that mitigate against threats arising from the deployment of AI, and threats to AI systems, from both other AIs, and from conventional sources. As a pre-standardisation activity, the ISG SAI is intended to frame the security concerns arising from AI and to build the foundation of a longer-term response to the threats to AI in sponsoring the future development of normative technical specifications. Through upcoming regulation on AI from the EU/EC, the group may be called upon to support mandated standardisation work at ETSI.

Since the start of my fellowship, the group has finalised and published a group report (GR) on AI threat ontology and another group report on the data supply chain. Upcoming publications include GS on security testing of AI and GR on the role of hardware in the security of AI. Also, new work on group reports on the explainability and transparency of AI processing has started and a new work item on AI/ML Privacy.

Impact

The work of ISG SAI has the potential to provide support and guidance for SMEs to understand the security risks and mitigation strategies for AI systems.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Not for the moment, but this may change with the upcoming EC/EU Regulatory framework proposal on Artificial Intelligence.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

My fellowship project supports the continued work of ETSI ISG SAI.

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

Yes, since the start of this fellowship, ETSI ISG SAI have published GR SAI 001 AI Threat Ontology and GR SAI 002 Data Supply Chain Report. The current work plan is to publish two more before the end of 2021.

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

The work of ETSI ISG SAI will continue into 2022 and beyond. So continued support to continue my role within ISG SAI would be beneficial for the engaged work. In addition, this work may become more vital if the EC decides to mandate ETSI about the AI Act.

Online references related to the fellowship work

https://portal.etsi.org/Portals/0/TBpages/SAI/Docs/ISG_SAI_ToR_D-G_APPROVED_20210924.pdf

www.etsi.org/committee-activity/activity-report-sai

www.etsi.org/technologies/securing-artificial-intelligence

Standards for data-driven society and trustworthy AI

Antonio Kung
Co-Founder of Trialog
France

ISO/IEC SC 41, SC42 and AG8, SC27, SC41, PC317, SC43

Sector

Trustworthiness in Artificial Intelligence

Addressed EU standardisation priorities and gaps

This fellowship focuses on the lack of European based common building blocks supporting the European data strategy based on data sovereignty and integrating trustworthy AI integrating ethics, security and privacy.

Concerned ICT Standards and contribution to the related landscape

The contribution will leverage work carried out in European initiatives (AIOTI, DAIRO, research projects), targeting three activities:

- Creation of a data space reference architecture standard integrating data sovereignty as a principle and leveraging European common building blocks.
- Creation of a multipart standard on AI trustworthiness leveraging European common building blocks.
- Supporting contributions in other related standards to help create impact.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, to the following ones:

- ISO 31700
- ISO/IEC 27556
- ISO/IEC 27561
- ISO/IEC 30149
- PWI 6089
- PWI-6 Guidance for IoT and digital twin use cases

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, New working group: SC41/WG6 digital twin

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

Yes, this activity has contributed to the development of several technical reports PWI 6089, PWI-6 Guidance for IoT as well as digital twin use cases. Also, within ISO/IEC I have supported the creation of common terminology and of a new standard (ISO 31700, ISO/IEC 30149, ISO/IEC 27556).

Open Ethics Transparency Protocol RFC

Nikita Lukianets
Founder at PocketConfidant AI and leader of Open Ethics, France

IETF The Internet Engineering Task Force

Sector

Artificial Intelligence

Addressed EU standardisation priorities and gaps

My fellowship work focuses on two specific challenges related to data-driven labelling and to the transparency of the decision chain (AI supply chain).

The first challenge, as outlined by ANEC, in its reply to the EC Consultation on the "White Paper on AI" related to labelling, suggests that actors need trust infrastructure for labels. We suggest the verification mechanism of the Transparency Protocol. The current work is focused on extending the mechanisms described in the "End-to-end transparency and formation of the composite Disclosure" section of the Draft and bringing it to the Public Consultation.

The second challenge is outlined in documents such as ISO/IEC AWI TR 5469 on Functional safety or in Project SHERPA "SIS, Accountability and Liability" suggesting the need for traceability instruments.

In this regard, we suggest enabling the supply chain transparency with components' disclosure, as well as assigning the direct responsibility to owners and integrators of all ICT components and subsystems.

Concerned ICT Standards and contribution to the related landscape

The work is focusing on challenges related to self-disclosure and methods of formal disclosure verification for AI-powered systems, contributing to the overall predictability of AI systems deployed in production environments. The related standards and working groups are:

- Securing Artificial Intelligence (SAI); Data Supply Chain Security, ETSI DGR/SAI-002
- Standard for Machine Readable Personal Privacy Terms, IEEE P7012
- Information Technology — Artificial Intelligence — Risk Management, ISO/IEC CD 23894.2
- Artificial intelligence — Functional safety and AI systems, ISO/IEC AWI TR 5469

Impact

Section III, IV and IX of the legislative proposal of the EU Artificial Intelligence Act suggest a set of transparency obligations as well as certification requirements for both high-risk and non-high-risk systems. Creating open standards for data-driven labelling as well as for the automated exchange of such labels enables the development of the ecosystem of trust to bring safe and auditable digital environments.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

No, since my fellowship aims to reply to the European Commission Consultation on the White Paper on AI, related to labelling.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to a white paper for the European Commission about AI labelling.

Online references related to the fellowship work

https://openethics.ai/canvas/

5. Fintech

Regulatory Technology (REGTECH) Standardisation in Financial Risk Management

Shakira Bedoya

Expert Committee Member at Danish Standard Foundation, Denmark

ISO TC 68 Financial Services and TC 309 Governance of Organisations

Sector

Financial Risk Management

Addressed EU standardisation priorities and gaps

I focus on tackling the lack of adequate integration of ICT standards into financial regulatory processes. The priority is the establishment of a common European approach towards technological innovation in financial regulatory processes. In this project, the challenges concern the need to improve the alignment between ICT standards, the requirements and the needs of financial services, specifically in areas of compliance and risk management.

Concerned ICT Standards and contribution to the related landscape

The objective of this fellowship is to contribute to developing standards to promote the use of new technologies for financial risk management. Currently, the nexus between ICT technology and financial risk management is inadequate and there is a strong need to foster standardisation that could enhance the use of Regtech in financial services.

The 9 concerned ISO standards are

- ISO/DIS 9564-5 Personal Identification Numbers
- ISO/DIS 11568 Principles Ciphers and Asymmetric Cryptosystems
- ISO/FDIS 5116-1 Harmonization: European Data Point Methodology for Supervisory Reporting
- ISO/FDIS 5116-2 Guidelines for Datapointfor Modelling
- ISO 20275 Entity Legal Forms Code List ISO 18774 Financial Instrument Short Name
- ISO 5009 Financial Services Official organisational Roles
- ISO 18774 Financial Instrument Short Name
- ISO 37008 Internal Investigations of Organisations
- ISO 37000 Guidance Governance of Organisations
- ISO 37005 Selecting, Creating and Using Indicators
- ISO 37006 Indicators of Effective Organisational Governance.

Impact

In August 2020, The European Banking Authority (EBA) recognised the need to establish a common European approach towards technological innovation identifying RegTech as an area to be better explored and understood. My work supports the development of a better alignment and integration of ICT standards into everyday financial services which impacts

directly in the provision of better and more secure services for customers and the economy in general.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, my activity contributes in both development of revised standards, such as ISO 20275; ISO187774; ISO5009 (OOR) and ISO 18774 as well as the creation of new ones, namely ISO 37000; ISO 37005 and ISO 37006.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, I contribute to the TC 68/SC 8: Digital Wallet Identification (DWI) Study Group.

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

Yes, this project has resulted in technical reports including Common Terminology, Reference Data and Recommendations for new and revised standards.

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

I consider that additional EU experts are needed to better support the EU position. There is a huge gap for the adequate integration of ICT standards in regulatory compliance and there are several standards that would require more fellows to foster standardisation work specially in the financial sector. Furthermore, there is also the need to foster the work of female experts.

