Enjoy!

THE ETSI MAG

JANUARY 2021

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SUSTAINABILITY & ICT, ARE WE READY?

ETSI

Editorial

I would like to thank all our members and partners for your continuous support and involvement in a very challenging 2020!

As we strive to lower our carbon footprint and mitigate climate change, this new edition of Enjoy! will discuss the important role ICT plays in future environmental challenges. Sustainability is more than only recycling, and we need to change our mindset and now think in terms of a circular economy. Between 75% and 80% of CO_2 emitted during the life cycle of passive products (cables, connectors, etc.) is due to their manufacture. For electronic products, this proportion can be as high as 85-90%. Additionally, digital products require significant amounts of non-renewable natural resources, as explained in this edition's article ***In the Spotlight****.*

Here, the authors seek to refocus the debate on the real causes of the ecological problems we face today, in addition to evaluating the impact of digital technologies on sustainability. As for the ***Showcase****, it takes us to the Amazon region of Brazil where our Digital Radio Mondiale standards help inform and entertain millions of people, showing again how technology can bring added value to non-urban areas.*

In our exclusive ***Interview****, Orange's Strategy Architecture and Standardization Director, Claire Chauvin, discusses why and how ICT technologies and standards contribute to building a more sustainable world. In our* ***New Member Interview*** *the CEO of Seluxit, Daniel Lux shares with us his vision of IoT and why we should shift from a CAPEX-based business model to a recurring OPEX-based business model.*

Finally, this edition will also address sustainability from different angles in several articles: in our ***Tech Highlights*** *section we explore smart cities' needs, namely key Indicators, while we discover on page 21 how India adopted oneM2M as standards as part of their own future programme for smart cities. In parallel, the* ***Just Released*** *section outlines a Report on citizen requirements developed by our Technical Committee on Human Factors, and our Energy Efficiency Committee have released a specification to define metrics and methods for assessing and measuring energy efficiency in operational networks. Better energy efficiency for 5G is also described by the 3GPP SA5 Chair.*

Our December General Assembly, where the GA and board officials' mandates were renewed, was also the occasion for us to unveil ETSI's new strategy, which you can discover in our article on page 18.

Now, I shall let you read the Enjoy! January issue, wishing you all a happy, serene and sustainable 2021!

Luis Jorge Romero,
Director-General ETSI

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Quantum-Safe Crypto
Virtual Event 2020

The 8th ETSI/IQC Quantum-Safe Cryptography Executive Conference took place virtually and was organized in partnership with TelecomTV on 27-28 October 2020, offering the opportunity to ask questions during live Q&A sessions.

It focused on quantum attacks and how the industry is preparing f to thrive amidst disruptive quantum technologies. Government authorities and policy experts are driving the mitigation of quantum risk for government systems and play a key role in the oversight of critical digital systems.

Digital technology vendors are preparing to migrate their platforms and deliver the quantum-safe solutions that their customers require in the short and medium term.

The speakers presented the current state of quantum-safe cryptography and the pragmatic approaches to preparing digital

platforms to be resilient against quantum attacks. More than 450 people joined the live event on this niche topic! If you missed it, all presentations and panel discussions are now freely available on demand:

www.telecomtv.com/content/etsi-quantum-event-videos/

A follow-up technical event on QSC will be held virtually on 28-29 January 2021.

Homages to:

Ian Thompson
Former BAPCO CEO

Ian, a former police officer, had a long association with BAPCO but became the CEO, some four years ago. In the time that Ian has been at the helm he has transformed the association into one that has a reputation that is admired not only in the UK but around the world. It was with deep sadness that the ETSI-EMTEL Committee received the news of Ian Thompson's passing on 16 November. We all very much appreciated him, both as a person and as a professional. Ian made a tremendously important contribution to the emergency services community. We will always remember him as a positive and forward-looking person. Our deepest sympathies go to his family. Ian will be sorely missed.

Jean-René Rousseau
Former chairman ETSI SC USER group

Jean René was the Chairman of the mobility and convergence group in AFUTT and had been the Chairman of the ETSI USER group for over 9 years. He passed away at the beginning of December.

The USER group praises Jean René for the outstanding role he played. He was a significant actor during his mandate, in particular by creating, commenting and receiving support and approvals for the STF 543 work on « User Centric Approach in the Digital Ecosystem » which has fostered a renewed and very significant approach that helped to better align the SC USER's program with the actual standardization challenges.

We would also like to highlight his kind, humble and collaborative personality. We will all miss him.

Marc Girod-Genet
Rapporteur TC SmartBAN

Marc was a Professor at Mines Paris-Tech and an Associate Researcher at CNRS. He contributed significantly to ETSI's work in TC SmartM2M, TC SmartBAN and EP eHealth. Marc passed away at the beginning of December and his peers shared their thoughts on losing a valued colleague in ETSI's groups.

We will all keep the memory of a very brilliant and motivated professional. He was always gently supportive with practical, deeply thought out comments and was a kind and very devoted and knowledgeable specialist. He was a great person with a great culture and a wide range of interests with a friendly, open minded and enthusiastic nature. We will remember Marc for his conversations about work, life, trips and his sailing boat...

Elections at ETSI GA#76
Outcome

One of the agenda topics of the latest ETSI General Assembly that took place virtually on 1 and 2 December 2020, was that of new elections for the General Assembly officials for a two-year period and for Board members for a three-year period. The GA Chair, Dr. Neviana Nikoloski (Phonak Communications), and Vice Chair, Mr Dominique Wurges (Orange) were re-elected and Mr Massimo VANETTI (Small Business Standards) was elected as new Vice Chair. The Chair of the Board, Mr Dirk Weiler (Nokia) was re-elected. Mr Markus Mueck (Intel), and Nick Sampson (Orange) were re-elected as Vice Chairs and Mr Simon Hicks (UK DCMS) was elected as third Vice Chair. Among the 29 board members, four come from small and medium enterprises.

In an exclusive interview with ETSI, Claire Chauvin shares her vision on ICT and why these technologies and their standards play a key role to build a more sustainable world.

Orange vows to achieve Carbon neutrality by 2040, how does your department contribute to this ambitious goal?

The department's mission is to lead and coordinate the standard work and define the network strategy for Orange group. As such, the team works closely with Orange's key stakeholders on network energy efficiency and the delegates to world's key standard development organizations and forums including 3GPP, ETSI, GSMA, NGMN, ITU-T, IETF, BBF etc to drive the standard work on energy efficiency

Claire Chauvin

Strategy Architecture and Standardization Director, Orange

After graduating as an Engineer from Telecom Bretagne, Claire Chauvin quickly joined Orange where she held several managerial positions in Telco innovation areas. She was appointed Strategy Architecture and Standardization Director in January 2020. Her mission is to serve the Orange countries and business units by defining the technical strategy, the end-to-end architecture for key technologies, and the standardization policy of the Orange Group.

Amongst other technical and strategic objectives, Claire is responsible for identifying technological disruptions and evolutions. This involves elaboration and implementation of a standardization strategy and roadmap that is aligned with Group strategy, and identification of the priority topics that can deliver value to operators. Accordingly, she is responsible for the Orange participation in multiple standards bodies, industrial associations and Open Source initiatives, including defining the relevant representation and managing associated budgets across the Group.

and green aspects for ICT systems. For example, Orange initiated and successfully pushed the support of 5G energy efficiency in 3GPP, leading the work of energy efficiency support for network virtualization in ETSI. We also created and lead the Green Future Networks project in NGMN.

> "Orange leads the work of energy efficiency support for network virtualization in ETSI."

We are closely working with our vendors to develop solutions and features to improve energy efficiency, especially on the radio access part that concentrates 80% of electricity consumption of a mobile network. Also, we work through trials on improved cooling solutions for servers, innovative energy storage solutions for Technical Environment.

More globally our Orange Network direction is involved in evolution of the energy mix to increase part of renewable electricity for the IT&Networks (ITN) domain that concentrates on average 80% of CO_2 emissions. Energy Action Plan have been developed in Orange countries for 10 years now, and is accelerated to reach Engage 2025 objectives. Initiatives taken about circular economy and refurbishment of ITN equipment is also key to reduce CO_2 emissions.

