CEN and CENELEC Position Paper on the EC Action Plan on synergies between civil, defence and space industries

January 2022

Background information

On 22 February 2021, the European Commission emitted a communication (COM(2021) 70) to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions to present an "Action Plan on synergies between civil, defence and space industries".

Standardization is mentioned as a building block towards the successful achievement of the overall objectives within this communication. Indeed, the "promotion and application of common standards across sectors can contribute to cost savings, in terms of production runs and cost management, but also improve operational effectiveness, by enhancing interoperability, particularly in a multinational environment."

More specifically, Action 5 of this Action Plan aims to elaborate a plan to promote the use and development of hybrid civil/defence standards, before the end of 2022. As European Standards Organizations, entrusted with the development of European Standards, CEN and CENELEC wish to contribute to this development.

Executive summary

CEN and CENELEC welcome the Action Plan made by the European Commission to enhance synergies between the security, defence and space sectors and look forward to working together to enable these synergies. In this context, CEN and CENELEC wish to share its current and potential future contributions to solving the challenges outlined in the Action Plan. In the case of hybrid standards, our relationship with the European Defence Agency (EDA) and the EDSTAR database illustrate a successful civil-defence collaboration in standardization. CEN and CENELEC support European capabilities through its extensive standardization of the critical technologies outlined in the Action Plan. Furthermore, we contribute to synergies between EU programmes and instruments by promoting standardization as an important market uptake tool for Research & Innovation (R&I) project results. CEN and CENELEC provide an inclusive

platform by involving all stakeholders in the innovation and standardization process. In addition, the structure of CEN and CENELEC allows it to facilitate the cross-sector coordination of the security, defence and space fields, by convening existing and new stakeholders in an agile way. Finally, CEN and CENELEC welcome the important place given to standardization in the Action Plan and offer their full support to the various actions in the communication where standardization is considered an important contributor (in particular, Actions 4, 5, 6, 9, 10, and 11).

CEN and CENELEC contribution

Hybrid standards

EDA's European Defence Standards Reference System (EDSTAR) is a publicly published database with references to "best practice" standards and "standard-like" specifications, selected by industry and governmental organisations to be the best applicable standards for defence purposes. The many standards in EDSTAR that originate from civil standards organizations, including CEN and CENELEC, are a perfect illustration that the concept of hybrid civil/defence standards is already a reality.

In 2011, CEN signed a Partnership Agreement with EDA enabling EDA to make use of the support of CEN and its members for giving secretariat support to the groups that select the "best practice" standards and "standard-like" specifications that are referenced in EDSTAR. The concept of hybrid standards is therefore well-known to CEN and CENELEC. Indeed, the scope of CEN/CLC/JTC 5 'Space' refers explicitly to dual-use aspects.

Critical technologies

The Action Plan[1] contains a "list of examples of critical technologies relevant across the civil (including security), defence and space industries (technologies whose relevance is limited only to one of those industries are not included)" (p.8). As the table below demonstrates, CEN and CENELEC already have standardization activities in place in each of the sectors mentioned.

Sector	Technical activity
Electronics & Digital	CEN-CENELEC Focus Group Artificial Intelligence
	CEN-CLC/JTC 13 'Cybersecurity and data protection'
	CLC/TC 65X 'Industrial-process measurement, control and automation'
	CEN/TC 290 'Dimensional and geometrical product specification and verification'
	CEN/TC 123 'Lasers and photonics'
	CLC/SR 113 'Nanotechnology standardization for electrical and electronics products and systems'
	CEN/TC 352 'Nanotechnologies'

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[1] Available from https://ec.europa.eu/info/files/action-plan-synergies-between-civil-defence-and-space-industries_en

Sector	Technical activity
Manufacturing	CEN/TC 438 'Additive Manufacturing'
	CEN/T 310 'Advanced automation technologies and their applications'
	CLC/SR 47 'Semiconductor devices'
Space & Aeronautics	CEN/CLC/JTC 5 'Space' (in cooperation with ECSS)
	CLC/SR 80 'Maritime navigation and radiocommunication equipment and systems'
	CEN/TC 274 'Aircraft ground support equipment'
	CEN/TC 287 'Geographic information'
	CEN/TC 377 'Air Traffic Management'
Health	CLC/TC 62 'Electrical equipment in medical practice'
	CEN/TC 430 'Nuclear energy, nuclear technologies, and radiological protection'
	CLC/TC 45B 'Radiation protection instrumentation'
Energy storage	CEN/TC 301 'Road vehicles'
	CLC/TC 21X 'Secondary cells and batteries'
	CLC/TC 9X 'Electrical and electronic applications for railways'
	CLC/SR 'Electrical Energy Storage (EES) Systems'
	CLC/SR 105 'Fuel cell technologies'
	CLC/TC 8X 'System aspects of electrical energy supply'
Hydrogen	CEN/TC 268 'Cryogenic vessels and specific hydrogen technologies applications'
	CEN/TC 286 'Liquefied petroleum gas equipment and accessories'
	CEN/CLC/JTC 6 'Hydrogen in energy systems'
Nuclear	CLC/TC 45AX 'Instrumentation, control and electrical power systems of nuclear facilities'
Mobility	CEN/TC 256 'Railways applications'
	CEN/TC 278 'Intelligent transport systems'
	CEN/TC 296 'Tanks for the transport of dangerous goods'
	CLC/TC 9X 'Electrical and electronic applications for railways'

