An overview of ITU-T activities

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31 January 2020

Setting the standard

ITU structure

The UN specialized agency for ICT

ITU-R

Allocation of radiofrequency spectrum and satellite orbits

ITU-D

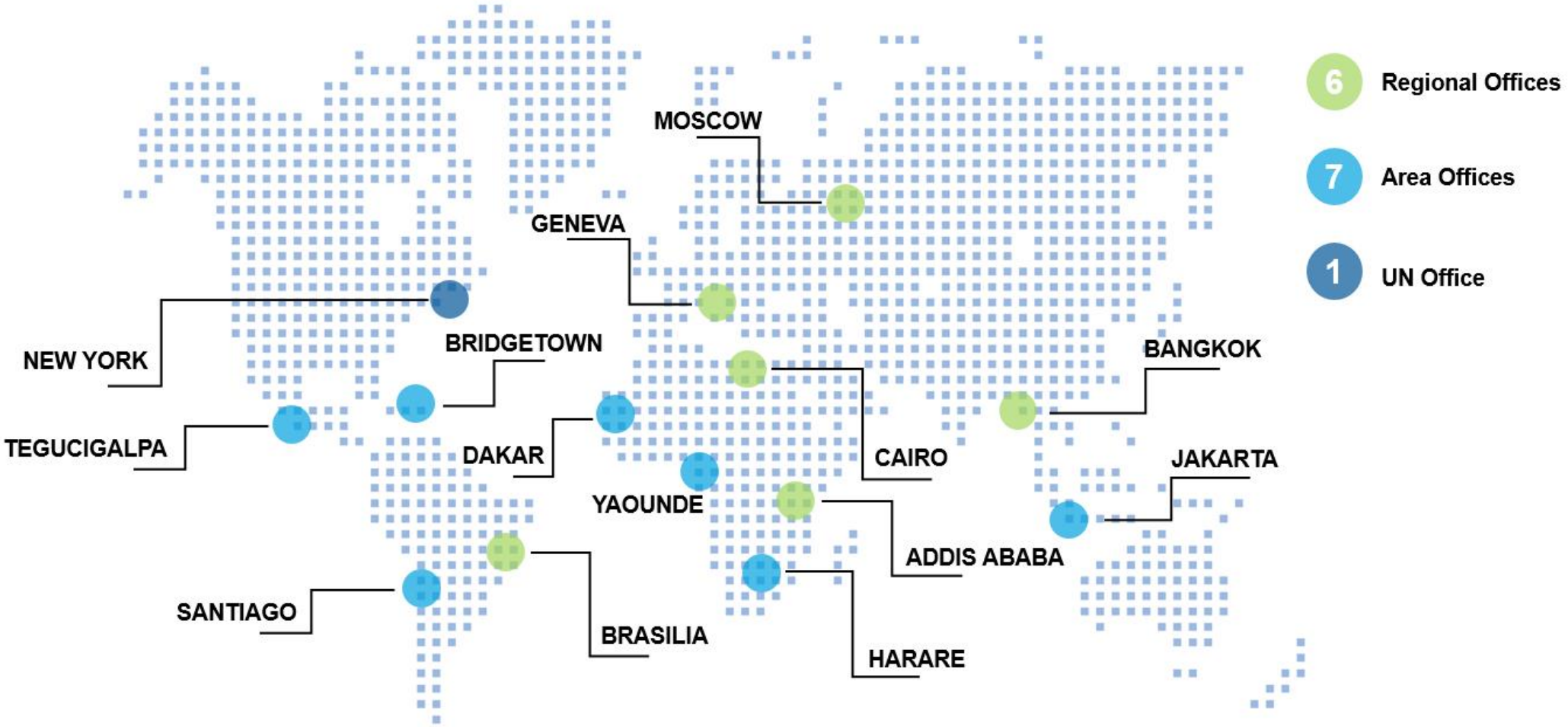
Bridging the digital divide

ITU-T

Establishing international standards

Setting the standard

ITU around the world



Setting the standard

ITU membership

Unique in **the UN system** as the only body to include the private sector

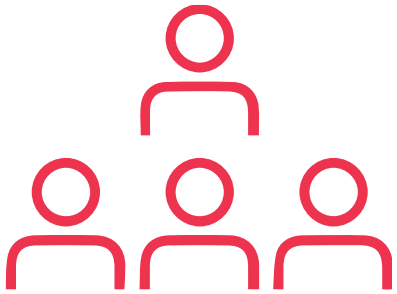
Unique in **the ICT standards world** as the only body to include governments

193 MEMBER STATES

700+ COMPANIES/ ORGANIZATIONS

160+ ACADEMIA

ITU-T standards community

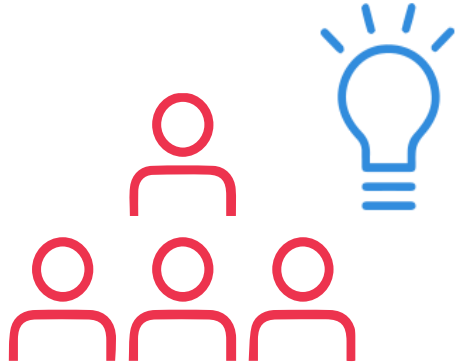


Study Groups

Membership-driven Study Groups develop international standards.

Focus Groups

Open to all interested parties, Focus Groups define new directions in ITU standardization.