Orange also played a key role in the successful cooperation between ITU-T, GSMA, GeSI, SBTi and the IEA on the development of sectoral ICT worldwide 1,5°C greenhouse gas emissions trajectories compatible with the Paris Agreement on Climate.

How can 5G support smart energy transition?

Network automation and edge computing in 5G networks can serve as enablers for smart energy control. For example, the 5G base stations under 3GPP 5G system management and control for energy saving have the capability to autonomously decide to activate the control for reducing the transmission power from the basestation based on the traffic load. Orange is now

> "Network automation and edge computing in 5G networks can serve as enablers for smart energy control."

leading the work in 3GPP to define the energy efficiency support for 5G network slicing which will enable to meet private and business customers' service needs while monitoring and minimizing the energy consumption.

On average, experience shows that each mobile generation divided by 10 the energy consumed per gigabit transported, expectations are the same for 5G.

Do you think ICT standards have their role to play in building a more sustainable future?

Yes, sustainability requires the whole ICT industry and the associated vertical industries to take collaborative efforts and actions in maximizing the supply and the use of green energy, reducing energy consumption, improving energy efficiency, and effective life-cycle management of the ICT devices and equipment including recycling. International standards have proved to become the most effective means in enabling the deployment of green/energy efficient technologies and establishing the eco-system to reduce the ICT industry carbon footprint.

A typical example is the ETSI Technical Committee (TC) Access, Terminals, Transmission and Multiplexing (ATTM) that Orange is actively involved in. This group defines the standards of Operational KPIs, to monitor global sustainability of ICT services and networks deployed in the fields. It also develops the tools for ICT users, operator, service providers to

> "Work done in standards regarding eco-design is key to improve circularity in equipment's design and usage."

monitor the sustainability of smart cities and the sustainable efficiency, including eco-efficiency and energy management of ICT system sites and networks.

Work done in standards regarding eco-design is also key to improve circularity in equipment's design and usage.

Orange is involved in many ETSI and 3GPP activities, do you see a technology we should focus our efforts on?

Orange has drawn up a clear environmental policy as early as in 1996 and continued to focus on three main areas:

- Reducing the direct impact from our service and network operations, including reducing our energy carbon footprint and optimizing the waste management.
- Reducing the impact of our products and services in our customers' premises via eco design and promoting eco-friendly uses.
- Developing innovative services and products for our individual and business customers to reduce the impact on the environment for a more sustainable future.

In addition to the current intensive effort by the worlds' standard organizations to manage the ICT system sustainability and energy efficiency in network automation and

> "The next generation mobile networks will include the environmental impact and sustainability as the key requirements on the design."

network virtualization, e.g. the joint work led by Orange between ETSI TC EE and ITU-T SG5 to define the Green Abstraction Layer for Network Virtualization, we see the next generation mobile networks to be among the key focus areas to include the environmental impact and sustainability as the key requirements on the design.

Welcome to our NEW members

AeroMobile Communications, United Kingdom

AeroMobile, a subsidiary of Panasonic Avionics Corporation, is a UK based mobile service provider for the aviation industry. AeroMobile's services are available for installation either at the point of aircraft manufacture (line fit) or on aircraft in service (retrofit) across both Airbus and Boeing aircraft. Satellite technology enables passengers to use their mobile phones onboard a connected aircraft. When you take your mobile phone out of 'Airplane Mode' its signal is relayed from the aircraft antenna, via satellite to the AeroMobile ground network.

albis-elcon system Germany GmbH, Germany

albis-elcon is the premier brand of United Electronic Technology (UET), a technology group based in Eschborn, Germany. albis-elcon supplies communication service providers (CSP) in the telecommunications industry with a comprehensive range of products and systems for copper and fibre broadband access, remote network powering and network management.
They have a workforce of 230+ with nearly 100 engineers in R&D who develop and industrialise hard- and software for international customers and telecom networks.
Over 50 leading international communication network providers, among them Deutsche Telekom, Orange, Telecom Italia, Telefónica and Telekom Austria have deployed more than 13,000,000 network devices.

BI - Barkhausen Institut, Germany

The Barkhausen Institute is an independent research facility in Dresden that works closely with the Technical University of Dresden and focuses on the core fields of the Internet of Things (IoT). The institute conducts application-oriented basic research with a time horizon of 5 to 10 years before market launch. As an innovation centre for IoT technologies, it is the point of contact for local and global industry.
The Barkhausen Institute attaches particular importance to the communication of research results and research methods. Discourse with the population about technological developments is part of the everyday work of all researchers. The Barkhausen Institute is a member of the DRESDEN-concept network . This is an association of the Technical University of Dresden with strong partners from science and culture with the aim of making the excellence of Dresden research visible

Digital Catapult, United Kingdom

Digital Catapult is the UK's leading advanced digital technology innovation centre. It works with a range of organizations - including startups and scaleups, established businesses, investors, government and public sector, research and academia - to discover new ways of solving industry challenges, increase productivity and open up new markets.
This is done across a range of technologies that are converging to form an emerging advanced digital technology stack. They include artificial intelligence and machine learning; future networks with 5G, the internet of things (IoT) and other next generation network technologies; immersive technologies such as virtual, augmented and mixed reality, and haptics and distributed systems with distributed ledger technologies, including blockchain.
This stack is constantly evolving, with new technologies such as quantum computing on the horizon and cybersecurity included.

Kryptus, Brazil

Kryptus is a Solution Provider for information society. It is a Brazilian independent company focusing on long-term scientific and technological actions, of understanding the missions of their clients and the lines of business that it develops.
They deliver to their customers a secure environment for their current and future operations, keeping them ahead of their adversaries and threats so that innovation is constant, allowing them to generate and enhance new opportunities. Kryptus offers tailor made solutions, in the form of projects that integrate hardware, software and services, at competitive prices, whether to innovate for compliance reasons or risk aversion.

Nextra Partners, France

Nextra Partners was created in 2019 and is an independent consulting firm based in Marseille which supports economic players in their transformation and development projects. Whether they be a large group, an ETI, an SME, a startup or an administration, Nextra develops with them the strategy most suited for their challenges and supports them in their operational implementation.
Nextra Partners was born from the meeting of entrepreneurs with complementary pasts and personalities who have the ambition to bring together an innovative and dynamic ecosystem aimed at providing sustainable added value to its clients. Their expertise spans many fields such as strategy and finance, business transformation or research and development.

Onfido, United Kingdom

Onfido's AI-based technology assesses whether a user's government-issued ID is genuine or fraudulent, and then compares it against their facial biometrics. This gives companies the assurance they need to onboard customers remotely and securely. Onfido now helps over 1500 companies to verify their users. They employ over 400 people worldwide with offices in London, San Francisco, New York, Lisbon, Paris, New Delhi and Singapore.
Their mission is to build an open world, where identity is the key to access, a world where anyone will be able to remotely verify their real identity with an identity document and their facial biometrics. As more people are able to remotely verify their real identity, the more accessible essential services become. Artificial Intelligence is one of humanity's most powerful tools to solve world issues around identity and access. But it also has the capacity for harm. Onfido are committed to ensuring AI is built in an ethical way.

Polaris Networks, USA

Polaris Networks was started in 2003 and have since developed a wide range of test tools and communication gateways that are actively used by Network Equipment Manufacturers, Service Providers and Test Labs across the world. As a member of several industry organizations in the communications arena, Polaris has gained a reputation for promoting the adoption of new technologies such as WiFi, WiMAX, RFID and LTE right from the draft specification to deployment.
Polaris is based in California, and sources R&D services from a dedicated service provider in Kolkata, India. The development centre currently has over 100 employees in two offices owned by the company.
Polaris Networks currently provides software and services in two areas: test and measurement for Wireless Technologies and Packet-core for Cellular Technologies (4G and 5G).

InCoax, Sweden

InCoax was founded in 2009 and is headquartered in Gavle with its office in Lund, Sweden. They develop innovative broadband solutions and provide the next generation of smart and sustainable networking products and solutions to the world's leading telecom and broadband service providers.
Through its product brand in:xtnd, InCoax markets solutions for the "Last Mile Challenge" of broadband services. Fibre access extension solutions that brings Gigabit speed internet to homes, offices, hotels and healthcare through the existing coaxial cable (antenna) network.

