ITU Standards
Intelligent Transport Systems

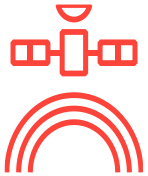
Connecting the world, together.

Bilel Jamoussi, PhD
Chief SGD/TSB/ITU

Setting the standard

ITU - What we do

‘Committed to Connecting the World’, together



Allocation of radiofrequency spectrum and satellite orbits

Bridging the digital divide

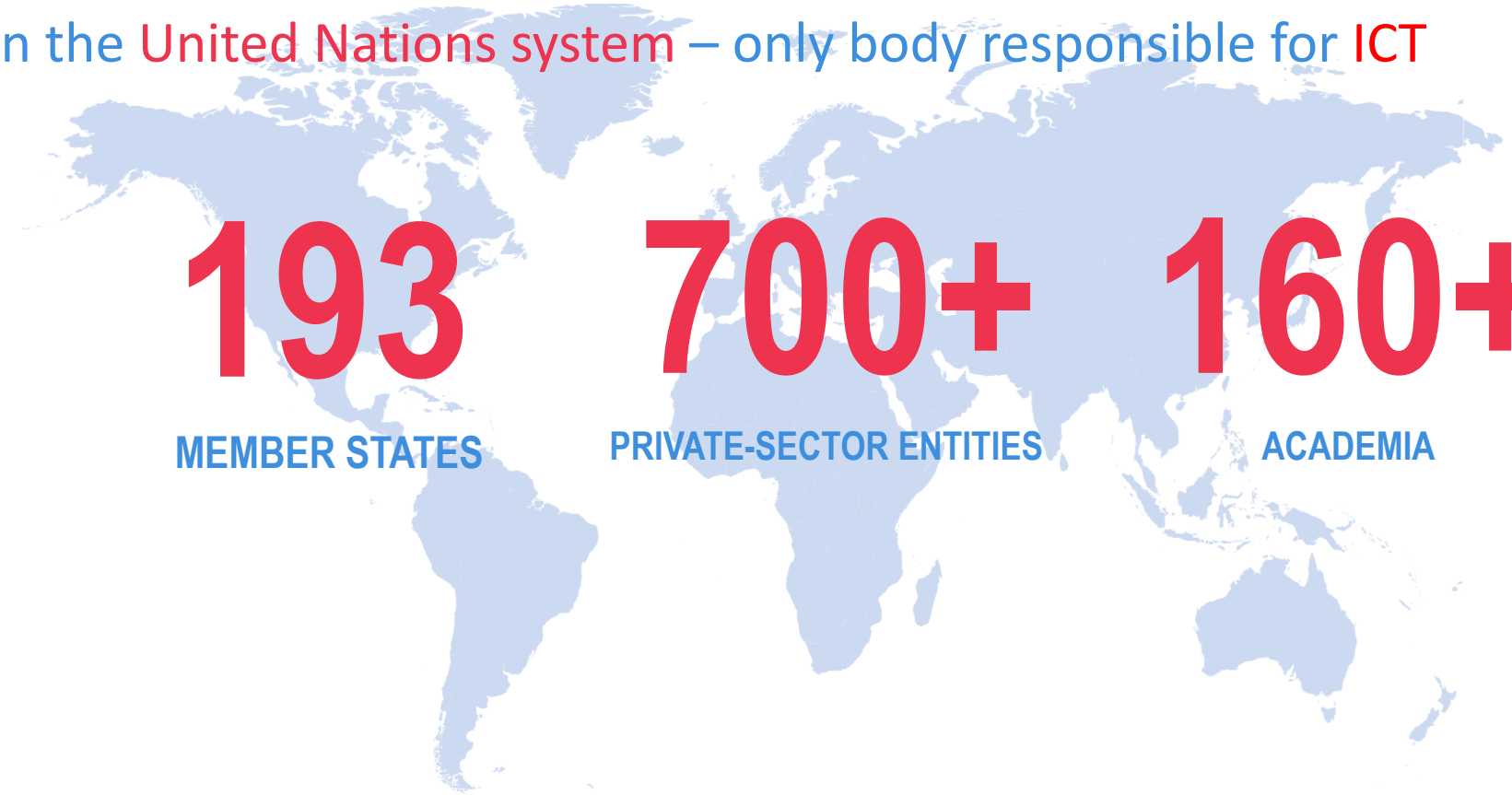
Establishing international standards

Setting the standard

ITU - Who we are - Who are our Members

Unique in the standards ecosystem – only body including governments and private sector

