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Mapping of European standardisation organisations activities in support of industrial ecosystems

Contents

Introduction

The European standardisation system has been instrumental in tackling the adverse effects of the COVID-19 pandemic, such as shortages of personal protective equipment and medical devices. Looking ahead, the Commission has called for a collective and cohesive recovery focused on accelerating the twin green and digital transitions to strengthen Europe's competitiveness, resilience and position as a global player[1]. To achieve this, the EU's standardisation system and its unique public-private partnership have an important role to play.

The Commission has therefore asked the European standardisation organisations (ESOs) to undertake a mapping exercise of their activities in relation with the industrial ecosystems (as preliminarily identified in the Staff Working Document accompanying the Recovery Plan[2]). This staff working document summarises this mapping. It is divided in two sections, with section A focusing on the work of CEN and CENELEC and section B on ETSI.

Disclaimer: Views, opinions and facts expressed in this staff working document are however those of the European standardisation organisations only and do not necessarily reflect those of the Commission.

Section A: Standardisation work by CEN and CENELEC

1 Aerospace & defence

Standardisation plays a crucial role in the market uptake of space services and data, ensuring compatibility, interoperability, and the safety of downstream space applications, i.e. services and data from satellites, be it navigation, observation, telecommunications or combination of these. Work at CEN and CENELEC is ongoing in the following areas.

1.1 Role of standardisation - indicative work

- smartphone compatibility with Galileo so that a caller to an emergency number can benefit from Galileo's accuracy;
- performance requirements of sophisticated on-board localisation units in connected and automated driving systems;
- the creation of a truly European market for drone services and aircraft;
- aircraft and spacecraft production.

[1] COM(2020) 456.

[2] SWD(2020) 98 final

1.2 European standardisation organisations

In cooperation with ASD-STAN[3] and other CEN or CENELEC technical committees looking into developments in the electrical power supply and hydrogen supply, one important future prospect is the development of hydrogen or electrical (or hybrid) propelled vehicles.

Activities of CEN-CLC/JTC[4] 5: Current developments and prospects for new Galileo applications - Development of the EN 16803 series standards to support Global Navigation Satellite Systems.

2 Health

The interoperability of ICT-enabled solutions and of data exchange are a precondition for improving public health for all European citizens, for improving the delivery of healthcare services, and for unlocking the EU digital single market in health. This includes ICT solutions to support active and healthy ageing and related data exchange.

Standardisation work can be beneficial to these aims, along with the European Electronic Health Record exchange format, to ensure interoperability, offer secure access, support data infrastructure and facilitate feedback and interaction between patients and healthcare providers.

2.1 Work ongoing in European standardisation organisations

The CEN/TC 251 committee is working towards finalising a technical specification on 'International Patient Summary - Guidelines for European Implementation'. When finalised, it will be submitted to the European Commission, together with the recently published EN 17269:2019 'Health informatics - the international patient summary', as a starting point for potential standardisation work on the prioritised European Electronic Health record Exchange Format, as described in the Commission's Recommendation 'On a European Electronic Health Record exchange format'.

The CEN/TC 251 committee is also working on a technical specification on 'Health and wellness apps - Quality and reliability'. This work is in cooperation with the committee's international counterpart ISO/TC 215. Over recent months, this piece of work has been brought to the attention of the European Commission regarding the EU toolbox for the use of mobile applications for contact tracing and warning in response to the coronavirus pandemic. Draft standards developed by CEN/TC 215 for respiratory equipment is aligned with Regulation (EU) No 2017/745 on medical devices to support European manufacturers in bringing to market products that are safe and clinically effective in supporting patients with respiratory diseases as well as improving long-term health outcomes. As far as possible,

[3] Aerospace and Defence Industries Association of Europe – Standardisation.

[4] Joint Technical Committee.

CEN/TC 215 will carry out this work in cooperation with the ISO/TC 121 committee ‘Anaesthetic and respiratory equipment’.

CEN/TC 450 work on ‘Patient involvement in health care - Minimum requirements for person-centred care’ is an additional work stream relevant to this specific field.

3 Digital

The ICT standardisation needs to support EU policies are outlined in the 2020 edition of the 'Rolling Plan on ICT Standardisation'[5], one of the main deliverables of the multi-stakeholder platform on ICT standardisation. It identifies 165 actions in support of EU policies, including priority areas such as 5G, cloud computing, cybersecurity, big data and the internet of things, which were recognised as the most urgent areas for ICT standardisation work in order to complete the digital single market.