CEN and CENELEC have the right conditions to enable cooperation among the variety of actors required to develop hybrid civil-defence and space-related standards, including experts from industry, SMEs, as well as the civil society and the military sector.

CEN and CENELEC further have close collaboration links with their international counterparts ISO and IEC, which further enlarges the list of relevant standardization activities, e.g., ISO/TC 276 'Biotechnology', ISO/TC 299 'Robotics', ISO/IEC JTC 1/SC 38 'Cloud computing and distributed platforms', ISO/IEC JTC 1/SC 41 'Internet of things and digital twin', IEC/TC 80, with which CEN/CLC/JTC 5 WG 8 work for the elaboration of Maritime SBAS receiver standardisation, etc.

The Vienna and Frankfurt Agreements describe the co-operation between respectively CEN and ISO, and CENELEC and IEC, and enable among others the parallel adoption of European and International Standards. Through these agreements, CEN and CENELEC and their members are well-placed to take the leadership in "developing

standards at international level (e.g., on cybersecurity), taking into account EU values and priorities (e.g., EU data protection legislation)" (p. 10).

CEN and CENELEC offer their expertise in contributing from a standardization perspective to the technology roadmaps to boost innovation on critical technologies for the defence, space and related civil sectors.

Future cross-fertilisation opportunities

CEN and CENELEC note the two critical technology areas (cybersecurity and cyber defence, Artificial Intelligence) in the Action plan considered as holding most promise for cross-fertilisation and look forward to inviting the stakeholders to share their needs to the existing standardization activities in CEN and CENELEC: CEN-CLC/JTC 13 'Cybersecurity and data protection' and CEN-CLC/JTC21 'Artificial Intelligence', including the possibility to contribute these needs to the relevant standardization activities at the global level: ISO/IEC JTC 1/SC 27 'Information security, cybersecurity and privacy protection' and ISO/IEC JTC 1/SC 42 'Artificial intelligence'. In this context, attention is drawn to CEN and CENELEC's recent position paper on the "Proposal for a Regulation laying down harmonized rules on artificial intelligence (Artificial Intelligence Act-COM 2021/206)"[2].

On cybersecurity and transport, CEN and CENELEC are active notably in the field of railways road and ITS (intelligent transport systems). The rise of connected trains and infrastructure means more potential threats of cyber-attacks. To protect the rolling stock and fixed installations, the support of adequate tools and requirements is needed.

CLC/TC 9X 'Electrical and electronic applications for railways' and more specifically CLC/TC 9X/WG 26 'IT-Security / Cybersecurity in the railway sector' developed the CLC/TS 50701 'Railway applications – Cybersecurity' developed by CLC/TC 9X 'Electrical and electronic applications for railways'. This Technical Specification is a major landmark for the European railway sector, as it aims to provide requirements and recommendations to handle cybersecurity for the railway sector, in a unified way.

In a broader context, CEN and CENELEC support the Commission's intention to launch an 'innovation incubator' to support new technologies and dual-use innovation and wish to offer their standardization expertise to support this. Furthermore, CEN and CENELEC wish to stress their relevance in relation to the flagship projects announced in the Communication (Actions 9, 10, and 11).

CEN/CLC/JTC 5 'Space' was already referred to above as also dealing with dual-use aspects. In relation to drones, CEN is developing a suite of standards on drones, under standardisation request M/567 on unmanned aircraft systems intended to be operated in the 'open' category of operations, in support of Commission Delegated Regulation (EU) 20197945, and this through its associated body ASD-STAN:

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[2] Available from https://www.cencenelec.eu/media/CEN-CENELEC/AreasOfWork/Position%20Paper/2021/positionpaper_aia_2021.pdf

