



Vehicle regulations

Update from the Working Party on Automated/Autonomous and Connected Vehicles

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UNECE

Content

- Introduction and context
- Recent developments in:
 - Cyber Security and
 - ADS
- What we've observed

United Nations – Transport – Hosting WP.29 and GRVA

UNECE is:

- a United Nations agency
- part of the UN Secretariat
- One of the five regional economic commissions of the United Nations established under UN ECOSOC
- Custodian of 60 Conventions for inland transport
- ECOSOC gave a regional and inter-regional mandate to UNECE regarding transport



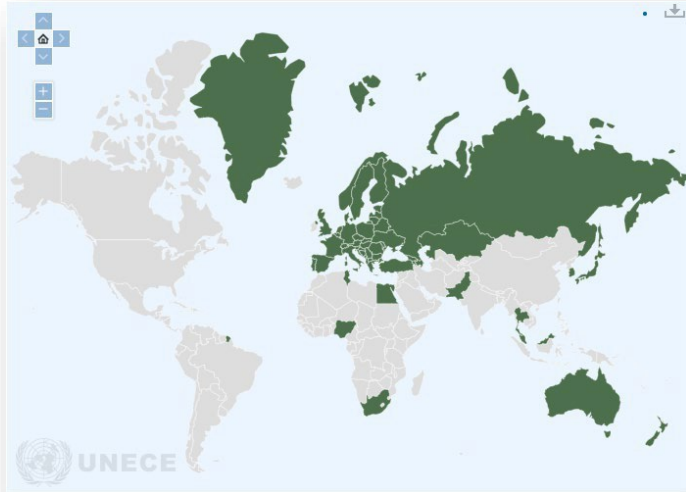
Digitalization – some topics under consideration

- Artificial intelligence (definitions and guiding principles)
- Automated and autonomous systems (Level 3 and higher)
- Amendments of regulations for vehicle automatization
- Advance Driver Assistance Systems - DCAS (Level 2)
- Cybersecurity and software-updates (over the air - OTA)
 - Cyber Security
 - Access to vehicle data and privacy
 - (vehicular communication)
- Others: Steer-by-wire / electromechanical braking, first Motorcycle ADAS



Vehicle regulations at UNECE – the Framework

1958 Agreement



59 contracting parties

- Rules for the management of the Agreement itself
- Rules for drafting, adopting, amending regulations
- Rules for granting approval, mutual recognition
- Rules for non-conformity consequence («rectification»)
- Rules for TA and TS nomination

➔ 171 regulations adopted so far under this agreement

1998 Agreement



39 contracting parties

- Rules for the management of the Agreement itself
- Rules for drafting, adopting, amending regulations
- Provide the flexibility for different systems:
 - Self-certification
 - Pre-market approval etc.

➔ 24 regulations adopted under this agreement

Vehicle regulations at UNECE – the framework

1958 Agreement:

- “UN Regulations”
- Directly applicable by the Authorities and stakeholders/industry
- Mutual recognition of Type Approvals
- 59 contracting parties



1998 Agreement:

- “UN Global Technical Regulations”
- Requires transposition in national law
- No administrative procedures
- Suitable for: Self Certification & Type Approval
- 31 contracting parties



Vehicle regulations at UNECE – the stakeholders

~60 UN member States

(Contracting Parties)

Manufacturers:



Suppliers:



Road and Public Transport Federations:



Observers & others

...

Testing centers:



Consumers/motorists representatives:

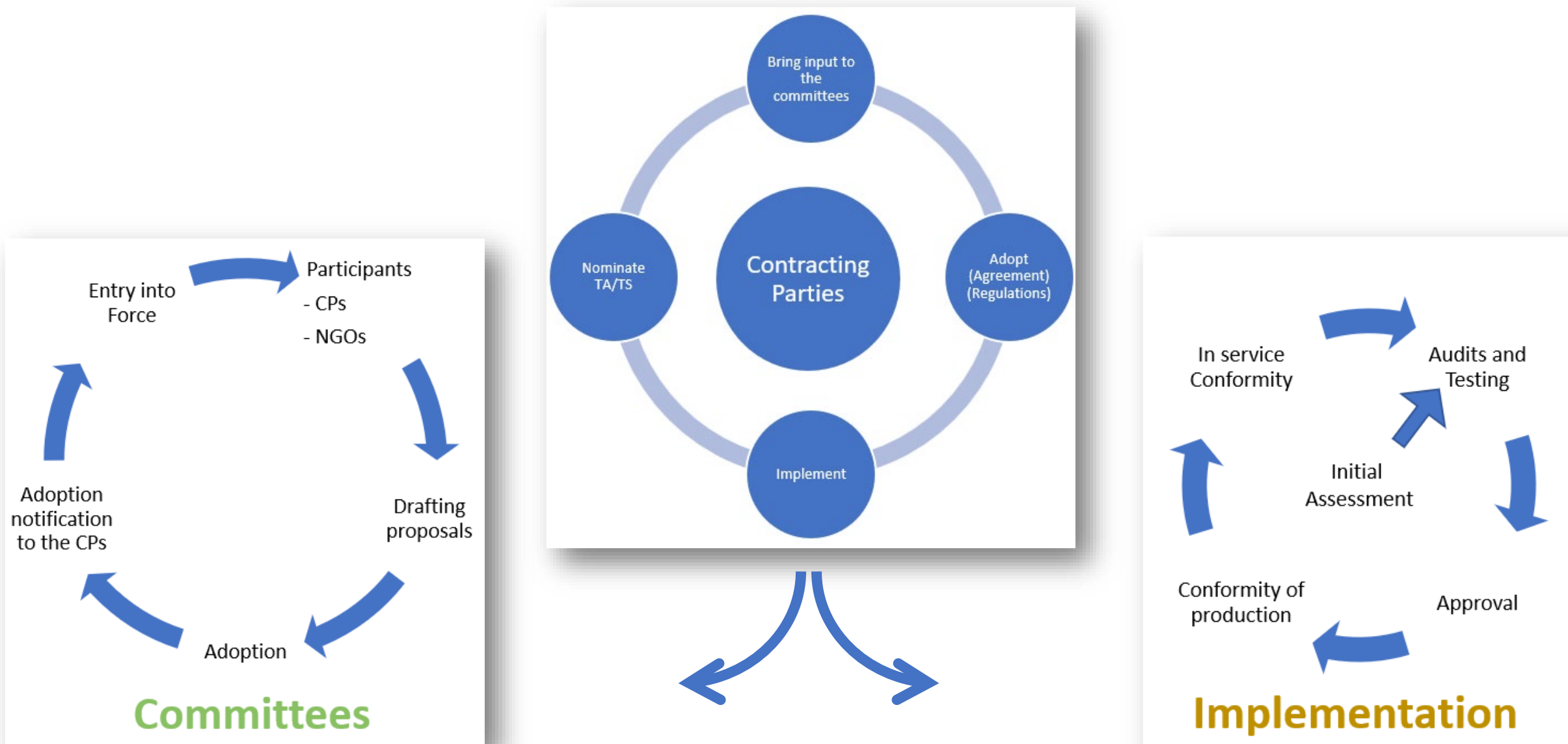


Standard Developing Organizations:



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Vehicle regulations at UNECE – three pillars

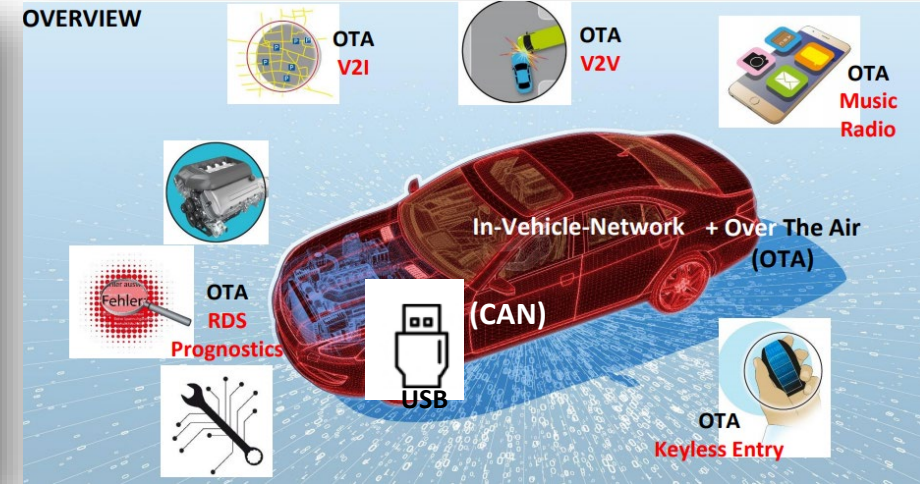
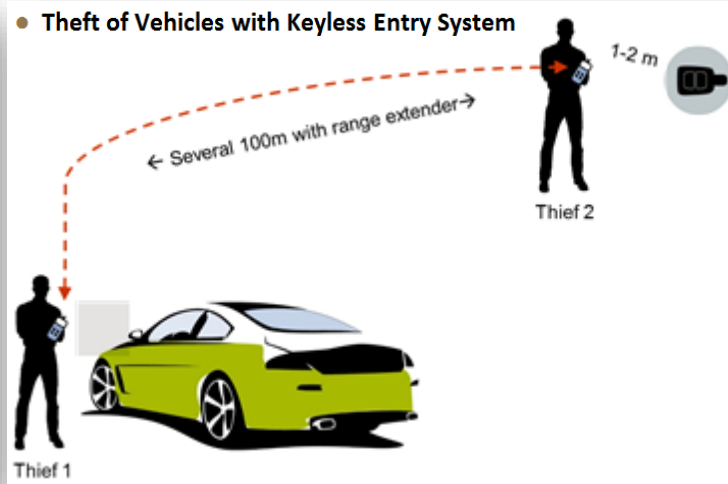
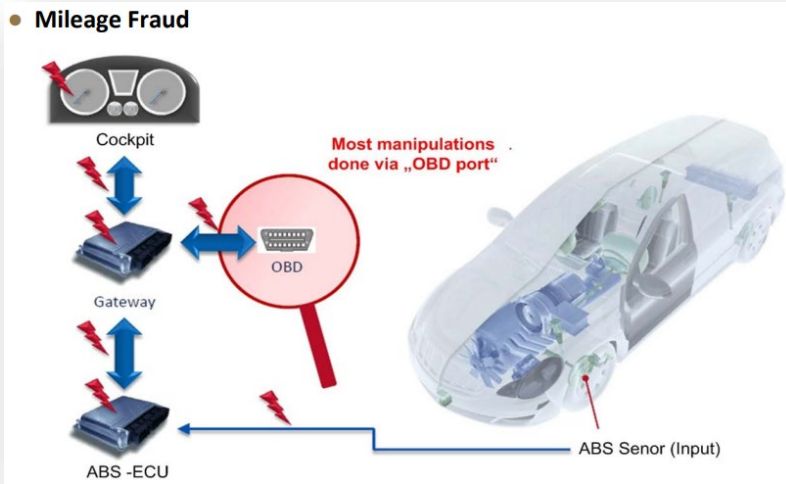