Workshops and symposia

Open-to-all events analyze emerging trends and encourage peer-learning

Companies are joining ITU-T in increasing numbers in order to:

- Influence international standards development
- Access pre-published standards before they reach the market
- Increase reputation and visibility on a regional and global level
- Network and develop partnerships with the public and private sector

Setting the standard

Growth of industry membership (Sector Members and Associates) in ITU-T since 2017

Setting the standard

20 new ITU-T Sector Members in 2019

(Dusseldorf)

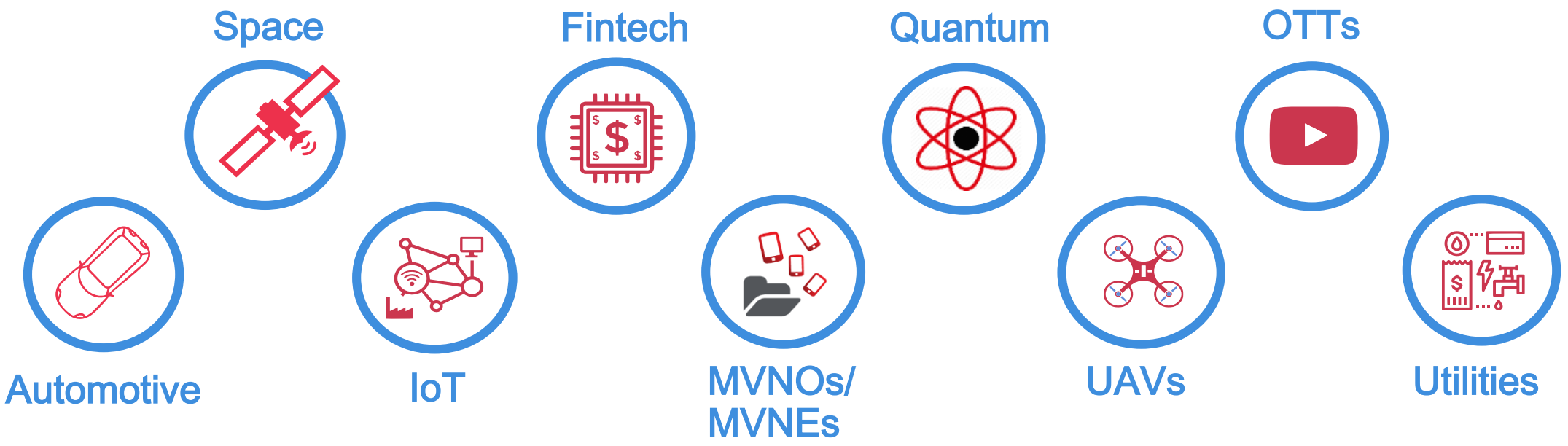
Setting the standard

34 new ITU-T Associates in 2019

Setting the standard

23 new Academia members in 2019

Welcoming new communities



Automotive

HYUNDAI
Hyundai Motor Company

Volkswagen

Continental

MITSUBISHI ELECTRIC

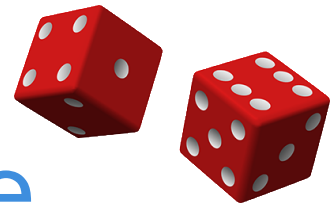
TATA

HYUNDAI MOBIS

AUTONOMOUS DRIVERS ALLIANCE

Tiaa

Setting the standard



Quantum Safe

Cambridge Quantum Computing

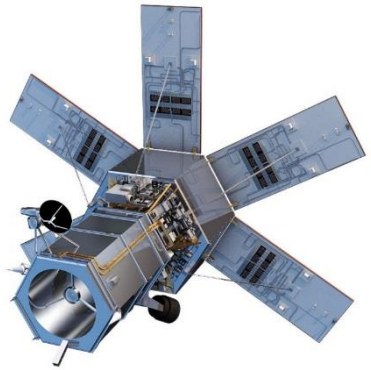
IDQ

量子网络 CAS QUANTUMNET

国盾量子 QuantumCTek

ISARA

Space



OneWeb

BCSCL
Bangladesh Communication Satellite Company Limited

UAVs

dji

Utilities

bayernwerk

IBERDROLA

Setting the standard

OTTs

NETFLIX

Alibaba Group 阿里巴巴集团

Baidu 百度

Tencent 腾讯

e-payments

eCurrency

Credit Pilot

MVNOs

truphone

XOX

IIJ Internet Initiative Japan

Legos

IoT

sigfox

TELE2

transatel

ARKESSA

1NCE The IoT Natives

PLINTRON Mobility Simplified

Setting the standard

Snapshot of ITU-T standardization activities

Ultimate aim of ITU standardization

- High-quality international standards
- Efficient, inclusive standardization process
- Meeting needs of a wide variety of industries
- Bridging development and gender divides

Intellectual Property Rights

- The TSB Director's Ad Hoc Group on Intellectual Property Rights (IPR AHG) works to protect the integrity of the standards-development process

- IPR AHG clarifies aspects of the ITU-R/ITU-T/ISO/IEC Patent Policy and related Guidelines – the Union's main tool to manage the challenges associated with the incorporation of patents in ITU-T and ITU-R Recommendations

Learn more at https://itu.int/en/ITU-T/ipr/Pages/adhoc.aspx

Setting the standard

IMT-2020/5G

In 2012, ITU established a programme on **International Mobile Telecommunications (IMT) for 2020 and beyond**