3.1 Work ongoing in European standardisation organisations

Work of the CLC/TC 13 committee on the communication on smart metering;

Work of the CLC/TC 57 committee on the communication on power utilities and distributed energy resources (DER);

Work of the CLC/TC 69X committee on the communication on electrical vehicles;

Work of the CLC/TC 205 committee on the communication on smart buildings, on ontologies in the energy field and on cybersecurity for home automation and building automation systems (HBS/BACS);

Work of the CLC/TC 215 committee on telecommunications networks in houses;

Work of the CEN-CLC/JTC 13 committee on cybersecurity under the CEN-CLC Focus Group 'Artificial Intelligence', notably the 'European standardisation Roadmap for Artificial Intelligence';

Work of the CEN-CLC committee 'Sector Forum Energy Efficiency', working group (WG)[6] on blockchain in the energy sector, which will map needs and gaps and make recommendations for further standardisation development in the energy sector;

Standards developed by the CEN/TC 442 committee supporting digitalisation in the construction sector from the design stage to end-of-life for all built assets. The standards cover the digitalisation of processes and representation of digital twins, buildings, infrastructure and other manmade constructions;

The CEN/TC 442 committee has developed standards that support a digital market for construction products;

Work in the CEN/TC 224 committee on secure and interoperable European breeder documents (EN 17489). This technical committee also formulates several specifications and reports on aspects of biometrics, such as biometric group access control, biometric authentication for critical infrastructure access control, and robustness against biometric presentation attacks;

[5] https://ec.europa.eu/growth/single-market/european-standards/ict-standardisation_en

[6] WG: Working Group.

Work in the CEN/TC 225 committee on RFID in rail on implementing the European Vehicle Number of railway rolling stock in an electronic format;

Work in the CEN-CLC/JTC 13 committee: the JTC is developing a standardised methodology to evaluate the cybersecurity of ICT products, which should support market transparency. The JTC 13 is also working on standards to support implementation of the GDPR by providing standardised approaches for data protection measures and processes. JTC 13 supports the implementation of the EU Cybersecurity act and therefore strengthens the European digital single market regarding cyber-resilience;

Work of the CEN-CLC/JTC 19 committee on 'Identity management in Blockchain';

Work of the CEN-CLC-ETSI CG[7] committee on smart energy grids in the context of the digitalisation of the energy sector:

- Dozens of upcoming standards developed in the IEC with very strong support and cooperation from CENELEC members, to better support smart energy (including power grids, distributed energy resources, network codes, energy services, flexibility) encompassing data models, communication protocols, cybersecurity;
- A new code component policy to give access to machine-readable content to all users.

Work of the CLC/TC 11 committee on data models for overhead lines;

Work of the CLC/TC 13 committee on data models for 'smart metering' and 'smart metering systems and cybersecurity';

Work of the CLC/TC 14 committee on data models for power transformers;

Work of the CLC/TC 17AC committee on data models for switchgear and control gear;

Work of the CLC/TC 57 committee on data models for power utilities and DER and also on power system cybersecurity;

Work of the CLC/TC 65X committee on data models for industrial process and for industrial processes and cybersecurity;

Work of the CLC/TC 69X committee on data models for electrical vehicles;

Work of the CLC/TC 99X committee on data models for power substations;

Work of the CLC/TC 111X committee on data models for materials – the circular economy;

Work of the CLC/TC 205 committee on data models for smart buildings and associated ontologies;

Work of the CEN-CLC/JTC 13 committee on cyber;

[7] CG: Coordination group.

Work of the CLC/TC 205 committee on electronic systems for homes and buildings;

Work of the CEN/TC 310 committee, which currently has two active items ongoing in the field of robotics (developed in cooperation with the ISO/TC 299 robotics committee):

- Revision of EN ISO 10218- 1
- Revision of EN ISO 10218- 2, both of which are candidates for harmonised standards under the Machinery Safety Directive, with publication expected in 2021.

4 Electronics

The electronics ecosystem covers the design and manufacturing of electronic components, semiconductor-starting materials (wafers) and manufacturing tools.

Semiconductor devices capture, generate, process, transfer and act on data. They are key enabling technologies for digitalisation and make a significant contribution to the broader policy objectives of the Green Deal, not only to energy efficiency-enabled solutions.

4.1 Role of standardisation - indicative work

- interoperability with other areas of manufacturing, such as textiles (smart textiles in particular);
- incipient wireless charging technology for mobile phones;
- autonomous driving, setting standards to tackle the potential safety impacts of electronics-enabled vehicles on the road interacting with the environment, infrastructure, other vehicles and humans;
- 6G by setting wireless communication specification standards in particular to support autonomous driving and critical infrastructure operability and security;
- edge computing AI by setting standards to support data processing and storage at device level or closer for specific functions, requiring real-time decision making, and solutions to data privacy, security and energy efficiency issues;
- security, by improving existing standards on hardware-integrated security or setting new standards reflecting at best the EU's GDPR.

4.2 Work ongoing in European standardisation organisations

Work of the CLC/TC 23BX committee on electronic systems (HBES) and sensors for homes and buildings;

Work of the CLC/TC 79 committee on door entry systems;

Work of the CLC/TC 85X committee on measuring equipment;

Work of the CLC/TC 108X & CLC/TC 100X committees linked to HBES and power supplies (USB);

Work of the CLC/TC 205 committee on safety and EMC of HBES/building automation and control systems (BACS) (EN 63044 series);

Work of the CLC/TC 210 committee on electromagnetic compatibility standards encompassing emissions (for radio spectrum protection) and immunity (to ensure continued correct operation of products in the presence of electromagnetic disturbances);

Standards developed by the CEN/TC 442 committee in support of digitalisation in the construction sector, from the design stage to end-of-life for all built assets. The standards cover the digitalisation of processes and representation of digital twins, buildings, infrastructure and other manmade constructions; CEN/TC 442 has developed standards that support a digital marked for construction products. CEN/TC 442 will also deliver standards to support other construction sector CEN technical committees with data structures to ensure the standards support the digitalisation of the construction sector.

