

Sohjoa Baltic

Autonomous public transport - webinar

Legal obstacles on the way to sound use cases for driverless transport

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“Regulation must ensure that self-driving vehicles provide solutions to existing traffic problems – not exacerbate them.”

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Tips from a legal perspective



Get approved: Plan enough time and resources for approval and permission processes for

- vehicle
- infrastructure
- transportation permits

Keep informed: Keep an eye on legislative and administrative framework

- will it allow you the project you are planning?
- will it change?

Help shaping regulation: the legislative and administrative framework is not adjusted to driverless driving jet. Your project can help policy makers to learn about important changes to be make driverless public transport possible



Benefits of Automated driving



Access to comfortable, affordable, accessible, and non-discriminatory transport for all



Increasing safety of traffic



Increasing traffic flow and efficiency with less vehicles



Zero Emission Mobility
More space for people, less space for transport, less resource consumption



Creating new economic opportunities and jobs through technological modernization and innovation

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Downsides of Automated driving?

Cannibalization of public transportation, limited accessibility, less inclusion?

Safety of the vehicle unproven and difficult to prove, cyber threats and reliability of data transfer, data protection issues?

Automated vehicles as traffic obstruction, more traffic?

Increased Emissions and urban sprawl?

Loss of jobs and public control?



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Regulatory goals: safety, performance, zero emission and better mobility for all

Legal framework for an integrated system of public transport for people and freight

- **Law for a digital world:** Rethinking public transport law due to the new flexibility and availability of vehicles and information
- **Integrated planning of public mobility** guided by three main principals
 - Access to affordable and accessible, and non-discriminatory transport for all
 - Zero emission and minimized consume of recourses and space
 - Less consumption of resources and space
- Regulate **integrated systems** for all means of automated transport:
 - Regulation for a more efficient urban freight transport (transportation hubs, autonomous packing stations etc.)
 - Providing an integrated digital infrastructure for all means of automated transport
 - Open standardization and regulation, that includes as many feasible use cases as possible (goal-oriented technology neutrality)



Legal framework for safe, smooth and efficient implementation of vehicles and infrastructure

- **Safety of passengers and road users and traffic flow** to be guaranteed by Vehicle Approval Law for different driving modes and their combination: automated/ autonomous/ teleoperated driving using
- **Law adapted to machines but safe and predictable for humans:** Vehicles must integrate in mixed traffic safely and predictable but don't need to simulate the driver
- **Locally limited approval** and **Modular approval for different technical and road environments** according to use cases and technical capacity
- **Connected driving:** Legal framework for secured data from digital infrastructure and other vehicles (V2X)
- **Responsibilities** regulated for manufacturer, owner and operations manager and integration of control centers

Regulatory challenge: divergence of skills still not realized by regulation



Human

Perception and analysis:

- Intelligence: Superior image recognition and ability to analyze the situation
- Intuition
- Ethical evaluation

Reaction:

- Flexibility
- Personal responsibility

Machine

Perception and analysis:

- Almost unlimited information processing capacities and multitasking capability
- Extensive access to information (internet-services, different sensors, C2X)

Reaction:

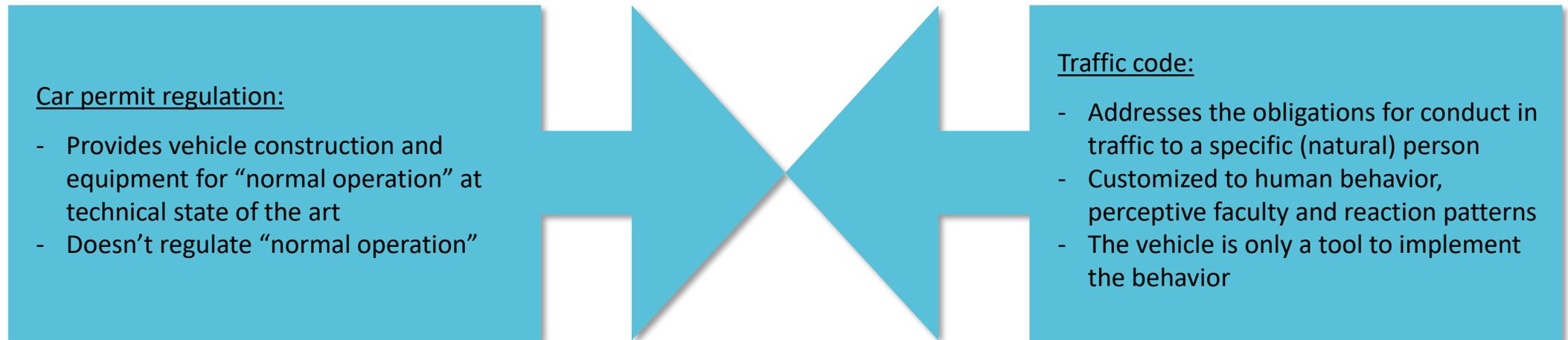
- Superior reliability/ Program fidelity
- Instantaneous Reaction

Challenges in the approval process

Farewell to dualism: car permit regulation needs to cover traffic code

Paradigm shifts

- Regulation loses its addressee in the vehicle and must turn to other addressees outside the vehicle
- The approach for machines to guarantee safety is different. It can't simulate a driver.