Unique in the United Nations system – only body responsible for ICT



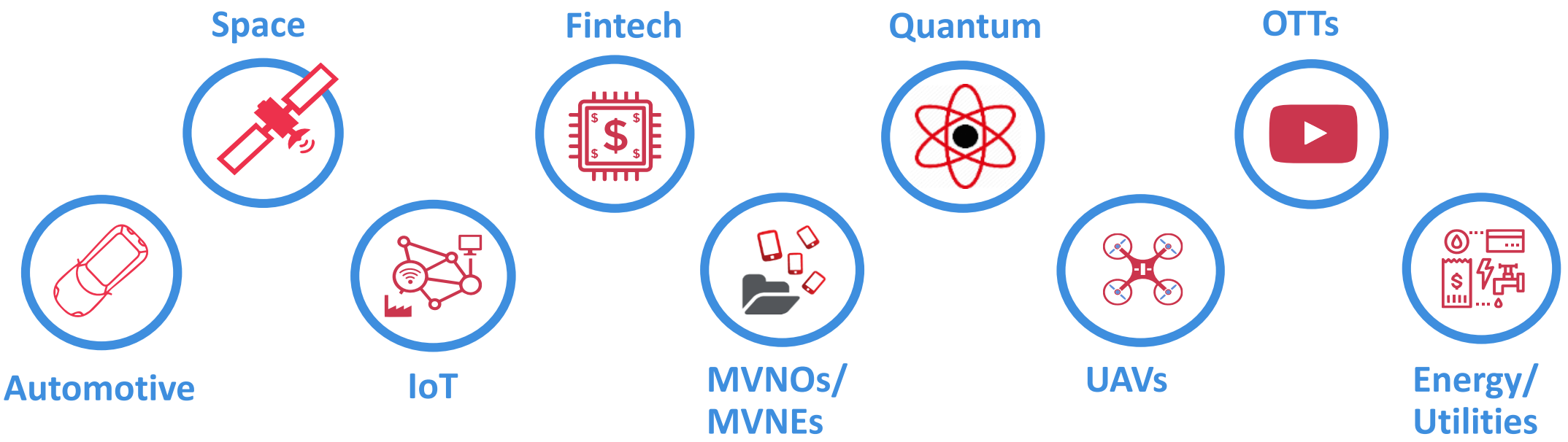
193
MEMBER STATES

700+
PRIVATE-SECTOR ENTITIES

160+
ACADEMIA

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

Welcoming new communities



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ITU Members from the Automotive Industry

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300 new and revised
ITU standards approved in 2019

50 ITS standards
approved or in progress in ITU

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Role of ITS standards in achieving the SDGs

11 SUSTAINABLE CITIES AND COMMUNITIES

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems and improve road safety by expanding public transport

3 GOOD HEALTH AND WELL-BEING

3.6 By 2020, halve the number of global deaths and injuries caused from road traffic accidents

7 AFFORDABLE AND CLEAN ENERGY

7.3 By 2030, double the global rate of improvement in energy efficiency

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Intelligent Transport Systems (ITS) Standards Multiple Study Group approach

Radiocommunication Sector (ITU-R): Working Party 5A (**spectrum allocation & harmonization**, automotive radar)

- Vehicle gateway and in-car multimedia platforms in SG16
  - Question 27/16 – **Vehicular gateways**
  - ***Vehicular multimedia*** *(FG-VM)*
  - ***AI for Autonomous*** *and* ***assisted*** *driving (FG-AI4AD)*

Telecommunication Standardization Sector (ITU-T)