5 Mobility-automotive sector

Mobility is the most integrated sector in intra-EU value chains, as almost half of all production (45.3%) relies on cross-border value chains in the single market. It is particularly relevant for the most highly innovative products, such as electric vehicles.

Standardisation work may help bring down emissions and the further integration of innovative solutions, in particular, digital technologies in all modes of transport, in an inter-connected way that increases the efficiency of the transport ecosystem.

5.1 Role of standardisation - indicative work

- facilitate intermodal transport to ensure (a) compatibility between mobile assets and infrastructure/transhipment technologies and (b) interoperability between different modes of transport and its infrastructure;
- calculation of emissions for transport and logistics;
- measures on the cleaning of vehicles and on user behaviour regarding passenger transport in public or shared vehicles;
- passenger transport in public or shared vehicles;
- in-freight transport on general aspects of the logistics value chain;
- train-to-ground communication systems;
- digitalisation and automation, multimodality and mobility as a service for the mobility sector as a whole, and for rail as a central part of it;
- cybersecurity as an essential element to ensure the resilience of the mobility system;
- the European rail traffic management system and the (5G-based) automatic train operation, future railway mobile communication system, as well as modular architecture and integrated traffic management for the system;
- digital automatic couplers for freight wagons and innovative solutions for intermodal and combined transport;
- virtual certification (e.g. the use of simulations for the authorisation process);
- condition-based maintenance, and the use of new materials and alternative fuels (batteries, hydrogen and fuel cells, etc.).

5.2 International aspects

There is an opportunity to engage with countries in Africa on standardisation in the railway sector in order to support the EU's industry. This work strand should focus on the use of common technical standards and other interoperability aspects and support the uptake of EU technical specifications. Inter-modality and the expansion of railway networks are important if Africa is to develop a modern transport system that responds to climate change imperatives. In particular, rail connections to ports are strategically important. Currently, no integrated system is in place in the Sub-Saharan region, hindering economic development, the stability of the region and the increase of intra-regional trade. For a multi-state rail system to function, work should focus on the use of common technical standards and other aspects of interoperability.

There is also an opportunity to engage with African countries on standardisation in the automotive industry. Africa is an important market for car dismantling and for the re-use of raw materials. Africa is endowed with critical minerals and raw materials needed to produce batteries and other components essential to producing more sustainable vehicles in the EU (notably: lithium, graphite, platinum, natural graphite). The EU calls for responsible sourcing of these materials, and faces strong competition from other trading partners.

5.3 Work ongoing in European standardisation organisations

The CEN/TC 301 committee is currently planning the revision of the Repair and Maintenance (RMI) package standards in the light of the impact of Regulation (EU) 2018/858. In parallel, the CEN/TC 301 and CLC/TC 9X committees are working on the draft standardisation request on batteries and on how they could contribute to new deliverables under this framework. Finally, CEN/TC 301 is also addressing vehicle-to-grid communication for road vehicles and implementing the Commission standardisation request on alternative fuels infrastructure[8].

Deliverables in the CEN/TC 326 committee will include workshops for natural gas vehicles fuelled with compressed natural gas (CNG) (revision of EN 13423:2000 'CNG vehicle operations') and with liquefied natural gas (LNG);

Work of the CEN-CLC/JTC 14 committee: revision of EN 16247-4 'Energy audits: transports';

Work of the CEN-CLC Sector Forum on energy efficiency - energy transition, working group on hydrogen, that will address the requirements and needs for hydrogen applications in the rail, maritime (including inland navigation), heavy truck and aviation sectors;

The CEN/TC 119 committee is currently exploring and debating an ambitious revision of the European swap bodies standards for intermodal loading units. This initiative could feed in technical requirements to the project to revise the Combined Transport Directive in the

[8] COMMISSION IMPLEMENTING DECISION C(2015) 1330 final of 12.3.2015 on a standardisation request addressed to the European standardisation organisations, in accordance with Regulation (EU) No 1025/2012 of the European Parliament and of the Council, to draft European standards for alternative fuels infrastructure.

context of the Green Deal. Regarding road freight transport, the railway sector is also active on freight standards;

The CEN/TC 256 and the CLC/TC 9X committees, notably (but not only) in the context of interoperability, are developing standards to facilitate the shift of freight transport from road to rail;

The CEN/TC 326 committee will address safety requirements for the transport and delivery of LNG as automotive fuel (two strands of work to prepare electrostatic discharge (ESD) and connectors for LNG tanker truck, terminal and fuelling stations);

Work of the CEN-CLC/JTC 14 committee to revise EN 16247-4 'Energy audits: transports';

The work of CEN-CLC Sector Forum on energy efficiency and the energy transition, and the working group on hydrogen will address the requirements and needs for hydrogen applications in the rail, maritime (including inland navigation), heavy trucking and the aviation sectors.