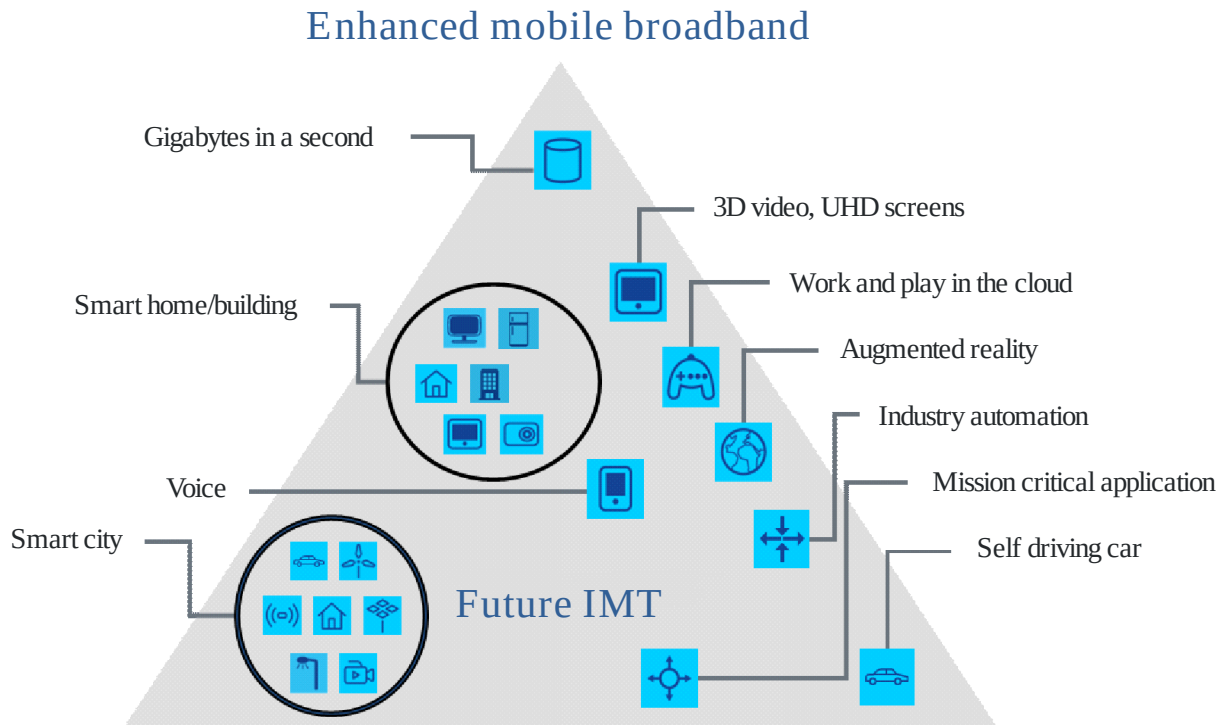
~ Framework for 5G R&D worldwide

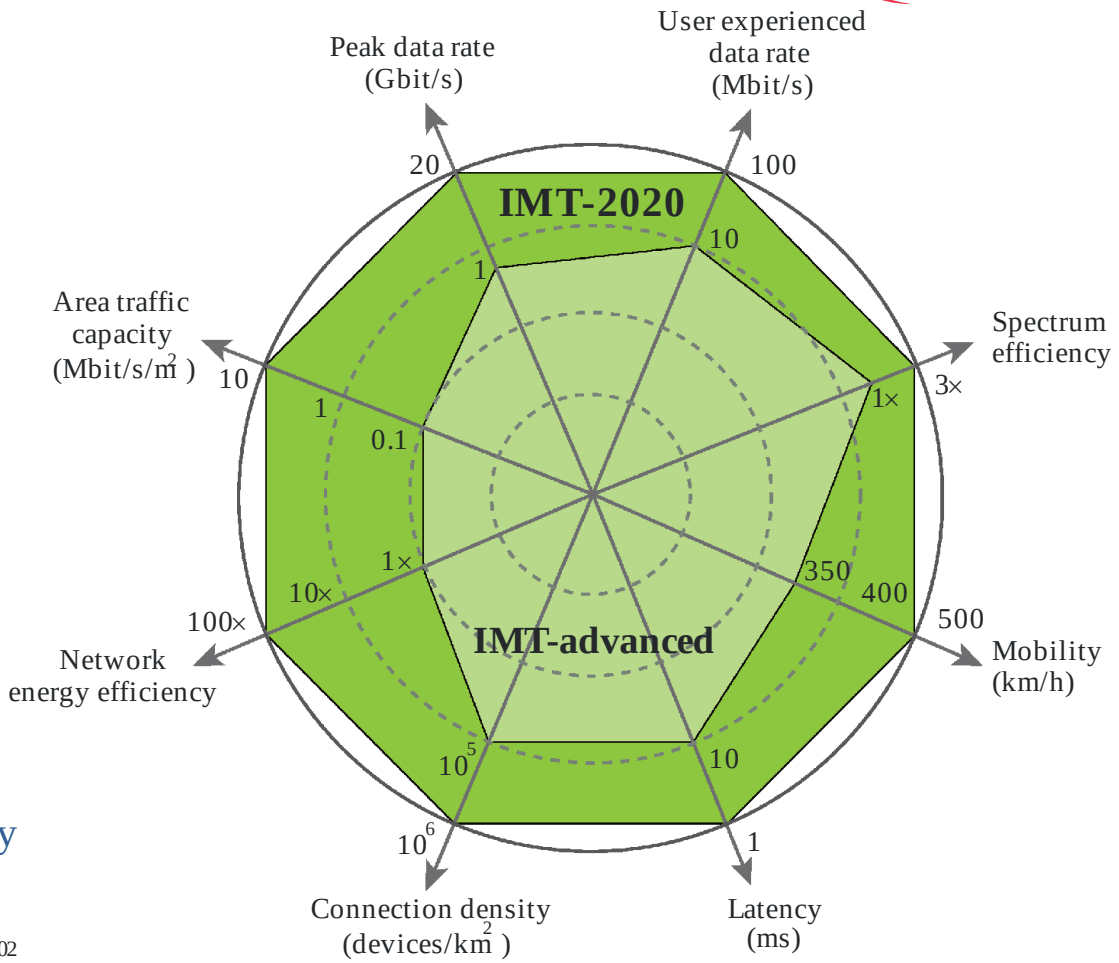
ITU's Radiocommunication Sector (ITU-R) is coordinating the international standardization and identification of spectrum for **5G mobile development**

