WP.24

21 November 2018

Sustainable Transport Division

Intelligent Transport Systems

François E. Guichard

Mechanical Engineer
Secretary of the Working Party on Automated/Autonomous and Connected Vehicles
Intelligent Transport Systems / Automated Vehicle Focal Point
UNECE and Intelligent Transport Systems (ITS)

- Background document
- Strategic note
- Road map

Adopted in 2012
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
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
  - administering 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 PVI regulations
  - 1997 Agreement - Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections

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

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

Geographical scope of WP.29

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. B: e.g. LKA

Package 2
- ACSF Cat. C: e.g. Lane change
- + Functional Safety

Ongoing
- Is this legal?

R79 or new
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 restructuration
- 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
...  
Will be further discussed at the next session in January 2019
Cyber security

Advocacy groups presented the following cases to WP.29:

- 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

Recommendation Cyber Security

„Cyber Security Guidance“
- Main body of the Recommendation (Chapter 1-6)
- Annex B („List of threats and corresponding mitigations“)
- Annex C („Examples of Security Controls related to mitigations“ - informative)

„Cyber Security Regulation“
- Annex A

Guidance on process and procedures; best practices (threats & mitigations); ...

Requirements for approving OEM C/S Management System; Certification of OEM
Approval of vehicle type C/S
Cyber Security requirements refer to Resolution
Draft recommendation on Software updates (incl. OTA)

Structure of the Recommendation on S/W update processes

Recommendation Software updates processes

„S/W update guidance“
- Main body of the Recommendation (Chapter 1-6)

„S/W update Regulation“
- Annex A

„Regulatory text RxSWIN“
- Annex B

Guidance on processes and procedures, and advice to support national registration processes

Requirements for approving OEM S/W update Management; Incl. process verification, audits & assessment of OEM capability

S/W update requirements for vehicle types incl. safety and security

Software Identification Number be introduced in existing UN Reg. (where appropriate)
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

Francois.Guichard@unece.org