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Starting point - cyber security at UNECE

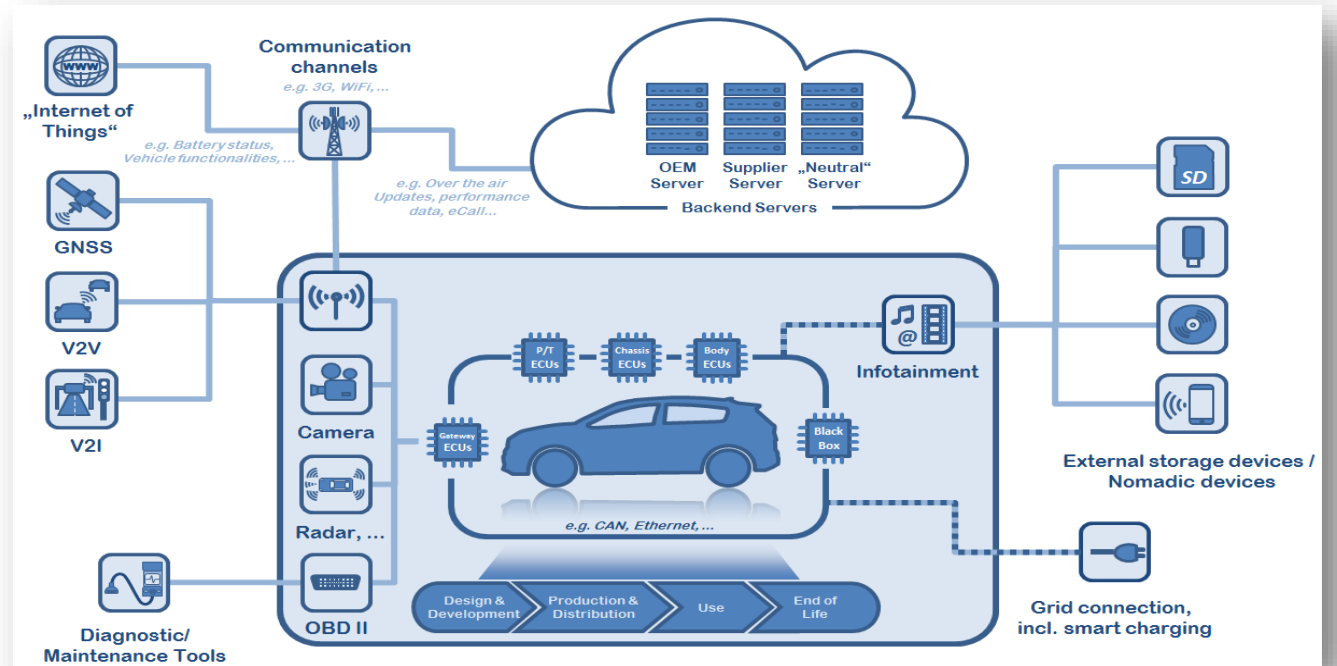
- Context: Wannacry and Jeep Hack
- FIA presented the following cases:



- G7 – Transport ministers

Recalled the importance of addressing cyber security and data protection at national, regional and international level.

