

WP.24

21 November 2018

Sustainable Transport Division

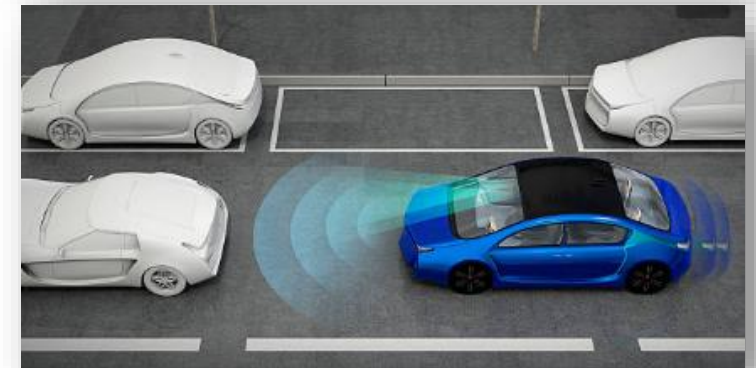
Intelligent Transport Systems

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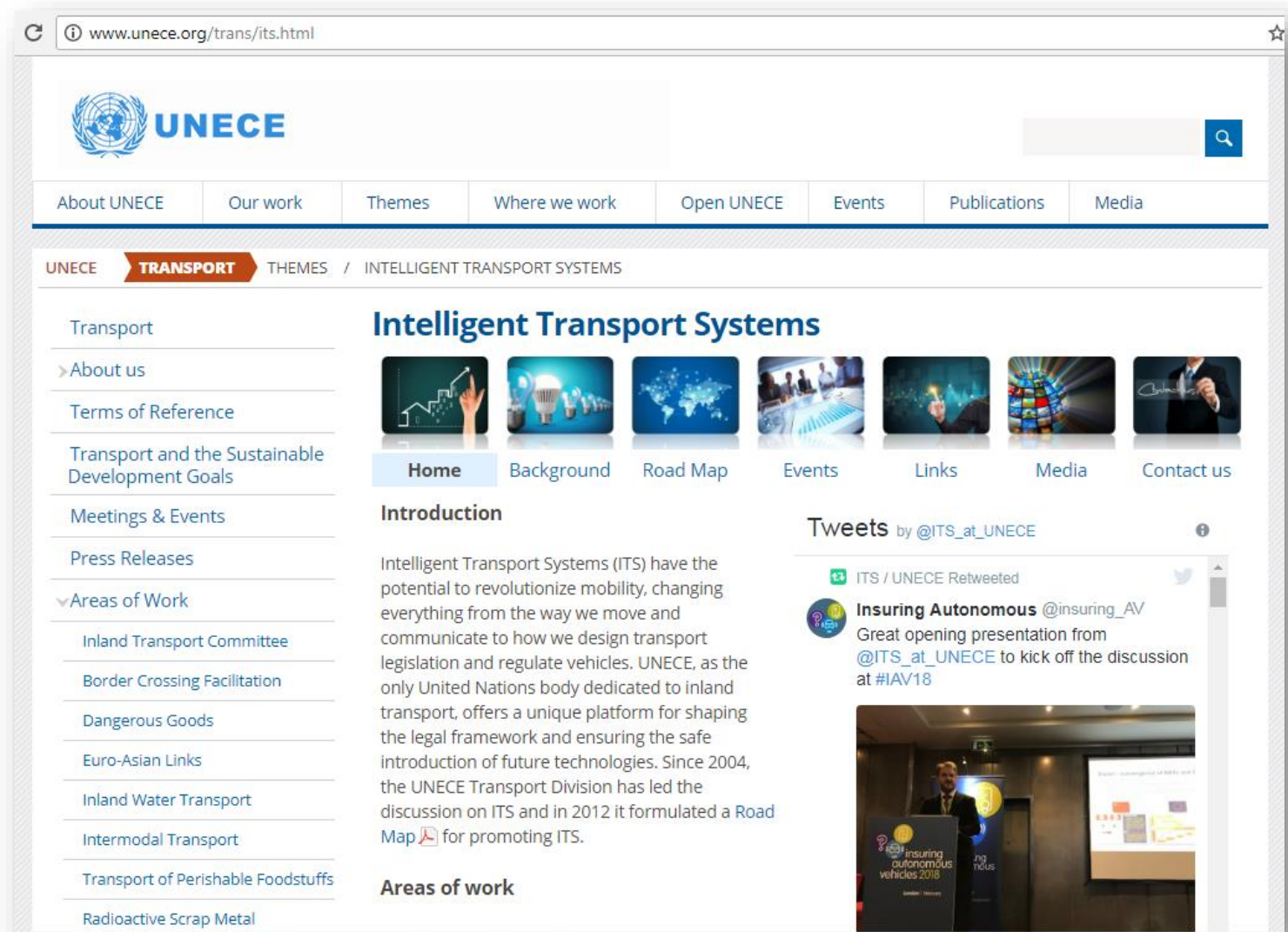
Intelligent Transport Systems / Automated Vehicle Focal Point



UNECE and Intelligent Transport Systems (ITS)



- Background document
- Strategic note
- Road map
- ➔ Adopted in 2012



www.unece.org/trans/its.html

UNECE

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UNECE **TRANSPORT** THEMES / INTELLIGENT TRANSPORT SYSTEMS

Transport

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- ▼ Areas of Work
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 - Intermodal Transport
 - Transport of Perishable Foodstuffs
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Intelligent Transport Systems

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Introduction


Intelligent Transport Systems (ITS) have the potential to revolutionize mobility, changing everything from the way we move and communicate to how we design transport legislation and regulate vehicles. UNECE, as the only United Nations body dedicated to inland transport, offers a unique platform for shaping the legal framework and ensuring the safe introduction of future technologies. Since 2004, the UNECE Transport Division has led the discussion on ITS and in 2012 it formulated a Road Map for promoting ITS.