Online references related to the fellowship work

www.ds.dk/en

www.eba.europa.eu/eba-consults-use-regtech-solutions-and-ways-support-uptake-regtech-across-eu

DTechMC - Digital Technologies Management Container, standard for best practices integration

Luis Moran Abad
Independent Senior ICT Advisor
Spain

ISO/IEC JTC1 / SC40 - IT Service Management and Governance

Sector

FinTech

Addressed EU standardisation priorities and gaps

The ISO/ IEC committees have a great presence in the standardisation of management systems (MSS) for multiple areas of organisations. However, these models do not contemplate the integration of non-ISO frameworks (Agile, Lean, Start-up, etc.) and specific Best Practices (Management 3.0, BM Canvas, etc.), which is the gap that I tackle with this project. This project focuses on the following priorities:

- Understand how different companies are adopting ISO standards, market Frameworks, and specific Best Practices.
- Select relevant industry uses cases that provide different scenarios and approaches for implementation.
- Access to an initiative leader to perform face-to-face interviews.
- Select a different size of companies and different frameworks implementations.
- Summarize the interviews and distyle relevant insights.
- Perform 10 to 12 interviews of different cases.
- With the insights, be able to foresee a universal implementation method.

Concerned ICT Standards and contribution to the related landscape

The initiative is framed within the scope of the ISO/IEC JTC 1 / SC40, it will provide companies with the ability to integrate business, technical and management standards, as well as existing knowledge on the market in the format of knowledge frameworks and good practices.

This work will allow us to produce a standard integrating the main technical, business model and management trends. Therefore, digital disruption plays a key role, providing an inclusive and more elastic work structure.

Moreover, having a standard that allows this integration between business, technology, and management, reinforces ISO/IEC's position in promoting digitising technologies and economic transformation. This proposed standard is applicable to all types of businesses and technologies. It can be applied to specific areas within an ICT department, to business lines or to new businesses based on digitising technology.

Impact

The industry has generated worldwide a multitude of accredited knowledge, but SMEs are not able to take advantage of all this knowledge due to the difficulty involved in understanding it and especially applying it. This work prepares the first step (TR or State of the Art Report of how to adopt frameworks) for the creation of a new ISO/IEC standard to help SMEs to adopt the needed knowledge to solve specific business or organisational challenges.

Once the standard has been developed, start-ups, SMEs, Corporations and the various areas of Public Administration will be able to implement the specific best practices that they need to solve a complex management scenario. This will allow all organisations to get more out of all the management knowledge in the standards and good practice frameworks.

With this standard, organisations will be able to integrate Agile models, with Innovation practices, with Digital Transformation, with motivation and people management practices.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, the first phase of my project acquired an improved understanding of the State of the Art on how organisations are implementing and using the standards and best practice frameworks. The analysis carried out of the 24 use cases shows that it is possible to establish requirements and recommendations helping organisations to implement standards and best practice frameworks more efficiently. It can also be deduced that the creation of a standard that makes companies more efficient and competitive is possible and advisable.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to a technical report guiding the development of a new standard.

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

This project resulted in a Technical Report (TR) that is the first step in a new standard production. This state-of-the-art report requires having detailed conversations with relevant adoption cases and these provide important insights that foresee a good opportunity to create simple and elastic implementation rules or specifications to build the new standard. I plan to continue this engaged work with the forthcoming StandICT.eu 2023 open calls.

Online references related to the fellowship work

https://www.iso.org/committee/5013818.html

Improving Quality of EU e-Invoices by guaranteeing Accuracy

Svante Schubert
Independent Software and Standardisation Expert, Germany

CEN TC 434 WG1 e-Invoice/e-Receipt
CEN TC 440 e-Procurement

Sector

e-Invoicing

Addressed EU standardisation priorities and gaps

I am addressing the priority concerning the accuracy of EU e-invoices. Here the challenge is to enhance the EU validator using decimal-based rounding, but the decimal-based floating-point technique became part of IEEE 754 in 2008. Now, the validator is based on XSL Schematron, which relies on W3C XSL released in December 2006, still referring to IEEE 754:1985. XSL does not know anything about decimal-based floating-point.

Moreover, the related gap in standardisation concerns Digitalisation within Europe: Although we started to fight paper as an interchange medium, we are still using paper for specification (or electronic paper PDF), not allowing us to automatically access nor extract the information within the specification.

Concerned ICT Standards and contribution to the related landscape

As part of the project at the CEN TC 434, I have worked out a way to avoid rounding issues in general by using decimal-based floating-point instead of the most frequent binary equivalent, which is highly inaccurate. After adding this to the new EN16931 standard as a recommendation, this fellowship helps me improve the EU validation framework for invoices testing rounding issues. By defining a ground truth in the validator, the warnings by the validator can be provided when the software rounding has been inaccurate.

Impact

My contribution to the impact on European SMEs is aside from the recommendation of accurate money calculation within the upcoming EN16931 standard and the validator providing a ground truth by providing warnings when rounding software is using inaccurate rounding.

Accuracy in money calculation will make validation of any interoperable money transfers where floating-point by division is being created much more reliable and real mistakes are far easier to detect and not covered by this frequent noise.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

My contributions support the update of the existing EU e-invoice validator to show warnings whenever an e-invoice does not provide sufficient accuracy (deviates by rounding, calculation and precision).

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, my activities led to the recommendation within the amendments of the European Norm EN16931-1 regarding EU e-invoice accuracy, in detail:

- Half-up rounding by default (in Germany by law mandatory for the calculation of VAT).
- Avoidance of calculation with intermediate results (e.g., avoid VAT calculation based on invoice lines - avoid calculation with rounded numbers).
- Using a calculation like decimal-based floating-point as defined in IEEE 754:2008 (or later) for accuracy reasons.

Especially, in the provision of an update for the open-source reference implementation of the EU e-invoice validator.

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

The new CEN amendments are planned to be published in the Official Journal of the European Union on the 19th of December 2022.

Online references related to the fellowship work

www.youtube.com/watch?v=dkTflH3yQZEandab_channel=XMLPrague

https://github.com/ConnectingEurope/eInvoicing-EN16931

Update Of ISO/IEC 6523

Andrea Caccia
Independent Consultant
Italy

ISO/IEC JTC 1/SC 32 Data Management and Interchange
ISO/IEC JTC 1/SC 32/WG 2 MetaData
OASIS CODELIST
CEN/TC 434 Electronic Invoicing

Sector

e-Invoicing

Addressed EU standardisation priorities and gaps

The publication of ISO/IEC 6523 based ICD values is required to ensure the integrity and accessibility to a list that is of extreme importance for the European policies on e-invoicing as it is required for the validation of electronic invoices issued in compliance with EN 16931, the European standard on required for Directive 2014/55/EU and by the European and international profiles of PEPPOL. It is used by the validation artefacts produced by CEN and maintained by the European Commission.

Concerned ICT Standards and contribution to the related landscape

ISO/IEC 6523 specifies a framework for the global and unambiguous identification of organisations (and optionally parts of organisations). It provides for associating each identification scheme requiring global recognition with an identification code, uniquely assigned to each scheme, called ICD (International Code Designator). The combination of an ICD value and an organisation identifier under the scheme identified by the ICD value is a globally unique identifier of that organisation (and its parts, if specified).

ICD values are assigned by a Registration Authority designated by ISO to operate in compliance with ISO/IEC 6523 and the applicable legislation and ISO directives.

EN 16931, the European e-Invoicing standard, is widely used: it is implemented by all EU public authorities and many of their suppliers. It is based on ISO/IEC 6523 to ensure the uniqueness of a set of national identifiers needed to issue and process e-Invoices in compliance with European and national standards.

Impact

Improving the quality of processing of electronic invoices, and public procurement in general supports the EU policies generates savings and supports the digital transformation of the private and public sector.