ITU's Standardization Sector (ITU-T) is playing a similar convening role for the technologies and architectures of **non-radio elements of 5G systems**

Setting the standard

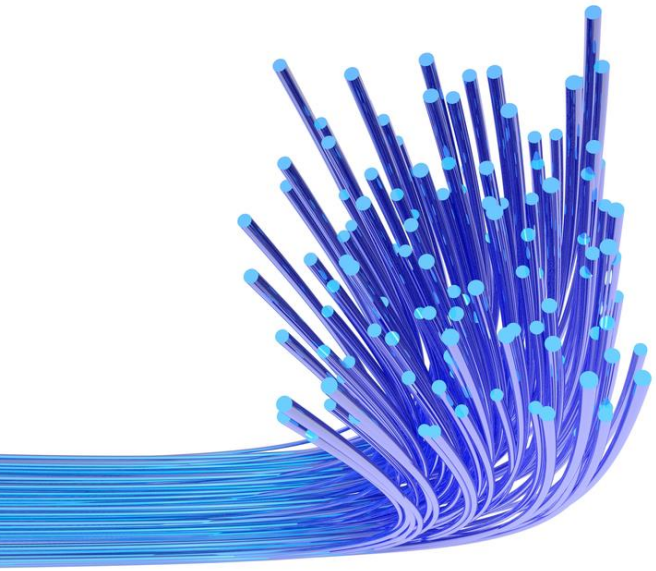
IMT-2020/5G



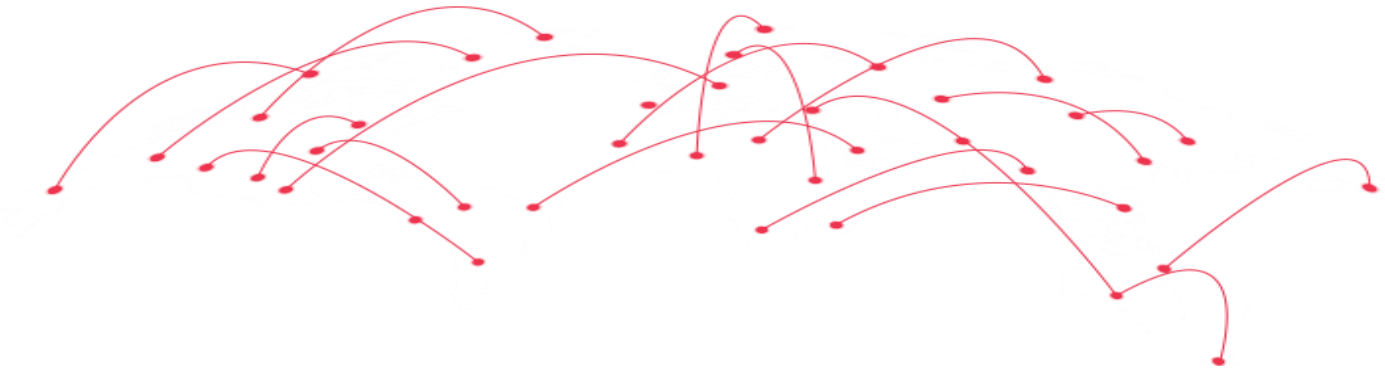


Setting the standard

IMT-2020/5G

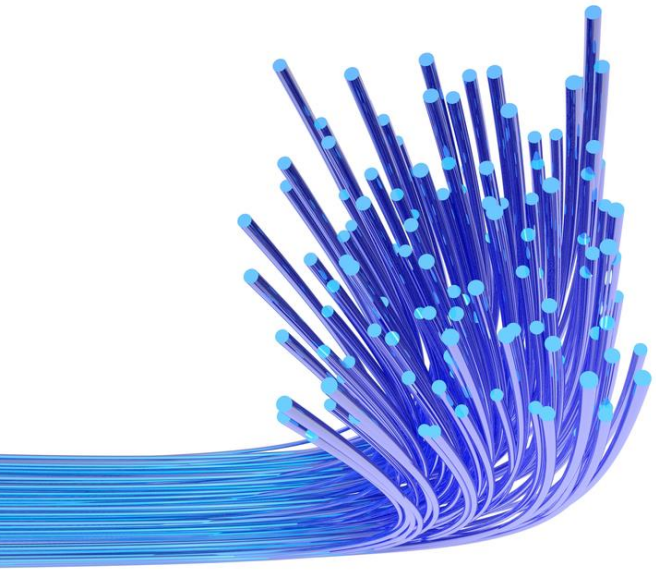


- Transport network support
- Machine learning
- Network management and orchestration
- Fixed-mobile convergence
- Environmental requirements



Setting the standard

Ultra-high speed broadband



95%

International traffic carried over fibre networks built on ITU standards

Networks, technologies and infrastructures for **Transport, Access** and **Home**