6 Low-carbon energy-intensive industries

Standardisation work can support the significant reduction of emissions of energy-intensive industries by applying innovative methods that maintain a high level of competitiveness, such as methods that reduce the EU's dependency on critical raw materials that are crucial for e-mobility, batteries, renewable energies, pharmaceuticals, aerospace, defence and digital applications.

Recycling plastics is key to complement the circular economy and to reduce pollution, both being instrumental for the transition to a low-carbon economy. Standards in these areas can support the recyclability of plastic products, the quality of sorted plastic waste and the integration of recycled plastics per product category or market segment.

6.1 Work ongoing in European standardisation organisations

The CEN/TC 12 committee will work on the 'lower carbon standardisation agenda' in the context of materials, equipment and offshore structures for the petroleum, petrochemical and natural gas industries. This will include, for example, work in the ad hoc group on green manufacturing covering aspects of circularity (the R-ladder[9]) and reducing the carbon footprint. It should cover the following areas of work: power generation; energy optimisation; flares and vents; reliability; drilling; carbon capture, utilisation and storage; and hydrogen;

The CEN technical report on the assessment of methane emission in gas transmission and distribution systems, under the leadership of CEN/TC 234, also as part of standardisation

[9] The waste hierarchy concept, known as 'Lansink's Ladder': waste prevention, reuse, recycling, recovery including energy recovery, and safe disposal.

work to assess methane emissions throughout the entire supply chain of the oil and gas sectors;

The CEN-CLC/JTC 14 committee will work on the revision of EN 16325 ‘Guarantees of origin related to energy; guarantee of origin for electricity’ to take into account the requirements under Article 19 of Directive 2018/2001 (hydrogen, biomethane and other gases, heating and cooling); preEN[10] 17463 methodology for the valuation of energy-related investment and the revision of EN 16247-3 on ‘Energy audits: processes’.

[10] preEN: draft European standard.

7 Renewable energy

The European Commission's policy framework for climate and energy for 2020 to 2030 (COM/2014/015) highlights the important role of renewable energy in the transition towards a more competitive, secure and sustainable European energy system. The rapid deployment of renewable energy already poses challenges for the electricity system in particular, as it needs to adapt to increasingly decentralised and variable production (solar and wind). Moreover, most renewables development in the EU is driven by national support schemes, which although it can address national and regional specificities can at the same time hinder market integration and reduce cost-efficiency.

Standards may provide the solutions needed to adapt the electricity system to increasingly decentralised and variable production and to provide European solutions replacing national and regional specificities.

7.1 Work ongoing in European standardisation organisations

Work of the CLC/TC 23BX committee on HBES products;

Work of the CLC/TC 23H and CLC/TC 69X committees on EV[11]charging;

Work of the CLC/TC 57 committees on data models for hydro power plants and distributed energy resources (Genset[12], generation aggregation, CHP[13], …);

Work of the CLC/TC 85X committees on measurement equipment;

Work of the CLC/TC 88 committees on wind farms and wind turbines including data models;

Work of the CLC/TC 205 committees on HBES - Customer energy manager, "Smart Appliances REFerence" (SAREF) - data models for distributed energy resources in smart buildings' and associated ontologies;

Work of the CEN-CLC/JTC 14 committee on the revision of EN 16325 'Guarantees of origin related to energy. Guarantee of origin for electricity': to take into account the requirement of Article 19 of the 2018/2001 Directive - preEN 17463 methodology for the valuation of energy-related investment - Revision of EN 16247-3 'Energy audits: processes';

As part of the work on M/547[14] [C(2016)1582 of 23.3.2016 on algae and algae-based products or intermediates], CEN/TC 454 will finalise several standards and technical reports in 2021;

[11] Electric vehicles.

[12] Refers to an equipment whose function is to convert heat capacity into mechanical energy and then into electrical energy.

[13] Combined heat and power.

[14] M: Mandate (standardisation request).

Work of the CEN-CLC SF[15] committee on 'Energy efficiency-energy transition' and the working group on energy storage, which covers the requirements and needs on energy storage, including electrical storage;

Work of the CEN-CLC-ETSI CG on 'smart energy grids': standardisation assessment to support the clean energy package - standards to better support renewable energy;

Work of CLC/SR[16] 23 on energy self-consumption;

Work of the CLC/TC 23E committee on the protection of photovoltaics;

Work of CLC/SR 23K on load shedding and source-switching equipment;

CLC/TC 45AX will focus work on the publication of cybersecurity standards for nuclear power plants (NPP) (EN 62645 and EN 62859), on the publication of EMC standard (EN 62003), on the publication of seismic qualification standard (EN 60980-344) and on the publication of standards for NPP electric power systems (EN 63046);

Work of the CLC/TC 57 committee on power utilities systems, including hydro power plants and distributed energy resources (photovoltaics, Genset, fuel cells, generation aggregation, CHP) and demand response;

Work of the CLC/TC 82 committee on photovoltaics;

Work of the CLC/SR 120 secretariat on electrical energy storage systems;

Work of the CLC/TC 205 committee on data models for distributed energy resources in smart buildings and associated ontologies;

In the field of batteries and windmills, work will include draft ancillary action on material-efficient recycling and preparation for re-use, which also covers waste batteries, PV panels and windmills, which the European Commission is finalising in cooperation with CEN/CENELEC.