Telesat International Limited, Canada

With a strong legacy of engineering excellence, reliability and industry-leading customer service, Telesat has grown to be one of the largest and most successful global satellite operators.
Telesat works collaboratively with its customers to deliver critical connectivity solutions that tackle the world's most complex communications challenges, providing powerful advantages that improve their operations and drive growth.
In addition to a state-of-the-art global, geostationary satellite fleet, Telesat LEO, their Low Earth Orbit network, will revolutionize global broadband connectivity by delivering a combination of high capacity, security, resiliency and affordability with ultra-low latency and fibre-like speeds.

Seluxit CEO shares with us his vision on IoT and the circular economy.

Over the years, Seluxit has grown significantly, what is your recipe for IoT Success?

We favour a holistic approach with our customers, offering them end-to-end services, from wireless communication, to embedded hardware and software, cloud connectivity and user interfaces. In a few cases, our R&D team also helps design proprietary wireless protocols. Offering a broad range of IoT expertise within the same company provides a real added value for our customers, and it also allows them to keep up to date with the latest technologies as innovation is key to our business.

A good example of this broad expertise is the Gardena (Husqvarna Group) use case. We helped them connect three garden products including a robotic lawnmower securely to the internet, enabling app-based monitoring, control and automation. We now manage the operation and maintenance of the Gardena Smart system with over-the-air updates, which ensures that any bug fixes are automatically deployed to every

Daniel Lux

CEO of Seluxit

Daniel Lux is CEO of Seluxit with end-to-end IoT expertise from device to cloud to app. Born in Germany, educated in the Netherlands, and residing in Denmark, Daniel's outlook is distinctively international. This international outlook is reflected both in his company make-up and his customer base, which includes German Gardena, member of the Swedish Husqvarna Group, as well as the German utility giant Innogy (now part of E.ON), for whom Seluxit was instrumental in creating the Lemonbeat wireless protocol. Daniel has also been very active in driving standards throughout his career. He's the inventor of several patents. Engaged with high-level IoT concerns such as security policies and device interoperability, Daniel actively contributes to these topics in W3C, IETF and ETSI.
https://www.seluxit.com

device in the field. In addition to low-level device concerns, Seluxit has also helped implement intelligence, such as adaptive watering, which skips scheduled lawn watering when humidity sensors register a wet lawn.

Do you believe that IoT can support the circular economy?

Absolutely, companies need to shift from the old paradigm of CAPEX-based business models to recurring OPEX-based business models. This move will

> "IoT can support the circular economy by enabling OPEX-based business models."

reduce the carbon footprint on the planet. If manufacturers sell services instead of gaining their income from physical products only, it will entice them to make high-quality, repairable, upgradable and recyclable products. Being a service-oriented company will generate a more stable and recurring income. At the same time, this will represent a competitive advantage for Europe towards low-cost products made in Asia.

But to achieve this, you need more visibility on the usage of the product, and this is enabled by IoT. Smart appliances can activate preventive maintenance, services can comprise options to adapt to family needs, for example triggering replacement with a smaller washing machine when children are grown up and move out of the house. It is like renting a car, it's slightly more expensive but you don't need to worry about the insurance, repairs or winter tyres.

For you, what is the added value of IoT devices at home?

IoT can bring a real benefit to people's lives in the near future. If we take smart meters for example, achieving near real-time measurement allows you to build a new business case for elderly care. As you know, an uninhabited house has a very systematic and constant energy pattern but if your grandmother is at home, you expect some activity, by her switching on the coffee machine, radio or lights in the morning. If nothing happens, an alarm can alert the municipality or family. To go even further, we may be able to detect the occurrence of disease based on an unusual activity: with water meters, higher activity at night might be an early sign of dementia; frequency of toilets being flushed might indicate diabetes. These

> "IoT may enable us to detect the occurrence of a disease."

are examples of a warning system which could be set up for a doctor. Obtaining a more frequent measurement is attainable and cost-effective, and would help society optimize healthcare management.

What is your contribution in the IoT standards landscape?

Our vision is that IoT needs to matter. IoT needs to improve the way we do things. We can improve business and society at the same time. We need to find what really makes an impact, and part of that is also ensuring that IoT solutions are easy to use, otherwise nobody will follow through.

Our standard products are key to making easy-to-use IoT that matters. Why? Because standards represent problems that have already been solved. That

> "Standards represent problems that have already been solved."

means our customers can save time, save money, lower their risk, and focus on what really matters, which is solving the problem in a meaningful way.

But standards aren't achieved by themselves. It's hard work. Our added value to our customers are the problems that we've already solved. We've made the mistakes and we've solved the problems, so they don't need to. Using standards means that we're also standing on others' shoulders, but, of course, standards can only take you so far. We have to supplement them with our expertise and experience to come to the right solutions and standard IoT products. Our unique experience means that we have something to contribute.

That's why I've joined the ETSI technical group on short-range devices: to bring our concerns and experience into the collective work of solving problems through standardization. That way, we can all ensure that the IoT is easy to use and that matters.

Data is indeed important, so what about privacy concerns?

IoT means collecting more and more data over the years. In the digital era, what seemed obvious answers to ethical questions about ownership and privacy have become complicated. One example of a major issue is the balance between

> "Data ethics are important because at the end of the day, we don't just want to obey the law, we want to do what we think is right."

individuals' property and privacy rights versus companies and fair use of data collected through their online services and devices, and governments and their attempts to create value and security for citizens through data surveillance. We therefore hired a PhD student in philosophy specialized in data ethics to help us draw up a collection of principles regarding data ethics. He came up with ten principles on data ownership, privacy, consent, trust, public information, profiling, security, accountability, data purposes and public awareness. These principles have general applications but stem from questions that arise in our daily work.

Because at the end of the day, we don't just want to obey the law, we want to do what we think is right.

The needs of Smart Cities:

Saving the planet with green digital technology

Smart Cities are facing increasing environmental challenges: key indicators will help make them sustainable.

In the age of smart and sustainable cities, digital technology can provide political decision-makers with the information and decision-support tools essential for the rapid adaptation of their public policies. Indeed, climate and health risks have never been greater for the planet than they are today. Any smart city is a consumer of information and a producer of services. These two functions require suitable, not oversized, means and communication.

In practice, this implies the deployment or optimization of means of communication that have already been implemented, of sensors, networks, and data analysis platforms that will make it possible to respond to these challenges.

Environmental impact

Paradoxically, we have become aware almost simultaneously that digital technology is contributing more and more to our greenhouse gas emissions and that its carbon footprint is already greater than that of air transport on a global scale.

In addition, public policies have objectives in terms of environment, quality of service for citizens, and comfort that must be identified. It is therefore necessary to evaluate the impact of the measures taken on these initial objectives in order to assess the relevance and efficiency of the developed services.

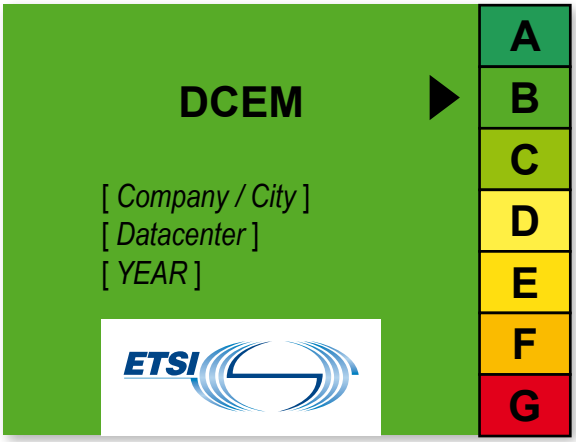
City of Bordeaux - ©Arthur Pequin

The genesis and synthesis of indicators

The effectiveness of a solution is measured by its consumption in relation to the services it delivers. Defining KPIs (key performance indicators) in each activity area becomes essential.

In 2008 ETSI drew up specifications on the energy efficiency of Data Centers. In 2010, the European Commission asked European standards bodies to propose rules and tools to improve the

monitoring and efficiency of sustainability. In 2013, after a year and a half of work, the ETSI Industry Specification Group on Operational Energy Efficiency for Users (ISG OEU) was born. This initiative brings together ICT users responsible for infrastructure. They have developed a KPI called DCEM, for Data processing and Communications Energy Management, which



enables them to objectively compare infrastructures based on ten indicators.