Challenges in the approval process

Farewell to dualism: Autonomous vehicle registration under applicable law

- State-of-the-art rules of technology (e.g. ECE standards, ISO 26262) are not complied with
- Derogation only if
 - Alternative structural characteristic technically necessary and justified
 - Functional equivalent available
 - Independent technical assessment of road safety a traffic flow/ inconvenience to the surrounding
- Administration and technical monitoring services have no test catalogue and must develop it on their own

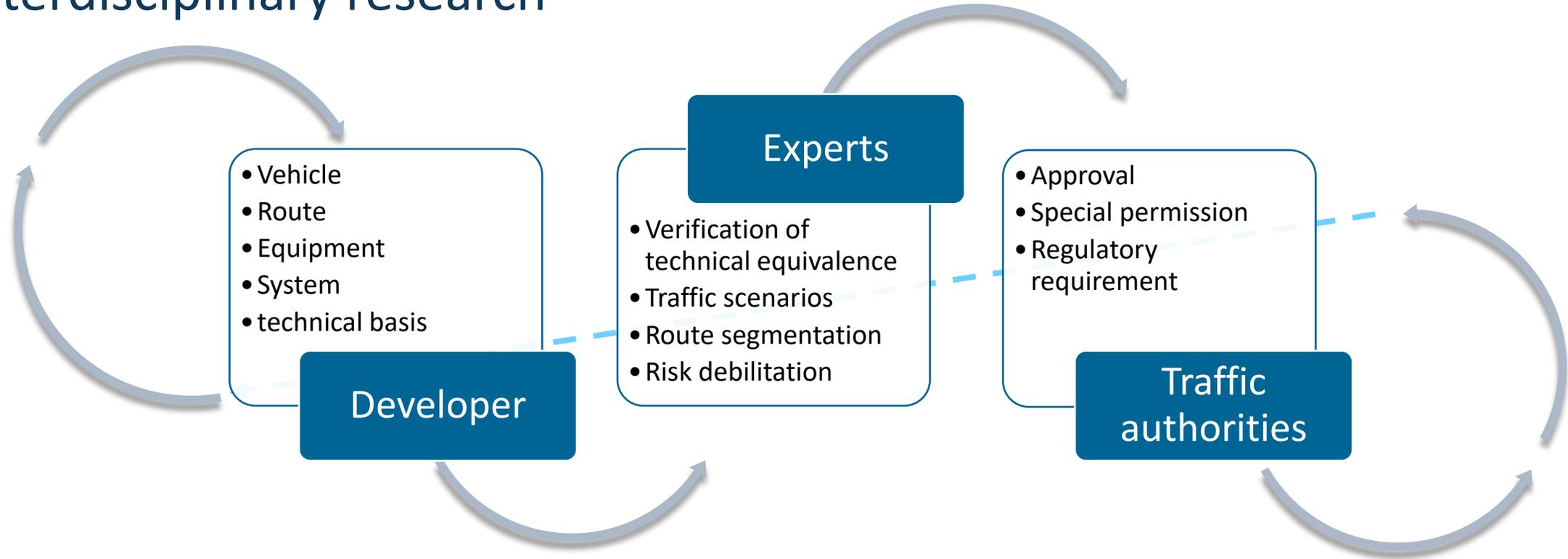


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Challenges in the approval process

Developing a new set of rules for autonomous vehicles in interdisciplinary research



Accompanying research: Human Factors Research, Jurisprudence

International approach

Vienna Convention on Road Traffic from 1968:

- Traffic rules
- Automated driving functions are considered permissible if they correspond to UN/ECE regulations or can be overridden and deactivated
- Present driver in or outside the vehicle: how much control defines a driver?

Geneva Convention on Road Traffic + UN/ECE Regulation:

- Technical requirements
- ECE Regulation 79 (steering configuration) systems, which do not require the presence of a driver, can't get a general approval
- Lack of international standards for automated driving functions

WP.29: Working Party on Automated/ Autonomous and Connected Vehicles started working on a series of issues

- System Safety
- Failsafe Response
- Human Machine Interface
- Object Event Detection and Response
- Conditions under which the automated system will operate
- Validation for System Safety
- Cybersecurity
- Software Updates
- Data storage and Event data recorder

European approach



- European Law refers to UN/ECE Regulations
- Art. 20 2007/46/EG: Possibility of approval of new technologies through an exemption procedure (limited to series production vehicles)
 - 2019 guidelines on the particular exemption procedure for the EU Approval of automated vehicles
 - Purpose: harmonizing the practice of Member States for the national ad-hoc assessment of automated vehicles

National approaches



- Governments aim to assess and prove safety and traffic flow to a certain level
- Different safety approaches
Functional Safety vs. SOTIF
- Safety with steward:
 - Steward as driver stays in the center of safety assessment
 - Human Machine Interface and Collaboration
- Safety without driver:
 - Driver as the main addressee of legal obligation and liability disappears
 - Vehicle compliance with traffic regulations must be proven
 - Obligations and liability shift to operator, owner and producer
 - Compliance with driver tasks that demand a present driver?
- Safe connectivity for cooperative, collaborated or teleoperated driving
 - Availability and quality of data as new safety issue
 - Cybersecurity as new safety issue
 - Safety of vehicle, infrastructure and other parts
 - Safety of an integrated overall system?
 - Safety of data in open connected systems?
- Complex administrative competences
 - FI: Traficom, local authorities for route planning
 - DL: KBA, different local and regional authorities, technical testing services (TÜV, Dekra)

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