The progress of OASIS Genericode is not only connected with the work I'm carrying out in ISO but has a broader scope as genericode is widely used, for example by the EU Publication Office.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Yes, my fellowship contributes to the revision of 2 standards:

- ISO/IEC 6523-1:1998 Information technology — Structure for the identification of organisations and organisation parts — Part 1: Identification of organisation identification schemes
- ISO/IEC 6523-2:1998 Information technology — Structure for the identification of organisations and organisation parts — Part 2: Registration of organisation identification schemes

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, the revision of ISO/IEC 6523 parts 1 and 2 are assigned to ISO/IEC JTC 1/SC 32/WG 2.

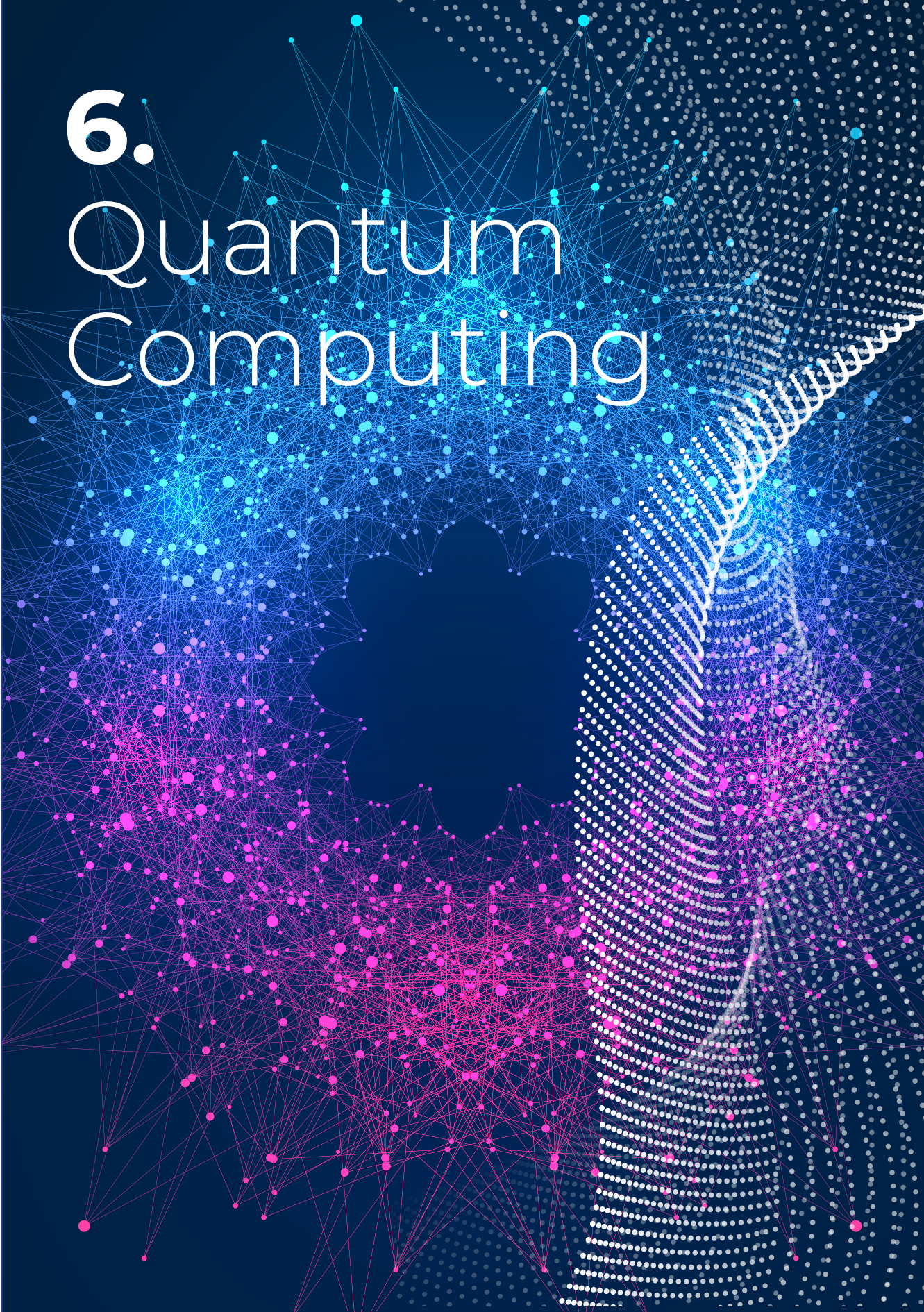
The process is ongoing, I prepared the first working draft for both documents, and the second working draft for part 1. This work process will take a few months to make the documents available for SC 32 ballot and approval.

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

I consider that additional EU experts are needed to better support the EU positions and that the EU participation in ISO/IEC JTC 1/SC 32 should be improved to support the balloting stages up to publication. Therefore, I will continue on a voluntary basis to progress the work until publication.

Online references related to the fellowship work

www.iso.org/committee/45342.html



6. Quantum Computing

Standards Development for Quantum Physical Layer

Richard Pitwon
Consultant at Resolute Photonics UK Ltd
United Kingdom

IEC TC86 Fibre Optics
IEC TC86 / JWG9 Optical functionality for electronic assemblies (Optical circuit boards)
CEN/CENELEC FG Quantum Technologies
ITU-T FG Quantum Information Technology for Networks (FGQIT4)
ISO/ IEC JTC1 1 WG 14 on Quantum Computing

Sector

Quantum Computing

Addressed EU standardisation priorities and gaps

The main priority of this project is to introduce quantum interconnect standards to the mainstream International Electrotechnical Commission Technical Committee 86 Fibre Optics (IEC TC86) and establish liaisons between CENELEC FGQT, ITU- T FGQIT4N and IEC TC86. As TC86 is a mainstream standards organisation, recognition by TC86 of the need to address quantum networks will be the crucial first step achieved by this project.

I have held one-to-one meetings with different stakeholders in the TC86 on the best strategy to introduce quantum standardisation activity. This must be done gently as the commercial implications are significant to the TC86 stakeholders. The first step will be to present quantum technologies in different WGs at the IEC General Meeting in October. During this period, I have also formally launched the IEEE UK and Ireland Quantum Group.

Concerned ICT Standards and contribution to the related landscape

In my previous StandICT.eu 2023 OC#1 fellowship project entitled "Introduction of Cross-SDO Harmonisation for Future Quantum Networks" I presented a proposal in the IEC TC86 JWG9 Spring 2021 meeting for a new Technical Report entitled "Introduction to Quantum Technologies". This was accepted and, now, I have started preparing the draft for this as part of this project. I am in discussions with ITU-T, ISO and CENELEC on securing contributions from ITU-T FGQIT4N, ISO/IEC JTC1 WG14 and CEN/CENELEC FGQT to this TR. I have contributed to the CEN/CENELEC FGQT Roadmap document.

Impact

The EU is currently very well placed to play a leading role in the geopolitical quantum race. The focus of this project on introducing quantum technologies to TC86 will ensure European stakeholders (EU, Swiss and UK) take a leading role in influencing future potential standards.

I launched the IEEE UK and Ireland Quantum Group, which will be part of an effort to promote quantum engineering as a discipline in the UK and the EU as well as relevant STEM activities.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Yes, the activities on the project have led directly to the recommendation for a Technical Report on Quantum Technologies to be proposed as a New Work Item within the IEC Technical Committee 86 on Fibre Optics. This will lay the foundation for a whole suite of standards over the coming years in this mainstream technical committee.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, this project has led to early discussions on a cross standards development organisation task force and a potential Joint Working Group in the IEC.

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

Yes, a Technical Report is currently being drafted.

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

The EU is well-positioned in the standardisation of quantum computing, and this action should be pursued by an increasing number of engaged European experts. For the moment, a New Work Item within the IEC Technical Committee 86 on Fibre Optics is in progress, which lays the foundation for a whole suite of standards over the coming years in this mainstream technical committee. Also, the creation of a cross-SDO task force and a potential joint WG in the IEC are under negotiations.

