

# Proposal for User Role Definitions for Users of Vehicles with Automation

UNECE - FRAV  
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HF-subgroup

# Scope

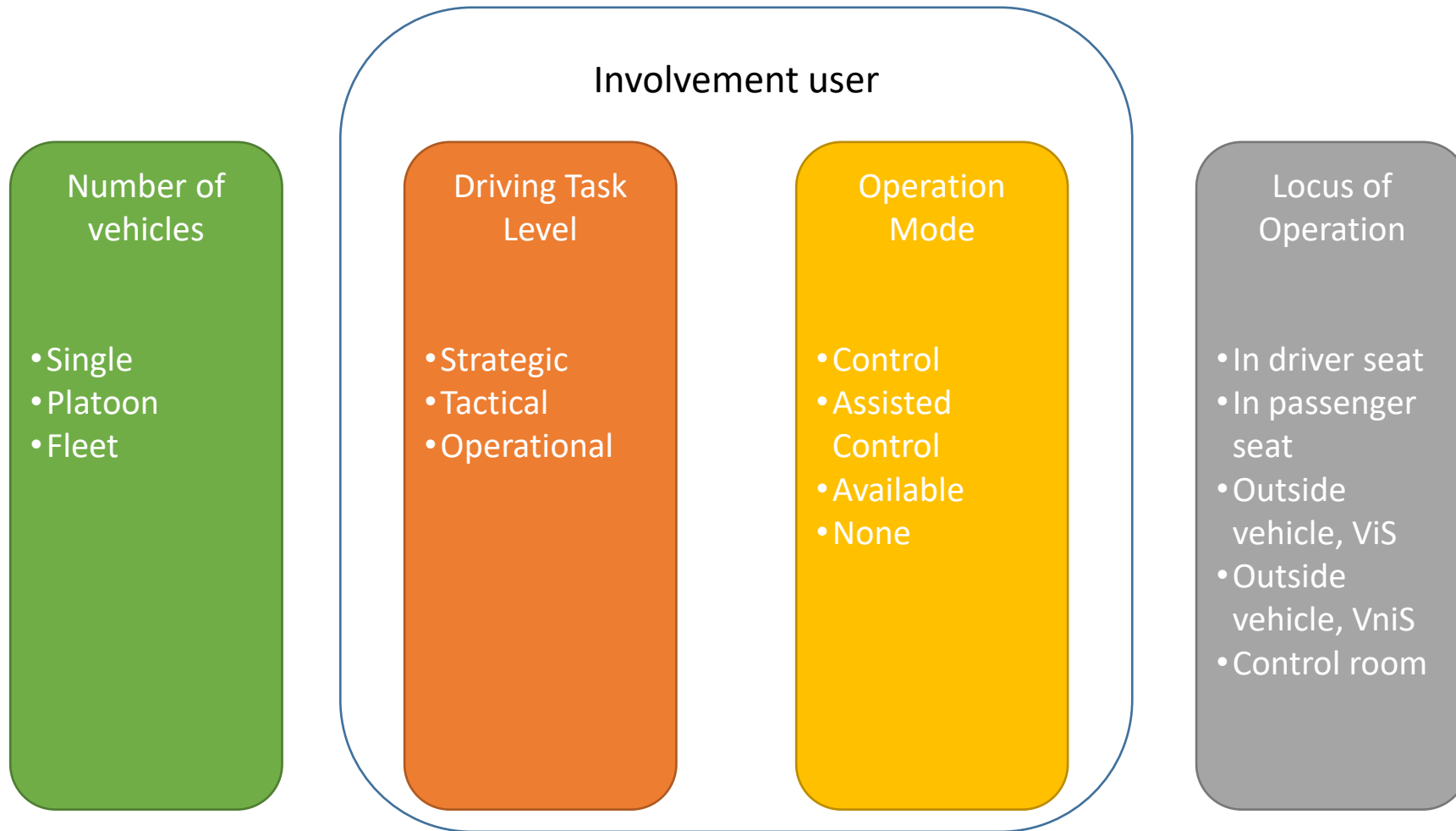
- To come up with an agreed set of user role definitions for users of vehicles with ADS
- Set consists of:
  - user name
  - user definition



# Approach: Four dimensions

- We distinguish four dimensions to differentiate the user roles:
  - Number of vehicles (#)
    - The number of vehicles a user 'controls'.
  - Driving Task Level (DTL)
    - Which part of the driving task is performed by the user\*
  - Operation Mode (OM)
    - How is the user involved
  - Locus of Operation (LoO)
    - Where is the user?

\* At the moment we have not considered the perception and decision levels that can be distinguished at different DTLs



# Important Remarks

- The focus is on a single vehicle with a user in the driver seat.
- A user is a human being. So the user role is performed by a human being.
- A user role for a vehicle with automation is defined as a role in which the user is or may directly be involved in the execution of the driving task.  
Directly = in real-time.
- Users perform a specific role depending on the automation feature(s). In other words depending on the available automations features *a single person can switch user roles during a drive*.
- We propose to call a user a driver when the user has full control / assisted control at the tactical and/or operational level of the driving task.

# In-vehicle User Roles – no automation

#	User role name	Description	Type of user and strategic control	Automation	Examples ADAS	SAE defined role
1	<b>Conventional Driver</b>	User performs unassisted the operational and tactical level.	car driver (full strategic control); taxi, bus, and truck driver (shared strategic control); city bus driver (no strategic control)	None	No ADAS	Conventional driver
2	<b>Operational Assisted Driver</b>	User is only assisted with the longitudinal and lateral control (operational level).	car driver with operational assistance features.	None	ACC, LKS, BLIS, ACC + LKS,	Conventional driver
3	<b>Assisted Driver</b>	User is assisted with manoeuvres (tactical level) and the longitudinal and lateral control.	car driver with assistance features that do not allow the driver to be out of the loop	None	ACC + LKS + auto lane change, FSDL2	Conventional driver

# In-vehicle User Roles – with automation

#	User role name	Description	Type of user and strategic control	Automation	Examples ADAS	SAE defined role
4	<b>In-vehicle Limited Automation User</b>	User has to perform manoeuvres if wished or needed. The longitudinal and lateral control is fully automated and the user doesn't have to be available.	car driver with full strategic control and occasionally operational and tactical tasks)	Operational tasks by ADS (f.ex. ALKS). The user still needs to perform other operational tasks and all tactical tasks	No ADAS	-
5	<b>In-vehicle Fallback-ready User</b>	User has to be available for controlling the vehicle. The ADS performs the operational and/or the tactical task.	car driver with full strategic control and needs to be available for DDTs	Operational and/or tactical tasks by ADS(f.ex. ALKS+ or Highway Chauffer)	No ADAS	In-vehicle fallback-ready user
6	<b>ADS User</b>	User activates the ADS and if necessary indicates directions.(strategical tasks)	Car driver with full strategic control and no need for DDT involvement	Operational and tactical tasks	No ADAS	Passenger

# Next steps

- Role change scenario's
- User needs
- High level requirements

Other roles will follow in next sessions

- Starting with remote users of single vehicles