In 2015, the network of more than 140 European cities, Eurocities, contributed to the H2020 CityKeys project. Their participation resulted in the development of a repository of more than 120 Key Performance indicators including the themes people, planet, prosperity, governance and propagation.

This repository has already been adopted by many European projects. This makes it possible to benchmark the results of the solutions that have been deployed on the European continent against a common repository.

The normative response

In 2019 and 2020, as part of a framework carried out at ETSI by the Technical Committee ATTM SDMC, the CITYkeys KPIs mentioned previously were developed as standards and have given rise to ETSI specifications *TS 103 463-2* and *TS 103 463-1* titled Key Performance Indicators for Sustainable Digital Multiservice Cities. These specifications allowed indicators to be linked together and consolidated as three global indicators in TS 103 463-2 addressing people, planet and prosperity.

The TS 103 463 series complements the fourth global indicator standardized in the ETSI *EN 305 200* standards series addressing Data Center Energy Management (DCEM). This standard aggregates all the KPIs, from cable, fixed, mobile networks, datacenter and up to the city, to help local authorities better direct their digital renovation while respecting the planet.

The future

The work is not finished. These global KPIs must be understood and adopted by as many cities as possible. To reach this goal and with the support of the Eurocities network (which brings together major European cities), the ETSI ISG OEU will contribute to a major ‘Road Show’ in Europe, centred on these sustainable standardization needs at the operational level with the consideration of ETSI standards.

Long live green digital technology. Long live the planet!

■ *Christophe Colinet, Vice Chair ETSI OEU ISG, Daniel Zotti, eG4U.*

New Report on Citizen Requirements for Smart Cities

The ETSI Human Factors Technical Committee has released ETSI *TR 103 455*, a Technical Report that assesses the different citizen-related issues that smart city-related standardization in the ICT domain needs to address. These include fundamental aspects such as accessibility, usability, interoperability, personal data protection and security, and how services to citizens are to be designed to maximize benefits to the community. The study gives an overview of existing ETSI and other SDOs standards in that field, including ETSI community indicators. It aligns well with the UN Sustainable Development Goal 11 "Make cities inclusive, safe, resilient and sustainable". ETSI TR 103 455 ETSI's TC Human Factors, with the support of the European Commission and EFTA Secretariat, provides recommendations to the standards organizations with specific proposals grouped into three categories: Guidance, Codes of Conduct and Standards.

DECT-2020 new radio interface for IoT

Developed by ETSI in the 90's, the DECT™ standard (Digital Enhanced Cordless Telecommunications) is implemented in more than a billion short-range communication devices around the world. The technology is now taking a giant step forward with a new set of DECT-2020 New Radio (NR) standards: the ETSI *TS 103 636* series defines an advanced radio interface applying modern radio technologies. It is designed to provide a slim but powerful technology foundation for wireless applications deployed in various use cases and markets. DECT-2020 NR was developed to support broad and diverse wireless IoT applications requiring both ultra-reliable and low-latency communication needed in voice and industrial applications. It also supports massive machine-type communication with millions of devices in a network required in use cases such as logistics and asset tracking, industry 4.0 and building automation as well as condition monitoring.

Metrics to measure energy performance of Mobile RAN

ES 203 228 defines metrics and methods for assessing and measuring energy efficiency in operational networks. It is based on the measurement of performance of small networks, for feasibility and simplicity purposes. The standard covers radio base stations, backhauling systems, radio controllers and other infrastructure radio equipment. It includes technologies such as GSM, UMTS, LTE and 5G New Radio (NR). Aiming to consider also network slicing available from 5G onwards, the metrics include the latency of the network related to the energy consumed, in addition to the metrics based on traffic and on coverage, which already exist for legacy networks. ES 203 228 deals with both a homogeneous and heterogeneous "network" considering a network whose size and scale could be defined by topologic, geographic (city-wide, national or continental networks) or demographic (urban or rural networks) boundaries.

SUSTAINABLE & EFFICIENT SMART COMMUNITIES

One way we can reduce our impact on climate change – and at the same time reduce operational costs – is by improving the energy efficiency of ICT products and services. Between 75% to 80% of CO_2 emitted during the life cycle of passive products (cables, connectors, etc.) is due to their manufacture. For electronic products, this proportion can reach 85-90%! Additionally, digital products require significant amounts of non-renewable natural resources. The germanium used in optical fibres is not recycled. The rate of copper recycling is only 41% in Europe. These are some of the issues outlined by the ATTM Committee Chair and a member of our OEU ISG in the following article where they also discuss how ICT standards can help recycling and energy efficiency.

In our use case, we go far away to the Amazon region of Brazil where we are proud to reveal that our DRM standards help inform and entertain around 7 million riverside and indigenous people living far from any other means of communication, and where infrastructure for electricity is poor or non-existent.

Sustainable & Efficient

Smart Communities

One way we can reduce our impact on climate change – and at the same time reduce operational costs – is by improving the energy efficiency of ICT products and services. The ATTM committee is developing tools for ICT users to monitor the deployment of sustainable smart cities and the efficiency, including eco-efficiency and energy management, of their sites and networks.

The issue of carbon footprint

Today we are confronted with worldwide environmental issues, mainly originating from global warming, but also by the depletion of non-renewable natural resources and the societal and environmental damage that their extraction causes.

> We need to refocus the debate on the real causes of our ecological problems.

It is necessary to refocus the debate on the real causes of these ecological problems: our carbon emissions and exponentially increasing consumption of products and materials for ever shorter periods with little or no concern for recycling and reuse.

These causes have little to do with the consumption of electricity. In fact, CO_2 emissions linked to energy consumption depend largely on the energy mix of its production [gas, nuclear, oil, or green - wind, solar, hydroelectric, etc.]. Where there is a low-carbon electricity mix, as in France (69 g eq. CO_2/kWh, according to the International Energy Agency), electricity savings have little impact on CO_2 emissions and therefore on global warming.

Digital technology, help or hindrance?

Digital technology leads us to install new infrastructures, networks, systems and connected objects that provide digital services to our urban and rural areas, but how can we do this with a minimal ecological impact?

75% to 80% of CO_2 emitted during the life cycle of passive products (cables, connectors, etc.) is due to their manufacture. For electronic products, this proportion can reach 85-90%. Additionally, digital products require significant amounts of non-renewable natural resources.

> 85% of the CO_2 emissions during the lifecycle of electronic products are due to their manufacture.

The germanium used in optical fibres is not recycled. The rate of copper recycling is only 41% in Europe.

According to the General Energy Council, digital technology in France in 2019, for example, represented 5% of global CO_2 emissions or 11 Mt eq. CO_2. 3 Mt were emitted as a result of digital technology use, and 8 Mt for the manufacture of electrical and cabling products. Emissions are growing by around 8% per year.