Online references related to the fellowship work

www.iec.ch/iot/fibre-optics

Standardisation of the Modular Quantum Computer

Rob van den Brink
CSO and Scientific Advisor at Delft Circuits
Netherlands

CEN/CENELEC the formal Focus Group on Quantum Technology FGQT

Sector

Quantum Technology

Addressed EU standardisation priorities and gaps

One of the aims of my contributions is the creation of a vibrant discussion platform in the Netherlands, where stakeholders from the Netherlands discuss their standardisation needs on quantum. This group is populated with excellent quantum experts, having hardly an idea on how standardisation works, what to contribute and how they can gain from it. Technical leadership is offered by me, with organisational support from NEN. I initiated several co-signed contributions to FGQT by working together as a team of stakeholders.

In addition, my activity targets to get a consensus within FGQT on how to subdivide the field quantum technology into much smaller chunks, to identify the "modular quantum computer". This means a subdivision in layers and modules, specified via functional descriptions, and able to interwork with other modules through well-defined interfaces. This way of restructuring is far from obvious within FGQT, but essential to get progress. Currently, all meetings are only via videoconferences, which troubles consensus-building considerably

Concerned ICT Standards and contribution to the related landscape

I work within the FGQT, the formal Focus Group on Quantum Technology within CEN-CENELEC, creating a so-called "Roadmap Document" to identify what should be standardized and when. It is the first body within Europe that takes this question seriously, and where relevant stakeholders meet each other. The aim of the Roadmap Document is to produce clear recommendations, for instance how to subdivide the area of quantum technology in smaller chunks, and when to start for instance a working group to deliver a standard on "solid-state quantum computing" and another one on "photonic quantum computing".

I am also involved in the informal working group on quantum technology within NEN (the Dutch SDO), which is now a vibrant group of quantum experts in the Netherlands. This group pre- discusses the standardisation needs from Dutch stakeholders (start-up companies as "vendors", academia as "customers"), and has already produced several co-signed technical contributions to FGQT.

Impact

SMEs are offering the hardware and software modules for building-up larger systems, and they can gain the most of standardisation if it increases the market for dedicated modules. The biggest impact occurs when the chosen modularity maps nicely onto the product portfolios of many SMEs. This is what the co-signed contributions from Dutch stakeholders are aiming for, and the proposed layering and modularity are perfectly in line with this aim.

Moreover, many Dutch stakeholders on quantum are now working together (within NEN) on standardisation and creating co-signed contributions. Several of my contributions have been consigned. Since this includes many Dutch (start-up) vendors, we are taking a leading role in driving European standardisation by following this approach.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Currently, the project contributes in the pre-standardisation phase resulting in a "roadmap document" to prepare for standardisation in the sector of Quantum technologies.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, the fellowship contributes to the newly founded FGQT.

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

Yes, to a technical report providing recommendations for new standards.

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

FGQT of CEN-CENELEC is the first group in the world dealing with the question of how to cut down the big topic "Quantum" in much smaller pieces, and the first part of these sub-topics will be soon ready for standardisation, others will follow later. Europe has many start-up companies in this area and therefore the EU should take a leading position on this to support a vibrant industry around this topic.

Online references related to the fellowship work

www.cencenelec.eu/areas-of-work/cen-cenelec-topics/quantum-technologies/

7. Internet of Things

Accessibility Requirements and Use Cases for the Internet of Things

Andy Heath
Director at Axelrod Access for All, United Kingdom

ISO/IEC SC41 Internet of Things and Digital Twin / WG3 IoT Architecture

Sector

Accessibility for the IoT

Addressed EU standardisation priorities and gaps

There is a major deficit in Accessibility standards that are mostly oriented towards technical readers, these are difficult to understand and use for lay readers and that the development of models to support them in the public space is hampered by "techno-speak" and the politics of organisations. Whilst the purpose of many standards is to foster common working and interoperability across a sector comprised mainly of vendors this is not the case with accessibility.

The IoT requires an accessibility approach based on User Accessibility Needs. Standards to support this do exist but need some re-purposing and the development of support materials showing how it can be done. Materials produced by an Ad Hoc can be less formal than International Standards but can lead to the development of those. The pieces of this exist but they are not well-publicised, and it is not obvious that they can be used for that purpose. Therefore, my project aims to begin to close the gap to show how they can be used.

Concerned ICT Standards and contribution to the related landscape

The sources of diversity and complexity in dealing with the accessibility of interfaces in the IoT begs for a universal, not a piecemeal approach, and these include the users, the devices and their functionalities and interfaces and jurisdictions. Such an approach is potentially on the table, based on Goals and User Needs. Standards exist but they address standards, not people and not themselves written to be useable for a product/service-oriented approach. (Goals (CEN Guide 6:2014) and User Accessibility Needs (ISO/IEC 29138-1:2018). This project will develop and write material in an Ad Hoc group in SC35. It is hoped to build the approach into work in ISO/IEC JTC1 SC41 (IoT Architecture) and show the approach in other standards (e.g. in IEC TC100 TA16)

Impact

The material under development shows how SME's can approach achieving and documenting the accessibility of products using one effective model that works as compared to using many fragmented approaches and standards. There will be better, more accessible products and extension of the market for products across global jurisdictions that may in many regards not be in harmony. It has the potential to increase accessibility for users and product sales in markets where innovation must be fast and furious.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?”

Yes, it has led to the setting up of an Ad Hoc in SC35 to tackle the work with 9 participating experts. The proposal to come out of that group may be a TC (or TR) or it may lead directly to anextensions NWP for an eventual IS on compliance to ISO/IEC 29138-1, which is the main thrust of the work.

Additionally, I am working in SC41 WG3 (Architecture) to lay the groundwork for a cross-co-operation with the SC35 AdHoc which means that the IoT Architecture will recommend the accessibility approach devised by the SC35 AdHoc on Accessibility of IoT. Discussions during the CRM on drafts for the Architecture have secured informal support for this amongst those working on the IoT Architecture. Whilst this will be a help to the effort in SC35 it is not critical that it succeeds in SC41 and it will only be a few words recommending the approach.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, the AdHoc on the Accessibility of the Internet of Things in SC35.

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

Not yet – the fellowship is only at the midterm when this report is published.

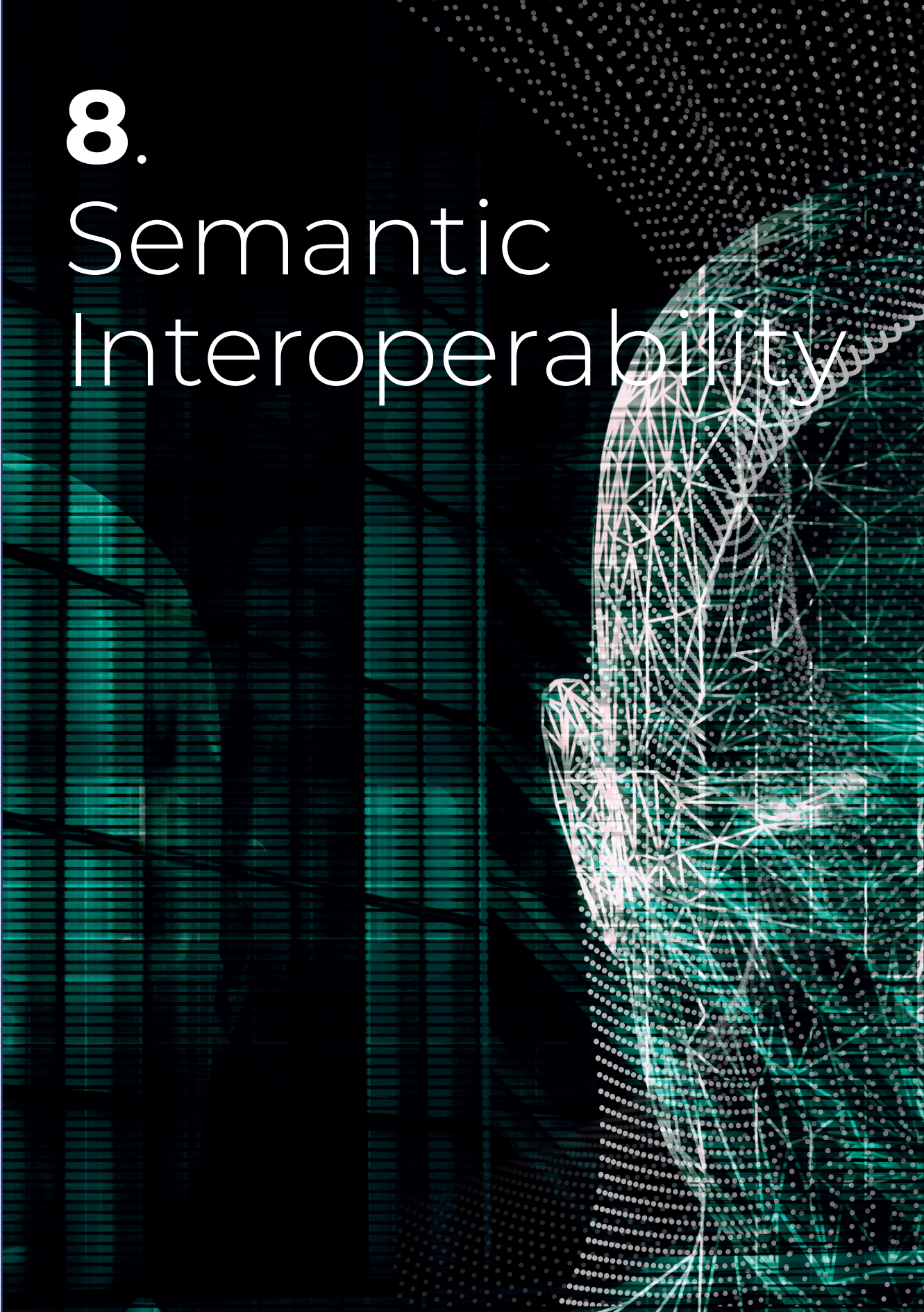
What future efforts or activities are still necessary for your area of application?