ITS and automotive **cybersecurity** (remote SW update) in Study Group 17

Quality of Service of speech and audio in vehicles in Study Group 12

Numbering for In Car Emergency Communication (ICEC) in Study Group 2

ITS and **IoT** and **Smart Cities** in Study Group 20

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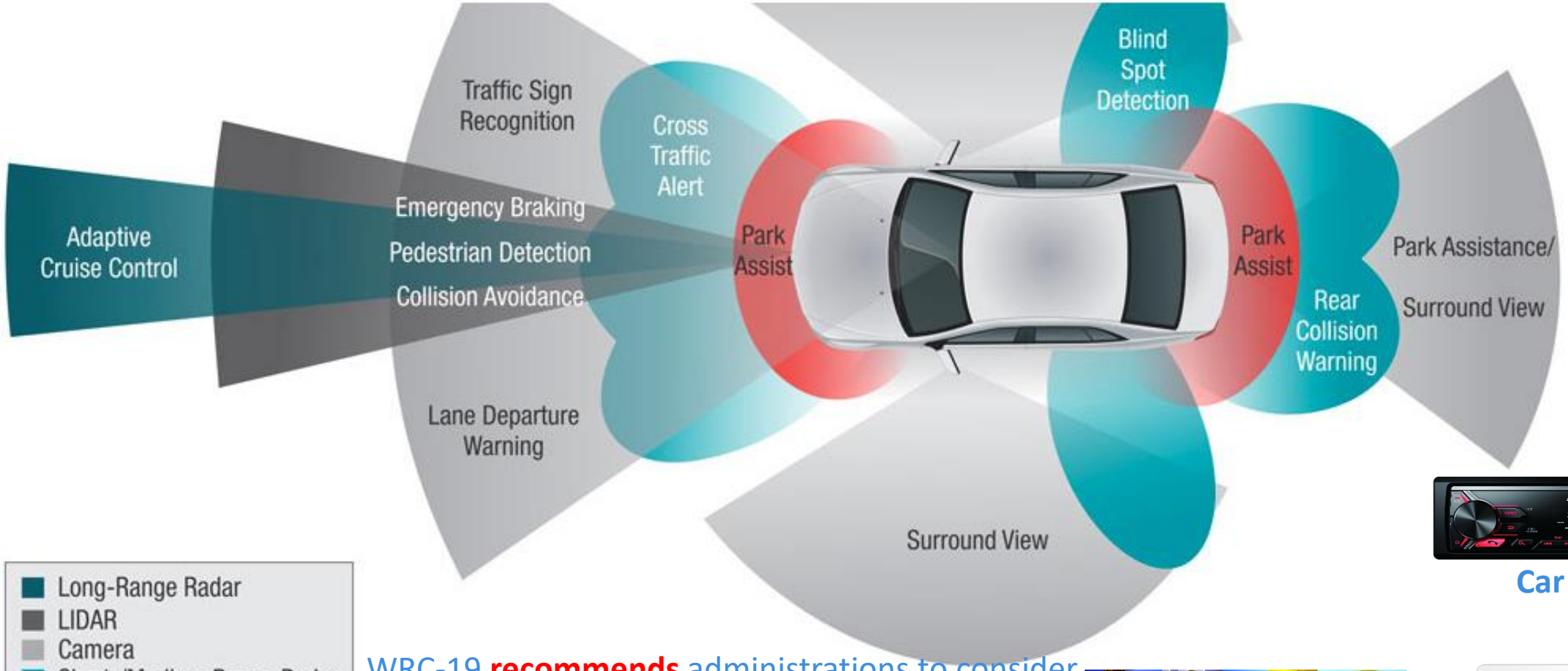
ITU allocates spectrum for vehicles



GPS

Car Radio

WRC-19 **recommends** administrations to consider the **harmonized frequency bands**, as described in the relevant Recommendations (e.g. **ITU-R M.2121**), when planning and deploying evolving ITS applications.

Wi-Fi

Mobile communication and Internet access

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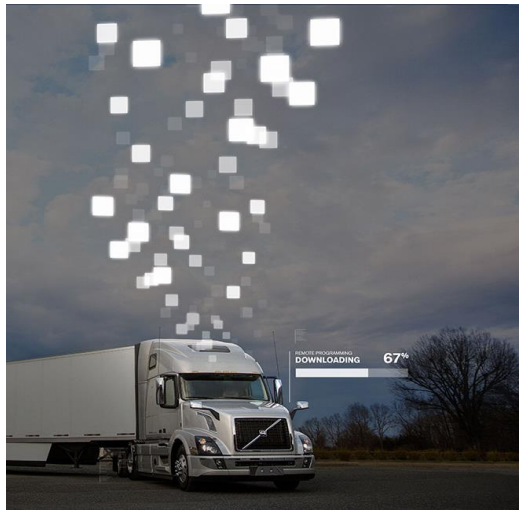
SG17: ITU Standards to Secure ITS

ITU-T SG17 collaborate actively with UNECE WP.29
*[**UN Task Force on Cyber Security and OTA Issues (CS/OTA)**]*
Regulations for cyber security and over-the-air updates in progress



ITU-T X.1373 (2017-03)

A successful future automated driving car must ensure security and safety through cybersecurity mechanisms and secure over-the-air software updates

In ITS environment a vehicle may act as router to transmit to other vehicles.
So the vulnerability of a vehicle can be propagated to the other vehicles
→ Security is very important

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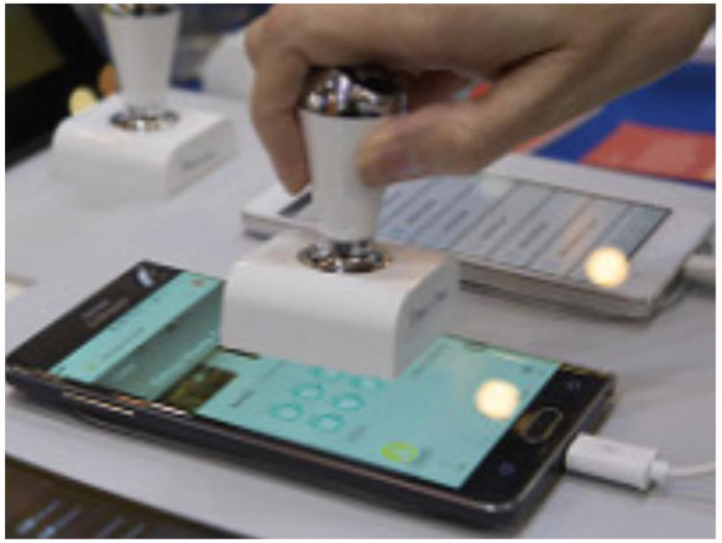
SG12: ITU Standards to improve quality of hands-free communication in vehicles