- prEN 4709-001 - Aerospace series - Unmanned Aircraft Systems - Product requirements and verification for the Open category
- prEN 4709-002 - Aerospace series - Unmanned Aircraft Systems - Part 002: Direct Remote identification
- prEN 4709-003 - Aerospace series - Unmanned Aircraft Systems - Part 003: Geo-awareness requirements
- prEN 4709-004 - Aerospace series - Unmanned Aircraft Systems - Part 004: Lighting requirements
- prEN 4709-005 - Aerospace series — Unmanned Aircraft Systems — Part 005: General product requirements for different UAS classes operating under declaration
- prEN 4709-008 - Aerospace series — Unmanned Aircraft Systems — Verification method for the Geocaging function
- prEN IEC 62282-4-202 - Fuel cell technologies - Part 4-202: Fuel Cell Power Systems for unmanned aircraft systems - Performance test methods

Synergies between EU programmes and instruments

The JRC Report "Horizon 2020-funded security research projects with dual-use potential: An overview (2014-2018)"[3] contains an in-depth overview of Research & Innovation (R&I) projects with clear dual-use potential.

In line with their Innovation Plan[4] approved in 2018, CEN and CENELEC actively promote the early consideration of standardization as a market uptake tool of R&I project results. CEN and CENELEC members actively participate in R&I projects (funded under programmes such as Horizon 2020 or Horizon Europe) to assist this process.

To facilitate the interaction between R&I and standardization, R&I projects financed by EU programmes such as H2020 or Horizon Europe can participate in the CEN and CENELEC standardization technical bodies that are relevant for the project, enabling the project to contribute their findings to the ongoing standardization processes.

In the Security field, attention is drawn in this context to two projects, financed under the Horizon 2020 programme: STRATEGY and STAIR4SECURITY. Whilst the STRATEGY project aims to identify European standardization needs in the field of security, under eight broad streams (e.g., search and rescue, critical infrastructure protection, etc.), the STAIR4SECURITY project provides a one-stop-shop platform of information and exchange for stakeholders in the CBRNE sub-sector. Both projects will significantly contribute to the identification of standardization gaps in the field of security (see also examples in the Annex).
This interaction between R&I and standardization is also relevant for the Defence sector considering that emerging disruptive technologies (EDTs) such as artificial

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[3] Available from https://publications.jrc.ec.europa.eu/repository/handle/JRC120636
[4] Available from https://www.cencenelec.eu/get-involved/research-and-innovation/cen-and-cenelec-activities/innovation-plan/

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intelligence, big data, quantum technology, robotics, autonomous systems, new advanced materials, blockchain, hypersonic weapons systems and biotechnologies applied to human enhancements - to name only them - are expected to have a disruptive impact on defence and revolutionise future military capabilities, strategy and operations.

Involving all stakeholders in innovation and standardisation

The Action Plan highlights the important role that SMEs have in innovation processes. Standardization aligns with this and offers processes that facilitate the participation of all stakeholders including SMEs in an open, transparent way.

This principle of openness has been enshrined in the EC Regulation 1025/2012 on standardization, which states that all relevant stakeholders, including SMEs, consumer organisations and environmental and social stakeholders shall be represented and encouraged to participate in CEN-CENELEC standardisation activities. These organizations, also known as Annex III organizations, are listed in Annex III of said Regulation and are the European Association for the Coordination of Consumer Representation in Standardisation (ANEC), the Environmental Coalition on Standards (ECOS), the European Trade Union Confederation (ETUC) and Small Business Standards (SBS).

CEN and CENELEC, in close cooperation with SBS, facilitate SMEs' participation in standardization at the national and European levels and promote awareness amongst SMEs of the added value standardization brings for their business. Together with their national members, and in close cooperation with SBS, CEN and CENELEC have developed a range of tools and means to make it easier for SMEs to learn about standardization, to access and apply standards, and to get involved in standardization activities at all levels.

Furthermore, the majority of CEN and CENELEC Members provide user-friendly online platforms for public commenting, which can be accessed in the national language of the country concerned and make it easy for representatives of SMEs and other stakeholders to access the texts of draft European Standards and submit their comments via the internet.

The Action Plan further refers to the low participation of women and other under-represented groups in the defence and security sectors. CEN, CENELEC and their members recognise the influential role of standards in our society and believe that it is essential to include a gender-lens in the standards development process and the European system, as a whole. Understanding and addressing the diversity of our society brings higher-quality standards that ensure safe and secure products and environments for all.

For this reason, CEN and CENELEC, together with more than 20 national standardization organizations, members of CEN and CENELEC, signed the United Nations Economic Commission for Europe (UNECE) Declaration for Gender Responsive Standards, and pledged to create and implement a Gender Action Plan to support

more gender-balanced and inclusive standards development processes, as well as to strengthen the gender responsiveness of standards themselves. The implementation of the Gender Action Plan was approved for a period of three years, starting on January 2020 with the creation of the CEN-CENELEC Informal Coordination Group on Gender Diversity & Inclusion.