I am waiting to see the finalization of this activity to plan the next steps of the project.

Online references related to the fellowship work

www.iso.org/committee/6483279.html

8. Semantic Interoperability



Danish participation in the ISO/IEC JTC 1/SC 32 WG 3 Database languages (SQL and new GQL)

Thomas Frisendal
Independent Consultant
Denmark

ISO/IEC JTC1/SC32 Data Management and Interchange /WG3 Database language

Sector

Database Language Standards

Addressed EU standardisation priorities and gaps

Database language standards (SQL/GQL) as Danish expert to ISO IEC/JTC1/SC32/WG3 (with special emphasis on Graph Query Languages). The committee is responsible for the widely used SQL standard, and it is also developing a new query language, Graph Query Language, GQL.

Concerned ICT Standards and contribution to the related landscape

My project focuses on the forthcoming Graph Query Language standard with an emphasis on business requirements and human factors. Since graph database technology is a key for meaningful and explainable machine learning and AI, it is evident that these standards will have a positive impact on applications in our societies. The focus of my contributions are on how the database contents should be modelled and presented to data consumers, and in particular in the graph database context.

The standards work takes place within the ISO/IEC JTC 1/SC 32 framework, and the committee WG 3, which does the work, is dominated by the US with an extension also a strong presence from Asia.

Impact

Database languages and graph database technologies are very important for SMEs, not least because of the lower learning curves, intuitiveness, and productivity. In addition, the ease of understanding of complex data is essential for modern societies - just look at the impacts of big data and machine learning.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, both SQL-PGQ and GQL are new standards. I am focusing on GQL, mostly, and I hope to influence the architecture of the graph data models.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, it has led to a technical report in the format of discussion papers.

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

In general terms, the SQL standards are very mature, but the development of a graph query interface is going into Draft International Standard with the next 6 months. The GQL standards are still in internal working draft status but will invite comments on a Committee Draft version in 2022. Even more importantly, today, only 7 EU citizens participate in this work and they are not representing database vendors (who have 7 EU-based members). The US and Asian participation have many more members of the WG, and strongly consider that additional EU experts are needed to better support the EU position.

Online references related to the fellowship work

www.iso.org/committee/45342.html

IoT Semantic Interoperability - Semantic Discovery and Query Specification in oneM2M

Joachim Koss
Independent Consultant
Germany

oneM2M WG SGS System Design and Security

Sector

IoT Semantic Interoperability

Addressed EU standardisation priorities and gaps

oneM2M has currently native discovery capabilities that work properly only if the search is related to specific known sources of information (e.g. searching for the values of a known set of containers) or if the discovery is well scoped and designed (e.g. the lights in a house). When oneM2M is used to discover wide sets of data or unknown sets of data, the functionality is typically integrated by ad hoc applications that are expanding the oneM2M functionality. This means that this core function may be implemented with different flavours and this is not optimal for interworking and interoperability.

The funded application shall enhance the semantic capabilities of the oneM2M architecture by introducing "Advanced Semantic Discovery" which provides capabilities to request semantic discovery to whom would know the candidate targets to perform the semantic discovery in the oneM2M system.

Concerned ICT Standards and contribution to the related landscape

The proposed action will contribute to enabling that additional EU expert an easy and efficient discovery of information and proper interworking with external source/consumers or to directly search information in the oneM2M system for big data purposes. Contributions to the oneM2M standard will be designed based on the principle and the solution defined by the existing SAREF standard developed in ETSI TC SmartM2M and supported by the European Commission.

Since the addressed standards enable semantic interoperability across the IoT, it provides cross-domain and -vendor IoT semantic interoperability. This will become increasingly important as greater quantities of data are generated and shared across the IoT. It opens new market opportunities in domains of e.g. Healthcare, Smart Grid, ITS, Industrial Automated Systems, and Smart Cities, which depend on collecting and processing data. With that, it directly supports the strong European goal of the "digital single market". oneM2M Standards: TS0001, TS0004, TS0034.

Impact

The standards addressed by the contributions enable cross-domain and cross-vendor IoT semantic interoperability. The adoption of Semantic Discovery and Query as a part of interoperability between IoT addresses EU Policy objectives, e.g. greater resource efficiency for a more circular economy, sustainable and responsible supply chains through transparency

and traceability and with that also will provide leadership to European manufacturers (not only but also SMEs), on interoperable IoT devices.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, this project is aimed at enhancing an existing standard in the framework of a new release under development.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No, these contributions are done within an existing WG.

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

Yes, my standardisation activities included Change Request deliverables for a new release of the existing oneM2M Technical Specifications TS-0034-Semantics_Support and TS-0001-Functional_Architecture.

Online references related to the fellowship work

https://onem2m.org/harmonization-m2m/organisation

9. eHealth

Alignment of information standards for healthcare and health research response to COVID-19 in Europe

Carlos Luis Parra-Calderón

Head of Research and Innovation in Biomedical Informatics at Institute of Biomedicine of Seville and the Virgen del Rocío University Hospital

Spain

ISO TC 215 Health Informatics
HL7 FHIR

Sector

Standards in Health Data

Addressed EU standardisation priorities and gaps

In the COVID-19 domain, enormous efforts are being made in Europe and worldwide to extract medical records and standardize it to generate cohorts from different sources of medical records. Particularly relevant are the actions of the OHDSI (N3C in the US at the national level, etc...) and i2b2 communities.

In Spain, we are mapping archetypes according to ISO13606 on screening, laboratory, demographics, treatments, and related resources in the COVID-19 Information Domain. I propose to map these archetypes to FHIR resources.

Concerned ICT Standards and contribution to the related landscape

This initiative will highlight all the efforts developed over the years by SDOs in clinical and biomedical information under the HL7 FHIR umbrella as the standard catalyst for predictive and other algorithms in the AI domain for COVID-19 Healthcare Learning Systems.

Mapping between FHIR resources with archetypes of COVID-19 information domain based on ISO 13606 is also promoted in the ISO 24305 initiative context.