Areas of work

Tweets by @ITS_at_UNECE

ITS / UNECE Retweeted

Insuring Autonomous @insuring_AV
Great opening presentation from @ITS_at_UNECE to kick off the discussion at #IAV18



Agenda 2030 - SDGs



Content

- The 2018 Future Networked Car symposium
- Activities of the Working Party on Inland Water Transport
- Working Party on the Transport of Dangerous Goods
- Global Forum for Road Traffic Safety
- Working Party on Intermodal Transport and Logistics
- Working Party on Road Transport
- World Forum for the Harmonization of Vehicle Regulations
- Working Party on Automated/autonomous and Connected Vehicles
- Non ECE relevant activities

The 2018 Future Networked Car symposium

- 1 Day symposium co-organized by ITU and UNECE
- Bringing the Telecommunication and the Automotive industries together meeting the regulatory and standardization bodies (ITU/UNECE)
- Policy dialogue on
 - DSRC/ITS-G5 and 5G and the automotive applications
 - Connected and Automated vehicles
 - Cyber security
 - Artificial Intelligence etc.



The Working Party on Inland Waterways

- Ministerial Declaration “Inland Navigation in a Global Setting” adopted at the International Ministerial Conference on Inland Water Transport held on 18-19 April 2018
- ITS applications in Electronic Ship Reporting and on the harmonization of pan-European River Information Services (RIS)
- Provisions for variable traffic signs were included in Resolution No. 90
- The workshop “Autonomous shipping and Inland Navigation” was held on 14 February 2018, at the fifty-second session of the Working Party.

The Working Party on the Transport of Dangerous Goods

The joint meeting of:

- The Committee of experts on the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)

and

- the Working Party on the Transport of Dangerous Goods, through its Informal Working Group on Telematics,

continued work on ITS applications aimed, inter alia, at improving the speed and efficiency of emergency responses involving dangerous goods in transport.

A memorandum of understanding containing the fundamental agreed principles for the establishment of a telematics architecture for the transport of dangerous goods.

The Global Forum for Road Traffic Safety (WP.1)

- Adoption of a WP.1 Resolution on the safe deployment of highly and fully automated vehicles in road traffic:
 - Preamble
 - Scope (Contracting Parties of the 1949 and the 1968 Conventions on Road Traffic Safety)
 - Definitions
 - Recommendations on the [...] automated vehicle construction
 - Recommendations for users
 - Further recommendations
- Deliberations on activities other than driving in automated vehicles

Working Party on Intermodal Transport and Logistics

The Working Party regularly addresses the role of ITS in intermodal transport and logistics by inviting experts to present:

- projects,
- innovative solutions and good practices in ITS.

In 2017 the Working Party invited the European Union project Tellisys on the development of a complete volume optimized intermodal combination, including a product family of new intermodal loading units, which satisfy the current market demands.

This solution enhances the performance of intermodal logistic chains by meeting the European Union's demand for more energy-efficient, low-emission logistics networks and contributes to more efficient transport by easing the transition between different transport modes

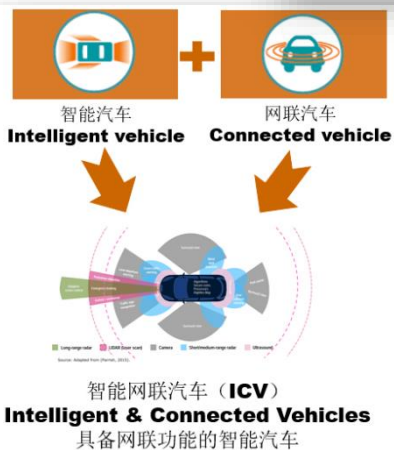
World Forum on Harmonization of Vehicle Regs.

