SOCIAL MEDIA AND CONVERGENCE COMPACT

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COMPACT: FROM RESEARCH TO POLICY THROUGH RAISING AWARENESS OF THE STATE OF THE ART ON SOCIAL MEDIA AND CONVERGENCE

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SOCIAL MEDIA CONVERGENCE IN THE EUROPEAN (PRE)STANDARDIZATION POLICY IMPACT ASSESSMENT AND STAKEHOLDERS' COORDINATION

Deliverable D 3.2

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SOCIAL MEDIA CONVERGENCE IN THE EUROPEAN (PRE)STANDARDIZATION POLICY IMPACT ASSESSMENT AND STAKEHOLDERS' COORDINATION

Deliverable D 3.2

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EXECUTIVE SUMMARY

This extensive report on -EU Member States Progress/Focus in/at policy/pre-standardisation initiatives and Stakeholder's coordination – Situational Report in (pre)standardization initiatives, started as an exercise that was supposed to provide a brief overview into (pre)standardization developments in the area of social media convergence, and to further contribute with a brief situational policy report on stakeholder coordination within EU 27 and some additional countries. With the structured change of focus of research to Standard Developing Organizations and their interrelationship (i.e. national-regional-international) it provides in depth insight into: i) Progress in implementation of EU standardization policies; ii) Strengths and weaknesses of national, regional and international (pre)standardization organizational setting; iii) European digital industry position in global context; iv) Distance from ethical universalism principle of equal power share in samples of standardization bodies at all levels; v) Participation, engagement and representation of SMEs in standardization processes in the digital industry (i.e. inclusiveness of the process), and finally challenges that the European economic space faces from the fact that the European industry combined is no match to US private sector dominance in W3C that may decide the future of economies. This intriguing research paper is going beyond boundaries established by existing research in the field, and analyses cross-impact of the strengths/weaknesses in implementation of EU Standardization policies on the industry developments per se. While it represents a first step in this area, we expect that this report may trigger many future research endeavours.

LIST OF ABBREVIATIONS

ACEA	European Automobile Manufacturers' Association
AENOR	Asociación Española de Normalización y Certificación
AFNOR	Association française de normalisation
AFP	Agence France-Presse
AGCOM	Autorità per le Garanzie nelle Comunicazioni
ANEC	European Association for the Co-ordination of Consumer Representation in Standardisation
ANTICORRP	Anticorruption Policies Revisited: Global Trends and European Responses to the Challenge of Corruption
API	Application Programming Interface
ASI	Austrian Standards Institute
ASRO	Asociatia de Standardizare din România
BKM	Beauftragte der Bundesregierung für Kultur und Medien
BSI	British Standards Institution
CCMC	CEN/CENELEC Management Centre
CEN	European Commitee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CEPT	European Conference of Postal and Telecommunications Administrations
CIA	Cross-Impact Analysis
CLC	CENELEC
CSCG	Cyber Security Focus Group
CSCG Member Bodies	MBs
CSS	Cascading Style Sheets
CTN	Technical Standardisation Committee
CUNY	City University of New York
CWA	CEN Workshop Agreement
CYS	Cyprus Organization for Standardization
DG CONNECT	Directorate-General for Communications Networks, Content and Technology
DG GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
DG HOME	Directorate-General for Migration and Home Affairs
DIN	Deutsches Institut für Normung e.V.
dpa	Deutsche Presse-Agentur
EC	European Commission
EDA	European Defence Agency

EFTA	European Free Trade Association
EJN	Ethical Journalism Network
EN	European Standard
ENISA	European Network and Information Security Agency
ESO	European Standardization Organization
ESS	European Standardization System
ETSI	European Telecommunications Standards Institute
EU	European Union
Europe 34	34 countries in Europe (AUSTRIA, BELGIUM, BULGARIA, CROATIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, NORTH MACEDONIA, NORWAY, POLAND, PORTUGAL, ROMANIA, SERBIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, TURKEY, UNITED KINGDOM)
FPU	Free Press Unlimited
FRAND	Fair, Reasonable and Non-Discriminatory
FTP	File Transfer Protocol
GDI	Global Disinformation Index
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
ICT	Information and Communication Technology
IEC	International Electrotechnical Commission
IMPRESS	Independent Monitor for the Press
IoT	Internet of Things
ISO	International Organization for Standardization
ITU	International Telecommunication Union
ITU-T	ITU's Telecommunication Standardization Sector
JAK	Journalists Association of South Korea
JRC	Joint Research Centre of the European Commission
JTC	Joint Technical Committee
JTI	Journalism Trust Indicators / Journalism Trust Initiative
MS	Member States
NEN	Netherlands Standardization Institute
NGO	Non-Governmental Organization
NK	Norsk Rikskringkasting

OECD	Organisation for Economic Co-operation and Development
P2P	Peer to Peer
PKN	Polish Committee for Standardization
RSF	Reporters Without Borders
SDOs	Standards Developing Organizations
SEP	Standard Essential Patents
SIS	Swedish Standards Institute
SN	Standards Norway
SPJ	Society of Professional Journalists
SUTN	Slovak Standards Institute
SVG	Scalable Vector Graphics
TC	Technical Committee
THD	Digital Enabling Technologies
TR	Technical Specification
TS	Technical Specification
UNE	Spanish Association for Standardization
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNI	Ente Nazionale Italiano di Unificazione
UNMZ	Czech Office for Standards, Metrology and Testing
VGTRK	All-Russia State Television and Radio Broadcasting Company
VoIP	Voice over Internet Protocol
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines
WOFF	Web Open Font Format
WP	Working Package
WS	Workshop
WWW	World Wide Web
XML	eXtensible Markup Language

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1. INTRODUCTION

Please note: This deliverable represents combined document on forecasted two reports D.3.2 and D.3.3.

Within the overall objective of COMPACT project to raise the awareness of contemporary technological discoveries among the principal contributors in the context of social media and convergence, the Working Package 3 (WP3), and consequently this overview, aimed at providing information, analysis and development of pre-standardisation initiatives and the cross-interplay between different stakeholders. Originally the Working Package 3 was envisaged as a construct of three logical blocks (research deliverables): 3.1 - Categories of pre-standardization initiatives defining the scope of the research and its potential constraints; 3.2 – EU Member States Progress/Focus in/at policy pre-standardization initiatives; and 3.3 – The report on the stakeholders' coordination. Broad areas of research were established within each research span in order to allow for flexibility once the results of the research are available in each of the interdependent research blocks. As presented in Table 1 and Table 2 below it was anticipated that the research in the spans marked as 3.2 and 3.3 would cover two sets of agendas (sub-topic packages):

Table 1: WP 3.2 - EU Member States Progress/Focus in/at policy pre-standardization initiatives – Research Sub Areas

Architectural Issues	Streaming Content, Content Aware Routing	Content Aware Networks & Caching
Searching & Retrieval	3D coding, representation and rendering	New Media Experience

Table 2: WP 3.3 - A compendium on pre-standardization initiatives within the EU (+ selected non-EU countries) focused on Social Media and Convergence – Research Sub Areas

Multi viewpoint coding	Streaming Content	Content aware networks	Architectures for massive content distribution	Content searching, finding & retrieval	Architectures for converged networking
Content aware routing	Content Filtering, aggregation	Storage, caching, repositories	Architectures for 3D augmented worlds	Contextual based Searching	Rendering of complex scenes
3D content representation	Beyond HDTV /electronic cinema	Quality of experience	Optimised searching	Social Networking	

Within two frameworks, the stance of COMPACT project leaders was that subjects of the research within categories of pre-standardization and standardization (i.e. within areas and sub-areas of the research) would be examined from the standpoint of good governance and excellence. However, it ought to be noted that within the context of good governance, neither the project in its entirety nor WP 3 were envisaged to engage in in-depth theoretical discussions between conceptual thinking in the areas that it encompasses. For instance, we are not engaging in discussions whether governance standards (including the technological ones) represent "standards as an extension of politics beyond territory" (Pena, 2014), but rather we are accepting that the quality of governance in the process of

adopting a standard may be the decisive factor in the quality of standards adopted, thus reflecting on the potential of every economy and every industry where such a standard is enforced. The COPMPACT approach in assessing governance standards is predicated on the principle that freedom, diversity and pluralism are the predominant values of Europe, including all of the 34 countries covered by this research (on values of Liberal pluralism see also Lebeck, 2005)[1], thus requiring that these fundamental values are reflected in our assessment methodology.

Within the project a two-level quality assessment on stakeholders' coordination was proposed i) effectiveness, and ii) efficiency of processes within each coordination body. In order to standardize the approach, WP 3 applied the guiding principles adopted by OECD (The Organisation for Economic Co-operation and Development) whereby good governance comprises - accountability, transparency, efficiency, effectiveness, and responsiveness[2]. Ultimately, WP 3 added integrity, participation and representation as the elements to direct the assessment, as these broad concepts are in an immediate correlation with the accountability and transparency concepts. WP 3.1 – Categories of (pre)standardization initiatives, defined 5 standard developing organizations that are possibly relevant for observation in further research: i) The European Committee for Standardization (CEN); ii) European Telecommunications Standards Organization (ETSI); iii) International Organization for Standardization (ISO); iv) International Electrotechnics Commission (IEC); and v) The World Wide Web Consortium (W3C). However, as the preliminary research exposed complexity of progress in the adoption of standards relevant for our research, in order to deter the occurrence of such findings which would produce reports that state "there is no progress" and would further conclude that „there shall be progress", our course of research was accordingly adjusted. In order to obtain a comprehensive overview over the achieved progress in targeted standards, and stakeholders' coordination report that directly reflects on these processes, envisaged deliverables 3.2 and 3.3 were combined in this comprehensive report on (pre)standardization initiatives and stakeholders' coordination under a joint title and as a single document under deliverable 3.2. Simultaneously, as added value for the COMPACT project, we engaged in developing a study on socio-economic and political impact of the legacy media and social media convergence that reflects on cross-impact between different processes that became a new deliverable 3.3. Restructuring of the work was consented to during discussions with the project reviewers, thus contributing to laying a structure in the deliverables which, consequently, are less dependable on the potential lack of data, or conclusive evidence in pre-standardization initiatives within respective Standard Developing Organizations (SDO's) while at the same time the developed structure provided a possibility to address the COMPACT project's aspiration to engage in the Cross-Impact Analysis (CIA) of the social media and legacy media convergence, as conceived in the grant agreement. Despite the fact that restructuring of the logic of the WP3 research pillars required significant resources that were not available within the COMPACT project framework, we believe that investing both additional effort and additional resources by WP3 leader was a necessary step that allowed us to reach COMPACT project's both overall and specific objectives and targets provided in the description of Working Package 3 regarding the situation in the field.

[1] Lebeck, C. (2005) Liberal pluralism — between autonomy, diversity and management. Archiv für Rechts- und Sozialphilosophie, Vol. 91, No. 1 (2005), pp. 121-133 (13 pages). Available at: https://www.jstor.org/stable/23680764?seq=1

[2] Available at: http://www.oecd.org/investment/toolkit/policyareas/publicgovernance/

2. EU MEMBER STATES PROGRESS/FOCUS/ IN/AT POLICY PRE-STANDARDIZATION INITIATIVES

2.1. Background: Standardization and Policy, or Standardization Policy or Policy in Standardization Process

Within the scope of the project it was envisaged that in research block 2.1 (i.e. Deliverables D.3.2.1 and D.3.2.2) researchers' focus would be on the stakeholders' coordination and progress in pre-standardization initiatives in all EU Member States with addition of some non-EU countries, where governmental level data on pre-standardization initiatives would be cross-checked with the data or research findings from professional companies and professional associations. The surmised methodology included e-mail correspondence through a semi-structured questionnaire addressed at relevant government agencies, professional associations and selected professional companies, where the ascertainment in the second stage could be rectified through interviews with a sample of relevant stakeholders. However, when the indicative analysis was conducted as preparation for development of in-country targets of the research (i.e. to whom the questions should be addressed), researchers learned that due to dichotomy in governance structures and administrative jurisdiction in addition to jurisprudence between different policy bodies in the targeted EU Member States, a conservative policy progress assessment was not the suitable approach. The estimation with regard to the approach being perceived as unsuitable derived from the situation in the field due to the constraints attributable to circumscribed resources required for this pursuit. During the conduct of the research in research block 1.1 (i.e. Deliverable D.3.1, Categories in pre-standardization), it was brought to our knowledge that the composition and structure of Standard Developing Organizations (SDOs) at European level would mirror the anticipated research target, as standardization bodies are conventionally comprised of a complex structure of actors including public bodies (i.e. public agency representatives), collective voices (i.e. industry associations), individual experts, and representatives of Small and Medium Enterprises (SMEs), that would address both research objectives anticipated by D.3.2 and D.3.3 – policy progress assessment and the quality of multi-stakeholders' coordination. Therefore, it was established that Standard Developing Organizations and their respective internal processes at European level would be the research target for this project which we established in deliverable D 3.1 to be relevant for pre-standardization and standardization in the area of the social media and legacy media convergence. Hence the standardization vs. policy dilemma.

For the research to be valid or valuable for further use certain precision is prerequisite in definition and contextualization, a condition that we were not able to unconditionally address within the course of this action. Standardization is commonly accepted as "the process of creating protocols to guide the creation of a good or service based on the consensus of all the relevant parties in the industry" (CFI®)[3]. Based on the definition established by Thomas Dye a public policy is 'anything a government chooses to do or not to do' (Dye, 1972: 2), we propose that a public policy process is apprehended as a process of learning, deciding, executing and evaluating in relation to the issue of the public concern. Despite the fact that both concepts, standardization and public policy, are considerably complex and may substantially differ, the common ground that we explore in the standardization process analysis herein is the decision-making segment, where both processes rest on expertise of the parties involved, and multi-stakeholders consultations (participation) and power balancing in order to provide a solution that is either acceptable to most or unacceptable to least of the stakeholders, or the one that is the most appropriate for some "higher good", despite being least directly favourable for the actors involved. To

[3] Available at: https://corporatefinanceinstitute.com/resources/knowledge/economics/standardization/

emphasize, by no means do we intend to involve in extensive discussions over conceptual discourses. We provide this explanation merely for the purpose of understanding of how the change of focus in our research from government bodies to standard developing organizations, structurally and conceptually, affects our research model. Therefore, we are moderately firm in our position that our research focus is on policies that govern the standardization process, which as outcome (i.e. adopted industry standard) has a similar effect on the industry players as it would have if the standard was adopted as a public policy. Hereby we propose that more attention of researchers ought to be given to this specific aspect of interplay between the public policy process and standardization processes, as it may have a significant importance in the understanding of global inter industry power battles that directly affect European societies. In addition to the challenges above, research blocks WP 3.2.1 and WP 3.2.2 (that this deliverable is the result of) had to, within the standardization and/or policy process that govern standardization, address the issue of social media convergence (and because, in addition, the objective of the research is legacy media convergence) which further complexifies setting of the research target and proper comprehension.

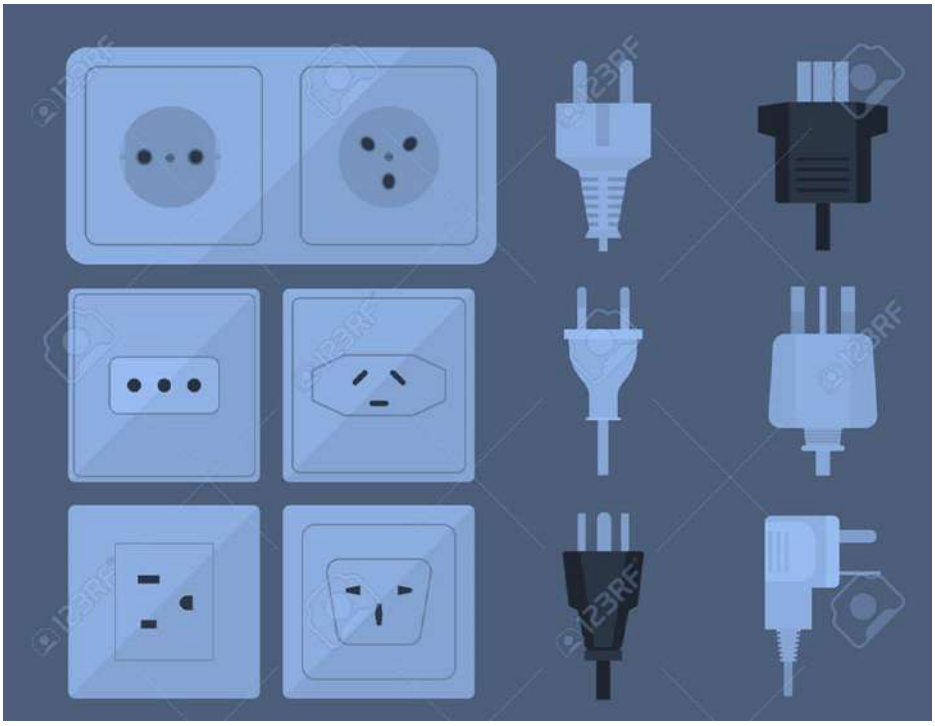
The principal challenge at this point is that social media is not defined as a specific industry, nor do any of the governing bodies apprehend in what manner this new phenomena ought to be managed. According to primary components and their functionality social media appears to be a digital industry, but the digital construct is not the main product that this industry delivers or accumulates its profit on. It is a media; however, it lacks input/output controls that would safely allow defining social media as a sub-section of the media industry. Its primary source of income is "running adds" (Zuckerberg, 2018)[4], yet it is not a marketing or an advertising agency. Therefore, when we seek to understand social media, or as it often referred to "social networks" in the context of convergence, and consequently media convergence, these are complexities that hinder proper research in the field, and that has affected our understanding of the impact, influence and operability of the social media which is essential to both standardization and policy making processes in that regard. This consequently, at its early stage, causes our cross-impact assessment between standardization process, public policy requirements and industry position to be an effort of "trial and error method" (Morgan 1852–1936, as in W.H. Thorpe, 1979). Within the framework of our research block WP 3.1.1 (i.e. Deliverable D 3.1 - Categories of Pre-Standardization), based on research area proposed in the grant agreement, we established that European pre standardization processes that are relevant for this research are developed through one of the three European Standard Developing Organizations: the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC), and the European Telecommunications Standards Institute (ETSI). These three Standard Developing Organizations have been official providers of European standards by Regulation (EU) No. 1025/2012, since 1984, and continue to be so by consequent regulatory decisions and agreements between these SDOs and the European Union[5]. In addition to EU Member States (EU27), the standards developed by European Standard Developing Organizations, through bilateral agreements and membership are automatically applied to the additional set of European societies, which in total represent 34 European countries where standard developed and adopted by these three SDOs affects industry developments. Reason for

[4] Transcript from the Hearing of Mark Zuckerberg before US senate committee in aftershocks of Cambridge Analytica scandal.

[5] Regulation No 1025/2012 of the European Parliament and of Council on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council. October 25, 2012. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012R1025.

this was that it would be more or less repetitive finding from the findings in CEN and ETSI. This governing influence of European Standards utterly responds to our primary intention to geographically cover 27 European Union Member States and a few additional countries in European Economic Space as a sample in our research. Later in the research, in order to assure proper illustration of power play, we dropped CENELEC as research target. Consequently, we resolved to apply this same sample of 34 countries in the D3.2 and D.3.3 in order to provide for a moderate comparability of the findings should anyone consider it relevant in the afterlife of these documentations. Here we as well propose that for future research the standardization processes in social media convergence ought to be a subject of a further in depth study in regard to the concepts of power and its manifestation in international relations (see Luhmann as in Albert 2019[6], Dahl (1957)[7] Russell (1938)[8] which we established to be intriguing concepts that can contribute to a proper contextualization of socio-economic and political positioning of the European markets in global digital sphere. To illustrate the interplay between socio-economic and political power and technology standardization we provide hereby one of the most notable standard differentiations that all travellers are encountered with:

Picture 1: Samples of domestic electrical outlets plugs globally[9]



Source: Global standards

As shown in the illustration above, there are numerous differentiations of the domestic electrical outlets plugs in global markets (i.e. according to the U.S. Department of Commerce International Trade Administration there are 145 different standards)[10] of "plug/socket relationships''. Despite being

[6] Albert, M. (2019) Luhmann and Systems theory. Available at: https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-7

[7] Dahl, R., A. (1957) Concept of Power. Available at: https://fbaum.unc.edu/teaching/articles/Dahl_Power_1957.pdf

[8] Russell, B. (1938) Power: A New Social Analysis. Available at: https://www.routledge.com/Power-A-New-Social-Analysis/Russell/p/book/9780415325073

[9] *Worldstandards* (2020) Plug & socket types around the world. *Worldstandards*. Available at: https://www.worldstandards.eu/electricity/plugs-and-sockets/

[10] IBID

standardized in some geographical areas, or despite belonging to the same standardization organizations, in this case having the plug as shown in sample 1 (first row, upper left in the picture) does not necessarily mean that one will be able to charge a phone with the currently available plug. While the demonstration is a mere illustration of the issue, it ought to be stated that for industries across the globe, this differentiation represents a part of the socio-economic and political power-play that they are obliged to adjust to. As different industry regions are governed by different plug-in standards, for the industry players this implies that if they originally produce electrical or electronic appliance in a market, to access another market, they would need to adjust to a standardized plug, thus adding to their cost of production in addition to diminishing their competition potential in that market if compared to local producers. The power, or the force, in this relationship is defined by the economic power of a specific market that one intends to enter, as that limits the industry's potential for growth. Therefore, a simple plug-in problem that travellers solve by purchasing converters at airports, does not appear to be that uncomplicated any more.

This observation during our research indicated that assessing the governance models in Standard Developing Organizations (i.e. policies in standard developing process) in Europe, may not be sufficient for apprehension of the variant of layers of standardization power play which we established to be essential to provide for further research and policy makers. That is the direction we chose to pursue in working package WP 3, and in this deliverable D3.2 in order to enquire into more of an international perspective where many of the industries and power players unite in decision making. Therefore in addition to CEN and ETSI some segments of the research were extended to additional standard developing organizations such are International Organization for Standardization (ISO); International Electrotechnical Commission (IEC) and The World Wide Web Consortium (W3C); in order to provide more evidence for interested parties on the progress in standards developments in addition to the evidence provided in respect to governance standards (standardization policies) within those organizations that may be of facilitation for industry actors, policy makers and scholars that aspire to engage further in this area of research.

2.2. Europe 34 Progress/Focus in/at pre-standardization initiatives

Europe 34 (representing 34 countries in Europe) sample was chosen based on 34 national standard organizations that are members of CEN (the European Committee for Standardization). Therefore, further on in the text, Europe 34 depicts 34 countries whose respective national standard making organizations are members of CEN. Although within each European Standard Developing Organization, our focus is on the 34 countries all of which are members of CEN. As EU 27 (European Union Member States) are all contemporaneously members of CEN, this also allows for the comparison in the European Union standard/policy developing context. However, we remain reserved at a direct transgression of the term standardization into policy making which was explained in the background of this document. Here we aim to elaborate further on the standard developing process from the perspective of stages of the process (what progress has been made in targeted pre-standardization initiatives, efficiency of the process, relevance, transparency, accountability, integrity, and inclusiveness, power balance, and the outcome). To emphasize, our approach is focalised on providing evidence for further discussion, whether in literature, industry developments, or policy making. We do not hereby intend, or in any of our documents, to contradict the existing theoretical models or a possible variety of opinions over the evidence provided. We urge you to take our interpretation merely as one of possible explanations, and not as the most probable one as such a certainty would, significantly, require more resources, more time and more intellectual power than what was at disposal to us within WP 3 research framework. The criteria for our assessment derive from common understanding of fundamental pillars of the standardization process in Europe and from the governing principles established by contractual, and legally binding documents. For the purpose of better comprehension, we have hereby summarized our findings from D.3.1. Categories of Pre-Standardization. In general, standards are established in three manners: through market forces (de facto standards), government regulation (de jure standards), or voluntary consensus (Spring et al., 1995: 221). Each of these standard setting processes, has its specific regulations and procedures, however, in general they comply with a logic cycle: i) Identification of the necessity for a standard; ii) Identification of expertise among membership organizations (or outside) in order to establish a technical body for managing process; iii) Establish a pool of experts relevant for the subject (i.e. industry representatives); iv) Create a draft standard and seek opinion from the industry; v) Refine the standard based on opinions collected; vi) Publish the final standard (implying standard is available and/or adopted). Despite the fact that there are differences in steps within the procedure in addition to differences in dynamics observed between three types of standardization processes (i.e. de-jure, de facto or voluntary consensus) these steps are observed to be the dominant norm in each of the standardization processes and we therefore propose that a standardization process may in any area be evaluated based on the aforementioned components. In addition, within D.3.1 we chose to apply the following definition of standardisation: "A voluntary cooperation among industry, consumers, public authorities and other interested parties for the development of technical specifications based on consensus" (Guillemin et al., 2013:260) which also affects our findings herein. In formulating our opinion researchers were additionally guided by General framework of European standardisation policy - Regulation (EU) No 1025/2012 that imposes an obligation for European Standardisation Organisations (CEN, CENELEC, ETSI) and National Standardisation Bodies on transparency and participation. Furthermore, our opinion expressed here was influenced by principles established by the European Joint Initiative on Standardisation (EC, 2016) that propose three priorities in improving European Standardization System (ESS): i) increasing the relevant use of standards and participation in the process at all levels; ii) ensuring adequate, high-quality, user-friendly and timely European standard; iii) thrive for standards supporting European competitiveness in the global markets.

2.2.1 The European Committee for Standardization (CEN)

Within CEN's scope of work, D.3.1 found four (4) pre-standardization and standardization initiatives that could/should be the target of our research or that may be, at least to a certain extent, in correaltion with the subject of the COMPACT WP 3 research (i.e. media and social media convergence): i) Cybersecurity and Data Protection CEN/CLC/JTC 13; ii) CEN/TC 365 Internet Filtering; iii) CEN/WS JTI - Journalism Trust Indicators; iv) CEN/CLC/WS SEP2- Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things; We propose that while not being directly related to media and social media convergence, standards adopted in these categories could affect the media and social media tehcnological convergence process and therefore are relevant for the assessment herein.

i) Cybersecurity and Data Protection CEN/CLC/JTC 13

Cybersecurity and Data Protection is an area that is of significance to the entirety of digital industry, thus may significantly affect any European industry that is in process of digitalization, or is extensively dependent on digital tools in its production or service providing processes.

Scope of the process as in CEN's public documents: Development of standards for cybersecurity and data protection covering all aspects of the evolving information society including but not limited to: - Management systems, frameworks, methodologies - Data protection and privacy - Services and products evaluation standards suitable for security assessment for large companies and small and medium enterprises (SMEs) - Competence requirements for cybersecurity and data protection - Security requirements, services, techniques and guidelines for ICT systems, services, networks and devices, including smart objects and distributed computing devices. Included in the scope is the identification and a possible adoption of documents that had already been published or are under development by ISO/IEC JTC 1, other SDOs, international bodies such as ISO, IEC, ITU-T, and industrial fora.

Expertise (as in CEN's public documents): Cyber Security Coordination Group (CSCG)

The Cyber Security Focus Group (CSCG) supports the European Standards Organizations CEN and CENELEC in the field of Cyber Security matters. CSCG was established in 2011 by decision of the Technical Boards of three ESOs (CEN, CENELEC and ETSI) following a proposal from DIN to create an advisory group on Cyber Security. In 2016 the group was transferred to a Focus Group and ETSI has withdrawn its participation. The CSCG supports its parent organizations in the explorative ways and means for supporting the implementation of the trustworthy Digital Single Market in terms of cybersecurity aspects and data protection. It does not develop standardization deliverables (EN, TR, TS).

Tasks within the (pre)standardization process (as in CEN's public documents):

Analyse strategic developments and issues in cyberspace (new and advanced technologies, overlaps with other sectors that may transcend the digital sector, etc.); Systematically assess how standards can support policies and policies related to cybersecurity and data protection; Examine the possibility of a common terminology and building blocks for cyber security capacities in Europe as a first step toward a greater EU cooperation in the cyber security domains of application; Prepare a mapping of current European initiatives and standardization requests; Preparation for IT products, systems and services; Give recommendations to parent organizations in the international standards setting environment (e.g. ISO / IEC JTC 1); Cybersecurity across Europe (including organization and participation in relevant

external meetings).

Composition of the CSCG Focus Group by Type of Organization/Interest Represented

i) CEN members, CENELEC National Committees; ii) Partners / liaison associations and federations; iii) Other relevant ESO coordination group; iv) Relevant Technical Bodies in CEN, CENELEC; v) European Commission (eg DG GROW, DG CONNECT, DG HOME) and EFTA Secretariat; vi) EU agencies (eg ENISA, EDA).

Structure in Actual membership in CSCG - Member Bodies

The CSCG Member Bodies (MBs), i.e. the CEN/CENELEC Management Centre (CCMC), the European Telecommunications Standards Institute (ETSI), the National Standardisation Bodies and/or the appropriate National Committees of a number of EU Member States as well as the European Network and Information Security Agency (ENISA) and the EU's Joint Research Centre (JRC) work in close collaboration within the CSCG. In December 2013 there were fourteen EU Member States participating actively in the work of the CSCG, in addition to CCMC, ETSI, ENISA and JRC. All the CSCG experts were nominated to the Group by the institutions indicated below.

Table 3: CSCG Member Bodies as in CEN's public documents

No.	Abbreviation	Description of the Institution of the respective CSCG Member Body	MB
1	AENOR	Asociación Española de Normalización y Certificación	ES
2	AFNOR	Association française de normalisation	FR
3	ASI	Austrian Standards Institute	AT
4	ASRO	Asociatia de Standardizare din România	RO
5	BSI	British Standards Institution	UK
6	CCMC	CEN-CENELEC Management Centre	
7	CYS	Cyprus Organization for Standardization	CY
8	DIN	Deutsches Institut für Normung e.V.	DE
9	ENISA	European Union Agency for Network and Information Security	
10	ETSI	European Telecommunications Standards Institute	
11	JRC	Joint Research Centre of the European Commission	
12	NEN	Netherlands Standardization Institute	NL
13	PKN	Polish Committee for Standardization	PL
14	SIS	Swedish Standards Institute	SE
15	SN	Standards Norway	NO
16	SUTN	Slovak Standards Institute	SK
17	UNI	Ente Nazionale Italiano di Unificazione	IT

18	UNMZ	Czech Office for Standards, Metrology and Testing	CZ

Source: CEN

Key research findings:

In the area of Cyber Security and Data Protection, CEN has published (adopted) eight (8) standards in the period 2016/2017 (see Appendix 6). In the period observed by this research, 2018-2021, in the area of Cyber Security and Data Protection, CEN initiated 15 pre-standardization initiatives, out of which 13 were completed with published standards. Considering that each of the (pre)standardization procedures contain five (5) obligatory steps, and with observation that at the end of 2020, two remaining standards are merely awaiting their final phase, we estimated CEN's efficiency in this period to reach 97,78% (see Table 4 below).

Table 4: CEN's performance in adoption of the standards in area of Cybersecurity and Data Protection CEN/CLC/JTC 13

Project reference	Status	Initial Date	Current Stage	Next Stage	Forecasted voting date	Published by date	Score
prEN ISO/IEC 15408-1 (WI=JT013010)	1	1	1	1	1	1	100
Information technology - Security techniques - Evaluation criteria for IT security - Part 1: Introduction and general model							
prEN ISO/IEC 15408-2 (WI=JT013011)	1	1	1	1	1	1	100
Information technology - Security techniques - Evaluation criteria for IT security - Part 2: Security functional components							
prEN ISO/IEC 15408-3 (WI=JT013012)	1	1	1	1	1	1	100
Information technology - Security techniques - Evaluation criteria for IT security - Part 3: Security assurance components							
prEN ISO/IEC 18045 (WI=JT013013)	1	1	1	1	1	1	100
Information technology - Security techniques - Methodology for IT security evaluation							
prEN ISO/IEC 19790 (WI=JT013014)	1	1	1	1	1	1	100
Information technology - Security techniques - Security requirements for cryptographic modules							
prEN ISO/IEC 27000 (WI=JT013009)	1	1	1	1	1	1	100
Information technology - Security techniques - Information security management systems - Overview and vocabulary (ISO/IEC 27000:2018)							
prEN ISO/IEC 27006 (WI=JT013015)	1	1	1	1	1	1	100
Information technology - Security techniques - Requirements for bodies providing audit and certification of information security management systems							
prEN ISO/IEC 27007 (WI=JT013016)	1	1	1	1	1	0	83,33
Information technology - Security techniques - Guidelines for information security							

management systems auditing							
prEN ISO/IEC 27010 (WI=JT013017)	1	1	1	1	1	0	83,33
Information technology - Security techniques - Information security management for inter-sector and inter-organizational communications							
prEN ISO/IEC 27011 (WI=JT013018)	1	1	1	1	1	1	100
Information technology - Security techniques - Code of practice for Information security controls based on ISO/IEC 27002 for telecommunications organizations							
prEN ISO/IEC 27017 (WI=JT013019)	1	1	1	1	1	1	100
Information technology - Security techniques - Code of practice for information security controls based on ISO/IEC 27002 for cloud services							
prEN ISO/IEC 27018 (WI=JT013023)	1	1	1	1	1	1	100
Information technology - Security techniques - Code of practice for protection of personally identifiable information (PII) in public clouds acting as PII processors							
prEN ISO/IEC 27019 (WI=JT013020)	1	1	1	1	1	1	100
Information technology - Security techniques - Information security controls for the energy utility industry							
prEN ISO/IEC 29147 (WI=JT013021)	1	1	1	1	1	1	100
Information technology - Security techniques - Vulnerability disclosure							
prEN ISO/IEC 30111 (WI=JT013022)	1	1	1	1	1	1	100
Information technology - Security techniques - Vulnerability handling processes							
Total	**15**	**15**	**15**	**15**	**15**	**13**	**97,78**

Source: Author's computation based on CEN data

It was observed that the majority of the voting procedures on drafted documents occurred prior to the estimated deadline (February 18th, 2021), which further supports our thesis that the process was significantly efficient despite the complexity of the decision-making procedure (see Appendix 10). However, the notion that all of the published standards in this area are ISO standards (International Standard Organization) that is, in regard to the market coverage and a country's participation, superior to CEN, indicates that European Standard Developing organizations are complying with industry developments in this area, rather than dictating the global trends. Certain reservations ought to be expressed at this point as CEN, in fact, does "advise" and propose solutions to ISO, however, the research team did not identify any particular evidence suggesting that in this area, ISO has adopted the European approach in these relevant segments. We accordingly suggest that this area is observed more from policy and research projects in order to determine the power dynamics in standardization of cybersecurity and data protection which consequently reflects on competitiveness of European industries (see also Table 5).

Table 5: Research findings summary on CEN vs ISO relationships in Cybersecurity and Data Protection (pre)standardization

Europe (CEN) Status:	Behind industry developments/Following global initiatives (i.e. ISO)
Number of Standards Adopted:	8
Number of pre-standardization initiatives:	15
Origin of (pre)standardization	ISO

Source: Author's computation based on CEN data

In addition to the dominant CEN's subordination to ISO in this area, the participation and diversity of represented interests is relatively low. While Table 3 above suggests that 14 EU Member States (that are also members of CEN) are participating in Cyber Security Coordination Group, our validation of the participation among CEN members could not corroborate this. Based on responses to our questionnaire in addition to assessments of publicly available documents of each of the CEN members (respective national standardization bodies) (see Table 5 above and Appendix 2) we found that 10 out of 34 members of CEN expressed an interest to participate in developing standards in this area and are to a certain extent participating; furthermore, that that 12 out of 34 CEN members stated that they "follow the EU" in this regard, and for 12 CEN members we could not obtain any data, nor did they respond to our questionnaire. While this might be a standard proceeding in the field, from a standpoint of relevance of the standardization process in this area to all countries respectively and from a standpoint of industry competitiveness, this realisation raised concerns among research team members.

Table 6: Research findings summary on CEN's process transparency, participation, pluralism, and integrity

Transparency of the process:	Relatively transparent
Country participation:	Participation limited (10 countries participate and expressed interest in developing standards, 12 follow the EU, and 12 no data)
Pluralism of represented interests:	Low due to combined factors (i.e. limited country participation, and lack of strong industry innovation players)
Integrity of the process:	Not assured

The research indicates that the process in this area is to a remarkable extent dominated by political participators and one, particular political worldview rather than by pluralism of industry interests. Our findings indicate that CSCG Focus Group is dominated by European level organizations and representatives and European Union bodies and agencies, which due to a complex interrelation of their interests may be consolidated as political economic interests of the European Union in this context. While it may be argued that the EU is nonetheless rectifying the differences among interests of its members, and therefore is a legitimate representative of plurality of the European industry interests, in this specific situation this may be inaccurate. The risk that we observe hereby is that cybersecurity and data protection indeed have been correctly addressed as state security and therefore present a political problem; however, at the same time, an expansive industry is constructed behind solutions in this area, and Europe is not perceived to be a significant contributor at the global level. Therefore, constraints that we

have observed in representation of interests of SMEs in this case, may hinder European cybersecurity industry competitiveness over the long haul. We propose an adequate representation of newcomers in this industry ought to be regarded more attentively, so that European innovation gets promoted on a global scale.

ii) CEN/WS JTI - Journalism Trust Indicators (CWA 17493:2019 E)

Journalism Trust Indicators is a lower level (pre)standardization process that resulted in CEN Workshop Agreement – CWA 17493:2019[11] in December 2019. Workshop Agreements are standards that have been developed, however, none of the interested parties are obliged to implement it, as their nature is conveyed through the title – it is an Agreement reached through a means of a Workshop of representatives of interested parties following a standard operating procedure established by the CEN. According to available documents the standardization process was initiated by three organizations/legal entities – Reporters Without Borders (RSF), European Broadcasting Union (EBU), and Agence France-Presse (AFP)[12]. AFNOR (a French benchmark organization for voluntary standards) was appointed the role of the facilitator (a technical body to manage the process within CEN), with support from DIN (Deutsches Institut für Normung/German Institute for Standardization) and CEN's organizational infrastructure.

Scope as explained by the Workshop organizers[13]: The Journalism Trust Initiative aims at a healthier information space. It is developing indicators for trustworthiness of journalism, hence promotes and rewards compliance with professional norms and ethics.

Problem description by the Workshop organizers[14]: On the internet, algorithms tend to amplify the extremes – sensationalism, rumours, hate and falsehoods. Opinion and beliefs eclipse facts. The rule-makers in big-tech are not accountable to anyone. The rules of the game are in- transparent and have proven to be continuously prone to changes. On this inconstant, cambering and continually swirling field, journalism is unjustly disadvantaged, being deprived of its reputation, reach and revenues – which renders it to be even less competitive. This logic ought to be reversed. Democracy perishes without a fact-based discourse.

Solution description by the Workshop organizers[15]: Journalism worthy of its name must be clearly distinguishable, by humans and by algorithms. That is why JTI is translating mostly existing professional norms into a machine-readable code. At the manufacturing level of journalism, benchmarks of quality and independence must be transparent and verifiable in order for trust to be reinstated. On account of this, JTI provides indicators for media outlets to self-assess and comply with – and for citizens, advertisers and regulators to reward it.

Expertise (as in CEN's public documents)[16]: Collaborative standard setting process according to the guidelines of CEN, the European Committee for Standardization. More than 120 experts have

[11] Available at: https://rsf.org/sites/default/files/cwa17493_0.pdf
[12] Available at: https://jti-rsf.org/en/about#!jti-organizers
[13] Available at: https://rsf.org/sites/default/files/cwa17493_0.pdf
[14] Available at: https://jti-rsf.org/en/#!the-problem
[15] Available at: https://jti-rsf.org/en/#!the-solution
[16] Available at: https://jti-rsf.org/en/#!the-process

contributed to this CEN Workshop Agreement (CWA) that was finally published on 19th December, 2019. Members represent the following: Journalists' associations and unions; Media outlets (audio-visual, print, pure-player/online, cross-media); Self-regulatory entities, such as press councils; Regulatory bodies and governments; Consumer and reader/audience representatives, media literacy initiatives; Platforms, information intermediaries, software and algorithms specialists; Advertisers, advertising agencies; Professional and industry associations covering the above sectors.

Composition: Phase one – Standard Setting (as in JTI's publicly available information)[17]

Stakeholders have been divided into four (4) groups: three so-called drafting committees and an advisory technical task-force. The JTI's drafting committees were comprised of industry professionals only, representing major media outlets in addition to professional organizations and NGOs.

Table 7: Participants in setting the JTI standard

BBC (UK)	Facebook (USA)	All-Russia State Television and Radio Broadcasting Company (VGTRK, Russia)	World Wide Web Consortium (W3C)
RTL Group (Luxembourg)	City University of New York (CUNY, USA)	Internews (UK)	Beauftragte der Bundesregierung für Kultur und Medien (BKM, Germany)
Gazeta Wyborcza (Poland)	Ethical Journalism Network (EJN)	Thomson Foundation (UK)	Google (USA)
Tagesspiegel (Germany)	Swiss Press Council (Switzerland)	Free Press Unlimited (FPU, the Netherlands)	European Association for the Co-ordination of Consumer Representation in Standardisation (ANEC)
Tamedia (Switzerland)	Society of Professional Journalists (SPJ, USA)	Fondation Hirondelle (Switzerland)	United Nations Educational, Scientific and Cultural Organization (UNESCO)
Norsk Rikskringkasting (NRK, Norway)	Association of Taiwanese Journalists (Taiwan)	Civil (USA)	Autorità per le Garanzie nelle Comunicazioni (AGCOM, Italy)
TT Nyhetsbyrån (Sweden)	Journalists Association of South Korea (JAK, South Korea)	NewsGuard (USA)	Deutsche Presse Agentur (dpa, Germany)
Associated Press (USA)	The Independent Monitor for the Press (IMPRESS, UK)	Global Disinformation Index (GDI)	

[17] Available at: https://jti-rsf.org/en/about#!jti-funding

Key research findings:

The process of adoption of CEN/WS JTI - Journalism Trust Indicators (adopted as CWA 17493:2019 E), from a standpoint of efficiency should be considered as efficient, as it reached its targets in a standardized CEN procedure to workshop agreements as envisaged at the commencement of the process. Moreover, it suggests that the application of CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements – The way to rapid agreement" was an efficient and effective process in this case. In addition, as the JTI was an initiative/a product of European consortium, it implies that in this area Europe is advanced in comparison to the rest of the world in terms of addressing the journalism trust as a standard. A significant presence and participation of organizations outside of European economic and cultural space indicate that the topic of standardisation was relevant for different geographical and, consequently, economic and political contexts. However, this advancement does not occur devoid of risks that were identified by researchers from a standpoint of participation, transparency, integrity, accountability and implementability of the adopted CWA 17493:2019 E (see Tables 8 and 9 below).

Table 8: Research findings summary on JTI vs International standard developing in area of Journalism Trust Indicators

Europe (CEN) Status: CWA 17493:2019 E is not CEN standard, but Workshop agreement (lower level) adopted through CEN's standardized process	Advanced in comparison to the International Standardization processes in the field. Europe is leading the way.
Number of Standards Adopted:	1
Number of pre-standardization initiatives:	1
Origin of (pre)standardization	Europe

Source: Author's computation based on CEN data

In addition to being advanced in comparison to the rest of the world, the standard setting process in this area was moderately transparent and respected the disclosure of information standard that is applicable to CEN procedures and recommended by legal acts that we consider relevant in the case as aforementioned. However, in the area of participation and pluralism of represented interests, the initiative lacks proper representation of the countries that are members of CEN. Furthermore, in the context of our findings in D.3.3, the initiative exposes itself to a substantial possibility of not addressing the media industry issues (and consequently journalism trust issues) in reciprocity to the diversity of the problems observed in the CEN members (Europe 34)[18].

[18] Country interests represented by country of origin of members of the Workshop: FRANCE, SPAIN, UK, SERBIA, GREECE, ITAY, JAMAICA, TAIWAN, USA, HUNGARY, GERMANY, SWITZERLAND, THE NETHERLANDS, BULGARIA, RUSSIA, ESTONIA, POLAND, BELGIUM, AUSTRIA, SOUTH KOREA, INDIA, BRAZIL, CANADA, NORTH MACEDONIA, NORWAY, EAST ASIA, SWEDEN, PORTUGAL, SENEGAL

Table 9: Research findings summary on JTI's process transparency, participation, pluralism, and integrity

Transparency of the process:	Moderately transparent
Country participation:	Country/culture representation limited; Representatives of the Workshop based on their country of origin could potentially represent 19 out of 34 CEN members, bringing different understanding of the issue across the Europe. However, these representatives are not traditionally CEN members, nor representation of the national interests is addressed in the process of making this standard
Pluralism of represented interests:	Low due to combined factors (i.e. limited industry per country participation, limited representation of media industry actors (i.e. owners of the media that would be most affected by implementation of the standard), dominance of editorial staff and non-profit advocates, lack of SME representation
Integrity of the process:	Not assured

Assessment of the JTI process and the outcome indicate that the drafting process and adoption of the Workshop Agreement was to a certain extent dominated by editorial/journalist staff and non-profit advocates in this area. However, as the publication of Workshop agreement[19] implies that, should it be implemented, media owners might be subjected to a burden that may have financial repercussions. Correspondingly, the research team assessed the representation of the plurality of interests as inadequate in the process of creating and adopting this agreement. Another issue that raised concerns of the research team was that within the design and voting procedure, 118 experts were representing 82 different entities, giving a multiple representation of the same interest for some of the actors, which implies a lack of clarity on whether it was addressed as a risk during the process of adoption. Within the media industry representatives, least represented was the interest of small media outlets, which, should the standard be implemented, may be made inoperative, which consequently, may hinder media pluralism as one of the essential values of democracy. To conclude, while the initiative is of substantial importance and value, the deficiencies in the process do not correspond to this agreement as "voluntary consensus", rather it represents a policy that might be imposed on the industry actors. Ultimately, the outcome of the process may not be implementable and therefore might not be supported by the media industry actors.

[19] Available at: https://rsf.org/sites/default/files/cwa17493_0.pdf

iii) Internet Filtering CEN/TC 365[20] - (Standard - CEN/TS 16080:2013 (WI=00365001)

Internet filtering standard applies to a software system that is installed by its administrator or its provider. An only standard in this area that we could establish to have been developed by CEN was adopted in 2013, with no additional exertion envisaged. However, due to evolvement of the internet (i.e. guidelines and industry recommended standards on content accessibility W3C WCAG 2.1 published June 2018[21], and W3C WCAG 2.2 Working draft from August 2020[22], in addition to the efforts already initiated on W3C WCAG 3.0[23]) this aspect of standardization may need to be revisited. The process in the area CEN/TC 365 – Internet Filtering is governed by the UNE – The Spanish Association for Standardisation that serves as its secretariat for the respective CEN's committee in this area.

Scope as in CEN's explanation: The objective of this Technical Specification is to define a set of criteria on the execution of Web filters which should accommodate internet users with deciding on a suitable product or service with more confidence in order to help protect children online. NOTE A product is a software system that is installed by its administrator or its provider. A service is provided without a specific installation by the administrator, however by a direct provision of the customer by the provider. An example of a product is a software system installed on a personal computer, and an example of a service is an internet connection filter provided by an Internet Service Provider added on the internet access service. By using a Web filter that complies with the requirements arranged in this Technical Specification, a user can be confident that the product or service: a) has been specifically designed to meet the needs of parents and carers (administrators of the filter) to protect children from potentially harmful URLs on the internet; b) has been specifically targeted at minors, and is also suited for individuals looking to protect themselves from potentially harmful URLs on the internet; c) delivers a minimum set of features and efficacy that are sufficient to provide the required level of protection; d) is accompanied by straighforward and comprehensive documentation, installation and implementation instructions and available support; e) is reasonably secure, i.e. adopts proven measures to prevent bypassing or removal of the filter itself. This Technical Specification does not encompass the following technologies: f) any sort of email filtering, including: antispam filtering, antivirus analysis of emails and attachments, anthiphishing filtering; g) other Web filtering for the purpose of enterprise or adult Web usage, including: antivirus analysis of Web content, antiphishing filtering; h) the analysis and/or filtering of any other application traffic delivered over HTTP/HTTPS/FTP including for instance: instant messaging, peer to peer file (P2P) sharing, VoIP; i) the analysis and/or filtering of any other application traffic delivered over non HTTP/HTTPS/FTP protocols including for instance: newsgroups, instant messaging, peer to peer file (P2P) sharing, VoIP and social networking applications.

Expertize: Committee: CTN 71 - DIGITAL ENABLING TECHNOLOGIES (THD)

[20] Available at: https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:625771&cs=1F652BC44F0DDC3A32C5C992CAE9778AF
[21] Available at: https://www.w3.org/TR/WCAG21/
[22] Available at: https://www.w3.org/TR/WCAG22/
[23] Available at: https://www.w3.org/WAI/standards-guidelines/wcag/wcag3-intro/

Key research findings:

The process of adoption of Internet Filtering CEN/TC 365 could not be assessed from a standpoint of efficiency due to lack of responsiveness to a circulated questionnaire and lack of publicly available evidence that would provide the research team with a conclusive opinion. As previously observed, evaluating the relevance of the standard to the advancing internet arhicetcure suggests that this area may need to be revisited by a respective European standardization body. However, due to the process' complexity researchers could not establish whether there is an actual urgency in the field to further develop the standard. In the context of European industry in this area, available evidence implies that Europe is behind the global industry developments, further implying that there is a requisite for both further research in this area and better understaning of causality links to what appears to be a non-competitive European digital market in comparison to global leaders.

Table 10: Research findings summary on Europe 34 position in Internet Filtering standard - (CEN/TS 16080:2013 (WI=00365001)

Europe (CEN) Status:	Behind industry developments, only standard adopted in 2013 (CEN/TS 16080:2013 (WI=00365001)
Number of Standards Adopted:	1
Number of pre-standardization initiatives:	0

Source: Author's computation based on CEN data

Table 11: Research findings summary on Internet Filtering Standard process transparency, participation, pluralism, and integrity

Transparency of the process:	Limited transparency
Country participation:	Participation low (7 countries participate and expressed interest in developing standards, 21 of the coutnries follow the EU and have no interest and participation, and 6 countries have no data)
Pluralism of represented interests:	Low, with risk of being dominated by dominant digital industry representatives
Integrity of the process:	Not assured

Assessment of the process and the outcome in the adoption of the Internet Filtering CEN/TC 365 - (Standard - CEN/TS 16080:2013 (WI=00365001) indicates a low participation rate of the countries (only 7 CEN members expressed interest in participating), while twenty-one (21) members comply with the EU recommendations and did not form any sort of mirror committees or working groups to participate in the process, and six (6) CEN members did not respond to our questionnaire, nor was the research team able to discern any evidence of either participation or interest on their behalf in regard to the process. In addition, the process transparency has been assessed as low; hence the reservations - since the process was conducted eight (8) years ago, the evidence that would be available at the time would suggest different discoveries. The apparent inferior representation of the interests in the adoption of the standard derives from the idea that other elements in the eco-system, relevant for the standardization in this area, have been standardized mostly as de-facto standards, namely the solutions that have been developed, applied and used by the dominant global industry players through other standardization bodies (i.e. W3C), which will be somewhat more elaborated on in the following chapters.

iv) CEN/CLC/WS SEP2 - Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things (CWA 95000:2019)

CWA 95000:2019 is a lower level (pre)standardization process that resulted in CEN Workshop Agreement –in June 2019. As previously explained, Workshop Agreements are standards that have been developed, however they do not represent an obligation to any of the interested parties to have it implemented, as their nature is conveyed by the title – it is an Agreement reached through a means of a Workshop of representatives of interested parties following a standard operating procedure established by the CEN. The role of the facilitator (a technical body to manage the process within CEN) was appointed to DIN (Deutsches Institut für Normung/German Institute for Standardization) and CEN's organizational infrastructure. Despite being of an inferior level standard by its nature, this agreement was one of the pivotal ones for the expected future tech and innovation waves incited by 5G and Internet of Things.

SCOPE and the problem/need that it adresses[24]: 5G- and IoT-driven convergence and the digitization of vast segments of industries will also imply that SEPs for any standard implemented in a product or a service will mountingly be merely but one ingredient among a plethora of other innovations implemented in a particular product or service. Any crucial elements for SEP licensing best practices or genuinely useful codes of conduct will thus have to support the proportionality in licensing negotiations to avoid disparate royalties for the use of any single patent that would inappropriately attenuate the royalties duly associated with other patents (or unpatented innovations) in complex, highly integrated products. This CWA will promote the use of innovative technologies in communication standards in addition to the accompanying innovation, or in conjuction with those standards, while ensuring fair and reasonable compensation for SEP holders. This CWA aims to develop a positive vision of SEP licensing that makes optimum concessions between the rights and interests of the various stakeholders participating in the 5G/IoT eco-system. It is in the interest of everyone to ensure a balanced, predictable and efficient licensing approach: one that balances a veracious return for patent holders based on the value of their patented inventions with equitable and transparent licensing terms of standardised technology for all industry participants. This CWA will explain licensing on Fair, Reasonable and Non-Discriminatory Terms (FRAND) in addition to key FRAND policy issues. Portfolio licensing, transparency and patent transfer processes will be addressed, in addition to a checklist intended to provide a summary and a practical tool of issues and questions for negotiating parties.

Expertise (as in CEN's public documents)[25]: Collaborative process was conducted in accordance with the CWA 95000:2019 which was developed in accordance with CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements" and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. According to the published standard 22 entities participated in the design of this Worshop Agreement: ACT The App Association; AirTies Wireless Network; Apple Inc.; Bayerische Motoren Werke AG; Cisco Systems, Inc.; Creo Group; Denso International Europe; Deutsche Telekom AG; Fair Standards Alliance; Groupe Renault; Honda Motor Co., Ltd.; Juniper Networks; Multispectral Limited; N&M Consultancy; Nordic Semiconductor ASA; Ponti & Partners SLP; Sequans Communications; SolidQ; TapTap; Telit Communications SpA; Volkswagen AG; Wyres SAS.

In addition, thirty-three (33) companies/organizations that did not participate in the drafting of this

[24] Available at: https://2020.standict.eu/sites/default/files/CWA95000.pdf
[25] IBID

document expressed their general support for its content[26]: ACEA (European Automobile Manufacturers' Association); Andaman7; BadVR; Barefoot & Co.; Blue Badge Insights; Bullitt Group; Concentric Sky; Crosscall; Daimler Brand & IP Management GmbH & Co. KG; EDMI Limited; Egylis; emporia; Eucomreg; Fairphone; Ford; High Tech inventors Alliance; Hitachi ltd.; HP Inc.; IP2Innovate; Kamstrup A/S; Lenovo; MotionMobs; Nationsorg; Nouss; PSA Groupe; Sagemcom; Sierra Wireless; Sigao Studios; Sky; Southern DNA; Synesthesia; Toyota Motor Corporation; U-Blox; and Valeo.

Key findings:

The research team considers the process of design and adoption of CEN/CLC/WS SEP2 - Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things (CWA 95000:2019) to be significantly efficient. While in the early stage of our research the adoption was forecasted for the early 2021, with the document being published in June 2019, we have witnessed a considerably shorter period of time between initiation-design-addoption than it had been estimated. Despite the fact that it is a lower level standard (Workshop Agreement), the interest that it gained across industry actors was considerable. However, not the same level of enthusiasm was displayed by CEN members (respective national Standard Developing Organizations) in this critical area, as our research shows.

Table 12: Research findings summary on (CWA 95000:2019) process efficiency and Europe 34 position

Europe (CEN) Status:	CEN Workshops – Lower level standardization. Europe thinking ahead. One pre-standardisation initiative (prCWA 95000 (WI=WSSE2001), voting was expected 2021/Standard published – June 2019.
Number of Standards Adopted:	1 (Workshop Agreement)
Number of pre-standardization initiatives:	1

Source: Author's computation based on CEN data

Table 13: Research findings summary on (CWA 95000:2019) process transparency, participation, pluralism, and integrity

Transparency of the process:	Relatively transparent
Country participation:	Extremely low. (2 countries participate and expressed interest in developing standards, 8 of the countries follow the EU and have no interest and participation, and 24 countries have no data).
Pluralism of represented interests:	Low
Integrity of the process:	Not assured

Assessment of the process and outcome in the adoption of the CEN/CLC/WS SEP2 - Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things (CWA 95000:2019) indicates that the process had an extremely marginal representation of interest of CEN members (national respective Standard Developing Organizations). According to our research merely two (2) out of thirty-four (34) CEN members expressed an interest in participation in the process and consequently participated in the process of design and adoption of

[26] IBID

(CWA 95000:2019). Additionally, eight (8) out of twenty-four (24) countries declared that "they follow the EU policies in this regard", while twenty-four (24) CEN members did not have any publicly available data on their participation in the process. Concern of the researchers was that the interest/participation in the process was more noteworthy among the international companies that are not based in Europe than within European respective national Standard Developing Organizations, in the area that may significantly affect industry's future.

Summary observation of researchers - Europe 34 Progress/Focus in/at pre-standardization initiatives

On a sample of four (4) (pre)standardization initiatives conducted within The European Committee for Standardization (CEN), based on targets established by D.3.1. Categories of Pre-standardisation and based on the criteria of efficiency, transparency, participation, and pluralism of represented interests, we conclude that procedures and processes conducted within CEN are remarkably efficient which normally results in the adoption of standards in a period significantly shorter than it was envisaged. This is especially relevant when examined in the context of complexity of the process and potential tensions between stakeholders whose interests lie in the process or its outcome. The processes are moderately transparent and follow the roadmaps defined in the agreements between different SDOs and they are in general in accordance with the objectives determined in the European Union standardization policies quoted previously. To be more precise, the public demands accompanied by reports on the milestones of the process are available and can be effortlessly comprehended to external actors and potentially interested stakeholders. Concerns of the research team were expressed over participation, interest and transparency of the processes as expressed in Table 14 below.

Table 14: Summary findings on participation and national SDO transparency in 4 (pre)standardization processes

Standard	Total Possible	No. of Countries (CEN) (Participated/Expressed Interest in participation	No. of Countries (CEN) that „follow EU"	No. of Countries (CEN) with no data on participation
Cybersecurity/Data Protection	34	10	12	12
JTI	34	2	3	29
Internet Filtering	34	7	21	6
5G and IoT	34	2	8	24
Total	136	21	44	71
Percentage of total possible	100%	15,44%	32,35%	52,21%

Source: Author's computation based on CEN data

As Table 14 above illustrates, the average participation rate of the CEN members in four (4) (pre)standardization initiatives observed during the period 2018-2021 was merely 15,44%. Despite the fact that lack of participation/interest can be justified by a variety of objective or subjective criteria, the research team members are of the same mind that such a low rate of participation and expressed interests may reflect significant limitations of national SDOs to engage in specific areas of standard

developing, thus limiting the industries in their respective countries from their equal opportunity to participate and/or to express their collective opinion over the subject matter that is being discussed in CEN's (pre)standardization initiative. This is especially relevant from a stance of General framework of European standardisation policy - Regulation (EU) No 1025/2012 that administers an obligation for European Standardisation Organisations (CEN, CENELEC, ETSI) and National Standardisation Bodies on transparency and participation. Researchers are of an opinion that our finding according to which in a sample of the four (4) (pre) standardization initiatives within CEN, on average 32,35% of the CEN members simply "follow the EU" further supports our view that lack of participation and interest of the CEN's members may hinder Europe's competitiveness on a global scale, or at least they diverge from objectives established in the relevant EU Policy (i.e. EC, 2016). In addition, the indicated lack of transparency among the CEN members where on average in 52,21% of cases we could not obtain a response on national representation in targeted sample of four (4) (pre)standardization initiatives in addition to researchers not being able to acquire any information on these initiatives on official web pages of national SDOs imply a substantial risk for resource poor SME's and interested entrepreneurs or associations, that will remain utterly oblivion over the issues of their concern. As our methodology required more insight and evidence in forming of the conclusions, we further explored issues of transparency, participation and pluralism of represented interests among the CEN respective members (national SDOs) which will be more elaborated on in the following chapter.

3. STAKEHOLDERS COORDINATION SITUATIONAL REPORT WITH FOCUS ON THE EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN)

As stated in the Introduction of this paper our aim in these two deliverables (i.e. new code D.3.2. as one combined comprehensive deliverable) was to observe efficiency and effectiveness of multi-stakeholder coordination, with special emphasis on efficiency of the process, transparency, participation, and pluralism of represented interests. Within this discourse, in our attempt to facilitate the understanding of our findings, and consequently enable potential readers to challenge them, we referred to some of anti-corruption models that could be purposeful here. By stating this we have no intention in any regard to imply there is corruption in the European standardization model, or that any of its participants are prone to corruption. On the contrary, as the author of this document was one of the researchers within the ANTICORRP project (i.e. the largest social science project funded by the EU FP7)[27], it is simply an instinctual reflex to pursue explanations in universes that we have been acquainted with or we are cognizant of. Hence, we are not applying the anti-corruption theories directly, but rather using their inverse models in order to be able to better contextualize the processes we are observing. This implies that we will enquire into the power equilibrium within respective Standard Developing Organizations and standardization processes with focus on weighting our findings against the principle of ethical universalism (Pippidi, 2006). Therefore, instead of scrutinizing whether corruption is a norm or an exception in these processes, as Pippidi would suggest in her anti-corruption conceptualization effort, we delve into the opposing effect, meaning whether elements of ethical universalism are prevalent in the observed processes. From her model of typology of corruption, we emulate the second element, which is power distribution that is assumed to be relatively equal in a universalistic society (Pippidi, 2006). However, as stated earlier, due to fragmented use of this model in our case, absence of evidence of universalism in the subject of our observations does not imply that the process or the organization that we observe is corrupt.

We propose that such a finding is interpreted merely as a potential risk to the principles of the standardization process established in European policies that repetitively refer to transparency and participation as concepts directly related to quality of standards developed and their relevance for society (users) and to European competitiveness in the global market (EC, 2016). We continue with reservations toward our interpretation of the evidence, as it would require substantially more abundant resources to deliver an in-depth understanding of the processes conducted and their inter-relationship. Here we aim at providing evidence and interpretation at first glance, while welcoming any opposing opinion that would differentiate from our understanding of the evidence collected and structured in this study. In terms of methodology, due to limited resources what remained unattainable to us were sophisticated methodologies such as expert group pondering, or testing our findings through interviews with relevant stakeholders. We aimed at interpretations where researchers could mitigate their disagreements and eventually reached consensus over the most probable explanation, hence there is a possibility of a biased interpretation (i.e. bubble effect). Therefore, for any elaborate further usage of principles or findings in this study, an independent verification of our approach would be required. Despite the imperfections in methodology, our position is firm in regard to the provided evidence – it is founded on a primary source of information (official responses, official web sites, and relevant standards as published in verified publications). Consequently, we propose that evidence we provide is applied at greater extends than our interpretation of it, should a disagreement over the interpretation arise. Moreover, each of our calculations can be examined against consolidated primary information source

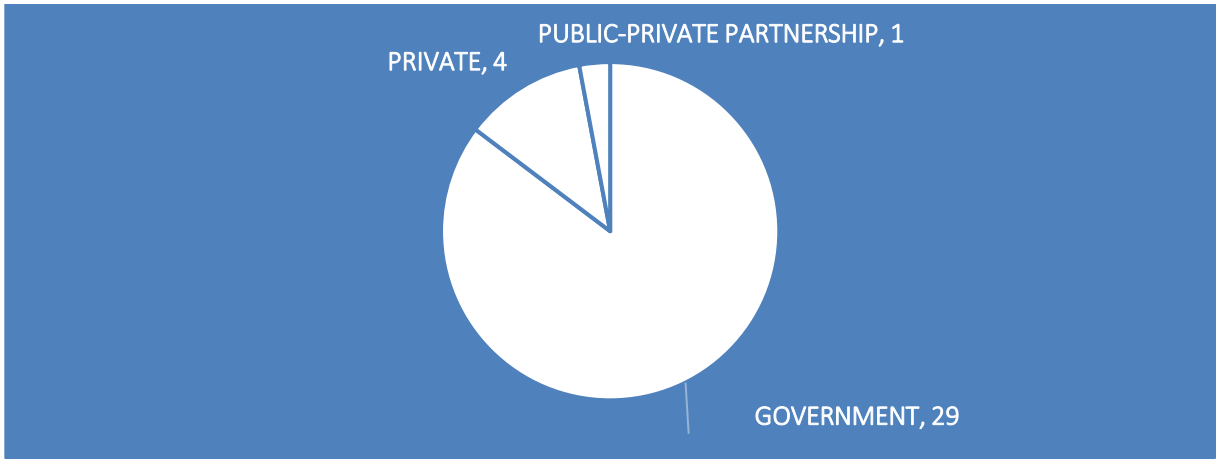
[27] Available at: https://anticorrp.eu/

provided in appendices.

3.1 - Findings and interpretations:

As illustrated in Figure 1 below, our research demonstrates that twenty-nine (29) out of thirty-four (34) members of CEN are organizations founded by the government, four (4) member organizations are established as private initiatives, while one (1) is established as a public-private partnership. Hereby we do not propose that there is either "a good" or "a bad" model in founding a national SDO, but an instant insight into a governing structure that can assist the understanding of power dynamics in the European level SDOs that derive from the power of influence over national SDOs. Our finding that national governments are founders of twenty-nine (29) out of thirty-four (34) national SDOs implies that national politics in these SDOs may have prominence in their functioning, and consequently in their specific interests. This also suggest that decision-making at European level SDOs might be more complex than it would appear on the surface, thus proposing that the results on efficiency of the CEN observed in the previous chapter are even more valuable when observed from the power play perspective.

Figure 1: Founders of National Standardization Bodies in Europe 34 (CEN members, 2020)



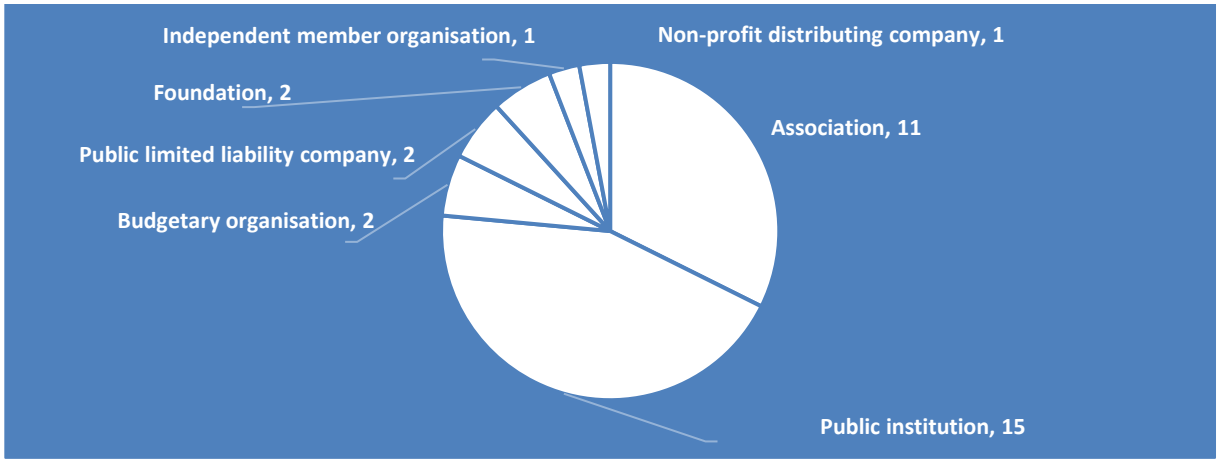
Source: Author's own computation from National Standardization Bodies websites, Founding acts (N=34)

In quest for ethical universalism, power has to be moderated by reciprocal accountability (see also Klitgaard, 1998)[28], that comes from a regulatory system, efficiency and effectiveness of the administrative constraints to potential abuse or deviation in governance, or social norms and vertical accountability (that evolves from transparency and public awareness). In our model here the type of organizational entity defines the potential to hold the members accountable for their actions and consequently assure the efficient and effective transposition of European values (i.e. transparency, participation, and pluralism of represented interests) in the process of standardization, whether it is bottom-up (coming from participants in national standardization process to CEN), or top-down, transposition of international standards on a national level. The type of organizational entities is important from regulatory induced accountability and responsibility for the actions. Different types of entities are subjects of different laws, and therefore subject to a different accountability criteria. Again, here we are not engaging in theoretical discussions, but providing evidence and our interpretation at first glance, that we believe to be a probable explanation, while there is still a possibility that we did not

[28] Klitgaard, R. (1998) International Cooperation Against Corruption. Finance and development, Vol. 35, Issue 1, pp. 3-6. Available at: https://www.imf.org/external/pubs/ft/fandd/1998/03/pdf/klitgaar.pdf

properly understand and/or contextualize evidence that is the subject of our observation. Thus, we propose that further research is necessitous in this area.

Figure 2: Legal status of National Standardization Bodies, Europe 34, (CEN members, 2020)



Source: Author's own computation from National Standardization Bodies websites, Founding acts (N=34)

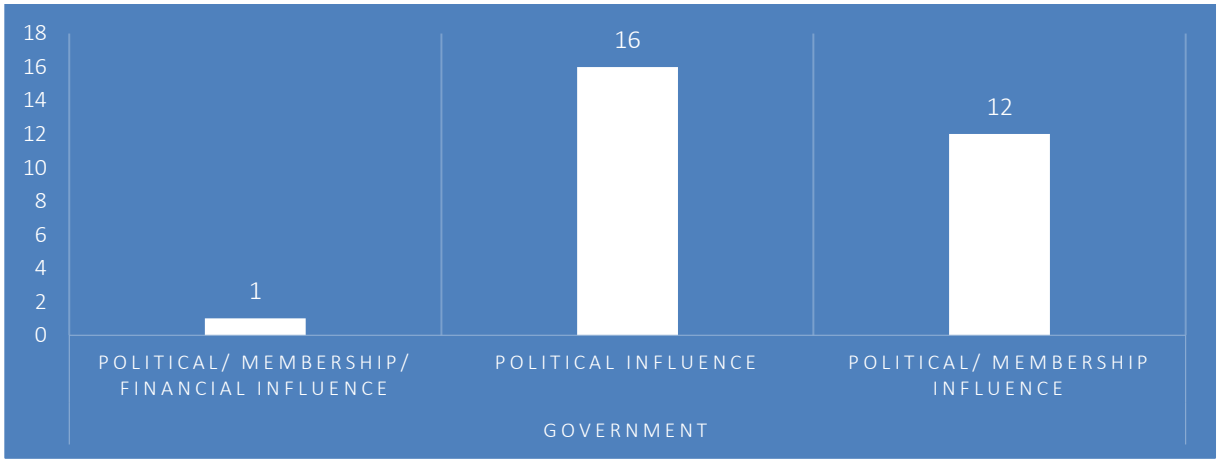
As results of our research presented in Figure 2 above show, there is a significant variability of the organizational models among thirty-four (34) members of CEN (i.e. Europe 34 SDOs). Eleven (11) out of thirty-four (34) national SDOs are established as associations, fifteen (15) in nature represent a public institution, while some of them are established as public companies, others are limited liability companies, and some are foundations. This finding again emphasizes that the efficiency of the process in adoption of the CEN standards is admirable considering the diversity in organizational culture that their respective members contribute. However, from a standpoint of accountability, we find it relevant to be stated that the observed differentiation in the type of legal entity does provide for different governance risks levels among the respective national SDOs. For example, public institutions are exposed to higher scrutiny (and consequently accountability), from internal and external control mechanisms, due to their nature and the fact that they are governed by public law. On the other end of scale are public companies and private enterprises which are less accountable due to the nature of their establishment, and accountability that derives from commercial law related regulatory eco-system (see as well Podumljak and David-Barret, 2015)[29]. Here we also need to reflect on findings shown in Figure 1 above, where founders (that may equally be interpreted as owners) of these entities are in a vast majority of cases national governments that could, consequently, regarding their nature, have a formidable decision making influence and, consequently, such power over governing structures in these entities. Therefore, when higher political power and influence intersect with lower level accountability (by type of legal entity), the risks for deviations in governance are proportionally higher. In the context of CEN standards, this could manifest in interference with the standardization processes that do not comply with the preferential interest of nationally dominant companies or companies that are favored by political regimes. Alternatively, it might manifest itself in a form of individual political resilience to certain ideas and developments within CEN and, consequently, emerge as an obstruction of the processes. As it was previously stated, we are not aiming at theoretical discussions in this area, nor to prove "occurrence of corruption" within the process. What we do suggest is that the established power

[29] Podumljak, M., David-Barrett, E. (2015) Deliverable - D8.1.2. The Public Procurement of Construction Works: The Case of Croatia. ANTICORRP. Available at: https://www.againstcorruption.eu/wp-content/uploads/2015/12/D8.1.2-Croatia.pdf

distribution is deviating from the ethical universalism principles that as cross-impact could reflect in lower efficiency and effectiveness in implementation of the applicable EU Standardization policies.