Impact

To have standardized information on COVID-19 according to reference standards taking into account an updated review of all COVID-19 information standardisation initiatives, either closely aligned with standards or from other organisations such as the Research Data Alliance or OpenEHR, will provide a standardisation resource for use at all levels in Europe for translational (phenotypic information), clinical and epidemiological research, offering the opportunity to generate interoperable and even federated patient cohorts at the European level, which will accelerate knowledge about the disease. This activity will provide an essential resource for implementing COVID-19 data portals at the member state level and the European COVID-19 Data Portal level for clinical information.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, the project has contributed to the development of the ISO/AWI TR 24305 "Guidelines for implementation of HL7/FHIR based on ISO 13940 and ISO 13606".

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No, it contributes to an existing TC.

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

Yes, I have worked with Reference Data and Reference material for this new Technical Report.

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

Collaborative efforts in clinical data standards harmonization are currently being developed, and this is a moment of opportunity. In this sense, I propose to work on the COVID-19 use case in the HL7-OHDSI collaborative project on OMOP on FHIR that is currently being developed and in the development of the ISO/AWI TR 24305 "Guidelines for implementation of HL7/FHIR based on ISO 13940 and ISO 13606" using as an example a set of ISO13606 archetypes on Covid19 and the COVID-19 FHIR Clinical Profile Library IG.

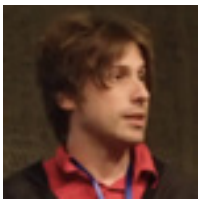
Online references related to the fellowship work

www.iso.org/committee/54960.html

www.hl7.org/fhir

https://confluence.hl7.org/display/OOF/OMOP+on+FHIR+Home

COVID-19 Passport Security and Privacy Review



Harry Halpin

Currently CEO of Nym Technologies SA and Visiting Professor at KU Leuven in COSIC

Switzerland

IETF SAAG Security Area
IETF CFRG Crypto Forum
ETF SECDISPATCH Security Dispatch
W3C DID Decentralized Identified Working Group

Sector

Security in eHealth

Addressed EU standardisation priorities and gaps

As a part of this short-term fellowship, I did a high-level review and analysis of vaccine passports, including the EU Digital COVID Certificate and the blockchain-based IATA proposal. I noticed several cryptographic and privacy improvements that could be made, as well as attempted to determine if the IETF was a suitable venue for future standardisation.

Concerned ICT Standards and contribution to the related landscape

The ISO work in the space seems not to have begun, so I mostly dealt with EU recommendations to member-states on vaccine certificates. I have also given feedback to the W3C on the state of their competing standards. These first contributions are the initial high-level analysis of the security and privacy of vaccine passports. This project has shown that the cryptography and usage of proxy networks should be upgraded to enable more privacy-conscious users to use vaccine passports. I have communicated and tried to rally people to standardize the results at the IETF, although temporarily put on hold by leadership at the IETF.

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

Many SMEs are now using vaccine passports due to national laws, and so improvements to the privacy and security of these efforts help these SMEs such as restaurants that deal with customers that are afraid for privacy reasons to get vaccinated. In addition, the work would allow easier travel with more privacy if the proposal was taken up and implemented on a national and international level.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, this work has led to specific technical recommendations for revised standards on the increased usage of blind and aggregate cryptographic signatures as well as the prevention of metadata collection to keep COVID-19 certificate applications compliant with the General Data Protection Regulation (GDPR) and data minimization. This is already done to some extent in the EU Digital Covid Certificate by the Dutch government and with the CNIL recommendations for the "TousAntiCovid" application used in France. However, this proposal to use more modern cryptography in the EU Digital COVID certificate and related efforts, such as the WHO DCC:VS effort, has not yet led to an agreement or been implemented widely.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No, but we discussed the proposal to form a new workgroup around these recommendations at the IETF CFRG and SAAG but although there was interest from some European COVID certificate experts, such as those at the Dutch government, and also from some companies such as Mozilla, there was resistance from some of the hierarchy in the IETF, members who are primarily Americans. However, this does not mean a new workgroup may not form in the future, as the United States of America will eventually need a digital COVID certificate, and many Americans have privacy concerns.

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

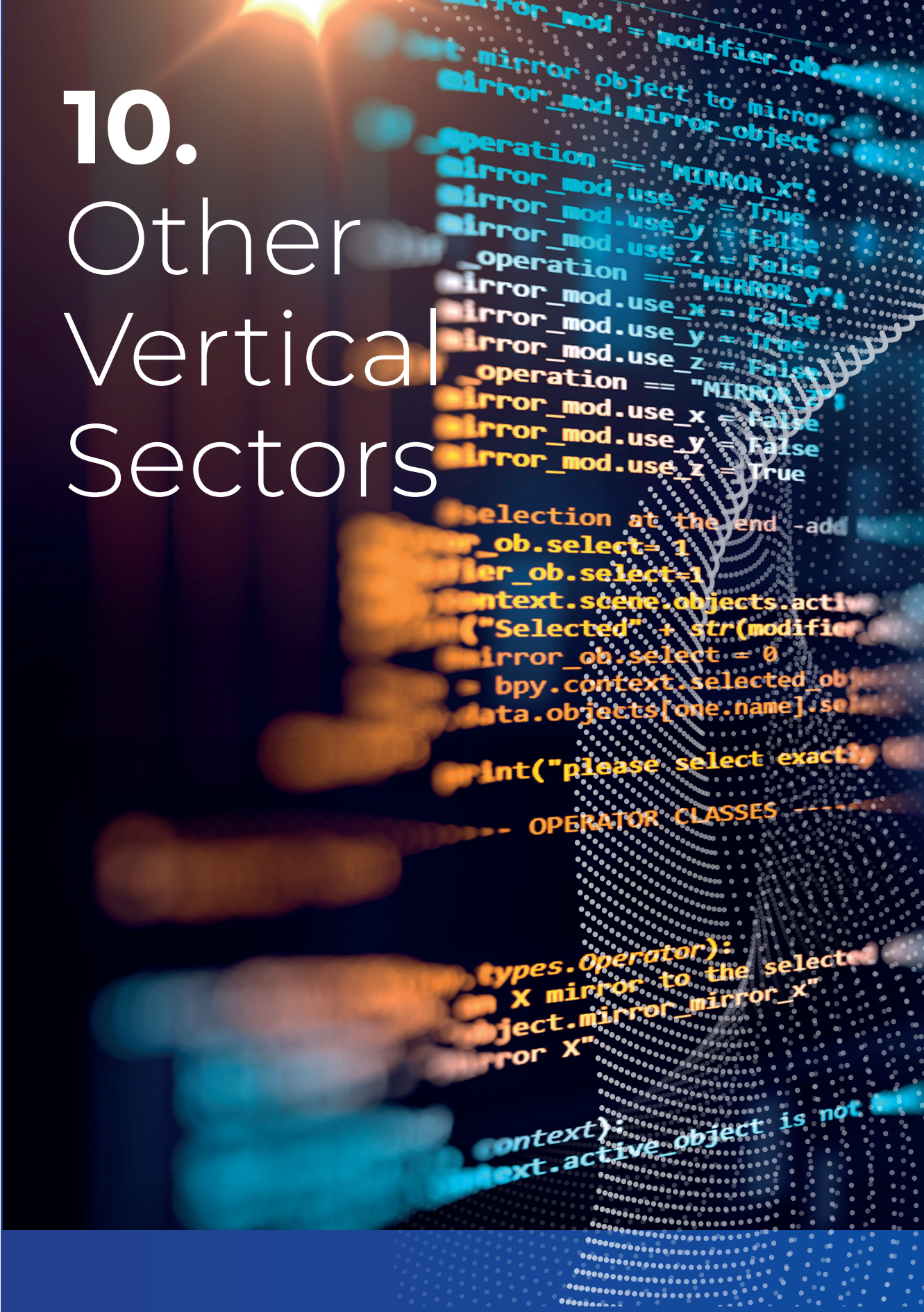
Yes, it resulted in a technical report providing recommendations for a new standard.