Doing more with less

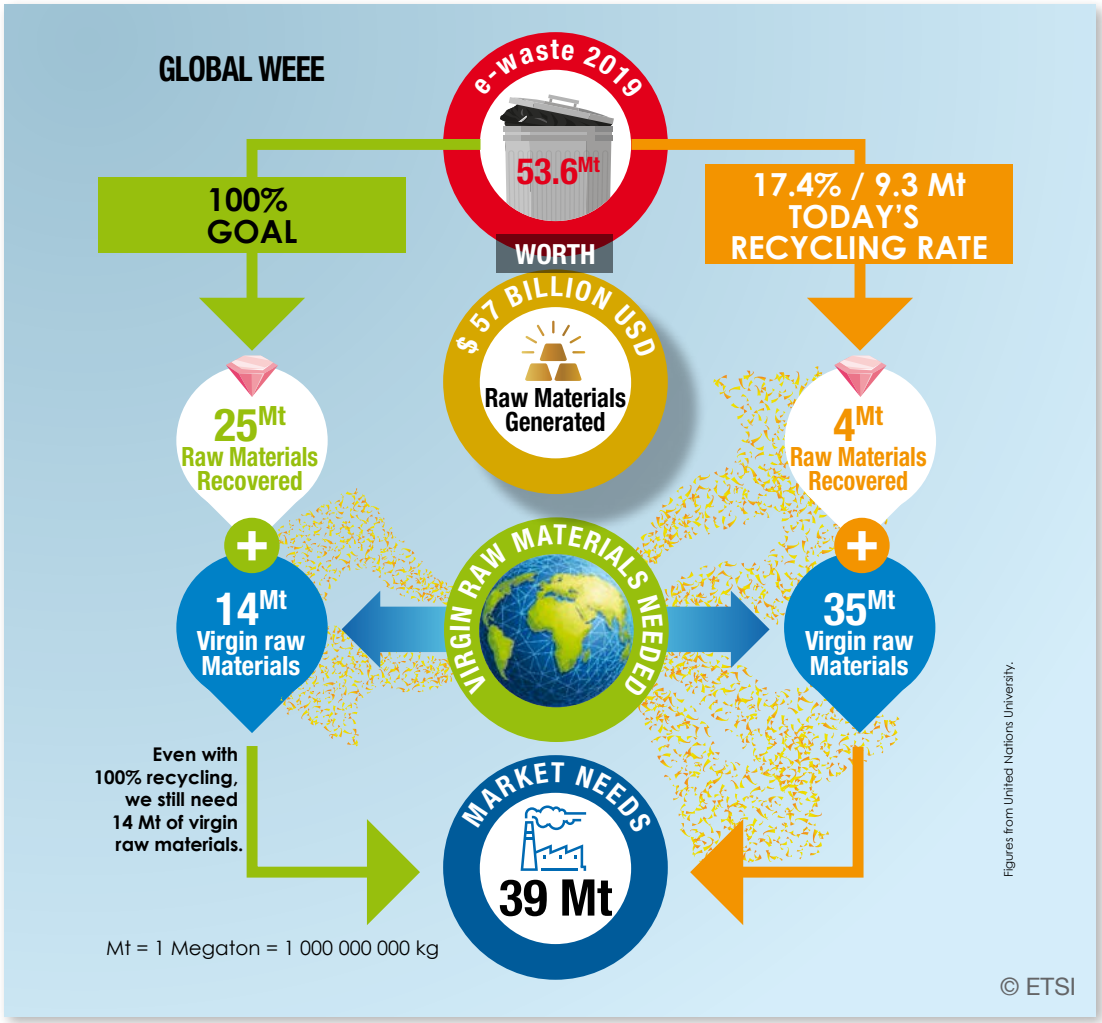
With digital technology, we must do more with less: less energy, less CO_2, fewer products, fewer resources, less space utilized.

The deployment of digital services must comply with eco-design principles, from the definition and manufacture of its products, to the writing and running of its software and applications. Technical projects must be developed using solutions and technologies with the lowest ecological impact.

For now, we have very little information from manufacturers and publishers on the impact of their products and software, making it almost impossible to calculate an ecological gains/impact ratio. Indicators validated by the different stakeholders remain to be defined for this. This undertaking alone will take time, but the climate emergency no longer offers us the luxury of waiting. Our carbon emissions significantly exceed the thresholds set by the COP21 and lead us to prospective increases of 6°C to 8°C by the end of the century.

Standardized technologies as enablers

New technologies and infrastructure strategies are expected to enable operators to decrease the energy consumption, for a given level of service,



of their existing and future infrastructure thus decreasing their costs. This requires a common understanding among market participants that only standards can achieve. ETSI has released *EN 305 174-8* to help manage the end of life of ICT equipment. The EN specifies requirements and recommendations for the ICT sector to meet the WEEE (Waste of Electrical and Electronic Equipment) EU Directive with specific recommendations for an ICT context. Traceable collection, material recovery through recycling but also refurbishment for second-hand equipment are also key in a low economy.

5G, smart cities, smart appliances, smart grids and smart metering, to name a few, can all mitigate the impact on climate change of the growing use of ICT. All these activities are standardized in several groups in ETSI.

By applying some basic common-sense rules, we can immediately act effectively. The first step in reducing carbon emissions is by not emitting any. The easiest way to reduce our depletion of natural resources and energy is by using them as little as possible. Here are some examples of technology best practice:

- Electrical cables can also carry data.
- Communication cables can also power terminals.
- Coaxial cables are also a powerful medium to constitute IP infra-networks.
- Streetlamps can also be LPWAN antenna supports for an economical way of connecting objects: a network access radio terminal for users, a traffic detector, a pollution meter, etc.
- Data rates of the infra-network segments can be adapted to their uses.
- Think virtual and pool the uses of products when defining the networks and computing power required for the services.
- Converge all communications systems into a common network infrastructure.
- Favour multi-purpose products, the same unit can contain an occupancy sensor, air quality meter, thermometer, humidity sensor, a lux meter, etc.
- LED street lighting can also be a communications medium.
- Prefer edge computing to cloud computing when data from digital systems is processed and used locally.

In order to provide relevant and pragmatic answers to the ecological problems posed by digital technology, the ETSI OEU ISG is working on a position paper that aims to lay down principles and guidelines for sustainable and ecologically responsible digital technology, in technical, economic, organizational and regulatory fields.

By exploiting what already exists, by pooling the use of products for several functions, by prescribing interoperable, modular and modelled solutions, based exclusively on public standards and on common languages and APIs (Application Program Interface), we can make great strides towards sustainability.

By prescribing interoperable solutions, based on public standards, we can make great strides towards sustainability.

Dominique Roche, ETSI Chair TC ATTM, Gilles Genin, ETSI OEU ISG, CEO InGeTel-bet.

Informing and entertaining remote communities:

how ETSI Digital Radio Mondiale contributes to the UN Sustainability Goals

Digital Radio Mondiale (DRM) is an openly standardized digital radio broadcasting system, designed to offer user-friendly access to radio services and data. It brings substantial energy savings over other techniques and helps remote areas access worldwide coverage.

DRM was first standardized by ETSI in 2001 after its development by the DRM Consortium, a membership organization composed of international radio broadcasters, equipment makers and other key stakeholders. The initial system targeted the AM frequency bands, but the system has subsequently been extended to cover the VHF bands (including the FM band).

DRM is unique in providing the same range of features for all kinds of radio services, from ultra-local to wide international areas. In this article, we explore the wide areas coverage.

Against all odds

There are many ways to reach people with communication services, but when a relatively small number of people are spread out over a huge area, economic factors dictate that few solutions are viable. Radio New Zealand International provides vital radio programming to communities in the South Pacific islands (an area in excess of 16 million square kilometres), and since 2005 this has been achieved using DRM as a feeder to local FM radio stations for rebroadcast. This technique is much more resilient than satellite delivery - large receiver dishes are needed in the islands and these are easily damaged by severe weather events, which are all too frequent. Another advantage is that the DRM signal is also directly receivable, so that seafarers can still tune in when away from local FM transmission areas.

Through the Amazon wilderness

This year, a DRM short wave transmitting station has been established by *Empresa Brasil de Comunicação* in Brasilia to serve the Amazon region of Brazil. This vast wilderness is home to about 7 million riverside and indigenous people who live far from any other means of communication, and where infrastructure for electricity is poor or non-existent. The 2.5 kW transmitter has been developed and manufactured in the city of Porto Alegre by the Brazilian company, BT Transmitters using ETSI specifications for the system-level and interface definitions. Listeners will be able to use battery-powered portable receivers.

Achieving UN Sustainability Goals

Thus, DRM is helping to reach several UN Sustainability goals by delivering information and entertainment to remote populations. As well as audio, DRM also provides text and images, and together, these can be used to promote health and enhance distance learning: UN Sustainability goals 3 and 4 are “Ensure healthy lives and promote well-being for all at all ages” and “Quality Education”. UN Sustainability goals 9 and 10 are also in scope: “Build resilient infrastructure, promote sustainable industrialization and foster innovation” and “Reduce inequality within and among countries”.

■ *Lindsay Cornell, Principal Systems Architect, BBC Design + Engineering.*

Exploring the potential of standards to protect the planet – and how ECOS works to make them greener

2020 World Standard's Day was themed "Protecting the planet with standards", proving that the standardization community turns its attention to the crucial topic of environmental protection. At ECOS, the environmental NGO expert in standardization, we believe that standards are essential tools to prevent a climate breakdown, which is why we have been advocating to make them environmentally ambitious for nearly 20 years.