- Backbone optical transport
- PON: Cost-efficient FTTH
- DSL & G.fast; PLC & G.hn & VLC

Rural broadband: ITU-standard lightweight optical fibre for installation in remote areas

Used by Nepal to connect Mount Everest Base Camp and Annapurna Trekking Trail

Setting the standard

80%

of all Internet traffic
will be video by 2020

x2 Primetime Emmy Awards

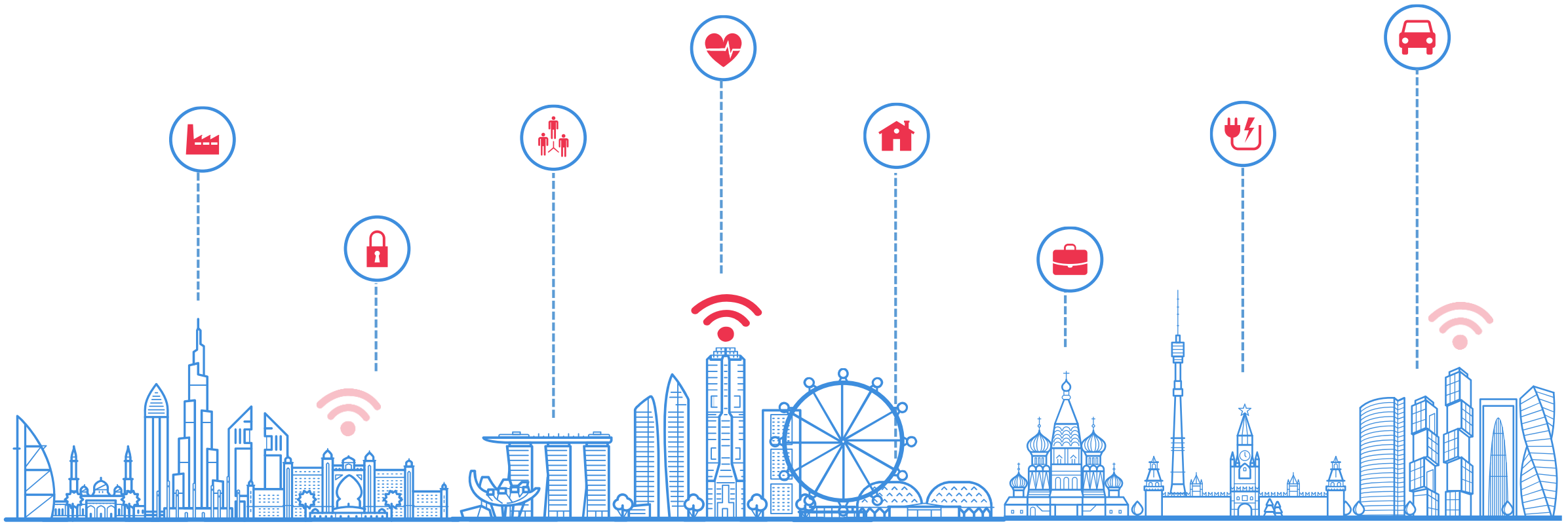
H.264 AVC | H.265 HEVC

Beyond HEVC:
Strong progress in *Versatile Video Coding* project

Setting the standard

IoT, Smart Cities & Communities

- 100+ cities worldwide implementing **KPIs for Smart Sustainable Cities** based on ITU standards
- ITU case studies on **Dubai**, **Singapore** and **Moscow**



SUSTAINABLE DEVELOPMENT GOALS

Setting the standard

Digital Financial Inclusion

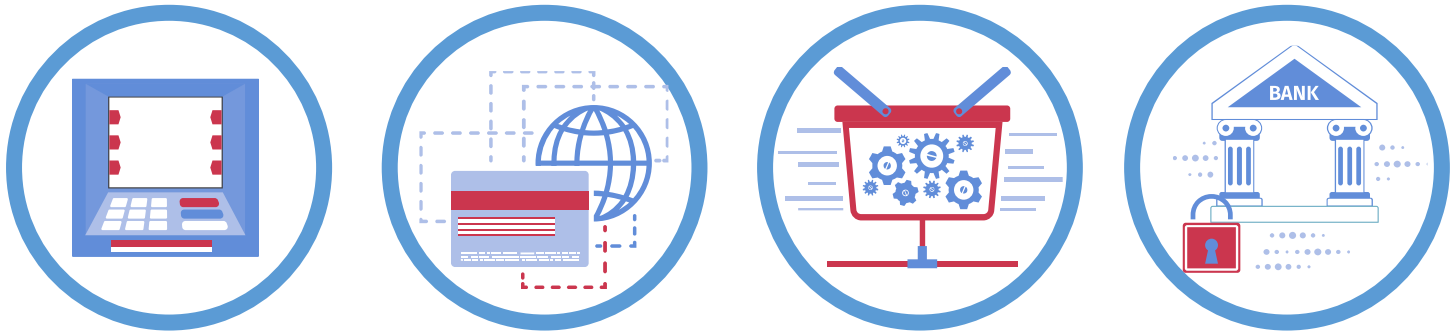
- Financial Inclusion Global Initiative (FIGI) - led by ITU, World Bank, and CPMI, with support from Bill & Melinda Gates Foundation

Committee on Payments and Market Infrastructures
BANK FOR INTERNATIONAL SETTLEMENTS

WORLD BANK GROUP

BILL & MELINDA GATES foundation

- + investigating Digital Currency, focusing on Central Bank issued Digital Currency