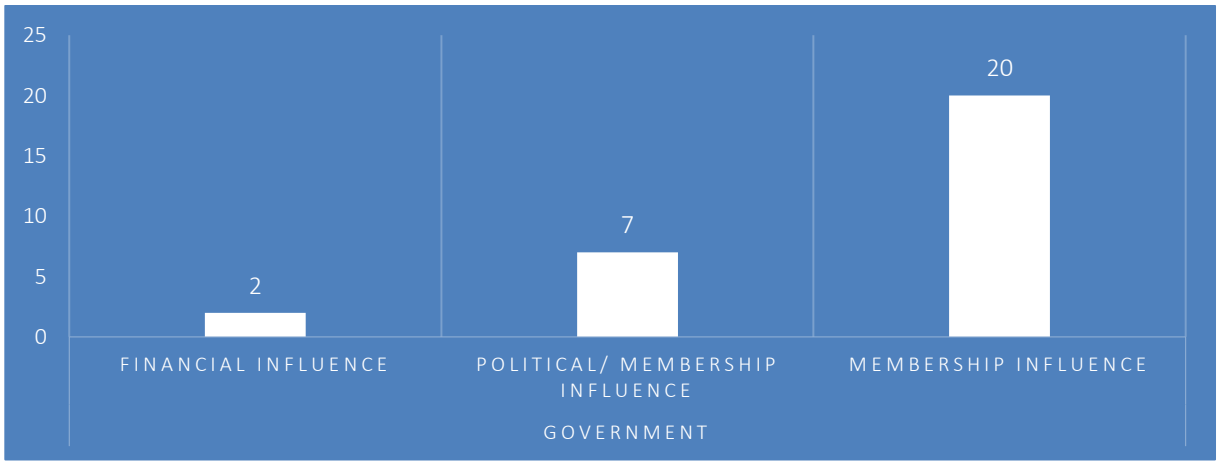
In our model of assessment of organizational systems from a standpoint of distribution of power, in addition to analyzing the ownership, a type of organizational culture, we hereby provide a more detailed illustration on power distribution in observed entities from a standpoint of appointments. Early in our approach to anti-corruption studies (that we believe is applicable here in analyzing the quest to ethical universalism), we established that power of appointment control in governing bodies, reciprocates in the power to influence their respective procedures and the outcomes of such (Podumljak and David-Barret, 2015). The risks of high power/low accountability that derive from ownership/type of entities analysis previously conducted (Figure 1 and Figure 2 above), transgresses into appointment power in governing bodies in respective CEN members (national SDOs) in the majority of cases in a sample of Europe 34 as Figure 3 and Figure 4 below show.

Figure 3: National Standardization Bodies (CEN members 2020) Founded by Government - Type of Influence on Appointments in Governing Bodies



Source: Author's own computation based on National Standardization Bodies websites, Founding acts/Regulation (N=29)

Figure 4: National Standardization Bodies (CEN Members 2020) Founded by Government- Type of Influence over Appointments of Technical Committee Members

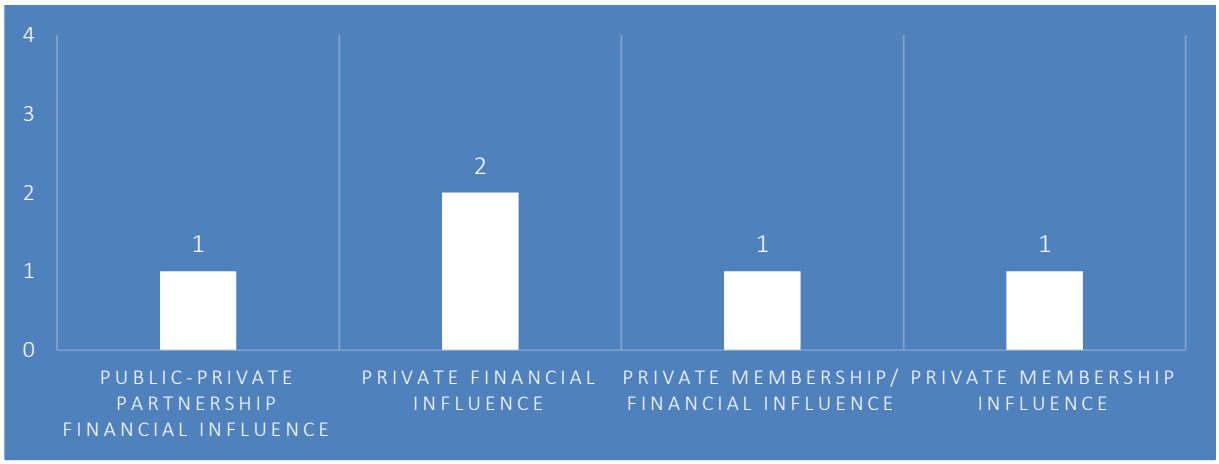


Source: Author's own computation based on National Standardization Bodies websites, Tehnical Committee Regulations (N=29)

As Figure 3 and Figure 4 above show, out of twenty-nine (29) respective national SDOs (CEN members), that are established by the government, in sixteen (16), or more than a half of entities, the appointment procedures of the key governing bodies are exposed to the dominant national government influence according to our analysis of their founding and regulatory acts. In twelve (12) out of twenty-nine (29) entities dominant influence is to a certain extent mitigated by shared power of decision making between members of the respective national SDOs and the founders (i.e. national governments, and their respective political interests). In the context of European level or national level standardization process, our analysis of the regulatory acts in each of the national SDOs suggests that the risks of dominant government influence are to a certain extent mitigated by appointments in specific technical committees, where membership influence (assumed by the researchers) supersedes the power of the central government. However, all of these findings are first stage findings that provide insight in to the standardization structure of CEN and CEN's respective members, and further research and analysis is needed if we are to be certain in our conclusions. Moreover, it ought to be reinstated that we do not hereby provide an opinion that government and political ownership/influence is imperiling per se. We merely provide evidence for the readers to make their own conclusions, especially in the context of findings that follow.

As for the minority of the CEN-members (national SDOs) that are established by a private initiative in respective member states, we observed that in their case the influence in decision-making may be dependent on financial power of their respective members as participation in work of these organizations is based on membership fee.

Figure 5: National Standardization Bodies (CEN Members 2020) Founded as private initiative or as public-private partnership organizations, Type of Influence over Appointment of Technical Committee Members



Source: Author's own computation based on National Standardization Bodies websites, Tehnical Committee Regulations (N=5)

While observing potential dominant influence over processes conducted in respective national SDOs provided partial picture of power play, in order to determine the effectiveness of observed SDOs in a sample of Europe 34 in their quest to ethical universalism, we need to understand the existence of barriers to deviation from such a goal in each CEN member organization. In the course of this research, we aspired to establish more direct links between national SDO's membership and published standards, but this attempt was undermined by the absence of transparency among respective national SDOs in

declaring their actual membership. As table in Appendix 3 shows, only two (2)[30] out of thirty-four (34) CEN members in 2020 have declared their membership - Germany and Finland. In Finland membership in the respective national SDO is heavily dominated by the public sector representatives, academia, non-profit associations and associations of industries which implies that the system is structured in a manner that resembles a system of delegates, in Germany on the other hand, SDO membership is more focused on direct participation of industries. To emphasize, we are not proposing or favoring one system over another as there is no sufficient data to make a conclusion over such fact. However, the diversity in organizational culture among CEN members observed in only two available samples among thirty-four (34) European countries suggests that mitigating different approaches at the level of CEN may be demanding. However, what raised concerns of researchers was lack of transparency in this area, that is contrary to the objectives of the EU standardization policies, and that can hinder evaluation of quality of the standardization processes in Europe. Furthermore, it undermines efforts to understand the represented interests among the CEN members and to propose any form of enhancement. Despite deficiencies in the evidence observed, researchers do have a firm opinion that the observed situation does not support transparency, participation, and pluralism in representation of stakeholders' interests as objective in the European standardization policies. We could not detect measures that would promote participation of the SME's interests in standardization process, or measures that would effectively prevent politicization of the standardization process. Lack of national SDO's interest and consequently participation and initiative in observed sample of 4 (pre) standardization processes, further support our thesis that European standardization industry is a reactive rather than an active participant in the observed clash of global power plays that could reflect in standardization and have more serious implications for European SMEs and economies in the future. For more conclusive results there is a necessity for further research in this area and more intellectual power and resources ought to be devoted to analysis of these phenomena from different perspectives. However, in order to be able to provide a better context for a comprehension of our observations, we provide further evidence on European context of standardization that could be of value to industry, policy-makers and researchers in the future.

[30] Please note that this claim is with reservation because data could exist on national languages on the websites of the remaining 32 CEN members. However, researchers could not locate them.

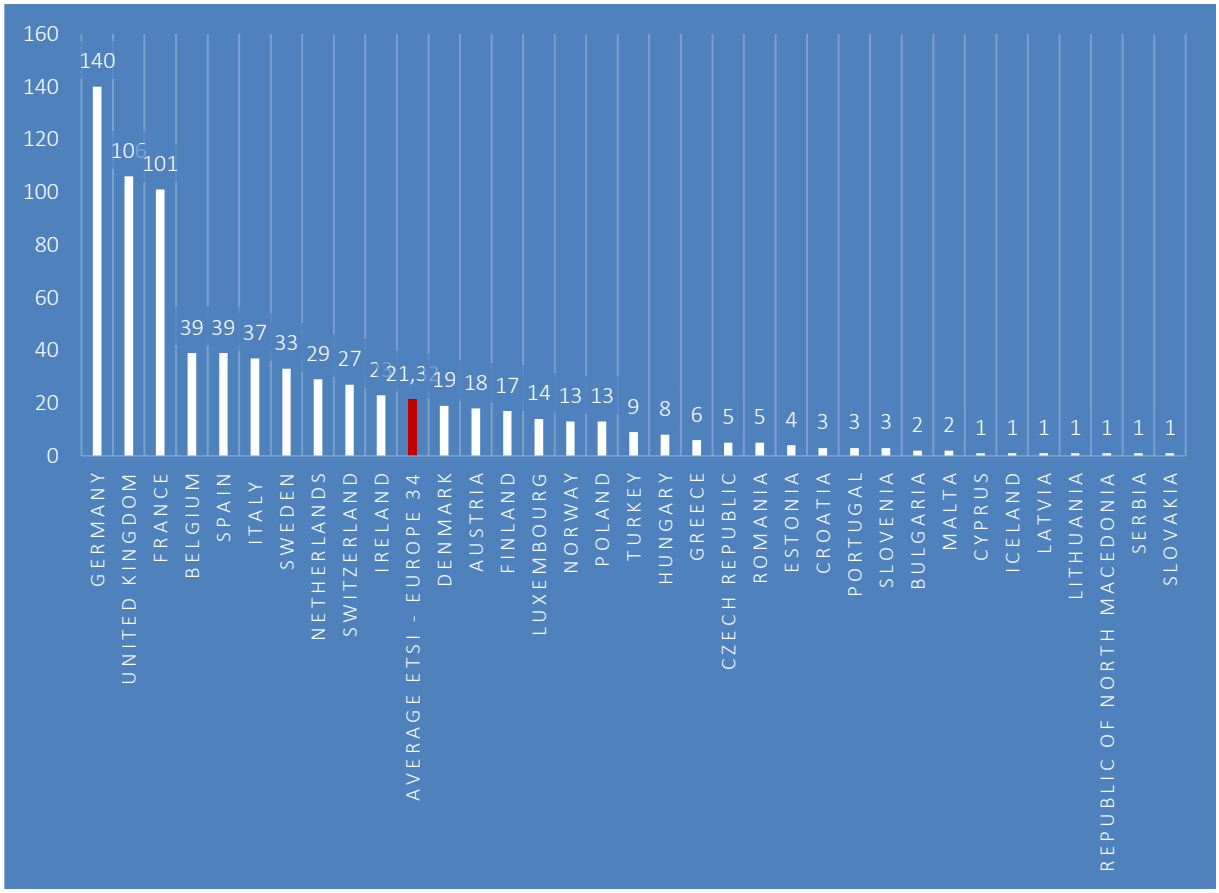
4. POWER SHARE AND DIGITAL ACTIVITY FLASH REPORT WITH FOCUS ON THE EUROPEAN TELECOMMUNICATIONS STANDARDS ORGANIZATION (ETSI)

Background: ETSI is a European Standards Organization dealing with telecommunications, broadcasting and other electronic communications networks and services. Their role encompasses complementing European regulations and legislation through the creation of Harmonised European Standards. The only standards developed by the three ESOs (CEN, CENELEC and ETSI) are recognized as European Standards (ENs)[31]. As stated in the introductory part of this study, ETSI is a Voluntary consensus European Telecommunications Standards Organization: ETSI was set up in 1988 by the European Conference of Postal and Telecommunications Administrations (CEPT) in response to proposals from the European Commission[32]. In context of our research ETSI is the most relevant European Standards Developing Organization, with its work on *ETSI - Mobile and Broadcast Convergence* (pre-standardisation phase), addressing the majority of the issues that are the focal point of our analysis – convergence, (pre)standardization, and analysis of standardization policies. European Telecommunications Standards Institute (ETSI) https://www.etsi.org/ is a producer of technical standards intended for global use for digital technologies, products and services.

ETSI has over 900 members from 65 countries (at the end of 2020) and across five continents. Its members include: administrations, administrative bodies and national standards organizations, network operators, manufacturers, users, service providers, research bodies, universities, consultancy companies/partnerships and others (ETSI, 2020). There are differences in governance and participation between the CEN and ETSI. ETSI corresponds to a greater extent to our research target of (pre)standardization initiatives in the area of social media convergencce (with focus on content production and management) with hundreds of standards and industry guidelines developed in the relevant research area. ETSI is focused primarily on industry consensus, rather than on a national consensus (that would be the case in CEN selected standards). According to the ETSI governing rules, in addition to industry members, the CEN members or other type of national delegations are as well allowed to participate. However, according to the regulatory acts, the vote of a national delegation may be cast only if an ETSI member, in the category Administrations, Other Governmental Bodies or National Standards Organizations, contributes to ETSI according to the GDP of the country. As it is an open and participatory membership organization ETSI is a synthesis of public entities and industry representatives, that are admitted in membership and that give payment for the membership fee. In order to analyse the work of ETSI from the point of view of power share, which we established in the previous chapter, we hereby examine more aggregate data with a certain disregard to detail. The aim of such an approach is to provide industry actors, policy makers and academia with the concept of the representation of a specific country/industry in ETSI's work which consequently determines the potential of influence of such a country/industry on European digital economics.

[31] Available at: https://www.etsi.org/about/about-us
[32] Available at: https://www.etsi.org/about

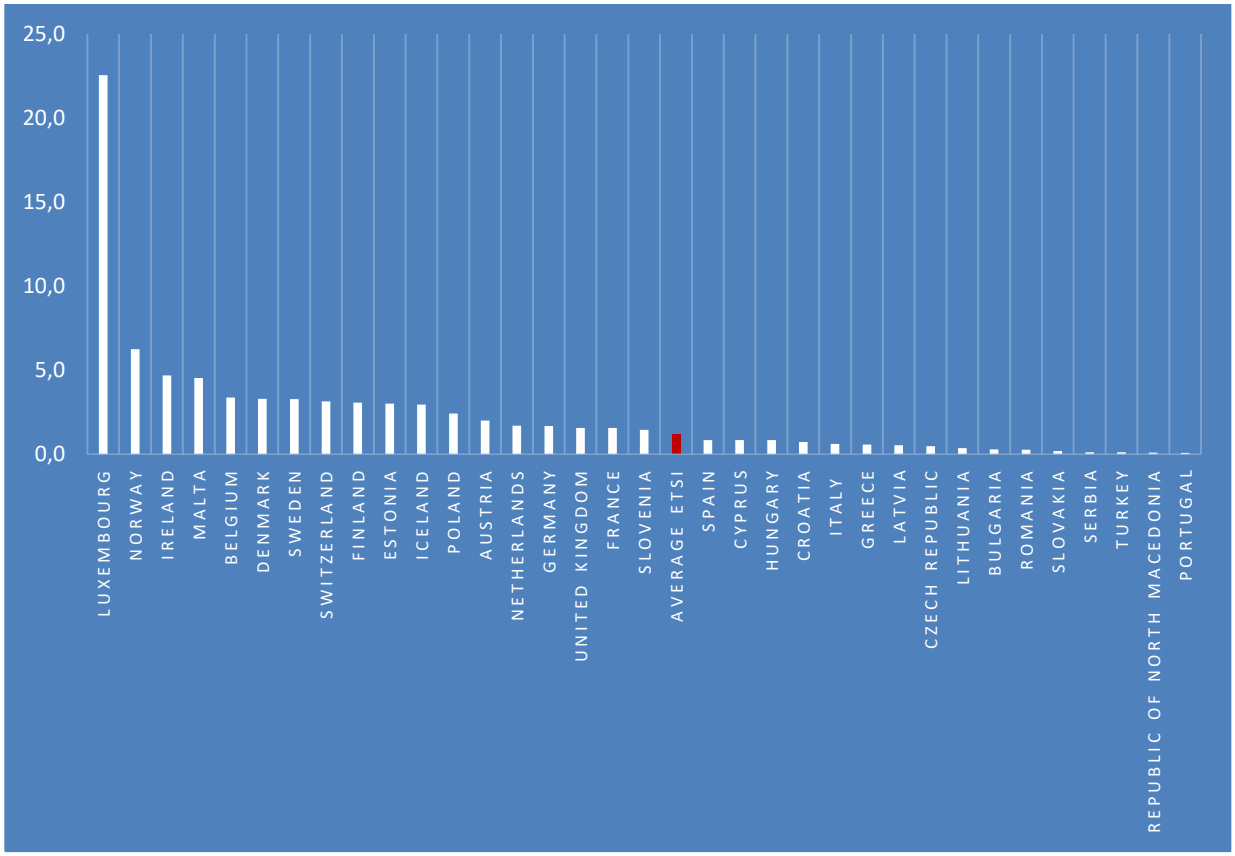
Figure 6: Number of ETSI Members whether industry or public sector representatives from each country in Europe 34 sample (in absolute numbers), 2020



Source: Author's own computation based on ETSI website accesible database, N=34

The figure above indicates that among Europe 34 sample of countries, the most remarkable representation in ETSI work is noted in Germany, with 140 members of ETSI, followed by The United Kingdom (106 members), and France (101 members). On the other end of scale are countries that have only 1 member from their respective countries: Cyprus, Iceland, Latvia, Lithuania, North Macedonia, Serbia and Slovakia. This finding implies that industry's representation highly variate from country to country, which consequently implies that some of the countries are leaders in the digital industry standardization, while the rest are mere followers. This power disparity in digital eco-system development may in the future significantly affect the speed of development among the Europe 34, or across the EU 27 Member States. In order to provide a broader context, we also measured, based on the presence of digital industry entities in ETSI, how ingrained the digital industry is in each country that we observe, thus illustrating a degree of earnestness of digital developments in each country among Europe 34 sample. We used index of ETSI membership per country share per 1 million inhabitants (see Figure 7 below).

Figure 7: Number of ETSI Members whether industry or public sector representatives, per one million inhabitants (Europe 34 sample), 2020

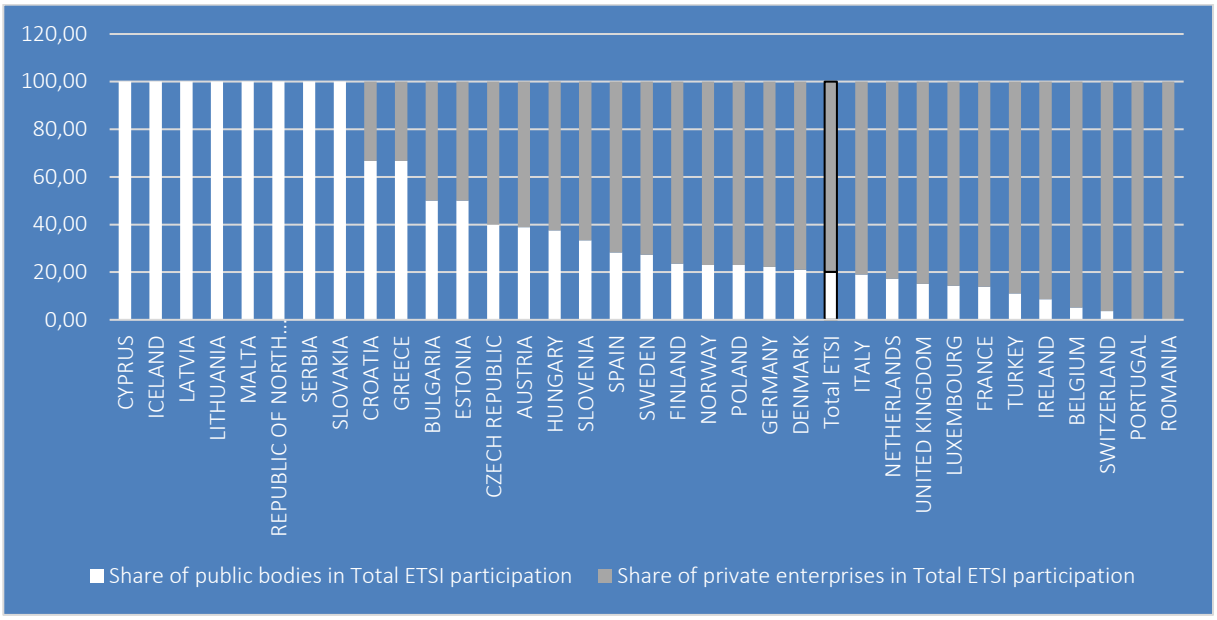


Source: Author's own computation based on ETSI website database, N=34

Figure 7 above indicates that, based on the membership in ETSI, the digital industry is ingrained to the highest extent in the populations of Luxembourg, Norway, Ireland, Malta and Belgium. While certain findings here may be deviated by a small size of population (i.e. Malta, Luxembourg, Iceland) the overall impression indicates that the most serious developments in the digital eco-system are expected partcularly in these countries. Our researvations toward the accuracy of our interpretation ought to be expressed yet again at this point as such findings are rather indicative and do suggest that more research is needed in this direction. However, our DELPI® Index[33] (Digital Exeriential Literacy and Pluralism Index) measurement conducted in Deliverable D.3.3 Socio-Economic and Political Impact of Legacy Media and Social Media Convergence surprisingly coincides with the findings herein although the measurements are conducted on entirely unrelated set of data (i.e. DELPI® is measuring exposure of population to social media platforms) which indicates that exposure of population to social media platforms, positively affects developments of the digital industry eco-system in the observed sample of thirty-four (34) European countries. This measurement additionally continues to address variations in developments of digital industry among EU Member States, which could consequently affect the balance of economic and political power in the EU in the years to come. Finally, we provide here an insight into the share between the public sector representatives and private entersprises per country on a sample of Europe 34.

[33] For more information, please see Digital Experiential Literacy and Pluralism Index (DELPI®) in D 3.3. REPORT ON SOCIO-ECONOMIC AND POLITICAL IMPACT OF LEGACY MEDIA AND SOCIAL MEDIA CONVERGENCE

Figure 8: Number of ETSI Members private vs public sector representatives, per country (Europe 34 sample) in %, 2020



Source: Author's own computation based on ETSI website database and web sites of 34 ETSI members, N=34

Within any consideration, it should be taken into account that in some cases (first 8 countries) 100% represent one legal entity, as only one organization is an ETSI member from these countries. Nonetheless, we propose that this figure is used as an illustration of potential power share between the private and public sector in ETSI from each country that participates in the work of ETSI Committees.

5. STAKEHOLDERS' COORDINATION FLASH SITUATIONAL REPORT WITH FOCUS ON GLOBAL SDOs ISO AND IEC

Analysis of the power equilibrium in European SDOs which was conducted from a variety of angles (i.e. private vs public sector, interest and participation, pluralism, transparency, and consequently from a standpoint of quest to ethical universalism in power distribution) provided us with several potentially impactful findings: i) European standardization policy may be hindered by low participation and country (national) representation in specific standardization processes; CEN's outcomes, although deriving from a highly efficient process, may be lessened by a low general support (ownership over the results) that stem from low participation and lack of interest in specific standards; low transparency and, consequently, scarceness of both integrity and accountability instruments observed among national SDOs may present a negative affect upon quality, effectiveness, and integration of adopted standards into organizational culture and business models of European industries; a varying organizational culture of CEN members, and their impact on standardization process outcome may further contribute to a differentiation between effective and inert economies across Europe; differentiation between the digitally advanced industries (as shown on ETSI participation index per one million people) that are "producers" of digital systems and innovation generators, and the "followers" of the trends or "users", may significantly affect European economic future; and finally, all of the afore stated, have already had an adverse effect on digital experiential literacy and pluralism in the observed societies as our cross-impact study in D.3.3 indicates. While our primary objective in this study did not aim at impending this flash situational and progress report, in order to gain more understanding of the potential impact, we "took a snapshot" of the global level SDOs with two specific objectives: to better understand the organizational culture within these organizations from the standpoint of power distribution, and to understand the scope of influence that Europe may have in a global context in standardization, with special emphasis on digital industry and media and social media convergence that is the primary objective of our research in COMPACT.

5.1 International Organization for Standardization – ISO Flash Stakeholder Coordination Report

Scope and structure: ISO is an independent, non-governmental international organization with a membership of 164 national standard bodies. Through its members, it affiliates experts to share knowledge and develop voluntary, consensus-based, market relevant international standards that support innovation and provide solutions to global challenges[34]. Therefore, due to representation and participation of national Standard Developing Organizations (SDOs) ISO is more relevant for comparison to CEN than ETSI in our model. Particularly since according to principles of ISO, individuals or companies cannot become ISO members, however, there are methods and means through which one can participate in standardization work. It is stated in its documents that there are three member categories in ISO, each having the benefit of a different level of access and influence over the ISO system. This assists us in being inclusive while also recognizing the different necessities and the capacity of each national standards body[35]. Full members (or member bodies) influence ISO standards development and strategy by participating and voting in ISO technical and policy meetings. Full members sell and adopt ISO International Standards nationally. Correspondent members observe the development of ISO standards and strategy

[34] Available at: https://www.iso.org/about-us.html

[35] All information is gathered from ISO web page and published formal documents available at: https://www.iso.org/about-us.html

by attending ISO technical and policy meetings as observers. Correspondent members can sell and adopt ISO International Standards nationally. Subscriber members are in the know on ISO's work, however cannot participate in it. They do not sell or adopt ISO International Standards nationally[36]. The organization is financed from membership fees adjusted by GDP. Within ISO structure we observed membership in two Technical Committees/Sub-Committees: i) Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23); and ii) Online reputation (ISO/TC 290) that we established to be corresponding to our research targets in CEN and to be, for the reader, a sample shot that illustrates two elements: the organizational culture that affects standard making and power distribution relations that we observed among European SDOs.

Brief findings:

Similarly to the situation in CEN, participation of the national SDOs in specific committees is rather low, suggesting that the outcome of the process may be influenced by more "interested" countries in any given standard. This risk is mitigated by the rules of procedures that are standardized and strict, and the openness of the process to observations by other members which can participate as observers of the process without the voting right as we understand it. In the case of Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23, see Table 15 below), the code of the subcomittee suggests that the standards developed in this area are in compliance with the IEC (International Electrotechnical Commission), another global standardization body that we will briefly reflect on in this report.

Table 15: Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23) – Sub-Committee Participating members and Observing Members

PARTICIPATING MEMBERS	
COUNTRY/TERRITORY	ACRONYM
Austria	ASI
China	SAC
France	AFNOR
Germany	DIN
Italy	UNI
Malaysia	DSM
Russian Federation	GOST R
Spain	UNE
United Kingdom	BSI

OBSERVING MEMBERS	
COUNTRY/TERRITORY	ACRONYM
Argentina	IRAM
Cyprus	CYS
Czech Republic	UNMZ
Egypt	EOS
Finland	SFS
Hungary	MSZT

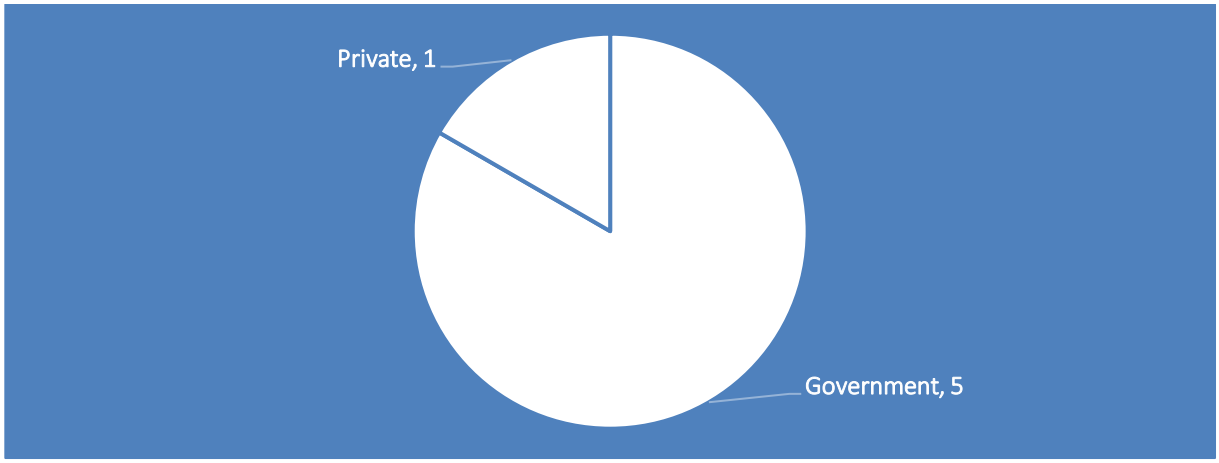
[36] Available at: https://www.iso.org/members.html

India	BIS
Iran, Islamic Republic of	ISIRI
Israel	SII
Japan	JISC
Korea, Republic of	KATS
Netherlands	NEN
Peru	INACAL
Philippines	BPS
Saudi Arabia	SASO
Slovakia	UNMS SR
Switzerland	SNV
Thailand	TISI
Uganda	UNBS

Source: Author's own computation based on the ISO web page placed database

As illustrated in Table 15 above, members of the ISO Technical Sub-Committee in charge of developing standards in the area of Digitally Recorded Media for Information Interchange and Storage, are China, Japan, Korea, The Netherlands, The Russian Federation, and Switzerland. Europe 34 in this area is represented by the active participation of The Netherlands and Switzerland, while standard making is dominated by Asian markets (i.e. China, Japan, and Korea). As for the ownership structure of the organizations participating in standard development in this area, it is predominantly represented by organizations that are founded by state, and dominated by political influence as Figure 9 below shows.

Figure 9: Sub-Committee: Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23) Participating Members' Founders

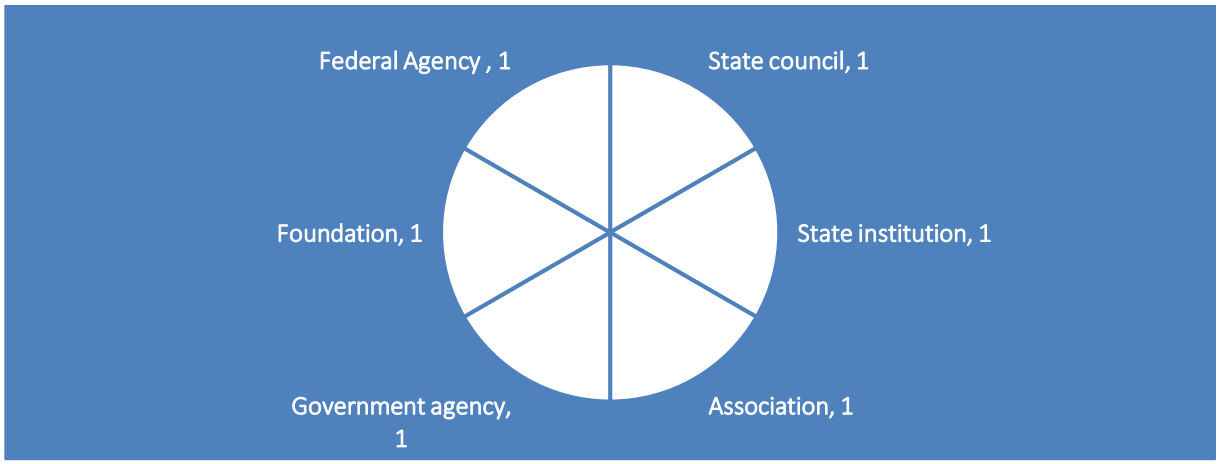


Source: Author's own computation based on Participating Members (ISO/IEC JTC 1/SC 23) web sites, Founding act (N=6)

As previously explained in the case of CEN's sample of standards, the fact that respective national SDOs that are the participating members of the Technical Sub-Committee ISO/IEC JTC 1/SC 23 expose this committee to the risk of politically induced interference with the technological/industry objectives in this area. This is especially relevant in those instances where solutions (i.e. adopted standards) are part of the industry solutions that have origin in these countries and equally so in cases where sensitivity of the solution (i.e. national security issues) reflects on the country's political objective. In our model

established in CEN analysis a quest for ethical universalism in power distribution was explicated and detected as a value that we aspire to assess in this research. From this standpoint, a low level of pluralism or representation of divergent interests in developing of a standard, may in the process, impede the quality of the adopted standard, its implementability, the ownership over results of the process, in addition to competitiveness of local industries whose interest was not represented in the standard creation. As Figure 10 below shows, in the case of national SDO's representation, legal status of the national bodies involved in standard developing displays incoherent structure of the organizations involved, thus providing for lower level accountability and integrity of the organizations involved in the process as elaborated in the case of CEN member organizations previously.

Figure 10: Sub-Committee: Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23) Participating Members Founders Legal status



Source: Author's own computation from Participating Members (ISO/IEC JTC 1/SC 23) web sites, Founding acts/Regulation (N=6)

It ought to be reinstated that findings based on our observation of the type of the organizational entity by no means suggest that the process is corrupt. What we are addressing herein are merely susceptibilities to the process that stem from diferent types of governance issues of its contributors. Table 16 below shows pariticipating members and observing members in the Online Reputation Technical Committee, meaning participants and observants in the process of development of standards in this area.

Table 16: Online reputation (ISO/TC 290) –Technical Committee Participating members and Observing Members

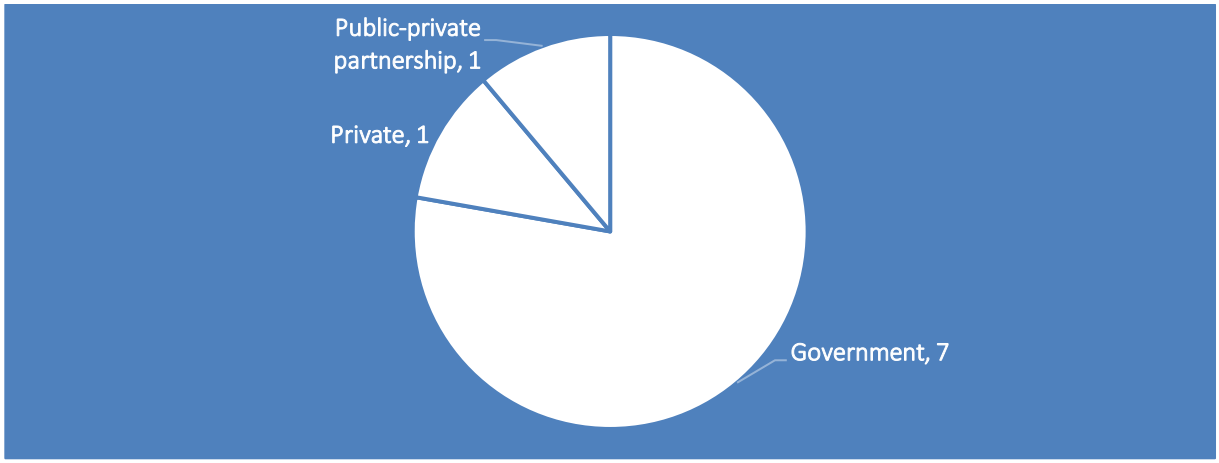
PARTICIPATING MEMBERS	
COUNTRY/TERRITORY	ACRONYM
Austria	ASI
China	SAC
France	AFNOR
Germany	DIN
Italy	UNI
Malaysia	DSM
Russian Federation	GOST R
Spain	UNE
United Kingdom	BSI

OBSERVING MEMBERS	
COUNTRY/TERRITORY	ACRONYM
Argentina	IRAM
Cyprus	CYS
Czech Republic	UNMZ
Egypt	EOS
Finland	SFS
Hungary	MSZT
India	BIS
Iran, Islamic Republic of	ISIRI
Israel	SII
Japan	JISC
Korea, Republic of	KATS
Netherlands	NEN
Peru	INACAL
Philippines	BPS
Saudi Arabia	SASO
Slovakia	UNMS SR
Switzerland	SNV
Thailand	TISI
Uganda	UNBS

Source: Author's own computation based on the ISO web page placed database

As depicted in Table 16 above, members of the ISO Technical Committee in charge of developing standards in the area of Online reputation are China, Austria, France, Germany, Italy, Malaysia, The Russian Federation, Spain, and The United Kingdom. Europe 34 in this area appears to be dominating in influence over developed standard by presence and active participation of Austria, France, Germany, Italy and Spain. In regard to the ownership structure of the organizations participating in standard development in this area, it is principally represented by organizations that are founded by state, and dominated by political influence as Figure 11 below illustrates.

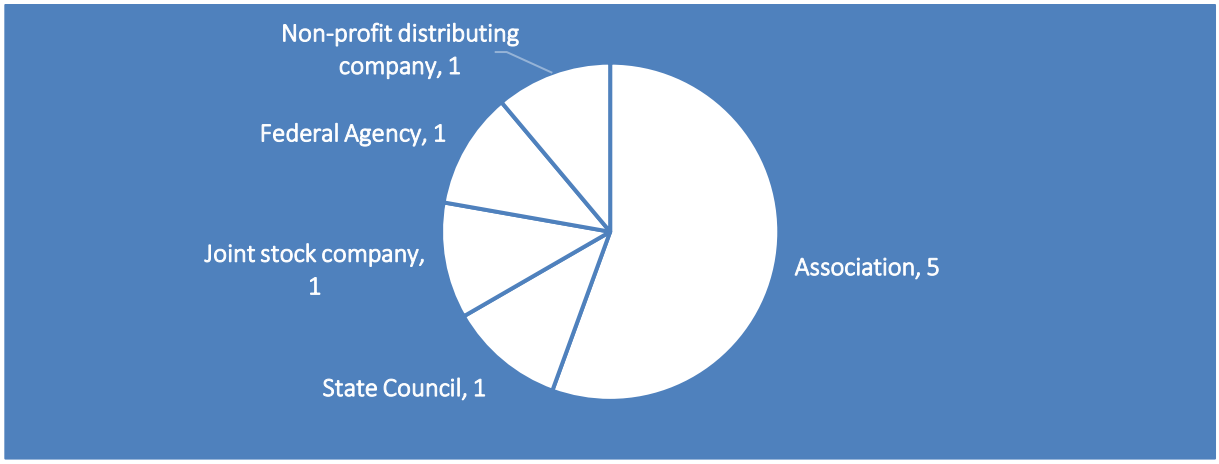
Figure 11: Technical Committee: Online reputation (ISO/TC 290) Participating Members' Founders (end of 2020)



Source: Author's own computation based on Participating Members (ISO/TC 290) web sites, Founding act (N=9)

Following the logic of previous conclusions our observations of the founders' status (see Figure 11 above) of respective SDOs that participate in the work of ISO Technical Committee ISO/TC 290 suggest that a risk of possible political interference with the work of Technical Committee is equally present in the work of this body. As online reputation is the area of standardization that significantly impacts many areas of life (whereas the nature of the impact is not restricted to those of economic and industrial origin, but also to those of the political and social) this finding implies that the global view of the online reputation is governed by the countries that may have the most powerful political, economic and industry's interest in the outcome of this process (the actual standards). The presence of the risk of politically induced interference with the technological/industry objectives in this area is a continuous one. Risks related to low accountability of the involved actors, also remain to be in observation of work of this Technical Committee (see Figure 12 below):

Figure 12: Technical Committee: Online reputation (ISO/TC 290) Participating Members Founders Legal status



Source: Author's own computation based on Participating Members (ISO/TC 290) web sites, Founding act (N=9)

As Figure 12 above shows, in the case of national SDO's representation, legal status of the national bodies involved in standard developing shows incoherent structure of the organizations involved, thus providing for lower level accountability and integrity of the organizations involved in the process as elaborated in the case of respective ISO's Tecnical Sub-Committee.

Similarities in structure and organizational culture between CEN and ISO do reflect in similarities in the risks observed here. ISO is a large organization, covering most of the world's markets, thus affecting lives of billions of citizens and impacting millions of economic operators around the globe. What we consider to be the most significant risk in the work of ISO, and representation of the European SDOs in the work of ISO, is similar to the observations in work of CEN, lack of interest of local actors in certain relevant areas, and may result in competitive disadvantages for the industries that are based in these countries. In addition, despite advanced procedures within ISO, the nature of their constituency (types of organizations that are members and ownership over them) suggests that represented interests and the consequential outcome of the procedures (i.e. standards developed) are not based on the principles of ethical universalism that this report reflects on. Despite the fact that on a regional level (i.e. Europe) and on the global level (i.e. International Organizations) there is a frequent statement that participation of SMEs in designing markets is encouraged, in the processes and the outcomes observed we could not corroborate materialization of these intentions. Moreover, we have observed that measures which would effectively prevent politicization of the standardization process at ISO level are absent. The risk of collision of global power plays that could reflect in standardization and have more severe implications for European SMEs and economies continues to be observed by research team herein. However, we stand before our opinion that for more conclusive results there is a need for more targeted research. In order to further check our findings, we also observed the work of IEC – International Electrotechnical Commission, that is based on scope of their work even more relevant to our research target.

5.2 International Electrotechnical Commission (IEC) - Flash Stakeholder Coordination Report (as at the end of 2020)

Scope and structure[37]: The IEC is a global, not-for-profit membership organization, whose work underpins quality infrastructure and international trade in electrical and electronic goods. IEC facilitates technical innovation, affordable infrastructure development, efficient and sustainable energy access, smart urbanization and transportation systems, climate change mitigation, and increases the safety of people and the environment. The IEC membership comes from more than 170 countries and provides a global, neutral and independent standardization platform to 20 000 experts globally. It administers 4 Conformity assessment systems whose members certify that devices, systems, installations, services and people work as required. The IEC publishes around 10 000 IEC International Standards which together with conformity assessment provide the technical framework that allows governments to build national quality infrastructure and companies of all sizes to buy and sell consistently safe and reliable products in most countries of the world. IEC International Standards serve as the basis for risk and quality management and are used in testing and certification to verify that manufacturer promises are kept. IEC develops its standards through work of National Committees.

IEC National Committees[38]: National Committees provide the management expertise and send experts to represent national needs in the global IEC standardization and conformity assessment arena. Upon admission, every IEC Member – one National Committee per country - promises to fully represent all private and public national interests in the field of electrotechnology at the global level in IEC standardization and conformity assessment activities. To better understand differences in IEC membership in comparison to ISO, in the case of IEC some member countries in addition to their respective central standardization body (that is a member of CEN and ISO usually) they have specialized national standardization organization in area of electrotechnics (one of examples is Austria in our case).

Membership and participation in IEC[39]: IEC defines three types of membership/participation in their work: IEC Full Member, IEC Associate Member, and Individual Experts. IEC Full Members are Country's National Committees that are constituted in accordance with the IEC Statutes and Rules of Procedure may apply to become an IEC Full Member. IEC Full Members, after paying their yearly membership fee, have the possibility to send experts to participate actively in any technical committee/subcommittee of their choice. They are also able to apply for management positions and functions in the IEC and have voting rights in the IEC Council. IEC Associate Members are Country's Representatives from the countries that opted to be IEC Associate Members. IEC Associate Members can access all working documents and opt to send experts to participate in a limited number of technical committees/subcommittees. They cannot occupy management positions and functions within the IEC and do not have voting rights in the IEC Council. IEC Individual experts are individuals with specialist knowledge in a technical field and who are delegated by their Country's National Committee (NC) to participate in IEC work. It is important to note that individuals or companies cannot become a member of the IEC. They can only participate in the IEC via their National Committee.

[37] Available at: https://www.iec.ch/what-we-do
[38] Available at: https://www.iec.ch/national-committees
[39] IBID

Brief findings:

Similar to observations made in ISO standardization processes, participation of the national SDOs in specific committees within IEC is rather low, suggesting that the outcome of the process may be influenced by countries that have more of political, economic and industry's interest in standards that come as results of the (pre)standardization processes. Founding and regulatory acts of IEC show clear intention to mitigate this situation by restricting imbalance of power on the input level (who can participate) and process wise (how standard is made). Research team observed that most of the CEN members are present in the work of the IEC, but not in the same status as the Table 17 below shows:

Table 17: Comparison Europe 34 sample (members of CEN) in IEC National Committees

Country	Code	IEC Membership	Website
Austria	AT	Full Member	http://www.ove.at
Belgium	BE	Full Member	http://www.ceb-bec.be
Bulgaria	BG	Full Member	http://www.bds-bg.org
Croatia	HR	Full Member	http://www.hzn.hr
Cyprus	CY	Associate Member	http://www.cys.org.cy
Czech Republic	CZ	Full Member	http://www.unmz.cz/
Denmark	DK	Full Member	http://www.ds.dk
Estonia	EE	Associate Member	http://www.evs.ee
Finland	FI	Full Member	http://www.sesko.fi
France	FR	Full Member	http://www.afnor.org
Germany	DE	Full Member	http://www.dke.de
Greece	GR	Full Member	http://www.elot.gr
Hungary	HU	Full Member	http://www.mszt.hu
Iceland	IS	Associate Member	http://www.stadlar.is
Ireland	IE	Full Member	http://www.nsai.ie
Italy	IT	Full Member	http://www.ceinorme.it
Latvia	LV	Associate Member	http://www.lvs.lv
Lithuania	LT	Associate Member	http://www.lsd.lt
Luxembourg	LU	Full Member	http://www.portail-qualite.lu/
Malta	MT	Associate Member	http://www.mccaa.org.mt/
Netherlands	NL	Full Member	http://www.nen.nl
North Macedonia	MK	Associate Member	http://www.isrm.gov.mk
Norway	NO	Full Member	http://www.nek.no
Poland	PL	Full Member	http://www.pkn.pl
Portugal	PT	Full Member	http://www.ipq.pt
Romania	RO	Full Member	http://www.asro.ro
Serbia	RS	Full Member	http://www.iss.rs
Slovakia	SK	Full Member	http://www.unms.sk
Slovenia	SI	Full Member	http://www.sist.si
Spain	ES	Full Member	http://www.une.org
Sweden	SE	Full Member	http://www.elstandard.se
Switzerland	CH	Full Member	http://www.electrosuisse.ch
Turkey	TR	Full Member	http://www.tse.org.tr
United Kingdom	GB	Full Member	http://www.bsigroup.com

Source: Author's own computation based on the IEC Web page based database 2020

As Table 17 above shows 27 out of 34 CEN members are also Full Members of IEC. 7 out of 34 CEN members are Associate Members of IEC - Cyprus, Estonia, Iceland, Latvia, Lithuania, Malta and North Macedonia. While this finding implies that Europe is well represented in work of IEC, the 7 countries that are associate members indicate limitations in their participation in standards developing process within IEC and consequently it reflects on limitations of their influence over industry developments, thus in the future, limiting competitiveness of their respective industries in the global market is to be expected. For the primary target of our research topic (i.e. media and social media convergence) we found IEC Technical Committee TC 100: Audio, Video and Multimedia Systems and Equipment to be an adequate illustrative example of stakeholders coordination and European industry presence on a global scale.

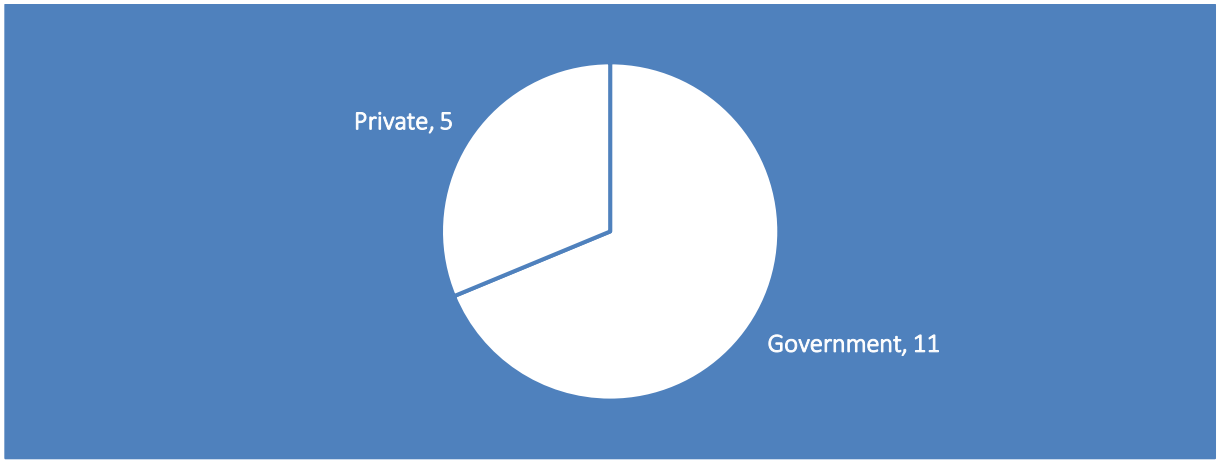
Table 18: IEC/TC 100: Audio, Video and Multimedia Systems and Equipment –Participating Members

COUNTRY/TERRITORY	ACRONYM	P/O Status	IEC Membership
Belgium	BE	P-Member	Full Member
China	CN	P-Member	Full Member
Finland	FI	P-Member	Full Member
France	FR	P-Member	Full Member
Germany	DE	P-Member	Full Member
India	IN	P-Member	Full Member
Ireland	IE	P-Member	Full Member
Italy	IT	P-Member	Full Member
Japan	JP	P-Member	Full Member
Korea, Republic of	KR	P-Member	Full Member
Spain	ES	P-Member	Full Member
Russian Federation	RU	P-Member	Full Member
Sweden	SE	P-Member	Full Member
Switzerland	CH	P-Member	Full Member
United Kingdom	GB	P-Member	Full Member
United States of America	US	P-Member	Full Member

Source:Author's own computation based on the IEC web page based database 2020

As shown in Table 18 above, members of the IEC Technical Committee in charge of developing standards in area of Audio, Video and Multimedia Systems and Equipment are, Belgium, China, Finland, France, Germany, India, Ireland, Italy, Japan, Republic of Korea, Spain, The Russian Federation, Sweden, Switzerland, The United Kingdom and The United States of America. This area of standardizaton, as the picture above shows, is heavily dominated by European actors, with 10 out of 16 members coming from Europe. Within European pool of countries (that are also members of CEN) it is significant that most of the countries are from the western front of Europe. While strong European presence is good news for European industries, researchers still remain concerned about uneven developments and conseqquently presence between European countries in the area of tech (pre)standardisation on a global scale. As for ownership structure of the organizations participating in standard development in this area, due to construct of the intenrational standardization body observed here (IEC) presence continue to be dominated it is by large organizations that are founded by state, and dominated by political influence as Figure 13 below shows.

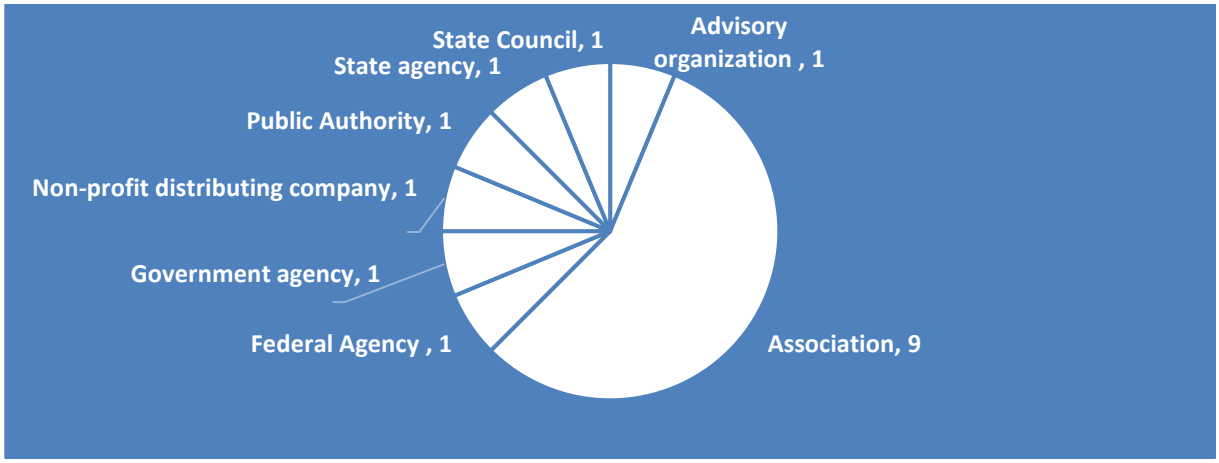
Figure 13: IEC/TC 100: Audio, video and multimedia systems and equipment Participating Members' Founders (end of 2020)



Source: Author's own computation based on Participating Members (IEC/TC 100) web sites, Founding act (N=16)

As shown in the Figure 13 above, our findings continue to point at dominant government/state presence in the ownership of respective SDOs that are leading the standardization processes in different areas. As in our previous findings, in the IEC/TC 100 risk of possible political interference with the work of Technical Committee is present. This is especially relevant in the cases where solutions (i.e. adopted standards) are part of the industry solutions that have origin in the countries that are participating members. Here as well relatively low level of pluralism or representation of divergent interests in developing of standards in this area, may in the future, limit the quality of standard adopted, implementability of the standard, ownership over results of process, and competitiveness of local industries whose interest was not represented in the standard creation. Risks related to low accountability of the involved actors, remains in observation of work of this Technical Committee as well (see Figure 14 below):

Figure 14: IEC/TC 100: Audio, video and multimedia systems and equipment Participating Members Legal Status



Source: Author's own computation based on Participating Members (IEC/TC 100) websites, Founding act (N=16)

As Figure 14 above shows, in the case of national SDO's representation, legal status of the national bodies involved in standard developing in IEC/TC100 shows incoherent structure of the organizations involved, thus providing for lower level accountability and integrity of the organizations involved in the process as elaborated in previous cases that were subject of our analysis as well. Risks of low accountability that stem from varying legal forms of their respective members are also observed by research team in the work of the IEC/TC 100. While presence of European industries in this case is significant in comparison to the rest of the globe, lack of interest of local actors especially from Europe's east may result in competitive disadvantages for the industries that are based in these countries. In this particular case we could not observe professional affiliation of individual experts that represented participating countries in specific standards development, thus our position on representation of European SMEs in this process is limited. Therefore, we stand before our opinion that for more conclusive results there is a need for a more targeted research. While each organization analysed in our approach brought additional value to our understanding of the cross-country, cross-region and global power play, none of the above provided enough information on what exactly is the relationship between European industries represented by national SDOs and global technological developments in the area of social media and media convergence. While we here better understand what governance issues may be significant in enabling or constraining the economic and industrial development in Europe 34, we still do not know what European industry stake on global scale is. This limits our understanding of impact of (pre)standardization policies in Europe, and limits our assessment of the efficiency and effectiveness of the European standardization policies. As analysis of ETSI membership and stakeholders' coordination provided us with the better picture on possible explanations of cross industry interplay between the European countries (or between EU Member States), on a global scale we chose to look in to W3C as indicator of the industrial power share between countries/regions that will be more elaborated on in the following chapter.

6. WORLD WIDE WEB CONSORTIUM (W3C) FLASH STAKEHOLDER COORDINATION REPORT

From a point of view of media and social media convergence power play on the internet is a key feature that needs to be assessed for understanding of the relationship between (pre)standardization processes and its outcomes and a wider social impact. Reasons for this are more conclusively explained by researchers in our deliverable D.3.3 Report on Socio-Economic and Political Impact of Legacy Media and Social Media Convergence (Podumljak, 2021). Herein, in W3C we note different stakeholders engaged in an open process in defining future standards of World Wide Web. Principally, any digital product that communicates to another digital product over longer distances is WWW (i.e. digital superhighway) dependant for engagement with the subject of its communication. While there are forms of intra-net that exist but are not the focal subject of our research, for industry development, economies and socio-political implications, WWW is one of essential elements to be studied. Social media are interactive Web 2.0 Internet-based applications, and as a concept are naturally embodied in WWW development thus implying that social media convergence equally entails WWW convergence in some instances.

Introduction to W3C[40]: W3C standards define an Open Web Platform for application development that has the unprecedented potential to enable developers to build rich interactive experiences, powered by vast data stores that are available on any device. Although the boundaries of the platform continue to evolve, industry leaders speak nearly in unison about how HTML5 will be the cornerstone for this platform. But the compendious strength of the platform relies on many more technologies that W3C and its partners are creating, including CSS, SVG, WOFF, the Semantic Web stack, XML, and a variety of APIs. W3C develops these technical specifications and guidelines through a process designed to maximize consensus about the content of a technical report, to ensure high technical and editorial quality, and to earn endorsement by W3C and the broader community. By nature, W3C is an international – global standard, that affects all societies and all human activity in digital world. Standards that W3C develops are the industry consensus that could be established as a proposed standard to be developed, concurrently, it could equally be affected by the already developed solutions that become a de-facto standard through market forces. Areas where W3C develop standards are (not limited to)[41]:

- Web Design and Applications - WDA involve the standards for building and Rendering Web pages, including HTML, CSS, SVG, Ajax, and other technologies for Web Applications ("WebApps"). This section also includes information on how to make pages accessible to people with disabilities (WCAG), to internationalize them, and make them functional on mobile devices
- Web of Devices – W3C/WoD is focusing on technologies to enable Web access anywhere, anytime, using any device. This includes Web access from mobile phones and other mobile devices in addition to use of Web technology in consumer electronics, printers, interactive television, and even automobiles
- Web Architecture Header – W3C/WA focuses on the foundation technologies and principles which sustain the Web, including URIs and HTTP

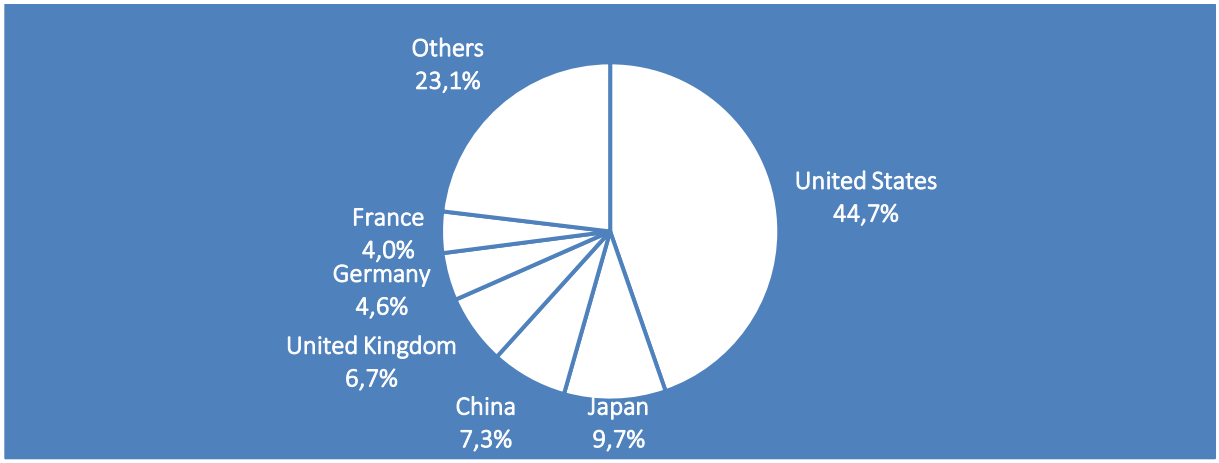
[40] Available at: https://www.w3.org/standards/
[41] IBID

- Semantic Web – W3C/SW - In addition to the classic "Web of documents" W3C is helping build a technology stack to support a "Web of data," the sort of data one finds in databases. The ultimate goal of the Web of data is to enable computers to perform more useful work and to develop systems that can support trusted interactions over the network. The term "Semantic Web" refers to W3C's vision of the Web of linked data. Semantic Web technologies enable people to create data stores on the Web, build vocabularies, and write rules for handling data. Linked data are empowered by technologies such as RDF, SPARQL, OWL, and SKOS.
- XML Technology – W3C/XML Agrees on XML Technologies including XML, XML Namespaces, XML Schema, XSLT, Efficient XML Interchange (EXI), and other related standards.
- Web of Services – W3C/WoS refers to message-based design frequently found on the Web and in enterprise software. The Web of Services is based on technologies such as HTTP, XML, SOAP, WSDL, SPARQL, and others.
- Browsers and Authoring – W3C/B&A builds on principle that the web's usefulness and growth depends on its universality. We should be able to publish regardless of the software we use, the computer we own, the language we speak, whether we are wired or wireless, regardless of our sensory or interaction modes. We should be able to access the web from any kind of hardware that can connect to the Internet – stationary or mobile, small or large. W3C facilitates this listening and blending via international web standards.

W3C's primary activity is to develop protocols and guidelines that ensure long-term growth for the Web. W3C's standards define key parts of what makes the World Wide Web work.

Despite being an open platform, W3C standards are dependent on presence and activity of its members. Therefore, similarly to assessment of member's activity in the respective national or supranational more formalized SDOs covered by this study (i.e. CEN, ETSI, ISO, IEC), here, the participation and activity of specific members is an equally important part of assessment. Moreover, we are observing same aspects of quest to ethical universalism from perspective of distribution of power and the interplay of the global power actors. However, to emphasize, this report is a flash report, for more conclusive results a more targeted research would be needed. W3C has 432 members according to available official information from the site, however, the research team was able to corroborate 429 of its members, thus a 0,7% statistical error shall be applied to our calculations presented here. It is furthermore important to state that the project lead in COMPACT project – NUIG is a member of W3C, thus we are declaring potential conflict of interest, or potential partiality in this chapter. Out of 429 corroborated members of W3C there are 90 or 20,98% entities established by the governments (i.e. public entities) and 329 or 79,02% entities established as private initiatives. Among the private entities, there is a significant dominance of the United States based enterprises our research shows (see Figure 15 below):

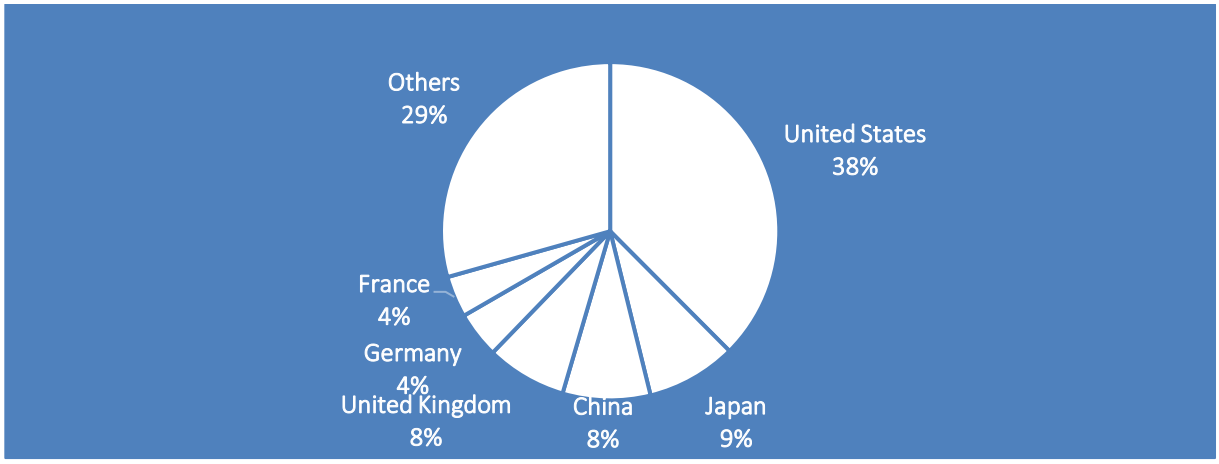
Figure 15: W3C Membership – Share of private enterprises membership per country in total private enterprises membership in W3C (end of 2020)



Source: Author's own computation from data available in web-based databases of W3C, 2020 (N=329)

As Figure 15 above shows the number of the U.S. private enterprises dominates the W3C membership, thus providing for almost a monopoly in the WWW standards creation and future development. The U.S. based entities represent 44,7% of share among all private entities that are members of W3C. Aside from the U.S. private sector dominance in (pre)standardization, it furthermore indicates relative power of US digital industry in comparison to the rest of the world. As shown in the chart above, the U.S. industry is followed by Japan (9,7% of share) and China (7,3%). Strongest European economic space presence of private companies in W3C is shown by the UK (6,7%), Germany (4,6%), and France (4,0% share of all private companies). Even if all public and private companies are combined, the U.S. presence and activity in W3C is still more significant than the rest of the world together if we exclude top 5 followers, see Figure 16 below:

Figure 16: W3C Membership – Share of legal entities (members) per country in the total membership in W3C (end of 2020)



Source: Author's own computation from data available in web-based databases of W3C, 2020 (N=429)

As the chart shows, the Europe 34 pool of countries (or the EU 27 consequently) does not appear as the most influential economic region in web dependent digital industry on the global scale. Hence the problem for Europe's policy makers and industries. Despite being completely voluntary, and open, and without a strict structure observed in CEN, ETSI, IEC, and ISO, W3C is within the area of internet-based technologies more influential than the entire previously mentioned standard making organizations combined, especially in the area of social media convergence that is the primary research target of this project. Hereby we need to revert to illustration one of this study – plug/socket relationship (see Picture 1). World Wide Web as previously stated in the text is the main public information superhighway (Terashima, 2002) implying that the majority of industry's digital constructions necessitate a plug-in to this superhighway. If the plug in standard comes from one of the companies (de-facto standard) or an agreement between few companies, the rest of the industry has no other option but to follow, or to "buy in" into this information superhighway, or pay a toll. Therefore, dominance of the U.S. industry in creation and development of the World Wide Web, creates market advantages for these companies, as their technological solutions are the standards that other have to comply with. Consequently, the researchers conclude in this area that market forces (that create de-facto standards) are not promoting ethical universalism in power share, despite the fact that W3C is a completely open source and open participation platform. We hereby suggest that it is not "fault" of W3C that some countries and regions are followers in concept of WWW standards development, but that it is the deficiency in the markets and policies that provided for this outcome. In this particular instance, the European industries are evidently subdued to be merely followers rather than leaders, with a significant concern expressed by research team that the disproportion between the U.S. and Europe in tech development will continue to increase in future. This finding needs the most immediate attention of all, the industry actors, policy makers, and the academia at all levels (Europe, EU, sub-regional, and national) as efficiency and effectiveness of European industries in this area, may conclusively lead to the difference between developed and under-developed world in the next decade. To emphasize, the research team hereby expresses their utter reservations that there may be alternative and more probable explanations of the situation. Therefore, we encourage experts, policy makers and industry actors to engage and provide alternative interpretations of our results which would be welcomed by research team. In safety zone, we can firmly conclude that more research is required, and that more in-depth understanding of the dynamics is a necessity in order to design effective solutions to the addressed problem. Here we also provide a more detailed table on our findings for those that need a clearer demonstration (see Table 19) below:

Table 19: W3C Membership – Shares of entities per type of entity and per country in W3C (end of 2020)

State	Number of Private Ownerships	% of Private ownerships	Number of Government Ownerships	% of Government Ownerships	Number of Mixed Ownerships	% of Mixed Ownerships	Number of Universities	% of Universities
United States	147	44,7%	12	13,3%	2	20,0%	3	10,7%
Japan	32	9,7%	3	3,3%	2	20,0%	0	0,0%
China	24	7,3%	11	12,2%	1	10,0%	3	10,7%
United Kingdom	22	6,7%	11	12,2%	0	0,0%	5	17,9%
Germany	15	4,6%	3	3,3%	1	10,0%	1	3,6%

France	13	4,0%	4	4,4%	0	0,0%	3	10,7%
Others	76	23,1%	46	51,1%	4	40,0%	13	46,4%
TOTAL	**329**	**100,0%**	**90**	**100,0%**	**10**	**100,0%**	**28**	**100,0%**

Source: Author's own computation from data available in web-based databases of W3C, 2020

7. CONCLUSIONS AND RECOMMENDATION

This report started as an exercise whose purpose was to provide a brief overview and insight into (pre)standardization developments in the area of social media convergence, and to further contribute with the brief situational policy report on stakeholders' coordination within EU 27 and some additional countries. With the structured adaptation of focus of the research (as justified in Introduction) to Standard Developing Organizations and their interrelationship (i.e. national-regional-international) it provides an in-depth insight into: i) Progress in implementation of EU standardization policies; ii) Strengths and weaknesses of national, regional and international (pre)standardization organizational setting; iii) European digital industry position in global context; iv) Distance from ethical universalism principle of equal power share in samples of standardization bodies at all levels; v) Participation, engagement and representation of SME's in standardization processes in digital industry (i.e. inclusiveness of the process), and finally challenges that European economic space experiences due to the fact that European industry combined is no match to the U.S. private sector dominance in W3C that may decide the future of economies.