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

The initial analysis of the security improvements to be done is now concluded. I finalized a report that summarizes my finding and is easy enough for an expert to read, which should cause even more concern at the IETF when I next press the matter to be standardized. However, as my intervention at the last IETF meeting did show people, via my technical report, that I was serious, I was unable to get funding to continue to attend IETF meetings virtually. However, the final report has attracted the interest of the IEEE who will publish it in their IEEE Communication Standards magazine.

Online references related to the fellowship work

- https://datatracker.ietf.org/group/saag/about/
- https://datatracker.ietf.org/wg/secdispatch/about/
- https://datatracker.ietf.org/rg/cfrg/documents/
- www.w3.org/2019/did-wg/



10. Other Vertical Sectors

Big Data

Spreading the ISO 8601-1:2019 and EDTF gospel

Edward Zimmermann
Founder of NONMONOTONIC Networks
Germany

Cross-SDO Communication among OASIS, NIST, IETF, W3C/ECRIM

Addressed EU standardisation priorities and gaps

Regarding ISO-9601 itself, there is still a lot to do with ISO-8601 as not all of my ideas made it into EDTF and not from EDTF made it into the published ISO standard. That is beyond this fellowship. My focus here has been to promote an understanding of ISO-8601:2019. Dates as a fundamental unit in standards seem so fundamental that it also presents a challenge to get other standards that build upon dates to grasp the importance. A particular challenge is provided by the XML data schema profile of 8601:2004. That said I've had some success in getting some within the XML standards community to consider adopting ISO-8601:2019 level-1 extensions. Among the standards, I hope to be able to move forward is ITU X.1303bis (OASIS CAP) emergency alerting standard. My aim (and following this weeks workshop looks extremely promising) is to extend the date to beyond timestamps to include level-1 placeholders and approximate as a profile of ISO-8601:2019.

Concerned ICT Standards and contribution to the related landscape

The focus of this fellowship is ISO-8601:2019 (and indirectly EDTF). Date/Time is a basic component of many standards including common ISO, W3 and IETF formats. I'm dealing directly with many standards groups that are still to be won over. My most recent focus (this past week) has been OASIS CAP.

Impact

Raising awareness can have a tremendous economic impact within the data science community by reducing errors. A common error in ETL (Extract-Transform-Load) pipelines is to try to resolve date expressions as if they were timestamps. All too often they get resolved to the local time where the pipeline runs. Since most are not familiar with the paradigm shift in the standard that addresses this problem, they either lack awareness or develop on-off rather than standard solutions.

Social impacts? Improving date/time format usage has a lot of benefits but the real societal impacts come from the standards that hopefully with deploy the standard. Of all the standards I'm involved in (and the fellowship is focused on ISO-8601:2019 advocacy) CAP is by far the most significant. Everything from missing children billboards in the US (Amber Alerts),

to TV, radio and cell broadcast alerts are powered by CAP. 70% of the world's population are in countries whose alerting systems have adopted CAP-- and in come of my other work, we're looking to close that gap.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it will contribute to the revision of several standards in TC.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to a technical report including reference material for standards.

What future efforts or activities are still necessary forTavernerThe landscapea of application?

I see that this engaged action should be continued. ISO-8601:2019 is mature but not complete just as ISO-8601:20004 was not finished. The standard is relatively new so most of the standards groups I'm addressing have been building on the previous edition (or even earlier). Since ISO-8601:2019 is a component standard to be used within other standards its a slow and continuing battle as by the time some standards move we'll have moved the guard post again (especially for cultural heritage looking to extend with some of the features that did not make it into EDTF, whence not ISO-8601.

Online references related to the fellowship work

https://github.com/re-Isearch/date

Trusted Information

CEN/CLC and ETSI Coordination of New Standard for Age Assurance Systems

Tony Allen
CEO at Age Check Certification Services Ltd
United Kingdom

ISO/IEC JTC 1/SC27 Information security, cybersecurity, and privacy protection/ WG 5 – Identity and Privacy Management Technology

Sector

Identity Management

Addressed EU standardisation priorities and gaps

My fellowship project tackles a standard seeking to introduce rules for the operation of Age Assurance Systems. These include Age Verification, Age Estimation and Age Assessment. The standard covers the levels of confidence needed for Zero Assurance, Basic Assurance, Standard Assurance, Enhanced Assurance and Strict Assurance. The aim of the standard is to enable regulators and policy makers to implement requirements for Age Assurance Systems in the sale or supply of age restricted goods, content, or services.

Concerned ICT Standards and contribution to the related landscape

I am the technical author of ISO/IEC PWI 7732 to develop a working draft of a new international standard for Age Assurance Systems. This was originally proposed to be undertaken at ETSI or CEN/CENELEC level but, in the end, it was promoted by BSI to the ISO/IEC JTC1/SC27/WG5 and adopted at an international level.

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

The Age Assurance Systems are needed for any enterprises that supply age restricted goods, content, or services. Moreover, the protection of children from harm is the core of the policy restrictions related to age restricted goods, content, and services. The purpose of age assurance systems is to provide a process for online protection for children and ensure a safe, data minimized and trusted methodology for all citizens to prove their age online.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it is the ISO/IEC PWI 7732 – Age Assurance Systems. It is presented to ISO/IEC JTC1/SC27/WG5 and will be progressing to a working draft ballot. The Working Draft has resulted in a New Work Item Proposal (NWIP) to ISO/IEC JTC1/SC27/WG5 to establish an International Standard for Age Assurance Systems.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

Yes, this project has led to early discussions on a cross standards development organisation task force and a potential Joint Working Group in the IEC.

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

Yes, to technical specifications and technical reports including common terminology and recommendation for a revised and new standard.

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

The action was to prepare a working draft, which has been completed. Now, the standards in this field are in the preliminary phase, the next stage is for the relevant ISO Group to progress the working draft to Committee Draft stage.

Online references related to the fellowship work

www.iso.org/committee/45306.html

Ontology

Ontologies' Standardisation and Harmonization for Industry Commons (SHICO)

Hedi Karray
Professor of Informatics at INP Toulouse-ENIT
France

OAGi-IOF
INCITS 573-3-202xAd Hoc Mid-Level Ontology (MLO)
ISO/TC 184/SC 4 Core Terminology for Industrial Data

Sector

Ontologies and Open Data Standards

Addressed EU standardisation priorities and gaps

This project is highly aligned with the aims and objectives of the 2021-2022 work program of Horizon Europe related to the digitalization of the European industry, in which data sharing and interoperability in a heterogeneous environment are major challenges. Ontologies are presented as a valuable solution for interoperability and semantic data sharing. However, for various reasons, ontologies are often not themselves interoperable and thus fail to be widely accepted. Establishing a shared semantic basis, open and standardized ontologies contributions, and the co-innovation abilities as well as via fostering translation, SHICO will provide a boost to Open Digital Innovation.

Concerned ICT Standards and contribution to the related landscape

My fellowship contributes to the work of three standardisation groups.

Within OAGi-IOF group I will participate in the group IOF-core (current progress of the group is now around 60%) to contribute to the elaboration and the review of IOF core Ontology. My involvement will include participation in the following activities:

- New Term Introduction and Term Evolution (Development and Test)
- Formalize IOF-Core Relationship (for the extensive use of Common Core Ontology terms within IOF Core term definitions)
- Representing N-ary relations properly/best we can in OWL
- Modularize IOF Core
- Mid-level terms (classes and relations): mid-level modules
- Relations: industrial relations module

Within the INCITS 573-3-202xAd Hoc Mid-Level Ontology (MLO) (the current progress of the group is now 20%)I will participate in the elaboration and the review of Information technology – Mid-Level Ontology (MLO). My involvement will include participation in the following activities:

- Contribute to the definition of the scope of middle-level Ontology
- Contribute to generalize and "de-militarize" the Common Core ontologies by working the definite of classes, the annotation of classes by adding general examples, and working on the relations ontology.