- Brief presentation of the Forum
- The challenges faced
- Achievements so far on lower levels of automation
- The reform of WP.29
- Work on higher levels of automation
- Connectivity and cyber security

Vision – convergence of Intelligence and Connectivity

In the context of the mega trends

- Urbanization: 54% of the world’s population lives in cities. +66% by 2050 (UN DESA)
- Road safety: 1.2 Mio fatalities per year on roads
- Aging population: the number of people older than 60 would surpass one billion within a decade (UN, 2012)
- Digitalization

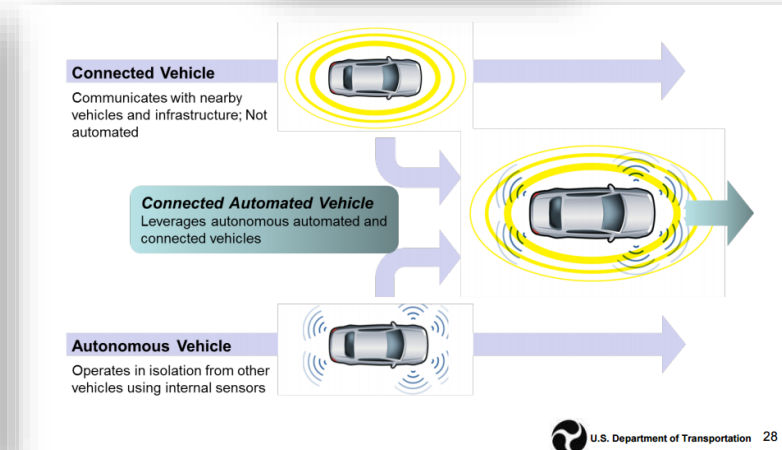
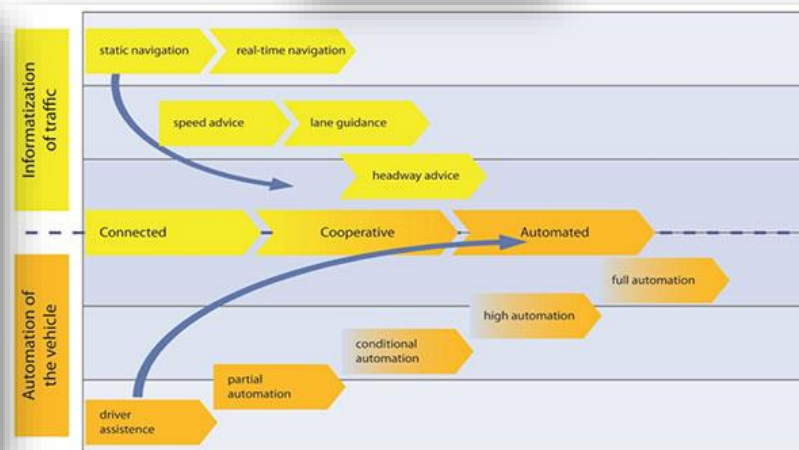


《中国制造2025》解读

搭载先进的车载传感器、控制器、执行器等装置，并融合现代通信与网络技术，具备复杂环境感知、智能化决策、自动化控制功能，使车辆与外部节点间实现信息共享与控制协同，实现“零伤亡、零拥堵”，达到安全、高效、节能行驶的下一代汽车。

[延伸]

以车辆为主体和主要节点，融合现代通信与网络技术，使车辆与外部节点实现信息共享和控制协同，以达到车辆安全、有序、高效、节能行驶的新一代多车辆系统。



UNECE and vehicle regulations

The World Forum for Harmonization of Vehicle Regulations (WP.29)

- UNECE Transport Division: secretariat to WP.29 for more than 60 years
- Since 2000, WP.29 is:
 - the unique worldwide regulatory forum for the automotive sector
 - administrating three Multilateral UN Agreements



Construction regulations
1958 Agreement - Type Approval Regulations with mutual recognition of the type approvals
1998 Agreement - Global Technical Regulations



In Use PTI regulations
1997 Agreement - Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspection

Conventional



Incl. their sub-systems and parts

ICVs



UNECE and vehicle regulations

What is WP.29 doing?