Setting the standard

Environment and circular economy

Ongoing studies investigating environmental requirements of IMT-2020/5G

New ITU standards address:

- Assessment of environmental impact of the ICT sector
- Sustainable and intelligent buildings
- Reduction of e-waste
- Environmental impact of mobile phones

Setting the standard

Multimedia & health

New ITU standard on the safe listening of music players and associated ITU-WHO toolkit support the WHO ‘Make Listening Safe’ initiative

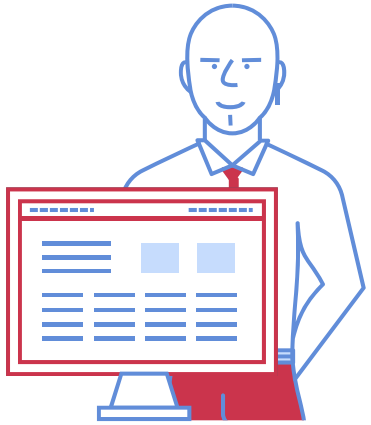
Medical-grade e-health devices: New and updated conformance test specs for ITU H.810 Continua Design Guidelines

Setting the standard

Accessibility

New ITU standard addresses audio-based indoor and outdoor network navigation system for persons with vision impairment

Accompanied by a conformance testing specification and online training course developed together with Wayfindr



Setting the standard

Performance, QoS & QoE

New ITU standards address:

- VoLTE, ViLTE, video streaming, video gaming
- Comms involving vehicles
- ICT services at major sporting and entertainment events
- Considerations for virtual measurement systems
- Practices & policies on service quality, including measurement of IP performance

Protocols and test specs

New ITU standards for VoLTE interconnection

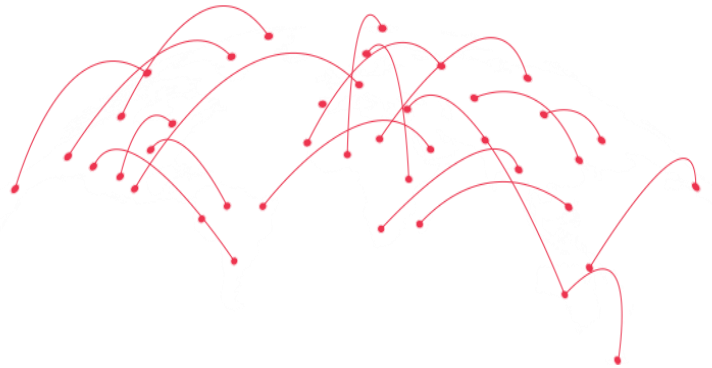
- Interconnection of VoLTE/ViLTE-based networks
- VoLTE/ViLTE interconnection testing for interworking and roaming scenarios

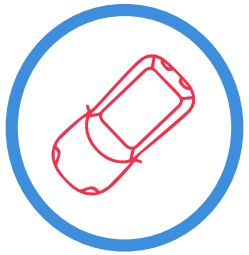
Combating ICT counterfeiting and theft

- New ITU standard: Framework for solution to combat counterfeit ICT devices
- Renewed emphasis on combating tampering with or cloning of ICT device identifiers

Setting the standard

Security



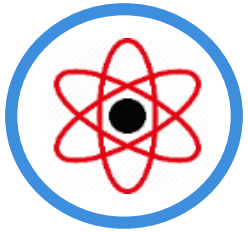


New ITU work streams established

- Security aspects of intelligent transport systems
- Security aspects of distributed ledger technologies

Examples of New ITU security standards:

- Personal data protection
- Secure software updates to connected cars
- Strong authentication for digital financial services



Accelerating ITU work on network and security aspects of quantum information technologies

Setting the standard

Operational aspects

New studies address roaming arrangements for users of accessible telecom services (telecom relay services)

New or revised ITU standards address:

- Naming, numbering, addressing and ID (NNAI): Issuer Identifier Number; Universal International Freephone Number; and, Maritime communications – Ship station identity.
- Disaster relief, network resilience and recovery: Terms and definitions (under approval)
- Telecommunication management: Resource management in cloud-aware telecom management systems; and, on-site telecom smart maintenance

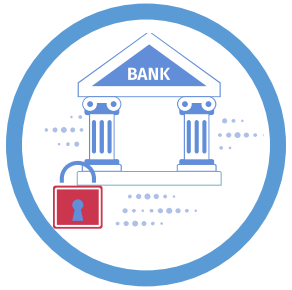
Economic and policy issues

New ITU standards:

- Relationship between OTTs and network operators
- Competition in mobile financial services
- Principles for a unified format of price/tariffs/rates-lists used for exchanging telephone traffic

Setting the standard

Digital fiat currency



New partnership between ITU and Stanford University to support pilot implementations of Digital Fiat Currency

- Technical assistance to Central Banks
- Open forum to share lessons learnt
- Platform to continue the work of FG DFC

Setting the standard

AI for Good

3rd AI for Good Global Summit gave rise to 'AI Commons'

- Framework for collaboration to achieve global impact
- Shared datasets, testing and simulation environments, AI models and associated software, and storage and computing resources

To build on the state of the art and enable AI solutions to scale

https://ai-commons.org/

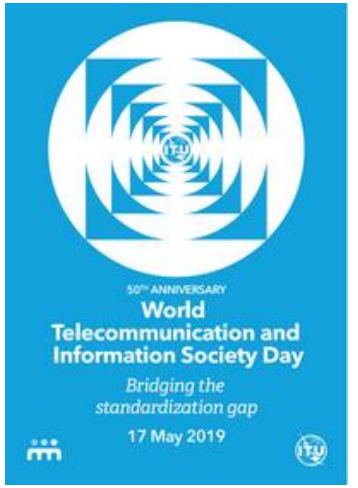
Bridging the standardization gap

New guidelines for National Standardization Secretariats

- Options for the development of national mechanisms to support effective participation in ITU standardization