ITU-T P.1100
ITU-T P.1110
ITU-T P.1120
ITU-T P.1130

Product Conformity Database

https://www.itu.int/net/itu-t/cdb/ConformityDB.aspx

ITU Telecom World 2017 Busan



ITU Telecom World 2016 Bangkok

ⓘ ITU conducts test events of mobile phones and vehicle hands-free systems

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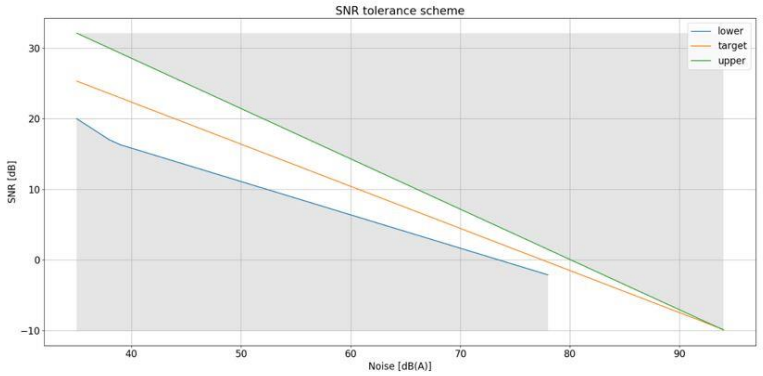
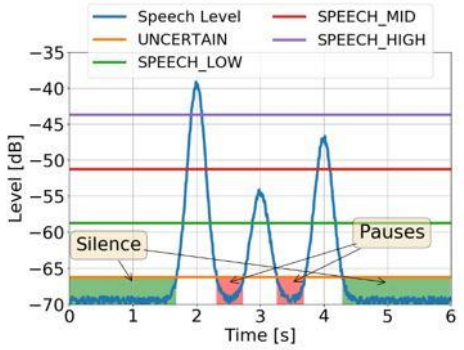
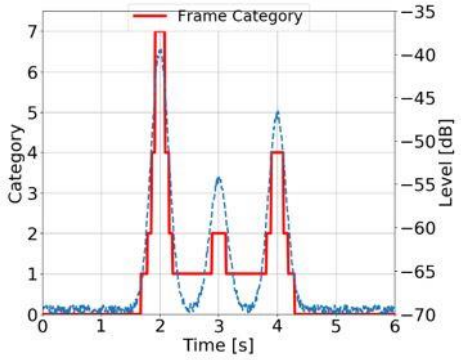
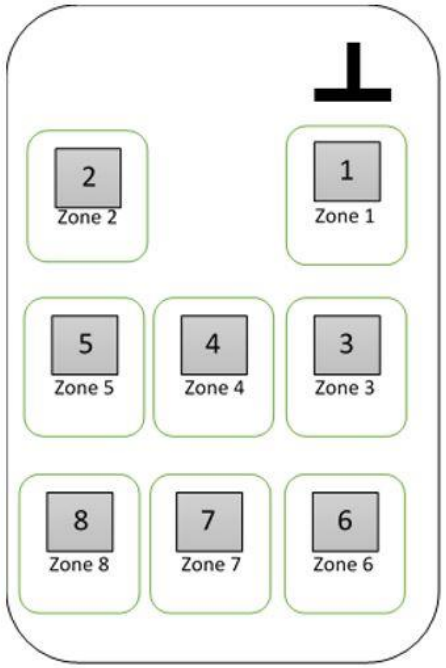
SG12: ITU standards reducing driver distraction

- ITU-T P.1150 audio specification for in-car communication systems
- Characterisation of the communication between all occupants in a motor vehicle
- Procedures and requirements for electroacoustic measurements
- Specification for the test setup