Emissions of pollutants and CO₂



General safety



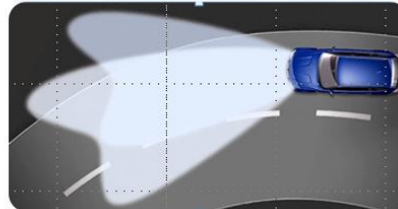
Passive safety



Noise and tires

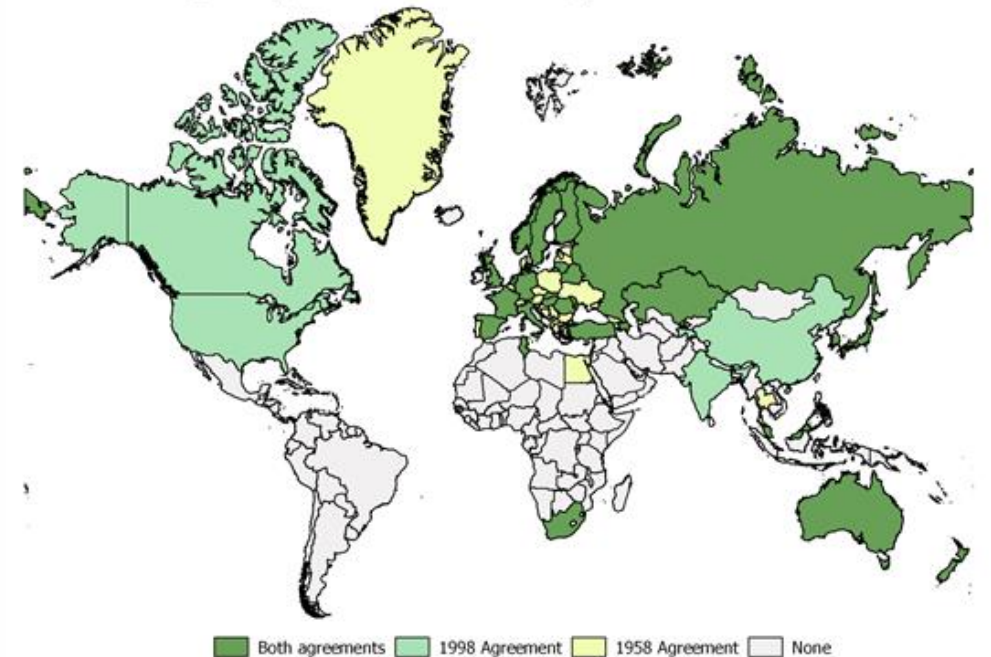


Automated/autonomous and connected vehicles



Lighting and light signalling

Geographical scope of WP.29



WP.29 is open to all Nations of the United Nations without any limitation or discrimination

This map doesn't show those Countries applying the Regulations unilaterally

The challenges

- Autonomous vehicles do not really exist yet - only prototypes and trials, but no mass market product.
- The regulatory work is preempting the technology.
 - ➔ The regulator has to be *moderately proactive* to enable innovation.

Goal:

- Integrate the technologies into the existing transport system,
- ensuring that the benefits of these new technologies can be captured.

The UN Member States do so without compromising on:

safety and achievements so far (e.g. international transport, trade, interoperability and environmental performance).



Lower levels of automation – WP.29 achievements

Package 1



ACSF Cat. A: e.g. RCP



ACSF Cat. B₁: e.g. LKA

Package 2



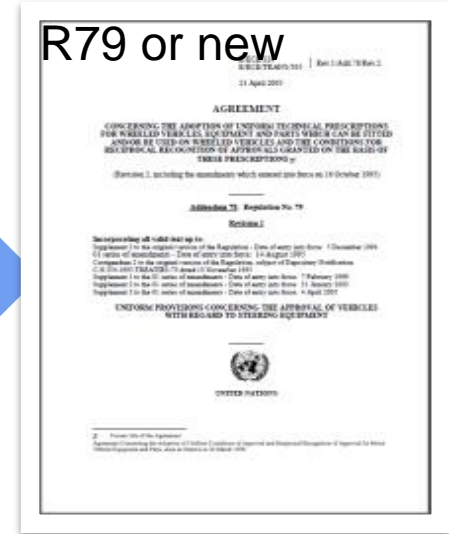
ACSF Cat. C: e.g. Lane change

+ Functional Safety

Ongoing

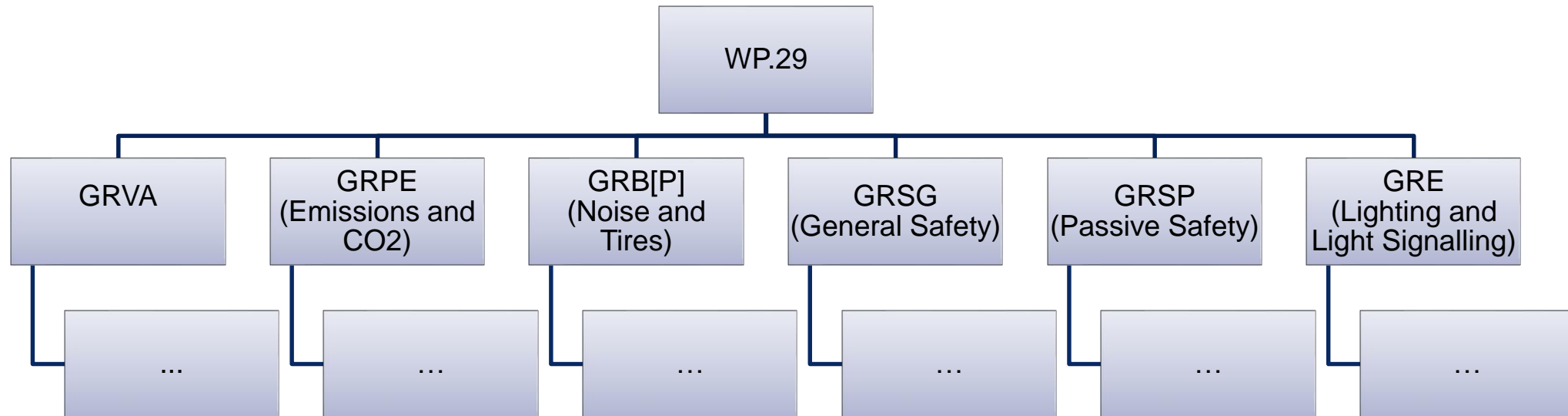


Is this legal ?