17 May 2019 marked the 50th anniversary of WTISD

- Six award winners honoured for significant contributions to ITU's work to bridge the standardization gap



Setting the standard

Open-to-all ITU-T Focus Groups

Data processing and management*

ⓘ Data management, interoperability and security for IoT and Smart Cities

ⓘ 15 deliverables, on topics including:

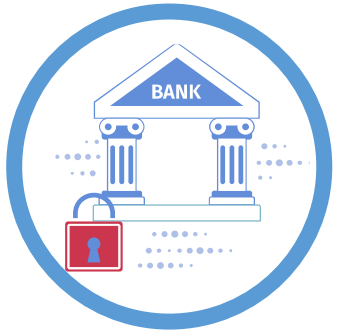
- Vocabulary
- Requirements & use cases
- Data modelling
- Data interoperability
- Blockchain
- Security, privacy & trust
- Data quality management
- Data economy

*Concluded activities in July 2019

Setting the standard

Digital fiat currency*

- Requirements of DFC as they relate to regulation, technical and business dynamics, and security



- Seven deliverables:
  - Repository of information on governance aspects of DFC
  - Digital currency implementation checklist for Central Banks
  - Regulatory challenges and risks for Central Bank digital currency
  - Protection assurance for digital currencies
  - Protection assurance use case for a payment transaction
  - Taxonomy and definition of terms for DFC
  - Reference architecture and use cases