What do our findings suggest? With all reservations expressed throughout the text, researchers are firm in their concerns that standardization policies and structure as it is, does not support the competitiveness of the European digital industries on a global scale. National representation in work of specific Technical Committees on European level is low, unequal, and disproportionate, and it is not inclusive to the new and potentially emerging startup community in this sector. National Standard Developing Organizations lack effort to reach out to small and medium enterprises across the spectrum. This reflects in low literacy on digital developments among average small or medium company in the European economic space, thus posing a threat that European economies may significantly suffer in the years to come. National standard developing organizations have conservative economic culture that is evidently outdated and not appropriate for application in the emerging digital markets. Lack of interest by national standard developing bodies in specific standardization processes (i.e. technical committees) on European and International level provide that many of the standards and consequently industry developments may go even unnoticed by them. For instance, in our contacts with the national (pre)standardization bodies whether they participate in specific committee, often there were no responses, or stating first "we do not know", or "we follow EU on this". We tend to believe that these would be the answers if industry actors (SMEs) would question them about specific topics as well. In addition to low participation, our findings suggest that in the structure of the SDOs there are very little constraints to political abuse of the process by nefarious actors, which further corroborate our finding that the process is far from "equal power share" that we were looking for, at least in EU 27 markets, or in markets of the countries that aspire to the EU membership. Down the road the economic gap between the European west and European east may even widen due to the observed low activity of the eastern-European enterprises in the work of existing European SDOs such as ETSI. The following few years will be decisive for Europe, as COVID – 19 crisis has globally accelerated digital industry and made it centrefold of economic development in advanced economies. However, the highest benefits go to the U.S., as its digital industry was prepared to exploit this opportunity. In the area of social media convergence (that will be another decisive factor in economic developments) Europe is substantially behind any comparable market, our observations show. In fact, in this area, the atmosphere that we observe in Europe is more technophobic, rather than techno-enabling. Europe has chosen the path of regulating and consequently restricting the market (or responding to foreign dominance in the European market). The time will reveal how and to what extent this approach was successful. Yes, Europe is one of the

richest markets on the planet, and must have some leverage against big industries. However, because of the nature of digital economy, there is a question whether actors will comply, or simply leave toward the zones where there are fewer restrictions. That will literally determine the future of European economy, and consequently the future of European political project and social wellbeing. Yet, all of the conclusions that we make here are the authors', in concert with the impressions of the research team. Predicting the future was never part our business model. Therefore, what we provide here is the evidence, and this evidence, we hope, may help other organizations, institutions and individuals to take proper course of action.

As for recommendations, we have one that we will call European 5B policy. We propose that European Union engage in digital offensive by investing substantial amounts of money into digital startups. This approach is not an expense, but an investment in the European future and wellbeing of all of its citizens. Therefore, we propose that in advanced effort EU designs a rapid digital fund, with the annual budget of 5 Billion EUR (hence the 5B), dividing it in 5.000 grants/credits in size of 1 million pert project to startups across the Europe every year, in procedures that are digital, and digitally monitored for its implementation, and most importantly that are based on the principles of ethical universalism and equal power share. Returns on this action, if consistently implemented over the 7 years period (cycle of EU budget) may be in all aspects of life: the EU Budget, EU MS Budgets, social policies, employment, economic and technological advancement, social policies, literacy and in advanced democracies. Most importantly, we believe that it is only way to disrupt established global digital power equilibrium. But, as stated earlier, each of our conclusions as well as this recommendation needs further research to be additionally supported by empirical evidence.

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APPENDIX

Appendix 1. D3.2. Questionnaire

Dear Sir/Madam,

We are contacting you from Partnership for Social Development, a non-profit NGO in Zagreb, Croatia. We are Working Package Leader of the *COMPACT* project financed by the European Union's Horizon 2020 research and innovation programme (link available here: http://compact-media.eu/). The objective of the project is to increase awareness of the latest technological discoveries among key stakeholders in the context of social media and convergence.

We are currently doing research on pre-standardization initiatives and we would appreciate very much if you could answer a couple of questions needed for this research, in line with Freedom of Access to Information principles.

Since your organization is a member of the European Committee for Standardization (CEN), there are four (pre-) standardization initiatives of CEN that are of interest for our research, which are the following:

- Cybersecurity and Data Protection (CEN/CLC/JTC 13) (Available at: https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:2307986&cs=1E7D8757573B5975ED287A29293A34D6B)
- Internet Filtering (CEN/TC 365) (Available at: https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:625771&cs=1F652BC44F0DDC3A32C5C992CAE9778AF)
- Journalism Trust Indicators (CEN/WS JTI) (Available at: https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:2459281&cs=1A2072729FC90782E9EA944C0E8996FF7)
- Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things (CEN/CLC/WS SEP2) (Available at: https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:2409601&cs=17E0C367EB849E852A95AA9F3167B830A)

We would like to know if you could provide us with the following information, referring to national pre-standardization processes in your country:

- What phase are you currently in regarding each of the four mentioned (pre-) standardization intitiaives?
- Who are the participants of consultations/processes regarding those four (pre-) standardization intitiaives?
- Regarding the four (pre-) standardization initiatives, what has been adopted to date regarding recommendations/acts/official opinions and stances?

Feel free to also send us attachments of the adopted recommendations/acts/official opinions, if possible.

We would appreciate it if you could send us the needed information within 10 working days from the date of receipt of this request. Please send the information by e-mail in digital format to info@psd.hr.

Please do not hesitate to ask any questions for clarification using the above mentioned e-mail, or by phone at 00385 1 6055668.

Appendix 2. D3.2. Questionnaire/ Responses received from National Standardization Bodies

Country:	Cybersecurity and Data Protection CEN/CLC/JTC 13	CEN/TC 365 Internet Filtering	CEN/WS JTI - Journalism Trust Indicators	CEN/CLC/WS SEP2- Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things
1. AUSTRIA	Answering your questions, we refer to our internal regulation, https://www.austrian-standards.at/en/about-us/our-organization/internal-regulations/, where all the process, roles, responsibilities for participating in national, European and International standardization activities are specified. The activities you indicated in your questionnaire are mirrored in our national committee 001 Information technology and its application. Information about this national committee is available at https://committees.austrian-standards.at/detail/1. Under "participants" you can find a list of organisations having nominated experts to participate directly in the development of purely national standards as well for participating in the co-creation of European and International standards such as those under CEN/CENELEC/JTC 13 "Cybersecurity and Data Protection" and CEN/TC 365 "Internet Filtering".	To be more general: If a new standardization topic is proposed we analyse who are the stakeholders in Austria and make them aware, asking for their feedback and whether are interested to participate in this activity. Those are committed to participate are grouped in standardization committees for being directly involved in the elaboration of the standardization projects. Once such a project has reached a mature level the draft standard is open for all for public commenting, not limited to the standardization committee mentioned before. These activities – having aspects similar to a co-creation and open innovation process – are accompanied with additional stakeholder engagement and awareness actions such as press releases and social media.	Cybersecurity and Data Protection CEN/CLC/JTC 13	-

2. BELGIUM	We don't follow the activities of CEN/CLC JTC 13 and CEN/TC 365 as we delegated this task to a standardization sector operator (SSO) named Agoria-ICT. This SSO organizes the Belgian committee and their staff (and not us) is in direct contact with the active Belgian experts. One thing to notice about CEN/TC 365 is that only one standard has been published in 2013. Since 2013, the only activity at this level has been the systematic review of this standard after 3 years (2016). The standard has been confirmed for another 3 years. The review will once again occur later this year. It's only after this enquiry that we will know if the CEN/TS 16080 will be revised and if real activity will restart. Regarding CEN/CLC JTC 13, the activities concern mainly the implementation in Europe of standards already published by ISO. For these two committees, the experts are mainly IT consultants. Bigger organizations such as Microsoft and Huawei are also active in our committees. Both organizations have a siege in Belgium.	-	Regarding the remaining two workshops, I haven't any information about Belgian participants. The individual participation in CEN/WS doesn't require the approval of a national standardization body (NSB). Belgian experts, if any, didn't have to ask us to register them as expert for these groups.	Regarding the remaining two workshops, I haven't any information about Belgian participants. The individual participation in CEN/WS doesn't require the approval of a national standardization body (NSB). Belgian experts, if any, didn't have to ask us to register them as expert for these groups.
3. BULGARIA	BDS does not carry out prestandardization procedures and such was their reply. BDS has not filled in the questionnaire due to the lack of competence in prestandardization area.	-	-	-
4. CROATIA	The specific inquiry deals with four (European) areas of standardization, of which the first two (CEN / CLC JTC 13 and CEN / TC 365) are the focus of our work and we accept their standards as Croatian standards.	The specific inquiry deals with four (European) areas of standardization, of which the first two (CEN / CLC JTC 13 and CEN / TC 365) are the focus of our work and we accept their standards as Croatian standards.	The other two cases are CEN Workshops (WS / CEN workshops) which do not draft standards but another type of CEN Workshop Agreements (CWA / CEN workshop agreements). These are documents of a lower level than the norms (they do not require consensus on their content as with the norms) and are publicly available for use. Individuals can participate in the work of the WS on the preparation of the documents they need, in accordance with their interest. The publication of the CWA HZN, as a national standardization body, only informs the Croatian public about their existence in the official bulletin of HZN, HZN e-Newsletter.	-

5. CYPRUS	CYS participates only to Cybersecurity and Data Protection (CEN/CLC/JTC 13). Mr Constantinos Tsiourtos is our delegate on behalf of CYS participating to CEN/CLC/JTC 13. The Office of Electronic Communications and Postal Services is the responsible body for adopting any European Regulation/Recommendation and Act.	Internet Providers provide Internet Filtering mechanisms without being engaged in standardization activities. Lack of Expertise. The regulatory system for the telecommunications, media, and information technology activities and services follows the EU model, with the Commissioner of Electronic Communications and Postal Regulation (OCECPR) responsible for regulation.	Lack of Expertise/ Lack of Resources	Lack of Expertise. Standard Essential Patens in the Filed of 5G- There is a National Mirror Committee for Standardization in Telecom where Standardization issues are being discussed/ Lack of Expertise.
6. CZECH REPUBLIC	Within the framework of the H2020 program, UNMZ will participate only in the project Harmonized integral threat assessment and response in cross-border, cross-domain emergencies. No normalization activities or no pre-normalization research are currently underway in your areas.	-	-	-
7. DENMARK	These topics are dealt with in two different national committee. Cyber security (21 members representing all kinds of stakeholders) and IoT (5 members).	No national committee, no interest.	No national committee.	We are at the moment trying to establish a new committee on 5G but this will be based on ETSI work.
8. ESTONIA	-	-	-	-
9. FINLAND	Our National Mirror Committees follow up closely the activities of CEN and ISO committees, especially regarding the ongoing Work Programmes. That is the task of our NMCs. In SFS, we do not know nor coordinate the preStandardization activities. Therefore, we regret to say that your questionnaire will not be completed by our organisation.	-	-	-
10. FRANCE	-	-	-	-
11. GERMANY	-	-	-	-
12. GREECE	NQIS/ELOT is following, mainly, activities of standardization technical bodies (eg. CEN/CLC/JTC 13, CEN/TC 365) as opposed to standardization workshops (e.g CEN/WS JTI, CEN/CLC/WS SEP2). Usually, consultation is carried out through national mirror committees, representative of all interested parties and through announcement of the public enquiry stage. Usually, consultation is carried out through national mirror committees, representative of all interested parties and through announcement of the public enquiry stage.	-	-	-

13. HUNGARY	According to the rules of European standardization, it is forbidden to develop national standards on a subject for which a European standard is being developed (standstill). As a result, a Hungarian national standard is not being developed in these areas. In this case, the national standardization organizations will work together in European processes.	-	-	-
14. ICELAND	Icelandic Standards does not have a representative in the mentioned TCs within CEN and does not operate national TCs on the matter either. No recommendations, act or official opinions have therefore been made.	-	-	-
15. IRELAND	-	-	-	-
16. ITALY	CEN/CLC/JTC 13 - Cybersecurity and Data Protection --- UNI is a member of the CEN/TC. An Italian expert has been recently nominated as CEN/CLC/JTC 13/WG 5 Convenor. We have also set up a national mirror committee. CEN/CLC/JTC 13 - Cybersecurity and Data Protection --- UNI is a member of the CEN/TC. An Italian expert has been recently nominated as CEN/CLC/JTC 13/WG 5 Convenor. We have also set up a national mirror committee. CEN/CLC/JTC 13 – the Italian stakeholders interested in the initiative such us: consultant, public administration, certification bodies, SMEs. So far we have only adopted the CEN deliverables published by the TCs as requested by CEN.	CEN/TC 365 Internet Filtering - UNI is a member of the CEN/TC. We had set up a mirror committee now dormant (CEN/TC 365 stopped the activities in 2016). CEN/TC 365 – currently we have not Italian stakeholders interested in the initiative. So far we have only adopted the CEN deliverables published by the TCs as requested by CEN.	CEN/WS JTI and CEN/CLC/WS SEP2 are not followed by our Organization, we suppose they are mirrored by UNI committees.	CEN/WS JTI and CEN/CLC/WS SEP2 are not followed by our Organization, we suppose they are mirrored by UNI committees.
17. LATVIA	-	-	-	-
18. LITHUANIA	LSB has established mirror technical committees LST TK 79 ,,IT security techniques" which is responsible for developing the national position on a particular standards and present their position to the CEN/CLC/JT 13:,,Cybersecurity and Data Protection".	LSB has established mirror technical committeesLST TK 4 ,,Information technology" which is responsible for developing the national position on a particular standards and present their position to the GEN/TC 365 ,,Internet Filtering".	no national pre-standardizationInitiatives	no national pre-standardizationInitiatives
19. LUXEMBOURG	ILNAS only has national experts following the activities of “CEN/CLC/JTC 13 - Cybersecurity and Data Protection” because it is of a particular interest for ILNAS and our national standardization strategy with a focus on ICT.	National standardization activities, please consult our national standardization strategy 2014-2020 and the linked national policy on ICT technical standardization 2015-2020.	-	-

20. MALTA	MCCAA is at the stage of consulting with the relative stakeholders on these four standardisation initiatives. Cybersecurity and Data Protection – Ministry for Home Affairs and National Security, Commissioner for Data Protection, Malta Communication Authority. So far we have not received any commitment from stakeholders to participate in these standardization initiatives. Whilst we believe the above stakeholders have an interest in following and possibly contributing to these initiatives, from our experience we understand that they have limited resources and sometimes experts to contribute directly in technical committees. Our procedure is that once we register an interest from a stakeholder, we initiate the process of setting up a technical committee to follow the European/international standardisation work.	Internet Filtering – Malta Communication Authority, Commissioner for Children, Malta Information Technology Agency	Journalism Trust Indicators – Institute of Maltese Journalism	Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things – Malta Communication Authority
21. REPUBLIC OF NORTH MACEDONIA	We do not have pre-standardization initiaves relevant to the technical committees mentioned in your letter. Already adopted standards, as Macedonian standards - MKC, within the technical committees which are given in your letter, taking into account the published standards from CEN/CLC technical bodies, are given in attachment. CEN/WS JTI has no standards. Information technology - Security techniques - Information security management systems - Overview and vocabulary (ISO/IEC 27000:2016), Requirements (ISO/IEC 27001:2013 including Cor 1:2014 and Cor 2:2015), Code of practice for information security controls (ISO/IEC 27002:2013 including Cor 1:2014 and Cor 2:2015), Guidelines for identification, collection, acquisition and preservation of digital evidence (ISO/IEC 27037:2012), Specification for digital redaction (ISO/IEC 27038:2014), Guidance on assuring suitability and adequacy of incident investigative method (ISO/IEC 27041:2015), Guidelines for the analysis and interpretation of digital evidence (ISO/IEC 27042:2015), Incident investigation principles and processes (ISO/IEC 27043:2015)	CEN/TS 16080:2013 Internet Content and communications filtering software and services. МКТС CEN/TS 16080:2013	-	Core Principles and Approaches for Licensing of Standard Essential Patents. prМКТС CWA 95000:2019 (it is expected to be adopted until the end of 2019)
22. NETHERLANDS	Unfortunately, we will not participate in your questionnaire.	-		

23. NORWAY	Standards Norway are currently represented in CEN/CLC/JTC 13. CEN/CLC/JTC 13 have up to date adopted ISO/IEC standards, but are currently investigating potential new standardization projects. CEN/CLC/JTC 13 main focus is related to Cyber Security act that addresses the needs for better control of certification programs, both on products, services and personnel. Standards Norway are interested in the criteria for adopting the individual ISO/IEC standards as well as engaging in future New Work items within CEN/CLC/JTC 13. Cyber Security Act states requirements, where there a GAP on standards. We are still in a face of engaging experts to join CEN/CLC/JTC 13 work. Currently the national committee, that mirror ISO/IEC JTC 1/SC 27 INFORMATION SECURITY, CYBERSECURITY AND PRIVACY PROTECTION, are evaluating the standards adapted by CEN/CLC/JTC 13. Standards Norway have adapted the most relevant ISO standards, and as CEN/CLC/JTC 13 adopts ISO standards, this will automatically become adapted in Norway. In addition to this, the Norwegian mirror committee, are working on a 3 level package structure for ease of use of adapting the most important standard for Information security and Cyber security. The standards adapted by CEN/CLC/JTC 13 will be part of this 3 level package for INFORMATION SECURITY, CYBERSECURITY AND PRIVACY PROTECTION, as well as the most prominent standards from ISO/IEC. As one of the most digital countries in world, research and R&D needs to be a key element in driving the development within the area of Cyber security. Forward leaning countries on digitalization, have bigger challenges on future Cyber Risks. Standards Norway are currently working closely with governmental bodies as well as the relevant universities in Norway on Cyber security. The universities are challenged to invest, and strengthened the future Cyber arena, with test labs, certification programs on devices and targeted special education on future Cyber security specialist. Standards Norway are looking to engage and propose New Working items for standardization within Cyber Security.	-	-	-

24. POLAND	The issues you are asking about, are mainly the responsibility of the Technical Bodies operating at PKN, not PKN itself. More information about Technical Bodies (including the list of Technical Bodies) at https://pkn.pl/en/standardization/pkn-technical-bodies .	-	-	-
25. PORTUGAL	We do not have our own standardization initiatives and we are only registered in the work of Cybersecurity.	-	-	-
26. ROMANIA	From the four (pre-) standardization initiatives of CEN that are of interest for your research only one provided to be of interest for Romanian stakeholders until now, i.e. Cybersecurity and Data Protection (CEN/CLC/JTC 13). The following stakeholders are interested in this subject: National Authorities, Certification Bodies, Universities, Small and Medium Enterprises from IT, Research Institutes. We also have a national expert who directly participate to the standardization activities of this committee. We also have a national expert who directly participate to the standardization activities of this committee. EN ISO/IEC 27000:2017 Information technology - Security techniques - Information security management systems - Overview and vocabulary (ISO/IEC 27000:2016) EN ISO/IEC 27001:2017 Information technology - Security techniques - Information security management systems - Requirements (ISO/IEC 27001:2013 including Cor 1:2014 and Cor 2:2015) EN ISO/IEC 27002:2017 Information technology - Security techniques - Code of practice for information security controls (ISO/IEC 27002:2013 including Cor 1:2014 and Cor 2:2015) EN ISO/IEC 27037:2016 Information technology - Security techniques - Guidelines for identification, collection, acquisition and preservation of digital evidence (ISO/IEC 27037:2012) EN ISO/IEC 27038:2016 Information technology - Security techniques - Specification for digital redaction (ISO/IEC 27038:2014) EN ISO/IEC 27041:2016 Information technology - Security techniques - Guidance on assuring suitability and adequacy of incident investigative method (ISO/IEC 27041:2015) EN ISO/IEC 27042:2016 Information technology - Security techniques - Guidelines for the analysis and interpretation of digital evidence (ISO/IEC 27042:2015) EN ISO/IEC 27043:2016 Information technology - Security	-	-	-

	techniques - Incident investigation principles and processes (ISO/IEC 27043:2015)			
27. SERBIA	-	-	-	-
28. SLOVAKIA	SoS has no information available regarding the four mentioned (pre-) standardization initiatives. The process of standardization in the Slovak Republic is organized according to the Act No. 60/2018 on Standardization. Being a member state of EU the Slovak Republic has to comply with all EU legislative documents and our legislation is fully in line with the legislation of EU. Relating to your research, we would like to turn your attention especially to the Act No. 18/2018 Coll. on Personal Data Protection and on the amendment of certain other Acts, as amended (hereinafter referred to as the "Act") and pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC and to the Act No. 69/2018 Coll. on Cybersecurity and on Amendments and Supplements to certain Acts.	At the moment there are no information from national stakeholders available about the participants of consultations/processes regarding those four (pre-) standardization initiatives.	-	-
29. SLOVENIA	We do not have any interest in the work with CEN/CLC JTC 13, CEN/TC 365, CEN/WS JTI and CEN/CLC/WS SEP2.	We have adopted SIST-TS CEN/TS 16080:2014 Internet Content and communications filtering software and services and that is all around this field.	-	-
30. SPAIN	Stage: A national TC has been created, CTN 320, which is mirroring JTC 13 among other cybersecurity and privacy European and international TCs. 10 Spanish experts are participating on JTC 13 or its Working Groups. Participants: CTN 320 has 129 appointed experts, mainly from industry, software companies, consultancy and certification, sectoral associations, public administrations. Adoptions: Not sure about what you exactly mean. The aim of standardization technical committees is to develop standards, not "recommendations/acts/official opinions or stances". In any case, the 8 EN ISO 270XX standards published under JTC 13 have been adopted at national level as UNE standards, translated into Spanish.	Stage: This CEN/TC is mirrored in Spain by CTN 71 "Information Technologies". This CTN has several thematic subcommittees. However, no specific subcommittee has been created to follow this CEN/TC and its monitoring is directly made by the plenary committee. 5 Spanish experts are participating on TC 365. - Participants: CTN 71 has 31 appointed experts to the plenary, from industry and software companies, consultancy and certification, sectoral associations, public administra-	No national following.	No national following.

		tions. Adoptions: The only standard published under TC 365 (CEN/TS 16080:2013) has been adopted as UNE standard in 2016 and translated into Spanish.		
31. SWEDEN	-	-	-	-
32. SWITZERLAND	-	-	-	-
33. TURKEY	We have not received any demand or request for participation to pre-standardization from our stakeholders in the four mentioned areas.	-	-	-
34. UNITED KINGDOM	-	-	-	-

Appendix 3. CEN Members- Founders, Legal Status, Appointments, Technical Committees, Membership, Rights and Acceptance to Membership

Country:	1. AUSTRIA
Organization:	Austrian Standards International - Standardization and Innovation
Website:	www.austrian-standards.at
Founders:	100% subsidiary of Austrian Standards plus GmbH
Legal status:	Service organization (association)
Appointments:	The members of the presidium are to be elected primarily from among the members of the association. The Director and the Deputy Director are appointed by the governing body (consisted of the President, three Vice Presidents, possibly up to three more members of the Presidium, which should come, in particular, from institutions which play a significant role in the financing of the tasks of the association) for a term of five years at the proposal of the President.
Technical Committees:	Registration to committee manager at Austrian Standards and fee.
Membership:	Austrian enterprises, research centres and education institutions as well as the public sector. Full members, honorary members, honorary President.
Rights:	In the General Assembly, each member has one vote as well as the right to vote and stand for election.
Acceptance to Membership:	Full members are required to pay a membership fee.

Country:	2. BELGIUM
Organization:	Bureau de Normalisation/Bureau voor Normalisatie
Website:	www.nbn.be
Founders:	Government of Belgium
Legal status:	Public interest body under the supervision of the Deputy Prime Minister and Minister of Employment, Economy and Consumer Affairs, in charge of Foreign Trade
Appointments:	On the proposal of the Minister of Economy, the Council of Ministers approved appointment of Chairman of Executive Committee. On the proposal of the Deputy Prime Minister and Minister for Employment, Economy and Consumers, and the opinion of the Ministers who deliberated in the Council, the Deputy Prime Minister and Minister for Employment, Economy and Consumers appointed the Chairman of the Board of Director
Technical Committees:	Participation in NBN committee's EUR 500 (excl. VAT) for one committee. EUR 400 (excl. VAT) for every additional committee.
Membership:	Both natural persons and public or private organisations can and may help develop standards relating to the fields in which they operate.
Rights:	The benefits of participation are: • Gaining first-hand knowledge about future technological developments and trends. This gives companies a competitive edge. • Influencing the standards development process. This allows a company to protect its investments in products and research & development. Societal stakeholders can call attention to environmental protection or consumer issues • Building a network. Standardisation committees are the ideal meeting place to forge new contacts and exchange ideas.
Acceptance to Membership:	Within 30 days of receipt of the registration fee and positive verification of the application, the application is sent to the "international Registration Authority" for further treatment. Once the Registration Authority approves the application and

	NBN has received the assigned single IIN or block of IINs, the applicant is informed.

Country:	3. BULGARIA
Organization:	Bulgarian Institute for Standardization
Website:	www.bds-bg.org
Founders:	Republic of Bulgaria
Legal Status:	Public legal organization, a legal person
Appointments:	The Managing Director shall be elected by the Governing Board at the proposal of its members for a term of 5 years. BDS Governing Board members shall be elected from among authorised representatives of BDS members.
Technical Committees:	Technical Boards members shall be elected by the Governing Board from among recognised experts in the field of standardisation and conformity assessment at the proposal of Sectoral Boards, Technical Committees and BDS members.
Membership:	Membership of the Bulgarian Institute for Standardisation shall be voluntary. Corporate Member, Observer, Active participant
Rights:	- participate with voting rights in the General Assembly through authorized representatives - elect and be elected to BDS governing bodies
Acceptance to Membership:	The acceptance of new BDS Membership is considered upon the submission of written application to the Chairman of the Governing Board and signing a declaration.

Country:	4. CROATIA
Organization:	Croatian Standards Institute
Website:	www.hzn.hr
Founders:	Republic of Croatia
Legal Status:	Independent and non-profit public institution
Appointments:	The Director is appointed by the Government of the Republic of Croatia on the proposal of the minister responsible for economic affairs, for the mandate of four years, based on a public tender.
Technical Committees:	A proposal to establish a TO may come from any interested company, governmental body, chamber of commerce, chamber of crafts, interested institution or other legal entity. A proposal may also be made by programming committees, existing TOs and standardization field managers. Only representatives of legal entities which are full HZN members, representatives of governmental bodies which submit application for cooperation and physical entities may be members of technical committees.
Membership:	Full and observer Membership
Rights:	- propose, discuss and vote on the issues from the scope of the Expert Council - propose candidates for the Administrative Board and stand as a candidate for and be elected as a member of the Administrative Board - propose candidates, stand as a candidate for and be elected as a member of the Standards Council
Acceptance to Membership:	The Administrative Board shall decide on accepting the applicants for HZN Membership as Membership based on written applications for Membership.

Country:	5. CYPRUS
Organization:	Cyprus Organization for Standardisation
Website:	www.cys.org.cy

Founders:	Established by the Government under the jurisdiction of the Ministry of Commerce, Industry and Tourism.
Legal Status:	Autonomous body registered under private law, with the Government being the sole shareholder.
Appointments:	CYS is governed by a seven-member Board of Directors, appointed by Government representing all the major stakeholders in governmental and non-governmental organizations.
Technical Committees:	N/A
Membership:	Yearly subscription basis.
Rights:	Information/Assistance, Sale of Standards, Seminars
Acceptance to Membership:	The centre also provides information and facilities (e.g. perinorm) for probing deeper into issues of standardisation of products and services. A member scheme is also available for companies and individuals on a yearly subscription basis. CYS operates as the national centre for standardization and represents Cyprus at European Standardization Organizations.

Country:	6. CZECH REPUBLIC
Organization:	Czech Office for Standards, Metrology and Testing/ Czech Standardization Agency TAS (since 2018)
Website:	www.unmz.cz www.agentura-cas.cz/tvorba-norem
Founders:	Czech Office for Standards, Metrology and Testing was established by the Czech National Council Act No. 20/1993 Coll. on the Organisation of the State Administration in the Field of Standards, Metrology and Testing as the state administration body responsible for such activities. The Czech Standardization Agency was established as a state contributory organization by the Office for Standards, Metrology and Testing.
Legal Status:	Budgetary organisation subordinated to the Ministry of Industry and Trade
Appointments:	The Management Board of CAS is appointed by the Office for Standards, Metrology and Testing. The board has 7 members appointed for 7 years and it elects its chairman. The executive director of CAS is appointed on a proposal by the management board by the president of the Office for Standards, Metrology and Testing.
Technical Committees:	The TNK establishes the CS on the proposal of interested parties, on the basis of individual proposals or on its own initiative, in particular in connection with the activities of European and international standardization organizations. The OS establishes a proposal for the establishment of TNK with NV.
Membership:	The members of the Management Board are appointed from among professional and interest organizations, or central public administration bodies (e.g. the Chamber of Commerce, ministries, Industry and Transport Association)
Rights:	- CAS activities: related to the creation, publication and distribution of technical standards - the Management Board oversees the activities of the executive director, comments on the draft concept of the Agency's activity and direction
Acceptance to Membership:	Members can be only natural persons who are fully competent and blameless.

Country:	7. DENMARK
Organization:	Dansk Standard
Website:	www.ds.dk

Founders:	Industrial Council and the Danish Engineering Association
Legal Status:	Non-profit commercial foundation
Appointments:	The Board of Directors consists of between six and nine members. Appointment of members The Ministry of Economic and Business Affairs appoints a member. Standardization Policy Forum (SPF), cf. section 11, appoints 2 members. The employees choose two members from the employees of the Foundation. For the remaining members, the Board of Directors supplements itself on the basis of a profile prepared by the Board of Directors of the competencies and experience needed in the Board of Directors.
Technical Committees:	Participation in a standardization committee can be done by contacting Danish Standard. Membership fee.
Membership:	Fee.
Rights:	Participation in a committee gives early insight into the standards that directly affects the requirements for your products, production and processes. Participation in a committee strengthens your company's market position.
Acceptance to Membership:	Committee in Danish Standard meets approx. 2-4 times a year, and the membership costs DKK 15,500-19,500 annually.

Country:	8. ESTONIA
Organization:	Estonian Centre for Standardisation
Website:	www.evs.ee
Founders:	Republic of Estonia, Chamber of Trade and Industry, Confederation of Employees and Industry.
Legal Status:	Non- profit Association
Appointments:	Board consists of 3-5 members elected for two years. One member of the board is the representative of the state appointed by Minister of Economic Affairs. Board appoints and displace Managing Director.
Technical Committees:	In order to attend the meeting, the applicant shall submit a standard application to EVS.
Membership:	Natural and legal persons on a basis of written application.
Rights:	Participate in general meeting, with right to vote and take part in activities, elect and be elected to be a member of the board of the association and other bodies.
Acceptance to Membership:	Decision of the board about affiliation and after the payment of admission fee.

Country:	9. FINLAND
Organization:	Suomen Standardisoimisliitto r.y.
Website:	www.sfs.fi
Founders:	Republic of Finland
Legal Status:	Association
Appointments:	The highest decision-making body of the Federation is the General Assembly. It selects the governing board for the association. The Board of Directors elects a CEO who manages the union's operations, assisted by the union office. The board also elects the members of the standardization committee for the union.
Technical Committees:	Membership in the Standardization Group is open to anyone interested in following industry standardization and influencing the content of standards. New members of the groups will be introduced to standardization and its processes. During the meetings, positions are prepared on draft CEN and ISO standards. Members will have access to working papers and draft standards relating to preparation. The activities will be financed by annual contributions from the members of the

	standardization group or by any other body funding.
Membership:	Members of the Association are business associations and the Finnish state.
Rights:	The highest decision-making body of the association is the Federal Assembly. Each member has the right to nominate one representative to the meeting. However, the Finnish state has representation so that each ministry has the right to appoint one representative. Each representative has one vote. In addition, the members of the Board, the chairmen of the Boards and the President and CEO of the Association have a general meeting the right to speak.
Acceptance to Membership:	Membership and dismissal shall be decided by the Federal Assembly on a proposal from the Board of Directors.

Country:	10. REPUBLIC OF NORTH MACEDONIA
Organization:	Standardization Institute of the Republic of North Macedonia
Website:	www.isrm.gov.mk
Founders:	Government of the Republic of North Macedonia
Legal Status:	Individual public institution
Appointments:	The Director is appointed or dissolved by the Council. The Council is consisted of nine members in the following composition: three representatives of the founder (delegated by the Government), four representatives of the members of the Institute, one representative of the Institute personnel and the President of the Assembly. The Government of Republic of Macedonia also has to approve the decision for appointing or dissolving the Director.
Technical Committees:	TC is a group of experts composed of representatives of the state administration bodies and interested legal entities. The initiative is submitted in written form. The Council of the Institute shall review the initiative on establishment and determine whether it shall be accepted with majority votes of the total number of Council members.
Membership:	Every legal or natural entity.
Rights:	Participation on the Council of the Institute meetings and right to vote, Participation in the work of the organs and technical work bodies, Gives initiatives for execution and realization of the Institute assignments and Tasks, Participation in the election of the Institute Council representatives, possibility to be elected as Institute Council representative.
Acceptance to Membership:	The status of member of Institute can be easily gained by signing a written subscription form and prove for paid membership fee.

Country:	11. FRANCE
Organization:	Association Française de Normalisation
Website:	www.afnor.org
Founders:	Jean Tribot-Laspière
Legal Status:	Non- profit association
Appointments:	Board of Directors AFNOR is administered by a board of directors of 30 members at the most (direct or indirect representatives of enterprises, representatives of consumers, social partners, local authorities, non-governmental organizations, representatives of ministries, elected representatives of AFNOR staff.
Technical Committees:	• Anyone who wishes can apply to be a member of a standardization commission. • A standardization commission brings together the experts involved in the elaboration of projects included in its work program. • An expert is - A technically qualified person whose competence and probity is worthy of being formally recognized as capable of carrying out expert work. He/she

	is a member of a standardization body, highly qualified in a given professional sector, who provides the technical content of the standards, ensures their validation and contributes to the necessary updates. He/she has the mission to formulate the national normative position on projects under development and to defend it at meetings of European and international bodies. His/her participation in the work is financed by his company or the organization on which he/she depends. • The standardization operator activities of the (BNS) Bureau of Standardization Sectors (standards development, technical committee secretariats, etc.) are governed by financing methods specific to each sector. The financial conditions of participation in the work animated by the BNS are public and accessible on their website and / or on request. (A fee is paid to be in the standardization commission)
Membership:	SMEs, mid-cap companies, large corporations, trade unions, local authorities
Rights:	When you become a new AFNOR member, you will be given the opportunity to promote your organization. For example, sitting on the strategic committees: • offers an exclusive early look at the regulations and standardization relevant to your organization; • provides access to privileged information and a position within a network featuring a sector's main decision-makers; • allows for participation in France's decisions about the standardization strategy for a given market.
Acceptance to Membership:	Fee.

Country:	12. GERMANY
Organization:	Deutsches Institut für Normung
Website:	www.din.de
Founders:	Public-private partnership with the German Federal Republic
Legal Status:	DIN is a private organization that is registered as a non-profit association.
Appointments:	The Presidial Board comprises not more than 45 persons. Up to 36 Presidial Board members are elected by the General Assembly; up to nine Presidial Board members may be appointed by the Presidial Board itself. The Presidial Board members shall represent the stakeholders in standardization. The public sector shall be adequately represented in the Presidial Board. Presidial Board members must be actively engaged in their profession and serve in an honorary capacity. The term of office for the members of the Presidial Board elected by the General Assembly.
Technical Committees:	DIN membership includes vouchers for participation in standards committees. Each voucher is valued at 1,090 Euro (net).
Membership:	Enterprises, institutions of higher learning, technical and industry associations, corporate bodies organized under private or public law, and other legal entities and partnerships may become members of DIN.
Rights:	The General Assembly is responsible for receiving the President's Statement of Accounts, the discharging of the President and the Presidial Board from their obligations, the election of the members of the Presidial Board, and deciding on the dissolution of the Association.
Acceptance to Membership:	Membership is acquired by written application with the admission to membership being confirmed by the Executive Board. Membership is terminated by withdrawal from the Association, with notification of withdrawal being submitted in writing to the Executive Board with six months' notice to the end of a calendar year. Membership fees are collected from members, the amounts due and payment method being set by the Presidial Board.

Country:	13. GREECE
Organization:	National Quality Infrastructure System
Website:	www.elot.gr
Founders:	Hellenic Republic
Legal Status:	Non-profit private legal entity with the Law 372/76
Appointments:	The governing bodies of the "National Quality Infrastructure System" are: a) The Administrative Council (AC) b) The Chief Executive Officer (CEO) and c) The Heads of each autonomous operational unit Appointment of the members of the Administrative Council shall be made by a decision of the Minister of Development, Competitiveness, Infrastructure, Transport and Networks.
Technical Committees:	Each interested party, a person or a legal entity of public or private sector, may request to ELOT the preparation of a national standardization document. The decision of the establishment of the Technical Committee of the Sector (TE-T) is approved by the Managing Director and communicated to the Board of Directors of ELOT. The participation in ELOT Sectoral Committees, Technical Committees, Working Groups and Specific Working Groups, is, in general, voluntary.
Membership:	Public Sector, Legal Entities and Organizations of Public and Private Right supervised by the State, Enterprises of Common Utility and Banks. Professional Unions, Scientific Associations, Unions or Associations of Consumers and Industrial, Craft-based or Commercial companies, provided that they have interest for Standardization in Greece or internationally and can contribute to its promotion. Subscribers can become individual or legal persons that have direct or indirect interest for the Standardization.
Rights:	The ELOT members enjoy concrete privileges as are the free benefit of periodical publications, the reduction in the supplies of Standards and ELOT services, the attendance of congresses and the participation in ELOT missions.
Acceptance to Membership:	In order to become a member of ELOT, it is necessary to submit a request from the interested party specifying the requested category of member and covering the financial obligations. Decision is made by the ELOT Managing Director.

Country:	14. HUNGARY
Organization:	Hungarian Standards Institution
Website:	www.mszt.hu
Founders:	Republic of Hungary
Legal Status:	Non-profit body of public interest
Appointments:	A member of the MSZT may be any legal entity, or an unincorporated business entity. The supreme body of the MSZT is the General Assembly, which consists of all the members of the MSZT. 1. The president of the MSZT (at the same time the chairman of the Standardization Council) is elected by a majority of at least half of the General Assembly (by a simple majority) for 5 years. 2. Vice-Presidents of the MSZT (also the Standards Council Vice-Presidents) is elected by a simple majority for 5 years.
Technical Committees:	Technical Committees are professional units organized on a voluntary basis by members of the MSZT, which are either permanent or ad hoc. Anyone can initiate the establishment or dissolution of a National Standardization Technical Committee and establishment of MCs is approved by the Standards Council. Organizations wishing to join the MB (s) may apply for membership by completing and signing their Entry Form, specifying the name of their expert. MB membership requires

	MSZT membership. Following MSZT membership, a given organization may apply to any and all committees.
Membership:	A member of the MSZT may be any legal entity, or an unincorporated business entity that accepts the statutes as binding on itself, pays a membership fee and wishes to support the objectives and measures of national standardization. MSZT may involve natural persons in its work as advisers.
Rights:	The member has the right to: (a) attend and vote at the general meeting; (b) to propose a general meeting or agenda; (c) make recommendations to the Assembly; (d) to take decisions, make recommendations to the general meeting; (e) initiate the election and recall of officers; (f) to hold office in the MSZT when elected; (g) to use the discounted services of MSZT, (h) to initiate and participate in the work of the national standardization technical committees
Acceptance to Membership:	Written submission.

Country:	15. ICELAND
Organization:	Icelandic Standards
Website:	www.stadlar.is
Founders:	National standards body
Legal Status:	Independent association
Appointments:	The Board of Directors of the Standard Council is composed of nine members, five of whom are elected from among members of the General Assembly every other year, and the chairmen of the four professional councils.
Technical Committees:	Those who wish to participate in the activities of one of the professional standards councils can become member of the Standards Council and choose to participate in the relevant professional standards council. Their membership fee then goes to its professional activities. In addition to the professional standards councils, the so-called professional boards are the Standards Council for advice in specific areas.
Membership:	Business, institution or company
Rights:	• contributes to promoting standardization work in Iceland, for the benefit of the Icelandic business community and the Icelandic public, • enjoys a discount when buying from Icelandic standards, • receives free bills for most Icelandic standards during the review period, • has the opportunity to participate in the making of Icelandic standards, • can monitor and / or participate in European and international standards, • always has access to the latest information on current and prospective standards, Icelandic and international, • can affect standardization work in the areas that matter most, • can participate in formulating policy on standardization, by promoting their interests within the Standing Council or its professional standards councils; • has the right to vote at the General Assembly's Annual General Meeting and thereby influence its largest decisions.
Acceptance to Membership:	Membership fee.

Country:	16. IRELAND
Organization:	National Standards Authority of Ireland
Website:	www.nsai.ie
Founders:	National Standards Authority of Ireland Act 1996 and reports to the Minister for Business, Enterprise and Innovation.
Legal Status:	State agency
Appointments:	Members of the Board shall be appointed by the Minister from among those interests involved in the process of standardisation and certification of commodities, processes and practices, without any single interest predominating, taking into account guidelines issued from time to time by the Government and, in particular, providing for staff-representation on the Board. The Chief Executive Officer shall be appointed by the Board of the Authority with the approval of the Minister.
Technical Committees:	There is no joining fee to becoming a committee member. All participation is on a voluntary basis. NSAI can nominate national experts to participate in international standards committees but there is no funding provided to attend international standards meetings. Experts wishing to engage in international standards work do so at their own expense. Membership is active as soon as it has been processed, reviewed and approved.
Membership:	Membership of an NSAI committees is open to person(s)/organisation(s) representing national stakeholder interests such as industry, government, education and research, trade associations, consumers, societal, labour and others. Membership of an NSAI Committee is also open to technical experts when considered appropriate.
Rights:	RESPONSIBILITIES OF MEMBERS OF NSAI COMMITTEES, NSAI DELEGATES and NSAI EXPERTS 1. Members are expected to advise and assist NSAI on the technical content of standards. 2. Members are expected to prepare for and attend meetings and provide comments and submissions on active projects being developed. 3. Members are expected to use the online platform (web based) for accessing documents related to the NSAI Committee. 4. A person applying for membership on behalf of an organization shall undertake to represent its viewpoint on issues discussed and act as a channel for consultation and communication with that organization. 5. Persons for membership of Regional (CEN/CLC) or International committees (ISO/IEC), when participating at those meetings shall be aware of the national brief/position. Members are required to provide reports on attending those meetings. 6. NSAI Committee members may refer to their membership (including Chairmanship) when writing articles or giving lectures or papers. However, they may not state views purporting to be those of the NSAI Committee, regional or international committees unless those views have been approved by the NSAI and/or NSAI Committee. 7. Members of the an NSAI Committee shall maintain the confidentiality of the Committee's work. 8. Members shall behave at all times ethically and respectful of others, in such a way as to contribute positively to standards development work they are participating in. They shall be aware and comply with the relevant rules, regulations and codes of conduct. 9. Members should be aware that records of NSAI committees may be subject to disclosure under the Freedom of Information Act and that membership may be

	disclosed, for example in annual reports. 10. Members shall not communicate with the media on matters concerning the internal affairs of a Committee without expressed permission of NSAI. 11. Members shall be aware that their obligations on standards developers (members of a Committee) in relation to competition law, copyright, data protection and technical barriers to trade. For further information guidance is available from ISO, IEC and CEN / CENELEC
Acceptance to Membership:	NSAI can nominate national experts to participate in European and/or International standards committees. NSAI does not provide funding to attend these standards meetings. Experts wishing to engage in European or international standards work do so at their own expense. Membership of any committee is at the discretion of NSAI. NSAI may at any time terminate the membership of all or any of the members of committees. An unsuccessful applicant can appeal the decision through the NSAI appeals procedure.

Country:	17. ITALY
Organization:	Ente Nazionale Italiano di Unificazione
Website:	www.uni.com
Founders:	Private
Legal Status:	Private association, non-profit
Appointments:	The Assembly is made up of all members of UNI. The Assembly elect eight members of the Board of Directors. The Board of Directors appoints the President and the Director General.
Membership:	Effective members, members by right, honorary members, adherent members (Public bodies and companies interested in the activity of technical standardization in the cases and in the forms allowed by the laws and the respective statutes, the trade associations interested in the technical standardization activity, technical, scientific, educational, professional, economic bodies and industrial and commercial companies). The natural persons interested in technical standardization, even if of foreign nationality, can be part of the UNI, as members, as long as they exercise their activity in Italy.
Technical Committees:	The Executive Board sets up a UNI Technical Commission on the proposal of the Central Technical Commission. The UNI Technical Commission and the Technical Body of the Federated Body are composed with an adequate balance of the parties involved in the sector of competence.
Rights:	• to intervene in the Assembly • to consult the books and periodicals existing at the library, the technical standards and the unifications in general, national and foreign, existing in the archives of the UNI • to receive the UNI magazine and bulletin • to receive, according to the established modalities, the assistance of the offices of the UNI, for the application of the technical norms • only members in good standing with the payment of dues/fees have the right to vote.
Acceptance to Membership:	President of UNI

Country:	18. LATVIA
Organization:	Latvian Standard Ltd.
Website:	www.lvs.lv

Founders:	Approved by the Cabinet of Ministers and organized by the Ministry of Economics.
Legal Status:	Non-profit, public limited liability company
Appointments:	Chairman of the Council shall be a person authorized by the Ministry of Economy. The Council shall be composed of authorized representatives of 4.1. two representatives of the Ministry of Economics; 4.2. Representative of the Ministry of Finance; 4.3. A representative of the Ministry of the Interior; 4.4. (deleted by Cabinet Regulation No. 332 of 03.05.2011); 4.5. Representative of the Ministry of Education and Science; 4.6. Representative of the Ministry of Welfare; 4.7. A representative of the Ministry of Transport; 4.8. Representative of the Ministry of Environmental Protection and Regional Development; 4.9. Representative of the Ministry of Agriculture; 4.10. Representative of the Association of Meat Producers and Processors; 4.11. Representative of Latvian Association of Building Materials Manufacturers; 4.12. Representative of the Employers' Confederation of Latvia; 4.13. Representative of the Latvian Electrotechnical Commission;
Technical Committees:	The IPCs are represented by member organizations (legal entities) engaged in economic or scientific activities in the field of IPCs. STCs can be represented by standardization stakeholders: manufacturers, service providers, consumer protection organizations, certification bodies, testing laboratories, higher education institutions, non-governmental organizations, public administrations, etc. In order to become a member of the IPC, the legal entity shall submit an application to the IPC for the operation of the IPC, indicating the area of competence in which it is able to contribute to the IPC and the authorized experts who will represent it in the work of the IPC. The authorized experts shall be competent in the area of competence specified by the member organization.
Membership:	N/A
Rights:	participation in the work of standardization technical committees for all interested parties; free of charge familiarization with the texts of standards and catalogues; purchase of standards.
Acceptance to Membership:	N/A

Country:	19. LITHUANIA
Organization:	Lithuanian Standards Board
Website:	www.lsd.lt
Founders:	Government of the Republic of Lithuania
Legal Status:	Budgetary institution of the public administration
Appointments:	Post and dismissed by the Minister for Economic Affairs.
Technical Committees:	Small and medium-sized enterprises (SMEs) have the right to participate in the Technical Committee as observers, i.e., without becoming a member. SME wishing to become a member of the Technical Committee as an observer must submit a request to the Lithuanian Standardization Department to participate in a specific Technical Committee.
Membership:	Stakeholders are voluntarily involved in the standardization process. There are several ways to participate in the standard-setting process: - become a member of the Technical Committee or participate as an observer; - comment on draft standards.

Rights:	Stakeholders are voluntarily involved in the standardization process. There are several ways to participate in the standard-setting process: become a member of the Technical Committee or participate as an observer; comment on draft standards.
Acceptance to Membership:	N/A

Country:	20. LUXEMBOURG
Organization:	Organisme Luxembourgeois de Normalisation
Website:	www.portail-qualite.lu
Founders:	Ministry of Economy
Legal Status:	Administration under the tutelage of the Minister responsible for the economy.
Appointments:	The director must meet the conditions of appointment to the higher career of the state. Without prejudice to the general conditions of admission to the service of the State, the particular conditions of training, admission to the training period, appointment and promotion of the staff of the management in the administration are determined by Grand-Ducal Regulation which may also determine the specific duties of these officials.
Technical Committees:	To participate actively in the process of developing national, European and / or international standards, it is necessary to register as a national standardization delegate in Luxembourg. In order for this registration to be implemented, the following conditions must be met: Work in an organization based in Luxembourg Demonstrate expertise in the area of activity of the committee (s) chosen; Accept the ILNAS / OLN / P001 policy which defines the general framework of work.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	21. MALTA
Organization:	The Malta Competition and Consumer Affairs Authority
Website:	www.mccaa.org.mt
Founders:	Established by an act of Parliament
Legal Status:	
Director:	Helga Pizzuto, Chairperson
Appointments:	The Board of Governors is the main organ of the Authority. The Board shall be composed of not less than seven and not more than ten other members, to be appointed by the Minister. The executive function of the Authority rests with the Chairperson.
Technical Committees:	N/A
Membership:	An SMI Users Group consisting of companies, individuals and other entities having an interest in Standardization work has been established. Members of this group receive benefits such discounts on Maltese standards, attendance to seminars, conferences and training courses organised by the MCCAA.
Rights:	MI User Group annual subscription fee is €120.00 which includes: Up to 50% discount on Maltese/ European standards Free draft European standards in electronic format Email updating on what is happening in European and international standardization

	Email notification with services offered by the MCCAA.
Acceptance to Membership:	Fee.

Country:	22. NETHERLANDS
Organization:	Nederlands Normalisatie-instituut
Website:	www.nen.nl
Founders:	Dutch Society for Industry and Trade and the Royal Institute of Engineers
Legal Status:	Professional, non-profit business organization
Appointments:	Director is appointed by the supervisory board. The management of NEN consists of a Managing Director and a Financial Manager. The Managing Director chairs the management team. The General Manager and the Financial Manager are the statutory directors of NEN, and together they form the management team, which is responsible for strategic choices and decisions. Prior to the appointment of a director of the work history, the supervisory board ascertains the integrity, quality and suitability for the position of the person in question, as well as whether there are conflicts of interest or other positions that may hinder the person to be appointed from exercising of his function.
Technical Committees:	The management board, after obtaining the approval of the supervisory board, sets up policy committees and may, after obtaining the approval of the supervisory board, cancel policy committees. The chairman and members of standard committees are appointed by the relevant policy committee. Participation in the standardization process is only open to representatives of interested parties in the Netherlands, who are also willing to contribute to the financing.
Membership:	An interested party can be a producer, entrepreneur, service provider, user, but also the government or a consumer or research organization.
Rights:	Stay informed of developments in the market, Expand your network, Contribute to innovation, Represent the importance of the organization, Fully participate in the standards committee and gain experience (no voting rights)
Acceptance to Membership:	Parties with an interest in the standardization process bear part of the costs of the standard development process. The prices for standards are the same for everyone. The costs for licenses depend on the size of an organization and the number of users.

Country:	23. NORWAY
Organization:	Standards Norway
Website:	www.standard.no/
Founders:	Private
Legal Status:	Private, neutral and independent member organisation
Appointments:	CEO is hired by Board of Directors
Technical Committees:	Standardization committees are set up as required by stakeholders. The establishment of a standardization committee must be approved by the CEO. A standardization committee shall be balanced with members from all relevant stakeholder categories. The categories are: • companies (registered in the Central Coordinating Register for Legal Entities) • business and interest organizations • public bodies / agencies • private institutions • Nonprofits

Membership:	• companies (registered in the Central Coordinating Register for Legal Entities) • business and interest organizations • public bodies / agencies • private institutions • Nonprofits Membership fees
Rights:	• to attend and vote at the annual meetings • may propose members to the board • direct influence on the development of Standard Norway's policy and strategy
Acceptance to Membership:	Approved by CEO
Organization:	Standard Online AS
Website:	www.standard.no/
Legal Status:	Company owned by Standards Norway (SN) and The Norwegian Electrotechnical Committee (NEK)
Organization:	Standards Digital
Website:	www.standard.no/
Organization:	Norwegian Electrotechnical Committee (NEK)
Website:	www.standard.no/ ; https://www.nek.no/english/
Legal Status:	Independent and neutral organisation
Organization:	Norwegian Communications Authority (NKOM)
Website:	www.standard.no/ ; https://eng.nkom.no/
Legal Status:	Autonomous agency of the Ministry of Local Government and Modernisation
Appointment:	Ministry of Transport and Communications

Country:	24. POLAND
Organization:	Polish Committee for Standardization
Website:	www.pkn.pl
Founders:	Government of Poland
Legal Status:	PKN is not a government administration body, it is a body governed by public law. It operates under the Act of September 12, 2002 on standardization.
Appointments:	The Council shall be composed of representatives of: 1) bodies of government administration appointed by the Prime Minister 2) nationwide business organizations, nationwide organizations employers, national or regional organizations whose statutory goal is the protection of consumers, national professional and scientific-technical organizations as well as universities and science, elected in elections. Council shall make its selection Chairman of the Council, and then four Deputy Chairmen.
Technical Committees:	Members of the Technical Committee / Task Force Committee / Technical Subcommittee may be entities which: meeting the requirements of art. 23 clause 2 of the Act of September 12, 2002 on standardization (consolidated text, Journal of Laws of 2015, item 1483); operate and are registered in Poland; have competence in the subject of KT / KZ / PK, which they want to join. Membership in KT / KZ / PK is voluntary and free. The procedure for applying for them involves submitting the required documents to PKN
Membership:	
Rights:	- opens the possibility of influencing the content of standards created at international, European and national levels; - provides access to the content of draft International, European and national

	standards; - gives the opportunity to shape a standardization work program, which al- lows you to properly plan your investments and, consequently, gain an advantage over your competitors; - facilitates business contacts.
Acceptance to Membership:	Voluntary and free

Country:	25. PORTUGAL
Organization:	Instituto Português da Qualidade
Website:	http://www1.ipq.pt/PT/IPQ/Pages/IPQ.aspx
Founders:	Government of Portugal, Ministry of Economy
Legal Status:	The IPQ is Public Institute, under the supervision of the Ministry of Economy
Appointments:	Ministry of Economy - Office of the Secretary of State for Industry Appoints of IPQ President and Board Members (Link: https://www.sgeconomia.gov.pt/destaques/designacao-do-presidente-e-vogais-do-conselho-diretivo-do-ipq-span-classnovo-novospan.aspx)
Technical Committees:	Members of a TC are all members, including voting vowels, non-voting vowels, president, secretary and affiliates. Formal request for the creation of TC must be submited to the Organismos de Normalização Setorial.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	26. ROMANIA
Organization:	Romanian Standards Association
Website:	www.asro.ro
Founders:	Government of Romania
Legal Status:	Association, a Romanian legal entity of private law, of public interest, non-profit, non-governmental and apolitical purpose
Appointments:	Appointed by the Board of Directors
Technical Committees:	A member of a national technical standardization committee can be any interested Romanian legal person. Membership in the National Technical Committees for standardization is obtained by completing and submitting to ASRO the registration forms. Maintaining membership in the national standardization technical committees is conditional on the payment of the annual membership fee.
Membership:	Natural / legal person. The maintenance of membership in the National Technical Standards Committees is subject to the payment of the annual membership fee.
Rights:	Attends the annual General Assembly of ASRO participates in important events in the field of standardization (possibility of networking with the most important companies in various fields) participates in the governance of national standardization has the opportunity to be elected to the ASRO Board of Directors has the opportunity to participate in the elaboration of Romanian standards permanent access to the latest news in the field of national, European and international standardization pays an annual fee (membership fee) established by the AG benefit from discounts on courses organized by ASRO benefit from discounts on the purchase of ASRO standards, documents and publications.
Acceptance to	Letter of intent. Membership is acquired based on the approval of the ASRO Board

Membership:	of Directors and confirmation in the General Assembly.

Country:	27. SERBIA
Organization:	Institute for Standardization of Serbia
Website:	www.iss.rs
Founders:	Government of Republic of Serbia
Legal Status:	Independent non-profit organization
Appointments:	The director of the Institute is appointed and dismissed by the founder Government RS, on the proposal of the board of directors.
Membership:	Companies, other legal entity or entrepreneur established on the regulations of the Republic of Serbia, as well as the natural person who is a citizen of the Republic of Serbia.
Technical Committees:	Standards committees are formed at the Institute whose areas of work are identical to those of the international and / or European technical committee (national mirror Technical Committees). The work of the Standards Committees is voluntary and is based on the general principles of standardization that are established by the Standardization Act. The members of the Standards Committee are appointed and dismissed by a decision of the Director of the Institute.
Rights:	- to propose and be proposed to the members of the Board of Directors and the Supervisory Board - to participate in decision-making in relation to national standardization; - to propose and be proposed to members of the expert councils of the Institute - to participate in the work of the technical working bodies of the Institute
Acceptance to Membership:	The decision on acceptance, i.e., on denial of membership acceptance is made by the director of the Institute. The Board of Directors appoints and dismisses presidents and members of expert councils for particular areas of standardization, on the proposal of the director.

Country:	28. SLOVAKIA
Organization:	Slovak Office of Standards Metrology and Testing
Website:	www.unms.sk
Founders:	Slovak Republic
Legal Status:	Legal entity, acting in its legal relations on its behalf or on behalf of the Slovak Republic.
Appointments:	Appointed and recalled by the Government of the Slovak Republic.
Membership:	Legal entities and natural persons- representatives of ministries and other state administration central bodies, economic sphere, societal and professional associations, small and medium-sized enterprises (SMEs), as well as independent experts from the area of science, research and education.
Technical Committees:	OTN on its own initiative or on a proposal to establish a TC that it may submit any legal entity decides to establish a new TC, if required the relevant technical standardization field and at least five legal entities interest in actively participating in its activities, with at least three legal entities being from the following groups (a) industry, manufacturing, trade, services (including their professional associations, unions and associations), including SME representation, (b) public authorities.
Rights:	The Office participates in the development and implementation of a single state policy in the field of technical standardization, metrology, quality, conformity assessment and accreditation of conformity assessment bodies. The Office carries out methodological activities and supervises the tasks of standardization, metrology, quality, conformity assessment and accreditation of

	conformity assessment bodies.
Acceptance to Membership:	N/A

Country:	29. SLOVENIA
Organization:	Slovenian Institute for Standardization
Website:	www.sist.si
Founders:	Government of Republic of Slovenia
Legal Status:	Legal entity of public law
Appointments:	The SIST Assembly consists of all SIST members, plus five representatives of the Founder, who are appointed by the Government of the Republic of Slovenia. SIST Assembly elect president among members. The director is appointed by the management board on the basis of a public competition
Membership:	Legal and natural person.
Technical Committees:	The members of each Technical Board are appointed by the Council from among those SIST members who are recognized experts in the respective area(s) for which the Technical Board has been set up.
Rights:	- providing for the implementation of the internal regulation relating to the adoption of other national, European and International Standards and other standardization documents; - making decisions on technical issues regarding the professional work of SIST; - setting up, restructuring and dissolving the technical working bodies needed for the implementation of the annual work program;
Acceptance to Membership:	Registration and proof of paid membership.

Country:	30. SPAIN
Organization:	Asociación Española de Normalización
Website:	www.une.org
Founders:	Appointed by the Ministry of Economy, Industry and Competitiveness
Legal Status:	Private association, non-profit
Appointments:	Director General is appointed by the Board of Directors, on proposal of the Permanent Commission. The Permanent Commission is composed of the President and a minimum of nine members.
Technical Committees:	• The proposal to create a Standardization Technical Committee (CTN) can have its origin in any entity (private, public administration, UNE and its Governing Bodies). The existence of an equivalent Technical Committee in International or Regional Standardization Organizations will be considered as a favourable argument for the creation of a new CTN. • The request for the creation of a CTN must be submitted to the Board of Directors through the technical services of UNE, preparing a creation report according to the model established by UNE for this purpose. • The standards are prepared in Standardization Technical Committees (CTN) managed by UNE technical services and the secretariat of CTNs is generally held by a business federation or association. In addition, CTNs are made up of a series of members that provide a balanced representation of the whole value chain of the product or service to be standardized.
Membership:	Any entity and individual or legal entity, public or private, that has an interest in the development of standardization can be a member of the Spanish Association for Standardization, UNE.

Rights:	Participation in association activities and in government bodies and representation, exercise the right to vote, as well as attend the General Assembly.
Acceptance to Membership:	The request for admission, where appropriate, must be provisionally approved by the Board of Directors, and ratified by the General Assembly. Regarding Members of honour, they are appointed by General assembly on proposal of the Board of Directors.

Country:	31. SWEDEN
Organization:	Swedish Standards Institute
Website:	www.sis.se
Founders:	Government of Sweden
Legal Status:	Non-profit association
Appointment:	The Board appoints the Managing Director and is responsible for the SIS activities and administration under the General Council. Board is elected by the Council for a term of office not exceeding three years with the possibility of re-election. Board members are appointed as follows: Each member, who has paid the annual fee for the current fiscal year, has the right to appoint a member and an alternate.
Technical Committee:	The Board may appoint Technical Councils for various areas of expertise within the standardization work.
Membership:	A member must be a legal person, i.e., not a private person. Member by paying an annual membership fee. Foreign companies and organizations are welcome to participate in the standardization work, but they cannot become members of the SIS and cannot participate in the SIS annual meeting.
Rights:	Membership means an opportunity to participate in SIS strategic business councils and of course at council meetings or as a board member.
Acceptance to Membership:	Applications for admission are examined by the Council or by the Board of Directors. Member is obliged to pay the annual fee determined by the General Council.

Country:	32. SWITZERLAND
Organization:	Schweizerische Normen-Vereinigung
Website:	www.snv.ch
Founders:	Founded 1919 at the initiative of the initiative of the Swiss Association of Machinery Manufacturers (VSM)
Legal Status:	Association, non- profit
Appointments:	General Assembly (Election of the President and the members of the Board). SNV membership is open to all communities, public and private interested parties in the development, harmonization and application of norms and rules.
Technical Committees:	All parties interested in the specific topic can get involved with the professional work within the standard committees.
Membership:	Collective members (companies, Communities of all kinds, Public administrations and institutions), individual members, Honorary members.
Rights:	Collective members are entitled to the votes corresponding to the number of rating points of their basic contribution. Participation in the General Assembly. Right to attend the meetings of the Standards Committee and to obtain the corresponding working documents.
Acceptance to Membership:	Application, which is assessed by the office. Rejected applications may be forwarded to the Board and, in the final instance, to the General Assembly, where a final decision will be taken. The board consists of the president, the vice president,

	the quaestor and Board members. The term of office is three years, re-election is permitted. The board is to issue rules governing the calculation of annual membership fees, including multipliers.

Country:	33. TURKEY
Organization:	Turkish Standards Institution
Website:	www.tse.org.tr
Founders:	Republic of Turkey
Legal Status:	Public institution founded with the Law
Appointments:	The General Assembly, the highest and most competent body of TSE; the representatives of the relevant ministries, private sector and scientific organizations. Board of Directors: consists of 5 people, including the President elected by the General Assembly for 3 years.
Technical Committees:	Technical Committees are composed of experts with experience and knowledge in their respective fields. Technical Committees are established with the decision of the Board of Directors from among the persons with technical knowledge, experience, experience and expertise in this field and for three years. At the end of these three years, the same persons may be re-appointed.
Membership:	The members of the General Assembly are appointed for 3 years. Honorary Membership may be granted to those who have benefited from the objectives of TSE and those who have demonstrated scientific and technical success in Standard studies by the decision of the General Assembly.
Rights:	N/A
Acceptance to Membership:	N/A

Country:	34. UNITED KINGDOM
Organization:	British Standards Institution
Website:	www.bsigroup.com
Founders:	The British Standards Institution is a Royal Charter Company and is governed by its Royal Charter and Bye-laws.
Legal Status:	Non-profit distributing company
Appointments:	Board of Directors. Appointed by the UK Government, BSI is the UK national standards body.
Technical Committees:	BSI standards-maker: any UK committee, panel or working group member, chair or convenor and any BSI employees involved in the standards development process Committee member: all volunteers serving in any role on any committee or group reporting to a committee, including panels, working groups, subcommittees, etc. BSI can make and request recommendations (from nominating bodies, other committee members etc.) but BSI will also openly promote the opportunity of being a committee member. Prospective committee members will be provided with a role description prior to completing the application / registration process to help them understand if the role is right for them. Prospective committee members will need to provide their personal details, their employment details / background and their areas of expertise as part of the committee member application process. BSI will make the final decision about who will be confirmed as a committee member but they may consult the committee and / or chair for their views on candidates.
Membership:	Membership grants no award or status to a company, but is a benefits package available to all companies, organizations and individuals for an annual fee.

Rights:	Members get 50% off British Standards, free access to a team of information experts, substantial discounts on conferences and subscriptions.
Acceptance to Membership:	Membership starts at £191 a year and varies depending on the size, type and turnover of organization.

Source: Assembled by author based on data of the CEN Members websites

Table 2. Memberships of National SDOs

Country:	MEMBERS
FINLAND	Confederation of Finnish Industries EK, Financial Association, University of Helsinki, Chemical Industry Association, Ministry of Transport and Communications, Ministry of Agriculture and Forestry, Finnish Forest Industries Association, Plastic Industry Association, The Ministry of Justice,, The Ministry of Education, PSK Standardization Association, Ministry of defense, Construction Industry RT ry, Building Information Foundation, SESKO Association, Ministry of the Interior, Social and health Ministry, Standardization Association TEVASTA ry, Finnish Quality Association, Finnish Association of Civil Engineers, Association of Finnish Technology Academics TEK, Technology Industries Association, Ministry of Employment and the Economy, State Department, Treasury, Joint Federation of Finnish Industries, Ministry of the Environment
GERMANY	Bosch GmbH, BMW AG, Production, Deutsche Bahn AG, Claudius Peters Projects GmbH, HARTING AG & Co. KG, HAZET - WERK - Hermann Zerver GmbH & Co. KG, IBM DACH - Germany, Austria & Switzerland, Kirchhoff Group, Nipro PharmaPackaging Germany GmbH, OBO Bettermann Holding GmbH & Co. KG, Pelikan PBS-ProduktionsgesellschaftmbH & Co.KG , Siemens, Components Technology Business Area of thyssenkrupp AG

Source: Assembled by author based on data of the CEN Members websites

SOURCE OF DATA:

1. European Committee for Standardization (CEN). Available at: https://standards.cen.eu/index.html
2. Austrian Standards International - Standardization and Innovation. Available at: www.austrian-standards.at
3. Bureau de Normalisation/Bureau voor Normalisatie. Available at: www.nbn.be
4. Bulgarian Institute for Standardization. Available at: www.bds-bg.org
5. Croatian Standards Institute. Available at: www.hzn.hr
6. Cyprus Organization for Standardisation. Available at: www.cys.org.cy
7. Czech Office for Standards, Metrology and Testing/ Czech Standardization Agency TAS (since 2018). Available at: www.unmz.cz Available at: www.agentura-cas.cz/tvorba-norem
8. Dansk Standard. Available at: www.ds.dk
9. Estonian Centre for Standardisation. Available at: www.evs.ee
10. Suomen Standardisoimisliitto r.y. www.sfs.fi
11. Standardization Institute of the Republic of North Macedonia. Available at: www.isrm.gov.mk
12. Association Française de Normalisation. Available at: www.afnor.org
13. Deutsches Institut für Normung. Available at: www.din.de
14. National Quality Infrastructure System. Available at: www.elot.gr

15. Hungarian Standards Institution. Available at: www.mszt.hu
16. Icelandic Standards. Available at: www.stadlar.is
17. National Standards Authority of Ireland. Available at: www.nsai.ie
18. Ente Nazionale Italiano di Unificazione. Available at: www.uni.com
19. Latvian Standard Ltd. Available at: www.lvs.lv
20. Lithuanian Standards Board. Available at: www.lsd.lt
21. Organisme Luxembourgeois de Normalisation. Available at: www.portail-qualite.lu
22. The Malta Competition and Consumer Affairs Authority. Available at: www.mccaa.org.mt
23. Nederlands Normalisatie-instituut. Available at: www.nen.nl
24. Standards Norway. Available at: www.standard.no/
25. Polish Committee for Standardization. Available at: www.pkn.pl
26. Instituto Português da Qualidade. Available at: http://www1.ipq.pt/PT/IPQ/Pages/IPQ.aspx
27. Romanian Standards Association. Available at: www.asro.ro
28. Institute for Standardization of Serbia. Available at: www.iss.rs
29. Slovak Office of Standards Metrology and Testing. Available at: www.unms.sk
30. Slovenian Institute for Standardization. Available at: www.sist.si
31. Asociación Española de Normalización. Available at: www.une.org
32. Swedish Standards Institute. Available at: www.sis.se
33. Schweizerische Normen-Vereinigung. Available at: www.snv.ch
34. Turkish Standards Institution. Available at: www.tse.org.tr
35. British Standards Institution. Available at: www.bsigroup.com
36. Austrian Standards International - Standardization and Innovation. Available at: Bureau de Normalisation/Bureau voor Normalisatie. Statute of the association. Available at: https://www.austrian-standards.at/fileadmin/user/bilder/content-ueber-uns/mitgliedschaft/Statuten_A.S.I._2018.pdf
37. Bureau de Normalisation/Bureau voor Normalisatie. Royal Decree appointing the President and the members of the Board of Directors of the Standardization Bureau. Royal Decree of October 30, 2018. Available at: https://www.etaamb.be/fr/2018032202.html
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Appendix 4. International Organization for Standardization- ISO Members- Founders, Legal Status, Appointments, Technical Committees, Membership, Rights and Acceptance to Membership

Sub-Committee: Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23)

Country:	1. China (SAC)
Organization:	Standardization Administration of the People's Republic of China (SAC)
Website:	http://www.sac.gov.cn/
Founders:	People's Republic of China
Legal status:	State Council
Appointments:	N/A; responsible leaders and directly responsible personnel shall be punished in accordance with the law.
Tehnical Committees:	The State shall encourage enterprises, social organizations, and educational institutions, research institutes, and other organizations to carry out or participate in standardization work. The administrative department in charge of standardization under the State Council shall be responsible for proposal approval, the numbering and notification of mandatory national standards. Social organizations, enterprises, public institutions and citizens may submit recommendations for proposing mandatory national standards to the administrative department in charge of standardization under the State Council. For developing voluntary standards, a standardization technical committee composed of stakeholders shall be established for the drafting and technical review of such standards. For developing mandatory standards, a relevant standardization technical committee may be entrusted with the drafting and technical review. In the absence of a standardization technical committee, an expert panel shall be set up for the aforementioned work. Such standardization technical committees and expert panels shall be broadly representative.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	2. Japan (JISC)
Organization:	Japanese Industrial Standards Committee
Website:	https://www.jisc.go.jp/
Founders:	Ministry of Economy, Trade and Industry based on the Industrial Standardization Act
Legal status:	Set up under the Law, as an advisory organization to competent Ministers
Appointments:	The Committee shall be organized with up to 30 committee members. The committee members shall be appointed by the Minister of Economy, Trade and Industry selected from among persons having an academic background in accordance with the recommendation by relevant ministers. The Committee shall be headed by a chairperson who shall be elected by mutual vote of the committee members. The chairperson shall preside over the affairs of the Committee.
Tehnical Committees:	The committee consists of the Council, as well as two Boards established thereunder. The Boards have Technical Committees, which have as members all concerned parties among producers, dealers, users, consumers and academic circles. Standards cover all fields of industrial and mineral products except medicines, agricultural chemicals and chemical fertilizers, which are established under other laws. If you wish to participate in the drafting process of a JIS listed in the JIS Work Programme., you should submit a document to JISC in Japanese which

	contains; 1) Title of the JIS 2) Personal history which explains your relevance with the JIS 3) Summary of your opinion Please note that working language in the JIS drafting committee is Japanese, and participants shall bear the necessary cost to attend the meetings or to submit comments.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	3. Korea, Republic of (KATS)
Organization:	Korean Agency for Technology and Standards (KATS)
Website:	http://www.kats.go.kr/content.do?cmsid=91
Founders:	Ministry of Trade, Industry and Energy
Legal status:	Government agency
Appointments:	The council shall consist of up to 25 members including the Chairman. The chairman shall be the Minister of Trade, Industry and Energy, and the members shall be the following persons: Deputy Minister-level Officials of the State Coordination Office, Deputy Minister or Deputy Minister Official of the relevant Central Administrative Institution; Deputy Minister or Deputy Minister Official of the relevant Central Administrative Institution; A person appointed by the Minister of Trade, Industry and Energy among persons with abundant knowledge and experience in standard science and technology and conformity assessment.
Technical Committees:	The Technical Expert Committee shall consist of not more than 10 members, including one chairman and the head of the National Institute of Standards and Technology. The chairman shall be elected by voting among the members. The composition of the technical committee shall be appointed by the Minister of Trade, Industry and Energy.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	4. Netherlands (NEN)
Organization:	Nederlands Normalisatie-instituut
Website:	www.nen.nl
Founders:	Dutch Society for Industry and Trade and the Royal Institute of Engineers
Legal Status:	Professional, non-profit business organization
Appointment:	Director is appointed by the supervisory board. The management of NEN consists of a Managing Director and a Financial Manager. The Managing Director chairs the management team. The General Manager and the Financial Manager are the statutory directors of NEN, and together they form the management team, which is responsible for strategic choices and decisions. Prior to the appointment of a director of the work history, the supervisory board ascertains the integrity, quality and suitability for the position of the person in question, as well as whether there are conflicts of interest or other positions that may hinder the person to be appointed from exercising of his function.
Technical Com-	The management board, after obtaining the approval of the supervisory board, sets

mittee:	up policy committees and may, after obtaining the approval of the supervisory board, cancel policy committees. The chairman and members of standard committees are appointed by the relevant policy committee. Participation in the standardization process is only open to representatives of interested parties in the Netherlands, who are also willing to contribute to the financing.
Membership:	An interested party can be a producer, entrepreneur, service provider, user, but also the government or a consumer or research organization.
Rights:	N/A
Acceptance to Membership:	N/A

Country:	5. Russian Federation (GOST R)
Organization:	Federal Agency on Technical Regulating and Metrology (GOST R)
Website:	https://www.gost.ru/portal/gost/
Founders:	Decree of the President of the Russian Federation
Legal status:	Federal Agency under the jurisdiction of the Ministry of Industry and Trade of the Russian Federation
Appointment:	The Federal Agency for Technical Regulation and Metrology is headed by a head appointed to the post and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation. The head of the Federal Agency for Technical Regulation and Metrology has deputies appointed and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation.
Technical Committee:	TCs are formed on the basis of the principle of voluntary participation. The composition of the TC may include: - federal and other executive bodies; - scientific and educational organizations; - self-regulatory organizations; - public associations of entrepreneurs and consumers, including societies and consumer associations, public organizations of small and medium enterprises; - scientific and technical societies; - test centers; - trade unions; - other commercial and non-profit organizations interested in standardization work. Individual persons may be included in the composition of the TC as independent experts or consultants, and representatives of foreign, regional or international organizations as observers. An application for the creation of a technical committee for standardization in written or electronic form is submitted by the applicant to the federal executive body in the field of standardization. The federal executive body in the field of standardization considers the application for the establishment of a technical committee for standardization and within fifteen days from the date of filing this application decides on the possibility of creating a technical committee for standardization or rejecting the application for the creation of a technical committee for standardization. The national standardization body, on the basis of applications for participation in the TC, selects committee members based on the principle of forming the TC on an equal footing, and determines the chairman of the TC, his deputy (deputies) and the executive secretary of the TC and the organization that may be proposed performance of the functions of the secretariat of the TC.
Membership:	The Public Council is formed on the basis of voluntary participation in its activities of citizens of the Russian Federation, members of public associations and organiza-

	tions. The Public Council includes members of the Public Chamber of the Russian Federation, experts independent from government bodies of the Russian Federation, representatives of interested public organizations and other persons.
Rights:	N/A
Acceptance to Membership:	N/A

Country:	6. Switzerland (SNV)
Organization:	Schweizerische Normen-Vereinigung
Website:	www.snv.ch
Founders:	Founded 1919 at the initiative of the initiative of the Swiss Association of Machinery Manufacturers (VSM)
Legal Status:	Association, non- profit
Appointments:	General Assembly (Election of the President and the members of the Board). SNV membership is open to all communities, public and private interested parties in the development, harmonization and application of norms and rules.
Technical Committees:	All parties interested in the specific topic can get involved with the professional work within the standard committees.
Membership:	Collective members (companies, Communities of all kinds, Public administrations and institutions), individual members, Honorary members.
Rights:	Collective members are entitled to the votes corresponding to the number of rating points of their basic contribution. Participation in the General Assembly. Right to attend the meetings of the Standards Committee and to obtain the corresponding working documents.
Acceptance to Membership:	Application, which is assessed by the office. Rejected applications may be forwarded to the Board and, in the final instance, to the General Assembly, where a final decision will be taken. The board consists of the president, the vice president, the quaestor and Board members. The term of office is three years, re-election is permitted. The board is to issue rules governing the calculation of annual membership fees, including multipliers.