How can standards protect the planet?

Luckily, in a number of ways. Standards can make home appliances and devices more energy-efficient and repairable, create ways to reuse and recycle electronic waste, such as ICT, or set incentives to ensure we do not design environmental problems into our products.

Standards have an enormous influence on how products are made, and services are provided, with a potential to facilitate the transition to a greener and more circular economy. Since they manage the world around us, it is vital that they address environmental concerns.

...And what happens if they don't?

On the other hand, if the environment is ignored in the development of standards, the planet – and its people – will face negative, and sometimes dangerous, consequences. Think of the example of the mountain of waste from electrical and electronic appliances.

It is crucial to ensure standards do not inherently hinder the uptake of environmentally friendly solutions. They need to allow for and foster the use of green alternatives. For example, in the case of electronic devices such as our laptops and smartphones, standards should enable an easy assessment of reparability and durability (you can learn more from our recent report).

This is why it is vital to go beyond the usual "common denominator" approach in standards making and universally raise their ambition, so that they are compatible with EU and international environmental objectives such as the European Green Deal, aiming to make the EU economy sustainable, or Paris Agreement on climate change.

Who makes sure the environment has a voice?

ECOS is proud to give the environment a voice in standardization. We are an international NGO with a network of members and experts, covering a wide range of areas, from climate change, ecodesign and material efficiency, to circular economy, waste management and environmental health. We work closely with all the European standardization organizations (ETSI, CEN and CENELEC), as well as ISO and IEC.

We contribute to the work of ETSI on standards related to the environmental performance of ICT products. In the course of 2020, we have contributed to the development of standards aiming to ensure that servers in data centres consume less energy and are easier to reuse, remanufacture and repair. We have also been involved in discussions about how telecommunications equipment could be made more sustainable.

Being a member of ETSI helps ECOS to play an active part in the development of its standards, and to help ensure that environmental voice is heard in the surrounding discussions. With the digital sector continuing to grow year on year, we believe it is crucial to ensure that this growth is accompanied with the necessary sustainability considerations - a key goal which can be supported by our effective participation in ETSI.

■ *Justin Wilkes, Executive Director, ECOS.*

ETSI launches a new strategy in line with its ambitious vision:

"Designing tomorrow's world"

Designing tomorrow's world, ETSI is at the forefront of new Information and Communication Technology, leading the development of standards that enable a sustainable and securely connected society.

Looking back...

Our Long Term Strategy 2016-2021 has been a powerful tool to guide ETSI's direction of travel while supporting our strong position within the global digital landscape. As an ambitious, agile and forward-looking organization, however, we have always had a close eye on the evolving worldwide context and how we can best anticipate our future needs.

A revision of ETSI's Long Term Strategy was thus proposed in 2019, adopting the concept of a rolling plan and assigning a core group to create a first draft prior to broader discussion with all our members.

> We have considered cutting-edge innovation in ICT, ranging from AI and Machine Learning to developments in cloud, photonics and quantum computing.

The first meeting of this core team was held on December 19, 2019. After intensive collaborative work, the new strategy was finalized and adopted by the ETSI General Assembly in December 2020.

Titled Designing tomorrow's world, the new strategy flows from a far-reaching evaluation of the global context in which we operate as an organization. In turn, it defines our values, mission and vision while indicating ETSI's future direction as a reference SDO.

The Context...

The context around our new strategy takes a high-level view of the main socioeconomic, policy-making and technology trends characterizing the ecosystem where ETSI operates and that may impact our activities.

Building on this classification, we have taken into account a wide range of factors, including climate change, the circular economy, energy efficiency and the UN's Sustainable Development Goals, the role of SMEs, European policy initiatives and the EC's industrial strategy. From a more technology-driven perspective, we have also considered cutting-edge innovation in ICT, ranging from Artificial Intelligence and Machine Learning to developments in cloud, photonics and quantum computing.

In addition, we have re-examined the changing role of ICT in society manifested through digital transformation and the evolution to a data-driven society, the increasing roles of virtualization and cloud computing as well as issues related to security and privacy. Finally, we have explored the roles of the main players in the ICT ecosystem, the importance of standardization in different industry sectors, and the importance of learning, education and skills.

The Strategic Position...

ETSI's Mission is "to provide platforms where interested parties come together and collaborate on the development and promotion of standards for Information and Communication Technology (ICT) systems and services, used globally for the benefit of all". Underpinned by our basic principles (Worldwide community; Innovative and market driven; and Recognized European Standardization Organization with global impact), this positions ETSI very well within our operational context to aim for higher ambitions, as per ETSI's vision.

The 5 Strategic Directions...

To deliver its vision, ETSI will follow a path marked by 5 Key Strategic Directions. Together they express ETSI's journey to achieve its ambitions and the anticipated milestones on that journey.

- Being at the Heart of Digital
- Being an Enabler of Standards
- Being Global
- Being Versatile
- Being Inclusive

A big step forward...

ETSI is proud of having its strategy been shaped by our own diverse global

ETSI is proud of having its strategy been shaped by our own diverse global community.

community. Truly market-driven, it draws on the expertise and experience of more than 900 ETSI member organizations that include multinational and smaller companies, start-ups, research organizations and governmental institutions.

While our new strategy continues to reflect our deep roots in European standardization, it is also designed to contribute positively to global ICT standards development – one of the keys to a sustainable and securely connected society.

Designing tomorrow's world describes our journey to ever-higher ambitions. It is a

Our stategy contributes to global ICT standards development, one of the keys to a sustainable and securely connected society.

living, dynamic entity that will itself evolve over time, being revised when necessary in response to a continually changing global context.

Rather than attaching a short-term, detailed implementation plan to it, ETSI's strategy represents a guiding framework that will define and craft ETSI's activities at all levels over the years.

The successful development of Designing tomorrow's world has been a collective exercise, depending on the contribution and consensus of all our members. Thank you to everyone who has played their own valuable part in building our future!

Better energy efficiency for 5G

As part of the global trend to reduce the impact of ICT equipment on the environment and the constant desire to reduce the network operator's operational expenses, 3GPP has been working for years on standards for the energy efficiency of mobile networks - by following a two-step approach: (1) Defining Energy Efficiency (EE) KPIs & methods to measure them and (2) By defining use cases and solutions for Energy Saving (ES).

The broad industry cooperation on the Energy Efficiency of mobile networks can be followed across four 3GPP Management and Orchestration Specifications:

TS 28.310	Energy efficiency of 5G
TS 28.552	5G performance measurements
TS 28.554	5G end to end Key Performance Indicators (KPI)
TS 28.622	Generic Network Resource Model (NRM)

The energy efficiency of a mobile network can be defined by its performance divided by its energy consumption, where the definition of performance depends on the network entity it applies to. For a unit of energy consumed by the mobile network, the higher its performance is, the higher its energy efficiency is.

Historically, the focus has been put on the Radio Access Network (RAN) since it's commonly agreed that it constitutes the most energy consuming part of the mobile network; its performance is assessed by the traffic data volume carried by base stations (cf. ETSI standard *ES 203 228*).

Work is now ongoing to define the performance of a 5G core network and of network slices. In the Network Slice as a Service (NSaaS) model, a customer may express requirements to a provider about the energy efficiency of the network slice they want to order (cf. GSMA NG.116). The performance of a network slice is defined in terms of data volume for enhanced Mobile Broadband (eMBB), the reduction of latency for Ultra Reliable Low Latency Communications (URLLC), number of registered subscribers or active user equipment for massive IoT.

To build such energy efficiency KPIs, 3GPP-defined performance measurements are collected from network elements / functions via OA&M standardized APIs. When it comes to measuring the energy consumption of network elements / functions, 3GPP relies on ETSI defined methods (cf. ETSI standard *ES 202 336-12*) for base stations and servers. Given there is no standardized method yet to measure the energy consumption of virtualized network functions, work is ongoing in 3GPP to propose methods to estimate it.

As for energy saving, it can be orchestrated at two levels:

a) Distributed ES, when the intelligence to realize the energy saving is located in the network elements / functions, e.g. base stations;

b) Centralized ES, when the intelligence is provided by a management function in the OSS.

