



MINISTRY OF TRANSPORT  
AND COMMUNICATIONS

# Regulating the deployment of automated vehicles in Finland

The main content of the assessment memorandum

# Objectives of the regulatory project

- The proposals enable the widespread use of automated vehicles on public roads in Finland in a manner that ensures a high level of road safety
- The regulation of automation in road transport requires both type-approval regulation related to vehicle technology (UNECE and EU) and regulation on the use of vehicles in traffic (decided at the national level)
  - Current status: An ADS vehicle type approved in the EU may be used on public roads in Finland, but the vehicle must still have a driver responsible for the vehicle's movements on the road.
  - The proposals ensure that regulation related to vehicle technology and regulation related to the use of vehicles in traffic are compatible with each other

# Basic principles of regulation & glossary

- Reforming the rules on the use vehicles in traffic so that the dynamic control of the vehicle may be carried out by an automated driving system (ADS) instead of a (human) driver
- It is essential to change the centuries-old sanction system so that, in the future, legal consequences will be faced by the organisation behind the ADS instead of individual persons (drivers)
- This regulation applies to vehicles with ADS
  - Does not specify automation levels
- Use cases:
  - vehicles carrying a responsible person (the person may act as the driver);
  - vehicles not carrying a driver (passengers or goods only)

Automaattinen ajojärjestelmä, Automated Driving System ADS	A vehicle system that uses both hardware and software to exercise dynamic control of a vehicle on a sustained basis
Dynaaminen hallinta, Dynamic Control	Carrying out all the real-time operational and tactical functions required to move the vehicle. This includes controlling the vehicle's lateral and longitudinal motion, monitoring the road, responding to events in the road traffic, and planning and signalling for manoeuvres
Operational Design Domain ODD	The conditions related to the traffic environment, geography, time, traffic, infrastructure and prevailing weather conditions under which ADS is planned to operate
Putting the vehicle in a safe mode	A function performed by the ADS, the ultimate aim of which is to stop the vehicle in a way that minimises the risk to the people inside the vehicle and other road users
Self-driving vehicle	A vehicle that meets the conditions in Finland that the dynamic control of the vehicle may be managed by an ADS
Automated Driving Provider	A company or organisation responsible for the movements of an ADS vehicle on the road
Driver-in-readiness	A person in the vehicle who can either personally drive the vehicle or transfer the dynamic control to the ADS
Remote Management	Remote assistance or remote driving of a vehicle via a data connection
Remote Management Provider	The company or organisation responsible for the provision of remote management
Remote Management Agent	A natural person who performs remote management activities at the service of a remote management provider

# International and EU projects affecting the matter

- Global Forum for Road Traffic Safety (UNECE WP.1):
  - Vienna Convention on Road Traffic (art. 34 bis)
  - WP.1's 2018 and 2022 Resolutions
  - With GE.3 under WP.1 has a mandate to prepare a new international legal instrument for the use of automated vehicles in traffic
  - Regulation on use already exists at least in Germany, France, Japan and South-Korea and is under preparation in countries such as the United Kingdom
- Vehicle technology regulation
  - UNECE WP.29 is preparing a new ADS-E rule. The current target schedule is for 2025
  - The Automated Lane Keeping Systems, UN Reg. 157 (ALKS e-rule) is valid but may remain a dead letter
  - EU Regulation 2022/1426 on the Type Approval of Automated Driving Systems for vehicles on certain routes or regions

# The dynamic control of a vehicle

- Although the proposals do not apply to vehicles with advanced driver-assistance systems (ADAS), there is a need for clarification of what kind of system is considered to be a driver-assistance system.
  - A driver-assistance system can not have the dynamic control of the vehicle
- Dynamic control may be performed by either an automated driving system (ADS) or a driver, not both at the same time
- The driver has dynamic control if they:
  - 1) carry out all driving tasks included in dynamic control,
  - 2) carry out some of the driving tasks included in dynamic control, or
  - 3) monitor the operation of the automated driving system or the traffic environment with the aim of being able to intervene immediately or at short notice in driving the vehicle.
    - E.g. advanced driver-assistance systems that enable the driver to keep their hands off the wheel but require monitoring.
- The ADS only has dynamic control when it carries out all driving tasks included in dynamic control.