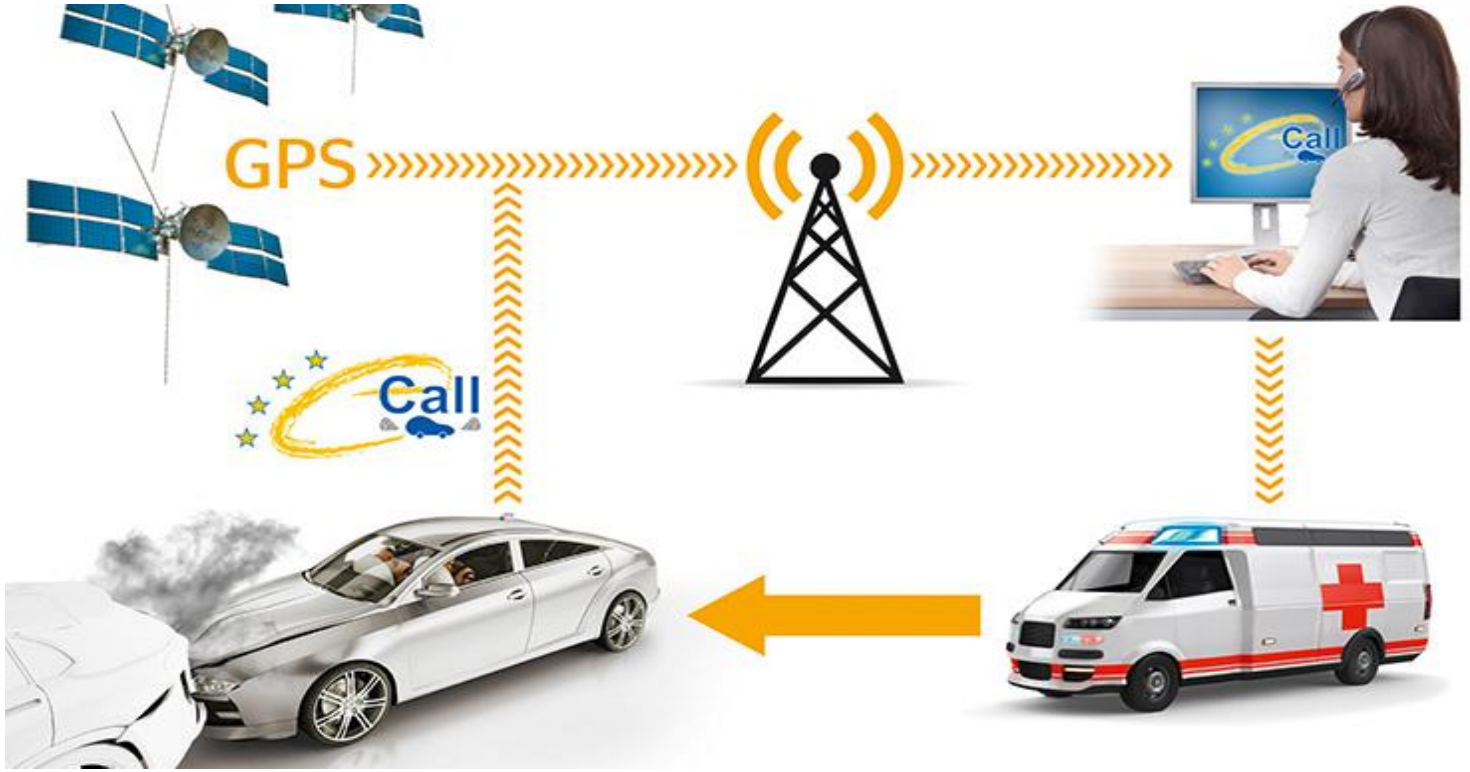








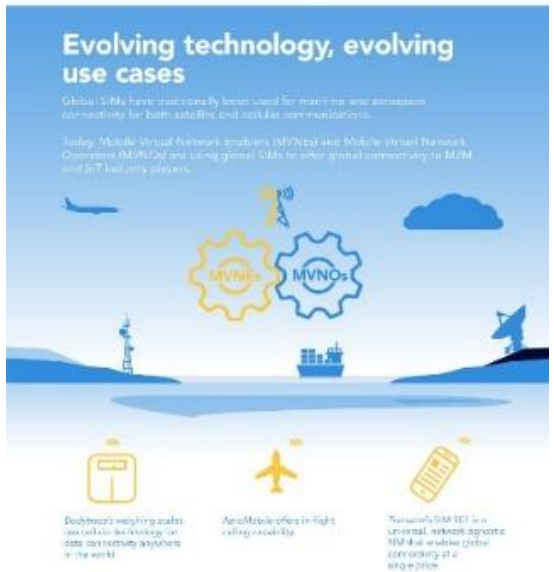
SG12: ITU standards make e-calls intelligible