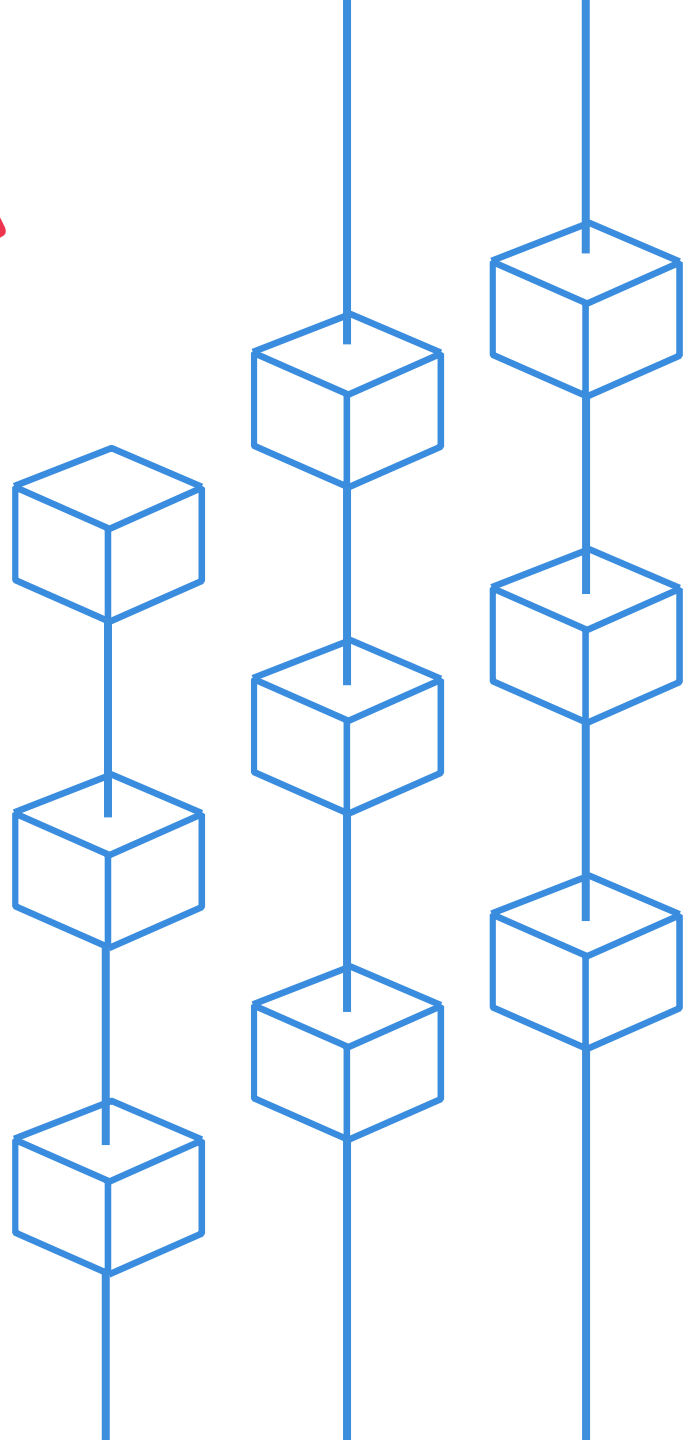
*Concluded activities in June 2019

Setting the standard

Blockchain*

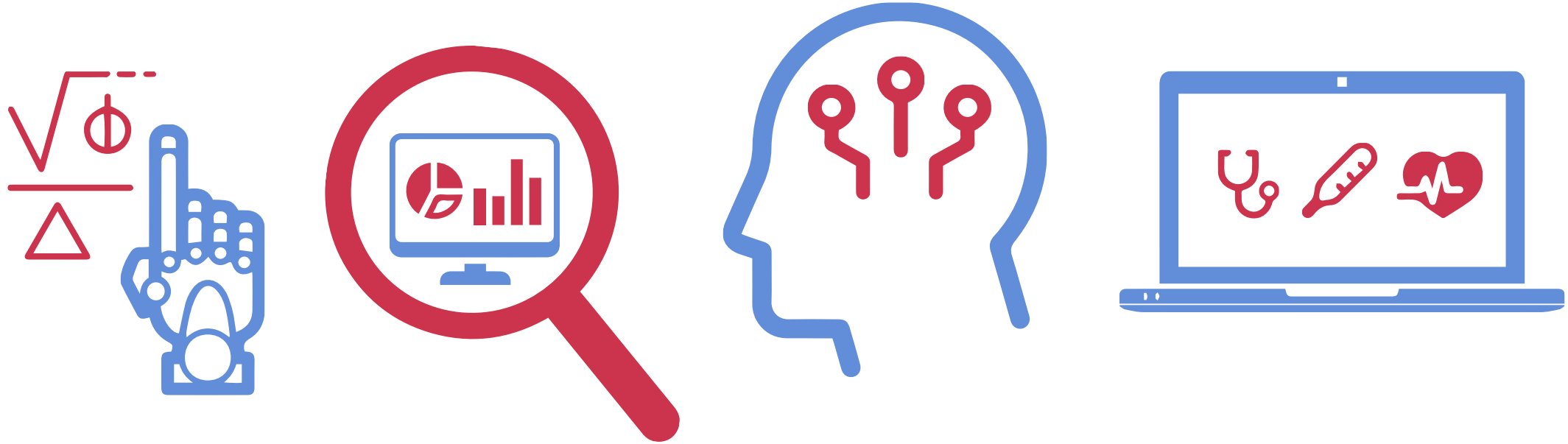
- **Guidance to potential adopters of Distributed Ledger Technologies**
  - **Eight deliverables:**
    - Terms and definitions
    - Overview, concepts, ecosystem
    - Standardization landscape
    - Use cases
    - Reference architecture
    - Assessment criteria for DLT platforms
    - Regulatory framework
    - Outlook on DLTs

*Concluded activities in August 2019



Setting the standard

Artificial Intelligence and Machine Learning



- Focus Group (ITU & WHO) to deliver framework for the performance benchmarking of '**AI for Health**' algorithms
- Focus Group developing specifications for Machine Learning to support **IMT-2020/5G** systems

Setting the standard

Network 2030 beyond 5G

- Novel scenarios such as hologram communications
- Extremely high throughput and low latency
- High-precision communications for tactile & haptic applications

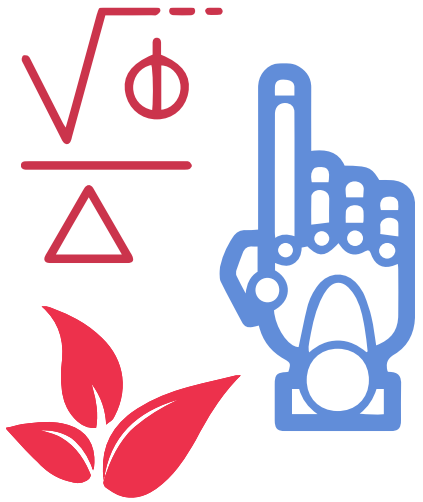
Setting the standard

Vehicular multimedia

- Focus Group identifying use cases and requirements of vehicular multimedia enabled by converged networks
- Aiming to propose a standardization roadmap for vehicular multimedia

Setting the standard

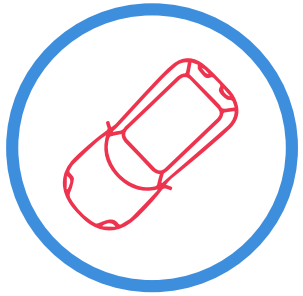
Environmental efficiency of AI and other emerging technologies

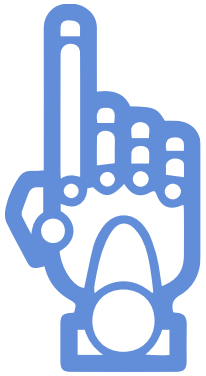


- Focus Group working towards a standardized assessment of the environmental efficiency of technologies such as AI and blockchain
- Aims to benchmark best practices, develop technical frameworks and propose standardization strategies to support environmentally responsible adoption of emerging tech
- First meeting: 12 December 2019, Vienna, Austria

Setting the standard

AI for autonomous and assisted driving





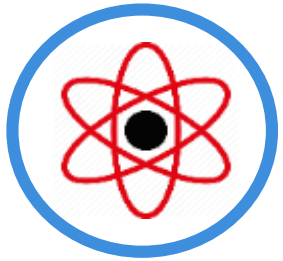
- Focus Group devising ‘Driving Test’ for the AI ‘Drivers’ in control of automated vehicles

- Its ultimate aim is to meet the public expectation that:
  - AI never engages in careless, dangerous or reckless driving behaviour
  - AI remains aware, willing and able to avoid collisions at all times
  - AI meets or exceeds the performance of a competent, careful human driver

- First meeting: 21-22 January 2020, U.K.

Setting the standard

Quantum IT for Networks



- Focus Group studying the evolution of quantum information technologies in view of their foreseen applications in ICT networks
- Analyzing high-potential use cases and the harmonization of associated terminology
- Supporting the coordination of ongoing and future standardization projects across a range of standards bodies
- First meeting: 9-10 December 2019, Jinan, China