# Subgroup 2 Co-Chair Presentation
## GE.3 Group of Experts on drafting a new legal instrument on the use of automated vehicles in traffic (7th session)

## November 30, 2023

# Short recap of tasking:

- At 6th session of GE3 (May 3-4, 2023), members agreed to establish two groups to advance the GE3 workplan in advance of the 7th session in November 2023.

  Meeting report: ECE/TRANS/WP.1/GE.3/2023/2

## Group 1
### (co-chaired by Finland and USA)

To examine:

- Gaps related to safe deployment and use of automated vehicles in road traffic

- Gaps related to entities responsible for automated driving.

## Group 2
### (co-chaired by Netherlands and Canada)

To examine:

- Gaps related to automated vehicles with a driver in the vehicle

- Gaps related to automated vehicles without a driver

- Both groups were assigned a series of questions/issues to examine as part of their analysis. See GE.3-06-10, (slides 2 and 3) for overview. Many of these issues were drawn from Informal Document 2 and Informal Document 4 tabled at the 6th session. An informal GE3 session, chaired by France and U.S. was held on June 13th to finalize a template to support Group 1 and 2's analysis.

- Subgroup 2 held 4 meetings from June to November 2023 to facilitate their work

# Template 1 - Overview of participant submissions and discussions

- Template 1 issue tasked to SG2: "How can it be determined who has or had responsibility for the dynamic control of the automated vehicle at any given time?"

- Aspects to consider:
    - What do we need to take into account when the driver task will be given from a human to the ADS system?
    - In what scenarios has an ADS system control?
    - What is needed to ensure a smooth transition of control, including HMI?

- Submissions received from nine Contracting Parties (CPs) and one industry association

# Elements of this issue

- Submissions raised various factors to consider, such as:

    - "Responsibility" (in its various forms) and legal requirements/processes in each jurisdiction

    - The driving environment

    - Data storage systems and access to this data for enforcement authorities/investigations

    - Human machine interfaces and communications with the user

    - Communication with other road users

    - Education and training

# **Responsibility**

- Submissions/group discussions raised diverse types of responsibility (e.g. responsibility for carrying out certain elements of the DDT, responsibility for performing non-DDT activities and legal responsibility (such as liability for harm in the event of an incident).

- Some submissions noted the importance of clearly identifying who bears the responsibility for the performance of the DDT if it is not a driver.

- One CP suggested that the creation of new legal entities with defined roles will facilitate intuitive and consistent apportionment of responsibility for the behaviour of the vehicle.

- Some submissions noted that jurisdictions may take different approaches to assigning responsibility for the DDT, depending on existing domestic laws and regulations and the ADS feature in question – such as features where there is a transition demand.

- Some submissions also suggested that domestic processes for determining legal responsibility in the event of an incident may vary across jurisdictions, and may be addressed in some legal systems on a case by case basis.

# **Driving environment**

- Some submissions noted the role of the driving environment and resulting effects on performing the DDT

- Some submissions suggested that the determination of legal responsibility in the event of an incident may depend on a number of factors including:

    - Actions of other road users
    - Environmental conditions (e.g. weather)
    - The state of infrastructure;
    - Specific ODD of the ADS feature in operation

# Data storage and access to data

- A number of submissions mentioned the importance of data collection

- Some submissions touched on need for investigators/enforcement authorities to have timely access to data to determine who was undertaking the DDT and for determining legal responsibility

  - Address "grey areas" such as during a transition of control (where applicable)

- WP 29 work in this area was highlighted by some jurisdictions as important to monitor.

- One industry participant suggested the importance of consistency on data storage and collection requirements in domestic laws to mitigate burden on industry

- Some submissions noted the linkage to domestic privacy laws which might impact what information is collected and how it can be distributed.

# Human Machine Interface and communication with vehicle users

- Some submissions noted the importance of clear communication between the ADS and users, ensuring the user is aware of their responsibilities, particularly in vehicles where the ADS may issue a transition demand

- Some CPs noted the need for effective HMI to ensure users:

    - Understand the operational state of the ADS
    - Recognize take over requests and understand responsibilities during these transitions (where applicable)
    - Take appropriate actions when the journey of an ADS-equipped vehicle is interrupted

- WP 29 work in this area was highlighted by some jurisdictions as important to monitor/align with

# Communications with other road users

- Some submissions discussed the potential need to communicate to other road users that an ADS is engaged and the ADS' intent.

- Communication with first responders/law enforcement may be important for safety and for law enforcement – such as to enforce jurisdictional requirements regarding whether a user should be conducting non-driving related activities.

- Data limited on whether a vehicle should communicate to other road users that it is equipped with an ADS

  o Could subject the vehicle to interference by other road users  (a point raised by some industry members at WP29)

- Important to monitor WP29 work/discussions on this issue

# Education and training

- Several submissions discussed the importance of education and training for ADS users particularly with systems that may issue a transition demand.

- Various comments touch on users' need to:
  - ODD (though ODD may be quite complex in some instances)
  - When and how to engage the system
  - Transition of control process

- Some submissions noted the need for consumers to differentiate between ADAS and ADS features and understand their respective capabilities and limitations

- Some submissions noted the potential need for special licensing/training for an ADS user. One submission suggested this may be difficult without more standardization of HMIs.

- Some submissions suggested that other road users may need to understand how to safely interact with the ADS

# Template 2 - Overview of participant submissions and discussions

- Issue tasked to SG2:
  - What are the roles and who has the responsibilities of the driver when the ADS is engaged, if there is a driver in the vehicle?
  - What are the roles and who has the responsibilities of the driver for vehicles that do not require a driver in the vehicle?
  - How can the safe operation of these vehicles be ensured?