Sub-Committee: Online reputation (ISO/TC 290)

Country:	1. Austria (ASI)
Organization:	Austrian Standards International - Standardization and Innovation
Website:	www.austrian-standards.at
Founders:	100% subsidiary of Austrian Standards plus GmbH
Legal status:	Service organization (association)
Appointments:	The members of the presidium are to be elected primarily from among the members of the association. The Director and the Deputy Director are appointed by the governing body (consisted of the President, three Vice Presidents, possibly up to three more members of the Presidium, which should come, in particular, from institutions which play a significant role in the financing of the tasks of the association) for a term of five years at the proposal of the President.
Technical Committees:	Registration to committee manager at Austrian Standards and fee."
Membership:	Austrian enterprises, research centres and education institutions as well as the public sector. Full members, honorary members, honorary President.
Rights:	In the General Assembly, each member has one vote as well as the right to vote and stand for election.

Acceptance to Membership:	Full members are required to pay a membership fee.

Country:	2. China (SAC)
Organization:	Standardization Administration of the People's Republic of China (SAC)
Website:	http://www.sac.gov.cn/
Founders:	People's Republic of China
Legal status:	State Council
Appointments:	N/A; responsible leaders and directly responsible personnel shall be punished in accordance with the law.
Tehnical Committees:	The State shall encourage enterprises, social organizations, and educational institutions, research institutes, and other organizations to carry out or participate in standardization work. The administrative department in charge of standardization under the State Council shall be responsible for proposal approval, the numbering and notification of mandatory national standards. Social organizations, enterprises, public institutions and citizens may submit recommendations for proposing mandatory national standards to the administrative department in charge of standardization under the State Council. For developing voluntary standards, a standardization technical committee composed of stakeholders shall be established for the drafting and technical review of such standards. For developing mandatory standards, a relevant standardization technical committee may be entrusted with the drafting and technical review. In the absence of a standardization technical committee, an expert panel shall be set up for the aforementioned work. Such standardization technical committees and expert panels shall be broadly representative.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	3. France (AFNOR)
Organization:	Association Française de Normalisation
Website:	www.afnor.org
Founders:	Jean Tribot-Laspière
Legal Status:	Non- profit association
Appointments:	Board of Directors AFNOR is administered by a board of directors of 30 members at the most (direct or indirect representatives of enterprises, representatives of consumers, social partners, local authorities, non-governmental organizations, representatives of ministries, elected representatives of AFNOR staff.
Technical Committees:	• Anyone who wishes can apply to be a member of a standardization commission. • A standardization commission brings together the experts involved in the elaboration of projects included in its work program. • An expert is - A technically qualified person whose competence and probity is worthy of being formally recognized as capable of carrying out expert work. He/she is a member of a standardization body, highly qualified in a given professional sector, who provides the technical content of the standards, ensures their validation and contributes to the necessary updates. He/she has the mission to formulate the national normative position on projects under development and to defend it at meetings of European and international bodies. His/her participation in the work is

	financed by his company or the organization on which he/she depends. • The standardization operator activities of the (BNS) Bureau of Standardization Sectors (standards development, technical committee secretariats, etc.) are governed by financing methods specific to each sector. The financial conditions of participation in the work animated by the BNS are public and accessible on their website and / or on request. (A fee is paid to be in the standardization commission)
Membership:	SMEs, mid-cap companies, large corporations, trade unions, local authorities
Rights:	When you become a new AFNOR member, you will be given the opportunity to promote your organization. For example, sitting on the strategic committees: • offers an exclusive early look at the regulations and standardization relevant to your organization; • provides access to privileged information and a position within a network featuring a sector's main decision-makers; • allows for participation in France's decisions about the standardization strategy for a given market.
Acceptance to Membership:	Fee.

Country:	4. Germany (DIN)
Organization:	Deutsches Institut für Normung
Website:	www.din.de
Founders:	Public-private partnership with the German Federal Republic
Legal Status:	DIN is a private organization that is registered as a non-profit association.
Appointments:	The Presidial Board comprises not more than 45 persons. Up to 36 Presidial Board members are elected by the General Assembly; up to nine Presidial Board members may be appointed by the Presidial Board itself. The Presidial Board members shall represent the stakeholders in standardization. The public sector shall be adequately represented in the Presidial Board. Presidial Board members must be actively engaged in their profession and serve in an honorary capacity. The term of office for the members of the Presidial Board elected by the General Assembly.
Technical Committees:	DIN membership includes vouchers for participation in standards committees. Each voucher is valued at 1,090 Euro (net).
Membership:	Enterprises, institutions of higher learning, technical and industry associations, corporate bodies organized under private or public law, and other legal entities and partnerships may become members of DIN.
Rights:	The General Assembly is responsible for receiving the President's Statement of Accounts, the discharging of the President and the Presidial Board from their obligations, the election of the members of the Presidial Board, and deciding on the dissolution of the Association.
Acceptance to Membership:	Membership is acquired by written application with the admission to membership being confirmed by the Executive Board. Membership is terminated by withdrawal from the Association, with notification of withdrawal being submitted in writing to the Executive Board with six months' notice to the end of a calendar year. Membership fees are collected from members, the amounts due and payment method being set by the Presidial Board.

Country:	5. Italy (UNI)
Organization:	Ente Nazionale Italiano di Unificazione
Website:	www.uni.com
Founders:	Private association

Legal Status:	Private association, non-profit
Appointment:	The Assembly is made up of all members of UNI. The Assembly elect eight members of the Board of Directors. The Board of Directors appoints the President and the Director General.
Membership:	Effective members, members by right, honorary members, adherent members (Public bodies and companies interested in the activity of technical standardization in the cases and in the forms allowed by the laws and the respective statutes, the trade associations interested in the technical standardization activity, technical, scientific, educational, professional, economic bodies and industrial and commercial companies). The natural persons interested in technical standardization, even if of foreign nationality, can be part of the UNI, as members, as long as they exercise their activity in Italy.
Tehnical Committee:	The Executive Board sets up a UNI Technical Commission on the proposal of the Central Technical Commission. The UNI Technical Commission and the Technical Body of the Federated Body are composed with an adequate balance of the parties involved in the sector of competence.
Rights:	• to intervene in the Assembly • to consult the books and periodicals existing at the library, the technical standards and the unifications in general, national and foreign, existing in the archives of the UNI • to receive the UNI magazine and bulletin • to receive, according to the established modalities, the assistance of the offices of the UNI, for the application of the technical norms • only members in good standing with the payment of dues/fees have the right to vote.
Acceptance to Membership:	President of UNI

Country:	6. Malaysia (DSM)
Organization:	Department of Standards Malaysia Ministry of International Trade and Industry
Website:	http://www.jsm.gov.my/
Founders:	Government of Malaysia
Legal Status:	Joint stock company- agency under the ambit of the Ministry of International Trade and Industry (MITI)
Appointments:	Minister of Finance shall, from time to time, by notification in the Gazette, appoint a public officer to be the Director General of the Department of Standards for the purpose of carrying out the duties and functions assigned to him. The Minister may, from time to time, give to the Director General directions not inconsistent with the provisions of Standards Malaysia Act and the Director General shall give effect to all such directions.
Technical Committees:	Malaysian Standards and Accreditation Council consisting of the following members appointed by the Minister: Chairman, Deputy, a representative of the successor company; five representatives of the Government; and not more than twelve other members who, in the opinion of the Minister, have wide experience or special knowledge in matters relating to standardization and accreditation. Participation in the standardisation process shall be accessible to all interested parties through representation at Industry Standards Committees, Technical Committees and Working Groups or through the public comment process as appropriate. Any interested party may initiate new work proposals for standardisation or comment on existing standards or draft standards.
Membership:	N/A

Rights:	N/A
Acceptance to Membership:	N/A

Country:	7. Russian Federation (GOST R)
Organization:	Federal Agency on Technical Regulating and Metrology (GOST R)
Website:	https://www.gost.ru/portal/gost/
Founders:	Decree of the President of the Russian Federation
Legal status:	Federal Agency under the jurisdiction of the Ministry of Industry and Trade of the Russian Federation
Appointments:	The Federal Agency for Technical Regulation and Metrology is headed by a head appointed to the post and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation. The head of the Federal Agency for Technical Regulation and Metrology has deputies appointed and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation.
Tehnical Committees:	TCs are formed on the basis of the principle of voluntary participation. The composition of the TC may include: - federal and other executive bodies; - scientific and educational organizations; - self-regulatory organizations; - public associations of entrepreneurs and consumers, including societies and consumer associations, public organizations of small and medium enterprises; - scientific and technical societies; - test centers; - trade unions; - other commercial and non-profit organizations interested in standardization work. Individual persons may be included in the composition of the TC as independent experts or consultants, and representatives of foreign, regional or international organizations as observers. An application for the creation of a technical committee for standardization in written or electronic form is submitted by the applicant to the federal executive body in the field of standardization. The federal executive body in the field of standardization considers the application for the establishment of a technical committee for standardization and within fifteen days from the date of filing this application decides on the possibility of creating a technical committee for standardization or rejecting the application for the creation of a technical committee for standardization. The national standardization body, on the basis of applications for participation in the TC, selects committee members based on the principle of forming the TC on an equal footing, and determines the chairman of the TC, his deputy (deputies) and the executive secretary of the TC and the organization that may be proposed performance of the functions of the secretariat of the TC.
Membership:	The Public Council is formed on the basis of voluntary participation in its activities of citizens of the Russian Federation, members of public associations and organizations. The Public Council includes members of the Public Chamber of the Russian Federation, experts independent from government bodies of the Russian Federation, representatives of interested public organizations and other persons.
Rights:	N/A
Acceptance to Membership:	N/A

Country:	8. Spain (UNE)
Organization:	Asociación Española de Normalización
Website:	www.une.org
Founders:	Appointed by the Ministry of Economy, Industry and Competitiveness
Legal Status:	Private association, non-profit
Appointments:	Director General is appointed by the Board of Directors, on proposal of the Permanent Commission. The Permanent Commission is composed of the President and a minimum of nine members.
Technical Committees:	• The proposal to create a Standardization Technical Committee (CTN) can have its origin in any entity (private, public administration, UNE and its Governing Bodies). The existence of an equivalent Technical Committee in International or Regional Standardization Organizations will be considered as a favourable argument for the creation of a new CTN. • The request for the creation of a CTN must be submitted to the Board of Directors through the technical services of UNE, preparing a creation report according to the model established by UNE for this purpose. • The standards are prepared in Standardization Technical Committees (CTN) managed by UNE technical services and the secretariat of CTNs is generally held by a business federation or association. In addition, CTNs are made up of a series of members that provide a balanced representation of the whole value chain of the product or service to be standardized.
Membership:	Any entity and individual or legal entity, public or private, that has an interest in the development of standardization can be a member of the Spanish Association for Standardization, UNE.
Rights:	Participation in association activities and in government bodies and representation, exercise the right to vote, as well as attend the General Assembly.
Acceptance to Membership:	The request for admission, where appropriate, must be provisionally approved by the Board of Directors, and ratified by the General Assembly. Regarding Members of honour, they are appointed by General assembly on proposal of the Board of Directors.

Country:	9. United Kingdom (BSI)
Organization:	British Standards Institution
Website:	www.bsigroup.com
Founders:	The British Standards Institution is a Royal Charter Company and is governed by its Royal Charter and Bye-laws.
Legal Status:	Non-profit distributing company
Appointments:	By Board of Directors. Appointed by the UK Government, BSI is the UK national standards body.
Technical Committees:	BSI standards-maker: any UK committee, panel or working group member, chair or convenor and any BSI employees involved in the standards development process Committee member: all volunteers serving in any role on any committee or group reporting to a committee, including panels, working groups, subcommittees, etc. BSI can make and request recommendations (from nominating bodies, other committee members etc.) but BSI will also openly promote the opportunity of being a committee member. Prospective committee members will be provided with a role description prior to completing the application / registration process to help them understand if the role is right for them. Prospective committee members will need to provide their personal details, their employment details / background and their areas of expertise as part of the committee member application process. BSI will

	make the final decision about who will be confirmed as a committee member but they may consult the committee and / or chair for their views on candidates.
Membership:	Membership grants no award or status to a company, but is a benefits package available to all companies, organizations and individuals for an annual fee.
Rights:	Members get 50% off British Standards, free access to a team of information experts, substantial discounts on conferences and subscriptions.
Acceptance to Membership:	Membership starts at £191 a year and varies depending on the size, type and turnover of organization.

Source: Assembled by author based on data of the International Organization for Standardization- ISO and Members and Sub- Committiees TC 100 websites

SOURCE OF DATA:

Sub- Committee; Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23):

1. International Organization for Standardization- ISO. Available at: https://www.iso.org/about-us.html
2. Standardization Administration of the People's Republic of China (SAC). Available at: http://www.sac.gov.cn/
3. Japanese Industrial Standards Committee. Available at: https://www.jisc.go.jp/
4. Committee for Technical regulation and metrology (KAZMEMST). Available at: http://www.memst.kz/
5. Korean Agency for Technology and Standards (KATS). Available at: http://www.kats.go.kr/content.do?cmsid=91
6. Nederlands Normalisatie-instituut. Available at: www.nen.nl
7. Federal Agency on Technical Regulating and Metrology (GOST R). Available at: https://www.gost.ru/portal/gost/
8. Schweizerische Normen-Vereinigung. Available at: www.snv.ch
9. International Organization for Standardization- ISO Strategy 2016- 2020. Available at: https://www.iso.org/publication/PUB100364.html
10. Standardization Administration of the People's Republic of China (SAC). Standardization Law of the People's Republic of China. Available at: http://www.sac.gov.cn/sacen/law/201801/t20180102_340493.htm
11. Japanese Industrial Standards Committee. Industrial Standardization Act. Available at: http://www.japaneselawtranslation.go.jp/law/detail_main?re=&vm=02&id=20
12. Japanese Industrial Standards Committee. New Establishment and Revision of the Japanese Industrial Standards (JIS) (October 2019). Available at: https://www.meti.go.jp/english/press/2019/1021_002.html
13. Committee for Technical regulation and metrology (KAZMEMST). General information. Available at: http://memst.miid.gov.kz/en/pages/general-information
14. Korean Agency for Technology and Standards (KATS). National Standard Framework Act. Available at: http://www.law.go.kr/%EB%B2%95%EB%A0%B9/%EA%B5%AD%EA%B0%80%ED%91%9C%EC%A4%80%EA%B8%B0%EB%B3%B8%EB%B2%95
15. Nederlands Normalisatie-instituut. Statute. Available at: https://www.nen.nl/Over-NEN.htm
16. Nederlands Normalisatie-instituut. Terms and Conditions. Available at: https://www.nen.nl/Over-NEN.htm
17. Federal Agency on Technical Regulating and Metrology (GOST R). Resolution. Available at: https://www.gost.ru/portal/gost/home/about/subjectactivity

18. Federal Agency on Technical Regulating and Metrology (GOST R). Technical committees for standardization. Rules of creation and activities. Available at: http://docs.cntd.ru/document/1200105343
19. Schweizerische Normen-Vereinigung. Statue. Available at: https://www.snv.ch/de/mitglieder/mitgliedschaft.html
20. Schweizerische Normen-Vereinigung. Rules of procedure. Available at: https://www.snv.ch/de/mitglieder/mitgliedschaft.html

Sub- Committee; Online reputation (ISO/TC 290):

1. Austrian Standards International - Standardization and Innovation. Available at: www.austrian-standards.at
2. Standardization Administration of the People's Republic of China (SAC). Available at: http://www.sac.gov.cn/
3. Association Française de Normalisation. Available at: www.afnor.org
4. Deutsches Institut für Normung. Available at: www.din.de
5. Ente Nazionale Italiano di Unificazione. Available at: www.uni.com
6. Department of Standards Malaysia Ministry of International Trade and Industry. Available at: http://www.jsm.gov.my/
   Asociación Española de Normalización. Available at: www.une.org
7. British Standards Institution. Available at: www.bsigroup.com
8. Austrian Standards International - Standardization and Innovation. Available at: Bureau de Normalisation/Bureau voor Normalisatie. Statute of the association. Available at: https://www.austrian-standards.at/fileadmin/user/bilder/content-ueber-uns/mitgliedschaft/Statuten_A.S.I._2018.pdf
9. Standardization Administration of the People's Republic of China (SAC). Standardization Law of the People's Republic of China. Available at: http://www.sac.gov.cn/sacen/law/201801/t20180102_340493.htm
10. Association Française de Normalisation. AFNOR Members. Available at: https://normalisation.afnor.org/wp-content/uploads/2016/06/plaquette-adhesion.pdf?_ga=2.141182010.982141350.1558535699-2122951431.1558535699
11. Deutsches Institut für Normung. Statute. Available at: https://www.din.de/resource/blob/66170/0ad27759be047557cf7654e1f4df824d/din-satzung-en-data.pdf
12. Deutsches Institut für Normung. DIN Membership. Available at: https://www.din.de/en/getting-involved/din-membership
13. Ente Nazionale Italiano di Unificazione. Statute. Available at: http://www.uni.com/images/stories/uni/verbi/conoscere/pdf/2017_statuto_regolamentoattuativo_ed9.pdf
14. Department of Standards Malaysia Ministry of International Trade and Industry. Standards of Malaysia Act. Available at: http://www.jsm.gov.my/documents/10180/1400459/Act+549+-+Standards+of+Malaysia+Act+1996+as+at+30+April+2012+BI.pdf/bf6a5b90-e6ad-40b8-b4a0-47530d01400f
15. Department of Standards Malaysia Ministry of International Trade and Industry. Guide to Malaysian Standards System. Available at: http://www.standardsmalaysia.gov.my/documents/10180/86670/Microsoft+Word+-+MS+System+Handbook.pdf/
16. Federal Agency on Technical Regulating and Metrology (GOST R). Available at: https://www.gost.ru/portal/gost/
17. Asociación Española de Normalización. Statute. Available at: https://www.une.org/normalizacion_documentos/Estatutos%20de%20UNE(2019-10-09)acc.pdf
18. British Standards Institution. Membership. Available at: https://www.bsigroup.com/en-GB/our-services/bsi-membership/benefits/

Appendix 5. International Electrotechnical Commission (IEC) Sub- Committiees - Founders, Legal Status, Appointments, Technical Committees, Membership, Rights and Acceptance to Membership

TC 100: Audio, video and multimedia systems and equipment

Country:	1. China (SAC)
Organization:	Standardization Administration of the People's Republic of China (SAC)
Website:	http://www.sac.gov.cn/
Founders:	People's Republic of China
Legal status:	State Council
Appointments:	N/A; responsible leaders and directly responsible personnel shall be punished in accordance with the law.
Tehnical Committees:	The State shall encourage enterprises, social organizations, and educational institutions, research institutes, and other organizations to carry out or participate in standardization work. The administrative department in charge of standardization under the State Council shall be responsible for proposal approval, the numbering and notification of mandatory national standards. Social organizations, enterprises, public institutions and citizens may submit recommendations for proposing mandatory national standards to the administrative department in charge of standardization under the State Council. For developing voluntary standards, a standardization technical committee composed of stakeholders shall be established for the drafting and technical review of such standards. For developing mandatory standards, a relevant standardization technical committee may be entrusted with the drafting and technical review. In the absence of a standardization technical committee, an expert panel shall be set up for the aforementioned work. Such standardization technical committees and expert panels shall be broadly representative.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	2. Japan (JISC)
Organization:	Japanese Industrial Standards Committee
Website:	https://www.jisc.go.jp/
Founders:	Ministry of Economy, Trade and Industry based on the Industrial Standardization Act
Legal status:	Set up under the Law, as an advisory organization to competent Ministers
Appointments:	The Committee shall be organized with up to 30 committee members. The committee members shall be appointed by the Minister of Economy, Trade and Industry selected from among persons having an academic background in accordance with the recommendation by relevant ministers. The Committee shall be headed by a chairperson who shall be elected by mutual vote of the committee members. The chairperson shall preside over the affairs of the Committee.
Tehnical Committees:	The committee consists of the Council, as well as two Boards established thereunder. The Boards have Technical Committees, which have as members all concerned parties among producers, dealers, users, consumers and academic circles. Standards cover all fields of industrial and mineral products except medicines, agricultural chemicals and chemical fertilizers, which are established under other laws. If you wish to participate in the drafting process of a JIS listed in the JIS Work Programme., you should submit a document to JISC in Japanese which contains; 1) Title of the JIS

	2) Personal history which explains your relevance with the JIS 3) Summary of your opinion Please note that working language in the JIS drafting committee is Japanese, and participants shall bear the necessary cost to attend the meetings or to submit comments.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	3. Korea, Republic of (KATS)
Organization:	Korean Agency for Technology and Standards (KATS)
Website:	http://www.kats.go.kr/content.do?cmsid=91
Founders:	Ministry of Trade, Industry and Energy
Legal status:	Government agency
Appointments:	The council shall consist of up to 25 members including the Chairman. The chairman shall be the Minister of Trade, Industry and Energy, and the members shall be the following persons: Deputy Minister-level Officials of the State Coordination Office, Deputy Minister or Deputy Minister Official of the relevant Central Administrative Institution; Deputy Minister or Deputy Minister Official of the relevant Central Administrative Institution; A person appointed by the Minister of Trade, Industry and Energy among persons with abundant knowledge and experience in standard science and technology and conformity assessment.
Tehnical Committees:	The Technical Expert Committee shall consist of not more than 10 members, including one chairman and the head of the National Institute of Standards and Technology. The chairman shall be elected by voting among the members. The composition of the technical committee shall be appointed by the Minister of Trade, Industry and Energy.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	4. Sweden
Organization:	Sweden Elstandard
Website:	https://elstandard.se/
Founders:	Appointed by the government
Legal status:	Non-profit organisation
Appointments:	Chairman and a representative are appointed by the Swedish Standardization Association.
Tehnical Committees:	All Swedish companies, authorities, organizations, colleges and universities can participate in the standardization work of SEK Svensk Elstandard's technical committees and participate in and influence international standards. The participants in SEK's technical committees have access to all information and documentation within their respective technology areas. By actively participating in IEC's technical committees, and as experts in various working groups and projects, they participate in and influence international standards. It allows them to be initiators and prevent competitors from setting the standards alone and setting the rules of the game.
Membership:	Registration and fee.
Rights:	The participants in SEK's technical committees have access to all information and

	documentation within their respective technology areas. By actively participating in IEC's technical committees, and as experts in various working groups and projects, they participate in and influence international standards.
Acceptance to Membership:	N/A

Country:	5. Russian Federation (GOST R)
Organization:	Federal Agency on Technical Regulating and Metrology (GOST R)
Website:	https://www.gost.ru/portal/gost/
Founders:	Decree of the President of the Russian Federation
Legal status:	Federal Agency under the jurisdiction of the Ministry of Industry and Trade of the Russian Federation
Appointments:	The Federal Agency for Technical Regulation and Metrology is headed by a head appointed to the post and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation. The head of the Federal Agency for Technical Regulation and Metrology has deputies appointed and dismissed by the Government of the Russian Federation on the proposal of the Minister of Industry and Trade of the Russian Federation.
Tehnical Committees:	TCs are formed on the basis of the principle of voluntary participation. The composition of the TC may include: - federal and other executive bodies; - scientific and educational organizations; - self-regulatory organizations; - public associations of entrepreneurs and consumers, including societies and consumer associations, public organizations of small and medium enterprises; - scientific and technical societies; - test centers; - trade unions; - other commercial and non-profit organizations interested in standardization work. Individual persons may be included in the composition of the TC as independent experts or consultants, and representatives of foreign, regional or international organizations as observers. An application for the creation of a technical committee for standardization in written or electronic form is submitted by the applicant to the federal executive body in the field of standardization. The federal executive body in the field of standardization considers the application for the establishment of a technical committee for standardization and within fifteen days from the date of filing this application decides on the possibility of creating a technical committee for standardization or rejecting the application for the creation of a technical committee for standardization. The national standardization body, on the basis of applications for participation in the TC, selects committee members based on the principle of forming the TC on an equal footing, and determines the chairman of the TC, his deputy (deputies) and the executive secretary of the TC and the organization that may be proposed performance of the functions of the secretariat of the TC.
Membership:	The Public Council is formed on the basis of voluntary participation in its activities of citizens of the Russian Federation, members of public associations and organizations. The Public Council includes members of the Public Chamber of the Russian Federation, experts independent from government bodies of the Russian Federation, representatives of interested public organizations and other persons.
Rights:	N/A

Acceptance to Membership:	N/A

Country:	6. Switzerland
Organization:	SWISS ELECTROTECHNICAL COMMITTEE (CES)
Website:	https://www.electrosuisse.ch/de/
Founders:	Private
Legal Status:	Association, independent specialist organization
Appointment:	General Assembly
Technical Committee:	Membership is accepted by the management after registering in writing at the association secretariat. Honorary members are appointed by the General Assembly at the request of the Board.
Membership:	Collective members (companies, Communities of all kinds, Public administrations and institutions), individual members, Honorary members.
Rights:	Collective members are entitled to the votes corresponding to the number of rating points of their basic contribution. Participation in the General Assembly. Right to attend the meetings of the Standards Committee and to obtain the corresponding working documents.
Acceptance to Membership:	Fee. The annual membership fees for the individual member categories are determined by the General Assembly. Honorary members and fellows do not pay any contributions.

Country:	7. France (AFNOR)
Organization:	Association Française de Normalisation
Website:	www.afnor.org
Founders:	Jean Tribot-Laspière
Legal Status:	Non- profit association
Appointment:	Board of Directors AFNOR is administered by a board of directors of 30 members at the most (direct or indirect representatives of enterprises, representatives of consumers, social partners, local authorities, non-governmental organizations, representatives of ministries, elected representatives of AFNOR staff.
Tehnical Committee:	• Anyone who wishes can apply to be a member of a standardization commission. • A standardization commission brings together the experts involved in the elaboration of projects included in its work program. • An expert is - A technically qualified person whose competence and probity is worthy of being formally recognized as capable of carrying out expert work. He/she is a member of a standardization body, highly qualified in a given professional sector, who provides the technical content of the standards, ensures their validation and contributes to the necessary updates. He/she has the mission to formulate the national normative position on projects under development and to defend it at meetings of European and international bodies. His/her participation in the work is financed by his company or the organization on which he/she depends. • The standardization operator activities of the (BNS) Bureau of Standardization Sectors (standards development, technical committee secretariats, etc.) are governed by financing methods specific to each sector. The financial conditions of participation in the work animated by the BNS are public and accessible on their website and / or on request. (A fee is paid to be in the standardization commission)
Membership:	SMEs, mid-cap companies, large corporations, trade unions, local authorities
Rights:	When you become a new AFNOR member, you will be given the opportunity to promote your organization. For example, sitting on the strategic committees:

	• offers an exclusive early look at the regulations and standardization relevant to your organization; • provides access to privileged information and a position within a network featuring a sector's main decision-makers; • allows for participation in France's decisions about the standardization strategy for a given market.
Acceptance to Membership:	Fee.

Country:	8. Italy
Organization:	COMITATO ELETTROTECNICO ITALIANO
Website:	https://www.ceinorme.it/it/
Founders:	Private
Legal Status:	Non-profit Association
Appointment:	The Board is composed of: to. by four representatives of each of the Promoting Members; b. by four CNR representatives; c. by two representatives of the Ministry of Economic Development; d. by a representative for each of the other Law Partners; is. by twelve Directors elected by the Assembly pursuant to art. 18; f. by the President of the Italian National Unification Body (UNI) g. by the President of the Italian Quality Mark Institute (IMQ). Board elects among its members for the three-year term the General President, and five Vice-General Presidents, of which at least four chosen from the representatives of the Promoting Partners, the CNR and the Ministry of Economic Development;
Membership:	The General Assembly is composed of representatives of Sponsor, Partner and Full Members. Council acts on behalf of the General Assembly, is chaired by the President and comprises 12 representatives of the Sponsor Members, 2 representatives of the Ministry of Economic Development, 1 representative for all other Ministries, 4 representatives of the National Research Council (CNR) and 12 representatives proposed by Full Members and elected by the General Assembly.
Tehnical Committee:	The Central Technical Superior Commission is appointed by the Executive Committee. The Committees and the related Subcommittees are made up of the Executive Committee.
Rights:	The Sponsor, Partner and Full Members contribute, through their designated experts in TCs and SCs, to the elaboration of normative documents at National, European and International level.
Acceptance to Membership:	CEI's Members are: Sponsor Members Partner Members Full Members Ordinary Members All subjects wishing to become members of the CEI in any category must submit an application to the CEI by filling in a special format. The application for admission as a full member must be accepted by the Executive Committee and subsequently ratified by the Council. The association becomes effective, after the written acceptance by the CEI, at the time of payment of the fee due for the current year. Upon receipt of the fee, the Member card will be sent.

Country:	9. United Kingdom (BSI)
Organization:	British Standards Institution
Website:	www.bsigroup.com
Founders:	The British Standards Institution is a Royal Charter Company and is governed by its Royal Charter and Bye-laws.
Legal Status:	Non-profit distributing company
Appointment:	By Board of Directors. Appointed by the UK Government, BSI is the UK national standards body.
Technical Committee:	BSI standards-maker: any UK committee, panel or working group member, chair or convenor and any BSI employees involved in the standards development process Committee member: all volunteers serving in any role on any committee or group reporting to a committee, including panels, working groups, subcommittees, etc. BSI can make and request recommendations (from nominating bodies, other committee members etc.) but BSI will also openly promote the opportunity of being a committee member. Prospective committee members will be provided with a role description prior to completing the application / registration process to help them understand if the role is right for them. Prospective committee members will need to provide their personal details, their employment details / background and their areas of expertise as part of the committee member application process. BSI will make the final decision about who will be confirmed as a committee member but they may consult the committee and / or chair for their views on candidates.
Membership:	Membership grants no award or status to a company, but is a benefits package available to all companies, organizations and individuals for an annual fee.
Rights:	Members get 50% off British Standards, free access to a team of information experts, substantial discounts on conferences and subscriptions.
Acceptance to Membership:	Membership starts at £191 a year and varies depending on the size, type and turnover of organization.

Country:	10. Finland
Organization:	SESKO
Website:	https://www.sesko.fi/en/about_us
Founders:	Government Ministry of employment and economy
Legal Status:	Independent non-profit association
Appointments:	General assembly
Technical Committees:	All interested stakeholders are welcome to join the standardization work. Board of Directors appoints experts or delegations to their field on the international and European level related to their Technical Committees.
Membership:	A registered association, governmental organization or other society that have legal capacity and uses standards or participates in standardization can be accepted as a member of SESKO. The members are approved by the association meeting. Group 1 includes the main entities in the field representing the largest user and interest groups of the Electrotechnical Standards such as Electrotechnical Industry, Electrical Contractors and Grid Occupants. Group 2 includes business communities, authorities, testing and inspection organisations as well as other corresponding public or private communities representing significant user or interest quarters. Group 3 includes all the other communities interested in Electrotechnical Standards, for example professional associations and societies.
Rights:	Each member has the right to nominate one representative to the meeting. Each representative has one vote. Finnish state has representation so that each ministry has the right to appoint one representative.

Acceptance to Membership:	Members shall pay an annual membership fee for which the amount and the due date are determined by the Election Meeting.

Country:	**11. Belgium**
Organization:	COMITE ELECTROTECHNIQUE BELGE
Website:	http://ceb-bec.be/
Founders:	Government of Belgium
Legal Status:	Association
Appointment:	• Board of Directors: Directors are appointed and dismissed by the General Assembly. Members of the Board of Directors are appointed for four years. Retiring members may be reappointed. • The Board of Directors appoints the president who chairs the meetings of the Board of Directors and of the General Assembly and appoints the vice-president (s). The president and vice-president (s) are chosen from among the administrators. • The Board of Directors appoints and dismisses the Secretary General of the association, who is responsible for the day-to-day management of the CEB, including personnel policy.
Technical Committee:	• The CEB has created a series of national technical committees which each cover a specific area of standardization in the electrotechnical and electronic fields. • A technical committee is made up of representatives of CEB members. • Each member communicates in writing the names of its representatives for technical committees as well as any modifications. This communication constitutes the basis for establishing the financial contribution.
Membership:	The following may be admitted as "Member": federations, associations, organizations, companies, public authorities, Administrations, institutions public, institutions, universities, high schools, private institutions, under Belgian law and established in Belgium or people physical residents in Belgium, who have a direct or indirect interest in the standardization and which will pay an annual financial contribution. • The amount of the financial contribution is fixed each year by the General Assembly on the proposal of the Board of Directors. • The members are distributed and admitted in the following Categories: -Category A members: federations and associations which pay a financial contribution annual amounting to at least EUR 50,000.00. - Category B members: all members who do not belong to the Category A are by definition members of Category B. • Exclusion of members: an exclusion may be declared by the General Assembly on the proposal of the Board of Directors, by a two-thirds majority of the votes of the members present or represented, for non-compliance with the obligations and / or commitments provided for in the statutes or the if applicable, the internal regulations or for any other serious reason.
Rights:	Gaining first-hand knowledge about future technological developments and trends.

	Influencing the standards development process. Building a network.
Acceptance to Membership:	Applicants who wish to become members must send their request for admission in writing to the CEB.

Country:	12. Ireland
Organization:	National Standards Authority of Ireland
Website:	www.nsai.ie
Founders:	National Standards Authority of Ireland Act 1996 and reports to the Minister for Business, Enterprise and Innovation.
Legal Status:	State agency
Appointments:	Members of the Board shall be appointed by the Minister from among those interests involved in the process of standardisation and certification of commodities, processes and practices, without any single interest predominating, taking into account guidelines issued from time to time by the Government and, in particular, providing for staff-representation on the Board. The Chief Executive Officer shall be appointed by the Board of the Authority with the approval of the Minister.
Tehnical Committees:	There is no joining fee to becoming a committee member. All participation is on a voluntary basis. NSAI can nominate national experts to participate in international standards committees but there is no funding provided to attend international standards meetings. Experts wishing to engage in international standards work do so at their own expense. Membership is active as soon as it has been processed, reviewed and approved.
Membership:	Membership of an NSAI committees is open to person(s)/organisation(s) representing national stakeholder interests such as industry, government, education and research, trade associations, consumers, societal, labour and others. Membership of an NSAI Committee is also open to technical experts when considered appropriate.
Rights:	"1. Members are expected to advise and assist NSAI on the technical content of standards. 2. Members are expected to prepare for and attend meetings and provide comments and submissions on active projects being developed.
Acceptance to Membership:	NSAI can nominate national experts to participate in European and/or International standards committees. NSAI does not provide funding to attend these standards meetings. Experts wishing to engage in European or international standards work do so at their own expense. Membership of any committee is at the discretion of NSAI. NSAI may at any time terminate the membership of all or any of the members of committees. An unsuccessful applicant can appeal the decision through the NSAI appeals procedure.

Country:	13. Germany
Organization:	Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN & VDE
Website:	https://www.dke.de/en
Founders:	Public-private partnership with the German Federal Republic
Legal Status:	Association
Appointments:	The Presidium consists of a maximum of ten VDE full members who to be elected by the assembly of delegates and the chairpersons of the professional associations.
Technical Committees:	An interdisciplinary and international network of experts Continuing education opportunities and knowledge transfers Prizes for research and young talents

	Professional studies and position papers Attractively priced meetings/ seminars and journals/magazines Free literature searches for research purposes Free VDE VISA card Attractive car rental offers from Sixt No membership fee in first year
Membership:	VDE Personal Membership and VDE Corporate Membership- annual membership fee. The application for admission as a decentral managed member must be submitted in writing to a regional / district association. It must be evident from the application that the requirements for acquiring membership have been met.
Rights:	All members have the duty to follow the statutes and the decisions made by the organs of the VDE within the framework of the statutes and to support the VDE in the fulfilment of the statutory tasks to the best of their ability.
Acceptance to Membership:	Each member has to pay an annual fee, the amount of the delegates' meeting. Honorary members are exempt from paying the fee.

Country:	**14. India**
Organization:	Bureau of Indian Standards Manak Bhavan
Website:	http://www.bis.org.in/
Founders:	Central Government
Legal Status:	National Standard Body of India established under the BIS Act 2016
Appointments:	The Central Government shall appoint a Director General of the Bureau.
Technical Committees:	The Bureau, for the purpose of this section, shall constitute, as and when considered necessary, such number of technical committees of experts for the formulation of standards in respect of goods, articles, processes, systems or services, as may be necessary. Term of the technical committees.- The Division Councils, sectional committees and sub – committees shall be reconstituted once every three years. Division Councils shall be constituted in defined areas of industries, technologies, services and other subjects and shall comprise of concerned officers of the Bureau and representatives of various interests such as consumers, regulatory and other Government bodies, industry, testing laboratories or calibration laboratories, scientists and technologists and an officer of the Bureau shall be the Member Secretary. The Division Council, on being satisfied as a result of its own deliberations or on investigation and consultation with concerned interests that the necessity for standardisation has been established, shall assign the task of formulating the standard to a sectional committee constituted for the purpose: Provided that if the proposal for establishing an Indian Standard has not been accepted after its due consideration, the proposer shall be informed of the decision.
Membership:	N/A
Rights:	N/A
Acceptance to Membership:	N/A

Country:	**15. Spain**
Organization:	Asociación Española de Normalización
Website:	www.une.org
Founders:	Appointed by the Ministry of Economy, Industry and Competitiveness
Legal Status:	Private association, non-profit
Appointments:	Director General is appointed by the Board of Directors, on proposal of the

	Permanent Commission. The Permanent Commission is composed of the President and a minimum of nine members.
Technical Committees:	• The proposal to create a Standardization Technical Committee (CTN) can have its origin in any entity (private, public administration, UNE and its Governing Bodies). The existence of an equivalent Technical Committee in International or Regional Standardization Organizations will be considered as a favourable argument for the creation of a new CTN. • The request for the creation of a CTN must be submitted to the Board of Directors through the technical services of UNE, preparing a creation report according to the model established by UNE for this purpose. • The standards are prepared in Standardization Technical Committees (CTN) managed by UNE technical services and the secretariat of CTNs is generally held by a business federation or association. In addition, CTNs are made up of a series of members that provide a balanced representation of the whole value chain of the product or service to be standardized.
Membership:	Any entity and individual or legal entity, public or private, that has an interest in the development of standardization can be a member of the Spanish Association for Standardization, UNE.
Rights:	Participation in association activities and in government bodies and representation, exercise the right to vote, as well as attend the General Assembly.
Acceptance to Membership:	The request for admission, where appropriate, must be provisionally approved by the Board of Directors, and ratified by the General Assembly. Regarding Members of honour, they are appointed by General assembly on proposal of the Board of Directors.

Country:	16. USA
Organization:	American National Standards Institute (ANSI)
Website:	https://www.ansi.org/
Founders:	Founded in 1918 by five engineering societies and three government agencies, the Institute remains a private, nonprofit membership organization supported by a diverse constituency of private and public sector organizations.
Legal Status:	American National Standards Institute (ANSI) is a private, not-for-profit organization
Director:	Russ Chaney, Chair of the Board, CEO
Appointment:	The Board of Directors is comprised of approximately 40 representatives of the ANSI membership and is responsible for governance oversight of the issues, properties and affairs of the Institute.
Technical Committee:	Part of ANSI's responsibilities as the U.S. member body to the ISO includes accrediting U.S. Technical Advisory Groups (U.S. TAGs). The primary purpose of these groups is to develop and transmit, via ANSI, U.S. positions on activities and ballots of the Technical Committees (and as appropriate, Subcommittees and policy committees). These technical issues include the approval, reaffirmation, revision and withdrawal of ISO standards. Persons interested in applying for accreditation must submit an Application for Accreditation of a U.S. Technical Advisory Group to ISO and Approval as TAG Administrator. A group or organization wishing to serve as the U.S. TAG Administrator for a particular ISO TC or SC must also apply for ANSI Organizational Membership and agree to pay the associated fees for participating in the activity, as contained in the International Activity Assessment schedule on ANSI's Organization Membership Application.
Membership:	The ANSI Member Forums represent the voice of their respective membership segments in the Institute, providing a venue for dialogue on global standards and conformity assessment issues and a unique opportunity to network with

	representatives of other ANSI members. Membership Categories Company, Government, Organization, Educational, International. Upon written application to the Institute, an applicant may be admitted to the Institute in a specified category of membership by the vote of the Executive Committee of the Board of Directors present and voting at a duly convened meeting or voting by means of a letter ballot that shall set forth the names of all applicants for membership. In 4 case of disputes concerning category of membership, the Executive Committee of the Board of Directors by such vote shall determine the applicant's appropriate category of membership. By accepting membership in the Institute, each applicant agrees to observe all the provisions of these By-Laws, and to pay promptly all membership fees and charges for special services levied in accordance with these By-Laws and resolutions adopted from time to time by the Board of Directors or the Executive Committee. Each member shall identify a person to serve as its primary membership representative.
Rights:	Join a distinguished group of companies, organizations, government entities, consumer groups, educational institutions, and other public and private sector innovators who are harnessing the power of standards to position themselves for long-term success.
Acceptance to Membership:	Fee.

Source: Assembled by author based on data of the International Electrotechnical Commission (IEC) and Members and Sub- Committiees TC 100 websites

SOURCE OD DATA:

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14. Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN & VDE. Available at: https://www.dke.de/en
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Appendix 6. CEN/CLC/JTC 13 Cybersecurity and Data Protection performance in adoption of the standards

Committee	Reference	Status
CEN/CLC/JTC 13	prEN XXXXX	Under Drafting
CEN/CLC/JTC 13	prEN XXX	Under Drafting
CEN/CLC/JTC 13	prEN XXX	Under Drafting
CEN/CLC/JTC 13	prEN ISO/IEC 27701	Under Enquiry
CEN/CLC/JTC 13	prEN ISO/IEC 27007	Under Drafting
CEN/CLC/JTC 13	prEN 17640	Under Drafting
CEN/CLC/JTC 13	prEN 17529	Under Approval
CEN/CLC/JTC 13	EN ISO/IEC 30111:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 29147:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 29134:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 29100:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 27043:2016	Published
CEN/CLC/JTC 13	EN ISO/IEC 27042:2016	Published
CEN/CLC/JTC 13	EN ISO/IEC 27041:2016	Published
CEN/CLC/JTC 13	EN ISO/IEC 27038:2016	Published
CEN/CLC/JTC 13	EN ISO/IEC 27037:2016	Published
CEN/CLC/JTC 13	EN ISO/IEC 27019:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 27018:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 27017:2021	Published
CEN/CLC/JTC 13	EN ISO/IEC 27011:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 27006:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 27002:2017	Published
CEN/CLC/JTC 13	EN ISO/IEC 27001:2017	Published
CEN/CLC/JTC 13	EN ISO/IEC 27000:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 19790:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 18045:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 15408-3:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 15408-2:2020	Published
CEN/CLC/JTC 13	EN ISO/IEC 15408-1:2020	Published
CEN/CLC/JTC 13	CEN/CLC/prTR	Under Drafting
CEN/CLC/JTC 13	CEN/CLC/prTR	Under Drafting

SOURCE OD DATA:

1. CEN European Committee for Standardization. Search Standards. CEN/CLC/JTC 13. Cybersecurity and Data Protection. Available at: https://standards.cen.eu/dyn/www/f?p=204:105:0:::::

Appendix 7. CEN/TC 365 Internet Filtering performance in adoption of the standards

Committee	Reference	Status
CEN/TC 365	CEN/TS 16080:2013	Published

SOURCE OD DATA:

1. CEN European Committee for Standardization. Search Standards. CEN/TC 365. Internet Filtering Published Standards. Available at: https://standards.cen.eu/dyn/www/f?p=204:105:0:::::

Appendix 8. CEN/WS JTI - Journalism Trust Indicators performance in adoption of the standards

Committee	Reference	Status
CEN/WS JTI	CWA 17493:2019	Published

SOURCE OD DATA:

1. CEN European Committee for Standardization. Search Standards. CEN/WS JTI. Journalism Trust Indicators. Available at: https://standards.cen.eu/dyn/www/f?p=204:105:0:::::

Appendix 9. CEN/CLC/WS SEP2- Industry Best Practices and an Industry Code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things performance in adoption of the standards

Committee	Reference	Status
CEN/CLC/WS SEP-IoT	CWA 17431:2019	Published

SOURCE OD DATA:

1. CEN European Committee for Standardization. Search Standards. CEN/CLC/WS SEP-IoT. Workshop on Best Practices and a code of Conduct for Licensing of Standard Essential Patents in the field of 5G and Internet of Things (IoT), including the Industrial Internet. Available at: https://standards.cen.eu/dyn/www/f?p=204:105:0:::::

Appendix 10. Cybersecurity and Data Protection CEN/CLC/JTC 13 Prestandardization Status

Cybersecurity and Data Protection CEN/CLC/JTC 13 Prestandardization					
Project reference	Status	Initial Date	Current Stage	Next Stage	Forecasted voting date
prEN ISO/IEC 15408-1 (WI=JT013010) Information technology - Security techniques - Evaluation criteria for IT security - Part 1: Introduction and general model	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 15408-2 (WI=JT013011) Information technology - Security techniques - Evaluation criteria for IT security - Part 2: Security functional components	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 15408-3 (WI=JT013012) Information technology - Security techniques - Evaluation criteria for IT security - Part 3: Security assurance components	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 18045 (WI=JT013013) Information technology - Security techniques - Methodology for IT security evaluation	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 19790 (WI=JT013014) Information technology - Security techniques - Security requirements for cryptographic modules	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27000 (WI=JT013009) Information technology - Security techniques - Information security management systems - Overview and vocabulary (ISO/IEC 27000:2018)	Under Approval	10/10/2018	24/04/2019	27/06/2019	19/05/2020
prEN ISO/IEC 27006 (WI=JT013015) Information technology - Security techniques - Requirements for bodies providing audit and certification of information security management systems	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27007 (WI=JT013016) Information technology - Security techniques - Guidelines for information security management systems auditing	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27010 (WI=JT013017) Information technology - Security techniques - Information security management for inter-sector and inter-organizational communications	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27011 (WI=JT013018) Information technology - Security techniques - Code of practice for Information security controls based on ISO/IEC 27002 for telecommunications organizations	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27017 (WI=JT013019) Information technology - Security techniques - Code of practice for information security controls based on ISO/IEC 27002 for cloud services	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27018 (WI=JT013023) Information technology - Security techniques - Code of practice for protection of personally identifiable information (PII) in public clouds acting as PII processors	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 27019 (WI=JT013020)	Under Draft-	08/05/2019	08/05/2019	09/09/2019	18/02/2021

Information technology - Security techniques - Information security controls for the energy utility industry	ing				
prEN ISO/IEC 29147 (WI=JT013021) Information technology - Security techniques - Vulnerability disclosure	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021
prEN ISO/IEC 30111 (WI=JT013022) Information technology - Security techniques - Vulnerability handling processes	Under Drafting	08/05/2019	08/05/2019	09/09/2019	18/02/2021

Appendix 11. ETSI Number of ETSI Members per Country, Europe 34

	NUMBER OF ETSI MEMBERS PER COUNTRY	PUBLIC BODY	INDUSTRY
AUSTRIA	18	7	11
BELGIUM	39	2	37
BULGARIA	2	1	1
CROATIA	3	2	1
CYPRUS	1	1	0
CZECH REPUBLIC	5	2	3
DENMARK	19	4	15
ESTONIA	4	2	2
FINLAND	17	4	13
FRANCE	101	14	87
GERMANY	140	31	109
GREECE	6	4	2
HUNGARY	8	3	5
ICELAND	1	1	0
IRELAND	23	2	21
ITALY	37	7	30
LATVIA	1	1	0
LITHUANIA	1	1	0
LUXEMBOURG	14	2	12
MALTA	2	2	0
NETHERLANDS	29	5	24
NORWAY	13	3	10
POLAND	13	3	10
PORTUGAL	3	0	3
REPUBLIC OF NORTH MACEDONIA	1	1	0
ROMANIA	5	0	5
SERBIA	1	1	0
SLOVAKIA	1	1	0
SLOVENIA	3	1	2
SPAIN	39	11	28
SWEDEN	33	9	24
SWITZERLAND	27	1	26
TURKEY	9	1	8
UNITED KINGDOM	106	16	90

Source: Author's computation based on data from ETSI

SOURCE OF DATA:

ETSI members around the world. Available at: https://www.etsi.org/membership

AUSTRIA - Members of ETSI	
ORGANISATION	CATEGORY
A.S.I.	Other
AIT	Research Body (Public)
Apple Gesellschaft m.b.H.	Manufacturer
BMLRT	Administration
Fabasoft AG	Service Provider
FH Campus Wien University	University
Frequentis AG	Manufacturer
Kapsch TrafficCom AG	Manufacturer
ÖBB-Infrastruktur AG	Service Provider
OVE	Other
Qualcomm Austria RFFE GmbH	Manufacturer
Rundfunk & Telekom	Administration
SBA Research GmbH	Research Body (Public)
St. Pölten UAS	University
Stihl Tirol	Manufacturer
Tait Europe Limited	Manufacturer
T-Mobile Austria GmbH	Network Operator
TU Graz	University
BELGIUM - Members of ETSI	
ORGANISATION	CATEGORY
A.S.T.R.I.D. S.A.	Network Operator
Agoria ICT	Manufacturer
AIM EUROPE	Other
ANEC	User
APPLiA	Other
AT&T GNS Belgium SPRL	Network Operator
Belgian Mobile ID SA/NV	Service Provider
BIPT	Administration
Boston Scientific Corp.	Manufacturer
Broadcast Networks Europe	Other
Cable Europe	User
Cisco Systems Belgium	Manufacturer
Commsquare NV	Consultancy Company/Partnership
Connective	Service Provider
CTC	Research Body (Private)
ECOS	User
EENA	User
EGMF	Manufacturer
ELA	Manufacturer
ETUC	User
EUCOMREG	Consultancy Company/Partnership
EUROCONTROL	User
European Disability Forum	User
Eurosmart AISBL	Manufacturer
EUTC	Other
GovStrat	Consultancy Company/Partnership

GS1	User
IMEC	Research Body (Public)
Infrabel - ICT	Service Provider
Intel Belgium SA/NV	Manufacturer
InterDigital Belgium. LLC	Manufacturer
Nokia Belgium	Manufacturer
Proximus Plc	Network Operator
PSCE	User
Raymarine Belgium Bvba	Manufacturer
SBS aisbl	User
Sealed sprl	Consultancy Company/Partnership
STIB-MIVB	User
ZES BVBA	Manufacturer
BULGARIA - Members of ETSI	
ORGANISATION	**CATEGORY**
CRC	Administration
VMware Bulgaria EOOD	Manufacturer
CROATIA - Members of ETSI	
ORGANISATION	**CATEGORY**
MMATI	Administration
Sedam IT d.o.o.	Manufacturer
University of Zagreb	University
CYPRUS - Members of ETSI	
ORGANISATION	**CATEGORY**
CYS	Other Governmental Body
CZECH REPUBLIC - Members of ETSI	
ORGANISATION	**CATEGORY**
Czech Telecommunication Office	Administration
Mesaqin.com s.r.o (Ltd.)	Consultancy Company/Partnership
Samsung Electronics Czech	Manufacturer
Software602 a.s.	Consultancy Company/Partnership
Sprava zeleznic	Other Governmental Body
DENMARK - Members of ETSI	
ORGANISATION	**CATEGORY**
Anemone Technology	Consultancy Company/Partnership
Bolt & Yurdal Consulting ApS	Consultancy Company/Partnership
CEPT	Observer
Cinderella ApS	Manufacturer
Copenhagen Fire Brigade	User
Dansk Standard	Administration
DTU	University
ECO	Administration
FORCE Technology	Research Body (Public)
Gatehouse Satcom A/S	Manufacturer
Kamstrup	Manufacturer
Motorola Solutions Danmark A/S	Manufacturer
Nokia Denmark	Manufacturer
RTX A/S	Manufacturer

Seluxit	Consultancy Company/Partnership
Terma A/S	Manufacturer
THRANE & THRANE A/S	Manufacturer
VELUX A/S	Manufacturer
Verizon Denmark	Network Operator
ESTONIA - Members of ETSI	
ORGANISATION	**CATEGORY**
CPTRA	Administration
OU Elvior	Service Provider
SK	Service Provider
TTÜ	University
FINLAND - Members of ETSI	
ORGANISATION	**CATEGORY**
Bittium Wireless Ltd.	Manufacturer
CUJO	Service Provider
Erillisverkot	Other Governmental Body
ETS-Lindgren Europe	Manufacturer
Fairspectrum Oy	Service Provider
Intel Finland Oy	Manufacturer
LG Electronics Finland	Manufacturer
Nokia Corporation	Manufacturer
Oy LM Ericsson AB	Manufacturer
Qualcomm Finland RFFE Oy	Manufacturer
Satel Oy	Manufacturer
TRAFICOM	Administration
University of Oulu	University
VAISALA OYJ	Manufacturer
VTT	Research Body (Public)
WE Certification Oy	Other
Wirepas Oy	Manufacturer
FRANCE - Members of ETSI	
ORGANISATION	**CATEGORY**
ADSN	Service Provider
AFNOR	Other
AFUTT	User
Airbus	Manufacturer
Alstom Transport SA	Manufacturer
Apple France	Manufacturer
AQSACOM S.A.S.	Manufacturer
Araxxe SAS	Network Operator
Arcep	Other Governmental Body
Association eG4U	User
ATEME	Manufacturer
B-Com	Research Body (Private)
BNAE	Other
BOUYGUES Telecom	Network Operator
BROADPEAK	Manufacturer
Bull SAS	Manufacturer

CANON Research Centre France	Research Body (Private)
CEA-LETI	Research Body (Public)
Cisco Systems France	Manufacturer
Club PSCo	User
CNES	Research Body (Public)
CNRS	Research Body (Public)
CommLedge	Consultancy Company/Partnership
Cryptolog International	Service Provider
Deveryware	Service Provider
ECBF	User
EDF Recherche et Développement	Research Body (Private)
EGM	Service Provider
ELEKTRON	Service Provider
ENENSYS	Manufacturer
ENX	Other
ERA	Other Governmental Body
Ericsson France S.A.S	Manufacturer
ETELM	Manufacturer
EURECOM	Research Body (Public)
Eutelsat S.A.	Network Operator
Fortinet	Consultancy Company/Partnership
France Brevets	Consultancy Company/Partnership
FSCOM	Consultancy Company/Partnership
HAGER GROUP	Manufacturer
Hewlett-Packard Enterprise	Manufacturer
Huawei Technologies France	Manufacturer
ICOM (C.E.P.) FRANCE	Manufacturer
IDEMIA	Manufacturer
IN GROUPE	Manufacturer
Infovista SAS	Other
INRIA	Research Body (Public)
Institut Mines-Telecom	Research Body (Public)
Institute VEDECOM	Research Body (Public)
Intel Corporation SAS	Manufacturer
INTELLINIUM	Manufacturer
InterDigital France R&D, SAS	Manufacturer
IRT SystemX	Research Body (Private)
ITRON SAS	Manufacturer
KAT	Consultancy Company/Partnership
Kimeggi	Consultancy Company/Partnership
Kontron Transportation France	Manufacturer
LEA Networks	Manufacturer
LEGRAND FRANCE	Manufacturer
LG Electronics France	Research Body (Private)
LSTI SAS	Service Provider
Marben Products	Other
MeadowCom	Consultancy Company/Partnership
MICROCHIP TECHNOLOGY SARL	Service Provider

Microsoft Europe SARL	Manufacturer
MINISTERE DE L'INTERIEUR	Administration
Ministère Economie et Finances	Administration
Mitsubishi Electric RCE	Manufacturer
Motorola Mobility France S.A.S	Manufacturer
MVG Industries	Manufacturer
NETO	Consultancy Company/Partnership
Nextra Partners	Consultancy Company/Partnership
Nokia France	Manufacturer
Orange	Network Operator
PCCW Global B.V.	Service Provider
PSA	Manufacturer
Qualcomm communications-France	Manufacturer
RATP	Other Governmental Body
Renault SAS	User
SAFRAN AEROSYSTEMS	Manufacturer
Sagemcom Broadband SAS	Manufacturer
Samsung Electronics France SA	Manufacturer
Schneider Electric Industries	Manufacturer
SECURITE COMMUNICATIONS	Manufacturer
Sensinov	Manufacturer
Sequans Communications	Manufacturer
SGDSN	Administration
Sierra Wireless, S.A.	Manufacturer
SIGFOX	Manufacturer
SNCF RESEAU	Other Governmental Body
Somfy Activités SA	Manufacturer
StreamWide	Manufacturer
TDF	Network Operator
Telerad	Manufacturer
TEXAS Instruments	Manufacturer
THALES	Manufacturer
Traxens SAS	Other
Union Inter. Chemins de Fer	User
VICI	Consultancy Company/Partnership
VOGO	Manufacturer
ZF AUTOCRUISE	Manufacturer
GERMANY - Members of ETSI	
ORGANISATION	**CATEGORY**
2pi-Labs GmbH	Manufacturer
450connect GmbH	Network Operator
7LAYERS GmbH	Consultancy Company/Partnership
adare GmbH	Consultancy Company/Partnership
ADDS	User
ADTRAN GmbH	Manufacturer
albis-elcon system GermanyGmbH	Manufacturer
AMK WFB	Other Governmental Body
Andrew Wireless Systems GmbH	Manufacturer

Apple GmbH	Manufacturer
APWPT	User
ARGE	Manufacturer
ATIS Systems GmbH	Manufacturer
Audi	Manufacturer
AVM Berlin	Manufacturer
Bayerisches Landeskriminalamt	Administration
BDBOS	Other Governmental Body
BfV	Administration
BI	Research Body (Public)
BIOTRONIK SE & Co. KG	Manufacturer
BKA	Administration
BMWi	Administration
Brose Fahrzeugteile	Manufacturer
Bundesdruckerei GmbH	Other Governmental Body
CETECOM GmbH	Service Provider
Comprion GmbH	Manufacturer
Continental Automotive GmbH	Manufacturer
CTC advanced GmbH	Service Provider
datafusion Systems GmbH	Manufacturer
DEKRA Testing	Other
DENSO AUTOMOTIVE	User
Deutsche Bahn AG	User
Deutsche Telekom AG	Network Operator
DFKI	Research Body (Public)
DFS Deutsche Flugsicherung	Service Provider
DiaLOGIKa GmbH	Manufacturer
Diehl Metering GmbH	Manufacturer
DKE	Other
DLR	Research Body (Public)
DOCOMO Communications Lab.	Research Body (Private)
Endress + Hauser GmbH & Co. KG	Manufacturer
Ericsson GmbH, Eurolab	Manufacturer
FAU	University
FEIG ELECTRONIC GmbH	Manufacturer
Fiware Foundation	Other
Focus Infocom	Manufacturer
Fraunhofer	Research Body (Public)
Fraunhofer AISEC	Research Body (Public)
Fraunhofer FHR	Research Body (Public)
Fraunhofer FOKUS	Research Body (Public)
Fraunhofer HHI	Research Body (Public)
Fraunhofer IIS	Research Body (Public)
Fraunhofer IKS	Research Body (Public)
Fraunhofer IMW	Research Body (Public)
Fraunhofer IVI	Research Body (Public)
Fraunhofer SIT	Research Body (Public)
Funkwerk Systems GmbH	Manufacturer

G+D MS	Manufacturer
Gigaset Communications GmbH	Manufacturer
Governikus GmbH & Co. KG	Service Provider
HA/AG	Manufacturer
Harman GmbH	Manufacturer
HEAD acoustics GmbH	Manufacturer
Hella	Manufacturer
Hillebrand GmbH	Consultancy Company/Partnership
HTW Dresden	University
HTW Saarland	University
HUAWEI TECH. GmbH	Manufacturer
Hyundai Motor Europe	Manufacturer
IAV GmbH	User
IBM Europe	Manufacturer
IDnow GmbH	Service Provider
ifak	Research Body (Private)
INFINEON TECHNOLOGIES	Manufacturer
Insta Elektro GmbH	Manufacturer
Institut für Informatik	University
Intel Deutschland GmbH	Manufacturer
InterDigital Germany GmbH	Manufacturer
IOTECC GmbH	Consultancy Company/Partnership
*IP*SEVA*	Service Provider
IPCom GmbH & Co.KG	Research Body (Private)
ISAD e.V	User
Ista International GmbH	Manufacturer
John Deere GmbH & Co. KG	Manufacturer
JSI GmbH	Manufacturer
KROHNE Messtechnik GmbH	Manufacturer
LG Electronics Deutschland	Manufacturer
LKA Niedersachsen	Administration
LKA NRW	Administration
Magna Electronics Europe GmbH	Manufacturer
Marquardt GmbH	Manufacturer
Mercedes-Benz	Manufacturer
Motorola Mobility Germany GmbH	Manufacturer
Motorola Solutions Germany	Manufacturer
NavCert	Consultancy Company/Partnership
NET CHECK GmbH	Service Provider
ng4T	Manufacturer
Nimbus Technologieberatung	Consultancy Company/Partnership
Nokia Germany	Manufacturer
NORDSYS GmbH	Manufacturer
Orope Germany GmbH	Manufacturer
OTT Hydromet GmbH	Manufacturer
PANASONIC R&D Center Germany	Manufacturer
Phoenix Contact GmbH & Co. KG	Manufacturer
Phoenix Testlab GmbH	Service Provider

Qualcomm CDMA Technologies	Manufacturer
RADIODATA GmbH	Manufacturer
Renesas Electronics Europe	Manufacturer
ROBERT BOSCH GmbH	Manufacturer
ROHDE & SCHWARZ	Manufacturer
Samsung Electronics GmbH	Manufacturer
Sapcorda	Service Provider
Sennheiser Electronic GmbH	Manufacturer
SHARP Electronics GmbH	Observer
SHURE Europe GmbH	Manufacturer
SICK AG	Manufacturer
Siemens AG	Manufacturer
SIGOS GmbH	Consultancy Company/Partnership
Sikora AG	Manufacturer
Techem Energy Services GmbH	Manufacturer
Telefonica Germany GmbH	Network Operator
Telekom Deutschland GmbH	Network Operator
TeleTrusT	User
Triorail	Manufacturer
TUBS.digital	University
umlaut	Consultancy Company/Partnership
Universität Bremen	University
Universität Kaiserslautern	University
UTIMACO TS GmbH	Manufacturer
Valeo	Manufacturer
VDA	Other
VEGA Grieshaber KG	Manufacturer
ViaviSolutions Deutsch. GmbH	Manufacturer
VIVO TECH GmbH	Manufacturer
Vodafone GmbH	Network Operator
Voipfuture	Manufacturer
Volkswagen AG	User
ZITiS	Other Governmental Body
Zollkriminalamt (ZKA)	Administration
ZVEI	Other
GREECE - Members of ETSI	
ORGANISATION	CATEGORY
COSMOTE S.A.	Network Operator
GUnet	Research Body (Public)
Ministry of Digital Governance	Administration
NCSR Demokritos	Research Body (Public)
University of Athens	University
WINGS	Other
HUNGARY - Members of ETSI	
ORGANISATION	CATEGORY
Apple Hungary Kft.	Manufacturer
Commsignia Kft.	Manufacturer
Ericsson Hungary Ltd	Manufacturer

ITM	Administration
Microsec Ltd	Service Provider
NMHH	Administration
Nokia Hungary	Manufacturer
SSNS	Other Governmental Body
ICELAND - Members of ETSI	
ORGANISATION	CATEGORY
Post- and Telecom Admin.	Administration
IRELAND - Members of ETSI	
ORGANISATION	CATEGORY
Adobe Systems	Other
Amdocs Software Systems Ltd	Service Provider
DecaWave Ltd	Manufacturer
Dell Products	Manufacturer
Department of Communications	Administration
DigiCert	Service Provider
DTS Licensing Limited	Other
Facebook	Service Provider
GENBAND Ireland Ltd	Manufacturer
Google Ireland Limited	Manufacturer
Intel Ireland	Manufacturer
iTrust Ethics Ltd	Consultancy Company/Partnership
JRC Dublin	Consultancy Company/Partnership
L.M. Ericsson Limited	Manufacturer
NSAI	Other Governmental Body
Openet Telecom	Service Provider
Qualcomm Technologies Ireland	Manufacturer
Red Hat Limited	Manufacturer
Ruckus	Manufacturer
STE IDIRECT IRELAND LTD	Manufacturer
UBiqube	Other
Vodafone Ireland Plc	Network Operator
Xilinx Ireland	Manufacturer
ITALY - Members of ETSI	
ORGANISATION	CATEGORY
AgID	Other Governmental Body
ANITEC-ASSINFORM	Manufacturer
Apple Italia S.R.L.	Manufacturer
AREA Spa	Manufacturer
Aruba PEC	Service Provider
CNIT	Research Body (Public)
Empirix Inc.	Service Provider
Ericsson Telecomunicazioni SpA	Manufacturer
Fastweb S.p.A.	Network Operator
FBK	Research Body (Public)
FONDAZIONE LINKS	Research Body (Private)
IDSGeo	Manufacturer
InfoCert s.p.a.	Service Provider

INRIM	Research Body (Public)
Intel Corporation Italia SpA	Manufacturer
Intesi Group S.p.A.	Service Provider
IPS S.p.A	Manufacturer
KEYSIGHT TECHNOLOGIES	Manufacturer
Lecit Consulting s.r.l.	Consultancy Company/Partnership
Leonardo SpA	Manufacturer
Mangrovia Solutions	Service Provider
Ministero Sviluppo Economico	Administration
Newen Srl	Manufacturer
Nokia Italy	Manufacturer
NTH S.R.L.	Manufacturer
Pirelli Tyre SpA	Manufacturer
Polizia di Stato	Administration
QUALCOMM Europe Inc. - Italy	Manufacturer
RCS S.p.A	Manufacturer
RFI SpA	User
SIAE Microelettronica SpA	Manufacturer
TELECOM ITALIA S.p.A.	Network Operator
Telit Communications S.p.A.	Manufacturer
UNIBO	University
Uninfo	User
Viasat Group	Service Provider
Vodafone Italia SpA	Network Operator
LATVIA - Members of ETSI	
ORGANISATION	**CATEGORY**
Electronic Communications Office	Administration
LITHUANIA - Members of ETSI	
ORGANISATION	**CATEGORY**
Lithuanian Standards Board	Administration
LUXEMBOURG - Members of ETSI	
ORGANISATION	**CATEGORY**
Conversant Wireless	Other
eWitness S.A.	Service Provider
FBConsulting S.A.R.L.	Consultancy Company/Partnership
GIE ANEC	User
IEE	Manufacturer
ILNAS	Administration
Luxtrust	Service Provider
Nowina Solutions	Consultancy Company/Partnership
OQTEC	Service Provider
POST Luxembourg	Network Operator
SES S.A.	Network Operator
Sisvel	Other
Skylane Optics	Manufacturer
SnT - University of Luxembourg	University
MALTA - Members of ETSI	
ORGANISATION	**CATEGORY**