Within the activities of the Core Terminology for Industrial Data group of ISO/TC 184/SC 4 I will to the elaboration, the review, and the ontological alignment of the Core Terminology for Industrial Data. My involvement will include participation in the following activities:

- Contribute to the identification and definition of terms
- Contribute to align terms with Basic Formal Ontology (BFO)

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

SHICO will contribute significantly in unlocking a wide range of opportunities related to data re-use and sharing, ranging from co-innovation to the procurement of business transactions that will contribute to foster a collaborative and fully connected industrial ecosystem, a necessary characteristic towards a European Single Market and new business models for European industry to meet the opportunities of digitalization and sustainability challenges. From the industrial domain perspective, a major impact of SHICO will be to overcome the skepticism in many industrial circles by providing standardized ontologies that will meet the needs of the industrial stakeholders with a reliable turnkey solution and together with a set of best practices that will promote the degree to which they can build successful and trustworthy solutions to integrate ontologies into their businesses and practical purposes.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, this project contributes to the development of two standards Common Core ontologies at INCITS 573-3-202xAd and IOF Core Ontology at OAGi.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

For the moment my contributions concern Common Terminology that will lead to a deliverable on later stage.

What future efforts or activity are still necessary in your area of application?

It is evident that in the effort of reconciling the ontological research between the industrial and academic domains through standards is of utmost importance. Therefore, the focus in the future should be on standardizing ontologies with a large-scale commitment of stakeholders from different perspectives so that it may help in bridging the gulf that separates industry and ontology. We believe that by integrating relevant ongoing efforts and creating synergies by close cooperation with all relevant bodies and initiatives, in particular international standardisation bodies working on industrial ontologies and high-level ontologies, we can achieve a level of interoperability between the expected ontologies in the future.

Online references related to the fellowship work:

- www.industrialontologies.org/top-down-wg/
- https://standards.incits.org/apps/group_public/project/details.php?project_id=3037
- www.iso.org/committee/54158.html

Participation to the revision of the identification of medicinal products in ISO 11239 and TS 20440

Joseph Roumier
Linguistic resources and Semantic web researcher at ACOEURO France

ISO/ CEN/CENELEC TC 215 WG 7 Electrotechnical Aspects of Telecommunication Equipment

Sector

Ontologies in eHealth

Addressed EU standardisation priorities and gaps

As part of my short-term fellowship activity, I am currently consulting in the UNICOM project, supported by the EC under H2020 Programme, and I have contributed in producing a "Gap Analysis of Existing and Need for New Standards and Profiles" report and the revision of the standards will build on EDQM (European Directorate for the Quality of Medicines and HealthCare) pharmaceutical dose forms. The initial analysis of the EDQM standard terms lead to the identification several potential improvements:

- Expand the list of domain values for some characteristics (e.g. infusion, injection, injection/ infusion transposed to "Intended Site" value set)
- Add a Systemic/non-Systemic characteristic
- Make Administrable Dose Form explicit
- Make the Pharmaceutical Dose Form characteristics definitional
- Check the validity of the Dose Forms textual definitions

Concerned ICT Standards and contribution to the related landscape

The aim of this activity is to support the revision of two SO standards ISO/AWI 11239 and ISO/ AWI TS 20440.

The standard ISO/AWI 11239 focuses on the identification of medicinal products [IDMP] and defines the data elements and structures for the unique identification and exchange of regulated information on pharmaceutical dose forms, units of presentation, routes of administration and packaging. The current version is nearly 10 years old, and the implementations by the European Medicines Agency [EMA], EU's national competent authorities (NCAs), marketing authorization holders (MAHs) and clinical health experts have been done without sufficient coordination. The standard is currently under revision, opening the way for improvements.

The standard ISO/AWI TS 20440 focuses on the same topics but consists in an implementation guide for ISO 11239 data elements and structures.

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

The EMA published in 2016: "In the pharmaceutical sector SMEs are the motor of innovation and play a major role in the development of new medicines for patients." The applications for patients and decision support systems are developed by European SMEs. They must adapt 27 dose forms systems in EU only. By fostering the use of a common terminology, this work reduces these efforts and increases the precision of the applications results.

In addition, this work supports international collaborations between US and EU stakeholders of eHealth terminologies: EMA, FDA, SNOMED-CT, members of the WG6 in charge of the revision of standards for pharmaceutical dose forms. The creation of a global identifier (PhPID) for pharmaceutical products makes easier to travel and receive the right prescription abroad, but also to improve the global statistics and identification of adverse events. The work on the creation of an intermediary level of EDQM can help the alignment of pharmaceutical terminologies worldwide and improve the independence of the society members from local and industrial arbitrary decisions

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

Yes, it is involved in the revision of two standards; ISO 11239 and ISO/TS 20440 (for consideration by ISO/TC 215/WG 6): Require that relevant terms (PDFs, CDFs, CMTs, CMPs) be linked to their administrable dose forms, indicate that further PDF attributes may be added, depending on users' needs.

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, this activity results technical reports for common terminology and recommendations for revised standards.

What future efforts or activity are still necessary in your area of application?

The standards in this topic are mature. However, for this work I have been interacting with the SDOs through the participation to UNICOM, while it would have been more beneficial to participate directly to the standards working groups. This would be useful to implement the ontological alignment between EDQM and the other terminologies of dose forms which are the main items.

Online references related to the fellowship work

https://unicom-project.eu/

www.youtube.com/channel/UCBsNj4B33Q7-50XTXdqAGIg

www.iso.org/standard/81133.html

www.iso.org/standard/81134.html

Augmented Reality

The landscape of AR Standards for ETSI Industry Standards Group Augmented Reality Framework

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Sector

Augmented Reality for Cross-Domain Technologies

Addressed EU standardisation priorities and gaps

Many SDOs are beginning to work on standards for Augmented Reality or are expanding their activities as more companies seek to use AR for a wide variety of use cases. Unfortunately, there is not publicly accessible, an up-to-date landscape of open Augmented Reality-related standards. This increases the risk that multiple SDOs are developing and will continue to develop standards for AR interoperability with overlapping scope and may also neglect key areas in need of further standardisation. This activity addresses the knowledge gap.

Concerned ICT Standards and contribution to the related landscape

My short-term fellowship contributes significantly to the release of an updated AR standards landscape that aligns with the ETSI ISG ARF's functional reference architecture. The document supported by this project puts many international standards activities in one unified view and, in this context, permits the establishment of new (or extensions of existing) collaborations between SDOs seeking to reduce reliance on proprietary AR components, systems, solutions and services. The ETSI AR Standards Landscape will be published as a Group Report on the ETSI ISG ARF web page.

With the release by ETSI of an up-to-date AR Standards Landscape, SDOs and other groups working on open and interoperable AR will be able to better identify their unique value and choose to contribute where there are gaps in standards that they can address for open and interoperable AR.

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

This activity impacts the European SMEs indirectly; over time, Augmented Reality will become a popular interface for discovering and consuming digital information. This will impact all businesses with assets and customers in the physical world. By increasing the understanding of the constellation of standards for AR, European SMEs will have greater opportunities to build content and services for new customer segments adopting AR. SMEs will be able to publish 3D spatially registered data sets for AR experiences.

When and where Augmented Reality components will be interoperable, developers and

systems integrators will be able to combine modules of enabling technology for AR to be deployed in the workplace as well as in education, healthcare, leisure, and commerce. When standards are adopted, well-designed, interoperable, and open AR systems could reduce operational costs, increase service delivery and impacts, and introduce new opportunities for communities to learn from one another and work or play together in the physical world.

Has your project directly involved or led to a specific recommendation or proposal for the development of new or revised standards?"

This project supports the adoption of an existing standard (ETSI ISG ARF GS 003-1) and the development of the parts of an emerging standard (ETSI GS 004-03).

Has your fellowship contributed to the development of a new Working Group (WG) or a new technical committee (TC)?

No.

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

Yes, to Reference Material (a technical report).

What future efforts or activity are still necessary in your area of application?

Standards for AR are only at the very beginning of being defined. There is low current documentation and understanding of where and how interoperability is needed because many factors such as data formats, bandwidth requirements, quality of service requirements and hardware capabilities are unknown. I recommend that ETSI invest in wide promotion of the ISG AR standards landscape.

Online references related to the fellowship work

www.etsi.org/committee/1420-arf

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