The energy saving logic is fed by performance measurements and, in 5G, by analytics such as traffic load prediction or user equipment mobility prediction, provided by a Management Data Analytics Function (MDAF) or the NetWork Data Analytics Function (NWDAF).

This effort is a part of the industry-wide activity on 5G, spanning an eco-system that also includes energy efficiency related output from GSMA, ETSI, ITU-T and NGMN.

■ *Jean-Michel Cornily, Orange, 3GPP WG SA5 Rapporteur Rel-17 work item 'Enhancements on EE for 5G networks'.*

India adopts oneM2M standard for smart cities

oneM2M global standard for Internet of Things development will boost Digital India and will be crucial to the delivery of India's Smart Cities mission.

India government selects oneM2M

The development of smart cities in India has been given a boost after the decision of the national government's Telecommunication Engineering Centre (TEC) in making the oneM2M specifications as national standard. It will enable greater collaboration between IoT solution developers which will reduce the time to bring innovation to market.

"IoT/M2M will play a significant role in the expansion of the digitally connected society and the realisation of the Smart City Mission program in India," said Sh. Udai K. Srivastava, Senior DDG at TEC. *"We are pleased to announce the adoption of oneM2M global standards as national standards for the IoT/M2M ecosystem in India. We have completed this adoption process after following an exhaustive process of consultation as well as critical analysis by a Consultative Committee."*

Joint collaboration

The standard, developed by a joint global collaborative effort, has already been transposed in India by the Telecommunications Standards Development Society, India (TSDSI). The national adoption of the oneM2M standard highlights the importance of collaboration, testing and certification in the development of IoT devices and software and it will also propel India in the global Internet of Things (IoT) market.

"We are very pleased that the oneM2M standard has been selected as a national standard in India as national governments across the globe continue to realise the immense importance of IoT," said Enrico Scarrone, Steering Committee Chair at oneM2M. *"This announcement highlights the crucial role that oneM2M plays in helping to connect IoT applications and in enabling mass deployment across industries by limiting complexity and scalability issues."*

100 smart cities

As India strives to deliver over 100 smart cities across the country, this standard, once incorporated into the RFPs, would not only become a catalyst of growth for the Indian IoT market and software industry but it would also ensure interoperability and security in the entire ecosystem and bring India closer to becoming 'Digital India'. As India places renewed emphasis on IoT standardization in areas such as Smart Cities, the oneM2M standard underlines the significance of standardized framework in helping to enable a smarter and more secure future.

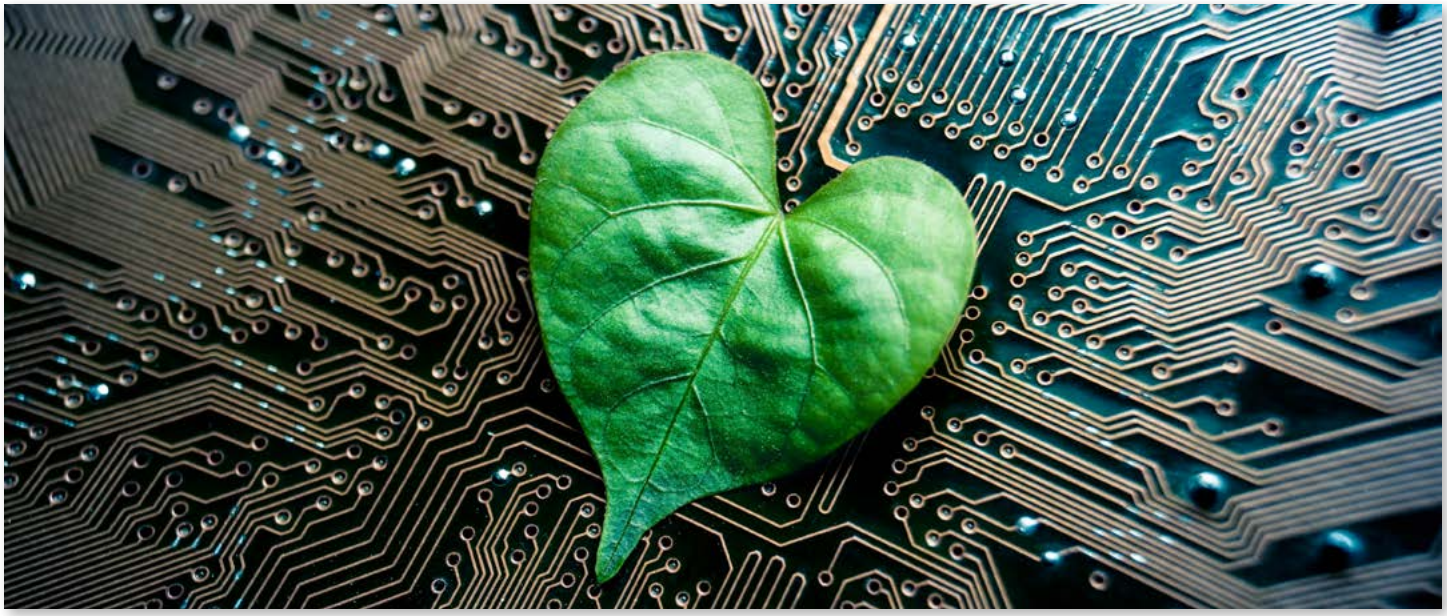
"Adoption of these standards helps establish the much-needed standardized technology framework for providing Machine to Machine (M2M) services in India," said Pamela Kumar Director-General at TSDSI. *"It enables users and application service providers in various vertical domains to use "vertical agnostic" end-to-end M2M platforms, with well-defined common service functionalities. This is expected to accelerate deployment of M2M services across verticals, and facilitate optimal utilisation of communication layer resources."*

IoT standards for sustainability

While the initial focus for IoT-enabled smart cities was on IoT platforms and related applications, smart cities will seek to move-up the layers and build strategies for data economy leveraging their ICT and IoT investments. Using open standards will be key in this journey. Their values pertain to fair and equal opportunities to stakeholders, larger ecosystem, citizen-centricity, lower total cost of ownership and most importantly paving the way for smart nations.

Europe's "Twin Transitions"

"Europe must lead the transition to a healthy planet and a new digital world. But it can only do so by bringing people together and upgrading our unique social market economy to fit today's new ambitions". President von der Leyen, March 2019.



Under the presidency of Ursula von der Leyen, the Commission set the objective of a transition towards climate neutrality and digital leadership. This dynamic coupling of the objectives for a green and digital European economy is what is called the "twin transitions".

A strategy to attain this objective ensued setting the direction of travel and the route to lead the green and digital transformation, highlighting the need for new products and services, markets and business models, which must be grounded in the European values and social market economy.

- Firstly, the Strategy sets out the fundamentals for industry. Some of these renew or expand on existing approaches in innovation, investment, standards or levelling the playing field. Others reflect the need for new ways of working for Europe to strengthen its industry for the transitions, whether it be on skills or circularity.
- Secondly, the Strategy underlines the importance of the single market for Europe's industry to scale up and to prosper. The single market needs to function for businesses of all sizes. Therefore, the Commission will review single market legislation to ensure it is fit for purpose and propose actions to ensure consistent application on the ground and a rigorous enforcement of existing rules.
- Thirdly, the Strategy sets out an ambitious plan for Europe to uphold its values and secure a level playing field. This is about Europe's sovereignty. For example, the Commission will take measures on the supply of critical raw materials and pharmaceuticals to enhance Europe's strategic autonomy, address the distortive effects caused by foreign subsidies within the single market and tackle the issue of access of foreign, state-owned companies to procurement markets and EU funding.

The implementation plans are developed in the European Green Deal action plan on the one hand, whose objectives are to boost the efficient use of resources by moving to a clean, circular economy, restore biodiversity and cut pollution.

On the other hand, the EU's digital strategy aims to make this transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050. The ambition here is to empower Europe's "Digital Decade", for which Europe must strengthen its digital sovereignty and set standards, with a clear focus on data, technology, and infrastructure.