Malta Communications Authority	Administration
MCCAA	Administration
NETHERLANDS - Members of ETSI	
ORGANISATION	**CATEGORY**
Apple Benelux B.V.	Manufacturer
Brightsight B.V.	Service Provider
Dialog Semiconductor	Manufacturer
ESA	Service Provider
European Patent Organisation	User
EVE Compliancy Solutions	Manufacturer
Group 2000	Manufacturer
Honeywell Enraf BV	Manufacturer
Irdeto BV	Manufacturer
JVCKENWOOD	Manufacturer
KPN N.V.	Network Operator
MEDTRONIC BAKKEN RESEARCH BV	Manufacturer
Ministry of Economic Affairs	Administration
Nedap	Manufacturer
NXP Semiconductors Netherlands	Manufacturer
one2many B.V.	Manufacturer
Philips International B.V.	Manufacturer
PIDS	Other Governmental Body
ProRail	Manufacturer
Qorvo Utrecht B.V.	Manufacturer
Qualcomm Tech. Netherlands B.V	Manufacturer
Radboud University	University
Rohill	Manufacturer
Samsung Electronics Benelux BV	Manufacturer
TELP Consultancy BV	Consultancy Company/Partnership
The Police of the Netherlands	User
TNO	Research Body (Public)
Utrecht University	University
Yokogawa Europe B.V.	Manufacturer
NORWAY - Members of ETSI	
ORGANISATION	**CATEGORY**
ABB AS	Manufacturer
BANE NOR SF	Other Governmental Body
Bliksrud Telecom	Consultancy Company/Partnership
Ceragon Networks AS	Manufacturer
JOTRON a.s.	Manufacturer
NCIS	Other Governmental Body
Nkom	Administration
Nordic Semiconductor ASA	Manufacturer
Novelda AS	Manufacturer
Q-Free ASA	Manufacturer
Signicat AS	Service Provider
TELENOR ASA	Network Operator
Vipps	Other

POLAND - Members of ETSI	
ORGANISATION	CATEGORY
Apple Poland Sp. z.o.o.	Manufacturer
Intel Technology Poland SP Zoo	Manufacturer
LG Electronics Polska	Manufacturer
Ministry of Digital Affairs	Administration
Motorola Solutions Poland	Manufacturer
National Institute of Telecom.	Research Body (Public)
NES	Manufacturer
Nokia Poland	Manufacturer
Samsung Electronics Polska	Manufacturer
Systemics PAB Sp. z.o.o.	Service Provider
TIMT	Consultancy Company/Partnership
T-Mobile Polska S.A.	Network Operator
UKE	Administration
PORTUGAL - Members of ETSI	
ORGANISATION	CATEGORY
Apple Portugal	Manufacturer
PT PORTUGAL SGPS SA	Network Operator
Ubiwhere Lda (UW)	Service Provider
REPUBLIC OF NORTH MACEDONIA - Members of ETSI	
ORGANISATION	CATEGORY
Agency for Electronic Comm.	Administration
ROMANIA - Members of ETSI	
ORGANISATION	CATEGORY
certSIGN	Research Body (Private)
Orange Romania	Network Operator
Samsung Electronics Romania	Manufacturer
TRANS SPED S.R.L.	Service Provider
Vodafone Romania S.A.	Network Operator
SERBIA - Members of ETSI	
ORGANISATION	CATEGORY
RATEL	Administration
SLOVAKIA - Members of ETSI	
ORGANISATION	CATEGORY
Ministry of Transport and Cons	Administration
SLOVENIA - Members of ETSI	
ORGANISATION	CATEGORY
Iskratel d.o.o. Ltd	Manufacturer
Sintesio, Foundation	Other
SIST	Administration
SPAIN - Members of ETSI	
ORGANISATION	CATEGORY
AER	User
ALASTRIA	User
CAOC	Research Body (Public)
Cellnex	Network Operator
Certicar S.L.	Other

CTTC	Research Body (Public)
DAC-UPC	University
DARS TELECOM S.L.	Service Provider
DEKRA	Consultancy Company/Partnership
eID	Service Provider
EMITE	Other
ENICONS	Service Provider
Ericsson España S.A.	Manufacturer
Facultad de Informatica	University
Fundacio i2CAT	Research Body (Public)
Genasys	Service Provider
HISPASAT SA	Network Operator
Innovile	Manufacturer
KDPOF S.L	Manufacturer
LGAI Technological Center SA	Service Provider
Logalty	Service Provider
MaxLinear	Manufacturer
MINECO	Administration
Motorola Mobility España SA	Manufacturer
NEMERGENT	Manufacturer
Orange Spain	Network Operator
QUALCOMM Europe Inc. - Spain	Manufacturer
Samsung Electronics Iberia SA	Manufacturer
Sateliot	Network Operator
TELEFONICA S.A.	Network Operator
UC	University
UMA	University
UMH de Elche	University
University of Murcia	University
UPV/EHU	University
VALID SOLUCIONES TECNOLÓGICAS	Manufacturer
Verizon Spain	Network Operator
Vodafone España SA	Network Operator
Wireless Partners S.L.L.	Consultancy Company/Partnership
SWEDEN - Members of ETSI	
ORGANISATION	**CATEGORY**
3xA Security AB	Consultancy Company/Partnership
Abbott	Manufacturer
ADVENICA AB	Manufacturer
Apple AB	Manufacturer
BK Services	Consultancy Company/Partnership
Blekinge Tekniska Högskola	University
Bluetest AB	Other
Ericsson LM	Manufacturer
Halmstad University	University
Huawei Technologies Sweden AB	Research Body (Private)
Husqvarna AB	Manufacturer
InCoax	Manufacturer

Intel Sweden AB	Manufacturer
ITS	Other
MSB	Other Governmental Body
NDRE	Other Governmental Body
NET INSIGHT AB	Manufacturer
Nok9 AB	Manufacturer
Polisen	Other Governmental Body
PTS	Administration
Qualcomm Europe Inc. Sweden	Manufacturer
RISE	Research Body (Public)
Samsung Electronics Nordic AB	Manufacturer
Scania CV AB	Manufacturer
Sectra Communications AB	Manufacturer
Security Service	Other Governmental Body
Telia Company AB	Network Operator
Trafikverket	Other Governmental Body
Verisure Innovation AB	Service Provider
Verizon Sweden	Network Operator
Volvo Car Corporation	Manufacturer
Volvo Technology Corporation	Manufacturer
ZTE Wistron Telecom AB	Research Body (Private)
SWITZERLAND - Members of ETSI	
ORGANISATION	**CATEGORY**
3db Access AG	Manufacturer
Apple Switzerland AG	Manufacturer
asut	Other
conexx	Consultancy Company/Partnership
CSEM	Research Body (Private)
DECT Forum	Other
EBU	User
Ecma International	Observer
ErvoCom	Manufacturer
ID Quantique	Manufacturer
International Amateur Radio	User
Itk.swiss	Research Body (Private)
Kryptus	Service Provider
Landis+Gyr AG	Manufacturer
Nagravision S.A.	Other
Ofcom (CH)	Administration
Phonak Communications AG	Manufacturer
Qualcomm Wireless GmbH	Manufacturer
Schindler	Manufacturer
Semtech Neuchatel SA	Manufacturer
SITA	Network Operator
STMicroelectronics	Manufacturer
Swiss Federal Railways Ltd	User
SWISSCOM	Network Operator
Swissphone Wireless AG	Manufacturer

u-blox AG	Manufacturer
Verizon Switzerland AG	Network Operator
TURKEY - Members of ETSI	
ORGANISATION	CATEGORY
ASELSAN	Manufacturer
Havelsan	Manufacturer
ICTA	Observer
Netas	Manufacturer
P.I. WORKS	Service Provider
Tubitak Uekae	Research Body (Public)
Turk Telekomunikasyon A.S.	Network Operator
TURKCELL	Network Operator
Vodafone Telekomünikasyon A.S.	Manufacturer
UNITED KINGDOM - Members of ETSI	
ORGANISATION	CATEGORY
A.S.P.	User
ACB Europe Ltd	Service Provider
AccelerComm Ltd	Consultancy Company/Partnership
Aeroflex/VIAVI	Manufacturer
AeroMobile Communications Ltd	Network Operator
Airwave Solutions Limited	Network Operator
Altiostar	Manufacturer
ANRITSU LTD	Manufacturer
Apple (UK) Limited	Manufacturer
Apple Europe Limited	Manufacturer
ARTICLE19	User
Avanti	Service Provider
Aviat Networks	Manufacturer
BAE Systems AI Ltd	Manufacturer
BAPCO	User
BBC	Research Body (Private)
Bishop Communications Ltd	Consultancy Company/Partnership
BlackBerry UK Limited	Manufacturer
BSI	Other
BT plc	Network Operator
Cadzow Communications	Consultancy Company/Partnership
Cambium Networks Limited	Manufacturer
CAMBRIDGE CONSULTANTS LTD	Consultancy Company/Partnership
Canonical Group Limited	Manufacturer
Catapult	Research Body (Public)
CCww	Consultancy Company/Partnership
CKH IOD UK LIMITED	Network Operator
CML Microcircuits	Manufacturer
CommScope Technologies AG	Manufacturer
DCMS	Administration
DIGITAL CATAPULT	Research Body (Public)
Digital TV Group	User
DocuSign	Service Provider

Dolby Laboratories Inc.	Manufacturer
DSPG Edinburgh Ltd	Manufacturer
Element Materials Technology	Service Provider
Emerson Process Mgt Limited	Manufacturer
Ericsson Limited	Manufacturer
European GPR Association	Other
Great Circle Design	Consultancy Company/Partnership
Hitachi Europe Ltd.	Manufacturer
HOME OFFICE	Administration
Huawei Tech.(UK) Co.. Ltd	Manufacturer
Huawei Technologies R&D UK	Manufacturer
HUGHES Network Systems Ltd	Network Operator
IASME	Other
ICS	University
IHLMA	User
Illuminate Technologies	Manufacturer
Inmarsat	Network Operator
Intel Corporation (UK) Ltd	Manufacturer
InterDigital, Europe, Ltd.	Manufacturer
Intertek	Service Provider
Keysight Technologies UK Ltd	Manufacturer
King's College London (KCL)	University
LG Electronics UK	Manufacturer
Low Power Radio Association	Service Provider
Marine Rescue Technologies ltd	Manufacturer
MARITIME AND COASTGUARD AGENCY	Administration
Motorola Mobility UK Ltd.	Manufacturer
Motorola Solutions UK Ltd.	Manufacturer
National Technical Assistance	Other Governmental Body
NATS	Service Provider
NAVTECH RADAR	Manufacturer
NCSC	Administration
NEC Europe Ltd	Manufacturer
NEC Telecom MODUS Ltd.	Manufacturer
Nokia UK	Manufacturer
NOVAMINT	Other
NPL	Other Governmental Body
Ofcom (U.K.)	Administration
Onfido Ltd	Service Provider
Orange UK	Network Operator
PA Consulting Services Ltd	Service Provider
PARK AIR SYSTEMS LIMITED	Manufacturer
QipWorks	Consultancy Company/Partnership
Qualcomm Technologies Int	Manufacturer
Queens University Belfast	University
Quixoticity	Consultancy Company/Partnership
Quortus Limited	Manufacturer
REDCA	User

Royal Holloway	University
Samsung R&D Institute UK	Manufacturer
Security &Standards Associates	Consultancy Company/Partnership
Sensium Healthcare Ltd	Manufacturer
Sensus UK	Manufacturer
Sepura Ltd	Manufacturer
SGS Wireless	Service Provider
Simoco	Manufacturer
Sony Europe B.V.	Manufacturer
Telesat International Limited	Network Operator
Tencastle Limited	Consultancy Company/Partnership
Toshiba	Service Provider
Truphone	Network Operator
TUV SUD BABT	Consultancy Company/Partnership
Ubisense Ltd	Manufacturer
UK CAA	Administration
UL VS Ltd	Service Provider
University of Bradford	University
UNIVLEEDS	University
Verizon UK Ltd	Network Operator
ViaSat Satellite Holdings Ltd	Manufacturer
VODAFONE Group Plc	Network Operator
Wi-SUN Alliance	Other
Yaesu Musen Co. Ltd.	Manufacturer
Zeata Security Ltd	Consultancy Company/Partnership

Source: Assembled by author based on data from ETSI

SOURCE OF DATA:

ETSI members around the world. Available at: https://www.etsi.org/membership

Appendix 12. ETSI Technical Committees (TC) Published Standards 2020-2021*

(*Latest update 14February 2021)

id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59451	ETSI TS 110 174-2-2 V1.2.1 (2020-11)	Access, Terminals, Transmission and Multiplexing (ATTM); Sustainable Digital Multiservice Communities; Broadband Deployment and Energy Management; Part 2: Multiservice Networking Infrastructure and Associated Street Furniture; Sub-part 2: The use of lamp-posts for hosting sensing devices and 5G networking	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59451	The present document addresses the opportunities and challenges offered by the use of lamp-posts to provide facilities supporting services required by sustainable digital multiservice cities and communities.	Sustainable Digital Multi-service Communities	DIGITAL,NETWORK,SERVICE,smart city,Sustainability,USER
58573	ETSI TR 103 712 V1.1.1 (2020-10)	Fixed Radio Systems; New PtMP technologies and solutions for microwave backhaul in 5G era	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58573	To discuss and address the effectiveness of evolving new technologies and new structures, including phase array/low side lobe antenna, beam-forming, side lobe interference mitigation, coexistence with current networks, and radiated test to answer the challenges of the coming 5G backhaul network, in frequency bands above 50GHz and lower frequency bands where PMP/block license is allowed, such as 26/28/32/42 GHz.	Fixed Radio Systems	5G,backhaul
58385	ETSI TR 101 506 V2.2.1 (2020-09)	Fixed Radio Systems; Generic definitions, terminology and applicability of essential requirements covering article 3.2 of Directive 2014/53/EU to Fixed Radio Systems	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58385	Update justifications for some parameters following EC remarks, draft revised ETSI Guide and ECC Report on receiver parameters	Fixed Radio Systems	DFRS,FWA,RADIO,REGULATION
46680	ETSI EN 302 326-2 V2.1.0 (2020-08)	Fixed Radio Systems; Multipoint Equipment and Antennas; Part 2: Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=46680	The revision should align the HS EN to the requirements of art. 3.2 of the 2014/53/EU Directive (RED). With respect to present version valid for art 3.2 of the R&TTE Directive; possible reduction of equipment types will be studied, aligned with current technology evolution. Possibly, a single standard will be produced (i.e. merging also EN 302 326-1) instead of a multipart Opportunity to extend frequency coverage up to 42 GHz band will be considered, depending on discussion in TM4	Fixed Radio Systems	ACCESS,DFRS,DRRS,FWA,MULTIPOINT,RADIO,SYSTEM
50983	ETSI EN 302 326-3 V2.1.0 (2020-08)	Fixed Radio Systems; Multipoint Equipment and Antennas; Part 3: Multipoint Antennas	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50983	To amend the EN 302 326-3 in order to editorially change the status from present "HS under R&TTED" to "plain EN" for use of EN 302 326 series in RED environment. It could also be considered the inclusion of the band 40,5 GHz to 43,5 GHz moving characteristics from EN 301 215-3.	Fixed Radio Systems	ACCESS,ANTENNA,DFRS,FWA,MULTIPOINT,RADIO
57852	ETSI TR 105 178 V1.1.1 (2020-05)	Access, Terminals, Transmission and Multiplexing (ATTM); Comparison of sustainability parameters between internal and external, including "cloud-based", ICT hosting solutions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57852	The present document will provide a comparison between both internal and external â€œcloud-basedâ€• solutions with a life cycle analysis addressing: a)energy consumption; b)green-house gas (GHG) emission; c)water consumption; d)waste management from production to end-of-life management	Sustainable Digital Multi-service Communities	Cloud computing,CO2 emission,energy consumption,e-waste management,green-house gas emission,ICT site hosting,Sustainability,water consumption

57748	ETSI TS 103 463-1 V1.2.1 (2020-05)	Access, Terminals, Transmission and Multiplexing (ATTM); Sustainable Digital Multiservice Communities; Key Performance Indicators for Sustainable Digital Multiservice Areas; Part 1: Description of Key Performance Indicators	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57748	The present document replaces TS 103 463 and defines in greater detail a number of Key Performance Indicators (KPIs) for Smart Areas (both urban and rural) expressing sustainability performance in terms of People, Planet, Prosperity and Governance. Certain of the KPIs are grouped and presented as Global KPIs in TS 103 463-2	Sustainable Digital Multiservice Communities	KPI,Smart Grid,smart meter,Sustainability
59256	ETSI TS 101 548-1 V2.4.1 (2020-05)	Access, Terminals, Transmission and Multiplexing (ATTM); European Requirements for Reverse Powering of Remote Access Equipment; Part 1: Twisted pair networks	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59256	Correction of error in table 41	Wireline Access Network Systems	ADSL2plus,VDSL2
57851	ETSI TR 105 177 V1.1.1 (2020-04)	Access, Terminals, Transmission and Multiplexing (ATTM); Benefit Analysis of Ethernet and power over coaxial cables - IP Video Surveillance Case Studies	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57851	The present document will perform Benefit analysis as well as of the beneficial impact on the environment for selected use cases (such as subways) comparing (1) replacing legacy coaxial cables with new cables for IP Video Surveillance and (2) reusing legacy coaxial cables with Ethernet and Power over Coax equipment.	Sustainable Digital Multiservice Communities	Environmental impact,ethernet,IP,Power over Coaxial Cable,Video Surveillance
51133	ETSI EN 302 217-1 V3.2.2 (2020-02)	Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 1: Overview, common characteristics and system-independent requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51133	Editorial update according the revised Part-2 (see REN/ATTM-0438).	Fixed Radio Systems	ANTENNA,DFRS,DRRS,FWA,POINT-TO-POINT,RADIO,TRANSMISSION
50981	ETSI EN 302 217-2 V3.2.2 (2020-02)	Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 2: Digital systems operating in frequency bands from 1 GHz to 86 GHz; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50981	The current specification for systems operating in 71 GHz to 86 GHz has missing transmission capacities for 500 < CS = 2 000 MHz for higher spectral efficiency reference index. The proposed changes are to add these higher transmission capacities and their applicable corresponding transmission and reception parameters. Review of unwanted emission requirements for some cases of dual-port channels-aggregation equipment.	Fixed Radio Systems	ANTENNA,DFRS,DIGITAL,DRRS,FWA,POINT-TO-POINT,RADIO,REGULATION,TRANSMISSION
54757	ETSI TS 101 548-1 V2.3.1 (2020-01)	Access, Terminals, Transmission and Multiplexing (ATTM); European Requirements for Reverse Powering of Remote Access Equipment; Part 1: Twisted pair networks	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54757	The scope of the work item is to improve and refine the published version of TS 101 548-1 V2.2.1 specifically to include the following aspects: â€¢ Complete requirements that are marked For Further Study â€¢ Complete Requirements for OAM â€¢ Alignment with â€œArchitecture and requirements for FTTdpâ€• TR 301 Issue 2 from the Broadband Forum â€¢ Alignment with new safety standards EN 62364-1 â€¢ Address aspects discovered during early implementation and testing â€¢ Liaison with other competent standards bodies	Wireline Access Network Systems	ADSL2plus,VDSL2
43348	ETSI TS 105 174-5-1 V1.4.1 (2020-01)	Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 5: Customer network infrastructures; Sub-part 1: Homes (single-tenant)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=43348	Upgrading of the current version in order to take into account all transmission systems (e.g. copper, fiber) and their efficiency and quality of multiservice delivery.	Infrastructure, Physical Networks & Communication Systems	ACCESS,CABLE,OPTICAL,SITE ENGINEERING

56883	ETSI TS 105 174-2 V1.3.1 (2020-01)	Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 2: ICT Sites: Implementation of energy and lifecycle management practices	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56883	EN 305 174-2 specifies a minimum set of required practices for energy management which are applicable to ICT sites of all sizes and business models. These are taken from a sub-set of those practices recommended by CLC/TR 50600-99-1. CLC/TR 50600-99-1 also contains a much wider range of recommended practices which are applicable to specific designs of ICT site and may be applied to improve the energy management beyond the minimum requirements of EN 305 174-2. The present document: - maps the practices of CLC/TR 50600-99-1 to general application of EN 305 174-2 and also to the specific design options which may apply in a given ICT site; - details examples of the impact of such practices in relation to reductions in energy consumption or improvements in energy efficiency or management. In addition, the present document addresses the end-of-life and maintenance aspects of WEEE (as in EN 305 174-8 and TS 105 174-8).	Infrastructure, Physical Networks & Communication Systems	BROADBAND,Energy Management,ICT,Sustainability
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
54005	ETSI EN 302 567 V2.2.0 (2020-12)	Multiple-Gigabit/s radio equipment operating in the 60 GHz band; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54005	(1) to revise the OOB/Mask, (2) to consider inclusion of RX Sensitivity requirement (3) to revise existing receiver requirements, (4) where appropriate, to revise/improve the test methods.(5) to consider the introduction of Receiver Categories (6) to introduce one or several performance criteria in 4.2.7.3 excluding manufacturer declaration.	Broadband Radio Access Networks	ACCESS,BROADBAND,LAN,RADIO,SRD,TESTING
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59592	ETSI TR 102 376-2 V1.2.1 (2021-01)	Digital Video Broadcasting (DVB); Implementation guidelines for the second generation system for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: S2 Extensions (DVB-S2X)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59592	This specification will provide the DVB-S2 Extensions (DVB-S2X) Implementation Guidelines. This new revision will integrate the required modifications to integrate Beam Hopping.	EBU/CENELEC/ETSI on Broadcasting	BROADBAND,BROADCASTING,DIGITAL,SATELLITE,TV,VIDEO
59919	ETSI ES 201 980 V4.2.1 (2021-01)	Digital Radio Mondiale (DRM); System Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59919	An update which removes unused modulation features and adds text handling features	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DIGITAL,DRM,RADIO

58439	ETSI TS 103 720 V1.1.1 (2020-12)	5G Broadcast System for linear TV and radio services; LTE-based 5G terrestrial broadcast system	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58439	The evolution of verticals in the context of 5G specifications also leads to the definition of technologies that enables the distribution of linear TV and radio services over 5G radio and core network technologies. This includes for example the ability to distribute free-to-air services to devices that are receive-only. The specific 3GPP technologies addressing the broadcasterâ€™s needs, including: - receive-only mode devices and services, - MBMS dedicated carrier, - extended numerologies for large inter-site distances, - new core network interfaces and content transport mechanisms are distributed over several 3GPP specifications and are under control of multiple different 3GPP working groups. Beyond this, additional restrictions and profiling of existing 3GPP specifications are expected to be necessary that need to be documented in order to have deployment-ready specifications for 5G-based linear TV and radio services over cellular and broadcast networks. For example, existing core requirements on the 3GPP UE that may not apply to the receive-only mode devices receiving linear TV and radio services. The objective of this work is to develop a single overview and system specification that - profiles and restricts existing 3GPP specifications in the context of 5G in order to enable the deployment of linear TV and radio services, - documents UE and network implementation guidelines to deploy linear TV and radio services, as necessary. The work item is aligned with ongoing 3GPP standardization work, in particular the "LTE-based 5G terrestrial broadcast (LTE_terr_bcast)"	EBU/CENELEC/ETSI on Broad-casting	5G,BROADCAST,RADIO,TV
59379	ETSI TS 103 752-1 V1.1.1 (2020-12)	Digital Video Broadcasting (DVB); Dynamic substitution of content in linear broadcast; Part 1: Carriage and signalling of placement opportunity information in DVB Transport Streams	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59379	This document specifies broadcast signalling for DVB Dynamic Advertisement Substitution.	EBU/CENELEC/ETSI on Broad-casting	Advertise-ment,BROADCASTING,DIGITAL,DVB,MPEG,TV,VIDEO
59380	ETSI TR 103 752-2 V1.1.1 (2020-12)	Digital Video Broadcasting (DVB); Dynamic substitution of content in linear broadcast; Part 2: Interfacing to an advert decisioning service and optimal preparation of media	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59380	This document provides guidance and recommended practice for delivering and measuring targeted adverts in horizontal and vertical market deployments using in-market advert technology. The focus of this document pertains to the context of linear broadcast and the substitution with IP delivered adverts.	EBU/CENELEC/ETSI on Broad-casting	Advertise-ment,BROADCASTING,DVB
59561	ETSI TS 103 769 V1.1.1 (2020-11)	Digital Video Broadcasting (DVB); Adaptive media streaming over IP multicast	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59561	This document specifies a reference functional architecture for an end-to-end system that delivers linear content over Internet Protocol (IP) networks in a scalable and standards-compliant manner. Scalability is achieved by means of IP multicast operating in parallel with and alongside conventional unicast delivery. The logical functions and the data plane and control plane interfaces between them are specified, including a schema for multicast session configuration. Possible deployment models and modes of system operation are specified, as well as multicast media transport protocols.	EBU/CENELEC/ETSI on Broad-casting	BROADBAND,DVB,INTERNET

59562	ETSI TS 103 770 V1.1.1 (2020-11)	Digital Video Broadcasting (DVB); Service Discovery and Programme Metadata for DVB-I	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59562	This document will define the mechanisms to be used to find sets of linear television services delivered through broadband or broadcast mechanisms as well as methods to retrieve electronic program data for those services.	EBU/CENELEC/ETSI on Broad-casting	BROAD-BAND,BROADCASTING,DVB,INTERNET,IP,TV
59920	ETSI TS 103 771 V1.1.1 (2020-11)	Digital Radio Mondiale (DRM); Regional profiles	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59920	The document will define regional profiles for use by broadcasters and receiver manufacturers to create good text experiences for audiences in different markets.	EBU/CENELEC/ETSI on Broad-casting	AU-DIO,BROADCAST,BROADCASTING,DAB,DIGITAL,RADIO,REGISTRATION
61410	ETSI TS 101 968 V1.4.1 (2020-11)	Digital Radio Mondiale (DRM); Data applications directo-ry	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=61410	Update to add two additional entries in the applications identifier table.	EBU/CENELEC/ETSI on Broad-casting	BROADCAST-ING,DIGITAL,DRM,RADIO
59481	ETSI TS 103 572 V1.2.1 (2020-10)	HDR Signalling and Carriage of Dynamic Metadata for Colour Volume Transform; Application #1	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59481	Removal of informative Annex A from TS 103 752, which has been superseded by updated DVB specifications and minor corrections and additions to reflect current market practice.	EBU/CENELEC/ETSI on Broad-casting	BROADCAST-ING,Content,distribution,HDR,HDTV,UHDTV,VIDEO
61741	ETSI TS 103 461 V1.2.2 (2020-10)	Digital Audio Broadcasting (DAB); Domestic and in-vehicle digital radio receivers; Minimum requirements and Test specifications for technologies and products	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=61741	This editorial revision will fix editorial errors in Table 40, e.g. "Ser-vice2" is mentioned while it should be "Service1" instead.	EBU/CENELEC/ETSI on Broad-casting	DAB,RADIO,RECEIVER,Require-ments,TESTING
59465	ETSI TS 103 176 V2.4.1 (2020-08)	Digital Audio Broadcasting (DAB); Rules of implementa-tion; Service information features	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59465	Removal of annex I (regional profiles) and consequential editorial changes	EBU/CENELEC/ETSI on Broad-casting	AUDIO,BROADCASTING, CODING,DAB,DIGITAL
59495	ETSI TS 102 818 V3.3.1 (2020-08)	Hybrid Digital Radio (DAB, DRM, RadioDNS); XML Specifi-cation for Service and Programme Information (SPI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59495	Revision to add capability to geolocation to allow or disallow IP bearer use based on location	EBU/CENELEC/ETSI on Broad-casting	AUDIO BROADCASTING, DAB,DIGITAL,DNS,DRM,EPG,HYBRID,RADIO
59466	ETSI TS 103 461 V1.2.1 (2020-08)	Digital Audio Broadcasting (DAB); Domestic and in-vehicle digital radio receivers; Minimum requirements and Test specifications for technologies and products	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59466	Update to reflect changes to DAB standards in past 2 years and to address requirements of EECC.	EBU/CENELEC/ETSI on Broad-casting	DAB,RADIO,RECEIVER,Require-ments,TESTING
59464	ETSI TS 101 756 V2.4.1 (2020-08)	Digital Audio Broadcasting (DAB); Registered Tables	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59464	Addition of annexes for regional profiles and update of country code tables	EBU/CENELEC/ETSI on Broad-casting	AU-DIO,BROADCAST,BROADCASTING,DAB,DIGITAL,RADIO,REGISTRATION
58891	ETSI EN 302 307-2 V1.2.1 (2020-08)	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications; Part 2: DVB-S2 Extensions (DVB-S2X)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58891	This new version will introduce satellite beamhopping.	EBU/CENELEC/ETSI on Broad-casting	BSS,DIGITAL,DVB,MODULATION,SATELLITE,TV
57480	ETSI TS 101 545-1 V1.3.1 (2020-07)	Digital Video Broadcasting (DVB); Second Generation DVB Interactive Satellite System (DVB-RCS2); Part 1: Overview and System Level specification	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=57480	This new version will add support for CPM Consumer and CPM SCADA options. Also, operation with S2X will be harmonized.	EBU/CENELEC/ETSI on Broad-casting	DVB,INTERACTION,SATELLITE

57481	ETSI TS 101 545-3 V1.3.1 (2020-07)	Digital Video Broadcasting (DVB); Second Generation DVB Interactive Satellite System (DVB-RCS2); Part 3: Higher Layers Satellite Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57481	This new version will add support for CPM Consumer and CPM SCADA options. Also, operation with S2X will be harmonized	EBU/CENELEC/ETSI on Broadcasting	DVB,INTERACTION,SATELLITE
58347	ETSI EN 301 545-2 V1.3.1 (2020-07)	Digital Video Broadcasting (DVB); Second Generation DVB Interactive Satellite System (DVB-RCS2); Part 2: Lower Layers for Satellite standard	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58347	This new version will add support for CPM Consumer and CPM SCADA options. Also, operation with S2X will be harmonized.	EBU/CENELEC/ETSI on Broadcasting	DVB,INTERACTION,SATELLITE
58890	ETSI TS 101 162 V1.9.1 (2020-07)	Digital Video Broadcasting (DVB); Allocation of identifiers and codes for Digital Video Broadcasting (DVB) systems	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58890	This TS will add support for â€œContent Control System ID".	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DIGITAL,DVB,MPEG,SERVICE,TV,VIDEO
59334	ETSI TR 101 290 V1.4.1 (2020-06)	Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59334	Alignment of the Measurement Guidelines with the Specifications TS 101 154 in which an update had been done regarding the "Time interval between two consecutive PCR". Limitation moved from 40ms to 100ms.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DIGITAL,DVB,TV,VIDEO
59262	ETSI TS 103 736-1 V1.1.1 (2020-06)	Hybrid Broadcast Broadband TV; Targeted Advertising; Part 1: Functional requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59262	This WI will specify functional requirements for optional extension to TS 102 796 enabling targeted advertising / dynamic ad substitution â€“ cleanly and accurately switching from the broadcast to broadband-delivered content and back to the broadcast.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DVB,HTML,INTERNET
59263	ETSI TS 103 736-2 V1.1.1 (2020-06)	Hybrid Broadcast Broadband TV; Targeted Advertising; Part 2: Non-functional requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59263	This WI will specify non-functional requirements for optional extension to TS 102 796 enabling targeted advertising / dynamic ad substitution â€“ cleanly and accurately switching from the broadcast to broadband-delivered content and back to the broadcast.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DVB,HTML,INTERNET
58438	ETSI TS 103 464 V1.2.1 (2020-05)	Hybrid Broadcast Broadband TV Application Discovery over Broadband	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58438	This WI will extend v1.1.1 to add support for ATSC 3.0 watermarks to enable HbbTV broadcast-related apps in TVs where broadcast TV is received by a set-top box that does not support HbbTV but connects to the TV by HDMI.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DVB,HTML,INTERNET
57878	ETSI TS 103 433-1 V1.3.1 (2020-03)	High-Performance Single Layer High Dynamic Range (HDR) System for use in Consumer Electronics devices; Part 1: Directly Standard Dynamic Range (SDR) Compatible HDR System (SL-HDR1)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57878	The goal of TS 103 433 V1.1.1 and V1.2.1 was to standardize a single layer HDR system addressing direct backwards compatibility i.e. a system leveraging SDR distribution networks and services already in place and that enables high quality HDR rendering on HDR-enabled CE devices including high quality SDR rendering on SDR CE devices. The goal of the present work item is to produce a revision of the referenced standard that includes some fixes and also some enhancements. Examples for enhancements are a more flexible HDR-to-HDR display adaptation, addition of 4CCs (4 Character Codes) for signaling SL-HDR in streaming services, and the addition of SL-HDR interfaces to DVB for parts where DVB does not yet have requirements. Note that existing functionality described in TS 103 433-1 V1.2.1 and the associated syntax/semantics of the SEI message will not be changed.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,Content,DIGITAL,distribution,HDR,HDTV,UHDTV,VIDEO

57879	ETSI TS 103 433-2 V1.2.1 (2020-03)	High-Performance Single Layer High Dynamic Range (HDR) System for use in Consumer Electronics devices; Part 2: Enhancements for Perceptual Quantization (PQ) transfer function based High Dynamic Range (HDR) Systems (SL-HDR2)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57879	The goal of TS 103 433-2 V1.1.1 was to standardize a single layer enhancement for HDR systems using a SMPTE ST 2084 transfer function, enabling high performance display adaptation. The goal of the present work item is to produce a revision of the referenced standard that includes some fixes and an enhancement that enables a more flexible HDR to HDR signal reconstruction. Note that the functionality described in TS 103 433-2 V1.1.1 and the associated syntax/semantics of the SEI message in Annex A will not be changed.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,Content,DIGITAL,distribution,HDR,HDTV,UHDTV,VIDEO
51344	ETSI TS 103 433-3 V1.1.1 (2020-03)	High-Performance Single Layer High Dynamic Range (HDR) System for use in Consumer Electronics devices; Part 3: Enhancements for Hybrid Log Gamma (HLG) transfer function based High Dynamic Range (HDR) Systems (SL-HDR3)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51344	The goal of TS 103 433 V1.1.1 was to standardize a single layer HDR system addressing direct backwards compatibility i.e. a system leveraging SDR distribution networks and services already in place and that enables high quality HDR rendering on HDR-enabled CE devices including high quality SDR rendering on SDR CE devices. The goal of the present work item is to specify enhancements for single layer HLG transfer function based HDR systems, enabled by signal processing blocks that are similar/the same to those in SL-HDR1. Similar to SL-HDR1, these enhancements will be enabled by use of dynamic metadata and a post processor in the Consumer Electronics device. Examples for enhancements are correction of color shifts and enabling of high performance display adaptation.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,Content,DIGITAL,distribution,HDR,HDTV,UHDTV,VIDEO
58889	ETSI TS 103 285 V1.3.1 (2020-02)	Digital Video Broadcasting (DVB); MPEG-DASH Profile for Transport of ISO BMFF Based DVB Services over IP Based Networks	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58889	This TS will provide the necessary updates for Low Latency DVB DASH, DTS UHD Audio and Dynamic Metadata for HDR.	EBU/CENELEC/ETSI on Broadcasting	BROADCASTING,DIGITAL,DVB,IP,SATELLITE,TV,VIDEO
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
52930	ETSI TS 103 523-2 V1.1.1 (2021-02)	CYBER; Middlebox Security Protocol; Part 2: Transport layer MSP, profile for fine grained access control	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=52930	Specify protocols to enable trusted, secure communication sessions between network endpoints and one or more middleboxes between them using encryption. The specification is intended to facilitate implementation profiles for a wide array of implementations and applications. The present document covers a definition of a Middlebox Security Protocol. The remainder of the scope is covered in the other parts of the specification.	Cyber Security	Cyber Security
56901	ETSI TS 103 744 V1.1.1 (2020-12)	CYBER; Quantum-safe Hybrid Key Exchanges	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56901	This work item is intended to define methods and architectures for combining a quantum-safe key encapsulation method with a classical key exchange method to ensure the resulting negotiated keys are as secure as the strongest of the individual schemes being combined. The proposal covers how the exchanged elements of the methods and the associated shared secrets are combined using a pseudo-random function or key derivation function to define cryptographic key material suitable for session security.The specification will also cover expected lifecycle maintenance and protocol implementation issues.	Quantum-Safe Cryptography	Key Exchange,Quantum Safe Cryptography

51314	ETSI TS 103 523-1 V1.1.1 (2020-12)	CYBER; Middlebox Security Protocol; Part 1: MSP Framework and Template Requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51314	Specify protocols to enable trusted, secure communication sessions between network endpoints and one or more middleboxes between them using encryption. The specification is intended to facilitate implementation profiles for a wide array of implementations and applications. The present document covers the capability profile. The remainder of the scope is covered in the other parts of the specification.	Cyber Security	Cyber Security
56659	ETSI TS 103 718 V1.1.1 (2020-10)	CYBER; External encodings for the Advanced Encryption Standard	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56659	Specification of external encodings for the Advanced Encryption Standard (AES); the objective of the encodings is to increase the resistance of white-box AES implementations against attacks based on differential computation analysis and differential fault analysis; the work will take the applicability of the encodings to other block ciphers into account	Cyber Security	ALGORITHM,encryption,SECURITY
59540	ETSI TR 103 644 V1.2.1 (2020-09)	CYBER; Observations from the SUCCESS project regarding smart meter security	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59540	Minor updates, including the title and the scope, to address comments raised by the coordination group on Smart Meter Cyber Security Working Group.	Cyber Security	Cybersecurity,smart meter
47652	ETSI TS 103 485 V1.1.1 (2020-08)	CYBER; Mechanisms for privacy assurance and verification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47652	To provide technical means, building on ongoing work in TC CYBER, that enable assurance of privacy and verification of said assurance. The document shall address Identity Management with respect to privacy, naming structures with respect to PII and objects that may be associated as proxies to entities requiring PII protection, protocols and policy mechanisms to give assurance and the verification of assurance for PII	Cyber Security	assurance,CONFIDENTIALITY,identification,privacy
54407	ETSI TR 103 619 V1.1.1 (2020-07)	CYBER; Migration strategies and recommendations to Quantum Safe schemes	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54407	To present recommendations and guidelines for users seeking to adopt a QSC model and who will need to migrate from an existing non-QSC environment. The intent is that the guidance and recommendation discuss both the high level strategic and lower level practical issues to be considered for migration from non-QSC to QSC algorithms and key management. This is intended to complement some of the hybrid schemes considered in the VPN work item as well as introduce a wider view of the topic. To address issues such as impact on PKIs, on assurance of standards across the board that support QSC and hybridisation, address risks where gaps may exist.	Quantum-Safe Cryptography	Quantum Safe Cryptography
57991	ETSI EN 303 645 V2.1.1 (2020-06)	CYBER; Cyber Security for Consumer Internet of Things: Baseline Requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57991	Transposition of TS 103 645 v1.1.1 into an EN, with implementation of feedback received on the TS.	Cyber Security	Cybersecurity,IoT,privacy
58019	ETSI TS 103 645 V2.1.2 (2020-06)	CYBER; Cyber Security for Consumer Internet of Things: Baseline Requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58019	Implementation of feedback received on the TS. Development in parallel to the EN to ensure aligned text	Cyber Security	Cybersecurity,IoT,privacy

58896	ETSI TR 103 306 V1.4.1 (2020-03)	CYBER; Global Cyber Security Ecosystem	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58896	This work item provides an update and corrections to existing TR 103 306.	Cyber Security	Cybersecurity,Ecosystem
54469	ETSI TS 103 643 V1.1.1 (2020-01)	Techniques for assurance of digital material used in legal proceedings	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54469	The present document considers the assurance of material that may be used in legal proceedings. It identifies that certain aspects of assurance require techniques which are dependent on well-trained human expertise, but notes that other aspects are purely digital and can be assured by cryptographic techniques. The present document provides a definition of "purely digital" material and lists examples of material that does and does not fall into this category. The present document provides examples of techniques which could be used to handle purely digital material effectively. The present document notes other standards (such as ISO17025) which could be used for material which is not purely digital, though this is not the main focus of the present document.	Cyber Security	Information assurance
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59207	ETSI TS 103 634 V1.2.1 (2020-10)	Digital Enhanced Cordless Telecommunications (DECT); Low Complexity Communication Codec plus (LC3plus)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59207	Maintain this TS. In particular: â€¢ Implement corrections to specification and software â€¢ Complete software modules â€¢ Optionally provide new features or operation modes	Digital Enhanced Cordless Telecommunications (DECT)	AUDIO,CODEC,DECT,FullBand,LC3plus,Superwideband, VOICE,VoIP
59202	ETSI TS 103 636-2 V1.1.1 (2020-07)	DECT-2020 New Radio (NR); Part 2: Radio reception and transmission requirements; Release 1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59202	TS will specify RF parameters and the RF requirements for DECT2020 new radio (NR) radio equipment (RE). These requirements cover both fixed equipment as well as portable equipment.	Digital Enhanced Cordless Telecommunications (DECT)	5G,DECT,IMT-2020,NR,OFDM,RADIO,radio parameters
59206	ETSI TS 103 636-1 V1.1.1 (2020-07)	DECT-2020 New Radio (NR); Part 1: Overview; Release 1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59206	TS will provide overall description of the DECT-2020 system and relation of the specifications	Digital Enhanced Cordless Telecommunications (DECT)	5G,DECT,DECT-2020,IMT-2020,NR,OFDM,RADIO
53701	ETSI TS 103 636-3 V1.1.1 (2020-07)	DECT-2020 New Radio (NR); Part 3: Physical layer; Release 1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53701	TS will specify PHY layer of the new DECT-2020 technology.	Digital Enhanced Cordless Telecommunications (DECT)	Channel coding,DECT-2020,IMT-2020,MODULATION,NR,OFDM, Physical layer,RADIO
53702	ETSI TS 103 636-4 V1.1.1 (2020-07)	DECT-2020 New Radio (NR); Part 4: MAC layer; Release 1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53702	TS will specify MACs layer of the new DECT-2020 technology	Digital Enhanced Cordless Telecommunications (DECT)	DECT-2020,IMT-2020,MAC,NR
56336	ETSI TR 103 637 V1.1.1 (2020-02)	Digital Enhanced Cordless Telecommunications (DECT); DECT-2020 New Radio (NR) interface; Study on Security Architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56336	TR will be part of the Phase 2 of DECT-2020 design. It will describe the security architecture	Digital Enhanced Cordless Telecommunications (DECT)	5G,DECT,IMT-2020,OFDM,SECURITY

id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
54747	ETSI ES 202 706-1 V1.6.1 (2021-01)	Environmental Engineering (EE); Metrics and measurement method for energy efficiency of wireless access network equipment; Part 1: Power consumption - static measurement method	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54747	To define 5G base station energy consumption and energy performance KPIâ€™s, measurement methods with static load. Typical 5G configurations shall be considered. The final work will be an enhancement in ETSI ES 202 706-1. Part 1 will be updated to include energy performance KPIâ€™s â€“ i.e. power consumption and energy performance. Relevant Energy Efficiency metrics and KPIâ€™s of 3GPP and ETSI EE standards should be considered	EE Eco Environmental Product Standards	Energy Efficiency,GSM,LTE,NR,WCDMA
52942	ETSI ES 203 700 V1.1.1 (2020-12)	Environmental Engineering (EE); Sustainable power feeding solutions for 5G network	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=52942	This standard will define power feeding solutions for 5G equipment and network, and their environmental impact. It will include requirements of different solutions and equipment on power feeding structures, components, backup solutions, environmental condition. Safety and EMC requirements will refer to relevant standards. The future development of 5G networks justify this standard. It is plausible that a new scenario in which the density of radio cells will increase considerably, thereby creating the need to define new solutions for powering being environmentally friendly, sustainable, smart and with remote management that can include energy saving coordinated at network level. The - 48 Vdc, up to 400 Vdc solutions defined in ETSI EN 300 132-2, ITU-T L.1200 will be considered as the standards in force for power facilities. Solution based on remote powering will refer to ETSI EN 302 099.	EE Power Supply	5G,CABLE,Energy Efficiency,HYBRID,POWER,REMOTE,Sustainability
54748	ETSI TS 103 786 V1.1.1 (2020-12)	Environmental Engineering (EE); Measurement method for energy efficiency of wireless access network equipment; Dynamic energy performance measurement method of 5G Base Station (BS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54748	To define 5G base stations energy performance KPIâ€™s â€“ i.e. power consumption and energy performance - and measurement methods with dynamic traffic loads. Typical 5G configurations shall be considered.	EE Eco Environmental Product Standards	5G,BASE STATION,Energy Efficiency,KPI,NR
47232	ETSI EN 302 099 V2.1.30 (2020-10)	Environmental Engineering (EE); Powering of equipment in access network	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47232	It is proposed to revise EN 302 099 ETSI Standard (ES) to introduce requirements on 400V DC remote powering on power cable (voltage range, flexibility, safety, â€¦) There could be also recommendation for using renewable energy at the power feeding centre or power cluster site. Another item is to complement the reverse powering on telecom line (pair or coaxial cable) with a detection and voltage/current handshaking protocol between power feeding equipment and fed equipment (e.g. as done in Power over Ethernet). Specifications already covered in ATTM/TM6 deliverable and ongoing new WIs will be referred to ATTM documents (e.g. TS 101 548). The standard document should also be revised to cover FTTx, UBB and VoIP needs of power back-up.	EE Power Supply	ACCESS,NETWORK,POWER SUPPLY,REMOTE

54057	ETSI ES 203 228 V1.3.1 (2020-10)	Environmental Engineering (EE); Assessment of mobile network energy efficiency	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54057	Consider in currently published standard the following further aspects: â€¢ Complement ES 203 228/ITU 5GEE with the following topics -multi-techno networks (HetNet) -develop energy metrics/counters and energy efficiency analytics (liaison with SA5) -Cloud RAN The revision of the standard will be done in cooperation with ITU to continue to have technical aligned the two documents.	EE Eco Environmental Product Standards	5G,ACCESS,BASE STATION,Energy Efficiency,GSM,LTE,MOBILE,NETWORK,RADIO,UMTS
50599	ETSI EN 300 019-2-3 V2.5.1 (2020-10)	Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-3: Specification of environmental tests; Stationary use at weatherprotected locations	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50599	Communication equipments are more widely used at corridor and garage level, locations highly dusty and with humid environment, inducing increasing corrosion and burnout problems. None test severity in the standard ETSI EN 300 019-2-3 are described. The scope of present WI is: 1) to define test methods and test severities for mechanically active substances 2) to add the performance criteria 3) to clarify the notes on the test applicability	EE Environmental Conditions	ENVIRONMENT,TESTING
58901	ETSI EN 303 423 V1.2.9 (2020-03)	Environmental Engineering (EE); Electrical and electronic household and office equipment; Measurement of networked standby power consumption of Interconnecting equipment	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58901	Revision of EN 303423 to resolve EU Commission comments in document EE(19)056018	Environmental Engineering	Customer Premises Networks,Energy Efficiency,NETWORK,Power Measurement
56909	ETSI EN 300 019-2-8 V2.2.1 (2020-03)	Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-8: Specification of environmental tests; Stationary use at underground locations	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56909	The following items are in the scope of this revision: align this EN with the latest ETSI drafting rules, update the reference standards, improve the definition of performance criteria, clarify the applicability of tests.	EE Environmental Conditions	ENVIRONMENT,EQUIPMENT PRACTICE,TESTING
47230	ETSI ES 203 682 V1.1.1 (2020-02)	Environmental Engineering (EE); Green Abstraction Layer (GAL); Power management capabilities of the future energy telecommunication fixed network nodes; Enhanced Interface for power management in Network Function Virtualisation (NFV) environments	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47230	The strong role that we can foreseen for the Network Function Virtualization (NFV) technology will play a relevant role in the future telecommunication networks and will change substantially the current network architectures by introducing, among others, both relevant issues and opportunities with respect to energy consumption. For making feasible and effective the dynamic monitoring, control and management of energy consumption (by means, i. e., of orchestration, consolidation and management elements) a Southbound specific interface has to be defined. The ETSI ES 203 237 v1.1.1 â€œEnvironmental Engineering (EE); Green Abstraction Layer (GAL) has been created for supporting the dynamic power management and control of current networks and appear to be the right candidate for this role. But this interface has to be extended for correctly handle also the new structure and the new virtualized functionalities and this is the main objective of this that will be realized in strict contact with the ETSI NFV ISG activities and it will be also supported by the European H2020 Project INPUT. A similar work item will be also proposed in ITU-T SG5 for having common deliverables.	EE Eco Environmental Product Standards	Energy Management,NFV

49439	ETSI TS 103 553-3 V1.1.1 (2020-01)	Environmental Engineering (EE); Innovative energy storage technology for stationary use; Part 3: Supercapacitor	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=49439	This series introduces evolution of Energy Storage applicable for use with stationary ICT/Telecom equipment and global results of investigations in laboratories or from field tests in Telecom/ICT network or customer premises e.g. for resilience in smart sustainable city. Mobile and portable batteries are out of the scope. The scope of this document includes: - identification of available Supercapacitor technology or roadmap - Characteristics (electrical , mechanical, thermal, â€¦) - Test lab results and/or field experiment results - Recommendations of adapted use of each technology - Recommendation for appropriate minimum benchmark tests and deeper characterization These WIs are also present in ITU-T SG5/WP3 for a joint activity; ITU-T WI (L.ENST 1,2,3)	EE Power Supply	battery,POWER SUPPLY
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58930	ETSI TR 103 477 V1.2.1 (2020-08)	eHEALTH; Standardization use cases for eHealth	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58930	To present a number of typical use cases in the eHealth domain and from their analysis to identify gaps in standardisation. The analysis should cover aspects of link connectivity, network interconnectivity, semantic and syntactic interoperability, security (risks and provisions), and the existence of standards to meet each aspect. Furthermore the analysis should clearly identify actors and their roles, for each of primary, secondary and tertiary involvement in the use case. Examples will be sought from industry, from existing and completed FP7 and H2020 projects and from current eHealth and Health industry practices.	eHEALTH	eHealth,HEALTH,interconnection,INTEROPERABILITY,INTERWORKING,privacy,SECURITY,usability,use case,USER
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58113	ETSI TS 103 698 V1.1.1 (2020-12)	Emergency Communications (EMTEL); Lightweight Messaging Protocol for Emergency Service Accessibility (LMPE)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58113	This WI will define a SIP SIMPLE based Instant Messaging for Emergency Service accessibility utilizing NG112 core services.	Emergency Communications	Chat,Decentralized Identifier,emergency services,LOCATION,SSL/TLS certificates
57466	ETSI TS 102 182 V1.5.1 (2020-07)	Emergency Communications (EMTEL); Requirements for communications from authorities/organizations to individuals, groups or the general public during emergencies	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57466	General update to remove obsolete information and add new information, including taking suggestions from STF-555 (TR 103 582) into account.	Emergency Communications	ADMINISTRATION,EMERGENCY
58056	ETSI TS 102 181 V1.3.1 (2020-06)	Emergency Communications (EMTEL); Requirements for communication between authorities/organizations during emergencies	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58056	Revise the TS to include / reference the work done at 3GPP SA6 on MCX communication, in SES / SatEC on reference scenarios for the deployment of emergency communications (ETSI TS 103 260-1 and ETSI TS 103 260-2), together with the result of the IoT study from STF555 in TR 103 582.	Emergency Communications	EMERGENCY
58044	ETSI TS 103 478 V1.2.1 (2020-03)	Emergency Communications (EMTEL); Pan-European Mobile Emergency Application	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58044	Update of the current version of TS 103 478 mainly in the description of the role of EENA (European Emergency Number Association).	Emergency Communications	Application,EMERGENCY

54028	ETSI TS 103 650-1 V1.1.1 (2020-01)	EMTEL; Testing - Conformance test specifications for core elements for network independent access to emergency services (NG112); Part 1: Protocol Implementation Conformance Statement (PICS), Test Suite Structure and Test Purposes (TSS & TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54028	PICS and TSS&TP covering o LIS interface via HELD or SIP o ECRF interface via LOST o PSAP interface via SIP o ESRP interface via SIP	Emergency Communications	CONFORMANCE,EMERGENCY,emergency services,INTEROPERABILITY,TESTING
54029	ETSI TS 103 650-2 V1.1.1 (2020-01)	EMTEL; Testing - Conformance test specifications for core elements for network independent access to emergency services (NG112); Part 2: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54029	TTCN-3 test suite covering o LIS interface via HELD or SIP o ECRF interface via LOST o PSAP interface via SIP o ESRP interface via SIP	Emergency Communications	CONFORMANCE,EMERGENCY,emergency services,INTEROPERABILITY,TESTING
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58451	ETSI TS 102 361-4 V1.11.1 (2021-01)	Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 4: DMR trunking protocol	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58451	Further development of the DMR trunking protocol.	Digital Mobile Radio	DATA,DIGITAL,MS,RADIO,SIGNALLING,TRUNKING
58928	ETSI TR 103 730 V1.1.1 (2021-01)	System Reference document (SRdoc); Low Frequency MicroWave Security Scanners (MWSSc) within the frequency range from 3,6 GHz to 12,4 GHz	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58928	The present document provides information on the intended applications, the technical parameters, the relation to the existing spectrum regulation and additional new radio spectrum requirements for MicroWave Security Scanners (MWSSc). MWSSc are expected to comply with limits outside the scanning scenario in the order of those in ECC/DEC(06)/08 for undesired emissions. They are similar to mmW Scanners descibed in SRdoc TR 103 664 (security scanner 60-90 GHz) but operate in a much lower frequency range with low power and have a dedicated application in security screening; e.g to detect objects concealed in or underneath a personâ€™s clothing and to display the location of the objects on e.g. a human avatar. The present document includes necessary information to support the co-operation between ETSI and the Electronic Communications Committee (ECC) of the European Conference of Post and Telecommunications Administrations (CEPT).	EMC and Radio Spectrum Matters	SECURITY,SRDOC,UWB
56823	ETSI EN 303 276 V1.2.1 (2021-01)	<empty>	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56823	To correct errors in the transmit mask as agreed with ECC WGFM	ERM Maritime and radio amateur activities	BROADBAND,DATA,Harmonised standard,MARITIME,RADIO
55058	ETSI EN 303 883-1 V1.2.1 (2020-12)	Short Range Devices (SRD) and Ultra Wide Band (UWB); Part 1: Measurement techniques for transmitter requirements	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=55058	This work item to amend the former version of EN 303 883 V1.1.1 is targeted to address necessary changes are based on: 1. resolution reports of EN 302 065-1, -2, -3 and -4; EN 302 066, EN 302 372, EN 302 729; 2. question from EC on measurement procedures for specific UWB signals, 3. TG UWB shopping lists for EN (see doc: ERMTGUWB(16)000024 and revisions). A first collection of open points which shall be considered (in addition) are uploaded as: ERMTGUWB(17)040002	Ultra Wide Band	SRD,TESTING,UWB

55059	ETSI EN 303 883-2 V1.2.1 (2020-12)	Short Range Devices (SRD) and Ultra Wide Band (UWB); Part 2: Measurement techniques for receiver require-ments	On Approval	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=55059	This work item will cover the justification of RX-requirements (e.g. signal interferer handling) for UWB device and the basics for the related RX-test procedures. In addition this EN will provide infor-mation on Interferer signals (technical information) to be used in related harmonized EN for UWB devices. The work is based on TS 103 361.	Ultra Wide Band	Measure-ment,RECEIVER,TESTING,UWB
56355	ETSI EN 303 204 V3.1.0 (2020-12)	Fixed Short Range Devices (SRD) in data networks; Radio equipment to be used in the 870 MHz to 876 MHz frequency range with power levels ranging up to 500 mW e.r.p.; Harmonised Standard for access to the radio spectrum	On Approval	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=56355	1) Update Title to align with EC / CEPT terminology for networked SRD 2) Revise Introduction adding brief explanation of EC Decision on 870/915 MHz and introduction of data network concepts and usage restrictions 3) Update Scope with core harmonised frequency range at 874-874.4 MHz 4) Add reference to new EC Decision on SRD in 870/915 MHz fre-quency ranges 5) Update Definitions and Abbreviations with precise entries for data network (DN), network access point (NAP), network node (NN) and terminal node (TN) 6) Update Performance Criteria description to remove vendor declaration 7) Amend Clause 4.5 Requirements for Spectrum Access to add requirements and limits for NAP, NN, TN including operation under control of NAP 8) Update any sub-clauses of Clause 4 which permit vendor declara-tion of technical characteristics which should be measured 9) Update clause 5 methods of measurements sub-clauses with vendor declaration of technical characteristics which should be measured 10) Update clause 5.2.2 and rename to Supplementary Information to Assist in Testing 11) Add to clause 5.6 methods of measurement for NAP, NN, TN for requiremetns added in (7) above 12) Amend Tables of recommended test signals, applicable meas-urement methods and specific test procedures adding new entries as necessary 13) Amend Annex A as appropriate adding new requirements and dependencies 14) Editorial changes to align terminology with EC/CEPT terminology for networked SRD and data networks 15) Editorial changes to improve clarity of existing clauses as neces-sary 16) Update Annex F Change History	ERM Generic SRD's	Harmonised stand-ard,RADIO,SRD,TESTING

58012	ETSI TR 103 686 V1.1.1 (2020-12)	Report on Low Duty Cycle Mitigation for UWB Devices	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58012	This report will assess the current LDC mitigation technique for UWB applications with the aim of having clear test criteria for the HSs. The work will â€¢ include a review of the regulations and related measurements (e.g. long-term criteria measurement), â€¢ align the UWB LDC with the generic SRD LDC (see TS 103 060, specify parameters) â€¢ and propose measurement procedures.	Ultra Wide Band	Measurement,REPORT,UWB
47109	ETSI EN 303 363-1 V1.0.1 (2020-12)	Air Traffic Control Surveillance Radar Sensors; Secondary Surveillance Radar (SSR); Harmonised Standard for access to radio spectrum; Part 1: SSR Interrogator	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47109	Harmonised Standard for SSR Interrogator on 1030 MHz and 1090 MHz This will cover ground based Secondary Surveillance Radar systems operating on frequencies 1030 MHz and 1090 MHz in the frequency range 960 MHz to 1215 MHz.	Aeronautics	AERONAUTICAL,Harmonised standard,RADAR,RADIO
47939	ETSI EN 301 489-52 V1.1.2 (2020-12)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication User Equipment (UE) radio and ancillary equipment; Harmonised Standard for Electro-Magnetic Compatibility	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47939	Merging of existing parts 7, 24 and 25 into new part 52 inline with new structuring of EN 301 489 series. The new part will also be in line with the requirements of the RE-D. Revise the WI scope to include 5G NR equipment. Align the deliverable title with the latest skeleton	ERM Electro-magnetic Compatibility	EMC,GSM,Harmonised stand-ard,LTE,MSR,NR,OFDMA,WCDMA,WMAN
56837	ETSI EN 301 925 V1.6.1 (2020-12)	Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Tech-nical characteristics and methods of measurement	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56837	Update of the standard in order to correct the blocking test	ERM Maritime and radio amateur activities	EMC,GMDSS,MARITIME,RADIO,TELEPHONY,VHF
58096	ETSI EN 301 489-4 V3.3.1 (2020-12)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 4: Specific conditions for fixed radio links and ancillary equipment; Harmonised Standard for ElectroMagnetic Compatibility	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58096	Revision to existing standard to ensure suitability for citation under RED. This will include solutions to comments received on perfor-mance criteria and structural changes together with any impact of the new editions of EN 301 489-1.	ERM Electro-magnetic Compatibility	EMC,FWA,Harmonised stand-ard,POINT-TO-POINT,RADIO,REGULATION,RLL,WLL
50827	ETSI EN 303 347-1 V1.1.4 (2020-12)	Meteorological Radars; Harmonised Standard for access to radio spectrum; Part 1: Meteorological Radar Sensor operating in the frequency band 2 700 MHz to 2 900 MHz (S band)	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50827	New Harmonised Standard for S band meteorological radars	Aeronautics	Harmonised stand-ard,RADAR,RADIO
50828	ETSI EN 303 347-3 V1.1.4 (2020-12)	Meteorological Radars; Harmonised Standard for access to radio spectrum; Part 3: Meteorological Radar Sensor operating in the frequency band 9 300 MHz to 9 500 MHz (X band)	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50828	New Harmonised Standard for X band meteorological radars	Aeronautics	Harmonised stand-ard,RADAR,RADIO
47114	ETSI EN 303 347-2 V1.1.4 (2020-12)	Meteorological Radars; Harmonised Standard for access to radio spectrum; Part 2: Meteorological Radar Sensor operating in the frequency band 5 250 MHz to 5 850 MHz (C band)	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47114	Production of a harmonised standards for the RE Directive (art. 3.2)	Aeronautics	Harmonised stand-ard,RADAR,RADIO

58114	ETSI EN 301 489-50 V2.2.2 (2020-12)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 50: Specific conditions for Cellular Communication Base Station (BS), repeater and ancillary equipment; Harmonised Standard for Electro-Magnetic Compatibility	On Approval	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58114	Since introduction of new access technologies 5G NR (New Radio), LAA (License Assisted Access) and NB-IoT (Narrow Band - Internet of Things), EMC requirements for AAS (Active Antenna System) and massive MIMO wireless BS equipment with integral antenna array need to be updated. The topics under development include: Emis-sion and immunity prospective for all EMC phenomena like operating condition, test procedures, performance assessment and perfor-mance criteria. Antenna port requirements shall be clarified. Aligning with 3GPP TS 37.114 and TS 38.113. Review and potential revision of emission and immunity require-ments and corresponding test procedures to bring them in line with the latest technology development. Alignment of clauses of EN 301 489-50 with the clauses of EN 301 489-1 v2.2.1 (main normative references) Include Error Vector Magnitude (EVM) as an alternative performance criterion.	ERM Electro-magnetic Compatibility	5G,EMC,GSM,Harmonised stand-ard,LTE,MSR,NR,OFDMA,WCDMA,WMAN
47110	ETSI EN 303 364-2 V1.0.1 (2020-11)	Primary Surveillance Radar (PSR); Harmonised Standard for access to radio spectrum; Part 2: Air Traffic Control (ATC) PSR sensors operating in the frequency band 2 700 MHz to 3 100 MHz (S band)	On Approval	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=47110	To produce a Harmonized Standard for article 3.2 of Directive 2014/53/EU covering ground based Primary Surveillance Radar systems operating in 2700-3100 MHz frequency band. Surface movement radars are outside of the scope, as these are covered by the EN 303 213 series	Aeronautics	AERONAUTICAL,Harmonised standard,RADAR,RADIO
51274	ETSI TS 103 569 V1.1.1 (2020-11)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Study into extending the upper limit of the range of radiated emissions requirements up to 40 GHz	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=51274	To extend the frequency range from 6 Ghz at present up to 40 GHz for ICT equipment EMC standardization.	ERM Electro-magnetic Compatibility	EMC,EMISSION
52894	ETSI EN 302 609 V2.2.1 (2020-10)	Short Range Devices (SRD); Radio equipment for Eu-roloop communication systems; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=52894	Revision of the standard to respond to RED Desk officer comment on table of measurement uncertainty.	ERM Generic SRD's	Harmonised stand-ard,RADIO,SRD,TESTING
53551	ETSI EN 300 386 V2.2.0 (2020-10)	Telecommunication network equipment; Harmonised Standard for ElectroMagnetic Compatibility (EMC) requirements	On Approval	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=53551	To revise: - Foreword according to the EU Commission comments - Annex A on relationship with EMC directive articles according to the EU Commission comments - Delete references to EN 55022 and the associated definition of telecommunication ports because this standard has been replaced by EN 55032 in March 2017	ERM Electro-magnetic Compatibility	EMC,Harmonised stand-ard,NETWORK,TESTING
58855	ETSI TR 103 435 V1.2.1 (2020-10)	System Reference document (SRdoc); Short Range Devices (SRD); Technical characteristics for Ultra Narrow Band (UNB) SRDs operating in the UHF spectrum below 1 GHz	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58855	Revision of document TR 103 435 revision 1.1.1 published on 2017 to correct emission mask values in table 14 and in figure 6.	EMC and Radio Spectrum Matters	IoT,SRD,SRDOC,UNB
49477	ETSI EN 301 489-22 V2.1.1 (2020-10)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 22: Specific conditions for ground based aeronautical mobile and fixed radio equipment; Harmonised Standard for ElectroMagnetic Compatibility	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=49477	Review to bring the HS in line with the requirements of the RE-D.	ERM Electro-magnetic Compatibility	AERONAUTI-CAL,EMC,Harmonised stand-ard,UHF,VHF
57503	ETSI EN 301 025 V2.2.2 (2020-10)	VHF radiotelephone equipment for general communica-tions and associated equipment for Class "D" Digital Selective Calling (DSC); Harmonised Standard for access to radio spectrum and for features for emergency	On Approval	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=57503	Update of the Standard to reflect changes in use of GPS positional data and prioritised wait times for Distress,Urgency and Safety calls.	ERM Maritime and radio amateur activities	DSC,Harmonised stand-ard,MARITIME,RADIO,TRAFFIC,VHF

		services					
50114	ETSI EN 303 340 V1.2.1 (2020-09)	Digital Terrestrial TV Broadcast Receivers; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50114	1) To include additional signal generator file formats for the interferer waveforms 2) To study the overload limit for DTT broadcast receivers with preamplifier switched on in accordance with draft ETSI EN 303 340 v1.0.1 Table 7, Note 3 which states: â€œNote 3: For broadcast receivers with optional preamplifier switched on, test 1 will apply at the initial introduction of the RED. Due to the short timescales imposed by the RED, only existing broadcast receiver designs can be considered in these timescales, because design changes to broadcast receivers can take up to three years. Further study and prototyping by the manufacturers of broadcast receivers, tuner modules and silicon devices is necessary to assess the feasibility of the proposed enhanced target overload limit of test 2. This study will be completed by 13 June 2017 when the limits for test 1 can be reviewed with an intention of revising the limit towards the target values described in test 2, applicable from 13 June 2019.â€•	ERM Standards for PMSE and broadcast equipment/services	BROADCAST,DIGITAL,Harmonised standard,RADIO,RECEIVER
58962	ETSI EN 303 213-4-2 V2.1.1 (2020-09)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Community Specification for a deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58962	Revision in order to align the CS with the EASA Regulation ERs	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
58963	ETSI EN 303 213-4-1 V2.1.1 (2020-09)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Community Specification for a deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58963	To revised the CS in order to align it with the EASA Regulation ERs	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
58112	ETSI EN 301 489-19 V2.2.0 (2020-09)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band providing positioning, navigation, and timing data; Harmonised Standard for ElectroMagnetic Compatibility	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58112	Revision to existing standard to ensure suitability for citation under RED. This will include solutions to comments received on performance criteria and structural changes together with any impact of the new editions of EN 301 489-1.	ERM Electromagnetic Compatibility	DATA,EARTH STATION,EMC,GNSS,Harmonised standard,MOBILE,MSS,RADIO,RECEIVER,REGULATION,SATELLITE,TESTING
51317	ETSI EN 301 489-17 V3.2.4 (2020-09)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51317	Revision to update the references and bring the HS in line with the requirements of the EC RE-D Desk officer.	ERM Electromagnetic Compatibility	EMC,Harmonised standard,RADIO
51216	ETSI EN 303 135 V2.2.1 (2020-08)	Coastal Surveillance, Vessel Traffic Services and Harbour Radars (CS/VTS/HR); Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51216	Revision of the standard in order take into account feedback form the EC Desk Officer	ERM Maritime and radio amateur activities	Harmonised standard,MARITIME,RADAR,REGULATION

51029	ETSI EN 302 208 V3.3.1 (2020-08)	Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W and in the band 915 MHz to 921 MHz with power levels up to 4 W; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51029	- To address comments received from the EC Desk Officer for RED and create informative annex on change history. Alignment with EC document RSCOM17-60rev3 in accordance with the planned respective EC decision. Furthermore, it shall address the related updates of CEPT REC 70-03 and other inputs received for document improvement.	ERM RF Identification Devices	Harmonised standard,ID,RADIO,RFID,SRD
54100	ETSI EN 303 447 V1.2.0 (2020-07)	Short Range Devices (SRD); Inductive loop systems for robotic mowers; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54100	Define inductive robotic mower systems below 148.5kHz with related performance requirements and essential requirements in accordance with the Radio Equipment Directive 2014/53/EU Article 3(2). The work includes necessary update/corrections based on EC assessment and experience made during first system homologation (under article 3.2 of the RED).	ERM Generic SRD's	Harmonised standard,inductive,Measurement,RADIO
56373	ETSI EN 300 113 V3.1.1 (2020-06)	Land Mobile Service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56373	Technical revisions in particular concerning receiver parameters (adjacent/alternate channels & co-channel). Editorial corrections to v2.2.1. Note: version not intended for listing in OJEU although this is not excluded at a later date.	Digital Mobile Radio	ANTENNA,DATA,MOBILE,PMR,RADIO,REGULATION,SPEECH,TDD,TDMA
58747	ETSI EN 300 338-1 V1.5.2 (2020-06)	Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 1: Common requirements	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58747	To introduce priority handling	ERM Maritime and radio amateur activities	DSC,GMDSS,MARITIME,RADIO
50232	ETSI EN 303 213-3 V2.1.1 (2020-06)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Community Specification for a deployed cooperative sensor including its interfaces	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50232	Update of the document in order to align it with Eurocae ED-117A	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
50234	ETSI EN 303 213-1 V2.1.1 (2020-06)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: Community Specification for A-SMGCS surveillance service including external interfaces	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50234	Update of the European Standard for A-SMGCS surveillance service in order to align it with new reference material from EUROCONTROL and Eurocae (ED-87D)	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
50238	ETSI EN 303 213-2 V2.1.1 (2020-06)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 2: Community Specification for A-SMGCS airport safety support service	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50238	Update of the European Standard for A-SMGCS airport safety support service in order to align it with new reference material from EUROCONTROL and Eurocae (ED-87D)	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
50242	ETSI EN 303 213-7 V2.1.1 (2020-06)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 7: Community Specification for A-SMGCS routing service	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50242	New European Standard for A-SMGCS routing service in order to take into consideration the extension of A-SMGCS functionalities as defined in the reference material from EUROCONTROL and Eurocae (ED-87D) and required by PCP.	Aeronautics	AERONAUTICAL,Air Traffic Management,INTEROPERABILITY
53489	ETSI EN 302 066 V2.2.1 (2020-06)	Short Range Devices (SRD); Ground- and Wall- Probing Radio determination (GPR/WPR) devices; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53489	Update the Interferer Signal Handling requirement (adding limit) and editorial amendments based on adding this new limit (clause 3). Amending title to reflect radio determination possibilities of such device.	Ultra Wide Band	Harmonised standard,RADIO,SRD,TESTING,UWB

53974	ETSI EN 300 338-2 V1.5.1 (2020-06)	Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 2: Class A DSC	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53974	revision to include MoB call handling from ITU-R 493-15	ERM Maritime and radio amateur activities	DSC,GMDSS,MARITIME,RADIO
53975	ETSI EN 300 338-3 V1.3.1 (2020-06)	Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 3: Class D DSC	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53975	revision to include MoB call handling from ITU-R 493-15	ERM Maritime and radio amateur activities	DSC,GMDSS,MARITIME,RADIO
54540	ETSI EN 300 338-6 V1.2.1 (2020-06)	Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 6: Class M DSC	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54540	Update of the standard in order to clarify the distress self cancel and align it with ITU-R M.493-15	ERM Maritime and radio amateur activities	DSC,GMDSS,MARITIME,RADIO, SAR
56371	ETSI EN 300 338-5 V1.3.1 (2020-06)	Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 5: Handheld VHF Class H DSC	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56371	revision to include MoB call handling from ITU-R 493-15	ERM Maritime and radio amateur activities	DSC,GMDSS,MARITIME,RADIO
54026	ETSI TR 103 593 V1.1.1 (2020-05)	System Reference document (SRdoc); Transmission characteristics; Technical characteristics for radiodetermination equipment for ground based vehicular applications within the frequency range 77 GHz to 81 GHz	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54026	The document will provide information on the existing and intended applications, the technical parameters, the relation to the existing spectrum regulation (ECC/DEC(04)03 and 2004/545/EC) and reflecting the WRC15 decision (RR footnote 5.559B and ITU-R recommendation M.2057 and ITU-R report M.2322) on automotive radar (AI.1.18). The current regulation should be reviewed in the light of the results of WRC15. The document will include necessary information to support the cooperation between ETSI and the Electronic Communications Committee (ECC) of the European Conference of Post and Telecommunications Administrations (CEPT), including: â€¢ Detailed market information (annex A); â€¢ Technical information (annex B); â€¢ Relation to existing spectrum regulation (annex C); â€¢ Expected compatibility issues (annex D).	EMC and Radio Spectrum Matters	RADIO,radiodetermination,SRDOC