The necessary reform of WP.29

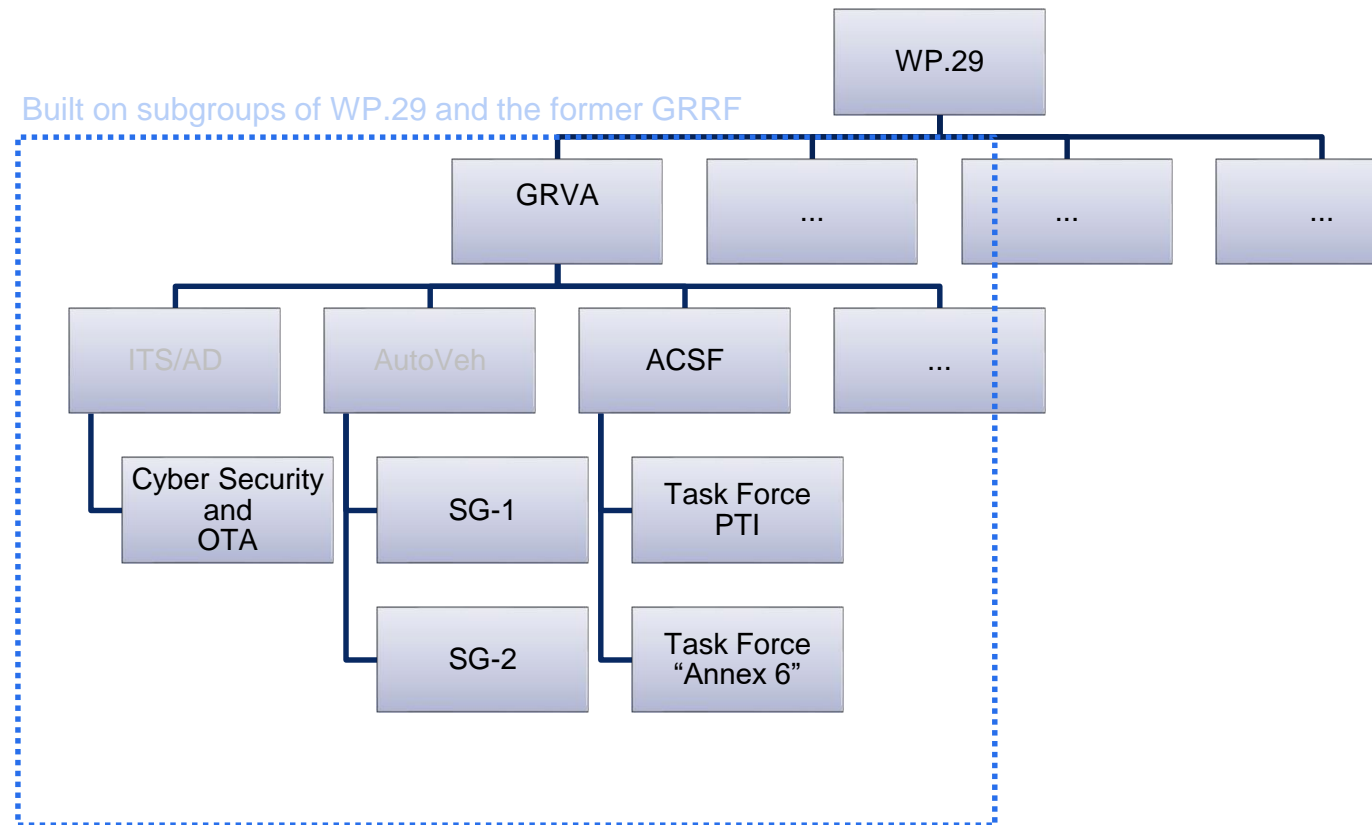
- WP.29 redefined its priorities and reformed itself in June 2018
- WP.29 has now a new structure following the restructuring
- GRVA is Working Party on Automated/Autonomous and Connected Vehicles



The current working structure

- Working Party on Automated/Autonomous and Connected Vehicles (GRVA) manages:
 - The ACSF group and its task forces
 - The former IWG on ITS/AD
 - The former “AutoVeh” task Force
 - The SG-1
 - The SG-2
 - The UN Task Force on CS/OTA
 - The active safety groups e.g. AEBS

- GRVA is also discussing many other items
 - The structure will be dynamic
 - The structure will be creative



Higher automation levels: Idea currently discussed

The Horizontal Regulation concept
With 3 pillars

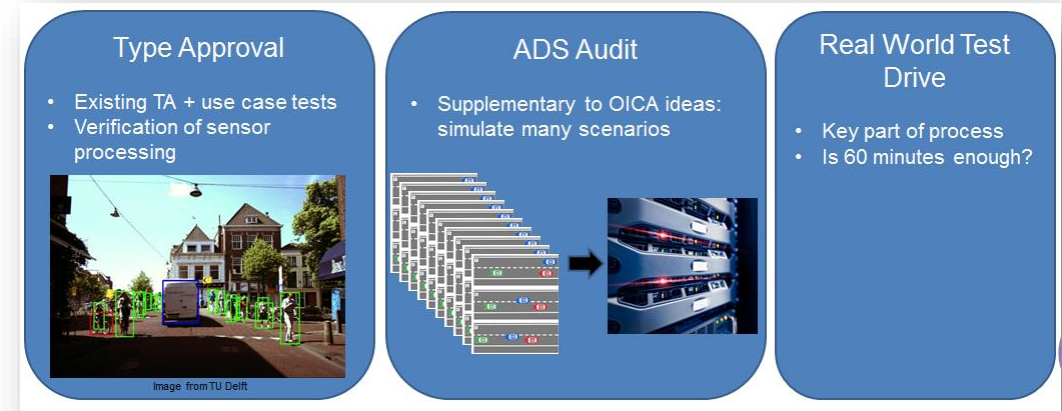
Pillar 1: Type Approval System
e.g. functional requirements