White Paper: **Autonomous Networks**

This White Paper presents how Autonomous Networks can impact the role of telecommunications in assuring the success of the digital transformation of industry by enabling more responsiveness to the verticals in exploiting their business, in terms of operations efficiency and new revenue opportunities that are the Autonomous Networks' basic business objectives. The new revenue opportunities are driven by upgrading the Information and Communications Technology (ICT) ecosystem due to the arrival of business partners such as new sectors and solution providers. This technology evolution leads to the introduction of new level of automation and intelligence in the management and provisioning of services and networks. This revolution is termed Autonomous Networks.

White Paper: **Software Radio Reconfiguration**

This White Paper presents a modular Software Reconfiguration approach for radio equipment in general. Moving from today's hardware design principles to software reconfiguration solutions will require a paradigm change which cannot happen in a single step. The ETSI solution has thus been designed to allow for a gradual approach proceeding step-by-step being perfectly suited to meet the requirements of 5G and beyond applications.

For example, it will enable automotive communication platforms to remain relevant over the lifetime of a vehicle and to address platform vulnerabilities which may arise over the lifetime of a vehicle, enable product adaptation to specific market needs for Internet of Things solutions, for example.

White Paper: **Fifth Generation Fixed Network**

This White Paper sets the scene for the evolution of on-premise, fixed access, and aggregation networks. In this White Paper, ETSI presents the vision, value, use cases, features, and technologies of F5G, aiming to foster a global effort to realize its full potential.

Next generation fixed networks are essential for complementing and supporting the 5G/Wi-Fi 6 wireless networks being deployed across the world, that would be hardly viable without F5G, as well as supporting the growing number of cloud services that require high bandwidth and/or low latency connections. Building on previous generations, F5G is being designed to bring unprecedented benefits to fixed networks and communications, similar to what 5G has brought to mobile.

What is new in the 3GPP voting world?

A green tool, for a greener 3GPP

Nowadays, it is not only crucial to be mindful of the environment but of one's health as well. Electronic meetings (e-meetings) have become essential for ETSI.

ETSI has recently reshaped the 3GPP voting tool, making it fully e-meeting compatible. We have worked hard on improving its functional aspects, addressing gaps, and integrating the 3GPP electronic proxies (e-proxies). From security checks to key enhancements, the tool underwent an appreciable transformation and has become fully capable of supporting votes (elections and technical votes) for all kinds of 3GPP meetings – be them face to face or electronic – and even by correspondence.

The creation of e-proxies for votes related to 3GPP meetings is now allowed; hence

members can begin delegating their voting rights electronically. Furthermore, it includes a brand-new voting list feature, enabling users to consult all 3GPP members' voting rights. Among other pertinent enhancements, the tool features an email notification mechanism to alert the delegates of vote-related activity.

The tool is portal-based, thus being available for all authenticated users via the 3GPP portal. In accordance with security best practices, none of the 3GPP voting tool features are available to anonymous users.

Thanks to the engagement and team effort within ETSI, we can now affirm that this tool covers the current 3GPP needs. The 3GPP voting tool is yet to grow in terms of user experience and interface; hence we plan to further enhance this tool and expectantly count on the 3GPP community feedback and attentiveness.

We were excited to release this improved version of the 3GPP voting tool last November 2020, and we trust it will soon become an enabler for running the 3GPP voting sessions robustly and successfully!

Cátia Borges Ormonde, IT Project Manager, ETSI.

ETSI Membership application form: tutorial

The ETSI Secretariat provides a smooth path for members within the ETSI sphere. To facilitate the first steps of an applicant member, a brand-new video tutorial is now available on the ETSI website "Become a member" page in order to assist an organization filling in the application form.

Interested? Go to:

https://www.etsi.org/images/files/membership/2020_09_Member_application_tutorial.mp4

Claire D'Esclercs, Director Membership Development, ETSI.

Join us from the comfort of your home or office at upcoming virtual events that are either organized or supported by ETSI.

Find more information and register on our website at: www.etsi.org/events

February 2021

NFV&MEC Remote API Plugtests 2021
1-28 February

In the context of the NFV Plugtests Programme, ETSI's Centre for Testing and Interoperability is organizing the *NFV&MEC Remote API Plugtests 2021* providing NFV and MEC solution providers and open source projects an opportunity to meet, discuss and self-evaluate the level of conformance of their NFV and MEC APIs).

'Standardization in support of CSA' – Virtual Conference jointly organised by CEN, CENELEC, ETSI and ENISA - ***2-4 February***

The ESOs, CEN, CENELEC and ETSI, have joined forces with ENISA to bring you a virtual conference on 'Standardization in support of CSA', taking place in the afternoons (CET) of 2, 3 and 4 February 2021.
Day 1 will host the ESOs Workshop focusing on RED. On days 2 & 3, ENISA will take the lead covering the topic of NIS.

ETSI Technical Conference on Quantum Safe Cryptography - ***18-19 February***

This event is a follow up of the Virtual Executive Conference debating on the state of the quantum threat and quantum risk management organized in October 2020. Organized in partnership with the Institute for Quantum Computing (IQC), it is tailored to a technical audience' Participants will hear about different quantum related initiatives around the globe (North America, Europe and Asia) and receive updates on standardization and other collaborative efforts. A technical deep dive on the latest achievements and findings in the quantum safe cryptography area will complement this virtual event.

February 2021

4th NG112 Emergency Communications Plugtests
22 Feb.-5 March

ETSI, in cooperation with the European Emergency Number Association (EENA) and the North American Emergency Number Association (NENA) is organizing the fourth *NG112 Emergency Communications Plugtests™ remote event* to be held with the support of ETSI SC EMTEL. It will take place in parallel with the ICE 9 testing, with intercontinental testing sessions).

March 2021

OSM-MR#10 Hackfest
8-12 March

The ETSI OSM community will meet again to demonstrate the latest OSM features and functionality, and help users get hands-on experience in these areas).

DSP Leaders World Forum
8-12 March

Returning for its third year and described by one industry leader as the 'Davos of Telecoms', DSP Leaders World Forum provides a platform for CSPs to openly articulate and debate the challenges and opportunities they encounter as they transition into successful Digital Services Providers. The programme is designed to foster an environment where the industry's most senior leaders can freely and honestly discuss the trials and tribulations of delivering transformational business success in the new digital economy.

April 2021

FutureNet World, Network Automation & AI – defining the roadmap for the telco of the future
20-21 April

ETSI is delighted to be supporting *this important industry* event that brings together a global audience of senior telco executives to discuss the strategic and commercial considerations and decisions that CSPs are making today and the implications for the network. 'Network Automation and AI' is the umbrella topic of the event, a key foundational pillar for the next wave of growth in the telecoms market.

ETSI Virtual IoT Week 2021
26-30 April

The next edition of ETSI IoT Week will take place as a virtual event on 26-30 April 2021. Save the date!

ETSI SNAPSHOT

937 *members* end of November

26% *SMEs*

+100 *technical groups*

991 *standards* Sept-Nov. 2020

703 *standards under development*

5.333 *standards' downloads* Sept-Nov. 2020

1.855 *eMeetings* Sept-Nov. 2020

51.244 *online participants* Sept-Nov. 2020

78 *partnerships*

28 *conferences & Plugtests* June-August 2020

@ETSI Secretariat

124 *people*

19 *nationalities*

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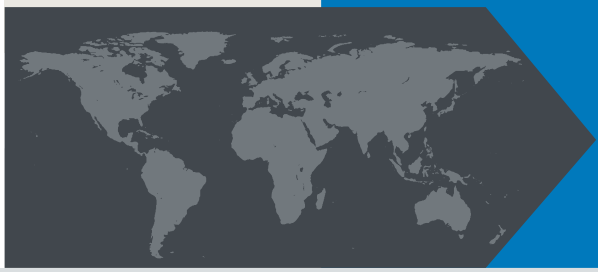

Members from 62 countries

About ETSI

ETSI provides members with an open and inclusive environment to support the development, ratification and testing of globally applicable standards for ICT systems and services across all sectors of industry and society. We are a not-for-profit body with more than 900 member organizations worldwide, drawn from 65 countries and five continents. Members comprise a diversified pool of large and small private companies, research entities, academia, government and public organizations. ETSI is officially recognized by the EU as a European Standards Organization (ESO).

For more information please visit: *www.etsi.org*

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ETSI The Standards People

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