Our assessment

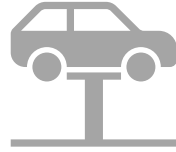


Key aspects related to cyber security (automotive)



Management System

Obligations regarding the organization
(Processes are in place)



Product

Threat analysis and risk ass.
Verification that the product implements the organization processes



Monitoring

Manufacturer monitors attempted and successful attacks
Data are collected to support forensics



Reporting

Manufacturer reports to the Authority that issued the approval

➔The industry voluntary standards ISO/SAE 21343 and ISO/PAS 5112 support the implementation of these requirements

Key aspects supporting cyber security in automotive at UNECE



Committee

No governance reform, but:
Looked for specific expertise
Open to new approaches
Testing before adoption of the requirements



Requirements

Level playing field
Organization / Processes
Product at system level
It includes:
- Supply chain
- Lifecycle and Lifetime
- Monitoring
- Reporting



Ecosystem

Approval Authorities
Technical Services

Voluntary standards fully aligned with the requirements



Continuous exchange

Implementation of the requirements
Review of new risks
Workshops on the implementation

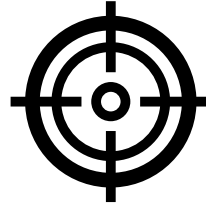
Content

- Introduction and context
- Recent developments in:
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- Some lessons learnt

Framework document for automated vehicles



Authors



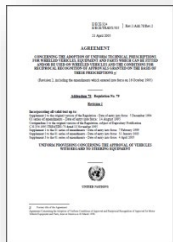
Purpose

Guides WP.29's groups
Programme management



Highlights

Safety vision
Key safety elements
Timeline



Safety vision:

“an automated/autonomous vehicle shall not cause any **non-tolerable risk**”, meaning that automated/autonomous vehicle systems, under their automated mode ([ODD/OD]), shall not cause any traffic accidents resulting in injury or death that are reasonably foreseeable and preventable.

Pre-regulatory phase – regulatory phase

- Mid 2019-2024 – Pre-regulatory phase
 - Functional requirements
 - Validation and testing
 - ➔ Production of guidelines
- Mid 2024-2026
 - Initiative of Canada, China, EC, Japan, UK and USA (+Australia and NL)
 - Agreement to draft global regulation (for the 1958 and 1998 Agreements)

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Risk-based considerations

- Automotive regulations consider risk-based approaches
 - Cyber security: at the starting point for the regulatory activity and during the assessment
 - ADS: at the starting point for the regulatory activity

 - More traditional topics also follow risk-based approaches:
 - ➔ Passive safety e.g. crash test. Injury criteria are risk-based defined
 - ➔ Active safety e.g. ESC. The risk addressed is stability control
 - ➔ Emission regulations Address health and climate related risks
- Vehicle regulations primarily consider two risk management strategies/techniques:
 1. Avoidance
 2. Mitigation

(Risk transfer, risk sharing, risk retention are not considered like in other sectors)

Ex-post evaluation – cyber security

Using the existing legal framework led to the possibility to promptly implement cyber requirements in Automotive.

Since the entry into force, UNECE observed many announcements for:

- Merger and acquisitions
- Partnerships
- Profit opportunities. The “cyber market” will grow and double to reach USD 10 Bio. In 2030 -- source: McKinsey

Industry (voluntary) standards are fully aligned with the regulatory requirements – developed in parallel
See ISO/SAE 21434 (engineering) and ISO/PAS 5112 (audits)

Some figures:

- 58 Approval Authorities notified to UNECE
- 43 Technical Services nominated by their Authorities and notified to UNECE



New green and automotive

- Impact on the regulatory activities
 - Technology neutrality – difficult when cross sectoral choices are needed
 - New topics e.g.:
 - RDE, beyond lab testing
 - Lifecycle emission consideration, beyond tail pipe emissions
 - Tyre and brakes particulates
 - Cross sectoral considerations started
- In development, more to come and more to learn...

Digitalization and automotive

- Impact on the regulatory activities
 - New participants – inclusiveness helped
 - New topics e.g. cyber security – do your part
 - Culture and ecosystem – Understand:
 - Regulation vs. standards
 - Interoperability vs. minimum safety requirements
 - Scope
 - Vehicle
 - Extended vehicle
 - Non-vehicle
 - Stakeholders / ecosystem
- Understand the hype mechanisms



Thank you for your attention

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Secretary to GRVA

