London, 7 January 2016

Adaptive Approaches to Regulation

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

- UNECE Transport Division: secretariat to WP.29 for more than 50 years
- 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
What is WP.29 doing?

- Emissions of pollutants and CO₂
- General safety
- Passive safety
- Noise
- Active safety
- Lighting and light signalling
Regulatory principles

• UN Vehicle Regulations are performance oriented
• UN Vehicle Regulations avoid as much as possible design restrictions
  - e.g.: UN Regulation No. 94 on Frontal Collision: criteria are maximum acceleration for head and injury of neck and different parts of the body for driver and passengers; Fitting of air-bags is not a requirement, however once fitted markings and warning lables are required

• Amendments to UN Vehicle Regulations to follow technical/scientific progress
  - e.g.: Ageing of population → average body capable to cope with lower accelerations → amendment of criteria to lower accelerations
Safety improvement:

- ABS, ESC
- LDWS
- LKAS, ACC
- Traffic jam assist
- Highway autopilot
- Platooning
- Automated driving
# Challenges

## Vehicle approval/certification regulation challenges

- Adapt existing vehicle construction regulations (WP.29)
  - Update existing Regulations
  - Define proper HMI concepts
  - Identify side effects and address them
  - Design new safety concepts
  - Address interoperability issues

- Integrate new technologies & standardization work (e.g. from ITU, ISO, IEC, IEEE)

- Not only hardware but also software to be covered (modeling of decision making processes at conflict situations)

- Software updates (updates over the air, limitations, need for new or extension of existing approval)

- Address data security / cyber-security

- Don’t neglect traditional vehicle safety issues

## Other challenges

- Mixed traffic versus separation

- Adapt traffic rules? (e.g. safety distances?)

- Adapt infrastructure?

- Address security questions

- Revise responsibility / product liability concepts
  - Define expectations of the product / its Manufacturer
  - Implement customer protection updates
  - Adapt the role of the insurance companies and Define balanced relationship between «driver (owner)» / «Manufacturer» / «insurance»
Latest Developments in Vehicle Regulations

Requirements for automated driving functions currently under discussion

- Low speed manoeuvres (valet parking)

- Autopilot for highway/express-way
Recent changes in international traffic legislation

• Amendment of 1968 Vienna Convention on road traffic enters into force 23 March 2016
  - Need for a driver

Automated driving functions if

• approved to UN Vehicle Regulations or

• ‘master-switch’ allowing driver to take over control
Main objectives
Still open questions

Objectives:
- enhancement of safety for road users
- avoidance of unfair competition for industry
- harmonization as basis for global market

Open Questions:
- What needs to be regulated?
- When is regulation needed?
- How deep should these regulation go?
THANK YOU FOR YOUR ATTENTION

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