Pillar 2: Audits
Corresponds to ICT practices
Could involve simulations

Pillar 3: Real world test drive
Reality check
Validation

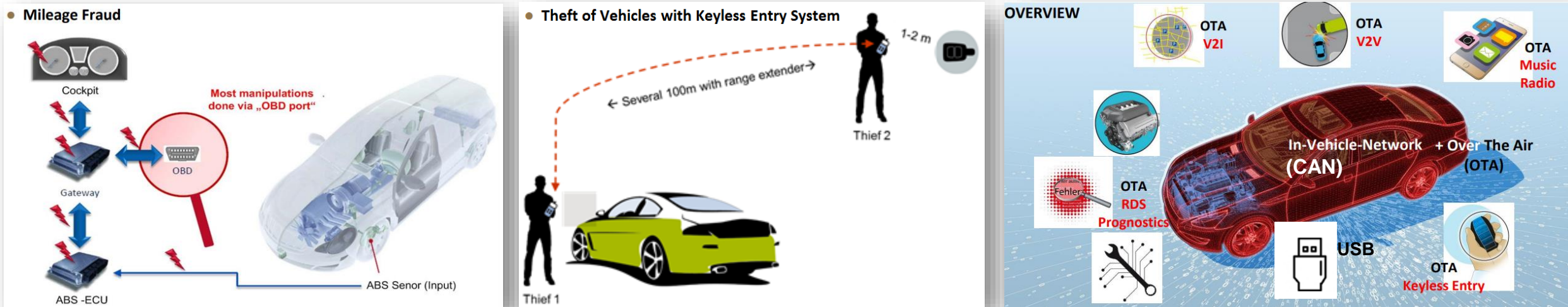
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Will be further discussed at the next session in January 2019



Cyber security

Advocacy groups presented the following cases to WP.29:



They also raised the concern of data protection

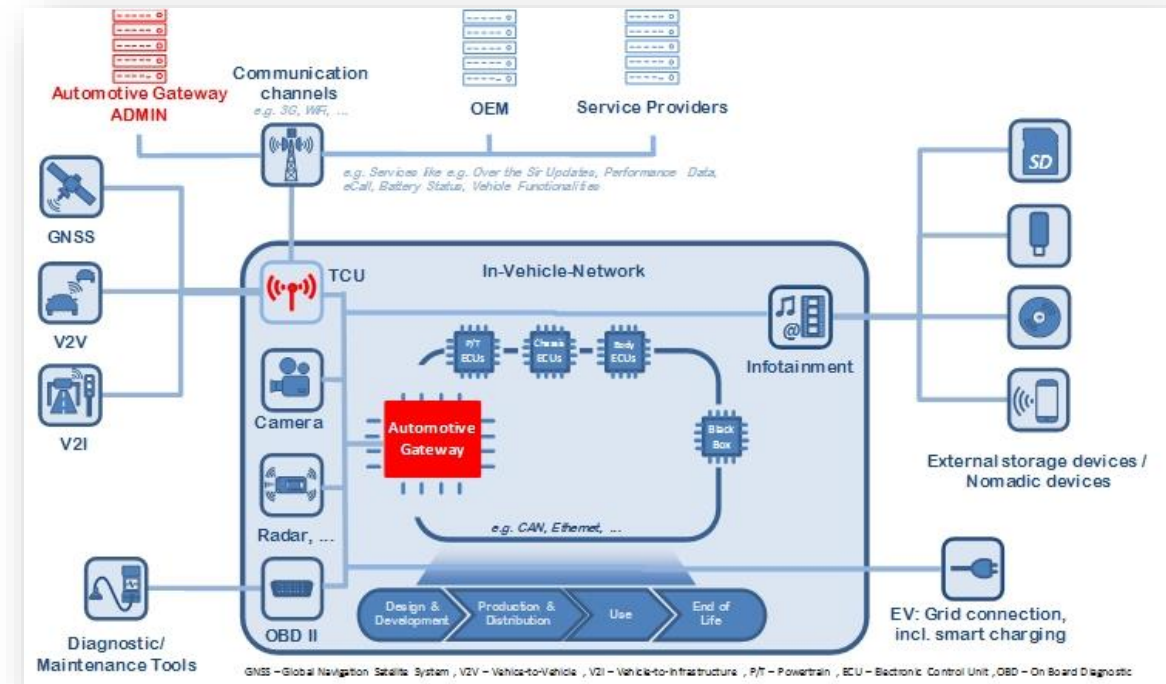
- Malicious or fraudulent activities
- Fully legal activities but not in the interest of the consumers
- (Concerns related to privacy, which is mentioned in the Universal Declaration of Human Rights)