Work of the CEN/TC 234 committee includes:

- CEN/TR[17] on the acceptance of hydrogen (if accepted at all and how much in percentage) for the entire natural gas infrastructure;
- draft CEN/TR 'Consequences of hydrogen in natural gas infrastructure and identifying the needs for related standardisation under the scope of CEN/TC 234', enabling the use of hydrogen/natural gas admixtures and conversion into hydrogen infrastructure;
- work item on the conversion of natural gas pipelines into hydrogen pipelines to create a hydrogen infrastructure for Europe and the revision of gas infrastructure standards;
- a series of draft standards for the injection of renewable and decarbonised gases (including hydrogen and biomethane) into natural gas infrastructure;

[15] SF: Sector forum.

[16] SR: Reporting secretariats.

[17] TR: Technical report.

- non-discriminative integration of biomethane and SNG for all-natural gas grids, and biomethane to become a generally accepted second-family gas (CEN/TC 234 / CEN/TC 408);

Work of the CEN/TC 282 committee to create of an ad hoc group to investigate the need for standardisation in the future industry of liquefied hydrogen;

In the field of biogas production, the CEN/TC 408 committee will mirror the work carried out on different methods of production under ISO/TC 255 'Biogas': (i) domestic methanisation (ISO/FDIS 23590, household biogas system requirements), (ii) non-domestic methanisation (ISO/DIS 24252, biogas systems, non-household and non-gasification) and (iii) gasification and methanation (ISO/AWI 23898, gasification systems for bio-syngas and biomethane production);

Pre-normative research will be carried out to remove the technical barriers to developing biomethane (impact on heavy duty vehicles, industrial boilers, underground storage facilities, steel fuel tanks), under the remit of CEN/TC 408;

Work of the CEN-CLC/JTC 6 committee: CEN/TR on guidance for the safe use of hydrogen in built constructions – assessment of all standards developed by ISO/TC 197 for conversion into ENs;

The work of the CEN-CLC sector forum on energy efficiency and the energy transition, including the working group on hydrogen will cover the requirements and needs related to power to gas, and pure hydrogen from production from renewables to injection, to the natural gas grid or H2 pure applications.

8 Agri-food

In the framework of the European Green Deal (COM/2019/640) and the Farm to-Fork strategy (COM/2020/381), the European Commission announced action to revise EU marketing standards for agricultural, fishery and aquaculture products to ensure the uptake and supply of sustainable products, to explore a shift towards sustainability. This would mean, in principle, adding a layer of purpose as marketing standards have so far been mainly used in the direct interest of consumers and producers of the products concerned and relate to quality expectations and fair competition.

It is important that, if any standardisation initiative is carried out in the agri-food ecosystem, it should consider sustainability as defined in the European Green Deal (COM/2019/640) and the Farm-to-Fork strategy (COM/2020/381), i.e. that it includes economic, environmental and social dimensions. This should mean paying particular attention to the position of farmers in the food chain i.e. assessing the impact of agro-industrial standards on farmers.

8.1 Work ongoing in European standardisation organisations

CEN has received a mandate to draft harmonised standards in support of Regulation (EU) 2019/1009 for EU fertilising products, through standardisation request M/564. To provide the market with the means to claim proof of compliance, technical specifications followed by harmonised European standards (hENs) will be developed by CEN/TC 223, CEN/TC 260 and CEN/TC 455. Under M/564, an important part of the standardisation work is on products from recycled or organic material to promote the development of a circular economy and a more resource-efficient use of nutrients;

CEN/TC 144 has identified two work items related to environment requirements for plant production products applied as dust or granules, which should be processed later on in 2021;

CEN/TC 310 is also highly relevant within the fast emerging agri-tech and vertical farming and within traditional farming sectors. It is covered in the work carried out at ISO and IEC level;

Work of the CEN/TC 275 committee to support Regulation (EC) No 882/2004: currently, new standards are drafted or planned regarding the identification/detection of

(i) pesticide residues, polar pesticides such as glyphosate, pesticides in matrices of animal origin, pesticides by high resolution mass spectrometry;
(ii) biotoxins (under M/520), e.g. FprEN[18] 17424 (aflatoxins in spices), FprEN 17425 (ergot alkaloids in cereals and cereal products), prEN 17521 (Alternaria toxins in tomato, wheat, sunflower seeds);
(iii) irradiated food, e.g. prEN 13708 (food containing crystalline sugar), prEN 1787 (food containing cellulose);
(iv) elements and their chemical species (WI00275368); and
(v) allergens (liquid chromatography mass spectrometric method);

The CEN/TC 460 committee will work on new standards for food authenticity, including methods for fish, bivalves, mammals, birds, crustaceans, coffee, honey and their derived products. Depending on the needs, future projects may focus on plants, basmati rice, vinegar, wheat and tuna.

