OECD Workshop on Digital Security and Resilience in Critical Infrastructure and Essential Services

Digital Security Risks to Transport Infrastructure: Automated Vehicles
15-16 February, 2018

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Sense of crises - ...

- 23% of energy related GHGs from transport
- 80% of city air pollution from transport
- 1.3 million people killed 50 million injured on global roads
- 1 billion people without access to all-weather road
- Billions of USD are lost in traffic congestions worldwide
- 1 billion people live in countries that have not acceded to any of the UN transport conventions
... - may lead to opportunities

Transformation of transport driven by
- Policies
- Mega-trends
- Technology
- Businesses

2030 Agenda and SDGs
Increased attention to climate change mitigation and adaptation – Paris Agreement
Increased attention to funding needs of developing countries: Addis Ababa finance for development
UN-Habitat III: urban and transport planning – Quito deal
The Ashgabat process for transport
Concern for safety - UN GA Resolutions, Moscow and Brazilia declarations

Population growth
Urbanisation
And other demographic changes
Economic growth
Growth of trade and tourism
Globalisation and new regional centres
Geopolitical changes and power shift (BRICs; nation states – integration initiatives; nation states – fiscal and political decentralisation to cities; growing middle class)
Social trends and the civil societies

Big data
Connectivity – Smart
Integrated and multi-modal
Automated - autonomous
Digitalisation
Going electric
New materials
3D printing
Augmented reality
Drones
Enhanced humans

Ride share, car share, e-hailing
New ways of urban public transport provision
E-docs in supply chains
Innovative city logistics
Activities to improve transport security

- ICAO, IATA, ECAC, CANSO ...
- Fora, Programmes
- Action Plan
- Legislation (Annex 17, EU Regulations)

Aviation

- IMO
- Guideline MSC-FAL.1
- Resolution MSC.428(98)

Maritime

- UNECE ITC (WP. 29., WP.1., ITC Security Forum)
- EU
- UIC, IRU, UIRR, UITP

Inland Transport

ISO 2700 Family

ITF 2018

The other 4 RCs of the UN
Governance for Inland Transport through UNECE

58 UN transport agreements, 1738 CPs
UN Regulatory framework for road mobility and transport - all to be impacted by digitalisation and automation

- Social Rules (driving and rest hours)
- Drivers’ License
- Vehicle Regulations
- Border Crossing Facilitation
- Road Traffic Rules
- Road Signs and Signals
- Infrastructure (standards and parameters, tunnel safety, all land modes)
- Statistics
- Dangerous Goods
Changing road mobility

Vehicle regulations (update existing regs; design safe road modes; different levels of automation, interoperability)

Insurance and liability (accident, product, cyber crime)

Infrastructure (design (AGR), investment, management, road pricing)

Traffic Management (geographical, modal, ownership distribution)

Governance (urban, national, international, regional, global)

Data (More informed decisions and policies, but how)

New Business Models (freight transport, passenger mobility)

Mobility patterns (community/PT, multimodal)

Vehicle Ownership (more shared mobility, less need for ownership)

Traffic rules (Vienna conv; mixed traffic; separated traffic, different levels and solutions, interoperability)

Attractiveness/
Acceptance of change

- Safety
- Efficiency
- Reliability
- Not much hassle
- Cool

Resistance to change

- Cyber security
- Over-promise
- Cost
Cyber Security of automated vehicles: WORLD FORUM FOR HARMONIZATION OF VEHICLE REGULATIONS (WP.29)

<table>
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<th>• The World Forum WP.29 administers 3 Agreements:</th>
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| **‘58 Agreement**  
Uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions |
| **‘98 Agreement**  
Establishing of global technical regulations (gtrs) for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicle |
| **‘97 Agreement**  
Uniform conditions for periodical technical inspections of wheeled vehicles and the reciprocal recognition of such inspections |

• **Challenge:** fast changing technology

• **WP.29. Informal Working Group on ITS/AD and inter-governmental Task Force on Cyber Security and OTA**
  - Guideline on Cyber Security and Data Protection
  - UNECE Resolution R.E.3. of 2017
  - Strategy on Cyber Security and Data Protection is under preparation
Rethinking traditional transport policies and regulations in a more holistic way

Urban Planning and Transport Development
From cooperative to autonomous driving
(beware of different levels!)
The impact of Electric Vehicles
### Arguments for multisectoral

- Data and intelligence essential for all sectors
- Methodology and framework relevant for all
- Transformative impacts of technological innovations: telecom – transport; energy - transport

### Arguments for sectoral or rather modal

- Easier protection of ‘silos’
- Cyber security is not IT security, but much more:
  - new policies, doing business conditions and many more new players
  - Today lack of cooperation even within transport due to complexity and different governance structures
- Mitigation and resilience
  - Not only for cyber security, but also climate change adaptation: where are the best synergies?
  - Need to rethink investment feasibility criteria
Conclusion and Questions for discussion

• Starting point: Transport and mobility is under transformation, partly due to digitalisation

• Questions for discussion on cyber security of mobility and automated vehicles:
  ➢ Governance
    o National – international – global and/vs. regional
    o Private sector – regulator
    o Multisectoral – sectoral - modal
    o Current governance based on past history – but does it meet future needs
  ➢ Inventory and assessment of vulnerability of transport
    o Methodology to identify critical infrastructure
    o Early warning systems
  ➢ Data: Confidentiality – Integrity – Availability, security and sharing
  ➢ Policies – Strategies – Regulations – Standards
  ➢ Investing in cyber security: costs and benefits; new sources, but not without transformation
Thank you for your attention!