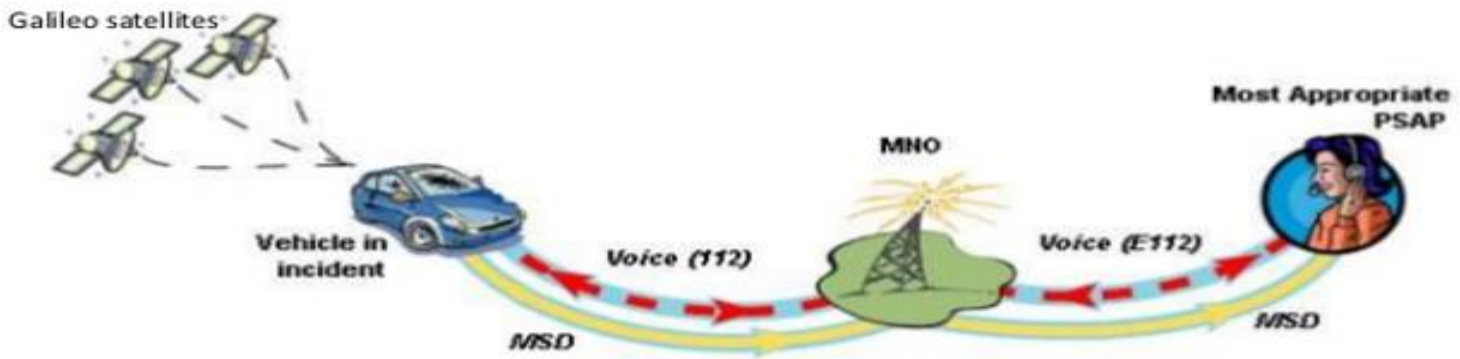
Source: Continental - Automatic Emergency Call

ITU-T P.1140: Speech communication requirements for emergency calls originating from vehicles is referenced in the new UN regulation on automatic emergency call system for road traffic accidents (UNECE WP.29)

SG2: ITU Standards and Numbering Resources to enable Car Emergency Communication (ICEC) calls



ITU Country codes **+882 and +883** have been assigned by the ITU-T for Machine-to-Machine and **emergency system for vehicles**



MSD – Minimum Set of Data
PSAP – Public Safety Answering Point

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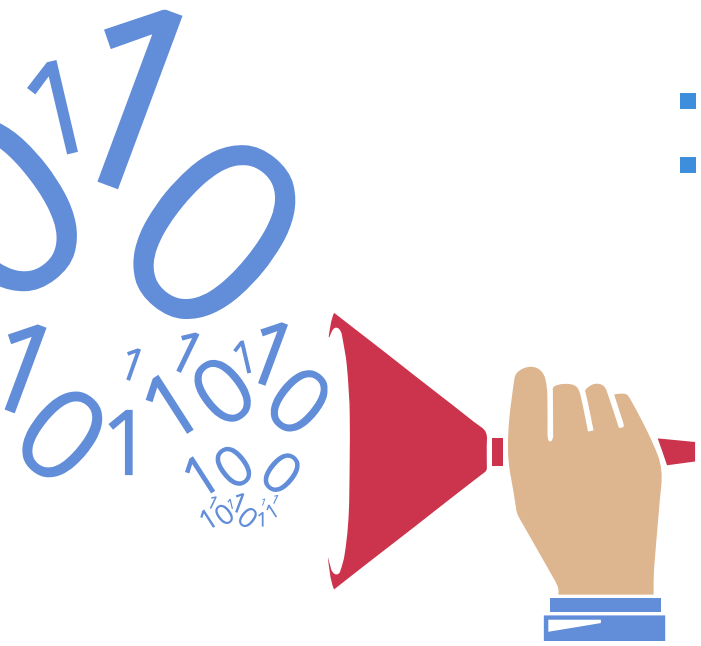
SG20: ITU Standards for IoT, Smart Cities, and Data