9 Construction

Upgrading building equipment (i.e. lights, lifts, doors etc.) with energy-efficient construction and other products will have a significant impact on the energy consumption of residential and non-residential buildings.

[18] FprEN: Draft European standard for formal vote.

Standardisation work may support the placing on the market of the products needed to achieve this objective, thus creating new investment opportunities in the construction ecosystem.

9.1 International dimension

The programme ASIA SWITCH[19] supports sustainable consumption and production for inclusive and sustainable growth, contributing to economic prosperity, poverty reduction and the green economy in Asia and Central Asia. For the ecosystem of construction, recycling and the re-use of construction products, and in the green economy, it involves promoting sustainable buildings, trade in legally produced timber, and preventing illegal products from reaching the EU.

9.2 Work on going in European standardisation organisations

Standards will be developed covering methods and criteria for construction products in relation to their performance. These standards, intended to be harmonised in support of the CPR[20], will contribute to the placing of construction products on the European market. In relation to the 'Renovation wave' initiative and the new 'Circular economy action plan', CEN/TC 350 provides, through EN 15804:2019, a cross-cutting assessment method for the sustainability performance of construction products that are in line with the common European approach for life-cycle calculation in the construction sector, enabling the use of data in building level assessments. This will allow a good functioning of the internal market of these products and will reward technological research and innovation to support the renovation and construction of highly energy-efficient buildings, using a performance-based approach.

CEN/TC 250 work: 59 Structural Eurocodes parts, providing rules governing the principles of design, work on structures, geotechnical design and structural design rules for the use of all major materials such as concrete, steel, composite steel and concrete, timber, masonry, and aluminium. These are under revision and will be prepared in reply to standardisation request M/515.

CEN/TC 312 & CEN/TC 113 work: bringing together work on different heating technologies to achieve a quick, fair, economic and sustainable transition in the heating and cooling sector;

Work of the CEN-CLC/JTC 14 committee includes:

(i) revision of EN 16325 'Guarantees of origin related to energy' to take into account the requirement of Article 19 of Directive 2018/2001 (hydrogen, biomethane and other gases, heating and cooling);

[19] https://www.switch-asia.eu/partners/dg-devco/

[20] CPR: The Construction Products Regulation [(EU) No 305/2011] lays down harmonised rules for the marketing of construction products in the EU. The Regulation provides a common technical language to assess the performance of construction products. It ensures that reliable information is available to professionals, public authorities, and consumers, so they can compare the performance of products from different manufacturers in different countries.

(ii) prEN 17463 methodology for the valuation of energy-related investment
(iii) prEN energy performance contracting – minimum requirements and
(iv) revision of EN 16247-1 and 2 'Energy audits – general and buildings;

CWA[21] from CEN/WS 107 – Mitigating urban heat island effects using cool materials;

CEN/TC 442 standards that support digitalisation in the construction sector from the design phase to end-of-life, and for all built assets. The standards cover the digitalisation of processes and the representation of digital twins, buildings, infrastructure and other manmade constructions. CEN/TC 442 has developed standards that support a digital market for construction products. In relation to the 'Renovation wave' initiative, the CEN/TC 169 committee will work on the revision of EN 12464-1 on installed lighting.

[21] CEN workshop agreement.

10 Tourism

The industry with the least favourable outlook under the COVID-19 crisis is tourism. Tourism is a major industry in a large number of Member States and regions. It also relies heavily on other sectors such as cultural heritage and digital. Innovative, remote digital experiences of cultural heritage can bring more visitors to lesser-known places, thus contributing to more balanced tourist flows and to increasing sustainability in the tourism sector. Some regions are completely dependent on the pull of attraction of local cultural heritage sites. Providing a digital experience of these sites can amplify and further project their appeal to potential visitors.

10.1 Work ongoing in European standardisation organisations

The CEN/TC 329 committee will carefully monitor action taken at ISO level and new projects under ISO/TC 228 'Tourism and related services' for potential adoption at European level.

11 Creative and cultural industries

Digital technologies have helped many cultural heritage institutions maintain engagement with existing customers and even to attract and connect with new customers. This demonstrates the importance of investing in digitisation and digital transformation in the cultural heritage sector, to boost the sector's resilience, recovery and sustainability.

The benefits will also spill over into other areas that rely on cultural heritage, in particular tourism and the cultural and creative industries.

11.1 Role of standardisation - indicative work

- common standards, methodologies and guidelines for comprehensive, holistic 3D documentation of European cultural heritage assets;
- 3D standards and guidelines to ensure the re-use of content, interoperability, online access and the long-term preservation and study of cultural heritage data.

11.2 Work ongoing in European standardisation organisations

Work of the CEN/TC 433 committee on safety and on a code of practice for theatres, productions and other cultural events;

Work of the CEN/TC 457 committee regarding the long-term preservation of digital cinematography works, notably the development of a prEN on a 'Framework for the digital preservation of cinematographic works - the CEN Preservation Package'.

12 Textiles

The textile industry includes textiles, clothing, leather and footwear.

12.1 Role of standardisation - indicative work

- ensure a uniform assessment of textile product properties and performance not related to EU legislative requirements;
- support eco-design measures to ensure that textile products are in line with the principles of the circular economy, ensuring the uptake of secondary raw materials and tackling the presence of hazardous chemicals;
- smart textiles ensuring protection against heat and flames;
- leather authenticity.