56803	ETSI EG 203 336 V1.2.1 (2020-05)	Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56803	Following experience gained in its use to date and noting recent discussions, review and revise the guide to: 1. Provide informative guidance on which receiver parameters may be considered the most relevant depending on the type of device (e.g. SRDs, unlicensed, licensed) and the underlying spectrum regulatory environment, including changes to that environment. 2. Clarify the text on the selection of parameters to demonstrate that the guide is advisory as opposed to prescriptive. 3. Provide guidance in regards to minuting decisions and background (justification) of where and where not specific parameters (especailly receiver parameters) are included. 4. Add specific guidance on which receiver parameters should be considered depending on specific technologies (e.g. Radiodetermination, UWB and Satellite Ground Components) as these may differ from the â€œclassicalâ€• parameter set currently contained with the guide 5. Add guidance describing the revised structure of the ETSI EMC standards. No parameters will be deleted from the current version This guide will focus soley on the Radio Equipment Directive and not cover requirements and processes applicable to harmonised standards produced in support of earlier regulatory regimes.	EMC and Radio Spectrum Matters	Harmonised standard,RADIO,RECEIVER,REGULATION,TRANSMITTER
57434	ETSI TR 103 664 V1.1.1 (2020-04)	System Reference document (SRdoc); Security Scanners (SSc) within the frequency range from 60 GHz to 90 GHz	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57434	The present document provides information on the intended applications, the technical parameters, the relation to the existing spectrum regulation and additional new radio spectrum requirements for Security Scanners (SSc). The present document includes necessary information to support the co-operation between ETSI and the Electronic Communications Committee (ECC) of the European Conference of Post and Telecommunications Administrations (CEPT). Requirements on the devices for the intended applications are e.g to detect objects concealed in or underneath a personâ€™s clothing and to display the location of the objects on a human avatar, which is presented on a touchscreen. The latter is also used by an operator to control the SSc. An allocation within the 60 GHz to 90 GHz band with a typical bandwidth of 10 GHz is required.	EMC and Radio Spectrum Matters	E-band,RADIO,SRDOC
43735	ETSI EN 303 258 V1.1.1 (2020-04)	Wireless Industrial Applications (WIA); Equipment operating in the 5 725 MHz to 5 875 MHz frequency range with power levels ranging up to 400 mW; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=43735	To produce a Harmonised Standard under article 3.2 of the RE-D, taking into account the ECC Report 206 to support Wireless industrial automation devices within the 5,725 GHz to 5,875 GHz frequency range. Equipment related to the EN is described in TR 102 889-2.	Wireless Industrial Applications	Harmonised standard,RADIO,REGULATION,SPREAD SPECTRUM,SRD,TESTING,TRANSMISSION
46589	ETSI EN 303 213-5-1 V1.1.1 (2020-03)	Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 5: Harmonised Standard for access to radio spectrum for Multilateration (MLAT) equipment; Sub-part 1: Receivers and Interrogators	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=46589	Define the radio parameters for ATM equipment as harmonised standard for application under the RE Directive.	Aeronautics	AERONAUTICAL,Harmonised standard,INTEROPERABILITY,RADIO

54771	ETSI TS 101 570-5 V1.2.1 (2020-02)	Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 5: VHF Class H Test Descriptions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54771	Revision of the Interoperability tests for maritime handheld DSC radio equipment (class H).	ERM Maritime and radio amateur activities	DSC,INTEROPERABILITY,MARITIME,TSS&TP
53976	ETSI TS 101 570-2 V1.2.1 (2020-02)	Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 2: Class A/B Test Descriptions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53976	revision to include MoB call handling from ITU-R 493-15	ERM Maritime and radio amateur activities	DSC,INTEROPERABILITY,MARITIME,TSS&TP
53977	ETSI TS 101 570-3 V1.2.1 (2020-02)	Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 3: Class D Test Descriptions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53977	revision to include MoB call handling from ITU-R 493-15	ERM Maritime and radio amateur activities	DSC,INTEROPERABILITY,MARITIME,TSS&TP
52954	ETSI EN 303 345-5 V1.1.1 (2020-02)	Broadcast Sound Receivers; Part 5: DRM broadcast sound service; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=52954	The present document specifies the test signal characteristics and limits for sensitivity, selectivity and blocking for devices that receive DRM broadcast sound services.	ERM Standards for PMSE and broadcast equipment/services	BROADCAST,DIGITAL,Harmonised standard,RADIO,RECEIVER
52951	ETSI EN 303 345-2 V1.1.1 (2020-02)	Broadcast Sound Receivers; Part 2: AM broadcast sound service; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=52951	The present document specifies the test signal characteristics and limits for sensitivity, selectivity and blocking for devices that receive AM broadcast sound services.	ERM Standards for PMSE and broadcast equipment/services	ANALOGUE,BROADCAST,Harmonised standard,RADIO,RECEIVER
54470	ETSI EN 302 296 V2.2.0 (2020-01)	Digital Terrestrial TV Transmitters; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54470	To address comments from the European Commission Desk Officer on Clauses 4.2.2.2 and 4.2.3.1 of the presently published V2.1.1	ERM Standards for PMSE and broadcast equipment/services	BROADCASTING,DIGITAL,Harmonised standard,RADIO,REGULATION,TERRESTRIAL,TRANSMITTER,TV,VIDEO
51410	ETSI TS 101 570-6 V1.1.1 (2020-01)	Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 6: VHF Class M Test Descriptions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51410	Interoperability tests for maritime DSC radio equipment (class M). This work is based on EN 300 338-1 v1.4.2 and EN 300 338-6 v1.1.1.	ERM Maritime and radio amateur activities	DSC,INTEROPERABILITY,MARITIME,TSS&TP
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58030	ETSI EN 319 411-1 V1.3.0 (2021-02)	Electronic Signatures and Infrastructures (ESI); Policy and security requirements for Trust Service Providers issuing certificates; Part 1: General requirements	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58030	(i) address the problems with interpreting EN 319 411-1, (ii) address the difficulties when trying to comply to eIDAS and CA/B forum with the EN and use this occasion to up-date the EN with latest CAB Forum Baseline and EV guidelines, (iii) enhance harmonisation with other norms requiring secure enrolments (CEN 419 241-1, CIR 2015/1502). (iv) Support "short term" certificates Rationales for this work: since the publication of the EN 1 year ago, ESI received feedback from the market. It relates most of the time to difficulties in applying or interpreting the standard, sometime to requirements perceived as too severe. TSPs also have difficulties when trying to comply to eIDAS and CA/B forum requirements at the same time when using the EN. In the framework of the NWI ESI experts will seek for further comments to deal with. See: ESI(19)67_020 for initial list of issues	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,extended validation certificat,Public key,SECURITY,trust services

59276	ETSI EN 319 401 V2.3.0 (2021-02)	Electronic Signatures and Infrastructures (ESI); General Policy Requirements for Trust Service Providers	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59276	(i) address the problems with interpreting EN 319 401 (ii) align with changes to EN 319 411-1 (iii) ensure consistency of concepts with draft EN 319 403-1 and EN 319 411-x, EN 319 412-x	Electronic Signatures and Infrastructures	ELECTRONIC SIGNATURE,Provider,SECURITY,trust services
59293	ETSI EN 319 411-2 V2.3.0 (2021-02)	Electronic Signatures and Infrastructures (ESI); Policy and security requirements for Trust Service Providers issuing certificates; Part 2: Requirements for trust service providers issuing EU qualified certificates	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59293	(i) address the problems with interpreting EN 319 411-2 (ii) align with changes to EN 319 411-1 (iii) remove or update requirements covered or to be covered by EN 319 411-1	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
47972	ETSI TS 119 132-3 V1.1.1 (2021-01)	Electronic Signatures and Infrastructures (ESI); XAdES digital signatures; Part 3: Incorporation of Evidence Record Syntax (ERS) mechanisms in XAdES	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=47972	To generate: 1) The specification of mechanisms for incorporating Evicence Record Syntax (RFC 4998 and RFC 6283) into a XAdES signature as an alternative Proof Of Existance to xadesv141:ArchiveTimeStmap. 2) The specification of how the new mechanisms should be managed for being incorporated into XAdES signatures with xadesv141:ArchiveTimeStamp already incorporated. 3) The specification of how the new mechanisms should be managed for being incorporated to legacy XAdES signatures. Also to include the new aforementioned mechanisms into the repertoire of XAdES levels signatures already defined (this can imply the definition of a new level)	Electronic Signatures and Infrastructures	ELECTRONIC SIGNATURE,PROFILE,SECURITY,XAdES,XML
61972	ETSI TS 119 403-2 V1.2.4 (2020-11)	Electronic Signatures and Infrastructures (ESI); Trust Service Provider Conformity Assessment; Part 2: Additional requirements for Conformity Assessment Bodies auditing Trust Service Providers that issue Publicly-Trusted Certificates	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61972	1) Adding requirements for Audit reports in ETSI TS 119 403-2 V1.1.1 (2018-07) add â€œPTA-4.3-08: The Audit Attestation shall be issued only if no critical non-conformities are identified and shall include a statement on each sub-clause of the referenced requirements where there is a finding of nonconformity noted during the audit which had been corrected prior issuing the Audit Attestation.â€•	Electronic Signatures and Infrastructures	conformity,e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
61427	ETSI TS 119 512 V1.1.2 (2020-10)	Electronic Signatures and Infrastructures (ESI); Protocols for trust service providers providing long-term data preservation services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61427	1 .Specify an architecture for the long-term preservation of data based on SR 019 510. This architecture shall contain an interface between a client and the long-term data preservation service, which may or may not provide storage functionality, and support the transfer of content and evidence-related data from one long-term data preservation service to another one. 2. Provide a high level specification of methods and data objects outlining a generic protocol between a client and a long-term data preservation service and two long-term data preservation services for the export and import of content and evidence-related data. The protocols cover data preservation services which may or may not provide data storage functionalities. 3. Specify data objects (including the formats of the preservation evidence based on existing standards) and transport protocols as well as the binding between the exchanged data objects and transport protocols based on widely acknowledged standards and state of the art protocol technology aiming at interoperability using for example XML / SOAP and JSON / REST.	Electronic Signatures and Infrastructures	electronic preservation,ELECTRONIC SIGNATURE,PROTOCOL

58831	ETSI TS 119 432 V1.2.1 (2020-10)	Electronic Signatures and Infrastructures (ESI); Protocols for remote digital signature creation	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58831	maintenance of the TS in particular updates following publication of OASIS DSS v2.0	Electronic Signatures and Infrastructures	ELECTRONIC SIGNATURE,PROTOCOL,REMOTE,SECURITY,trust services
59589	ETSI EN 319 412-1 V1.4.2 (2020-07)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59589	Revision to specify common structures used for eIDAS minimum data set attributes included, when applicable, in certificates issued to natural and legal persons.	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
59590	ETSI TS 119 412-1 V1.4.1 (2020-07)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59590	enhancements to include at least eID representation in X.509 cert	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
50527	ETSI EN 319 412-2 V2.2.1 (2020-07)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 2: Certificate profile for certificates issued to natural persons	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50527	Revision to specify how eIDAS minimum data set attributes should be included, when applicable, in certificates issued to natural persons	Electronic Signatures and Infrastructures	ELECTRONIC SIGNATURE,IP,PROFILE,SECURITY,trust services
50528	ETSI EN 319 412-3 V1.2.1 (2020-07)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 3: Certificate profile for certificates issued to legal persons	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50528	Revision to specify how eIDAS minimum data set attributes should be included, when applicable, in certificates issued to legal persons.	Electronic Signatures and Infrastructures	ELECTRONIC SIGNATURE,IP,PROFILE,SECURITY,trust services
50526	ETSI EN 319 412-1 V1.4.1 (2020-06)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50526	Revision to specify common structures used for eIDAS minimum data set attributes included, when applicable, in certificates issued to natural and legal persons.	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
56885	ETSI EN 319 403-1 V2.3.1 (2020-06)	Electronic Signatures and Infrastructures (ESI); Trust Service Provider Conformity Assessment; Part 1: Requirements for conformity assessment bodies assessing Trust Service Providers	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56885	This work item is to update EN 319 403 to: a) Take into account practical experience of Conformity Assessment Bodies in applying EN 319 403, including: i. Detailed audit time 7.4.2 ii. Clarify certification decision 7.6 b) iii. Modify 7.10 (changes affecting certification) iv. Modify competencies for review (6.2.1.5) v. Redraft 7.7 certification documentation to detailed needed information vi. Correct errors (6.2.1.6) vii. Comments in ESI(18)64_020 b) Clarify requirements for modular audit of TSP service components that can be taken into account in auditing an overall TSP service c) Consider role relationship TS 119 403-2 for publicly trusted services and TS 119 403-3 and whether these should be mandated	Electronic Signatures and Infrastructures	conformity,e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
57766	ETSI EN 319 412-5 V2.3.1 (2020-04)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 5: QCStatements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57766	extend the scope of QcCompliance statement for use by non-EU countries and any other maintenance work	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services

58346	ETSI TS 119 412-1 V1.4.0 (2020-04)	Electronic Signatures and Infrastructures (ESI); Certificate Profiles; Part 1: Overview and common data structures	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58346	enhancements to include at least eID representation in X.509 cert	Electronic Signatures and Infrastructures	e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
53590	ETSI TS 119 512 V1.1.1 (2020-01)	Electronic Signatures and Infrastructures (ESI); Protocols for trust service providers providing long-term data preservation services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53590	1 .Specify an architecture for the long-term preservation of data based on SR 019 510. This architecture shall contain an interface between a client and the long-term data preservation service, which may or may not provide storage functionality, and support the transfer of content and evidence-related data from one long-term data preservation service to another one. 2. Provide a high level specification of methods and data objects outlining a generic protocol between a client and a long-term data preservation service and two long-term data preservation services for the export and import of content and evidence-related data. The protocols cover data preservation services which may or may not provide data storage functionalities. 3. Specify data objects (including the formats of the preservation evidence based on existing standards) and transport protocols as well as the binding between the exchanged data objects and transport protocols based on widely acknowledged standards and state of the art protocol technology aiming at interoperability using for example XML / SOAP and JSON / REST.	Electronic Signatures and Infrastructures	electronic preservation,ELECTRONIC SIGNATURE,PROTOCOL
50839	ETSI TR 103 684 V1.1.1 (2020-01)	Electronic Signatures and Infrastructures (ESI); Global Acceptance of EU Trust Services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50839	This report will assess the relevant differences between existing global PKI schemes and the EU standards for policy requirements, assessment scheme and trust status defined in ETSI EN 319 411, EN 319 401, EN 319 403 and TS 119 612, and identify opportunities to further steps which could be taken to increase European foothold in the global market for Trust Services.	Electronic Signatures and Infrastructures	conformity,e-commerce,ELECTRONIC SIGNATURE,SECURITY,trust services
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59546	ETSI EN 301 549 V3.2.1 (2020-12)	Accessibility requirements for ICT products and services	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59546	The EN will contain normative specifications related to the accessibility of websites and mobile applications and their compliance with the essential requirements of perceivability, operability, understandability and robustness defined in the Web and Mobile Accessibility Directive	Human Factors	accessibility,HF,ICT,procurement
50103	ETSI TR 103 455 V1.1.1 (2020-09)	Human Factors (HF); Smart cities and communities; Standardization for citizens and consumers	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50103	The report will assess the different citizen/consumer needs that smart city standardization in the ICT domain has to address (accessibility, usability, personalisation, interoperability, personal data protection, etc)	Human Factors	accessibility,B2C,Citizen,Design for All,privacy,Requirements,SAFETY,SECURITY,SERVICE,Smart Cities
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

59552	ETSI TS 183 036 V3.7.1 (2021-02)	Core Network and Interoperability Testing (INT); ISDN/SIP interworking; Protocol specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59552	Revision of chapters 5.2.5.2.3 and 5.2.5.2.4	Core Network and Interoperability Testing	IMS,INTERWORKING,ISDN,SIP
57767	ETSI TS 103 571-1 V2.1.1 (2021-01)	Core Network and Interoperability Testing (INT); Diameter Conformance testing for the Sh/Dh interfaces; (3GPPTM Release 15); Part 1: Protocol Implementation Conformance Statement (PICS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57767	Test specifications related to the Diameter protocol profile for the Sh and Dh reference points has been already developed and validation is needed using those test specifications against existing real time SUTs. Findings found during the validation will reflect to the better quality of standards and maintain existing multi part test specifications.	Core Network and Interoperability Testing	CONFORMANCE,Diameter,PICS,PROTOCOL
57768	ETSI TS 103 571-2 V2.1.1 (2021-01)	Core Network and Interoperability Testing (INT); Diameter Conformance testing for Sh/Dh interfaces; (3GPPâ„¢ Release 15); Part 2: Test Suite Structure (TSS) and Test Purposes (TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57768	Test specifications related to the Diameter protocol profile for the Sh and Dh reference points has been already developed and validation is needed using those test specifications against existing real time SUTs. Findings found during the validation will reflect to the better quality of standards and maintain existing multi part test specifications.	Core Network and Interoperability Testing	Diameter,TSS&TP
57769	ETSI TS 103 571-3 V2.1.1 (2021-01)	Core Network and Interoperability Testing (INT); Diameter Conformance testing for the Sh/Dh interfaces; (3GPPâ„¢ Release 15); Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) pro forma specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57769	Test specifications related to the Diameter protocol profile for the Sh and Dh reference points has been already developed and validation is needed using those test specifications against existing real time SUTs. Findings found during the validation will reflect to the better quality of standards and maintain existing multi part test specifications.	Core Network and Interoperability Testing	ATS,CONFORMANCE,Diameter,PIXIT
56920	ETSI TS 186 001-5 V2.4.0 (2020-09)	Core Network and Interoperability Testing (INT); Network Integration Testing between SIP and ISDN/PSTN network signalling protocols; Part 5: Test Suite Structure and Test Purposes (TSS&TP) for Network Integration Tests between ISDN-ISDN and ISDN-PSTN over SIP II NNI/SIP-I NNI	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56920	Maintenance work item to correct editorial mistakes and include missing use cases.	Core Network and Interoperability Testing	IMS,ISDN,NIT,SIP
56938	ETSI TS 103 653-1 V1.1.1 (2020-08)	Core Network and Interoperability Testing (INT); VoLTE/ViLTE interoperability test description over 4G/early 5G in physical/virtual environments; (3GPPâ„¢ Release 15); Part 1: Test Purposes (TP) and Protocol Implementation Conformance Statement (PICS) for VoLTE/ViLTE interoperability	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56938	VoLTE/ViLTE interoperability test descriptions cover the test scenarios within single-network configuration over 4G/early 5G in physical/virtual environments, as well as interconnect and roaming test scenarios within multiple-network configurations. Test descriptions provide monitoring points and test specifications in prose details with focus on different interworking and interoperability interfaces using SIP, Diameter protocols and checks of ENUM Transactions.	Core Network and Interoperability Testing	INTEROPERABILITY,PICS,ViLTE,VoLTE
56939	ETSI TS 103 653-2 V1.1.1 (2020-08)	Core Network and Interoperability Testing (INT); VoLTE/ViLTE interoperability test description over 4G/early 5G in physical/virtual environments; (3GPPâ„¢ Release 15); Part 2: Test Descriptions for VoLTE/ViLTE interoperability	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56939	VoLTE/ViLTE interoperability test descriptions cover the test scenarios within single-network configuration over 4G/early 5G in physical/virtual environments, as well as interconnect and roaming test scenarios within multiple-network configurations. Test descriptions provide monitoring points and test specifications in prose details with focus on different interworking and interoperability interfaces using SIP, Diameter protocols and checks of ENUM Transactions.	Core Network and Interoperability Testing	INTEROPERABILITY,TSS&TP,ViLTE,VoLTE

56940	ETSI TS 103 653-3 V1.1.1 (2020-08)	Core Network and Interoperability Testing (INT); VoLTE/ViLTE interoperability test description over 4G/early 5G in physical/virtual environments; (3GPPâ„¢ Release 15); Part 3: Abstract Test Suit (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) for VoLTE/ViLTE interoperability	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56940	VoLTE/ViLTE interoperability test descriptions cover the test scenarios within single-network configuration over 4G/early 5G in physical/virtual environments, as well as interconnect and roaming test scenarios within multiple-network configurations. Test descriptions provide monitoring points and test specifications in prose details with focus on different interworking and interoperability interfaces using SIP, Diameter protocols and checks of ENUM Transactions.	Core Network and Interoperability Testing	ATS,INTEROPERABILITY,PIXIT,ViLTE,VoLTE
58908	ETSI TS 183 036 V3.6.2 (2020-04)	Core Network and Interoperability Testing (INT); ISDN/SIP interworking; Protocol specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58908	Review of Annex H (informative): Use of progress indicators	Core Network and Interoperability Testing	IMS,INTERWORKING,ISDN,SIP
59264	ETSI TS 103 397 V1.1.2 (2020-03)	Core Network and Interoperability Testing (INT); VoLTE and ViLTE interconnect, interworking and roaming test specification with QoS/QoE (3GPPTM Release 12)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59264	Change of reference version from TS 102 222-1 V.1.1.1 to TS 102 222-1 V.1.3.1 in reference list	Core Network and Interoperability Testing	QoE,QoS,ViLTE,VoLTE
54802	ETSI TR 103 626 V1.1.1 (2020-02)	Autonomic network engineering for the self-managing Future Internet (AFI); An Instantiation and Implementation of the Generic Autonomic Network Architecture (GANA) Model onto Heterogeneous Wireless Access Technologies using Cognitive Algorithms	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54802	The Work Item will provide a mapping and evaluation of architectural components for autonomic network management & control developed/implemented in the EC-funded WISHFUL Project to the ETSI AFI Generic Autonomic Networking Architecture (GANA) modelâ€"an architectural reference model for autonomic networking, cognitive networking and self-management. The mapping pertains to architectural components for autonomic decision-making and associated control-loops in wireless network architectures and their associated management and control architectures.	Evolution of Management towards Autonomic Future Internet	Autonomic Networking,Cognition,cognitive,CONTROL,RADIO,Self-Management
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
61977	ETSI TS 102 636-4-2 V1.4.1 (2021-02)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 2: Media-dependent functionalities for ITS-G5	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61977	Corrections in clause 5.3 as described in ITSWG3(20)052004 and editorial changes.	Transport and Network	ADDRESSING,ITS,NETWORK,POINT-TO-MULTIPOINT,POINT-TO-POINT,PROTOCOL
59280	ETSI TS 102 941 V1.4.1 (2021-01)	Intelligent Transport Systems (ITS); Security; Trust and Privacy Management	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59280	To revise TS 102 941 in Release1 following the issues raised from ETSI ITS CMS#7 Plugtests and required corrections impacting the deployment of the EU CCMS and supported by all ITS parties.	Security	INTEROPERABILITY,ITS,MANAGEMENT,SECURITY
56303	ETSI TR 103 630 V1.1.1 (2020-11)	Intelligent Transport Systems (ITS); Security; Pre-standardization Study on ITS Facility Layer Security for C-ITS Communication Using Cellular Uu Interface	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56303	To study the use cases and requirements of security at the ITS facility layer when using the Uu interface of cellular systems. Identify standardization activities to be performed to further specify ITS security services & interfaces supporting the facility layer for the cellular Uu communication to enable interoperability of C-ITS applications.	Security	ITS,SECURITY
61737	ETSI TS 103 723 V1.2.1 (2020-11)	Intelligent Transport Systems (ITS); Profile for LTE-V2X Direct Communication	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61737	Inclusion of a requirement for re-transmissions.	Architecture and Cross Layer	ITS,PROFILE
53494	ETSI TS 103 300-3 V2.1.1 (2020-11)	Intelligent Transport Systems (ITS); Vulnerable Road Users (VRU) awareness; Part 3: Specification of VRU awareness basic service; Release 2	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53494	This Technical Specification defines the communication protocols, message format, semantics and syntax as well as key interfaces and protocol operation for the VRU awareness service (stage 4)	Application Requirements and Services	Automotive,ITS,SAFETY,SERVICE,TRANSPORT

51379	ETSI EN 302 890-2 V2.1.1 (2020-10)	Intelligent Transport Systems (ITS); Facilities Layer function; Part 2: Position and Time management (PoTi); Release 2	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51379	European Norm of the position & time function according to functional and operational requirements of supported applications.	Application Requirements and Services	FACILITY,ITS,Time-stamping
54337	ETSI TS 103 601 V1.1.1 (2020-10)	Intelligent Transport Systems (ITS); Security; Security management messages communication requirements and distribution protocols	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54337	The deliverable will define communication requirements and profiles to support communications from/to ITS-S stations (e.g. fixed road side ITS-S, mobile ITS-S) for the support of security management services specified in TS 102 941 (i.e. certificate management, trust and revocation lists distribution). The deliverable will also define the related protocol handling for the selected messages as well as the requirements for the lower layer protocol stacks and for the security processing services sub-entity in order to support message dissemination and reception.	Security	ITS,PROTOCOL,SECURITY
59265	ETSI TS 103 097 V1.4.1 (2020-10)	Intelligent Transport Systems (ITS); Security; Security header and certificate formats	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59265	To revise TS 103 097 in Release1 following the issues raised from ETSI ITS CMS#7 Plugtests and required corrections impacting the deployment of the EU CCMS. To apply CR#1 on the HeaderInfo extensibility mechanism and CR#2 on HeaderFields extensions to support TS 103 601 Peer2Peer distributions.	Security	ITS,privacy,PROTOCOL,SECURITY
50634	ETSI TR 103 496 V2.1.1 (2020-10)	Intelligent Transport Systems (ITS); Cooperative ITS (C-ITS) support for transport pollution management applications; Use cases and standardization study; Release 2	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50634	To study how C-ITS architecture and V2X communication technology could be used to enable new type of transport pollution control and management applications. Based on the identification and analysis of major use cases, the document will provide a recommendation for the extension of the existing ETSI ITS standards with new ITS applications reducing the environmental transport impact and improving the transport pollution control. The document will also include use cases desired by road operators.	Application Requirements and Services	ITS,NETWORK,PROTOCOL
50249	ETSI TR 103 460 V2.1.1 (2020-10)	Intelligent Transport Systems (ITS); Security; Pre-standardization study on Misbehavior Detection; Release 2	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50249	to realize an overview of the relevant misbehavior detection and mechanisms suitable for C-ITS and provide a comparison of the performances of different misbehavior detection mechanisms. Moreover, the deliverable will provide the potential minimum requirements of security architecture and misbehavior detection distribution mechanisms	Security	ITS,SECURITY
58746	ETSI TS 103 723 V1.1.1 (2020-09)	Intelligent Transport Systems (ITS); Profile for LTE-V2X Direct Communication	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58746	To identify a common set of standards and specify configuration parameter values and references required for the implementation of direct communication between ITS stations, to achieve interoperable deployment of ITS services via V2V and V2I links. The scope is limited to LTE-V2X mode 4. Additional requirements like triggering conditions, position accuracy, security, and functional safety aspects are out of scope. Descriptions, definitions and rules for all layers (Applications, Facilities, Networking & Transport and Access) of the ETSI ITS station reference architecture will be considered. The scope is limited to communication aspects of ITS stations using a single access layer technology (i.e., LTE-V2X). Additional requirements like triggering conditions, position accuracy, security, and functional safety aspects are out of scope. Descriptions, definitions and rules for all layers (Applications, Facilities, Networking & Transport and Access) of the ETSI ITS station reference architecture will be considered.	Architecture and Cross Layer	ITS,PROFILE

53992	ETSI TR 103 579 V1.1.1 (2020-09)	Intelligent Transport Systems (ITS); Pre-Standardization Study on payment applications in Cooperative ITS using V2I communication	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53992	Identify potential requirements for the set of payment applications including positioning and security requirements. To investigate possible updates and changes to the existing set of ETSI Cooperative ITS standards using V2I communication, to support locally hosted payment applications including Electronic Fee Collection (EFC) and other general payment applications.	Application Requirements and Services	application layer,CHARGING,ITS
59426	ETSI TS 102 636-4-2 V1.3.1 (2020-08)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 2: Media-dependent functionalities for ITS-G5	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59426	Corrections: 1. Contradicting statements: Is DCC mandatory for GeoNetworking over ITS-G5? 2. DCC for ITS-S operating in the ITS G5 band 3. DCC_CROSS_Net	Transport and Network	ADDRESSING,ITS,NETWORK,POINT-TO-MULTIPOINT,POINT-TO-POINT,PROTOCOL
58961	ETSI TS 102 636-4-3 V1.1.1 (2020-08)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 3: Media-dependent functionalities for LTE-V2X	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58961	Add those LTE-V2X specific statements that had to be removed from EN 302 636-4-1 GeoNetworking media-independent, specifically: - Fields of the GeoNetworking address, - Overall packet structure for LTE-V2X access layer technology, - Packet handling. Align the deliverable to changes in EN 302 613 (LTE-V2X access layer) and TS 103 574 (Congestion Control).	Transport and Network	ADDRESSING,ITS,NETWORK,POINT-TO-MULTIPOINT,POINT-TO-POINT,PROTOCOL
53493	ETSI TS 103 300-2 V2.1.1 (2020-05)	Intelligent Transport System (ITS); Vulnerable Road Users (VRU) awareness; Part 2: Functional Architecture and Requirements definition; Release 2	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53493	The Technical Specification defines the VRU related requirements (stage 2); as well as the functional architecture of the VRU system (stage 3). In addition it analyses the impact on existing standards (for instance the CAM European Standard)	Application Requirements and Services	Automotive,ITS,USER
57509	ETSI TS 102 636-4-2 V1.2.1 (2020-04)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 2: Media-dependent functionalities for ITS-G5	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57509	Add those ITS-G5 specific statements that had to be removed from EN 302 636-4-1 GeoNetworking media-independent, specifically: - Fields of the GeoNetworking address, - Overall packet structure for ITS-G5 access layer technology, - Packet handling. Align the deliverable to changes in EN 302 663 (ITS G5 access layer) and TS 103 175 (Crosslayer DCC).	Transport and Network	ADDRESSING,ITS,NETWORK,POINT-TO-MULTIPOINT,POINT-TO-POINT,PROTOCOL
57399	ETSI TS 102 868-1 V1.5.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Cooperative Awareness Basic Service (CA); Part 1: Test requirements and Protocol Implementation Conformance Statement (PICS) pro forma	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57399	To update CAM test specification to align with the latest version of EN 302 637-2 and TS 103 097	Application Requirements and Services	ITS,PICS,TESTING
57400	ETSI TS 102 868-2 V1.5.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Cooperative Awareness Basic Service (CA); Part 2: Test Suite Structure and Test Purposes (TSS & TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57400	Update according to feedback from Validation and CDD changes.	Application Requirements and Services	ITS,TESTING,TSS&TP
57401	ETSI TS 102 868-3 V1.5.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Cooperative Awareness Basic Service (CA); Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57401	Update according to changes in ETSI EN 302 627-2 and TS 103 097	Application Requirements and Services	ATS,ITS,PIXIT,TESTING
57402	ETSI TS 102 869-1 V1.6.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Decentralized Environmental Notification Basic Service (DEN); Part 1: Test requirements and Protocol Implementation Conformance	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57402	Update according to changes in ETSI EN 302 637-3 and TS 103 097	Application Requirements and Services	ITS,PICS,TESTING

		Statement (PICS) pro forma					
57403	ETSI TS 102 869-2 V1.6.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Decentralized Environmental Notification Basic Service (DEN); Part 2: Test Suite Structure and Test Purposes (TSS & TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57403	Update according to changes in ETSI EN 302 637-3 and TS 103 097	Application Requirements and Services	ITS,TESTING,TSS&TP
57404	ETSI TS 102 869-3 V1.6.1 (2020-04)	Intelligent Transport Systems (ITS); Testing; Conformance test specifications for Decentralized Environmental Notification Basic Service (DEN); Part 3: Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57404	Update according to changes in ETSI EN 302 637-2 and TS 103 097	Application Requirements and Services	ATS,ITS,PIXIT,TESTING
55969	ETSI TR 101 607 V1.2.1 (2020-02)	Intelligent Transport Systems (ITS); Cooperative ITS (C-ITS); Release 1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=55969	To update the ETSI deliverables that form Release 1 for Cooperative ITS.	Intelligent Transport Systems	GENERIC,ITS
56051	ETSI TS 103 301 V1.3.1 (2020-02)	Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Facilities layer protocols and communication requirements for infrastructure services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56051	Revision of the TS 103 301 in order to extend the SSP of the current communication profiles and to add additional communication profiles for communications using IP technologies.	Application Requirements and Services	Application,DATA,ITS,PROTOCOL,Requirements
53998	ETSI TR 103 576-2 V1.1.1 (2020-02)	Intelligent Transport Systems (ITS); Pre-standardization study on ITS architecture; Part 2: Interoperability among heterogeneous ITS systems and backward compatibility	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53998	The study item intends to investigate how to obtain Interoperability and backward compatibility when implementing future ITS architectures with the existing ETSI ITS specifications. This study item will elaborate the definitions of interoperability and backward compatibility	Architecture and Cross Layer	ARCHITECTURE,ITS
58941	ETSI TS 102 965 V1.5.1 (2020-01)	Intelligent Transport Systems (ITS); Application Object Identifier (ITS-AID); Registration	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58941	Extend the normative annex of document ETSI TS 102 965 v1.4.1 with new ITS-AIDs assigned for ETSI ITS by ISO. Particularly, the ITS-AIDs for the Collective Perception Service (ETSI TS 103 324), the Vulnerable Road Uses Awareness (ETSI TS 103 300), the TLC Request Service and the TLS Status Service (both ETSI TS 103 301). New AIDs have been assigned by ISO	Intelligent Transport Systems	ITS,REGISTRATION,SERVICE
56805	ETSI EN 302 636-4-1 V1.4.1 (2020-01)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 1: Media-Independent Functionality	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56805	Incorporate revisions to support LTE-V2X in addition to ITS-G5. Revisions must be backward compatible for ITS-G5.	Transport and Network	Autonomic Networking,ITS,NETWORK,SAFETY
56808	ETSI EN 303 613 V1.1.1 (2020-01)	Intelligent Transport Systems (ITS); LTE-V2X Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56808	To specify the access layer for the LTE-V2X technology	Media and Medium related	ITS,LAYER 1,LAYER 2,LTE,MAC,RADIO
56807	ETSI EN 302 663 V1.3.1 (2020-01)	Intelligent Transport Systems (ITS); ITS-G5 Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56807	Revision on the standard in order to address the following: - title update -clarifications and references updates -spotted errors	Media and Medium related	ITS,LAYER 1,LAYER 2,MAC,PROFILE,RADIO
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

58042	ETSI TR 103 685 V1.1.1 (2020-11)	Lawful Interception (LI); LI network function security	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58042	The present document examines LI and LD network function security with a focus on virtualisation. It considers a broad definition of virtualisation i.e. including but not restricted to Network Functions Virtualisation. It focuses on threats and risks, provides applicable recommendations (although these are not meant to be exhaustive), and identifies areas where other standards present recommendations which are relevant to the threats and risks identified. The present document considers reuse of existing standards where applicable. It also considers a mixed deployment of physical and virtualised LI and LD implementations. It is restricted to LI and LD considerations only and does not look at wider considerations. Specifically, broader national security concerns are out of scope of the present document.	Lawful Interception	Lawful Disclosure,Lawful Interception,Virtualisation
61530	ETSI TS 102 232-1 V3.22.1 (2020-11)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61530	The present document specifies the general aspects of HI2 and HI3 interfaces for handover via IP based networks. This revision is to correct ASN.1 import and on use of CONTAINING keyword for 3GPP TS 33.128 structures.	Lawful Interception	HANDOVER,IP,Lawful Interception,SECURITY
61535	ETSI TS 102 232-3 V3.9.1 (2020-11)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 3: Service-specific details for internet access services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61535	The present document contains a stage 1 description of the interception information in relation to the process of binding a "target identity" to an IP address when providing Internet access and a stage 2 description of when Intercept Related Information (IRI) and Content of Communication (CC) need to be sent, and what information it needs to contain. This revision is to add PDSR/PDHR to enable use with Broadband.	Lawful Interception	ACCESS,INTERNET,IP,Lawful Interception,SECURITY,SERVICE
61549	ETSI TR 102 503 V1.14.1 (2020-11)	Lawful Interception (LI); ASN.1 Object Identifiers in Lawful Interception and Retained data handling Specifications	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61549	This report gives an overview over the relevant Object IDentifiers (OID) used in Lawful Interception and Retained Data handling ETSI specifications, and others produced by ITU-T and ISO. This revision provides alignment to the latest specifications updates.	Lawful Interception	ASN.1,OBJECT IDENTIFIER
59520	ETSI TR 103 767 V1.1.1 (2020-11)	Lawful Interception (LI); Considerations about interfacing with providers of vehicle information	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59520	The present document provides a high-level description of a process for interfacing between law enforcement and providers of vehicle information. The present document is not a legal document and does not state when or whether such an interface should be used. Instead, the present document highlights that (whenever there is a lawful requirement to deliver information) it is beneficial to use an automated, secure, efficient interface. The present document investigates to what extent the existing TC LI specifications can be used for such an interface. The present document does not specify any details of such an interface; the interface design would need to be done in conjunction with a cross-section of the relevant industries.	Lawful Interception	INTERFACE,Retained Data

61554	ETSI TS 103 120 V1.7.1 (2020-10)	Lawful Interception (LI); Interface for warrant information	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61554	The present document defines an electronic interface between two systems for the exchange of information relating to the establishment and management of Lawful Interception. Typically this interface would be used between: on one side, a Communications Service Provider; and, on the other side, a Law Enforcement Agency who is entitled to request Lawful Interception. The present document is a specific and detailed example of one particular Warrantry interface. The present document also supports Lawful Disclosure, which encompasses the various processes that deal with requests for data stored within the CSP domain, on behalf of a government authorised organisation. This revision is to implement corrections on Multiple ApprovalDetails.	Lawful Interception	eWarrant,Lawful Disclosure,Lawful Interception,warrant,warrantry
61547	ETSI TS 102 232-5 V3.13.1 (2020-10)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 5: Service-specific details for IP Multimedia services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61547	This document specifies interception of Internet Protocol (IP) Multimedia (MM) Services based on the Session Initiation Protocol (SIP) and Real Time Transport Protocol (RTP) and Message Session Relay Protocol (MSRP) and IP MM services as described by the ITU-T Recommendations H.323 [6] and H.248 [7]. This revision is to clarify values in iPSourceAddress/iPDestinationAddress for SIPMessage and H323Message.	Lawful Interception	IMS,IP,Lawful Interception,SECURITY
61517	ETSI TS 101 331 V1.6.1 (2020-10)	Lawful Interception (LI); Requirements of Law Enforcement Agencies	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61517	The present document replaced ETR 331 in order to limitations relating to circuit switching. This revision is to clarify multiple interception measures.	Lawful Interception	Lawful Interception,SECURITY
59554	ETSI TS 102 232-2 V3.12.1 (2020-08)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 2: Service-specific details for messaging services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59554	This specification contains a stage 1 like description of the interception information in relation to the process of sending and receiving asynchronous messages. The present document also contains a stage 2 like description of when Intercept Related Information (IRI) and Content of Communication (CC) need to be sent, and what information it needs to contain. This revision is to make a correction to the scope.	Lawful Interception	EMAIL,HANDOVER,INTERFACE,IP,Lawful Interception,SECURITY,TRAFFIC
59555	ETSI TS 102 232-3 V3.8.1 (2020-08)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 3: Service-specific details for internet access services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59555	The present document contains a stage 1 description of the interception information in relation to the process of binding a "target identity" to an IP address when providing Internet access and a stage 2 description of when Intercept Related Information (IRI) and Content of Communication (CC) need to be sent, and what information it needs to contain. This revision is to fix a typo in the ASN.1 file.	Lawful Interception	ACCESS,INTERNET,IP,Lawful Interception,SECURITY,SERVICE
59556	ETSI TS 102 232-5 V3.12.1 (2020-08)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 5: Service-specific details for IP Multimedia services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59556	This document specifies interception of Internet Protocol (IP) Multimedia (MM) Services based on the Session Initiation Protocol (SIP) and Real Time Transport Protocol (RTP) and Message Session Relay Protocol (MSRP) and IP MM services as described by the ITU-T Recommendations H.323 [6] and H.248 [7].	Lawful Interception	IMS,IP,Lawful Interception,SECURITY

					This revision is to improve signalling/media correlation.		
59557	ETSI TS 102 232-7 V3.8.1 (2020-08)	Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 7: Service-specific details for Mobile Services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59557	The present document specifies an approach for the handover of the lawfully-intercepted information that is defined in the two standards: 3GPP TS 33.108 [3] and ANSI/J-STD-025-B [4]. The present document uses the handover techniques defined in ETSI TS 102 232-1 [2]. In this way, the present document allows additional services to be delivered through a common interface. This revision is to correct a reference.	Lawful Interception	HANDOVER,IP,Lawful Interception,MOBILE,SECURITY
59558	ETSI TS 102 657 V1.26.1 (2020-08)	Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59558	The present document contains handover requirements and a handover specification for the data that is identified in national legislations on Retained Data. This revision provides the following changes: Addition of EID Parameter in the Subscription Information for Telephony, NA and Multimedia; Correction of Coding of NCGI in the XML-Schema-Definition; Addition of 3GPP UE Radio Capability ID; Update of different parameters such as new network access type (GPON) and new 3GPP 5G RAT types (RAT5Type), on top of a new billing parameter (RANSecondaryRATType)..	Lawful Interception	HANDOVER,RETENTION
59559	ETSI TS 103 120 V1.6.1 (2020-08)	Lawful Interception (LI); Interface for warrant information	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59559	The present document defines an electronic interface between two systems for the exchange of information relating to the establishment and management of Lawful Interception. Typically this interface would be used between: on one side, a Communications Service Provider; and, on the other side, a Law Enforcement Agency who is entitled to request Lawful Interception. The present document is a specific and detailed example of one particular Warrantry interface. The present document also supports Lawful Disclosure, which encompasses the various processes that deal with requests for data stored within the CSP domain, on behalf of a government authorised organisation. This revision is for the following changes: include the new LDTask or Delivery object types in the Object Type dictionary; create a Lawful Disclosure (LD) Handover Format dictionary; include the NonLocalIdentifier.	Lawful Interception	eWarrant,Lawful Disclosure,Lawful Interception,warrant,warrantry

59551	ETSI TS 103 221-2 V1.3.1 (2020-08)	Lawful Interception (LI); Internal Network Interfaces; Part 2: X2/X3	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59551	The internal network interface covers wide area connections between LI systems and (depending on the network) a large number of network elements from different vendors. Nearly every network element has its own interface with different transport protocols, authentication (if any), encryption (if any), commands etc. This makes every new connection highly complicated and costly. The interfaces between Administration and Mediation Functions are usually proprietary and implemented internally within a product for LI and therefore need not be compatible between products of different vendors. Traditionally internal interfaces have not been standardized. Given the experience of standardization in HI2 and HI3 industry has received benefits from this by way of interoperability, security and cost reduction. This WI does not intend to force compatibility on legacy equipment although should that be possible it will be welcomed. The initial focus is on newer IP related systems (but not limited to IP). With a view to the future, as network and services become virtualized this WI intends to support newer implementations by ensuring a standard interface is available for the provisioning of equipment or service. The DF/MF (delivery / mediation function) translates network internal X2/3 messages to HI2/3 (standardized handover interface to the LEMF). This function allows insulation for the CSP to manage their network appropriately without untoward impact on the LEMF. This revision is to add MIME and EosIRIContent Payload Formats..	Lawful Interception	INTERFACE,Lawful Interception

59553	ETSI TS 103 221-1 V1.7.1 (2020-08)	Lawful Interception (LI); Internal Network Interfaces; Part 1: X1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59553	The internal network interface covers wide area connections between LI systems and (depending on the network) lots of network elements from different vendors. Nearly every network element has its own interface with different transport protocols, authentication (if any), encryption (if any), commands etc. This makes every new connection highly complicated and costly. The interfaces between Administration and Mediation Functions are usually proprietary and internally within a product for LI and therefore need not be compatible between products of different vendors. Traditionally X1 and HI1 interfaces have not been standardized. Given the experience of standardization in HI2 and HI3 industry has received benefits from this by way of interoperability, security and cost reduction. This WI does not intend to force compatibility on legacy equipment although should that be possible it will be welcomed. An inability by the LEMF to support this proposed standard should not allow a fall back to a less secure protocol. The initial focus is on newer IP related systems (but not limited to IP). However there is no intention to exclude circuit switch or other elements from using this output. With a view to the future, as network and services become virtualized this WI intends to support newer implementations by ensuring a standard interface is available to the provisioning equipment or service. The ADMF (provisioning system) translates HI1 messages to X1 and vice versa. It is effectively a proxy between the LEA/LEMF and the network operator. This allows insulation for the CSP to manage their network as they see fit without untoward impact on the LEMF, and vice versa. It also allows for enhanced security management. Maintaining this concept is key to this work item. It is intended to start work with the X1 interface and follow with interfaces X3 and X2. Scope 1.Alignment to Dynamic Triggering 2.Usage scenarios a.Start of an interception b.Modification of a running interception c.Stopping an interception d.Retrieval of details of a running interception e.Retrieval of details of all running interceptions f.Error reporting 3.Transport protocol 4.Transport Security / Encryption 5.Authorisation and authentication 6.Communication Protocol (or command line interface?) 7.Nomenclature and data model This revision is to clarify the use of delayed Acknowledgements for Destinations.	Lawful Interception	INTERFACE,Lawful Interception

57432	ETSI TR 103 656 V1.1.1 (2020-07)	Lawful Interception (LI); Study on high bandwidth delivery	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57432	The present document assesses and characterises the problems associated with interception and secure onward delivery of high-bandwidth user traffic using TCP or TLS as currently defined in ETSI TC LI specifications, identifies whether there is a need to solve these problems, and identifies potential technical and other measures that can be used to mitigate or address them.	Lawful Interception	bandwidth,filtering,Interception
58841	ETSI TS 103 707 V1.1.1 (2020-03)	Lawful Interception (LI); Handover for messaging services over HTTP/XML	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58841	The present document specifies the handover details to deliver messaging services for LI over HTTP/XML.	Lawful Interception	HANDOVER,Lawful Interception
58879	ETSI TS 103 120 V1.5.1 (2020-03)	Lawful Interception (LI); Interface for warrant information	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58879	The present document defines an electronic interface between two systems for the exchange of information relating to the establishment and management of Lawful Interception. Typically this interface would be used between: on one side, a Communications Service Provider; and, on the other side, a Law Enforcement Agency who is entitled to request Lawful Interception. The present document is a specific and detailed example of one particular Warrantry interface. This revision extends the specification to support Lawful Disclosure, which encompasses the various processes that deal with requests for data stored within the CSP domain, on behalf of a government authorised organisation. When published, the revision of the present document will include technical extensions to the tasking capabilities and will also investigate and potentially implement a mechanism that reuses the previously published ETSI TC LI specifications which define communications channels and associated best practises to directly deliver such stored data. This revision is for the following changes: add Native XML delivery, make DELIVER verb consistent and minor editorial corrections.	Lawful Interception	eWarrant,Lawful Disclosure,Lawful Interception,warrant,warrantry
59232	ETSI TS 102 657 V1.25.1 (2020-03)	Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59232	The present document contains handover requirements and a handover specification for the data that is identified in national legislations on Retained Data. This revision provides the following changes: add Transmitter Details to Location and add Timed IP-Addresses to NAServiceSubscription.	Lawful Interception	HANDOVER,RETENTION
58878	ETSI TS 102 657 V1.24.1 (2020-01)	Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58878	The present document contains handover requirements and a handover specification for the data that is identified in national legislations on Retained Data. This revision provides the following changes: Add location information source; Add SUPI and GPSI 5G parameters; Correction of AMFID sequence; Extend n3gaLocation ASN.1 and XSD; Provide copies of contract documents..	Lawful Interception	HANDOVER,RETENTION
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

59215	ETSI TS 103 428 V1.2.1 (2020-12)	Mobile Standards Group (MSG); eCall HLAP Interoperability Testing	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59215	Update of Test Descriptions for eCall - High Level Application Protocols from the perspective of eCall aftermarket devices and new features	Mobile Standards Group	ecall,INTEROPERABILITY,TESTING
59924	ETSI TR 103 803 V1.1.1 (2020-12)	Technical report on LTE OTA requirement derivation from MSG TFES ad hoc working group on LTE OTA	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59924	This report is to capture the process, discussions and negotiations for arriving at the final agreement on LTE OTA performance requirements to be included in EN 301 908-13.	Task Force for European Standards for IMT-2000	LTE
50586	ETSI EN 301 908-2 V13.1.1 (2020-06)	IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50586	This is a New Work Item for the revision of EN 301 908 Part 2. The EN covers those requirements of UTRA UE which are essential under article 3.2 of the Radio Equipment Directive. The EN covers requirements up to and including 3GPP Release 13.	Task Force for European Standards for IMT-2000	3G,3GPP,cellular,DIGITAL,IMT,MOBILE,RADIO,REGULATION,UMTS,UTRA,WCDMA
56292	ETSI TS 103 412 V1.3.1 (2020-03)	Mobile Standards Group (MSG); Pan-European eCall end to end and in-band modem conformance testing; Prose test specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56292	Update of conformance requirements for different codec and radio conditions based on results and experiences from first type approvals.	Mobile Standards Group	ecall,GSM,UMTS
56876	ETSI TS 103 683 V1.1.1 (2020-02)	Mobile Standards Group (MSG); Testing; Next Generation eCall High Level Application Protocol (HLAP) Interoperability Testing	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56876	NG eCall â€“ Interoperability Tests	Mobile Standards Group	ecall,INTEROPERABILITY,TESTING
54431	ETSI EN 301 908-15 V15.1.1 (2020-01)	IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 15: Evolved Universal Terrestrial Radio Access (E-UTRA FDD) Repeaters	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54431	Add 2 new Operating Bands of 3GPP to the E-UTRA FDD Repeater ETSI Release 15: - 452.5-457.5 MHz / 462.5-467.5 MHz (B31) - 451-456 MHz / 461-466 MHz (B72)	Task Force for European Standards for IMT-2000	3G,3GPP,cellular,DIGITAL,E-UTRA,IMT,IMT-2000,LTE,MOBILE,RADIO,REGULATION,REPEATER,UMTS,WCDMA
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
62486	ETSI TS 103 597-1 V1.1.2 (2021-01)	Methods for Testing and Specification (MTS); Test Specification for MQTT; Part 1: Conformance Tests	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62486	This document provides a test specification, i.e. an overall test suite structure and catalog of test purposes for the Message Queuing Telemetry Transport (MQTT) protocol. It will be a reference base for both client side test campaigns and server side test campaigns addressing the conformance, security and performance issues.	Testing	CONFORMANCE,TSS&TP
54411	ETSI TS 103 597-3 V1.1.1 (2021-01)	Methods for Testing and Specification (MTS); Test Specification for MQTT; Part 3: Performance Tests	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54411	This document provides a test specification, i.e. an overall test suite structure and catalog of test purposes for the Message Queuing Telemetry Transport (MQTT) protocol. It will be a reference base for both client side test campaigns and server side test campaigns addressing the performance issues.	Testing	PERFORMANCE,TESTING
54751	ETSI TS 103 646 V1.1.1 (2021-01)	Methods for Testing and Specification (MTS); Test Specification for foundational Security IoT-Profile	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54751	This document provides a test specifications covering security requirements as known from IEC 62443-4-2. It will serve as reference for test campaign addressing a foundational security IoT-Profile to define a generic minimum security level for IoT devices.	Testing	SECURITY,TESTING

54401	ETSI TS 103 597-1 V1.1.1 (2021-01)	Methods for Testing and Specification (MTS); Test Specification for MQTT; Part 1: Conformance Tests	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54401	This document provides a test specification, i.e. an overall test suite structure and catalog of test purposes for the Message Queuing Telemetry Transport (MQTT) protocol. It will be a reference base for both client side test campaigns and server side test campaigns addressing the conformance, security and performance issues.	Testing	CONFORMANCE,TSS&TP
56708	ETSI EG 203 647 V1.1.1 (2020-11)	Methods for Testing and Specification (MTS); Methodology for RESTful APIs specifications and testing	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56708	The present document provide guidance and methodology for RESTful API specfication and testing based on analysis of methods, languages and best practices used in the industry and in ETSI groups.	Methods for Testing & Specification	API,METHODOLOGY,TESTING
58028	ETSI TR 103 119 V1.2.1 (2020-09)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Reference Implementation	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58028	Provision of a reference implementation of TDL as open-source project supporting a textual syntax similar to TTCN-3; implementation encompasses an editor (within the Eclipse environment) supporting the creation of TDL specifications and storing them in TDL exchange format.	Test Description Language	MBT
58022	ETSI ES 203 119-2 V1.4.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 2: Graphical Syntax	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58022	Concrete TDL graphical syntax for end users and its mapping to the TDL meta-model	Test Description Language	graphical notation,Language,MBT,METHODOLOGY,TESTING
58023	ETSI ES 203 119-1 V1.5.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 1: Abstract Syntax and Associated Semantics	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58023	Description of the TDL meta-model and the semantics of its elements.	Test Description Language	Language,MBT,METHODOLOGY,Model,TESTING,TSS&TP,TTCN-3,UML
58024	ETSI ES 203 119-3 V1.4.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 3: Exchange Format	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58024	TDL exchange format to support tool interoperability	Test Description Language	Language,MBT,METHODOLOGY,TESTING,TSS&TP,TTCN-3,UML
58025	ETSI ES 203 119-4 V1.4.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 4: Structured Test Objective Specification (Extension)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58025	This extension package for TDL defines means for the refined and formalised test objective specification within TDL by incorporating concepts and a syntactical notation related to TPLan. Activities in this work item will include the definition of abstract syntax and semantics extensions for TDL, as well as a concrete syntax covering these extensions. Future work may pursue activities towards guidelines for realising test objectives in test descriptions and validation constraints for ensuring consistency between test descriptions and realised test objectives.	Test Description Language	Language,MBT,METHODOLOGY,TESTING,TSS&TP,TTCN-3,UML
58026	ETSI ES 203 119-6 V1.2.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 6: Mapping to TTCN-3	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58026	Description of a standardised mapping of TDL to TTCN-3	Test Description Language	METHODOLOGY,Model,TESTING,TTCN-3

58027	ETSI ES 203 119-7 V1.2.1 (2020-08)	Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 7: Extended Test Configurations	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58027	This extension package to TDL introduces additional features for the specification of extended test configurations by reusing existing test configurations. Existing test configurations can be instantiated within an extended test configuration. By means of test configuration operations, the test configuration instances can be modified within an extended test configuration, without affecting the original test configuration specification that is instantiated.	Test Description Language	Language,MBT,METHODOLOGY,TESTING
56892	ETSI ES 201 873-1 V4.12.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56892	Revision according to CR Process	Methods for Testing & Specification	Language,METHODOLOGY,TESTING,TTCN-3
56895	ETSI ES 201 873-6 V4.12.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 6: TTCN-3 Control Interface (TCI)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56895	Revision according to CR Process	Methods for Testing & Specification	CONTROL,INTERFACE,METHODOLOGY,TCI,TESTING,TTCN-3
56898	ETSI ES 201 873-9 V4.11.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 9: Using XML schema with TTCN-3	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56898	Revision according to CR Process	Methods for Testing & Specification	Language,TESTING,TTCN-3,XML
56906	ETSI ES 203 022 V1.4.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language extension: Advanced Matching	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56906	In 2015 several TTCN-3 language CRs have been received requesting new ways of message matching, including user-defined matching, combinations of existing matchings etc. As these features go beyond the core language - containing basic mechanisms sufficient for the majority of users â€“ a language extension has been decided.	Methods for Testing & Specification	CONFORMANCE,TESTING,TTCN-3
56907	ETSI ES 203 790 V1.2.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Object-Oriented Features	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56907	â€¢ TTCN-3 has been designed as a procedural language, which suits to its original purpose, automated functional types of testing in different domains. However, with time new areas and uses have appeared, like developing performance test frameworks, generic (customizable) functional test frameworks and new domains as ITS, IoT etc. There is a strong requirement from the users to increase the efficiency of TTCN-3 code development in these areas by adding object orientation (or alike) extension to the language. This shall be developed in a way, consistent with the existing language concepts.	Methods for Testing & Specification	Language,TTCN-3
54425	ETSI ES 201 873-7 V4.8.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 7: Using ASN.1 with TTCN-3	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54425	Revision according to CR Process	Methods for Testing & Specification	ASN.1,Language,TESTING,TTCN,XML
50957	ETSI ES 202 784 V1.7.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Advanced Parameterization	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50957	Revision according to CR Process	Methods for Testing & Specification	CONFORMANCE,TESTING,TTCN-3

53733	ETSI ES 202 785 V1.7.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Behaviour Types	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53733	Revision according to CR Process	Methods for Testing & Specification	CONFORMANCE,TESTING,TTCN-3
45893	ETSI ES 202 789 V1.5.1 (2020-05)	Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Extended TRI	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=45893	Update according to the CR process	Methods for Testing & Specification	INTERFACE,TESTING,TTCN-3
57477	ETSI TS 103 663-1 V1.1.1 (2020-03)	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Object Oriented Features; Part 1: Implementation Conformance Statement (ICS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57477	TTCN-3 Object Oriented extensions Conformance Test Suite; Part 1 : Implementation Conformance Statement;	Methods for Testing & Specification	CONFORMANCE,ICS,TESTING,TTCN-3
57478	ETSI TS 103 663-2 V1.1.1 (2020-03)	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Object Oriented Features; Part 2: Test Suite Structure and Test Purposes (TSS&TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57478	TTCN-3 Object Oriented extensions Conformance Test Suite - Part 2: Test Suite Structure & Test Purpose	Methods for Testing & Specification	TESTING,TSS&TP,TTCN-3
57479	ETSI TS 103 663-3 V1.1.1 (2020-03)	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Object Oriented Features; Part 3: Abstract Test Suite (ATS) and IXIT	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57479	TTCN-3 Object Oriented extensions Conformance Test Suite - Part 3: Abstract Test Suite & IXIT	Methods for Testing & Specification	ATS,CONFORMANCE,TESTING,TTCN-3
57476	ETSI TS 103 255 V1.5.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of XML and JSON schema; Abstract Test Suite & IXIT	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57476	Abstract Test Suite & IXIT	Methods for Testing & Specification	ATS,IXIT,JSON,TESTING,TTCN,XML
57471	ETSI TS 102 950-1 V1.8.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite; Part 1: Implementation Conformance Statement (ICS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57471	TTCN-3 tool conformance: ICS	Methods for Testing & Specification	CONFORMANCE,ICS,TESTING,TTCN
57472	ETSI TS 102 950-2 V1.8.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite; Part 2: Test Suite Structure and Test Purposes (TSS&TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57472	Test Suite Structure and Test Purposes (TSS & TP)	Methods for Testing & Specification	TESTING,TSS&TP,TTCN-3
57473	ETSI TS 102 950-3 V1.8.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite; Part 3: Abstract Test Suite (ATS) and Implementation eXtra Information for Testing (IXIT)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57473	TTCN-3 tool conformance: ATS & IXIT	Methods for Testing & Specification	ATS,CONFORMANCE,TESTING,TTCN
57474	ETSI TS 103 253 V1.5.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of XML and JSON schema; Implementation Conformance Statement	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57474	TTCN-3 tool conformance in using XML Schema: ICS	Methods for Testing & Specification	CONFORMANCE,ICS,JSON,TESTING,TTCN,XML
57475	ETSI TS 103 254 V1.5.1 (2020-02)	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of XML and JSON schema; Test Suite Structure and Test Purposes (TSS&TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57475	Test Suite Structure and Test Purposes (TSS&TP)	Methods for Testing & Specification	JSON,TESTING,TSS&TP,TTCN,XML

id	ETSI deliver-able	title	Status	Details link	Scope	Technical body	Keywords
58909	ETSI TS 103 652-3 V1.1.1 (2021-01)	Reconfigurable Radio Systems (RRS); evolved Licensed Shared Access (eLSA); Part 3: Information elements and protocols for the interface between eLSA Controller (eLC) and eLSA Repository (eLR)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58909	Develop a Technical Specification defining the information elements and the protocols for the interface eLSA1 between an eLSA Controll-er (eLC) and an eLSA Repository (eLSA). The work builds on the feasibility study described in ETSI TR 103 588 (2018) "Reconfigurable Radio Systems (RRS); Feasibility study on temporary spectrum access for local high-quality wireless networks", the system requirements captured in ETSI TS 103 652-1 â€œSystem Requirements for spec-trum access for local high-quality wireless networksâ€• and the system architecture and high-level procedures captured in ETSI TS 103652-2 â€œSystem Architecture and high-level procedures for operation of evolved Licensed Shared Access (eLSA)â€•. The scope of the work will be to specify the application protocol on the eLSA1 interface (eLSA1 protocol) and the content of the eLSA Spectrum Resource Availability Information (eLSRAI) conveyed by this protocol. The specification will include: eLSA1 protocol princi-ples, eLSA1 procedures, messages and information elements ena-bling assignment and handling of local spectrum for the different licensing and leasing scenarios.	System Aspects & Cognitive functionalities	LSA spectrum re-source,NETWORK,PROTOCOL,RADIO
58921	ETSI EN 303 648 V1.1.2 (2020-07)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration architecture	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58921	EN version of ETSI TS 103 648: " Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration architecture".	REA - Reconfig-urable Radio Equipment Architecture	ARCHITECTURE,RADIO,SDR
58922	ETSI EN 303 681-1 V1.1.2 (2020-06)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 1: general-ized Multiradio Interface (gMURI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58922	EN version of TS 103 681-1	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58923	ETSI EN 303 681-2 V1.1.2 (2020-06)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 2: general-ized Reconfigurable Radio Frequency Interface (gRRFI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58923	EN version of TS 103 681-2	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58924	ETSI EN 303 681-3 V1.1.2 (2020-06)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 3: general-ized Unified Radio Application Interface (gURAI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58924	EN version of TS 103 681-3	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58925	ETSI EN 303 681-4 V1.1.2 (2020-06)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 4: general-ized Radio Programming Interface (gRPI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58925	EN version of TS 103 681-4	REA - Reconfig-urable Radio Equipment Architecture	ARCHITEC-TU-RE,INTERFACE,RADIO,SDR,software,SYSTEM

58920	ETSI EN 303 641 V1.1.2 (2020-06)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration requirements	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58920	EN version of ETSI TS 103 641: " Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration requirements"	REA - Reconfig-urable Radio Equipment Architecture	CRS,MOBILE,SDR
56426	ETSI TS 103 681-1 V1.1.1 (2020-03)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 1: general-ized Multiradio Interface (gMURI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=56426	This Technical Specification will be based on ETSI EN 303 146-1 and provide a generalized interface definition for the generalized Soft-ware Reconfiguration Architecture.	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58007	ETSI TS 103 681-2 V1.1.1 (2020-03)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 2: general-ized Reconfigurable Radio Frequency Interface (gRRFI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58007	This Technical Specification will be based on ETSI EN 303 146-2 and provide a generalized interface definition for the generalized Recon-figurable Radio Frequency Interface.	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58008	ETSI TS 103 681-3 V1.1.1 (2020-03)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 3: general-ized Unified Radio Application Interface (gURAI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58008	This Technical Specification will be based on ETSI EN 303 146-3 and provide a generalized interface definition for the generalized Unified Radio Application Interface.	REA - Reconfig-urable Radio Equipment Architecture	INTERFACE,RADIO,SDR
58009	ETSI TS 103 681-4 V1.1.1 (2020-03)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) information models and protocols for generalized software reconfiguration architecture; Part 4: general-ized Radio Programming Interface (gRPI)	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58009	This Technical Specification will be based on ETSI EN 303 146-4 and provide a generalized interface definition for the generalized Radio Programming Interface (gRPI)	REA - Reconfig-urable Radio Equipment Architecture	ARCHITEC-TU-RE,INTERFACE,RADIO,SDR,soft ware,SYSTEM
56888	ETSI TS 103 652-2 V1.1.1 (2020-01)	Reconfigurable Radio Systems (RRS); evolved Licensed Shared Access (eLSA); Part 2: System architecture and high-level procedures	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=56888	Develop a Technical Specification defining the system architecture for the operation of an Evolved Licensed Shared Access System, enabling the provision of spectrum access to local high-quality wireless networks in licensed bands. The architecture builds on the feasibility study described in ETSI TR 103 588 (2018) "Reconfigurable Radio Systems (RRS); Feasibility study on temporary spectrum access for local high-quality wireless networks", and the system require-ments captured in ETSI TS 103 652 â€œSystem Requirements for spectrum access for local high-quality wireless networksâ€• (DTS/RRS-0150). The scope of the work will be to define the evolved LSA architecture such as to accommodate and enable spectrum access for many local high-quality wireless networks in dedicated licensed and leasing scenarios based on the requirements developed in TS 103 652-1. The specification will include: - functional architecture - Identifica-tion of the different entities, reference points, and mapping of functions to entities - Identification of interfaces to be standardized - High level procedures and information flows enabling assignment and handling of spectrum for the different scenarios.	System Aspects & Cognitive functionalities	ARCHITECTURE,LSA spectrum resource,NETWORK,RADIO

54489	ETSI TS 103 648 V1.1.1 (2020-01)	Reconfigurable Radio Systems (RRS); Radio Equipment (RE) reconfiguration architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54489	This Technical Report will define an Architecture for Radio Equipment enabling Reconfiguration through Software.	REA - Reconfigurable Radio Equipment Architecture	ARCHITECTURE,RADIO,SDR
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
57848	ETSI TS 103 672 V1.1.1 (2020-12)	Rail Telecommunications (RT); Global System for Mobile communications (GSM); Usage of Session Initiation Protocol with ISUP encapsulation (SIP-I) and other IP based protocols for interconnection of GSM-R networks	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57848	New specification of IP interface to interconnect GSM-R networks	Railway telecommunications	GSM-R,IP,railways,SIP
57393	ETSI TR 103 554-1 V1.3.1 (2020-10)	Rail Telecommunications (RT); Next Generation Communication System; Radio performance simulations and evaluations in rail environment; Part 1: Long Term Evolution (LTE)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57393	Revision in order to include simulations at 1900 MHz	Railway telecommunications	FRMCS,LTE,RADIO,railways,Simulation
59909	ETSI TS 103 389 V3.3.1 (2020-10)	Rail Telecommunications (RT); Global System for Mobile communications (GSM); Usage of Session Initiation Protocol (SIP) on the Network Switching Subsystem (NSS) to Fixed Terminal Subsystem (FTS) interface for GSM Operation on Railways	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59909	Revision in order to correct the GC signalling and unsupported SIP messages.	Railway telecommunications	GSM-R,railways
57394	ETSI TR 103 459 V1.2.1 (2020-08)	Rail Telecommunications (RT); Future Rail Mobile Communication System (FRMCS); Study on system architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57394	Revision of the deliverable to further refine FRMCS functional and system architecture in order to deliver communication services to rail applications. This will be achieved by : 1. Mapping URS Applications and use cases to a list of required FRMCS system functions 2. Further refinement of the FRMCS functional architecture with particular emphasis on positioning, security, addressing and on board architecture taking into account potential migration related topics 3. FRMCS Gap Analysis and mapping of the FRMCS building blocks to 3GPP building blocks and possible network functions/elements. 4. Deriving a system architecture including 3GPP interfaces within the FRMCS system and on the boundaries. 5. Interfacing dispatcher services, recording system as well as external networks and interworking with legacy system	Railway telecommunications	ARCHITECTURE,FRMCS,railways
59453	ETSI TS 103 328 V1.2.2 (2020-05)	Rail Telecommunications (RT); GPRS/EGPRS requirements for European Train Control System (ETCS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59453	Revision in order to add clarification to the limitations for the radio channel robustness in case of operating at high speed up to 500 km/h indicated in bearer service capabilities for network and mobile.	Railway telecommunications	GSM-R,RADIO,railways
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
62457	ETSI TS 102 705 V14.0.0 (2021-02)	Smart Cards; UICC Application Programming Interface for Java Cardâ„¢ for Contactless Applications (Release 14)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62457	Automatic Upgrade	SCP-TEC	API,SMART CARD

62458	ETSI TS 102 705 V15.0.0 (2021-02)	Smart Cards; UICC Application Programming Interface for Java Cardâ„¢ for Contactless Applications (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62458	Automatic Upgrade	SCP-TEC	API,SMART CARD
62459	ETSI TS 102 705 V16.0.0 (2021-02)	Smart Cards; UICC Application Programming Interface for Java Cardâ„¢ for Contactless Applications (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62459	Automatic Upgrade	SCP-TEC	API,SMART CARD
62460	ETSI TS 102 705 V17.0.0 (2021-02)	Smart Cards; UICC Application Programming Interface for Java Cardâ„¢ for Contactless Applications (Release 17)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62460	Implemented CRs after SCP#97. Ref doc SCP(20)000160 - CR 057 - Update the reference of Java Card specifications to the latest release	SCP-TEC	API,SMART CARD
62281	ETSI TS 103 666-1 V16.1.0 (2021-02)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62281	Implemented CRs after SCP#97	Smart Card Platform	M2M,MFF
62280	ETSI TS 103 666-1 V15.5.0 (2021-02)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62280	Implemented CRs after SCP#97	Smart Card Platform	M2M,MFF
39886	ETSI TS 102 600 V7.9.0 (2021-02)	Smart Cards; UICC-Terminal interface; Characteristics of the USB interface (Release 7)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=39886	Implementation of CRs approved	SCP-TEC	INTERFACE,SMART CARD
39887	ETSI TS 102 600 V8.1.0 (2021-02)	Smart Cards; UICC-Terminal interface; Characteristics of the USB interface (Release 8)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=39887	Implementation of CRs approved	SCP-TEC	INTERFACE,SMART CARD
39888	ETSI TS 102 600 V9.1.0 (2021-02)	Smart Cards; UICC-Terminal interface; Characteristics of the USB interface (Release 9)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=39888	Implemented approved CRs: SCP(10)0273 - CR: 024 - UICC descriptors adaptation after power negotiation SCP(10)0278r1 - CR: 020r1 - Correction of inconsistencies related to the ICCD specification	SCP-TEC	INTERFACE,SMART CARD
62024	ETSI TS 102 225 V14.0.0 (2020-12)	Smart Cards; Secured packet structure for UICC based applications (Release 14)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62024	Automatic Upgrade	SCP-TEC	SECURITY,SMART CARD
62025	ETSI TS 102 225 V15.0.0 (2020-12)	Smart Cards; Secured packet structure for UICC based applications (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62025	Automatic Upgrade	SCP-TEC	SECURITY,SMART CARD