Managing data in the connected car

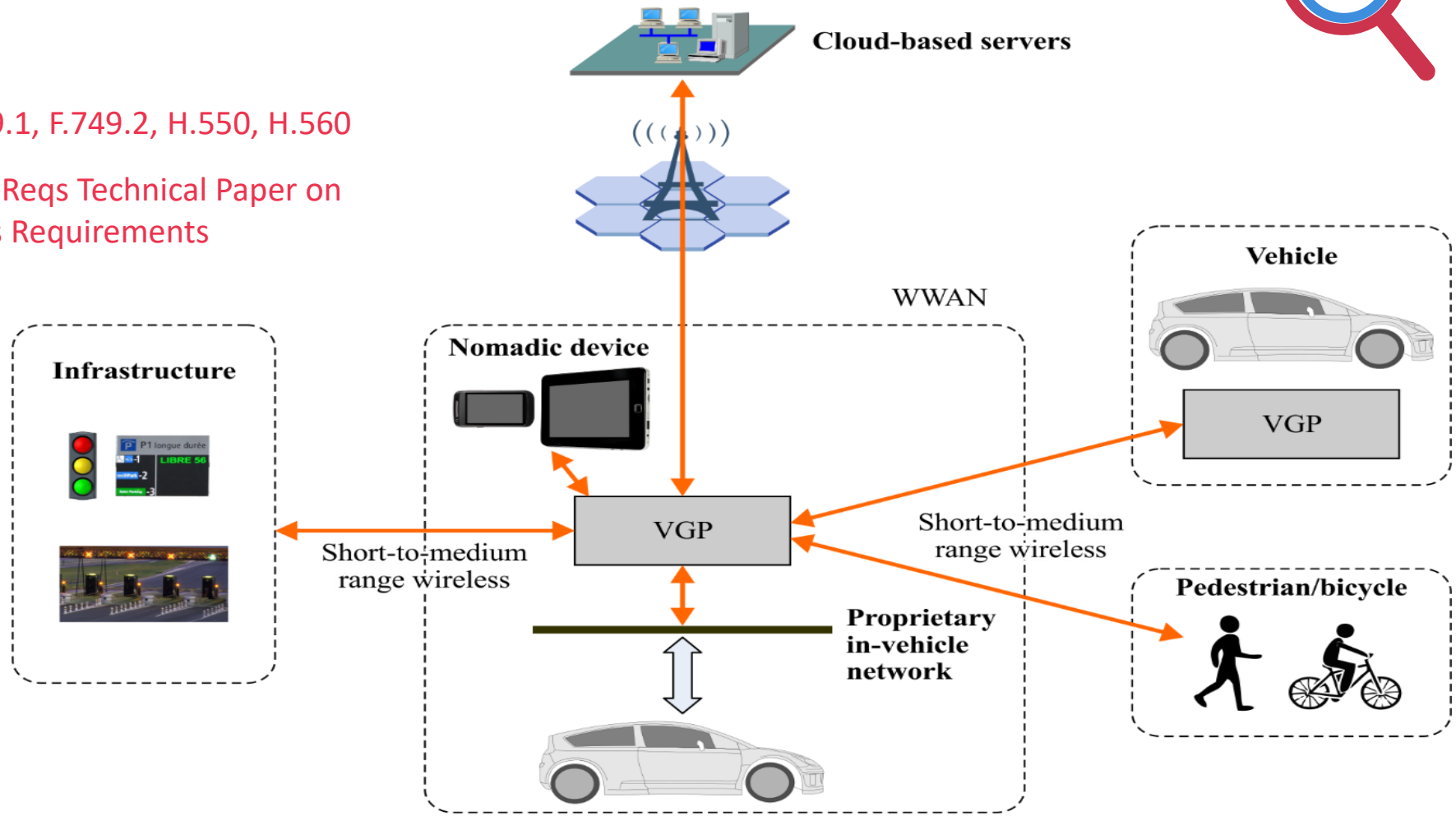
- Today's cars are already connected and smart
- Built-in cameras, radars and lidars can be used for real-time analysis of the vehicle's environment (lots of data)
- Need solutions to processing the data efficiently
- Data transmitted from the infrastructures or from vehicle to vehicle enables both the vehicles and remote systems to manage potential dangers and issue warnings
  - Thanks to these warnings (road accidents, weather changes, faults in the road or blockages) the vehicles will be able to reduce their speed prior to reaching them, which will increase safety and improve traffic flow)

Standards currently developed include, *inter alia*:

- Framework of cooperative intelligent transport systems based on the Internet of things
- Unified IoT Identifiers for Intelligent Transport Systems

SG16: ITU Standards for vehicle gateway platform (VGP) functional and service requirements

- ITU-T F.749.1, F.749.2, H.550, H.560
- HSTP-CITS-Reqs Technical Paper on ITS Comms Requirements



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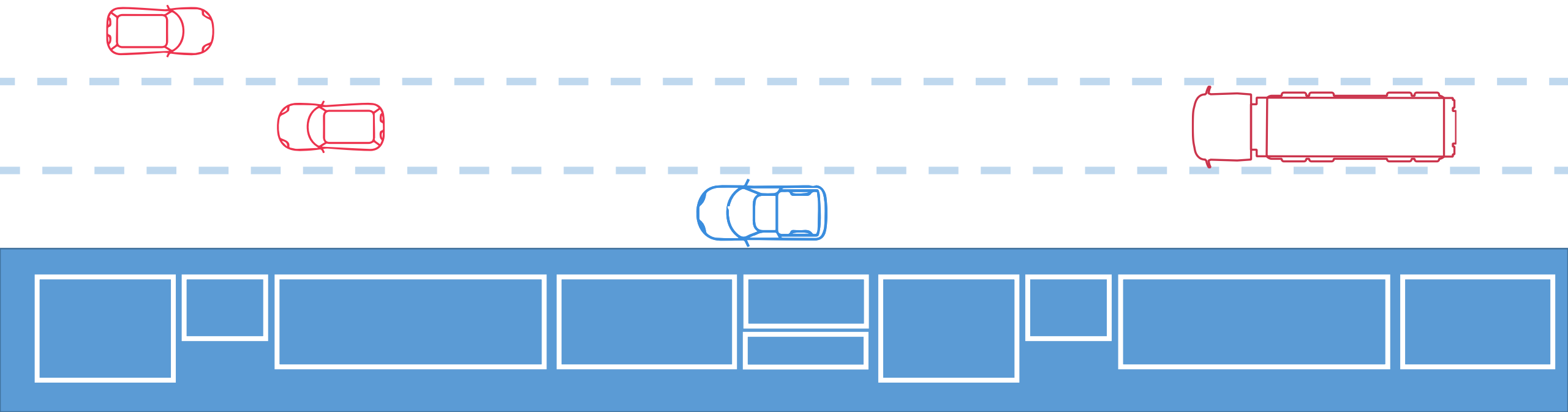
ITU-T Focus Group on “Vehicular Multimedia” (FG-VM)