12.2 International dimension

There is the need, especially in Asia, to integrate the principles of sustainability, and to promote sustainable, transparent and inclusive value chains and responsible purchasing practices.

12.3 Work ongoing in European standardisation organisations

New work item proposals under CEN/TC 248 (and its ISO mirror committee ISO/TC 38 'Textiles') to identify micro-plastics from textile sources to achieve a better understanding of sources of (micro-)plastics (part one under the lead of CEN; part two under the lead of ISO):

(i) EN (ISO) 4484-1, Textiles and textile products – Micro-plastics from textile sources - Part 1: Assessing fibre loss from fabrics during washing
(ii) (EN) ISO 4484-2, Textiles and textile products – Micro-plastics from textile sources - Part 2: Qualitative and quantitative evaluation of micro-plastics

Recycling, especially of clothing, requires standardisation work, which is progressing on the:

(i) Re-use of used clothing
(ii) Use of fibres from used material for non-woven products
(iii) Use of fibres from used material to recycle into yarn

13 Retail

There are wide variations in the retail industry, depending on the type of organisations (multinationals, small businesses) and the type of products sold (food, clothes, home devices, etc.) but overall, this industry stands to benefit by embracing digital technologies. Further

developments to postal services and the combination of e-commerce with retail/wholesale points will have a significant impact on the sector.

13.1 Role of standardisation - indicative work

- interoperability between national postal networks;
- quality of service necessary for an efficient European universal service;
- package-labelling specifications, such as bar codes and radio frequency identification (RFID) for retail and consumer goods.

13.2 Work ongoing in European standardisation organisations

Work of the CEN/TC 331 committee on 'Postal services';

Work of the CEN/TC 261 committee on 'Packaging';

Work of the CEN/TC 368 committee on 'Product identification';

Work of the CEN/TC 263 committee on 'Secure storage of cash, valuables and data media'.

14 Proximity and the social economy

Social enterprises, associations and cooperatives provide services to communities such as integrating disadvantaged people into the labour market or providing health, social or educational services.

14.1 Role of standardisation - indicative work

Accessibility for people with a disability or with reduced mobility.

14.2 Work ongoing in European standardisation organisations

Work in the CEN/TC 442 committee, which coordinates digitalisation across the construction sector. Technical equipment supporting AHA[22] policies should be an integrated part of the digital representation of the built environment;

Work in the CEN/TC 452 committee, whose priority is to publish European standards for assistance dog training that will result in consistent and high quality training of assistance dogs (both guidance and assistance skills). This will secure and maintain the freedom of movement for assistance dog users, both within and between European countries. The European standard applicable to assistance dog training will improve the functioning of the internal market for accessible products and services and will undoubtedly support the European Accessibility Act by removing barriers created by divergent legislation;

[22] Active and healthy ageing.

Work of the CEN/TC 325 committee, which is defining a European standard setting out requirements and guidance for management listing 15 crime prevention strategies, guidelines and information for different types of urban environments, including an overview of measures, which is therefore the main European standard in the field of urban crime prevention. This is particularly suitable for planning environments and buildings in terms of safety criteria.

Work of the CEN-CENELEC-ETSI joint working group on eAccessibility, which defines the accessibility requirements of ICT products and services. Its key document, EN 301 549, covers digital access issues that are indispensable to all EU citizens. It supports the Web-Accessibility Directive and it is expected to support the European Accessibility Act.

Work of the CEN/CLC/JTC 11 committee, which defines the basic functional accessibility requirements of the built environment. It will provide technical specifications and criteria on conformity assessments on various aspects of accessibility.

Work of CEN/BT/WG 213 Strategic Advisory Group on Accessibility to provide recommendations to this aim.

Section B: High-focus technology areas for ETSI and their contribution to industrial sectors

1 Mobility (contributing to health, digital, mobility-automotive, aerospace & defence and the electronics sectors)

The 5G ecosystem

The standardisation work on 5G is increasingly responsive to the needs of new players in the mobile ecosystem. Designed around the pillars of enhanced mobile broadband, massive machine-type connectivity and ultra-reliable, low latency communications, the impact of 5G will extend far beyond conventional cellular applications to smart cities, critical communications and industrial ‘internet of things’ users to broadcast and satellite providers. One sector already seeing significant progress in standardisation work is transport, with use cases for vehicle-to-everything (V2X), future railways, maritime communications and unmanned aerial vehicles.