CEN and CENELEC cross-sector coordination in the space, security and defence standardization fields

In relation to Space, CEN/CLC/JTC 5 'Space', with more than 200 European Standards, Technical Specifications or Technical Reports published or in progress, ensures the coordination of all relevant activities.

1. There is an existing Memorandum of Understanding between CEN and CENELEC and ECSS (for CEN/CLC/JTC5 'Space'), recognizing ECSS as the European body in charge of 'upstream' Space European Standards development, which are transformed into European standards via CEN/CLC/JTC 5.
2. Concerning Space Traffic Management, there is already an acting Working Group in the ECSS.
3. ECSS is the European body that coordinates the European position to propose and influence standards within the framework of ISO/TC 20/SC 14 "Space systems and operations" for STM.

The CEN and CENELEC Sector Forum on Security (SF-SEC) coordinates CEN and CENELEC's security-related standardization activities. Relevant Technical Committees include CEN-CLC/JTC 13 'Cyber security and data protection', CLC/TC 79 'Alarm systems', CEN/TC 391 'Societal and citizen security', CEN/TC 439 'Private security services', etc.

The Forum seeks to work out how standardization can enhance EU security industry competitiveness in the dissemination of security products, systems and services and ensure a higher level of internal security in Europe. Security is an area involving data coming from many sources. We are moving away from a time where alarms and information sources were processed individually to the present need for an overall picture, considering all available information. The major difficulty in that context is the impossibility to consistently manage and process the mass of the available data. This is illustrated by the three examples in the Annex.

Annex – The need for standards to consistently manage and process the mass of available data in a security context

Example 1: Develop a common format for security and data events

It is essential to develop a minimum layer of commonly agreed metadata, which should include the geolocation of the event (or data source), the absolute time of capture, a high-level description, alarms, and links to the details. Such events can be a CBRNE detection, presence of a car identified by its license plate, the presence of an individual with a special gait or of a RF source, for example. This consistency in the labelling of the data of interest is key to being able to characterize a situation, but also to label the samples used to train artificial intelligence systems.

Example 2: Geolocation in 3D spaces

As populations increasingly concentrate in urban areas, security issues and incidents, but also urban combat, are more likely to occur in multi-layered structures (buildings, underground infrastructure, etc.). In addition to the above-mentioned common format for security and data events, a standardised way is also needed to define such structures. Currently, such standards do not exist, whether in the security or construction industry, yet they are desperately needed in large structures like railway stations or malls, where multiple independent facility owners share a same space, each with their own representation of their assets.

The absence of a standardised way to define structures poses a major challenge in the development of security-related standards, such as for video surveillance, CBRNE propagation, etc. Other domains, such as smart cities, intelligent buildings, and Building Information Modelling (BIM) are also faced with this gap. As such, CEN and CENELEC can bring together all interested parties to work together to address this shared obstacle.

Example 3: The emergence of the cyber-physical security domain

In theory, the above two points also apply to the cyber-physical security domain. However, there is currently no agreed way to determine which data from these two domains is relevant to define a security event that represents both a cyber and physical attack. In addition, the groups of experts for both domains are different and do not necessarily communicate with one another.

To illustrate this, we can consider the following example: An individual hacks into an electronic lock of a technical room to access the video surveillance system. The individual can then display footage from the day before, instead of the live recording and this allows for, for example, a cashier to be robbed or a satellite constellation control room to be hacked, without the security guard realising this. Such a sequence of events needs to be detected and/or investigated consistently and countered, so that the weakness of the lock and the video surveillance system can be addressed and, if possible, the perpetrators prosecuted.

CEN and CENELEC believe a joint cyber-physical security approach is needed to unify methods and indexing standards to achieve maximum efficiency.

ABOUT CEN AND CENELEC

CEN (European Commitee for Standardization) and CENELEC (European Committee for Electrotechnical Standardization) are recognised by the European Union (EU) and the European Free Trade Association (EFTA) as European Standardization Organizations responsible for developing standards at European level, as per European Regulation 1025/2012. The members are the National Standards Bodies (CEN) and National Electrotechnical Committees (CENELEC) from 34 European countries. European Standards (ENs) and other standardization deliverables are adopted by CEN and CENELEC, are accepted and recognized in all of these countries. These standards contribute to enhancing safety, improving quality, facilitating cross-border trade and strengthening of the European Single Market. They are developed through a process of colaboration among experts nominated by business and industry, research institutions, consumer and environemental organizations, trade unions and other societal stakeholders. CEN and CENELEC work to promote the international alignment of standards in the framework of technical cooperation agreements with ISO (International Organization for Standardization) and the IEC (International Electrotechnical Comission).