Join us and contribute! https://itu.int/go/fgvm



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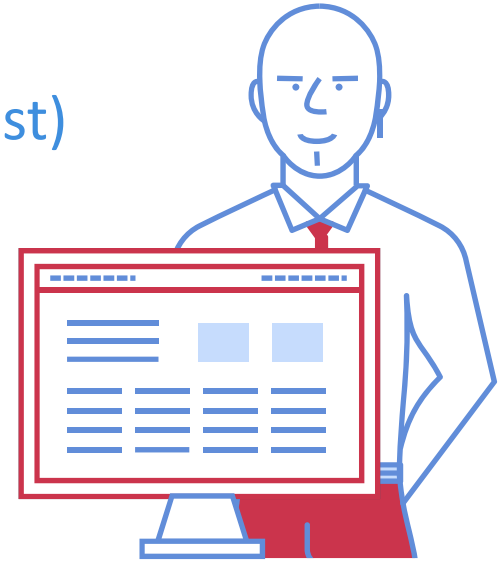
Focus Group on “Vehicular Multimedia” (FG-VM)

- Three events to brainstorm on the future of vehicular multimedia: **mini-Workshop** (Ottawa), **Workshop** (Tokyo) and **Workshop** (Budapest)
- Agreed working structure
  - WG1: VM use cases and Requirements
  - WG2: VM Architecture
  - WG3: Implementation aspects of VM
- Finalized a Technical Report on: FGVM-01R1 “Use cases and requirement for the Vehicular Multimedia system”
- Currently working on a Technical Report on: FGVM-02 “Vehicular Multimedia architecture”

https://itu.int/go/fgvm



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New ITU-T Focus Group on "AI for Autonomous and Assisted Driving" (FG-AI4AD)

Created by ITU-T SG16 on 17 October 2019 for studying:

- *AI behavioral evaluation in autonomous and assisted driving*

AI for Good Global Summit

An ITU experience

Aims to support 1949 and 1968 UNECE Conventions on Road Traffic

1st meeting
21-22 Jan 2020, London, UK

AI for Autonomous and Assisted Driving
AN ITU FOCUS GROUP

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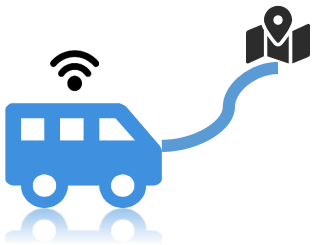
Focus Group on "AI for autonomous and assisted driving" (AI4AD)



Establishing acceptable performance levels for AI systems:

- *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 and careful human driver*

Aim of FG-AI4AD:

- Study enabling technologies within assisted and autonomous driving
- Produce assessment programmes for autonomous and assisted driving
- Identify minimal universally accepted expectations for driver behaviour
- Analyse data privacy challenges related to autonomous & assisted driving operations

- First meeting successfully held on 21-22 January, London UK
- Second meeting planned 4-5 May 2020, during AI4Good global summit (Geneva)

Join us! https://itu.int/go/fgai4ad

Contact: tsbfgai4ad@itu.int

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Opportunities for Collaboration

New:
Global online free ITS communication Standards DB

Collaboration on ITS Communication Standards (CITS)

- Established by the ITU to provide a Platform to share knowledge and coordinate ITS standardization
- Attended by worldwide SDOs
- Three meetings a year, back-to-back with the ITS-related regional events:
  Asia (~July), North-America (~Dec.), Geneva (~March)
- Aims for a coordinated set of interoperable ITS Communication Standards

https://itu.int/go/ITScomms
Subscribe to the CITS mailing list!

for more info contact the secretariat at:
tsbcits@itu.int or tsbfgvm@itu.int

ITU and Vehicle Connectivity: Yearly Events (Europe, Asia, America)

https://itu.int/en/ITU-T/extcoop/cits/Pages/related-events.aspx

ITU TIA SAE INTERNATIONAL

CCSA ITU

TTC Telecommunication Technology Committee

INFOCOMM MEDIA DEVELOPMENT AUTHORITY

Organized by UNECE ITU

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Future Networked Car Symposium

5 March 2020
Geneva, Switzerland

Organized by

UNECE

ITU

tsbcar@itu.int

https://itu.int/en/fnc/2020

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