62026	ETSI TS 102 225 V16.0.1 (2020-12)	Smart Cards; Secured packet structure for UICC based applications (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62026	Minor editorial correction	SCP-TEC	SECURITY,SMART CARD
62027	ETSI TS 102 226 V14.0.0 (2020-12)	Smart Cards; Remote APDU structure for UICC based applications (Release 14)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62027	Automatic Upgrade	SCP-TEC	PROTOCOL,SMART CARD
62028	ETSI TS 102 226 V15.0.0 (2020-12)	Smart Cards; Remote APDU structure for UICC based applications (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62028	Automatic Upgrade	SCP-TEC	PROTOCOL,SMART CARD
62029	ETSI TS 102 226 V16.0.1 (2020-12)	Smart Cards; Remote APDU structure for UICC based applications (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62029	Minor editorial correction	SCP-TEC	PROTOCOL,SMART CARD
62030	ETSI TS 103 465 V16.2.1 (2020-12)	Smart Cards; Smart Secure Platform (SSP); Requirements Specification (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62030	Minor editorial correction	SCP-REQ	INTERFACE,secure element,SECURITY,UICC
61994	ETSI TS 103 465 V16.3.0 (2020-11)	Smart Cards; Smart Secure Platform (SSP); Requirements Specification (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61994	Implemented CRs after SCP #95, ref doc: SCP(20)000124: " Use cases and requirements on SSP remote management"	SCP-REQ	INTERFACE,secure element,SECURITY,UICC
61970	ETSI TS 102 221 V16.3.0 (2020-11)	Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61970	Implementation of CR after SCP#95. Ref doc SCP(20)000103r1 - Clarification of the scope of the UICC status of the SUSPEND UICC command	SCP-TEC	SMART CARD
61971	ETSI TS 103 666-1 V16.0.1 (2020-10)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61971	Editorial revisions to correct English typos	Smart Card Platform	M2M,MFF
61742	ETSI TS 103 666-1 V15.4.0 (2020-10)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61742	Implemented CRs after SCP#95. Ref doc SCP(20)000104 - Clarification on clause 7.3.2.3 Answer To Reset content	Smart Card Platform	M2M,MFF
61743	ETSI TS 103 713 V15.3.0 (2020-10)	Smart Secure Platform (SSP); SPI interface (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61743	Implemented CRs approved in SCP#94 and SCP#95. Ref doc SCP(20)000046r1 - Slave interface states SCP(20)000047r1 - MAC activation	SCP-TEC	M2M,MFF

					SCP(20)000106 - Power Modes Update		
61460	ETSI TS 103 666-1 V16.0.0 (2020-10)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61460	Implemented CRs after SCP#94. Ref doc SCP(20)000053 - Introduction of eSSP Type 1 Implemented CRs after SCP#95. Ref doc SCP(20)000105 - Clarification on clause 7.3.2.3 Answer To Reset content	Smart Card Platform	M2M,MFF
39889	ETSI TS 102 600 V10.1.0 (2020-09)	Smart Cards; UICC-Terminal interface; Characteristics of the USB interface (Release 10)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=39889	Implemented CRs approved in SCP#46. SCP document check for missing CRs in SCP#93 and SCP#94. Ref doc 017r2 - Addition of a UICC specifc descriptor 021r1 - Correction of inconsistencies related to the ICCD specification 022 - clarifications related to the ICCD specification 025 - UICC descriptors adaptation after power negotiation 026 - clarification of handling of device descriptors	SCP-TEC	INTERFACE,SMART CARD
61366	ETSI TS 102 412 V16.1.0 (2020-09)	Smart Cards; Smart Card Platform Requirements Stage 1 (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61366	Implemented Change Request after SCP#94 Ref document SCP(20)000084r1: additional requirement on UWB services	SCP-REQ	SMART CARD
61385	ETSI TS 103 666-2 V15.3.0 (2020-09)	Smart Secure Platform (SSP); Part 2: Integrated SSP (iSSP) characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61385	Implemented CRs after SCP#94. Ref doc SCP(20)000055 - Assurance levels of the PP and the SPBL SCP(20)000045r1 - Clarification of the use of "user intent"/"user consent" SCP(20)000043r1 - Clarification on additional extension fields for certificate SCP(20)000044r1 - Capability exchange clarification SCP(20)000056r1 - SPB state retrieval SCP(20)000057r1 - Clarification on the certification path verification	Smart Card Platform	M2M,MFF
61365	ETSI TS 103 666-1 V15.3.0 (2020-09)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61365	Implemented CRs after SCP#94. Ref doc SCP(20)000038 - Loopback gate flow control data ack SCP(20)000039 - Terminal Capabilities enhancement SCP(20)000040 - Minor editorial changes SCP(20)000041 - SWP Completion SCP(20)000042 - SSP Capabilities enhancement SCP(20)000052 - APDU Commands Addition SCP(20)000054 - Clarification of the secure SCL message description	Smart Card Platform	M2M,MFF

59588	ETSI TS 103 666-3 V16.0.0 (2020-07)	Smart Secure Platform (SSP); Part 3: Embedded SSP (eSSP) Type 1 characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59588	SCP #89 ref SCP(19)000176r1 This work item creates specifications for the embedded Smart Secure Platform (eSSP Type 1 and Type 2), based on the requirements described in TS 103 465.	SCP-TEC	eSSP,SSP
59534	ETSI TS 102 412 V16.0.0 (2020-07)	Smart Cards; Smart Card Platform Requirements Stage 1 (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59534	Implemented Change Request after SCP#92 Ref document SCP(20)000014r1: Requirements on support of UWB services	SCP-REQ	SMART CARD
59500	ETSI TS 102 226 V16.0.0 (2020-07)	Smart Cards; Remote APDU structure for UICC based applications (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59500	Correction to definition of CASD Implemented CR after SCP #91 Ref contribution SCP(19)000233r1	SCP-TEC	PROTOCOL,SMART CARD
59501	ETSI TS 103 465 V15.2.0 (2020-06)	Smart Cards; Smart Secure Platform (SSP); Requirements Specification (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59501	The Work Item implements the CRs after SCP #90, #91 and #92 Ref contributions SCP(19)000270 : "integrated disable and enable an SPB command on Si3 interface" SCP(19)000260r1: "alignement with TR 102 216" SCP(20)091035: "update of the requirement on PFS" SCP(20)091037: "SSP activation code" SCP(20)000015r1: "Requirement on the local update of SPB metadata"	SCP-REQ	INTERFACE,secure element,SECURITY,UICC
59505	ETSI TS 103 465 V16.2.0 (2020-06)	Smart Cards; Smart Secure Platform (SSP); Requirements Specification (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59505	Implemented CRs after SCP #90, #91 and #92 Ref contributions: SCP(19)000284 : " Integrated disable and enable an SPB command on Si3 interface" SCP(19)000261r1: " alignement with TR 102 216" SCP(20)091036: "Clarification on perfect forward secrecy requirement" SCP(20)091040r1: " SSP activation code" SCP(20)000016r1: " Requirement on the local update of the SPB metadata"	SCP-REQ	INTERFACE,secure element,SECURITY,UICC
59533	ETSI TS 102 412 V15.0.0 (2020-06)	Smart Cards; Smart Card Platform Requirements Stage 1 (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59533	Automatic Update of TS 102 412 v14.0.0	SCP-REQ	SMART CARD
59499	ETSI TS 102 225 V16.0.0 (2020-06)	Smart Cards; Secured packet structure for UICC based applications (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59499	Alignement of definitions and abbreviations with TR 102 216 Implemented CR after SCP #91 Ref contribution SCP(19)000232r1	SCP-TEC	SECURITY,SMART CARD
59498	ETSI TS 102 224 V15.0.0 (2020-06)	Smart Cards; Security mechanisms for UICC based Applications Functional requirements (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59498	Alignment of definitions and abbreviations with TR 102.216. Implemented CR after SCP #90. Ref doc SCP(19)000268r1	SCP-REQ	SECURITY,SMART CARD

59470	ETSI TS 103 666-2 V15.2.0 (2020-06)	Smart Secure Platform (SSP); Part 2: Integrated SSP (iSSP) characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59470	Technical realisation of this specific Class	Smart Card Platform	M2M,MFF
59452	ETSI TS 103 713 V15.2.0 (2020-05)	Smart Secure Platform (SSP); SPI interface (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59452	The present document describes the SPI interface for the communication of an SSP, as defined in TS 103 666-1 [1] using the SCL protocol.	SCP-TEC	M2M,MFF
59447	ETSI TS 102 221 V15.5.0 (2020-05)	Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59447	Implementation of CRs	SCP-TEC	SMART CARD
59448	ETSI TS 102 221 V16.2.0 (2020-05)	Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59448	Implementation of CRs	SCP-TEC	SMART CARD
59412	ETSI TS 103 666-1 V15.2.0 (2020-04)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59412	Development of the technical realisation of the generic requirements of SSP as defined by the requirements in TS 103 465.	Smart Card Platform	M2M,MFF

59259	ETSI TS 103 465 V16.1.0 (2020-03)	Smart Cards; Smart Secure Platform (SSP); Requirements Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59259	Scope of work to be undertaken: The current specification of the (e)UICC is based on the ISO/IEC 7816 series of specifications for IC-cards. This series of specifications has been developed in 1980s and was suitable at that point in time but today limits the capabilities that are required by the market. The current (e)UICC specifications also link the form factor to the electrical interface and the logical protocol. This link limits the (e)UICC implementations to specified form factors. New requirements are emerging, for example inspired from embedded secure elements in terminals that are intended to provide security services or store data securely. Such embedded secure elements may come in different form factors and are intended to be integrated into the terminals architecture and using other electrical and physical interfaces than those used by the (e)UICC. Such secure elements could also provide the capability to store large amount of data to be protected which requires new and more efficient ways to store and manage data. The scope of the work is to collect and define requirements for the (e)UICC to evolve to be used as a more generic secure element in various areas and taking into account state of the art technologies. The work includes the following aspects: - Improvement of existing physical/electrical interface and/or logical interface or definition of new ones for removable and non-removable secure elements. - Definition of a framework for new flexible ETSI form factors for a secure element (for non-removable secure elements, interoperability may not be required in terms of physical dimensions, pin locations and physical/electrical interface).Definition of new data structures being able to handle large amount of data in a secure way. Potential impacts on the use of APDUs and maintaining the ability to transport them as well as impact on the SWP/HCI interface and protocols shall be taken into account, including potential separation of layers in line with the ISO/OSI layer model. The work shall also provide secure element configurations (i.e. sets of specific choices of options e.g. regarding physical form factor, electrical interface, data structure, etc) that include the logical interface, physical interface or the binding to physical layer protocols and hardware platforms. These configurations shall also provide the possibility for a certification against existing certification schemes, e.g. common criteria. Such configurations shall cover at least: - use as an (e)UICC and providing at least the same security level (e.g. according to an applicable Protection Profile such as BSI-CC-PP-0089-2015). - an optimized configuration for IoT (e.g. for future 3GPP 5G or oneM2M). The solutions defined in this work item shall be able to fulfil the security requirements of the applications for which they are intended. Note; (e)UICC means UICC and/or eUICC	SCP-REQ	INTERFACE,secure element,SECURITY,UICC
59210	ETSI TS 103 666-2 V15.1.0 (2020-02)	Smart Secure Platform (SSP); Part 2: Integrated SSP (iSSP) characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59210	Technical realisation of this specific Class	Smart Card Platform	M2M,MFF

59199	ETSI TS 102 241 V16.1.0 (2020-02)	Smart Cards; UICC Application Programming Interface (UICC API) for Java Card (TM) (Release 16)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59199	Implementation of pending CRs	SCP-TEC	API,SMART CARD
59200	ETSI TS 102 241 V15.3.0 (2020-02)	Smart Cards; UICC Application Programming Interface (UICC API) for Java Card (TM) (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59200	Implementation of pending CRs	SCP-TEC	API,SMART CARD
59204	ETSI TS 103 713 V15.1.0 (2020-02)	Smart Secure Platform (SSP); SPI interface (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59204	The present document describes the SPI interface for the communication of an SSP, as defined in TS 103 666-1 [1] using the SCL protocol.	SCP-TEC	M2M,MFF
59137	ETSI TS 103 666-1 V15.1.0 (2020-01)	Smart Secure Platform (SSP); Part 1: General characteristics (Release 15)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59137	Development of the technical realisation of the generic requirements of SSP as defined by the requirements in TS 103 465.	Smart Card Platform	M2M,MFF
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
50120	ETSI EN 301 444 V2.2.1 (2021-02)	Satellite Earth Stations and Systems (SES); Land Mobile Earth Stations (LMES) and Maritime Mobile Earth Stations (MMES) providing voice and/or data communications, operating in the 1,5 GHz and 1,6 GHz frequency bands; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=50120	To improve receiver performance requirements in line with the anticipated development of IMT/LTE below 1518 MHz. (If feasible to take on board EC comments in the present WI otherwise addressed by separate WI)	SES WG on R&TTE dir. 99/5/EC and and RED dir. 2014/53/EU	EARTH STATION,LMES,REGULATION,SATELLITE
54047	ETSI EN 303 413 V1.2.1 (2021-02)	Satellite Earth Stations and Systems (SES); Global Navigation Satellite System (GNSS) receivers; Radio equipment operating in the 1 164 MHz to 1 300 MHz and 1 559 MHz to 1 610 MHz frequency bands; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54047	To add clauses on Receiver Sensitivity and Co-channel rejection.	Satellite Communications and Navigation	GNSS,Harmonised standard,NAVIGATION,RECEIVER,SATELLITE
56941	ETSI EN 303 981 V1.2.0 (2021-02)	Satellite Earth Stations and Systems (SES); Fixed and in-motion Wide Band Earth Stations communicating with non-geostationary satellite systems (WBES) in the 11 GHz to 14 GHz frequency bands; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56941	The proposed standard, similar to EN303980, will update the technical characteristics envelope to accommodate other designs of terminals operating in the same bands. The proposed document will cover the essential requirements of article 3.2 of Directive 2014/53/EU. At conclusion, TC-SES may decide to incorporate the material as revisions to EN303980 or to adopt it as a new standard.	SES WG on R&TTE dir. 99/5/EC and and RED dir. 2014/53/EU	BROADBAND,EARTH STATION,MOBILE,REGULATION,SATELLITE
58933	ETSI EN 303 980 V1.2.0 (2021-02)	Satellite Earth Stations and Systems (SES); Fixed and in-motion Earth Stations communicating with non-geostationary satellite systems (NEST) in the 11 GHz to 14 GHz frequency bands; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58933	Revision of the EN to take into account comments from the EC.	SES WG on R&TTE dir. 99/5/EC and and RED dir. 2014/53/EU	BROADBAND,EARTH STATION,MOBILE,REGULATION,SATELLITE
57989	ETSI EN 303 699 V1.1.1 (2021-02)	Satellite Earth Stations and Systems (SES); Fixed earth stations communicating with non-geostationary satellite systems in the 20 GHz and 30 GHz FSS bands; Harmonised Standard for access to radio spectrum	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57989	A harmonized standard under the Radio Equipment Directive will be created. The standard will apply to equipment according to the formal title. Existing standard ETSI EN 303 379 will be considered as basis for the new standard.	SES WG on R&TTE dir. 99/5/EC and and RED dir. 2014/53/EU	ANTENNA,EARTH STATION,FSS,Harmonised standard,NON-GSO,REGULATION,SATELLITE

51021	ETSI EN 302 186 V2.2.0 (2021-01)	Satellite Earth Stations and Systems (SES); Satellite mobile Aircraft Earth Stations (AESs) operating in the 11/12/14 GHz frequency bands; Harmonised Standard for access to radio spectrum	On Approval	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51021	Revision of the EN 302 186 to address comments from the EC and including specifications applicable for aircraft earth stations operating in the 12.75 â€“ 13.25 GHz taking into account the new Radio Equipment Directive (RED).	SES WG on R&TTE dir. 99/5/EC and and RED dir. 2014/53/EU	AERONAUTICAL,AIR INTERFACE,AMSS,EARTH STATION,FSS,GSO,MOBILE,MSS,REGULATION,SATELLITE
58911	ETSI TS 103 246-1 V1.3.1 (2020-10)	Satellite Earth Stations and Systems (SES); GNSS based location systems; Part 1: Functional requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58911	Addition to existing GBLS Standard, part 1, of GNSS Navigation Message Authentication (NMA) information	Satellite Communications and Navigation	FUNCTIONAL,GNSS,LOCATION,NAVIGATION,RECEIVER,Requirements,SATELLITE,SYSTEM,TERMINAL
58912	ETSI TS 103 246-2 V1.3.1 (2020-10)	Satellite Earth Stations and Systems (SES); GNSS based location systems; Part 2: Reference Architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58912	Addition to existing GBLS Standard, part 2, of GNSS Navigation Message Authentication (NMA) information	Satellite Communications and Navigation	ARCHITECTURE,GNSS,LOCATION,MSS,NAVIGATION,RECEIVER,SATELLITE,SYSTEM,TERMINAL
58913	ETSI TS 103 246-3 V1.3.1 (2020-10)	Satellite Earth Stations and Systems (SES); GNSS based location systems; Part 3: Performance requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58913	Addition to existing GBLS Standard, part 3, of GNSS Navigation Message Authentication (NMA) information	Satellite Communications and Navigation	GNSS,LOCATION,NAVIGATION,PERFORMANCE,RECEIVER,SATELLITE,SYSTEM
58914	ETSI TS 103 246-4 V1.3.1 (2020-10)	Satellite Earth Stations and Systems (SES); GNSS based location systems; Part 4: Requirements for location data exchange protocols	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58914	Addition to existing GBLS Standard, part 4, of GNSS Navigation Message Authentication (NMA) information	Satellite Communications and Navigation	GNSS,LOCATION,MSS,NAVIGATION,PERFORMANCE,RECEIVER,SATELLITE,SYSTEM,TERMINAL
58915	ETSI TS 103 246-5 V1.3.1 (2020-10)	Satellite Earth Stations and Systems (SES); GNSS based location systems; Part 5: Performance Test Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58915	Addition to existing GBLS Standard, part 5, of GNSS Navigation Message Authentication (NMA) information	Satellite Communications and Navigation	GNSS,LOCATION,MSS,NAVIGATION,PERFORMANCE,RECEIVER,SATELLITE,SYSTEM,TERMINAL
48242	ETSI TR 103 611 V1.1.1 (2020-06)	Satellite Earth Stations and Systems (SES); Seamless integration of satellite and/or HAPS (High Altitude Platform Station) systems into 5G and related architecture options	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=48242	Identification of 5G systems architecture integrating satellite and/or HAPS systems (communication and/or navigation) for relevant use cases. The intent is to prepare the necessary standardisation activity in relation to relevant satellite (communication and/or navigation) technologies.	Satellite Communications and Navigation	5G,cellular,HAPS,NAVIGATION,RADIO,SATELLITE,use case
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
57470	ETSI TR 103 711 V1.1.1 (2020-10)	Smart Body Area Network (SmartBAN); Applying SmartBAN MAC (ETSI TS 103 325) for various use-cases	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57470	The WI is focused on the exploitation of the reference SmartBAN MAC for various use-cases, i) provide detailed requirements of the use-cases ii) corresponding execution and optimizations in SmartBAN MAC.	Smart Body Area Network	MAC
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
57866	ETSI TR 103 674 V1.1.1 (2021-02)	SmartM2M; Artificial Intelligence and the oneM2M architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57866	Detailed description of selected use cases and identification of architectural evolutions (components, required mappings, etc.) to the oneM2M framework.	Smart M2M	ARCHITECTURE,artificial intelligence,IoT,oneM2M

62296	ETSI TS 103 757 V1.1.2 (2021-01)	SmartM2M; Asynchronous Contact Tracing System; Fighting pandemic disease with Internet of Things (IoT)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62296	Asynchronous Contact Tracing (ACT) traces the IoT connected object that may have been infected by the Covid-19 virus (or future pandemic viruses). This shifts the paradigm, from searching for a person in the process of infecting another to the tracing of both potential contamination and infections, and leveraging on the combination of the two information. The scope of this WI is to standardize the full support of Asynchronous Contact Tracing (ACT) by means of 1) providing some examples of use and deployment of ACT by means of a few explanatory use cases. 2) specifying the ACT method and its interaction with deployed contact tracing applications for human and systems. This includes the interaction with the different technologies used by non ACT contact tracing solutions. 3) specifying the ACT system including application protocols and API. The new ACT method will require the use of existing ready-to-market IoT-based technology and well-established wireless network techniques, in particular the ones specified in the ETSI standards ecosystem. Moreover, it will preserve the user's privacy in accordance with GDPR and/or other regional requirements not requiring the transmission of any personal information by the user.	Smart M2M	Application,application layer,Covid,IoT,oneM2M,Pandemic,SAREF,Semantic,SERVICE
57867	ETSI TR 103 675 V1.1.1 (2020-12)	SmartM2M; AI for IoT: A Proof of Concept	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57867	Detailed description of the use cases design and implementation; instructions for the (re-)creation of the prototypes from the selected framework and components; lessons learned.	Smart M2M	ARCHITECTURE,artificial intelligence,IoT,oneM2M
58447	ETSI TR 103 715 V1.1.1 (2020-11)	SmartM2M; Study for oneM2M; Discovery and Query solutions analysis & selection	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58447	This work will identify, define and analyse relevant approaches with respect to the use cases and requirements developed in DTR/SmartM2M-123150. The most appropriate one will be selected. The need to plug in the solution on the oneM2M standard will drive the solution analysis, to determine the best approach to be followed. The activity will also look to the query and discovery mechanisms already available, starting from the ones defined by ETSI (e.g. the one included in NGSI-LD) to extract (and potentially adapt) the applicable components and to ensure a smooth interworking with non-oneM2M solutions.	Smart M2M	INTEROPERABILITY,IoT,oneM2M,SAREF,Semantic
57865	ETSI TS 103 673 V1.1.1 (2020-08)	SmartM2M; SAREF Development Framework and Workflow, Streamlining the Development of SAREF and its Extensions	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57865	To define the development workflow of SAREF based on the ETSI forge. The development workflow defines the different types of issues (labels), the development workflow (branches and merge requests) and the decision process for accepting merge requests by the SmartM2M. This deliverable will enable the SAREF developers to speed up the development of SAREF and its extensions.	Smart M2M	DATA,IoT,M2M,oneM2M,ontology,Open Source Software,SAREF,Semantic,software

58446	ETSI TR 103 714 V1.1.1 (2020-07)	SmartM2M; Study for oneM2M Discovery and Query use cases and requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58446	this work will identify additional requirements to be potentially submitted to oneM2M in the areas of discovery and query languages (syntax and semantic), by means of the development of relevant use cases. As a minimum, this work should include discovery of specific information and of aggregated information, and interaction with external sources of data and queries. The oneM2M architecture, the oneM2M semantic approach, the current oneM2M capabilities and SAREF will be at the basis of these use cases and requirements.	Smart M2M	INTEROPERABILITY,IoT,oneM2M,SAREF,Semantic
51402	ETSI TS 103 410-7 V1.1.1 (2020-07)	SmartM2M; Extension to SAREF; Part 7: Automotive Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51402	Specify an initial extension to SAREF to include the semantic model for Automotive. This initial extension will be based on a limited set of use cases and available existing data models identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI and oneM2M. Further extensions are envisaged in the future to cover entirely the Automotive domain.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic,TRANSPORT
51404	ETSI TS 103 410-8 V1.1.1 (2020-07)	SmartM2M; Extension to SAREF; Part 8: eHealth/Ageing-well Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51404	Specify an initial extension to SAREF to include the semantic model for eHealth/Ageing-well. This initial extension will be based on a limited set of use cases and available existing data models identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular EP eHealth and TC smartBAN) and oneM2M. Further extensions are envisaged in the future to cover entirely the eHealth/Ageing-well domain.	Smart M2M	AGEING,HEALTH,IoT,oneM2M,ontology,SAREF,Semantic
51406	ETSI TS 103 410-9 V1.1.1 (2020-07)	SmartM2M; Extension to SAREF; Part 9: Wearables Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51406	Specify an initial extension to SAREF to include the semantic model for Wearables. This initial extension will be based on a limited set of use cases and available existing data models identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN) and oneM2M. Further extensions are envisaged in the future to cover entirely the Wearables domain.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic,Wearable
53015	ETSI TS 103 410-10 V1.1.1 (2020-07)	SmartM2M; Extension to SAREF; Part 10: Water Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53015	Specify an initial extension to SAREF to include the semantic model for the Water domain. This initial extension will be based on a limited set of use cases and available existing data models identified in the corresponding requirements TR and based upon the results of the ICT4WATER cluster.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic,Smart Watering

59446	ETSI TS 103 548 V1.1.2 (2020-06)	SmartM2M; SAREF consolidation with new reference ontology patterns, based on the experience from the SEAS project	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59446	he SEAS reference ontology patterns can be instantiated to create ontologies with homogeneous and predictable structures for the modelling and the description of any kind of engineering-related data/information/systems. The SEAS reference ontology patterns extend and are aligned to the core of the following ontologies: W3C&OGC SOSA (Sensing, Observation, Sampling and Actuation) and SSN (Semantic Sensor Network), QUDT (Quantity, Unit, Dimension and Type) and SAREF (Smart Applications REFerence). The SEAS ontology patterns are applicable to multiple engineering-related verticals such as Smart Grids, Micro Grids, Smart Home, Smart Building, Electric Mobility, Industry of the Future/Industry 4.0, including all their field devices/processes/systems, measurements, environment, actors/players and their relations, as well as flexibility/trading/business related aspects. The scope of the present document is to consolidate the SAREF ontology, and all the relevant SAREF extensions, adapting the SEAS reference ontology patterns, in order to achieve higher semantic interoperability.	Smart M2M	DATA,INTEROPERABILITY,IoT,oneM2M,ontology,SAREF,Semantic
59268	ETSI TS 103 410-6 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 6: Smart Agriculture and Food Chain Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59268	Specify an initial extension to SAREF to include the semantic model for smart agriculture and food chain domain. This initial extension will be based on a limited set of use cases and available existing data model identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots and with ETSI activities in the smart agriculture and food chain domain. Futher extensions are envisaged in future to cover entirely the smart agriculture and food chain domain.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic
59269	ETSI TS 103 410-5 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 5: Industry and Manufacturing Domains	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59269	Specify an initial extension to SAREF to include the semantic model for extension to industry and manufacturing domains, including deployment and related services aspects. . This initial extension will be based on a limited set of use cases and available existing data model identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots and with ETSI activities in these domains. Further extensions are envisaged in the future to cover entirely these domains.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic

59270	ETSI TS 103 410-4 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 4: Smart Cities Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59270	Specify an initial extension to SAREF to include the semantic model for Smart Cities This initial extension will be based on a limited set of use cases and available existing data model identified in the corresponding requirement TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots and with ETSI activities in the Smart Cities, primarily ISG CIM. Use cases and related semantic model are expected to be aligned with corresponding work in CIM. Further extensions are envisaged in future to cover entirely the Smart Cities domain.	Smart M2M	IoT,oneM2M,ontology,SAREF,Semantic,smart city
59271	ETSI TS 103 410-3 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 3: Building Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59271	This work will extend the Smart Appliances reference ontology as defined in TS 103 264. The objective is to include input from the Building Domain actors. This specification is defined as an extension of TS 103 264. Note: DTS/SmartM2M-103271SAREF-EXT-EXT (TS 103 410) work item was split as follows TS 103 410-1 on SAREF for Energy TS 103 410-2 on SAREF for Environment TS 103 410-3 on SAREF for Building and a contribution to TS 103 264 (V2.1.1) on oneM2M mapping	Smart M2M	data sharing,IoT,M2M,ontology,SAREF
59272	ETSI TS 103 410-2 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 2: Environment Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59272	This work will extend the Smart Appliances reference ontology as defined in TS 103 264. The objective is to include input from the Environment Domain actors. This specification is defined as an extension of TS 103 264. Note: DTS/SmartM2M-103271SAREF-EXT-EXT (TS 103 410) work item was split as follows TS 103 410-1 on SAREF for Energy TS 103 410-2 on SAREF for Environment TS 103 410-3 on SAREF for Building and a contribution to TS 103 264 (V2.1.1) on oneM2M mapping	Smart M2M	data sharing,IoT,M2M,ontology,SAREF
59273	ETSI TS 103 410-1 V1.1.2 (2020-05)	SmartM2M; Extension to SAREF; Part 1: Energy Domain	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59273	This work will extend the Smart Appliances reference ontology as defined in TS 103 264. The objective is to include input from the Energy Domain actors. This specification is defined as an extension of TS 103 264. Note: DTS/SmartM2M-103271SAREF-EXT-EXT (TS 103 410) work item was split as follows TS 103 410-1 on SAREF for Energy TS 103 410-2 on SAREF for Environment TS 103 410-3 on SAREF for Building and a contribution to TS 103 264 (V2.1.1) on oneM2M mapping	Smart M2M	data sharing,IoT,M2M,ontology,SAREF

52903	ETSI TR 103 546 V1.1.1 (2020-04)	SmartM2M; Requirements & Feasibility study for Smart Lifts in IoT	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=52903	To facilitate the potential preparation of a standard for Smart Lifts collecting and developing type and range of data which might be exchanged between lifts and their relevant management applications. It also includes information about the monitoring of the activities and the performance of such lifts, including the possible interaction with the rest of the IoT devices and applications. The information analyzed include: - the combination of the data exchanged and the possible widening of the current types and range, - the current means, protocols and platforms applied for such exchange of information, - the generally applied levels of access authorization, - the means of data analyzing, formatting and storage, - the other possible users for some of the available information currently collected.	Smart M2M	data preservation,data sharing,INFORMATION MODEL,IoT,oneM2M,SAREF
57974	ETSI SR 003 680 V1.1.1 (2020-03)	SmartM2M; Guidelines for Security, Privacy and Interoperability in IoT System Definition; A Concrete Approach	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57974	Providing guidelines for Security, Privacy and Interoperability in IoT System Definition based on the analysis of representative use cases	Smart M2M	INTEROPERABILITY,IoT,IoT platforms,oneM2M,privacy,SAREF,SECURITY,Semantic
57501	ETSI TS 103 264 V3.1.1 (2020-02)	SmartM2M; Smart Applications; Reference Ontology and oneM2M Mapping	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57501	SAREF standard suite has been developed in collaboration with the European Commission and extended with the support of the different sectors' stakeholders. This WI will evolve the core specification according to the SAREF sectors' developments. It will also align the oneM2M mapping to the latest oneM2M developments.	Smart M2M	DATA,IoT,M2M,oneM2M,ontology,SAREF,Semantic
57502	ETSI TS 103 267 V2.1.1 (2020-02)	SmartM2M; Smart Applications; Communication Framework	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57502	Alignment of the SAREF communication framework to oneM2M latest developments.	Smart M2M	DATA,data sharing,IoT,M2M,Model,ontology,SAREF,Semantic
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
57467	ETSI TS 103 801 V1.1.1 (2020-11)	Speech and multimedia Transmission Quality (STQ); Subjective test methodologies for the evaluation of echo control systems	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57467	The present document provides test methodologies for the subjective assessment of disturbances caused by echo control systems in speech communication devices. The listening test design takes the self-hearing of the far-end talker into account, which influences the assessment of perceived degradation. Adapted test procedures for single- and double-talk scenarios as well as a reference system with controlled degradation are taken into account. In addition, guidelines for the recording and preparation of listening test stimuli are provided.	Speech and multimedia Transmission Quality	Conversation,Double talk,ECHO,impairment,listening quality,test
58468	ETSI TR 103 702 V1.1.1 (2020-11)	Speech and multimedia Transmission Quality (STQ); QoS parameters and test scenarios for assessing network capabilities in 5G performance measurements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58468	The present document describes QoS Parameters and test scenarios for assessing network capabilities in 5G performance measurements	STQ Mobile	5G,DATA,LTE,LTE-Advanced,Measurement,PERFORMANCE,QoE,QoS,SERVICE,test

56397	ETSI TS 103 640 V1.1.1 (2020-09)	Speech and multimedia Transmission Quality (STQ); Test Methods and Performance Requirements for Active Noise Cancellation Headsets and other Earphones	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56397	The present document specifies test methods, technical parameters and performance requirements for assessment of the Quality of Experience when using Active Noise Cancellation Headsets with speech and music content.	Speech and multimedia Transmission Quality	Earphones,Ear-Worn Devices,Headphones,Noise Cancellation
59252	ETSI TS 103 558 V1.2.1 (2020-08)	Speech and multimedia Transmission Quality (STQ); Methods for objective assessment of listening effort	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59252	The present document specifies methods for the objective prediction of listening effort (and eventually listening quality) at the near-end side for the following two scenarios: 1) at acoustical interfaces in the presence of background noise 2) at electrical interfaces aiming at the effects of noise that originates from the transmission chain or from the send side. The work is based on the results of subjective studies. Normal hearing listeners are considered. The revision of the TS is to extend the scope to include active noise cancelling headsets and mobile handheld handsfree and to add an annex on the results of the STF 575 dealing with subjective tests on listening effort.	Speech and multimedia Transmission Quality	assessment,listening effort,Model
51392	ETSI TS 103 504 V1.1.1 (2020-07)	Speech and multimedia Transmission Quality (STQ); Methods and procedures for evaluating performance of voice-controlled devices and functions: far talk voice assistant devices	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=51392	The present document specifies a methodology for repeatable characterization of voice assistant devices and functions, including: input speech signals and geometric relations of talkers and devices; control of acoustic environment; control of background noise signals; response measures and their collection and statistical analyses.	Speech and multimedia Transmission Quality	accessibility,assessment,PERFORMANCE,QUALITY,usability
54796	ETSI ES 202 740 V1.8.1 (2020-05)	Speech and multimedia Transmission Quality (STQ); Transmission requirements for wideband VoIP loudspeaking and handsfree terminals from a QoS perspective as perceived by the user	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54796	The present document provides speech transmission performance requirements for 8 kHz wideband VoIP loudspeaking and hands-free terminals; it addresses all types of IP based terminals, including wireless, softphones and group audio terminals. This revision incorporates the newest updates of Recommendation ITU-T P.863, error corrections and introduces new test methods and measurements.	Speech and multimedia Transmission Quality	HANDSFREE,LOUDSPEAKING,QUALITY,SPEECH,TERMINAL,VoIP,Wideband
54797	ETSI ES 202 718 V1.4.1 (2020-05)	Speech and multimedia Transmission Quality (STQ); Transmission Requirements for IP-based Narrowband and Wideband Home and Network Media Gateways from a QoS Perspective as Perceived by the User	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54797	The present document provides speech transmission performance requirements for narrowband and wideband media gateways from a QoS perspective as perceived by the user. This revision incorporates the newest updates of Recommendation ITU-T P.863, error corrections and introduces new test methods and measurements.	Speech and multimedia Transmission Quality	QoS,SPEECH
54793	ETSI ES 202 737 V1.8.1 (2020-05)	Speech and multimedia Transmission Quality (STQ); Transmission requirements for narrowband VoIP terminals (handset and headset) from a QoS perspective as perceived by the user	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54793	The present document provides speech transmission performance requirements for 4 kHz narrowband VoIP handset and headset terminals; it addresses all types of IP based terminals, including wireless and soft phones. This revision incorporates the newest updates of Recommendation ITU-T P.863, error corrections and introduces new test methods and measurements.	Speech and multimedia Transmission Quality	narrowband,QUALITY,SPEECH,TELEPHONY,TERMINAL,VoIP

54794	ETSI ES 202 738 V1.8.1 (2020-05)	Speech and multimedia Transmission Quality (STQ); Transmission requirements for narrowband VoIP loud-speaking and handsfree terminals from a QoS perspec-tive as perceived by the user	Published	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=54794	The present document provides speech transmission performance requirements for narrowband VoIP loudspeaking and hands-free terminals; it addresses all types of IP based terminals, including wireless, softphones and group audio terminals. This revision incorporates the newest updates of Recommendation ITU-T P.863, error corrections and introduces new test methods and measurements.	Speech and multimedia Transmission Quality	HANDS-FREE,LOUDSPEAKING,narrowband,QUALITY,SPEECH,TERMINAL,VoIP
54795	ETSI ES 202 739 V1.8.1 (2020-05)	Speech and multimedia Transmission Quality (STQ); Transmission requirements for wideband VoIP terminals (handset and headset) from a QoS perspective as per-ceived by the user	Published	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=54795	The present document provides speech transmission performance requirements for 8 kHz wideband VoIP handset and headset termi-nals; it addresses all types of IP based terminals, including wireless and soft phones. This revision incorporates the newest updates of Recommendation ITU-T P.863, error corrections and introduces new test methods and measurements.	Speech and multimedia Transmission Quality	QUALI-TY,SPEECH,TELEPHONY,TERMINAL,VoIP,Wideband
58659	ETSI TS 103 557 V1.3.1 (2020-03)	Speech and multimedia Transmission Quality (STQ); Methods for reproducing reverberation for communica-tion device measurements	Published	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=58659	This work specifies methodologies for simulating reverberation conditions, including speech signals, characteristic transfer functions and geometric relations of talkers and devices, as well as the control of room acoustic parameters. Such methodologies are to be used for the measurement of communication devices. This revision is to add additional impulse responses to the database and clearly defining DUT positioning within reproduction environ-ment.	Speech and multimedia Transmission Quality	QUALI-TY,Reverberation,Simulation,SPEECH,TERMINAL,TESTING
58658	ETSI TS 103 224 V1.5.1 (2020-03)	Speech and multimedia Transmission Quality (STQ); A sound field reproduction method for terminal testing including a background noise database	Published	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=58658	A sound field reproduction technique is described allowing the physical reproduction of real, prerecorded sound fields in a laborato-ry type environment. In contrast to other methodologies the tech-nique is targeted to reproduce the spectral, temporal and spatial characteristics of sound fields. The method is intended to be used for testing modern type of terminals including advanced signal pro-cessing techniques including multi-microphone and array technolo-gies. A background noise database is supplied with the standard taking into account types of background noise included in EG 202 396-1. This revision is to add additional background noise to the database and to improve C80 measurement description.	Speech and multimedia Transmission Quality	NOISE,QUALITY,SPEECH,TERMINAL
id	ETSI deliver-able	title	Status	Details link	Scope	Technical body	Keywords
61980	ETSI TS 103 564 V1.4.1 (2021-01)	PlugtestsTM scenarios for Mission Critical Services	Published	http://webapp.etsi.org/work pro-gram/Report_WorkItem.asp ?WKI_ID=61980	To add new Mission Critical Services test cases based on 3GPP Rel-15 to TS 103 564. New test cases were added for MCPTT, MCData, MCVideo, Functional Alias, MultiTalker, and complex Interoperability scenarios based on 3GPP Release-15.	TETRA and Critical Com-munications Evolution	INTEROPERABILITY,mission critical communica-tion,TESTING

59531	ETSI TS 100 392-12-22 V1.5.1 (2020-10)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 22: Dynamic Group Number Assignment (DGNA)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59531	DGNA deassignment can be ignored if e.g. authentication of the SwMI has failed, or the Deassignment is received in clear while operating in security class 2 or 3. DGNA Assignment can be ignored for the same reasons. MS may reject a DGNA Deassignment of a pre-programmed group for operational or other reasons. In this case, the group may be permanently detached in the current SwMI. This change request updates the "Result of deassignment" information element table and other text to clarify this behaviour. It clarifies that the MS does not have to respond to Assign and De-assign requests in the event of an authentication failure or a security class mismatch.	TCCE Air Interface and Network Protocols	DATA,RADIO,SPEECH,STAGE 3,SUPPLEMENTARY SERVICE,TETRA,V+D
59278	ETSI TS 100 392-2 V3.9.2 (2020-06)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59278	Maintenance of TS 100 392-2. Corrections and editorial updates.	TCCE Air Interface and Network Protocols	AIR INTERFACE,RADIO,TETRA,V+D
56341	ETSI EN 300 392-3-8 V1.4.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 8: Generic Speech Format Implementation	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56341	Publication of TS 100 392-3-8 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	INTERWORKING,RADIO,TETRA,V+D
56342	ETSI EN 300 392-3-9 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 9: Transport layer independent, General design	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56342	Publication of TS 100 392-3-9 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	MANAGEMENT,MOBILITY,TETRA
56343	ETSI EN 300 392-3-10 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 10: General design, PSS1 over E.1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56343	Publication of TS 100 392-3-10 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	MANAGEMENT,MOBILITY,TETRA
56344	ETSI EN 300 392-3-11 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 11: General design, SIP/IP	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56344	Publication of TS 100 392-3-11 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	MANAGEMENT,MOBILITY,TETRA
56345	ETSI EN 300 392-3-12 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 12: Transport layer independent Additional Network Feature Individual Call (ANF-ISIIC)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56345	Publication of TS 100 392-3-12 as an EN, as requested by TB TCCE. Minor corrections that were identified during the DTS/TCCE-03243 work but not corrected due to lack of time.	TCCE Air Interface and Network Protocols	ANF,INTERWORKING,TETRA,V+D
56346	ETSI EN 300 392-3-13 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 13: Transport layer independent Additional Network Feature Group Call (ANF-ISIGC)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56346	Publication of TS 100 392-3-13 as an EN, as requested by TB TCCE. Minor corrections that were identified during the DTS/TCCE-03241 work but not corrected due to lack of time.	TCCE Air Interface and Network Protocols	MANAGEMENT,MOBILITY,TETRA

56347	ETSI EN 300 392-3-14 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 14: Transport layer independent Additional Network Feature Short Data Service (ANF-ISISDS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56347	Publication of TS 100 392-3-14 as an EN, as requested by TB TCCE. Minor corrections that were identified during the DTS/TCCE-03244 work but not corrected due to lack of time.	TCCE Air Interface and Network Protocols	ANF,INTERWORKING,SDS,TETRA,V+D
56348	ETSI EN 300 392-3-15 V1.2.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 15: Transport layer independent Additional Network Feature, Mobility Management (ANF-ISIMM)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56348	Publication of TS 100 392-3-15 as an EN, as requested by TB TCCE. Minor corrections that were identified during the DTS/TCCE-03242 work but not corrected due to lack of time.	TCCE Air Interface and Network Protocols	MANAGEMENT,MOBILITY,TETRA
56349	ETSI EN 300 392-1 V1.6.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 1: General network design	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56349	Publication of TS 100 392-1 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	AIR INTERFACE,TETRA,V+D
56350	ETSI EN 300 392-9 V1.7.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56350	Publication of TS 100 392-9 as an EN, as requested by TB TCCE. Minor corrections that were identified during the RTS/TCCE-03253 work but not corrected due to lack of time.	TCCE Air Interface and Network Protocols	SUPPLEMENTARY SERVICE,TETRA,V+D
56351	ETSI EN 300 392-5 V2.7.1 (2020-04)	Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D) and Direct Mode Operation (DMO); Part 5: Peripheral Equipment Interface (PEI)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56351	Publication of TS 100 392-5 as an EN, as requested by TB TCCE.	TCCE Air Interface and Network Protocols	DATA,INTERFACE,TETRA,V+D,VOICE
58837	ETSI TS 103 564 V1.3.1 (2020-03)	PlugtestsTM scenarios for Mission Critical Services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58837	The present document specifies interoperability tests with the purpose of supporting the Mission Critical services PlugtestsTM events.	TETRA and Critical Communications Evolution	INTEROPERABILITY,mission critical communication,TESTING
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
46713	ETSI TR 103 437 V1.1.1 (2020-11)	USER; Quality of ICT services; New QoS approach in a digital ecosystem	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=46713	Evaluation of reference values for users in order to identify their needs (SLO). These values also help to select the supplier in a competitive offer (QoS). This study will be based on a selection of representative telecommunication services such as video streaming , web RTC, and MMS, and not composed services such as authentication and load balancing, using EG 202 009-1, 2 and 3.	User Group	ICT,QoS,QUALITY,SERVICE,SLA,USER

Source: Assembled by author based on data from ETSI

SOURCE OF DATA:

1. ETSI. TECHNICAL COMMITTEE (TC) ACCESS, TERMINALS, TRANSMISSION AND MULTIPLEXING (ATTM). Available at: https://www.etsi.org/committee/1390-attm
2. ETSI. TECHNICAL COMMITTEE (TC) BROADBAND RADIO ACCESS NETWORKS (BRAN). Available at: https://www.etsi.org/committee/1389-bran
3. ETSI. JOINT TECHNICAL COMMITTEE (JTC) OF THE EUROPEAN BROADCASTING UNION (EBU), THE EUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION (CENELEC) AND ETSI. Available at: https://www.etsi.org/committee/1391-broadcast
4. ETSI. TECHNICAL COMMITTEE (TC) INTEGRATED BROADBAND CABLE TELECOMMUNICATION NETWORKS (CABLE). Available at: https://www.etsi.org/committee/1392-cable
5. ETSI. TECHNICAL COMMITTEE (TC) CYBER (CYBERSECURITY). Available at: https://www.etsi.org/committee/1393-cyber
6. ETSI. TECHNICAL COMMITTEE (TC) DIGITAL ENHANCED CORDLESS TELECOMMUNICATIONS (DECT). Available at: https://www.etsi.org/committee/1394-dect
7. ETSI. TECHNICAL COMMITTEE (TC) ENVIRONMENTAL ENGINEERING (EE). Available at: https://www.etsi.org/committee/1395-ee
8. ETSI PROJECT (EP) EHEALTH. Available at: https://www.etsi.org/committee/1396-ehealth
9. ETSI. SPECIAL COMMITTEE (SC) EMERGENCY TELECOMMUNICATIONS (EMTEL). Available at: https://www.etsi.org/committee/1397-emtel
10. ETSI. TECHNICAL COMMITTEE (TC) EMC AND RADIO SPECTRUM MATTERS (ERM). Available at: https://www.etsi.org/committee/1398-erm
11. ETSI. TECHNICAL COMMITTEE (TC) ELECTRONIC SIGNATURES AND INFRASTRUCTURES (ESI). Available at: https://www.etsi.org/committee/1399-esi
12. ETSI. TECHNICAL COMMITTEE (TC) HUMAN FACTORS (HF). Available at: https://www.etsi.org/committee/1400-hf
13. ETSI. TECHNICAL COMMITTEE (TC) CORE NETWORK AND INTEROPERABILITY TESTING (INT). Available at: https://www.etsi.org/committee/1401-int
14. ETSI. TECHNICAL COMMITTEE (TC) INTELLIGENT TRANSPORT SYSTEMS (ITS). Available at: https://www.etsi.org/committee/1402-its
15. ETSI. TECHNICAL COMMITTEE (TC) LAWFUL INTERCEPTION (LI). Available at: https://www.etsi.org/committee/1403-li
16. ETSI. TECHNICAL COMMITTEE (TC) MOBILE STANDARDS GROUP (MSG). Available at: https://www.etsi.org/committee/1404-msg
17. ETSI. TECHNICAL COMMITTEE (TC) METHODS FOR TESTING AND SPECIFICATION (MTS). Available at: https://www.etsi.org/committee/1405-mts
18. ETSI. TECHNICAL COMMITTEE (TC) NETWORK TECHNOLOGIES (NTECH). Available at: https://www.etsi.org/committee/1406-ntech
19. ETSI. ETSI OPEN SOURCE MANO (OSM). Available at: https://www.etsi.org/committee/1407-osm
20. ETSI. TECHNICAL COMMITTEE (TC) RECONFIGURABLE RADIO SYSTEMS (RRS). Available at: https://www.etsi.org/committee/1408-rrs
21. ETSI. TECHNICAL COMMITTEE (TC) RAIL TELECOMMUNICATIONS (RT). Available at: https://www.etsi.org/committee/1409-rt
22. ETSI. TECHNICAL COMMITTEE (TC) SAFETY (SAFETY). Available at: https://www.etsi.org/committee/1410-safety

23. ETSI. TECHNICAL COMMITTEE (TC) SMART CARD PLATFORM (SCP). Available at: https://www.etsi.org/committee/1411-scp
24. ETSI. TECHNICAL COMMITTEE (TC) SATELLITE EARTH STATIONS AND SYSTEMS (SES). Available at: https://www.etsi.org/committee/1412-ses
25. ETSI. TECHNICAL COMMITTEE (TC) SMART BODY AREA NETWORK (SMARTBAN). Available at: https://www.etsi.org/committee/1413-smartban
26. ETSI. TECHNICAL COMMITTEE (TC) SMART MACHINE-TO-MACHINE COMMUNICATIONS (SMARTM2M). Available at: https://www.etsi.org/committee/1414-smartm2m
27. ETSI. TECHNICAL COMMITTEE (TC) SPEECH AND MULTIMEDIA TRANSMISSION QUALITY (STQ). Available at: https://www.etsi.org/committee/1415-stq
28. ETSI. TECHNICAL COMMITTEE (TC) TERRESTRIAL TRUNKED RADIO AND CRITICAL COMMUNICATIONS EVOLUTION (TCCE). Available at: https://www.etsi.org/committee/1416-tcce
ETSI. SPECIAL COMMITTEE (SC) USER GROUP. Available at: https://www.etsi.org/committee/1417-user

Appendix 13. ETSI. Industry Specification Groups (ISG) Published Standards 2020-2021*

(*Latest update 14 February 2021)

id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
54070	ETSI GS ARF 003 V1.1.1 (2020-03)	Augmented Reality Framework (ARF) AR framework architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54070	This specification will define a new framework architecture for industrial AR applications and services. It will be driven by the requirements resulting from the two work items on AR use cases and standards landscape.	Augmented Reality Framework	API,ARCHITECTURE,Augmented Reality,Context capturing and analysis,Framework,Model,real time
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58288	ETSI GR CDM 001 V1.1.1 (2021-01)	Common Information Sharing Environment Service and Data Model (CDM); Use Cases definition	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58288	To define the use cases for the European Common Information sharing environment service and Data Model.	european Common information sharing environment service and Data Model	data sharing,MARITIME,SAFETY,SERVICE
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58943	ETSI GS CIM 009 V1.3.1 (2020-08)	Context Information Management (CIM); NGSI-LD API	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58943	This Group Specification provides additions and corrections to the GS-009 NGSI-LD API specification, based on feedback received from developers in the linked-data, internet-of-things, mobile-apps and smart-applications communities, as well as from end users and stakeholders.	cross-cutting Context Information Management	API,ARCHITECTURE,GAP,INFORMATION MODEL,INTEROPERABILITY,smart city,WoT
59454	ETSI GS CIM 004 V1.1.2 (2020-06)	Context Information Management (CIM); Application Programming Interface (API)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59454	The purpose of this Group Specification is the (preliminary) definition of a standard API for Context Information Management (CIM-API) enabling close to real-time access to information coming from many different sources (not only IoT). The document shall define how such an API enables applications to perform updates on context, register context providers which can be queried to get updates on context, query information on current and historic context information and subscribe for receiving notifications on context changes. The criteria for choice of the API characteristics shall be based on results in WI UC and WI GAP. This Group Specification is labelled "preliminary" because it should be published widely in order to elicit comment and critique from the user communities and their comments will be used to modify and improve the later final API specification. Accordingly a feedback process shall be described in this document. This Group Specification shall be compatible with an example data model published at the same time (see Work Item MOD0), so that implementers of appropriate software can efficiently test and compare results and interoperability.	cross-cutting Context Information Management	API,ARCHITECTURE,GAP,INFORMATION MODEL,INTEROPERABILITY,smart city

54474	ETSI GR CIM 008 V1.1.1 (2020-03)	Context Information Management (CIM); NGSI-LD Primer	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54474	The purpose of this Group Report is to explain with examples the usage of NGSI-LD information model and API, as defined in GS-004 prelimAPI, and considering also some use cases from GR-002 for ICT professionals. Worked examples are provided, with code fragments made available in a public repository. No changes in the GS-004 prelimAPI specification can be introduced or proposed in this document.	cross-cutting Context Information Management	API,INTEROPERABILITY,IoT,smart city
59238	ETSI GS CIM 009 V1.2.2 (2020-02)	Context Information Management (CIM); NGSI-LD API	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59238	This Group Specification provides additions and corrections to the GS-009 NGSI-LD API specification, based on feedback received from developers in the linked-data, internet-of-things, mobile-apps and smart-applications communities, as well as from end users and stakeholders.	cross-cutting Context Information Management	API,ARCHITECTURE,GAP,INFORMATION MODEL,INTEROPERABILITY,smart city,WoT
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59489	ETSI GR E4P 002 V1.1.1 (2021-02)	Europe for Privacy-Preserving Pandemic Protection (E4P); Comparison of existing pandemic contact tracing systems	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59489	This document provides a review of existing pandemic proximity detection methods, applications and other aspects of a pandemic contact tracing system. The similarities and differences of the various available or upcoming approaches are examined, particularly concerning but not limited to the degree of interoperability, security aspects, use of centralized or decentralized approach, use of particular proximity detection methods and technologies, support of different device platforms, epidemiological value and privacy aspects. The analysis also includes a grouping of various approaches into several similar types (e.g. centralized or decentralized system) and provides examples of use cases to which the approaches apply. The analysis is neutral in terms of technologies and use cases, however the focus is on cases involving proximity sensing and networking using mobile devices, and the applications and other technical enablers which can be installed on the devices. This document provides a basis for the analysis of suitable requirements for a standardised solution in Work Item D/E4P-003.	Europe for Privacy-Preserving Pandemic Protection	Covid,eHealth,emergency services,Identity,MOBILITY,Pandemic,privacy,SECURITY,smartphone
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58574	ETSI GS ENI 001 V3.1.1 (2020-12)	Experiential Networked Intelligence (ENI); ENI use cases	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58574	The WI will identify and describe additional use cases and scenarios that are enabled with enhanced experience, through the use of network intelligence, in particular the technologies studied in the new work items (e.g., intent networking) in the same phase of ENI. The specification will give the baseline on how the studies in ENI can be applied as solutions of the identified use cases in accordance with the ENI Reference Architecture, and will substantially benefit the operators and other stakeholders. In Release 2 the WI will add additional use cases, as well as the use of ENI in the network and for third parties, including the use of ENI in intent-based networks and capability exposure to third parties, and other aspects of ENI application as it evolves.	Experiential Networked Intelligence	artificial intelligence,MANAGEMENT,NETWORK,use case

58575	ETSI GS ENI 002 V3.1.1 (2020-12)	Experiential Networked Intelligence (ENI); ENI requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58575	This document specifies the requirements of how intelligence is applied to the network and applications in different scenarios to improve experience of service provision and network operation. Also, how intelligence enables dynamic autonomous behaviour and adaptive policy driven operation in a changing context. The ENI requirements are based on the ENI use case document and identified requirements from other SDOs. These requirements will form the base for the architecture design work. In Release 2 the WI will add: â€¢ Requirements derived from API descriptions â€¢ Requirements derived from System Architecture â€¢ Requirements derived from new use cases	Experiential Networked Intelligence	artificial intelligence,MANAGEMENT,NETWORK,Requirements
57071	ETSI GS ENI 006 V2.1.1 (2020-05)	Experiential Networked Intelligence (ENI); Proof of Concepts Framework	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57071	This Work Item specifies a framework for use within ETSI ENI ISG to coordinate and promote public demonstrations of Proof of Concept (PoC) validating key technical components developed in ENI. The objective for the PoCs is to build commercial awareness and confidence and encourage development of an open ecosystem by integrating components from different players. This framework outlines: â€¢ rationale for ENI ISG PoCs; â€¢ ENI ISG PoC process; â€¢ submission, format and criteria for ENI ISG PoC Proposals; â€¢ review and acceptance criteria of PoC Proposals; â€¢ ENI ISG PoC Report format and requirements; â€¢ ETSI support for PoC team. The present publication is revised to include; e.g.: â€¢ the ENI System Architecture, â€¢ the ENI new Requirements and Use Cases, â€¢ the ENI measurability criteria.	Experiential Networked Intelligence	INTEROPERABILITY,Proof of Concept,TESTING
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59242	ETSI GR F5G 002 V1.1.1 (2021-02)	Fifth Generation Fixed Network (F5G); F5G Use Cases Release #1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59242	This Work Item will study use cases of the 5th generation fixed network. The use cases include services to consumers and enterprises. The use cases will be used as input for gap analysis and technology landscape activities to extract technical requirements. The use cases will be selected based on their impact in terms of new technical requirements identified.	5th Generation Fixed Network	Customer Premises Networks,F5G,Fixed networks,use case
59240	ETSI GR F5G 001 V1.1.1 (2020-12)	Fifth Generation Fixed Network (F5G); F5G Generation Definition Release #1	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59240	This work item will study the driving forces and the path of fixed network evolution, including transport, access and on-premises networks. The WI will identify the principal characteristics demarcating different generations and define them.	5th Generation Fixed Network	definitions,F5G,Fixed networks
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

56774	ETSI GS MEC-DEC 032-1 V2.1.1 (2020-12)	Multi-access Edge Computing (MEC); API Conformance Test Specification; Part 1: Test Requirements and Implementation Conformance Statement (ICS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56774	Based on the testing methodology guidelines and framework specified in ETSI GR MEC 025, this work item develops part 1 of a multi-part conformance test specification for the MEC service APIs (currently MEC 012, 13, 14, 15, 16, 28, 29 & 30) and the MEC Application Enablement API (MEC 011). Part 1 will include the Test requirements and Implementation Conformance Statement (ICS).	Deployment and ECOsystem DEvelopment	API,CONFORMANCE,MEC,TESTING
56775	ETSI GS MEC-DEC 032-2 V2.1.1 (2020-12)	Multi-access Edge Computing (MEC); API Conformance Test Specification; Part 2: Test Purposes (TP)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56775	Based on the testing methodology guidelines and framework specified in ETSI GR MEC 025, this work item develops part 2 of a multi-part conformance test specification for the MEC service APIs (currently MEC 012, 13, 14, 15, 16, 28, 29 & 30) and the MEC Application Enablement API (MEC 011). Part 2 will include a Test Suite Structure (TSS) and Test Purposes (TPs) using the standardized notation TDL_TO.	Deployment and ECOsystem DEvelopment	API,CONFORMANCE,MEC,TESTING
56776	ETSI GS MEC-DEC 032-3 V2.1.1 (2020-12)	Multi-access Edge Computing (MEC); API Conformance Test Specification; Part 3: Abstract Test Suite (ATS)	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56776	Based on the testing methodology guidelines and framework specified in ETSI GR MEC 025, this work item develops part 3 of a multi-part conformance test specification for the MEC service APIs (currently MEC 012, 13, 14, 15, 16, 28, 29 & 30) and the MEC Application Enablement API (MEC 011). Part 3 will include an Abstract Test Suite (ATS) written in a machine-readable specification language.	Deployment and ECOsystem DEvelopment	API,CONFORMANCE,MEC,TESTING
57686	ETSI GS MEC 003 V2.2.1 (2020-12)	Multi-access Edge Computing (MEC); Framework and Reference Architecture	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57686	This Work Item addresses the necessary changes to correct errors and omissions within the specification as well modifications to align the MEC architecture with the other MEC specifications that are part of this MEC release.	Multi-access Edge Computing	ARCHITECTURE,MEC
58819	ETSI GS MEC 011 V2.2.1 (2020-12)	Multi-access Edge Computing (MEC); Edge Platform Application Enablement	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58819	This work item focuses on the enhancement and maintenance of Mp1 reference point between MEC applications and MEC platform, that allows those applications to interact with the MEC system. This includes both updating the existing features and defining new features, such as filling any gaps in support of other services (e.g., application mobility support). It will describe the information flows, required information, and as applicable, will specify the necessary operations, data model and data format.	Multi-access Edge Computing	API,MEC
56729	ETSI GR MEC 031 V2.1.1 (2020-10)	Multi-access Edge Computing (MEC) MEC 5G Integration	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56729	This work item documents the key issues and solutions for MEC integration in 5G networks. Particularly, the following aspects are addressed: MEC Application Function C-plane interactions with 5GC, including the mapping of MEC procedures to procedures used in 3GPP 5G system, options for functional split between MEC and 5G Common API frameworks, organization of MEC as Application Function(s) of 5G system and pertinent interactions with the (R)AN. In addition this work item addresses the scope and the preferred way of documenting the identified future technical work from this work item. Identification of any yet missing 5G system functionality is also in the scope of the study.	Multi-access Edge Computing	5G,MEC

59237	ETSI GS MEC 009 V2.2.1 (2020-10)	Multi-access Edge Computing (MEC); General principles, patterns and common aspects of MEC Service APIs	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59237	This Work Item develops a revision of ETSI GS MEC009 to correct errors and omissions within the specification (maintenance). Further, the Work Item intends to add to the document new principles, patterns and common functionali-ties that can be referenced from other MEC API specifica-tions.	Multi-access Edge Computing	API,MEC
58903	ETSI GS MEC 015 V2.1.1 (2020-06)	Multi-Access Edge Computing (MEC); Traffic Management APIs	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58903	This work item will extend the Bandwidth Management service (MEC-015) for supporting QoS and Multi-Access Traffic Steering (MTS) Management on MEC Platform. The new specification is referred to as â€œTraffic Management APIsâ€•, to support the following requirements: 1) MEC application to get informed of various MTS capabili-ties and multi-access network connection info available on the MEC platform 2) MEC application to provide indication and requirements, e.g. delay, throughput, loss, for influencing MTS operation	Multi-access Edge Computing	API,MANAGEMENT,MEC,QoS,TRAFFIC
53995	ETSI GS MEC 028 V2.1.1 (2020-06)	Multi-access Edge Computing (MEC); WLAN Information API	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=53995	This work item aims to specify a new MEC service on Wireless LAN Information. The document produced will describe the information flows, required information, and as applicable, will specify the necessary operations, data model and data format.	Multi-access Edge Computing	API,MEC,SERVICE,WLAN
54416	ETSI GS MEC 030 V2.1.1 (2020-04)	Multi-access Edge Computing (MEC); V2X Information Service API	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=54416	This work item intends to introduce a Vehicular-to-Everything (V2X) MEC service, in order to facilitate V2X interoperability in a multi-vendor, multi-network and multi-access environ-ment. It describes the V2X-related information flows, re-quired information and operations. The present document specifies the necessary API with the data model and data format.	Multi-access Edge Computing	API,MEC,SERVICE,V2X
58111	ETSI GS MEC 016 V2.2.1 (2020-04)	Multi-access Edge Computing (MEC); Device application interface	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=58111	This Work Item focuses on the enhancement and mainte-nance of the API for the device application interface over Mx2 reference point. This includes maintenance of the existing specification and updating it if necessary, as well as introducing new capabilities. It will describe the information flows, required information, and as applicable, will specify the necessary operations, data model and data format.	Multi-access Edge Computing	API,MEC
52994	ETSI GS MEC 021 V2.1.1 (2020-01)	Multi-access Edge Computing (MEC); Application Mobility Service API	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=52994	This work item will develop a specification for end-to-end ME application mobility support in a multi-access edge system. The specification shall describe information flows, required information, operations, and specify the application mobility service API.	Multi-access Edge Computing	Application,MEC,MOBILITY
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
54342	ETSI GR mWT 019 V1.1.1 (2020-02)	millimetre Wave Transmission (mWT); Error performance related evaluation in equip-ment	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=54342	The purpose of this WI is to produce a Group Report to provide information about metrics needed to describe the error performance realted aspects in radio equipment used for FS, including definition of metrics and description of necessary equipment implementation.In particular, aspects related to traditional systems will be summarized, while packet based radios aspects will be specified	millimetre Wave Transmission	MANAGE-MENT,metrics,mWT,PERFORMANCE

id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
58932	ETSI GS NFV 006 V2.1.1 (2021-01)	Network Functions Virtualisation (NFV) Release 2; Management and Orchestration; Architectural Framework Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58932	This work item will describe the NFV-MANO architectural framework (components and reference points). The initial work will be circumscribed to architectural concepts, figures, descriptions of components and references to the NFV Release 2 publications that specify the reference points. The resulting specification will contain normative provisions.	Network Functions Virtualisation	ARCHITECTURE,MANAGEMENT,MANO,NFV
61393	ETSI GS NFV-SOL 013 V3.4.1 (2021-01)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; Specification of common aspects for RESTful NFV MANO APIs	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=61393	This revision of NFV-SOL 013 continues the development of the specification as part of the NFV Release 3. This edition will add requirements and specification of interfaces to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: NFV-SOL 013 specifies common aspects of RESTful protocols and data models for ETSI NFV management and orchestration (MANO) interfaces.	Solutions	API,NFV,PROTOCOL
59479	ETSI GS NFV-SOL 015 V1.2.1 (2020-12)	Network Functions Virtualisation (NFV); Protocols and Data Models; Specification of Patterns and Conventions for RESTful NFV-MANO APIs	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59479	This revision of NFV-SOL 015 conducts maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications. This edition may add or modify specified features necessary for the specification of RESTful based NFV-MANO APIs. The scope of the former edition is summarized hereafter: NFV-SOL 015 defines patterns and conventions for RESTful NFV-MANO API specifications, gives recommendations on API versioning and provides an API specification template. The document defines provisions to be followed by the ETSI NFV Industry Specification Group (ISG) when creating RESTful NFV-MANO API specifications. The provisions do not apply to implementations.	Solutions	API,DATA,MANO,Model,NFV,PROTOCOL
56360	ETSI GS NFV-SOL 010 V3.3.1 (2020-12)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; VNF Snapshot Package specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56360	This work item will specify the structure and format of a VNF Snapshot Package and its constituents, fulfilling the requirements in ETSI GS NFV-IFA 011 for a VNF Snapshot Package. The resulting deliverable will contain normative provisions.	Solutions	DATA,Model,NFV,PROTOCOL,STAGE 3,Virtualisation

58537	ETSI GS NFV-TST 009 V3.4.1 (2020-12)	Network Functions Virtualisation (NFV) Release 3; Testing; Specification of Networking Benchmarks and Measurement Methods for NFVI	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58537	This revision of NFV-TST 009 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition also continues the development of the specification as part of the NFV Release 3. The scope of the former NFV-TST 009 version is summarized hereafter: NFV-TST 009 specifies vendor-agnostic definitions of performance metrics and the associated methods of measurement for Benchmarking networks supported in the NFVI. The Benchmarks and Methods will take into account the communication-affecting aspects of the compute/networking/virtualisation environment (such as the transient interrupts that block other processes or the ability to dedicate variable amounts of resources to communication processes). These Benchmarks are intended to serve as a basis for fair comparison of different implementations of NFVI, (composed of various hardware and software components) according to each individual Benchmark and networking configuration evaluated. Note that a Virtual Infrastructure Manager (VIM) may play a supporting role in configuring the network under test. Examples of existing Benchmarks include IETF?RFC?2544 Throughput and Latency (developed for physical network functions).	Testing, Implementation, and Open Source Working Group	Benchmarking,Measurement,NFV,NFVI
62006	ETSI GR NFV-REL 011 V4.1.1 (2020-11)	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Report on NFV-MANO software modification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=62006	This revision of NFV REL 011 aims at updating the title and the publication version in order for REL011 to appear as part of ISG NFV Release 4. The REL 011 v4.1.1 body is identical to the body of REL 011 V1.1.1 ---------- This WI collects and describes use cases for modifying NFV-MANO software while maintaining service availability and continuity, irrespective of the technologies being used to deploy this software. As a result, detailed recommendations for the requirements of the NFV-MANO software modification process will be derived.	Reliability & Availability	AVAILABILITY,MANO,NFV,SERVICE
58950	ETSI GS NFV-IFA 010 V4.1.1 (2020-11)	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Functional requirements specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58950	This revision of NFV-IFA 010 propagates the deliverable into NFV Release 4. This edition will add requirements to support Release 4 features (listed in the Release 4 Definition) and will extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 010 specifies functional requirements for NFV management and orchestration, and general guidelines and requirements for NFV management and orchestration interface design. NFV-IFA 010 does not cover the functional requirements on interfaces.	Interfaces and Architecture	FUNCTIONAL,MANAGEMENT,MANO,NFV,orchestration,Requirements,Virtualisation

58016	ETSI GR NFV-REL 011 V1.1.1 (2020-11)	Network Functions Virtualisation (NFV); Management and Orchestration; Report on NFV-MANO software modification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58016	This WI will collect and describe use cases for modifying NFV-MANO software while maintaining service availability and continuity, irrespective of the technologies being used to deploy this software. As a result, detailed recommendations for the requirements of the NFV-MANO software modification process will be derived.	Reliability & Availability	AVAILABILITY,MANO,NFV,SERVICE
58387	ETSI GS NFV-IFA 040 V4.1.1 (2020-11)	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Requirements for service interfaces and object model for OS container management and orchestration specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58387	The work item will specify the NFV object model for OS container management and orchestration and normative requirements applicable to interfaces exposing OS container management and orchestration services to NFV-MANO and other consuming entities. The requirements apply to the service interfaces to be offered by architectural elements providing the Container Infrastructure Service Management (CISM) and Container Image Registry functions described in ETSI GR NFV-IFA 029. The resulting deliverable will contain normative provisions.	Interfaces and Architecture	Container,INTERFACE,MANAGEMENT,NFV, orchestration,SERVICE
58951	ETSI GS NFV-IFA 011 V4.1.1 (2020-11)	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; VNF Descriptor and Packaging Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58951	This revision of NFV-IFA 011 propagates the deliverable into NFV Release 4. This edition will add requirements to support Release 4 features (listed in the Release 4 Definition) and will extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 011 provides requirements for the structure and format of a VNF Package to describe the VNF properties and associated resource requirements in an interoperable template. The focus is on VNF packaging, meta-model descriptors (e.g. VNFD) and package integrity and security considerations.	Interfaces and Architecture	MANAGEMENT,MANO,NFV,orchestration,Virtualisation
56451	ETSI GS NFV-SOL 012 V3.4.1 (2020-10)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Policy Management Interface	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56451	This work item will specify a set of RESTful protocol specifications and data models fulfilling the requirements specified in ETSI NFV IFA specifications for the policy management interfaces used over the NFV-MANO reference points. The resulting deliverable will contain normative provisions.	Solutions	API,NFV,policy management
56323	ETSI GS NFV-SOL 005 V3.3.1 (2020-09)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Os-Ma-nfvo Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56323	This revision of NFV-SOL 005 propagates the deliverable into NFV Release 3. This edition will add protocol and data models to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL 005 specifies a set of Restful protocol specifications and data models fulfilling the requirements specified in ETSI GS NFV-IFA 013 for the interfaces used over the Os-Ma-nfvo reference point. This revision of NFV-SOL 005 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition (v0.10.0). This revision will reflect the maintenance performed to NFV Release 2 documentation.	Solutions	API,NFV,PROTOCOL

53575	ETSI GR NFV-EVE 016 V1.1.1 (2020-09)	Network Functions Virtualisation (NFV); Evolution and Ecosystem; Report on Connection-based Virtual Services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=53575	Connection based Virtual Services are provided over connections between a service user and applications hosted by a data center in the cloud (e.g. Virtual Services defined by MEF). This Work Item will: - Describe use cases and identify gaps within the NFV Architecture Framework to support connection-based Virtual Services; - Identify recommendations for interfaces of service user and virtual resources (e.g. VM, Containers), and interfaces between Cloud Service Providers(cSPs) , including the interface between Telco and cSP, to support the virtual services ; - Identify recommendations for connection and connection end points to support the virtual services. Note that the NFV Charging capabilities within EVE-008 and NFV Security capabilities within IFA 026, NFV Multi Domain within IFA-028 and NFV Multisite within IFA-022 may be applied to work of this Work Item.	Evolution and Ecosystem	NFV,SERVICE,virtual services,Virtualisation
58970	ETSI GS NFV-SOL 005 V2.8.1 (2020-09)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; RESTful protocols specification for the Os-Ma-nfvo Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58970	This revision of NFV-SOL 005 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL 005 specifies a set of Restful protocol specifications and data models fulfilling the requirements specified in ETSI GS NFV-IFA 013 for the interfaces used over the Os-Ma-nfvo reference point.	Solutions	API,NFV,PROTOCOL
58428	ETSI GS NFV-TST 010 V2.6.1 (2020-09)	Network Functions Virtualisation (NFV) Release 2; Testing; API Conformance Testing Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58428	Test descriptions, procedures, methods and test configurations, along with precise expected outcomes that will comprise a conformance test plan for the APIs exposed on the following reference points: Os-Ma-Nfvo, Or-Vnfm, and Ve-Vnfm, defined in NFV Release-2 versions 2.6.1 of ETSI GS NFV-SOL 005, ETSI GS NFV-SOL 003, and ETSI GS NFV-SOL 002, respectively. Where possible, the tests will be specified using means to facilitate automation of the testing	Testing, Implementation, and Open Source Working Group	API,CONFORMANCE,NFV,TESTING
58973	ETSI GS NFV-SOL 013 V2.8.1 (2020-09)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; Specification of common aspects for RESTful NFV MANO APIs	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58973	This revision of NFV-SOL 013 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter. SOL013 specifies the common definitions and procedures for the RESTful ETSI NFV MANO APIs.	Solutions	API,NFV,PROTOCOL
56809	ETSI GS NFV-SOL 013 V3.3.1 (2020-09)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; Specification of common aspects for RESTful NFV MANO APIs	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56809	This work item will specify the common definitions and procedures for the RESTful ETSI NFV MANO APIs. The resulting deliverable will contain normative provisions.	Solutions	API,NFV,PROTOCOL