# Proposals applying to all automated vehicles (1)

- The premise for regulation would be that either:
  - 1) there must still be a person inside the vehicle who can act as the driver if necessary; or
  - 2) the vehicle must be subject to remote control that meets the minimum requirements.
- The regulation must establish criteria based on which it is decided whether the dynamic control of a vehicle can be provided with an automated driving system in Finland when driving on public roads so that the vehicle does not need a driver during that time and the driver is not responsible for the behaviour of the vehicle on the road during that time.
  - The vehicle is considered *self-driving* in Finland

# Proposals applying to all automated vehicles (2)

- A vehicle may be considered self-driving if all of the following conditions are met:
  - 1) The automated vehicle driven by an automated driving system must be capable of complying with the traffic regulations valid in Finland.
  - 2) The automated driving system must be capable of carrying out all driving tasks involved in dynamic control without human intervention.
  - 3) The automated driving system must be capable of coping with all traffic situations within the operating environment designed for automation without human intervention.
  - 4) If necessary, the automated driving system must be able to return the vehicle to a safe mode without human intervention.
- A vehicle shall be considered to be self-driving if it has received type approval, small series type approval or individual approval under a procedure requiring compliance with the four conditions mentioned above.

# Proposals applying to all automated vehicles (3)

- Considering a vehicle as self-driving in Finland would require an application submitted to the Finnish Transport and Communications Agency.
- After the approval of the application, the Finnish Transport and Communications Agency would make an entry in connection with the vehicle registration that the vehicle is considered self-driving in Finland.
- Without the registration entry, the vehicle could be used on Finnish roads, but it would have to have a driver responsible for the movement of the vehicle on the road
  - Corresponds to the current status
- • When a vehicle is no longer driven as usual by a driver who is responsible for the vehicle's behaviour in traffic, this must be replaced by some legal entity which can assume responsibility for these obligations.
- Every self-driving vehicle should have such an operator, an *automated driving provider*
  - Submits an application to the Finnish Transport and Communications Agency that this vehicle is considered self-driving in Finland
  - There must also be an entry in the register on which provider of automated driving is responsible for each self-driving vehicle



# Proposals related to vehicles carrying a responsible person (the person may act as the driver)

- The role of the responsible person in the vehicle and the associated responsibilities must be defined when the ADS has dynamic control
  - In this case, the driver is a *driver-on-readiness*
- The driver-on-readiness is not responsible for the behaviour of the vehicle in traffic
- The driver/user on standby does not need to monitor the traffic environment or the operation of the ADS, but should be able to respond to vehicle control transfer requests made by the ADS
  - Performing other activities will only be possible to a limited extent in the near future
- The driver-on-readiness may continue to have responsibilities other than those directly related to driving (e.g. securing the cargo)
- Change in the sanctions system, shifting the focus on sanctions against the provider of the automated driving system instead of the previous sanction system against the driver
  - Will require a lot of further preparations

# Proposals related to vehicles not carrying a responsible person (passengers or goods only)



- Remote management consists of remote assistance and remote driving
- In remote assistance, the ADS is responsible for the dynamic control of the vehicle; in remote driving, the remote driver (human) is responsible. Both are carried out via a telecommunications link.
- If there is no person who can act as a driver if necessary in the vehicle, at least the following remote management measures are required:
  - General supervision of the operation of the vehicle (including information on its location), general supervision of the interior of the vehicle, calling for assistance in case of faults and emergency situations, two-way communication enabled between passengers and remote controllers
- In addition, at this stage, it would be required that the remote control center be located in Finland and that the remote control service be provided from the remote control center.
- The key to ensuring the safety of operations is how the remote management provider organises the operations. The remote management provider would be required to operate under a license granted by the Finnish Transport and Communications Agency.
- In addition: Remote driving of non-automated vehicles should be specified in relation to the current state (e.g. a capability to perform a minimum risk function independently)

# Impact assessment

- Essential impact types have been identified through the setting of the objectives of the legislative project and the impact paths initiated by the introduction of automation
- No quantitative impact assessments have been carried out at the time of preparing the assessment memorandum
- Impact assessment is hampered by research constraints
- The impacts of road transport automation on the transport system depend on how this will be implemented
- Traffic-related impacts will also strongly direct other impact categories, such as traffic safety and environmental impacts as well as land use impacts

## Impact categories

- Impact on traffic safety
- Impact on the transport system
- Economic impacts
- Impact on the activities of the authorities
- Environmental impacts
- Impact on cybersecurity
- Impact on infrastructure and land use
- Impacts on fundamental rights

# What next?

- Assessment memorandum with statements 28 March–17 May 2024
  - The assessment memorandum contains the main lines of the proposals
  - An open hearing will be held on 25 April 2024
- Feedback will be used to continue the preparation process with the aim of submitting the Government proposal to Parliament in autumn 2025
  - Initial proposals presented in the assessment memorandum are subject to change during further preparatory work