➔ WP.29 adopted guidelines on Cyber Security and Data Protection

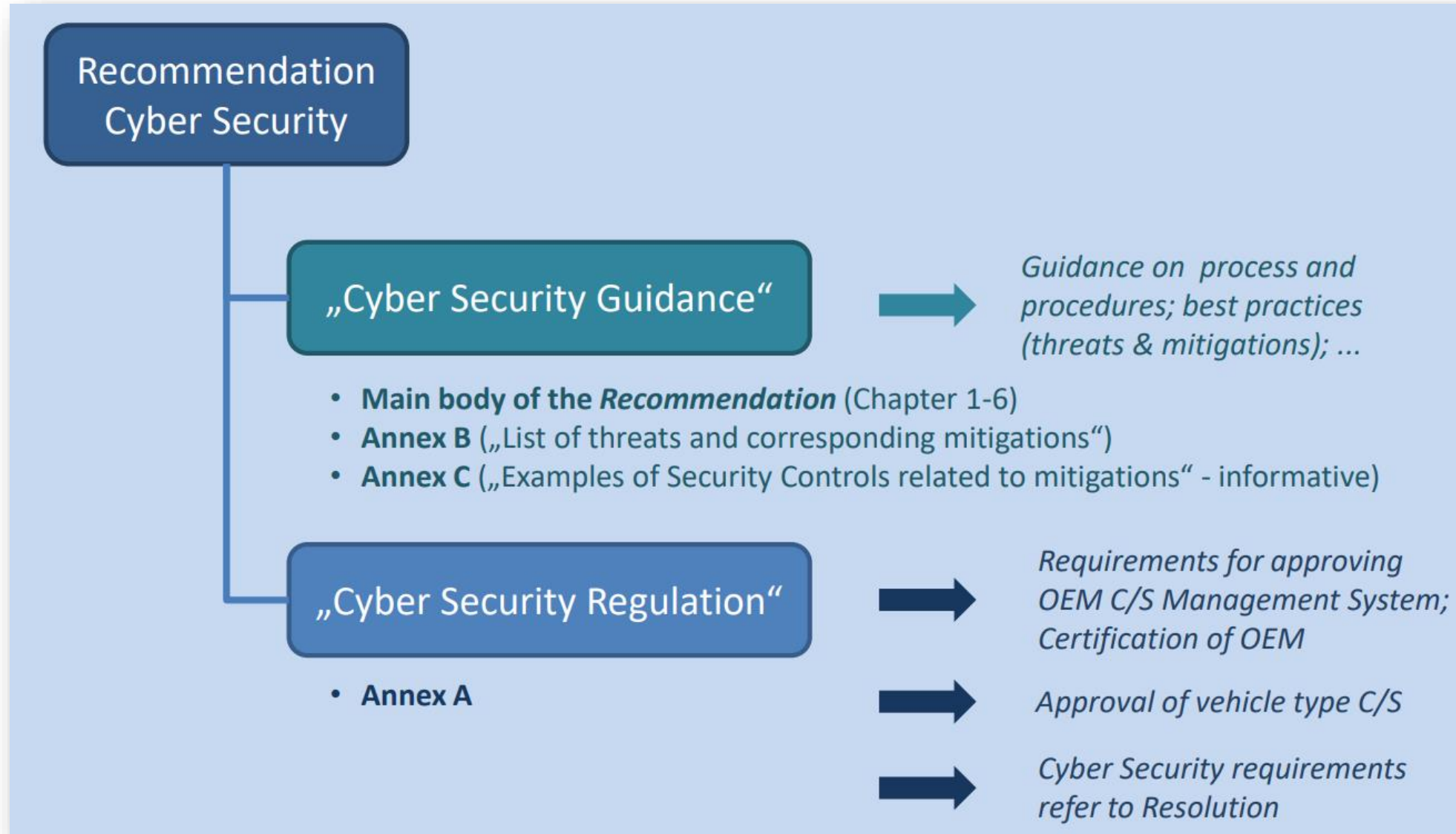
➔ Task Force on Cyber Security and Over the Air

The Task Force on Cyber Security and OTA

- Initiated in November 2016, by WP.29
- Reporting to the IWG on ITS/AD
- Aim to deliver these in 2018 to WP.29
 - The output may then be adopted as a UN Regulation possible linked to a Resolution (dynamic)
- Two outputs:
 - Software update (incl. OTA) recommendation
 - Software Identification Number (RxSWIN)
 - Post registration
 - Cyber Security recommendation
 - Development phase requirements
 - Post sale requirements