58037	ETSI GS NFV-SOL 001 V3.3.1 (2020-09)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; NFV descriptors based on TOSCA specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58037	This revision of NFV-SOL 001 propagates the deliverable into NFV Release 3. This edition will add requirements and specification of interfaces to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL001 develops a data model specification for NFV descriptors fulfilling the requirements specified in ETSI GS NFV-IFA 011 and ETSI GS NFV-IFA 014. The specification will be based on the OASIS TOSCA Simple profile in YAML specification. This revision of NFV-SOL 001 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition. This revision will reflect the maintenance performed to associated NFV Release 2 documentation.	Solutions	DATA,INFORMATION MODEL,Model,NFV
58966	ETSI GS NFV-SOL 001 V2.8.1 (2020-09)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; NFV descriptors based on TOSCA specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58966	This revision of NFV-SOL 001 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL001 is to develop a data model specification for NFV descriptors fulfilling the requirements specified in GS NFV-IFA 011 and GS NFV-IFA 014. The specification will be based on the OASIS TOSCA Simple profile in YAML specification	Solutions	DATA,INFORMATION MODEL,Model,NFV
58971	ETSI GS NFV-SOL 006 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; NFV Descriptors based on YANG Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58971	This revision of NFV-SOL 006 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL007 specifies the YANG models for representing Network Functions Virtualisation (NFV) descriptors, fulfilling the requirements specified in GS NFV-IFA 011 [1] and GS NFV-IFA014 [2] applicable to a Virtualised Network Function Descriptor (VNFD) and a Network Service Descriptor (NSD).	Solutions	DATA,Model,NFV,YANG

58972	ETSI GS NFV-SOL 007 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; Network Service Descriptor File Structure Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58972	This revision of NFV-SOL 007 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL007 specifies the Network Service Descriptor file structure and naming conventions for the different files, fulfilling the requirements specified in ETSI GS NFV-IFA 014.	Solutions	CLOUD,DATA,INFORMATION MODEL,Model,NFV,Virtualisation
58038	ETSI GS NFV-SOL 006 V3.3.1 (2020-08)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; NFV descriptors based on YANG Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58038	This revision of NFV-SOL 006 propagates the deliverable into NFV Release 3. This edition will add requirements and specification of interfaces to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL006 specifies the YANG models for representing Network Functions Virtualisation (NFV) descriptors, fulfilling the requirements specified in ETSI GS NFV-IFA 011 and ETSI GS NFV-IFA 014 applicable to a Virtualised Network Function Descriptor (VNFD), a Physical Network Functions Descriptor (PNFD) and a Network Service Descriptor (NSD). This revision of NFV-SOL 006 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition. This revision will reflect the maintenance performed to associated NFV Release 2 documentation.	Solutions	DATA,Model,NFV,YANG
58039	ETSI GS NFV-SOL 007 V3.3.1 (2020-08)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; Network Service Descriptor File Structure Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58039	This revision of NFV-SOL 007 propagates the deliverable into NFV Release 3. This edition will add requirements and specification of interfaces to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL007 specifies the Network Service Descriptor file structure and naming conventions for the different files, fulfilling the requirements specified in ETSI GS NFV-IFA 014. This revision of NFV-SOL 007 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition. This revision will reflect the maintenance performed to associated NFV Release 2 documentation.	Solutions	CLOUD,DATA,INFORMATION MODEL,Model,NFV,Virtualisation

54740	ETSI GS NFV-IFA 033 V4.1.1 (2020-08)	Network Functions Virtualisation (NFV) Release 4; Management and Orchestration; Sc-Or, Sc-Vnfm, Sc-Vi reference points - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54740	The present document specifies the interfaces supported over the sc-or, sc-vnfm, sc-vi reference points as well as the information elements exchanged over these interfaces. The purpose of the interfaces is to support security monitoring and management as described in NFV-GS-SEC-013. The interface supports delivery of information about the topology of the network and information about the creation/modification of VNFs. It includes the ability to handle VNF termination requests e.g. to respond to a DDoS attack.	Interfaces and Architecture	Cyber Security,INTERFACE,MANAGEMENT,MANO,NFV,orchestration,SECURITY,Virtualisation
49499	ETSI GR NFV-EVE 017 V1.1.1 (2020-08)	Network Functions Virtualisation (NFV); Management and Orchestration; Report on the support of real-time/ultra-low latency aspects in NFV related to service and network handling	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=49499	The work item will encompass activities related to real-time management and orchestration of ultra low latency services. This work item covers - Definition of relevant use cases (potentially from any of the following areas: Automotive industry, health care, entertainment and gaming) - Analysis of the NFV MANO architectural framework including interfaces regarding gaps to support the real-time realisation of such use cases - Provision of recommendations concerning adaption of the NFV architecture, if necessary - Provision of recommendations for the update of existing interfaces and/or the creation of new interface(s), if necessary. The work and the deliverable will be informative.	Evolution and Ecosystem	MANO,NFV,real time,SERVICE
56320	ETSI GS NFV-SOL 002 V3.3.1 (2020-08)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Ve-Vnfm Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56320	This revision of NFV-SOL 002 propagates the deliverable into NFV Release 3. This edition will add protocol and data models to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL 002 specifies a set of Restful protocols fulfilling the requirements specified in GS NFV-IFA 008 for the interfaces used over the Ve-Vnfm reference point. This revision of NFV-SOL 002 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition (v0.10.0). This revision will reflect the maintenance performed to NFV Release 2 documentation.	Solutions	API,NFV,PROTOCOL
58020	ETSI GS NFV-SOL 016 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; NFV-MANO procedures specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58020	The work item will specify stage 3 NFV-MANO procedures involving multiple interfaces that reference the operations specified in Release 2 versions of ETSI GS NFV-SOL 003, ETSI GS NFV-SOL 002 and ETSI GS NFV-SOL 005, and the information from NFV descriptors as specified in ETSI GS NFV-SOL 001 and ETSI GS NFV-SOL 006. The procedures will comply with the functional requirements specified in ETSI GS NFV-IFA 010 and related IFA interface specifications. The resulting deliverable will contain normative provisions.	Solutions	MANAGEMENT,MANO,NFV,PROCEDURE

58967	ETSI GS NFV-SOL 002 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; RESTful protocols specification for the Ve-Vnfm Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58967	This revision of NFV-SOL 002 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL 002 specifies a set of Restful protocols fulfilling the requirements specified in GS NFV-IFA 008 for the interfaces used over the Ve-Vnfm reference point.	Solutions	API,NFV,PROTOCOL
58968	ETSI GS NFV-SOL 003 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; RESTful protocols specification for the Or-Vnfm Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58968	This revision of NFV-SOL 003 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL 003 specifies a set of RESTful protocols and data models fulfilling the requirements specified in ETSI GS NFV-IFA 007 for the interfaces used over the Or-Vnfm reference point, except for the "Virtualised Resources Management interfaces in indirect mode" as defined in clause 6.4 of ETSI GS NFV-IFA 007.	Solutions	API,NFV,PROTOCOL
56321	ETSI GS NFV-SOL 003 V3.3.1 (2020-08)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Or-Vnfm Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56321	This revision of NFV-SOL 003 propagates the deliverable into NFV Release 3. This edition will add protocol and data models to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: SOL 003 specifies a set of RESTful protocols and data models fulfilling the requirements specified in ETSI GS NFV-IFA 007 for the interfaces used over the Or-Vnfm reference point, except for the "Virtualised Resources Management interfaces in indirect mode" as defined in clause 6.4 of ETSI GS NFV-IFA 007. This revision of NFV-SOL 003 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition (v0.10.0). This revision will reflect the maintenance performed to NFV Release 2 documentation.	Solutions	API,NFV,PROTOCOL

56322	ETSI GS NFV-SOL 004 V3.3.1 (2020-08)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; VNF Package and PNFD Archive specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56322	This revision of NFV-SOL 004 propagates the deliverable into NFV Release 3. This edition will add protocol and data models to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: This document specifies the structure and format of a VNF package file and its constituents, fulfilling the requirements specified in ETSI GS NFV-IFA 011 for a VNF package. This document also specifies the structure and format of a PNFD archive file and its constituents, fulfilling the requirements specified in ETSI GS NFV-IFA 014 for a PNFD archive. This revision of NFV-SOL 004 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition (v0.10.0). This revision will reflect the maintenance performed to NFV Release 2 documentation.	Solutions	DATA,NFV,PROTOCOL,Virtualisation
56922	ETSI GS NFV-SOL 014 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; YAML data model specification for descriptor-based virtualised resource management	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56922	The work item will specify a set of YAML-based data models for descriptor-based virtualised resource management fulfilling the requirements specified in ETSI GS NFV-IFA 005/006 concerning the input and output information exchanged over the whole set of virtualised resource management interfaces (i.e., lifecycle, fault, performance, etc.). The work item will also consider the relevant virtualised resource information descriptions specified in ETSI GS NFV-IFA 011/014 that complements the information exchanged over the interfaces and that is also needed for the virtualised resource descriptors. The resulting deliverable will contain normative provisions.	Solutions	MANAGEMENT,Model,NFV
58969	ETSI GS NFV-SOL 004 V2.8.1 (2020-08)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; VNF Package and PNFD Archive specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58969	This revision of NFV-SOL 004 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: This document specifies the structure and format of a VNF package file and its constituents, fulfilling the requirements specified in ETSI GS NFV-IFA 011 for a VNF package. This document also specifies the structure and format of a PNFD archive file and its constituents, fulfilling the requirements specified in ETSI GS NFV-IFA 014 for a PNFD archive.	Solutions	DATA,NFV,PROTOCOL,Virtualisation

58554	ETSI GS NFV-IFA 031 V3.4.1 (2020-07)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Requirements and interfaces specification for management of NFV-MANO	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58554	This revision of NFV-IFA 031 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 031 specifies the interface requirements, the interfaces and the necessary information elements enabling the fault, configuration and information, performance, state and log management of NFV-MANO functional entities. In addition, the document also describes the framework to support the management of NFV-MANO functional entities. The different aspects specified in NFV-IFA 031 have been analysed firstly in ETSI GR NFV-IFA 021.	Interfaces and Architecture	INTERFACE,MANAGEMENT,MANO,NFV,Requirements
58550	ETSI GS NFV-IFA 026 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Architecture enhancement for Security Management Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58550	This revision of NFV-IFA 026 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 026 defines the requirements to interface the Security Control to NFV-MANO as described in ETSI GS NFV-SEC 013 and the LI Controller in ETSI GR NFV-SEC 011. The present document identifies the extensions to the NFV-MANO architecture related to security management and monitoring. Multiple trust domains are considered.	Interfaces and Architecture	ARCHITECTURE,MANAGEMENT,MANO,NFV,orchestration,SECURITY
58542	ETSI GR NFV-IFA 016 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Information Modeling; Papyrus Guidelines	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58542	This revision of NFV-IFA 016 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 016 gives guidelines for the use of Papyrus when creating or maintaining NFV UML information model.	Interfaces and Architecture	INFORMATION MODEL,Model,NFV

58533	ETSI GS NFV-IFA 010 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Functional requirements specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58533	This revision of NFV-IFA 010 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 010 specifies functional requirements for NFV management and orchestration, and general guidelines and requirements for NFV management and orchestration interface design. NFV-IFA 010 does not cover the functional requirements on interfaces.	Interfaces and Architecture	FUNCTIONAL,MANAGEMENT,MANO,NFV,orchestration,Requirements,Virtualisation
58504	ETSI GS NFV-IFA 006 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Vi-Vnfm reference point - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58504	This revision of NFV-IFA 006 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 006 specifies the interfaces supported over the Vi-Vnfm reference point of the NFV-MANO architectural framework as well as the information elements exchanged over those interfaces.	Interfaces and Architecture	CONFIGURATION,MANAGEMENT,MANO,NETWORK,NFV,Virtualisation
58502	ETSI GS NFV-IFA 005 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Or-Vi reference point - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58502	This revision of NFV-IFA 005 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 005 specifies the interfaces supported over the Or-Vi reference point of the NFV-MANO architectural framework ETSI GS NFV 002 as well as the information elements exchanged over those interfaces	Interfaces and Architecture	CONFIGURATION,INFORMATION MODEL,MANAGEMENT,MANO,NETWORK,NFV,Virtualisation
58507	ETSI GS NFV-IFA 008 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Ve-Vnfm reference point - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58507	This revision of NFV-IFA 008 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 008 specifies the interfaces supported over the Ve-Vnfm-em and Ve-Vnfm-vnf reference points of the NFV-MANO architectural framework ETSI GS NFV-MAN 001 as well as the information elements exchanged over those interfaces.	Interfaces and Architecture	CONFIGURATION,INTERFACE,MANAGEMENT,MANO,NFV,Virtualisation

58534	ETSI GS NFV-IFA 011 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; VNF Descriptor and Packaging Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58534	This revision of NFV-IFA 011 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 011 provides requirements for the structure and format of a VNF Package to describe the VNF properties and associated resource requirements in an interoperable template. The focus is on VNF packaging, meta-model descriptors (e.g. VNFD) and package integrity and security considerations.	Interfaces and Architecture	MANAGEMENT,MANO,NFV,orchestration,Virtualisation
58535	ETSI GS NFV-IFA 013 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Os-Ma-nfvo reference point - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58535	This revision of NFV-IFA 013 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 013 defines the interfaces supported over the Os-Ma-nfvo reference point of the NFV-MANO architectural framework as well as the information elements exchanged over those interfaces.	Interfaces and Architecture	INTERFACE,MANAGEMENT,MANO,NFV,orchestration,Virtualisation
58536	ETSI GS NFV-IFA 014 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Network Service Templates Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58536	This revision of NFV-IFA 014 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 014 specifies requirements and templates for describing Network Functions Virtualisation (NFV) Network Services (NSs) in the form of meta-data.	Interfaces and Architecture	MANO,NETWORK,NFV,SERVICE,Virtualisation
58539	ETSI GR NFV-IFA 015 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on NFV Information Model	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58539	This revision of NFV-IFA 015 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 015 is an informative document providing an NFV Information Model consolidating information elements from the ETSI NFV IFA specifications listed in the reference clause.	Interfaces and Architecture	INFORMATION MODEL,INTERFACE,MANAGEMENT,MANO,NFV,orchestration,Virtualisation

58551	ETSI GS NFV-IFA 032 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Interface and Information Model Specification for Multi-Site Connectivity Services	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58551	This revision of NFV-IFA 032 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 032 specifies the interfaces for management of multi-site connectivity services. The services are produced by a WAN Infrastructure Manager (WIM). The present document also describes the operations and the information elements that are exchanged over these interfaces. This revision will also reflect the maintenance needed for the previous version.	Interfaces and Architecture	CONFIGURATION,MANAGEMENT,MANO,NETWORK,NFV,Virtualisation
58552	ETSI GS NFV-IFA 030 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Multiple Administrative Domain Aspect Interfaces Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58552	This revision of NFV-IFA 030 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 030 specifies the functional requirements, interfaces and operations to support the provision of network services across multiple administrative domains based on the interactions between NFVOs in different administrative domains (supported over the Or-Or reference point). NFV-IFA 030 also specifies the information elements exchanged over the specified interfaces. The different aspects specified in NFV-IFA 030 are derived from ETSI GR NFV-IFA 028.	Interfaces and Architecture	INTERFACE,MANAGEMENT,MANO,NFV

59472	ETSI GS NFV-SEC 022 V2.8.1 (2020-06)	Network Functions Virtualisation (NFV) Release 2; Security; Access Token Specification for API Access	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=59472	This revision of NFV-SEC 022 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: NFV-SEC 022 defines the access tokens and related metadata for RESTful protocols and data model for ETSI NFV management and orchestration (MANO) interfaces. It defines also the process for the token verification by the API Producer. For this aim, the document: - Analyses the security threat arising from the misuse of the access token and defines the security requirements associated to access token. - Analyses existing specifications related to access token for API access and their compliancy with the requirements defined. - Defines the token request and generation profile, the token format and associated metadata considering the result of existing access token specifications analysis. - Defines the token verification procedures for the API Producer.	Security	API,authentication,authorization,NFV,SECURITY
58546	ETSI GR NFV-IFA 017 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Information Modeling; UML Modeling Guidelines	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58546	This revision of NFV-IFA 017 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 017 defines the guidelines that have to be taken into account during the creation of a protocol-neutral UML (Unified Modeling Language) information model. These guidelines are informative for the general reader, but need to be followed when designing models for the ETSI NFV Information Model.	Interfaces and Architecture	INFORMATION MODEL,NFV,UML
58506	ETSI GS NFV-IFA 007 V3.4.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Or-Vnfm reference point - Interface and Information Model Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58506	This revision of NFV-IFA 007 conducts NFV Release 3 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 3 edition summarized hereafter: NFV-IFA 007 specifies the interfaces supported over the Or-Vnfm reference point of the Network Functions Virtualisation Management and Orchestration (NFV-MANO) architectural framework ETSI GS NFV-MAN 001 as well as the information elements exchanged over those interfaces.	Interfaces and Architecture	INTERFACE,MANAGEMENT,MANO,NFV,orchestration,Virtualisation

57999	ETSI GS NFV-IFA 027 V3.3.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Performance Measurements Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57999	This revision of NFV-IFA 027 propagates the deliverable into NFV Release 3. This edition will add functional requirements and specification of the information model to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: Specify the performance measurements (i.e. performance metrics, performance values) and use cases for descriptors and interfaces, including Or-Vnfm reference point, Ve-Vnfm reference point, Vi-Vnfm reference point, Or-Vi reference point, and Os-Ma-nfvo reference point, based on the performance metrics collected from NFVI. This revision of NFV-IFA 027 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition. This revision will reflect the maintenance performed to NFV Release 2 documentation.	Interfaces and Architecture	MANAGEMENT,MANO,Measurement,NFV,PERFORMANCE
57988	ETSI GS NFV-IFA 027 V2.7.1 (2020-06)	Network Functions Virtualisation (NFV) Release 2; Management and Orchestration; Performance Measurements Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57988	This revision of NFV-IFA 027 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: IFA 027 specifies the performance measurements and use cases for descriptors and interfaces, including Or-Vnfm reference point, Ve-Vnfm reference point, Vi-Vnfm reference point, Or-Vi reference point, and Os-Ma-nfvo reference point, based on the performance metrics collected at NFVI.	Interfaces and Architecture	MANAGEMENT,MANO,Measurement,NFV,PERFORMANCE

57445	ETSI GS NFV-TST 008 V3.3.1 (2020-06)	Network Functions Virtualisation (NFV) Release 3; Testing; NFVI Compute and Network Metrics Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57445	This revision of NFV-TST 008 continues the development of the specification as part of the NFV Release 3. This edition will add requirements and specification of metrics to support the Release 3 features, and it will extend the scope of the former Release 2 edition summarized hereafter: Specify detailed and vendor-agnostic key operational performance metrics at different layers of the Network Function Virtualization Infrastructure (NFVI), especially processor usage and network interface usage metrics.These metrics are expected to serve as references for processed and time-aggregated measurement values for performance management information that traverses the Or-Vi and/or Vi-Vnfm reference points. The work item deliverable will contain normative provisions. This revision of NFV-TST 008 will address the Release 3 candidate features listed in Annex B of the Release 3 Definition. Where needed, it will continue the previous version to enhance and complete the specified Release 3 features. This revision will reflect the maintenance performed to NFV Release 2 documentation and of already specified Release 3 features.	Testing, Implementation, and Open Source Working Group	metrics,NETWORK,NFV,NFVI,TESTING
54031	ETSI GS NFV-TST 010 V2.4.1 (2020-03)	Network Function Virtualisation (NFV) Release 2; Testing; API Conformance Testing Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=54031	Test descriptions, procedures, methods and test configurations, along with precise expected outcomes that will comprise a conformance test plan for the APIs exposed on the following reference points: Os-Ma-Nfvo, Or-Vnfm, and Ve-Vnfm, defined in Release 2 versions 2.4.1 of ETSI GS NFV-SOL 002, ETS GS NFV-SOL 003, and ETSI GS-NFV SOL005. Where possible, the tests will be specified using means to facilitate automation of the testing.	Testing, Implementation, and Open Source Working Group	API,CONFORMANCE,NFV,TESTING

56942	ETSI GR NFV-IFA 015 V3.3.1 (2020-02)	Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on NFV Information Model	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56942	This revision of NFV-IFA 015 maintains the deliverable into NFV Release 3. This edition will maintain the information model to support all Release 3 features, and will extend the scope of the former edition. This Work Item will build upon the Information Elements developed in the latest versions of IFA Work Items IFA004, IFA005, IFA006, IFA007, IFA008, IFA011, IFA012, IFA013 and IFA014 and translate them into a UML NFV Information Model. The NFV Information Model will present a consolidated view of NFV Management and Orchestration model. It will use information from: â€¢ Network Service Templates information elements, produced by IFA014 â€¢ VNF Descriptor information elements produced by IFA011 â€¢ Informatiom elements related to acceleration resource management produced by IFA004 â€¢ Information elements produced by IFA005, IFA006, IFA007, IFA008, IFA012 and IFA013. The WI deliverable shall be informative even it consolidates the normative information elements from the Work Items listed above. The output deliverable will include the UML NFV Information Model as an electronic attachment. The format of the model will be the Papyrus Open Source format.	Interfaces and Architecture	INFORMATION MODEL,INTERFACE,MANAGEMENT,MANO,NFV,orchestration,Virtualisation
49487	ETSI GR NFV-TST 006 V1.1.1 (2020-01)	Network Functions Virtualisation (NFV); Testing; Report on CICD and Devops	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=49487	- Will provide guidance and recommendations on how to leverage DevOps and CI/CD techniques across the boundary from SW provider to sercice provider, or any combination of developer, installation and operational entities - Will explore the implications of the processes with regard to the impact of the SW package handoff between SW provider and service provider, the required functionality in the NFV system, the different deployment and operational options - May provide recommendations for a modification or addition to the description and contents of the SW package for testing/validation capability. It may impact DGS/NFV-IFA011 (Network Functions Virtualisation (NFV); Management and Orchestration; VNF Packaging Specification - May have some recommendations for future enhancements to the lifecycle management for upgrading the SW code, and test and performance metrics. Based on the existing and enhanced lifecycle management, the general procedures for software upgrade testing will be developed. Reference NFV(15)000275 NFV REL "Software Update/Upgrade Functionality Specification" - The resulting deliverable will be informative	Testing, Implementation, and Open Source Working Group	CI/CD,DevOps,NFV,NFVI,SDN
57460	ETSI GS NFV-SOL 015 V1.1.1 (2020-01)	Network Functions Virtualisation (NFV); Protocols and Data Models; Specification of Patterns and Conventions for RESTful NFV-MANO APIs	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57460	Develop patterns and conventions for RESTful NFV-MANO API specifications. The GS will define provisions to be followed by ETSI NFV when creating RESTful NFV-MANO API specifications. It will not define provisions for implementations.	Solutions	API,DATA,MANO,Model,NFV,PROTOCOL

56333	ETSI GR NFV-TST 007 V2.6.1 (2020-01)	Network Functions Virtualisation (NFV) Release 2; Testing; Guidelines on Interoperability Testing for MANO	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56333	This revision of NFV-TST 007 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter TST 007 provides informative interoperability test guidelines for NFV capabilities requiring interaction among VNF, MANO and VIM-NFVI, such as (but not limited to): NS Lifecycle Management, VNF Lifecycle management, VNF Package Management, Software Image Management,... The document follows the Interoperability Testing Methodology developed by the NFV TST WG (TST002) and is intended to be applicable for all implementations aligned with ETSI NFV architecture; references to open source implementations may be included as examples.	Testing, Implementation, and Open Source Working Group	INTEROPERABILITY,MANAGEMENT,MANO,NFV,TESTING
57484	ETSI GS NFV-SOL 001 V2.7.1 (2020-01)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; NFV descriptors based on TOSCA specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57484	This revision of NFV-SOL 001 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL001 is to develop a data model specification for NFV descriptors fulfilling the requirements specified in GS NFV-IFA 011 and GS NFV-IFA 014. The specification will be based on the OASIS TOSCA Simple profile in YAML specification	Solutions	DATA,INFORMATION MODEL,Model,NFV
56372	ETSI GS NFV-SOL 011 V3.3.1 (2020-01)	Network Functions Virtualisation (NFV) Release 3; Protocols and Data Models; RESTful protocols specification for the Or-Or Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56372	This work item will specify a set of RESTful protocol specifications and data models fulfilling the requirements specified in ETSI GS NFV-IFA 030 for the interfaces used over the Or-Or reference point. The resulting deliverable will contain normative provisions.	Solutions	API,DATA,MANAGEMENT,Model,NFV,PROTOCOL
57488	ETSI GS NFV-SOL 005 V2.7.1 (2020-01)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; RESTful protocols specification for the Os-Ma-nfvo Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57488	This revision of NFV-SOL 005 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL 005 specifies a set of Restful protocol specifications and data models fulfilling the requirements specified in ETSI GS NFV-IFA 013 for the interfaces used over the Os-Ma-nfvo reference point.	Solutions	API,NFV,PROTOCOL

56369	ETSI GR NFV 003 V1.5.1 (2020-01)	Network Functions Virtualisation (NFV); Terminology for Main Concepts in NFV	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=56369	This document intends to provide terms and definitions for conceptual entities with the scope of the NFV work, in order to achieve a â€œcommon languageâ€• across all the NFV working groups and for wider industry use of NFV concepts. Revisions of this document align the terminology and NFV concepts with the content of various group specifications, including architecture and requirements.	Network Functions Virtualisation	NFV,terminology
57485	ETSI GS NFV-SOL 002 V2.7.1 (2020-01)	Network Functions Virtualisation (NFV) Release 2; Protocols and Data Models; RESTful protocols specification for the Ve-Vnfm Reference Point	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57485	This revision of NFV-SOL 002 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: SOL 002 specifies a set of Restful protocols fulfilling the requirements specified in GS NFV-IFA 008 for the interfaces used over the Ve-Vnfm reference point.	Solutions	API,NFV,PROTOCOL
58441	ETSI GS NFV-SEC 022 V2.7.1 (2020-01)	Network Functions Virtualisation (NFV) Release 2; Security; Access Token Specification for API Access	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58441	This revision of NFV-SEC 022 conducts NFV Release 2 maintenance. It corrects errors, ambiguities, misalignments, and applies editorial modifications (i.e. Corrections of category F and D as described in ETSI TWPs Annex L). This edition does not add or modify features, nor does it extend the scope of the former Release 2 edition summarized hereafter: This Group Specification will specify the access tokens and related metadata for APIs defined between VNFs, VNFM, NFVO and VIM. The work will consist in: 1. defining security requirements for API access tokens (e.g. API requester ID binding, provide Authentication feature), 2. Analyzing the tokens specifications (e.g. Openstack Keystone, OpenID Connect Id-Token , IETF OAuth token Binding, 3GPP TS 33.179), 3. Defining an NFV token request and generation profile, the access token format and the associated metadata. The specification will refer to existing specifications of access tokens if the NFV requirements are met by these specifications. 4. Defining the process for the token verification by the API Producer. This WI will produce a new GS SEC022 revision.	Security	API,authentication,authorization,NFV,SECURITY
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
49520	ETSI GS OEU 020 V1.1.1 (2020-03)	Operational energy Efficiency for Users (OEU); Carbon equivalent Intensity measurement; Operational infrastructures; Global KPIs; Global KPIs for ICT Sites	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=49520	The deliverable will define current position of ISG OEU Member in relation to the so-called operational sustainability management enabling monitoring of ICT Carbon footprint	Operational energy Efficiency for Users	MANAGEMENT,Sustainability
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

58907	ETSI GR PDL 004 V1.1.1 (2021-02)	Permissioned Distributed Ledgers (PDL); Smart Contracts; System Architecture and Functional Specification	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58907	The present document specifies the functional components of Smart Contracts, their planning, coding and testing. This includes: a) reference architecture of the technology enabling Smart Contracts â€“ the planning, designing and programming frameworks, b) specify how to engage using this architecture â€“ the methods and frameworks the Smart Contracts building blocks possibly communicate, c) point out possible threats and limitations. Note: This document will consider requirements that may in the future be applied to Smart Legal Contracts which are legally binding Smart Contracts agreed by two or more parties in line with applicable contract law such as Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I).	Permissioned Distributed Ledger	blockchain,PDL,policies,SLA,smart contract
57511	ETSI GR PDL 003 V1.1.1 (2020-12)	Permissioned Distributed Ledger (PDL); Application Scenarios	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57511	This GR documents and describes permissioned distributed ledger Application Scenarios. The aim is to consider and describe the potential application scenarios for the operation of PDLs, including provision models with special emphasis on as-a-service paradigms, and PDL infrastructure governance aspects. The report will provide definition of terms to be used in the scenarios and recommendations for future normative specifications.	Permissioned Distributed Ledger	ledger,use case
57414	ETSI GR PDL 002 V1.1.1 (2020-11)	Permissioned Distributed Ledger (PDL); Applicability and compliance to data processing requirements	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57414	This document will analyse the essential data processing requirements in terms of trust, security and effective conformity assessment, and make recommendations on how PDL can be used by organisations, operations, deployment, hardware, and software to be trusted. The report will reference use-cases work by other standards-developing organisations and material in the public domain. The essential requirements for the PDL technology to ensure compliance to existing regulatory aspects will also be analysed.	Permissioned Distributed Ledger	conformity,REGULATION,trust
57411	ETSI GR PDL 001 V1.1.1 (2020-03)	Permissioned Distributed Ledger (PDL); Landscape of Standards and Technologies	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=57411	This document will identify current activities in standardisation and in research which are particularly relevant to PDL, with the goal of identifying applicable solutions, required enhancements and recommendations for further collaboration. As appropriate, activities of professional or non-profit initiatives will also be considered.	Permissioned Distributed Ledger	blockchain,gap analysis,state of the art,survey
58990	ETSI GS PDL 005 V1.1.1 (2020-03)	Permissioned Distributed Ledger (PDL); Proof of Concepts Framework	Published	http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=58990	The present document specifies a framework for use within ETSI PDL ISG to coordinate and promote public demonstrations of Proof of Concept (PoC) validating key technical components developed in PDL. The objective for the PoCs is to build commercial awareness and confidence and encourage development of an open ecosystem by integrating components from different players.	Permissioned Distributed Ledger	INTEROPERABILITY,Proof of Concept,TESTING
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords

54395	ETSI GS QKD 004 V2.1.1 (2020-08)	Quantum Key Distribution (QKD); Application Interface	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=54395	This revision of GS QKD 004 will update the Application Interface in response to new developments in networks. Modifications will include the introduction of additional parameters to adapt to new network architectures. Terminology will be updated to better match other ISG documents. The scope of the revised and original versions of GS QKD 004 can both be summarised as specifying an application programming interface for security applications to obtain keys from QKD systems via reserved associations with sets of shared keys.	Quantum Key Distribution	API,quantum cryptography,Quantum Key Distribution,SECURITY,use case
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
59209	ETSI GR SAI 004 V1.1.1 (2020-12)	Securing Artificial Intelligence (SAI); Problem Statement	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=59209	This work item describes the challenges of securing AI-based systems and solutions, including challenges relating to data, algorithms and models in both training and implementation environments. The focus will be on challenges which are specific to AI-based systems, including poisoning and evasion.	Securing Artificial Intelligence	artificial intelligence,SECURITY
id	ETSI deliverable	title	Status	Details link	Scope	Technical body	Keywords
54340	ETSI GR ZSM 005 V1.1.1 (2020-05)	Zero-touch network and Service Management (ZSM); Means of Automation	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=54340	This work item will explore different existing means or approaches, to achieve automation. It will not address a survey of standardization activities and open-source solutions. Means to explore include (while not limited) -Alternatives for classic modelling such as Intent vs. imperative vs. declarative modeling -Lessons learnt from â€˜model driven automation of service and policy orchestration, incl. closed loop -Framework for Self-managed VNFs based on Cloud native network functions and implications -Delineate service modeling against â€˜machine learningâ€™ inspired â€˜closed loop automationâ€™ modelling -Autonomous management Each of these topics should -Highlight the problems it solves for the zero-touch business goal -discuss potential implications to technical and functional architecture Deliverable will be informative	Zero touch network and Service Management	automation,MANAGEMENT,Model,NETWORK,orchestration,SERVICE
54334	ETSI GR ZSM 004 V1.1.1 (2020-03)	Zero-touch network and Service Management (ZSM); Landscape	Published	http://webapp.etsi.org/workpro-gram/Report_WorkItem.asp?WKI_ID=54334	The present document will develop a landscape report for Zero-Touch Network and Service Management (ZSM). The report will identify and include the information about activities in other bodies (such as Standards Developing Organizations, Open Source Communities, and Industry Associations) that are relevant to the work in ISG ZSM .	Zero touch network and Service Management	MANAGEMENT,NETWORK,SERVICE

Source: Assembled by author based on data from ETSI

SOURCE OF DATA:

1. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) AUGMENTED REALITY FRAMEWORK (ARF). Available at: https://www.etsi.org/committee/1420-arf
2. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) EUROPEAN COMMON INFORMATION SHARING ENVIRONMENT SERVICE AND DATA MODEL (CDM). Available at: https://www.etsi.org/committee/1584-cdm
3. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) CROSS CUTTING CONTEXT INFORMATION MANAGEMENT (CIM). Available at: https://www.etsi.org/committee/1422-cim
4. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) EUROPE FOR PRIVACY-PRESERVING PANDEMIC PROTECTION (E4P). Available at: https://www.etsi.org/committee/1769-e4p
5. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) EXPERIENTIAL NETWORKED INTELLIGENCE (ENI). Available at: https://www.etsi.org/committee/1423-eni
6. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ENCRYPTED TRAFFIC INTEGRATION (ETI). Available at: https://www.etsi.org/committee/1767-eti
7. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) FIFTH GENERATION FIXED NETWORK (F5G). Available at: https://www.etsi.org/committee/1696-f5g
8. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ON IPV6 ENHANCED INNOVATION (IPE). Available at: https://www.etsi.org/committee/1424-ipe
9. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ON MULTI-ACCESS EDGE COMPUTING (MEC). Available at: https://www.etsi.org/committee/1425-mec
10. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ON MILLIMETRE WAVE TRANSMISSION (MWT). Available at: https://www.etsi.org/committee/1426-mwt
11. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) NETWORK FUNCTIONS VIRTUALISATION (NFV). Available at: https://www.etsi.org/committee/1427-nfv
12. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) NON-IP NETWORKING (NIN). Available at: https://www.etsi.org/committee/1724-nin
13. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ON OPERATIONAL ENERGY EFFICIENCY FOR USERS (OEU). Available at: https://www.etsi.org/committee/1429-oeu
14. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) PERMISSIONED DISTRIBUTED LEDGER (PDL). Available at: https://www.etsi.org/committee/1467-pdl
15. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ON QUANTUM KEY DISTRIBUTION FOR USERS (QKD). Available at: https://www.etsi.org/committee/1430-qkd
16. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) SECURING ARTIFICIAL INTELLIGENCE (SAI). Available at: https://www.etsi.org/committee/1640-sai
17. ETSI. INDUSTRY SPECIFICATION GROUP (ISG) ZERO TOUCH NETWORK AND SERVICE MANAGEMENT (ZSM). Available at: https://www.etsi.org/committee/1431-zsm

Appendix 14. W3C CURRENT MEMBERS LIST- Origin of Entities and Ownerships*

(*Latest update 14 February 2021)

No.	Entity	State	Private Ownership	Government Ownership	Mixed Ownership	Universities	Available at:
1	360	China	1				https://www.360.cn/
2	51Degrees	United Kingdom	1				https://51degrees.com/
3	Aalto University	Finland		1		1	https://www.aalto.fi/en
4	ACCESS CO., LTD.	Japan	1				https://www.access-company.com/
5	Access2online Inc.	United States	1				https://www.access2online.com/
6	Accessibility Foundation	Netherlands	1				https://www.accessibility.nl/
7	Accessibility Shield	United states	1				https://accessibilityshield.com/
8	AccessibilityOz	Australia	1				https://www.accessibilityoz.com/
9	ADA Site Compliance	United States	1				https://adasitecompliance.com/
10	Adobe	United States	1				https://www.adobe.com/
11	Afilias Limited	United States	1				https://afilias.info/
12	Agency for Digitisation	Denmark		1			https://digst.dk/Servicemenu/English
13	Agenzia per l'Italia Digitale	Italy		1			https://www.agid.gov.it/
14	Agora.io	United States	1				https://www.agora.io/en/
15	Airbnb Inc	United States	1				https://www.airbnb.com/
16	Akamai Technologies	United States	1				https://www.akamai.com/
17	AKASHA Foundation	Switzerland	1				https://akasha.org/
18	AKEA Web Solutions, LLC	United States	1				https://www.akeaweb.com/
19	Alfasado, Inc.	Japan	1				https://alfasado.net/
20	Alibaba Group	China	1				https://www.alibabagroup.com/en/global/home
21	Altova GmbH	Austria	1				https://www.altova.com/
22	Amazon	United States	1				https://www.amazon.com/
23	American Express Company	United States	1				https://www.americanexpress.com/
24	American Printing House for the Blind, Inc.	United States	1				https://www.aph.org/

25	AnzoGraph by Cambridge Semantics	United States	1				https://www.cambridgesemantics.com/anzograph/?utm_campaign=AnzoGraph&utm_source=anzographdotcom&utm_medium=redirect
26	Apache Software Foundation	United States	1				http://www.apache.org/
27	Apple, Inc.	United States	1				https://www.apple.com/
28	Association BrailleNet	France	1				http://www.braillenet.org/
29	AT&T	United States	1				https://www.att.com/
30	Australian National University	Australia		1		1	https://cbe.anu.edu.au/welcome-cbe
31	Austrian Research Promotion Agency	Austria		1			https://www.ffg.at/
32	Autonomic	United States	1				https://www.autonomic.ai/
33	Ayuntamiento de Zaragoza	Spain		1			http://www.zaragoza.es/
34	Baidu, Inc.	China	1				http://www.baidu.com/
35	Barclays Bank PLC	United Kingdom	1				https://home.barclays/
36	BarrierBreak Technologies	India	1				https://www.barrierbreak.com/
37	Basque Government - Irekia	Spain		1			https://www.irekia.euskadi.eus/
38	Baycloud Systems	United Kingdom	1				https://baycloud.com/
39	BBVA	Spain	1				https://www.bbva.com/en/
40	Becker-Carroll	Canada	1				https://becker-carroll.com/
41	Beijing Haitai Fangyuan Technologies Co,.Ltd.	China	1				http://www.haitaichina.com/
42	Beijing University of Posts and Telecommunications	China		1		1	http://www.bupt.edu.cn/
43	Benetech	United States	1				https://benetech.org/
44	BFO	United Kingdom	1				https://bfo.com/
45	Bitmovin	United States	1				https://bitmovin.com/
46	Blink Ledger Systems Inc.	United States	1				https://blink.net/
47	Bocoup	United States	1				https://bocoup.com/
48	Book Industry Study Group	United States	1				https://bisg.org/?
49	BPS Co., Ltd.	Japan	1				https://www.bpsinc.jp/
50	Brave Software Inc.	United States	1				https://brave.com/

51	Bright Wing Media	Canada	1				https://brightwing.ca/
52	Brightcove	United States	1				https://www.brightcove.com/en/
53	British Broadcasting Corporation	United Kingdom		1			https://www.bbc.co.uk/
54	Bureau of Internet Accessibility	United States	1				https://www.boia.org/
55	C-DAC	India		1			https://www.cdac.in/
56	Cable Television Laboratories Inc	United States	1				https://www.cablelabs.com/
57	CafeMedia	United States	1				https://cafemedia.com/
58	CANTON CONSULTING	France	1				https://www.canton-consulting.com/en/
59	Capital One Financial	United States	1				https://www.capitalone.com/
60	Caruso GmbH	Germany	1				https://www.caruso-dataplace.com/
61	Center for Democracy and Technology	United States	1				https://cdt.org/
62	Centre for Inclusive Design	Australia	1				https://centreforinclusivedesign.org.au/
63	CERN	Switzerland		1			https://home.cern/
64	China Academy of Information and Communications Technology (CAICT)	China		1			http://www.caict.ac.cn/english/
65	China Mobile Communications Corporation	China		1			https://www.chinamobileltd.com/en/global/home.php
66	Chinese Academy of Sciences	China		1			http://www.cas.cn/
67	Cisco	United States	1				https://www.cisco.com/
68	ClearVision	Saudi Arabia	1				https://clearvision.com.sa/
69	CloudFlare	United States	1				https://www.cloudflare.com/
70	codeMantra U.S. LLC	United States	1				https://codemantra.com/
71	Coil Technologies, Inc.	United States	1				https://coil.com/
72	Collaborative Knowledge Foundation	United States	1				https://coko.foundation/
73	Comcast Corporation	United States	1				https://www.xfinity.com/
74	Conexxus	United States	1				https://www.convenience.org/
75	Connatix	United States	1				https://connatix.com/
76	ConsenSys	United States	1				https://consensys.net/
77	Convergence.Tech Inc.	Canada	1				https://convergence.tech/

78	CoSMo Software Consulting Pte Ltd	Singapore	1				https://cosmosoftware.io/
79	Credly	United States	1				https://info.credly.com/
80	Criteo	France	1				https://www.criteo.com/
81	CSIRO	Australia		1			https://www.csiro.au/
82	CWI	Netherlands		1			https://www.cwi.nl/
83	DAISY Consortium	Switzerland	1				https://daisy.org/
84	Dalton Maag Ltd	United Kingdom	1				https://www.daltonmaag.com/
85	Danube Tech GmbH	Austria	1				https://danubetech.com/
86	DappWorks Technology Inc.	China	1				http://www.dappworks.cn/
87	Data Trading Alliance	Japan		1			https://www.dbswebsite.com/
88	DBS Interactive	United States	1				https://data-trading.org/en/
89	DDS, Inc.	Japan	1				https://www.dds.co.jp/en/
90	Department of Human Services	Australia		1			https://www.servicesaustralia.gov.au/
91	Department of Information Tech-nology, Government of India	India		1			http://www.tdil.mit.gov.in/
92	Deque Systems, Inc.	United States	1				https://www.deque.com/
93	Design Inc.	Japan	1				https://www.design-inc.jp/
94	Deutsche Nationalbibliothek (DNB)	Germany		1			https://www.dnb.de/DE/Home/home_node.html
95	Dfinity Stiftung	Switzerland	1				https://dfinity.org/
96	Didomi	France	1				https://www.didomi.io/
97	DigiCert SSL Certificate Authority	United States	1				https://www.digicert.com/
98	Digital Bazaar	United States	1				https://digitalbazaar.com/
99	Digital Comic Association	Japan	1				http://www.digital-comic.jp/index.php
100	Digital Contract Design	United States	1				https://contract.design/
101	Digital Transformation Agency	Australia		1			https://www.dta.gov.au/
102	Discover Financial Services LLC	United States	1				https://www.discover.com/
103	Disruptive Innovations	France	1				http://disruptive-innovations.com/
104	DMAI, Inc.	United States	1				https://dm.ai/
105	Dreamlab Technologies AG	Switzerland	1				https://dreamlab.net/
106	DRM inside	Korea	1				http://www.drminside.com/

107	Dublin Core Metadata Initiative (DCMI)	United States	1				https://dublincore.org/
108	Duck Duck Go, Inc.	United States	1				https://duckduckgo.com/
109	Dynatrace LLC	United States	1				https://www.dynatrace.com/
110	Earth Science Data Systems Program	United States		1			https://earthdata.nasa.gov/esds
111	EBSCO Industries, Inc.	United States	1				https://www.ebsco.com/
112	Ecole Mohammadia d'Ingenieurs Rabat (EMI)	Morocco		1			https://www.emi.ac.ma/
113	Ecole Superieure Polytechnique de Dakar	Senegal		1			http://www.esp.sn/
114	EDRLab	France	1				https://www.edrlab.org/
115	Educational Testing Service	United States	1				https://www.ets.org/
116	Elastos Foundation	China	1				https://www.elastos.org/
117	Eldarion, Inc.	United States	1				https://eldarion.com/
118	Electronic Book Publishers Association of Japan	Japan	1				http://ebpaj.jp/
119	Electronics and Telecommunications Research Institute (ETRI)	Korea		1		1	https://www.etri.re.kr/intro.html
120	Entersekt	South Africa	1				https://www.entersekt.com/
121	Ephox Corporation	United States	1				https://about.tiny.cloud//
122	ERICSSON	Sweden	1				https://www.ericsson.com/en
123	Ethereum Foundation	Switzerland	1				https://ethereum.org/en/
124	European Broadcasting Union (EBU-UER)	International			1		https://www.ebu.ch/home
125	Evernym	United States	1				https://www.evernym.com/
126	Evident Point Software	Canada	1				https://evidentpoint.com/
127	eyeo GmbH	Germany	1				https://eyeo.com/
128	Facebook	United States	1				https://web.facebook.com/?_rdc=1&_rdr
129	FactsMission	Switzerland	1				https://factsmission.com/
130	Federal Reserve Bank of Minneapolis	United States		1			https://www.minneapolisfed.org/
131	FinanzNachrichten.de	Germany	1				https://www.finanznachrichten.de/
132	Fiserv	United States	1				https://www.fiserv.com/
133	Flatfile Inc.	United States	1				https://flatfile.io/

134	Fondazione LIA	Italia	1				https://www.fondazionelia.org/
135	Forschungszentrum Informatik (FZI)	Germany	1				https://www.fzi.de/startseite/
136	Foundation for Research and Technology - Hellas(FORTH)	Greece		1		1	https://www.ics.forth.gr/
137	Fraunhofer Gesellschaft	Germany		1			https://www.fraunhofer.de/en.html
138	Fujitsu Limited	Japan	1				https://www.fujitsu.com/global/
139	Fundacion BiscayTIK - BiscayTIK Fundazioa	Spain		1			http://www.biscaytik.eus/en-US/Pages/default.aspx
140	Fundacion CTIC	Spain	1				https://www.fundacionctic.org/es
141	Fundación ONCE	Spain	2				https://www.fundaciononce.es/
142	Future Technology Laboratories Inc.	Japan	1				https://www.ftl.co.jp/
143	GENIVI Alliance	United States	1				https://www.genivi.org/about-genivi
144	Geonovum	Netherlands		1			https://www.geonovum.nl/
145	Geotab	Canada	1				https://www.geotab.com/
146	German Research Center for Artificial Intelligence (DFKI) Gmbh	Germany			1		https://www.dfki.de/en/web/about-us/dfki-at-a-glance/
147	GFT IT Consulting S.L.U	Spain	1				https://www.gft.com/es/es/index/
148	Global Teams Internacional Latinoamerica	Costa Rica	1				https://www.gtila.com/#info
149	globaliD	United States	1				https://global.id/
150	Gobierno del Principado de Asturias	Spain		1			https://www.asturias.es/
151	Google, Inc.	United States	1				https://www.google.com/
152	Gooroomee Co., Ltd.	Korea	1				https://gooroomee.com/
153	Government Technology Agency	Singapore		1			https://www.tech.gov.sg/
154	Green Technology Co	N/A					http://www.gtitkw.com/
155	Groupement des Cartes Bancaires	France	1				https://www.cartes-bancaires.com/a-propos/le-gie-cb/
156	GS1	Belgium	1				https://www.gs1.org/
157	Hedera Hashgraph	United States	1				https://www.hedera.com/
158	Hilfsgemeinschaft der Blinden und Sehschwachen Österreichs	Austria	1				https://www.hilfsgemeinschaft.at/
159	Hitachi, Ltd.	Japan	1				http://www.hitachi.com/
160	HM Government	United Kingdom	1				https://www.gov.uk/

161	Hochschulbibliothekszentrum des Landes NRW	Germany		1		1	https://www.hbz-nrw.de/ueber-uns
162	Hong Kong Blind Union	Hong Kong	1				https://www.hkbu.org.hk/en
163	Huawei	China	1				https://www.huawei.com/en/?ic_medium=direct&ic_source=surlent
164	Hypothes.is Project	United States	1				https://web.hypothes.is/
165	IAB Europe	Belgium	1				https://iabeurope.eu/
166	IAB Technology Laboratory, Inc.	United States	1				https://www.iab.com/
167	iAccessible	United States	1				https://iaccessible.com/about-us/
168	IBM Corporation	United States	1				https://www.ibm.com/hr-en
169	Igalia	Spain	1				https://www.igalia.com/about/
170	Imec vzw	Belgium	1				http://www.iminds.be/
171	Imperial College of Science, Technology and Medicine	United Kingdom		1		1	http://www.imperial.ac.uk/admin-services/secretariat/college-governance/
172	INCA Internet Co.,Ltd.	Korea	1				https://www.nprotect.com/kr/index.html
173	Indeed	United States	1				https://www.indeed.com/
174	Informatie Vlaanderen	Belgium		1			https://overheid.vlaanderen.be/digitale-overheid/e-government
175	INNOVIMAX	France	1				https://www.innovimax.fr/
176	Inrupt Inc.	United States	1				https://www.inrupt.com/
177	INSIGHT - The Centre for Data Analytics	Ireland		1			https://www.insight-centre.org/about-us#who_we_are
178	Institut Mines-Télécom	France		1		1	https://www.imt.fr/
179	Institut National de Recherche en Informatique et en Automatique (INRIA)	France		1		1	https://www.inria.fr/fr
180	Instituto de Inteligência Cibernética do Brasil	Brasil			1		http://iicbr.com.br/
181	Inswave Systems Co., Ltd.	Korea	1				https://www.inswave.com/websquare/websquare.html?w2xPath=/index.xml
182	Intel Corporation	United States	1				https://www.intel.com/content/www/us/en/homepage.html
183	Inter-American Development Bank; Knowledge, Innovation and Communications Sector (KIC)	United States		1			https://www.iadb.org/en/about-us/overview

184	International Forecourt Standards Forum	United Kingdom	1				https://ifsf.org/about/
185	Internet Academy	Japan	1				https://www.internetacademy.jp/
186	Internet Research Institute, Inc.	Japan	1				https://www.iri.co.jp/
187	Intive	Germany	1				https://intive.com/
188	Intopia	Australia	1				https://intopia.digital/
189	ISO 20022 Registration Authority	International			1		https://www.iso20022.org/about-iso-20022
190	ITConcepts Professional GmbH	Germany	1				https://www.itconcepts.net/index.php/de/
191	J. Paul Getty Trust	United States	1				http://www.getty.edu/
192	Jaguar Land Rover	United Kingdom	1				https://www.jaguarlandrover.com/
193	Japan Registry Services Co., Ltd.	Japan		1			https://jprs.co.jp/
194	JCB CO., LTD.	Japan	1				https://www.global.jcb/en/
195	JIANGSU INSTITUTE OF QUALITY AND STANDARDIZATION	China		1			http://www.jssi.org.cn/
196	Jiangsu PayEgis Co., Ltd	China	1				https://www.tongfudun.com/index?lang=en_US
197	Jiangsu Rongzer Information Technology Co., Ltd.	China	1				http://www.rongzer.com/
198	Johns Hopkins Institute for Clinical and Translational Research	United States		1			https://ictr.johnshopkins.edu/
199	Jolocom GmbH	Germany	1				https://jolocom.io/about/
200	Juzix Technology Co.,Ltd.	China	1				https://www.matrixelements.com/en/
201	JW Player	United States	1				https://www.jwplayer.com/
202	Kadokawa Corporation	Japan	1				https://www.kadokawa.co.jp/
203	Kaikeba **北京开**课吧科技有限公**司**	China	1				https://www.kaikeba.com/
204	Kaiser Permanente	United States	1				https://healthy.kaiserpermanente.org/front-door
205	KDDI CORPORATION	Japan			1		https://www.kddi.com/
206	KINGS COLLEGE LONDON	United Kingdom		1			https://www.kcl.ac.uk/
207	Klarna	Sweden	1				https://www.klarna.com/international/about-us/

208	Know Your Customer Limited	Hong Kong	1				https://knowyourcustomer.com/
209	Knowbility	United States	1				https://knowbility.org/
210	Kodansha, Publishers, Ltd.	Japan	1				https://www.kodansha.co.jp/
211	Korea Electronics Technology Institute (KETI)	Korea		1			http://www.keti.re.kr/main/main.php
212	Korea Internet Professionals Association (KIPFA)	Korea	1				http://www.kipfa.or.kr/
213	Lawrence Berkeley National Laboratory	United States		1			https://www.lbl.gov/
214	Learning Machine, Inc.	United States	1				https://www.hylandcredentials.com/
215	Legible Media Inc.	Canada	1				https://legible.com/
216	Lepidum Company Limited	Japan	1				https://lepidum.co.jp/
217	LG Electronics	Korea	1				https://www.lg.com/hr
218	Library of Congress	United States		1			https://www.loc.gov/
219	LINE Corporation	Japan	1				https://linecorp.com/en/
220	Logius	Netherlands		1			https://www.logius.nl/english
221	Loongson Technology Corporation Limited	China	1				http://www.loongson.cn/index.html
222	Los Alamos National Laboratory	United States		1			https://www.lanl.gov/
223	LucidWeb	Belgium	1				https://www.lucidweb.io/
224	Lyra Network	France	1				https://www.lyra.com/
225	Macmillan Learning	United States	1				https://macmillan.com/
226	MADA Center, Qatar	Qatar	1				https://mada.org.qa/
227	Magic Leap, Inc.	United States	1				https://www.magicleap.com/en-us
228	Magnite	United States	1				https://www.magnite.com/
229	Mastercard Incorporated	United States	1				https://www.mastercard.us/en-us.html
230	Mattr Limited	New Zealand	1				https://mattr.global/
231	Maxthon International Limited	China	1				https://www.maxthon.com/
232	MEDIA DO Co., Ltd.	Japan	1				https://www.mediado.jp/english/
233	Meedan	United States	1				https://meedan.com/about
234	Memect Technology Co. Ltd. **北京文因互**联科技有限公**司**	China	1				https://memect.cn/

235	Meraka Institute	South Africa		1			http://www.csir.co.za/meraka/
236	Merchant Advisory Group	United States	1				https://www.merchantadvisorygroup.org/
237	Met Office	United Kingdom		1			https://www.metoffice.gov.uk/
238	Method Media Intelligence	United States	1				https://www.methodmi.com/
239	MFX Worldwide, Inc.	United States	1				https://mfxworldwide.com/
240	Microsoft Corporation	United States	1				https://www.microsoft.com/
241	Ministerio de Hacienda y Adminis-traciones Públicas	Spain		1			http://www.csi.map.es/
242	MITRE Corporation	United States	1				https://www.mitre.org/
243	Mitsubishi Electric Corporation	Japan	1				http://www.mitsubishielectric.com/
244	Mitsue-Links Co., Ltd.	Japan	1				https://www.mitsue.co.jp/
245	Mobiletta	N/A					https://mobiletta.com/
246	Monotype	United States	1				https://www.monotype.com/
247	MovieLabs	United States	1				https://movielabs.com/
248	Mozilla Foundation	United States	1				https://www.mozilla.org/en-US/
249	NACHA - The Electronic Payments Association	United States	1				https://www.nacha.org/
250	Nagwa Limited	United Kingdom	1				https://www.nagwa.com/en/about/
251	Nanjing Institute of digital Financial Industry Co.Ltd	China		1			http://www.yzjdigitalfinance.com/#/home-page
252	Nanjing University	China		1			https://www.nju.edu.cn/
253	National Association of Broadcasters	United States	1				https://www.nab.org/
254	National Federation of the Blind	United States	1				https://www.nfb.org/
255	National Film Board of Canada	Canada		1			https://www.nfb.ca/
256	National Institute of Standards and Technology (NIST)	United States		1			https://www.nist.gov/
257	National Network for Equitable Library Service	Canada		1			https://nnels.ca/
258	NCSC	United Kingdom		1			https://www.ncsc.gov.uk/
259	NEC Corporation	Japan			1		https://www.nec.com/
260	Netflix Inc.	United States	1				https://www.netflix.com/hr-en/
261	New Relic, Inc.	United States	1				https://newrelic.com/
262	Newgen Knowledgeworks	India	1				https://newgen.co/

263	Newphoria Corporation	Japan	1				https://www.newphoria.co.jp/
264	NHK (Japan Broadcasting Corporation)	Japan		1			https://www.nhk.or.jp/
265	NIC.br - Brazilian Network Information Center	Brasil		1			https://www.cgi.br/
266	Nice Sophia Antipolis University	France		1			https://univ-cotedazur.fr/
267	Nippon Telegraph & Telephone Corp. (NTT)	Japan	1				https://www.ntt.co.jp/index_e.html
268	Nok Nok Labs	United States	1				https://noknok.com/
269	Nomensa	United Kingdom	1				https://www.nomensa.com/
270	Nominet	United Kingdom	1				https://www.nominet.uk/
271	Norwegian Library of Talking Books and Braille	Norway		1			https://www.nlb.no/
272	OASIS	United States	1				https://www.oasis-open.org/
273	Object Management Group, Inc. (OMG)	United States			1		https://www.omg.org/
274	OCLC (Online Computer Library Center, Inc.)	United States	1				https://www.oclc.org/en/home.html?redirect=true
275	Office of the Government Chief Information Officer, The Government of the Hong Kong Special Administrative Region of the People\'s Republic of China	China		1			https://www.ogcio.gov.hk/en/
276	Onfido	United Kingdom	1				https://onfido.com/
277	Online ADA	United States	1				https://onlineada.com/
278	Ontology Foundation Ltd.	Singapore	1				https://ont.io/
279	Ontotext	Bulgaria	1				https://www.ontotext.com/
280	Open Banking Limited	United Kingdom	1				https://www.openbanking.org.uk/
281	Open Geospatial Consortium	International	1				https://www.ogc.org/
282	Opendi AG	Germany	1				https://www.opendi.com/
283	OpenJS Foundation	United States	1				https://openjsf.org/about/
284	OpenLink Software Inc.	United Kingdom	1				https://www.openlinksw.com/
285	Openstream, Inc.	United States	1				https://www.openstream.ai/
286	OpenX Technologies Inc	United States	1				https://www.openx.com/

287	Oracle Corporation	United States	1				https://www.oracle.com/index.html
288	Ordnance Survey	United Kingdom		1			http://www.ordnancesurvey.co.uk/
289	Oushu	China	1				http://www.oushu.io/
290	Oxlin	France	1				https://www.linxo.com/en/
291	Panasonic Corporation	Japan	1				https://www.panasonic.com/jp/top.html
292	Payfone, Inc.	United States	1				https://www.payfone.com/
293	Payments Canada	Canada		1			https://www.cdnpay.ca/
294	PayPal	United States	1				https://www.paypal.com/hr/home
295	Pearson plc	United Kingdom	1				https://www.pearson.com/
296	Peer5	United States	1				https://www.peer5.com/
297	Ping Identity	United States	1				https://www.pingidentity.com/
298	Pluto VR	United States	1				https://pluto.app/
299	Privowny	France	1				http://privowny.io/
300	Profium	Finland	1				https://www.profium.com/en/
301	Protocol Labs	United States	1				https://protocol.ai/
302	Pundi X	Singapore	1				https://www.pundix.com/
303	Quantcast	United States	1				https://www.quantcast.com/
304	Qwant	France	1				https://www.qwant.com/
305	Rakuten, Inc.	Japan	1				https://www.rakuten.co.jp/
306	Reach	United Kingdom	1				https://withreach.com/
307	Recording Industry Association of America	United States	1				https://www.riaa.com/
308	Refinitiv	United Kingdom	1				https://www.refinitiv.com/en
309	Regional State Administrative Agency for Southern Finland	Finland		1			https://www.saavutettavuusvaatimukset.fi/
310	REMME LTD	Ukraine	1				https://remme.io/
311	RenderX	United States	1				http://www.renderx.com/
312	Ricoh Company, Ltd.	Japan	1				https://www.ricoh.com/
313	RingCentral	United States	1				https://www.ringcentral.com/
314	Ripple	United States	1				https://ripple.com/
315	RISE Research Institutes of Sweden AB	Sweden		1			https://www.ri.se/sv?refdom=sics.se

316	Royal National Institute of Blind People (RNIB)	United Kingdom	1				https://www.rnib.org.uk/
317	Saixin Financial Technology Research Institute Co., Ltd	China	1				http://www.seico.cn/
318	Salesforce	United States	1				https://www.salesforce.com/
319	Samsung Electronics Co., Ltd.	Korea			1		https://www.samsung.com/hr/
320	Santillana Global, S.L.	Spain	1				https://www.santillana.com/es/
321	SAP SE	Germany	1				https://www.sap.com/index.html
322	Sauce Labs	United States	1				https://saucelabs.com/
323	Saudi Federation for Cybersecurity, Programming, and Drones	Saudi Arabia		1			https://safcsp.org.sa/
324	SCE Korea, Inc.	Korea	1				http://www.forapp.org/en-us/aboutus/index.jsp
325	Scenarex Inc.	Canada	1				https://www.scenarex.ca/
326	Search Engine Optimization Inc	United States	1				https://www.seoinc.com/
327	SecureKey	Canada	1				https://securekey.com/
328	Sefonsoft	China	1				http://www.sefonsoft.com/
329	Shanghai Bilibili Technology Co., Ltd.	China	1				https://www.bilibili.com/
330	Shenzhen Institute of Artificial Intelligence and Robotics for Society	China		1			https://airs.cuhk.edu.cn/zh-hans/
331	Shenzhen Institute of Information Technology	China		1			http://www.sziit.edu.cn/
332	Shopify	Canada	1				https://www.shopify.com/
333	SHUEISHA Inc.	Japan	1				https://www.shueisha.co.jp/
334	Shukun (Beijing) Network Technology Co., Ltd.	China	1				https://www.shukun.net/
335	Siemens AG	Germany	1				https://www.siemens.com/
336	Simplifi Holdings Inc.	United States	1				https://simpli.fi/
337	Sirdata	France	1				https://www.sirdata.com/en/
338	Siteimprove	Denmark	1				https://siteimprove.com/
339	SmartThings, Inc.	United States	1				https://www.smartthings.com/
340	SoftBank Corp.	Japan	1				https://www.softbank.jp/en/
341	Software AG	Germany	1				https://www.softwareag.com/en_corporate.html

342	Soluciones Integrales Ver S.A.S.	Colombia	1				https://ver.com.co/
343	Sonobi	United States	1				https://sonobi.com/
344	Sony Corporation	Japan	1				https://www.sony.net/
345	Sovrin Foundation	United States	1				https://sovrin.org/
346	SPORTTOTAL AG	Germany	1				https://www.sporttotal.com/
347	Spruce Systems, Inc.	United States	1				https://spruceid.com/
348	SSB BART Group	United States	1				https://www.levelaccess.com/
349	Stanford University	United States	1				https://www.stanford.edu/
350	Stiftelsen for internetinfrastruktur (IIS)	Sweden	1				https://internetstiftelsen.se/
351	Stony Brook University	United States		1			https://www.stonybrook.edu/
352	Stripe	United States	1				https://stripe.com/
353	SURFnet bv	Netherlands	1				https://www.surf.nl/
354	SURROUND Australia Pty Ltd	Australia	1				https://surroundaustralia.com/
355	Swirrl	United Kingdom	1				https://www.swirrl.com/
356	Syncro Soft	Romania	1				https://www.oxygenxml.com/
357	SZTAKI	Hungary		1			https://www.sztaki.hu/
358	Taiwan Digital Publishing Forum	Taiwan	1				http://www.dpublishing.org.tw/
359	Tampere University	Finland		1		1	https://www.tuni.fi/fi
360	Tencent	China	1				https://www.tencent.com/
361	TetraLogical Services Ltd	United Kingdom	1				https://tetralogical.com/
362	The Clearing House	United States	1				https://www.theclearinghouse.org/
363	The German Association for the Digital Economy (BVDW)	Germany	1				https://www.bvdw.org/
364	The Japan Commercial Broadcasters Association	Japan	1				https://j-ba.or.jp/
365	The National Archives	United Kingdom		1			https://www.nationalarchives.gov.uk/
366	The New York Times	United States	1				https://www.nytimes.com/
367	The Open University	United Kingdom		1		1	http://www.open.ac.uk/
368	The Paciello Group, LLC	United States	1				https://www.paciellogroup.com/
369	The Rebus Foundation	Canada	1				https://reb.us/
370	The Scottish Government	United Kingdom		1			https://www.gov.scot/

371	The Trade Desk	United States	1				https://www.thetradedesk.com/
372	The Washington Post	United States	1				https://www.washingtonpost.com/gdpr-consent/?next_url=https%3a%2f%2fwww.washingtonpost.com%2f
373	Thinktecture	Germany	1				https://www.thinktecture.com/en/
374	Thomson Reuters Corp.	Canada	1				https://www.thomsonreuters.com/en.html
375	Tingyu Technology	China	1				https://www.tingyutech.com/
376	TopQuadrant	United States	1				https://www.topquadrant.com/
377	Torus	Singapore	1				https://tor.us/
378	Toshiba Corporation	Japan	1				https://www.toshiba.com/tai/
379	Touch coffee ltd	United Kingdom	1				http://touchcoffee.com/
380	TranSendX	United States	1				https://transendx.com/
381	Transmute	United States	1				https://www.transmute.industries/
382	Understood	United States	1				https://www.understood.org/
383	UnitedHealth Group	United States	1				https://www.unitedhealthgroup.com/
384	Universidad Politécnica de Madrid	Spain		1		1	https://www.upm.es/
385	Universidade de Lisboa - ULisboa	Portugal		1		1	https://www.ulisboa.pt/
386	Universidade de Sao Paulo	Brasil		1		1	https://www5.usp.br/
387	Universitat Autònoma de Barcelona	Spain		1		1	https://www.uab.cat/
388	Universitat Politècnica de Catalunya	Spain		1		1	https://www.upc.edu/ca
389	Université de Lyon	France		1		1	https://www.universite-lyon.fr/
390	Universities Admissions Centre	Australia	1				https://www.uac.edu.au/
391	University of Colorado Boulder	United States		1		1	https://www.colorado.edu/
392	University of Edinburgh	United Kingdom		1		1	http://www.ltg.ed.ac.uk/~ht/W3C.html
393	University of Illinois at Urbana-Champaign	United States		1		1	https://illinois.edu/
394	University of Michigan	United States		1		1	https://umich.edu/
395	University of Oxford	United Kingdom	1			1	https://www.ox.ac.uk/
396	University of Southampton	United Kingdom		1		1	https://www.ecs.soton.ac.uk/

397	University of Zagreb, Faculty of Organization and Informatics	Croatia		1		1	https://www.foi.unizg.hr/
398	UnlockOpen	N/A					
399	UNNC-NFTZ Blockchain Laboratory	China				1	http://www.nottingchain.com/cn/index.html
400	usaa	United States	1				https://www.usaa.com/?akredirect=true
401	Verizon	United States	1				https://www.verizon.com/
402	Viacom inc.	United States	1				https://www.viacomcbs.com/
403	Visa	United States	1				https://www.visa.com.hr/
404	Vision Australia	Australia	1				https://www.visionaustralia.org/
405	VistaTEC	Ireland	1				http://www.vistatec.ie/
406	Visteon Corporation	United States	1				https://www.visteon.com/
407	Volkswagen AG	Germany	1				https://www.volkswagen.de/de.html
408	Volvo Cars	Sweden	1				https://www.volvocars.com/hr
409	Voyager Japan, Inc.	Japan	1				https://www.voyager.co.jp/
410	Vrije Universiteit	Netherlands		1		1	https://beta.vu.nl/nl/index.aspx
411	W. W. Norton & Company	United States	1				https://wwnorton.com/
412	Walt Disney Company	United States	1				https://thewaltdisneycompany.com/about/
413	Waterloo Maple	Canada	1				https://www.maplesoft.com/
414	Web Key IT Pty Ltd	Australia	1				https://www.webkeyit.com/
415	Web3D Consortium	United States			1		https://www.web3d.org/
416	White Ops, Inc.	United States	1				https://www.whiteops.com/
417	Wikimedia Foundation	United States	1				https://wikimediafoundation.org/
418	Wiley	United States	1				https://www.wiley.com/en-hr
419	WIRIS Science	Spain	1				https://www.wiris.com/en/
420	Working Ontologist LLC	United States	1				http://workingontologist.com/
421	Worldpay - FIS	United States	1				https://www.fisglobal.com/
422	WU (Wirschaftsuniversität Wien) - Vienna University of Economics and Business	Austria		1		1	https://www.wu.ac.at/
423	Wymsical Inc	United States	1				https://www.wymsical.com/

424	Xeon & Partners	China	1				http://www.xeonlaw.com/
425	Xiaomi	China	1				https://www.mi.com/global/
426	Yahoo Japan Corporation	Japan	1				https://www.yahoo.co.jp/
427	Yoast	United States	1				https://yoast.com/
428	Yubico	United States	1				https://www.yubico.com/
429	Zhejiang University	China		1		1	http://www.zju.edu.cn/
430	Zhongcheng Blockchain Research Institute (Nanjing) Co. LTD	China	1				http://www.zcbri.com/
431	ZIIOT	China			1		http://www.ziiot.org.cn/Web/Index.aspx
432	Zoom	United States	1				https://www.zoom.us/
TOTAL			**329**	**90**	**10**	**28**	

Source: Assembled by author based on data from W3C. Available at: https://www.w3.org/Consortium/Member/List

Appendix 15. International Organization for Standardization ISO/ International Electrotechnical Commission IEC/ International Telecommunication Union ITU Standards*

(*Latest update 14 February 2021)

International Organization for Standardization ISO	Number of Published Standards	Number of Under Development Standards	Participating members	Observing members
ISO/IEC JTC 1: Information technology	3.271	601	34	66
Digitally Recorded Media for Information Interchange and Storage (ISO/IEC JTC 1/SC 23)	132	2	6	6
Online reputation (ISO/TC 290)	1	0	9	19
OVERALL	3.404	603	49	91

Source: Assembled by author based on data from ISO. Available at: https://www.iso.org/home.html

International Electrotechnical Commission IEC	Number of Published Standards	Number of Under Development Standards	Participating members	Observing members
TC 100 Audio, video and multimedia systems and equipment	544	4	16	28
TA 1: Terminals for audio, video and data services and contents	40	4	3	N/A
OVERALL	584	8	19	28

Source: Assembled by author based on data from IEC. Available at: https://www.iec.ch/homepage

International Telecommunication Union ITU	Number of Approved Standards	Standards under Study	Representatives and other roles	Editors
ITU-T Study Group 3: Tariff and accounting principles and international telecommunication/ICT economic and policy issues	20	46	5	55
ITU-T Study Group 9: Television and sound transmission and integrated broadband cable networks (Study Period 2017-2020)	49	16	22	32
ITU-T Study Group 16: Multimedia coding, systems and applications (Study Period 2017-2020)	223	182	30	430
OVERALL	292	244	57	517

Source: Assembled by author based on data from IEC. Available at: https://www.itu.int/en/Pages/default.aspx