- Aspects to consider:
  - Roles & responsibilities of driver when ADS is engaged with a driver in the vehicle
  - Roles & responsibilities of driver for vehicles that do not require a driver
  - Roles & responsibilities of driver for vehicles that do not require a driver in the vehicle
  - What is needed to ensure a safe operation of these vehicles?
  - Need to define new concept/terms?

- Submissions received from 7 CPs and one industry association

# Elements of this issue

Submissions/group discussions focused on a number of key themes:

- Responsibility may vary based on a number of different factors (e.g. automation level; use case etc.)

- The challenges with identifying responsibility for a diverse range of non-driving related tasks (e.g. maintenance, insurance, securing vehicle etc.)

- Various factors related to ensuring safe operation (remote operators, driver training/licensing; consumer awareness etc)

- New concepts/terms

# Responsibility

- Like Template 1, submissions and group discussions touched on diverse types of responsibility (e.g. responsibility for carrying out certain elements of the DDT, performing non-DDT activities and legal responsibility in the event of an incident).

- Some submissions noted that:

    - Responsibilities for specific tasks may depend on the level of automation of the ADS and specific capabilities (e.g. ODD), its use case and ownership models and domestic regulatory/legal circumstances.

    - Some responsibilities for ADS equipped vehicles that issue transition demands may be unique – e.g. availability of fallback user.

    - Some CP's suggested that legal liability in some jurisdictions may need to be decided on a case-by-case basis based on domestic legal circumstances

    - Some CPs noted the importance of data collection, ongoing work at WP29 on data storage/data recording and the need to further assess this from a road safety/road traffic perspectvies

- Some CPs suggested that the diverse factors at play when determining responsibility could make it difficult to develop a detailed legal instrument.  Some participants agreed that a high-level, principles-based approach may be required.

# Responsibility for non-driving related tasks

- Submissions and group discussions noted how responsibility for non-driving related tasks may vary significantly based on factors like use case/ownership model.

- These non-driving related tasks were diverse, and included: insurance, vehicle maintenance, carrying out software updates, load securement, managing occupant behavior including seatbelt use; passenger assistance, coming to aid of other road users, notifying other drivers of a disabled vehicle on the roadway, and interaction with law enforcement/first responders

- Some contracting parties envisioned technical solutions being developed by industry to address some of these non-DDT related tasks, and where required, adapting road rules to accommodate the unique nature of ADS-equipped vehicles including specific issues like securing loads

- One submission also suggested that any rules implemented to accommodate ADS-equipped vehicles should be framed in a flexible way that does not favor one technological approach over another.  Some contracting parties noted their domestic efforts to accommodate flexible, equivalent actions by other entities, such as the ADS operator.

# Safe operation of the vehicle

SG2 was asked to consider how safe operation of ADS equipped vehicle could be ensured.  Being a broad question, this revealed diverse feedback from participants:

Some members noted the following:

- That the safety performance of the vehicle falls within the purview of WP.29 and GE.3 should remain focused on road safety outcomes and traffic issues.

- Vehicle users need to be provided with information on how to use ADS safely. Important consumers also understand distinction between ADAS/ADS and don't conflate the two

- The user should not be able to tamper with the safe performance of the system.

- Adversarial behavior by other road users towards ADS-equipped vehicles was also noted as a potential risk.

- Remote operations was also discussed, including outstanding safety questions, and potential regulatory barriers to supporting cross border traffic.

- Driver training and licensing requirements may need to be adapted as roles and responsibilities evolve

# Need for new concepts

Some individual submissions proposed the following:

- A new concept of 'driver' should be considered to recognise the vehicle as the driver when ADS is enabled

- The operator is added as a truly new role

- The creation of new legal entities can help to defined roles and facilitate intuitive and consistent apportionment of responsibility for the behaviour of the vehicle

- When considering new concepts or terms GE.3/WP1 should align with definitions developed by WP.29 and consider those developed by leading international standards organizations to avoid duplication of work and confusion

# Gap analysis of existing instruments:

- Many CPs felt there were gaps, especially in the 1949 and 1968 conventions, and to some extent in the 2018 and 2022 Resolutions related to the topics analysed by SG2.
- SG2 did not have time to discuss these perceived gaps in detail amongst the group
- Many CPs pointed to language in the existing WP1 resolutions as providing some guidance on the topics analysed by SG2 (at a very high level)
- Some members indicated that these non-binding resolutions may not be sufficiently detailed on driver responsibilities.
- No consensus on whether these gaps are a barrier to the safe deployment of ADS equipped vehicle in road traffic.

# Final Analysis and recommendations

- Many diverse viewpoints shared by CPs throughout SG2's work. Given short time frame for this exercise, it is recommended that further work would be undertaken by GE3 to analyze and discuss where there is consensus on these issues.

- Submissions reflect high level opinions from a relatively small number of CPs. It is recommended that GE3/WP1 engage further with industry and other relevant stakeholders.

- Discussion with technical experts at WP29 is also recommended to advance analysis and avoid overlap.

- There was some agreement among members that a high-level, principles-based approach could be beneficial to address the diverse issues examined by SG2.

- This approach could provide flexibility to account for different domestic legal/regulatory circumstances amongst CPs as well as the diverse ADS features and use cases under development and avoid overlap with technical requirements developed by WP.29