Radio, wireless and spectrum use

The activities of ETSI in the fields of radio, wireless and spectrum use relevant for mobility include work on:

- production of harmonised standards for the radio equipment directive;
- digital TV and audio; technical specifications for DMR systems;

- wideband and ultra-wideband transmission systems;
- short-range devices for all kind of deployment scenarios in private and industrial environments;
- ultra-low power active medical membrane implants and peripherals, ultra-low power animal implantable devices and associated peripherals;
- standards and specifications for aeronautics, for marine radar; positioning systems and survival location devices; digital selective calling; and inland waterways navigation radar;
- ITS receiver requirements and co-channel co-existence between ITS-G5 and LTE-V2X;
- transport and traffic telematics and dedicated short-range communications;
- reconfigurable radio systems, including reconfigurable equipment architecture, cognitive radio and multi-part specification on licensed shared access;
- standards and specifications for current and future broadband wireless access and radio local area network (RLAN) technologies in different frequency ranges;
- standards covering all aspects of satellite earth station terminals, as with GALILEO;
- regulatory standards supporting the deployment of GSM, UMTS, LTE, NB-IoT and 5G NR networks in Europe;
- millimetre wave transmission (mWT), report on fixed-service frequency ranges above 174.8 GHz; on wireless backhaul/X-haul network and services automation wireless backhaul SDN, White Paper on E-band (71-76 and 81-86 GHz) worldwide deployments and regulatory status;
- multi-access edge computing.

2 Connecting things and adding intelligence (contributing to health, digital, and mobility-automotive sectors)

ETSI's standardisation work related to the increasing number of connected devices and advancement of artificial intelligence use cases includes work in the following areas:

- IoT and M2M (machine-to-machine) communications, the foundation for smart devices, connected appliances, homes and cities;
- context information management;
- e-Health and body area networks;
- network functions virtualisation and open source MANO;

- non-IP networking, to try and overcome the challenges posed by the limits of decades-old TCP/IP networking;
- experiential networked intelligence;
- 5th generation fixed networks;
- zero-touch network management;
- the transition to IPv6.

3 Safe and planet-friendly mobility (contributing to digital, mobility-automotive, aerospace & defence, and the construction sectors)

The overarching goal is to make transport networks (road, rail, aeronautical and maritime transport, and the use of satellite communications) safer and more reliable while reducing energy consumption. Therefore, this aspect of ETSI work is especially relevant to the green transition. It includes work on:

- intelligent transport systems;
- radio spectrum for road transport services;
- aviation, especially the development and revision of harmonised standards governing communications, navigation and surveillance equipment under the RED; the development of EU specifications/norms for the presumption of conformity with essential requirements (e.g. ATM/ANS) as under Regulation (EU) 2018/1139 in coordination with EASA; and the development of DataLink, a key pillar in the Single European Sky and SESAR (Single European Sky ATM research);
- railways, including urban rail ITS & road ITS applications in the 5.9 GHz band, with a further study of the main detection methods;
- maritime, including work on a European common information sharing environment service and a data model.

4 Giving everyone a clearer picture (contributing to the digital, creative & cultural industries, and to the proximity & social economy sectors)

This area of work includes specifying technologies that are used globally for radio, television and data broadcasting. Specifications cover services delivered via cable, satellite and

terrestrial transmitters, as well as by internet and mobile communication systems, together with associated fields such as ultra-high definition and interactive television, in particular:

- broadcasting in a joint technical committee that brings us together with the European Broadcasting Union and the European Committee for Electrotechnical Standardization (CENELEC);
- spectrum for broadcast and content creation;
- media quality, producing standards relating to terminals and networks for speech and media quality, end-to-end media transmission performance, quality of service parameters for networks and services and quality of experience descriptors and methods;
- Augmented reality, which mixes real-time, spatially registered digital content with the real world to enable context-rich user experiences. ETSI's Industry Specification Group on the augmented reality framework is working on a framework for the interoperability of augmented reality components, systems and services.

5 The Green Deal and inclusiveness (contributing to the digital, proximity & social economy sectors)

In addition to ensuring energy efficiency is built into all standards ETSI produces (a growing demand from market players), ETSI also provides specific standards to make products and services safer, simpler to use and more (energy) efficient. Identifying energy efficiency solutions that mitigate the impact on climate change of the growing use of information and communications technologies. Much of ETSI's work in this area supports European Commission policies, regulation and legislation on eco-design aspects, carried out in liaison with CENELEC. To meet the ultimate goal of ensuring that ICT improves the quality of life for all, this involves work on:

- enabling energy efficiency, including managing multiple engineering aspects of telecommunication equipment in different types of installations. These include climatic, thermal and other environmental conditions; physical requirements of equipment racks and cabinets; power supplies and grounding;
- developing standards to support EC Mandate M/462 on efficient energy use in fixed and mobile information and communication networks;

- measurement methods for the energy efficiency of ICT equipment (with a focus on 5G); standardisation of eco-design and circular economy requirements, and energy-aware networking measurement methods;
- sustainable networks, working to minimise power consumption and the greenhouse gas emissions of infrastructure, utilities, equipment and software within ICT networks and sites such as data centres and central offices;
- usable ICT for all, working jointly with groups inside and outside ETSI to assist in the production of standards and other deliverables in accordance with good ‘human factors’ practice. Within ETSI, the human factors committee has a special responsibility for 'Design for All', to include users such as young children, seniors and people with disabilities;
- safety, monitoring developments in electromagnetic fields, electrical safety and safety in cable television systems. The work is carried out in liaison with other European and international standards organisations in order to formulate, where possible, globally applicable standards for telecommunications equipment safety and avoid duplicating work.