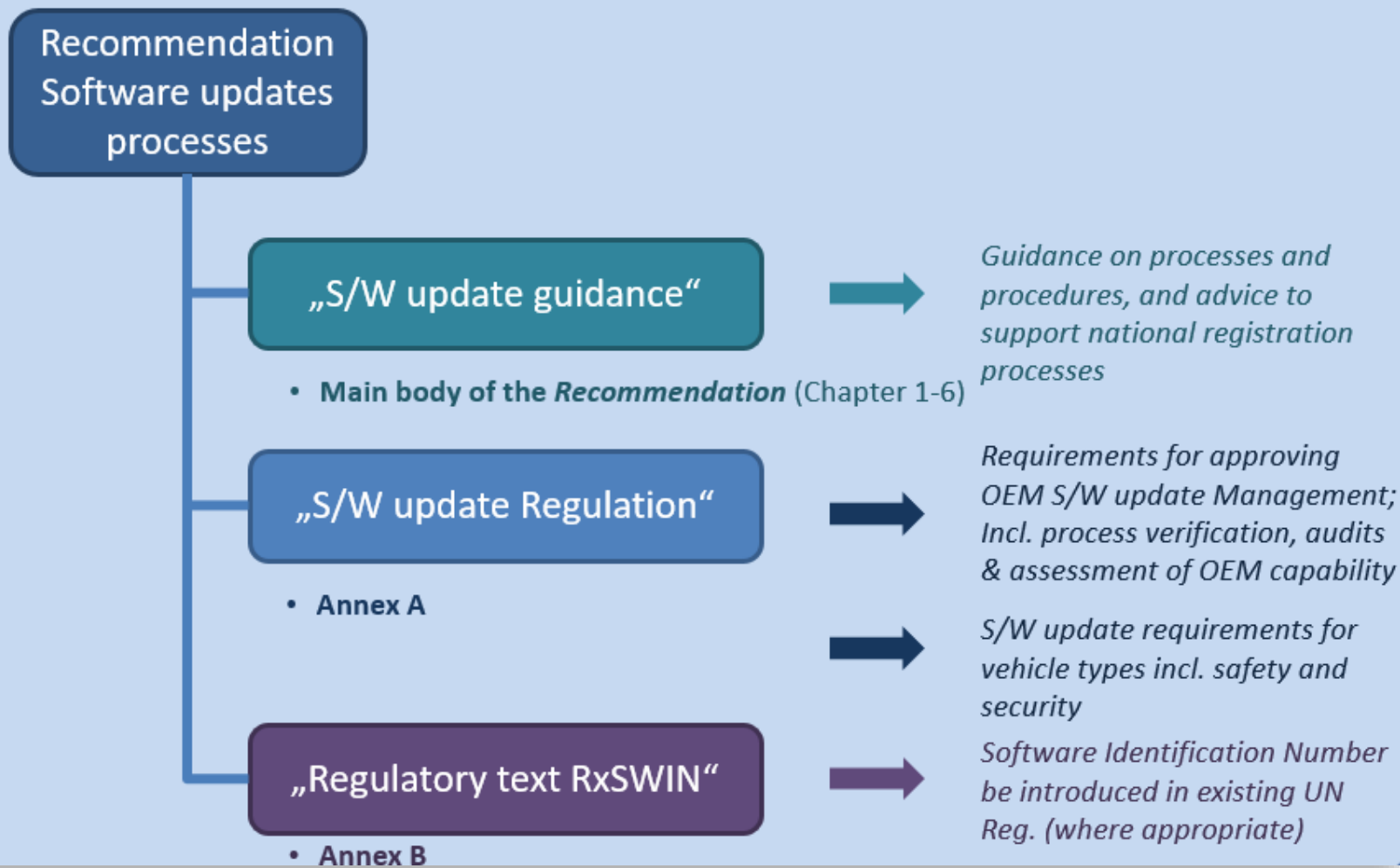


Draft recommendation on Cyber Security



Draft recommendation on Software updates (incl. OTA)

Structure of the Recommendation on S/W update processes



Connectivity and standardization

Discussions outside of WP.29 so far

2 competing views on vehicle connectivity:

- IEEE 802.11p (DSRC, ITS G5)
- LTE, 5G



Once decision on standard(s) is made → type approval

WP.29 is liaising with standardization bodies

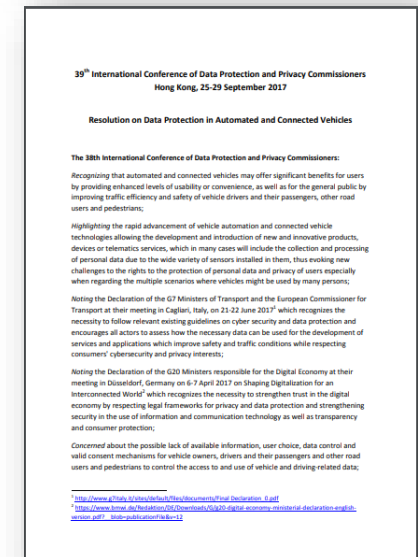


Non-ECE relevant activities

- The 2017 G7 transport ministers' declaration:
 - encourage the UNECE's WP.29
 - to continue to work on the fundamental technical principles, including appropriate performance metrics and test procedures for demonstrating the effectiveness and safety of these technologies
 - to focus activities on systems with higher levels of automation and
 - to assess whether new categories should be defined in order to cover all kinds of automated driving systems

- The Resolution on Data Protection in Automated and Connected Vehicles adopted by the thirty-eighth International Conference of Data Protection and Privacy Commissioners in September 2017 mentions:
 - The Guideline on Cyber Security and Data protection

- Assist in national regulatory bodies:
 - Member of the Foreign Advisory Expert Group of China on ICVs
 - Ad hoc participation in national/regional activities e.g. on 7 Nov. 2018 in Abu Dhabi



**THANK YOU VERY MUCH
FOR YOUR ATTENTION**

UNECE

<http://www.unece.org/trans>

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