Informal Document GRSP-74-32
(74th GRSP, 04.-08. December 2023,
agenda item 19)

Submitted by the Leader of GRSP TF-AVRS (Germany)

Status Report

Task Force

Automated Vehicles Regulatory Screening

(TF-AVRS)

of UN Regulations and GTRs under responsibility of

GRSP

Task Force on Automated Vehicles Regulatory Screening

Facts and task:

- Contracting parties and the industry need a regulatory environment for new vehicle concepts with highly automated driving functions (ADS) above SAE Level 3.
- This also means that existing, non-ADS regulations can be applied to such vehicles.

1st step, check:

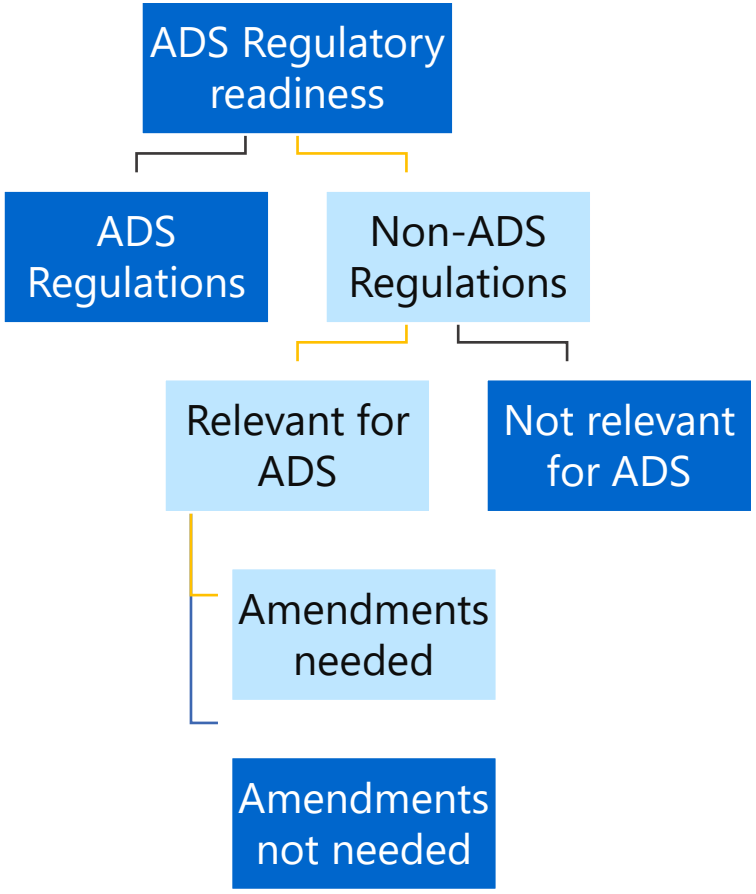
- which existing regulations are relevant for automated vehicles? Which ones need to be amended before they are applicable to vehicles with ADS?

Task Force on Automated Vehicles Regulatory Screening

Tasks:

Original mandate (given by WP.29 186th session):

- Scan all **167** UN Regulations and **23** Global Technical Regulations
- Expected at 190th session in June 2023: **Report**, **summary** and **details** for each Regulation, instructions for **drafting amendments**

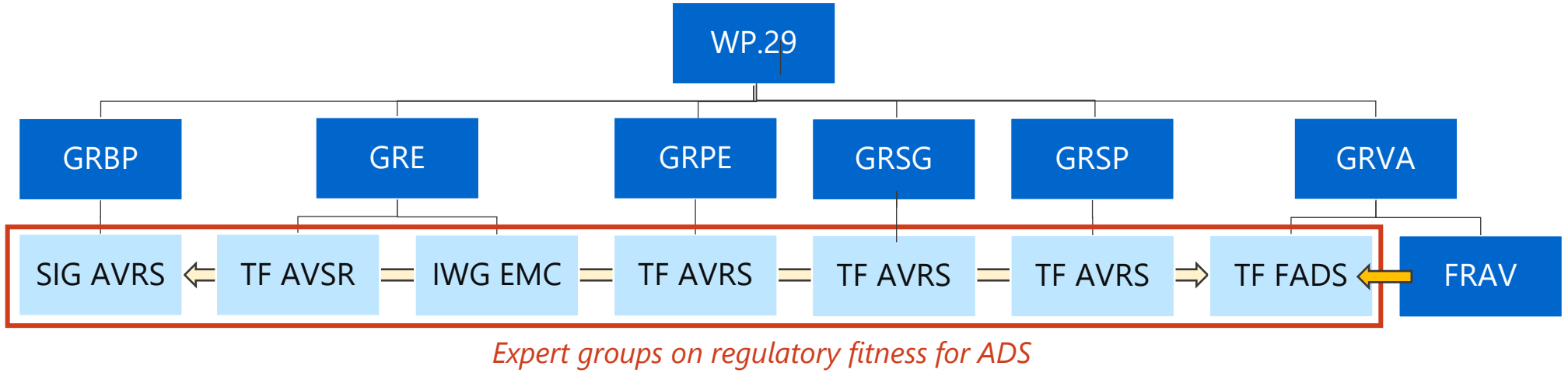


Quelle:

- Informal document GRVA-17-29
  17th GRVA, 25–29 September 2023

Task Force on Automated Vehicles Regulatory Screening

Task Forces:



Quelle:

- Informal document GRVA-17-29
  17th GRVA, 25–29 September 2023

Task Force on Automated Vehicles Regulatory Screening

Results:

Report to WP.29 (WP29/2023/86) (re-submitted with translation as GRVA/2023/18)**:**

- Contains global results, summary sheets for each screened Regulations (see next slide)
- Adopted by WP.29
- Will be updated to reflect the continued progress of the groups

Task Force on Automated Vehicles Regulatory Screening

Results:

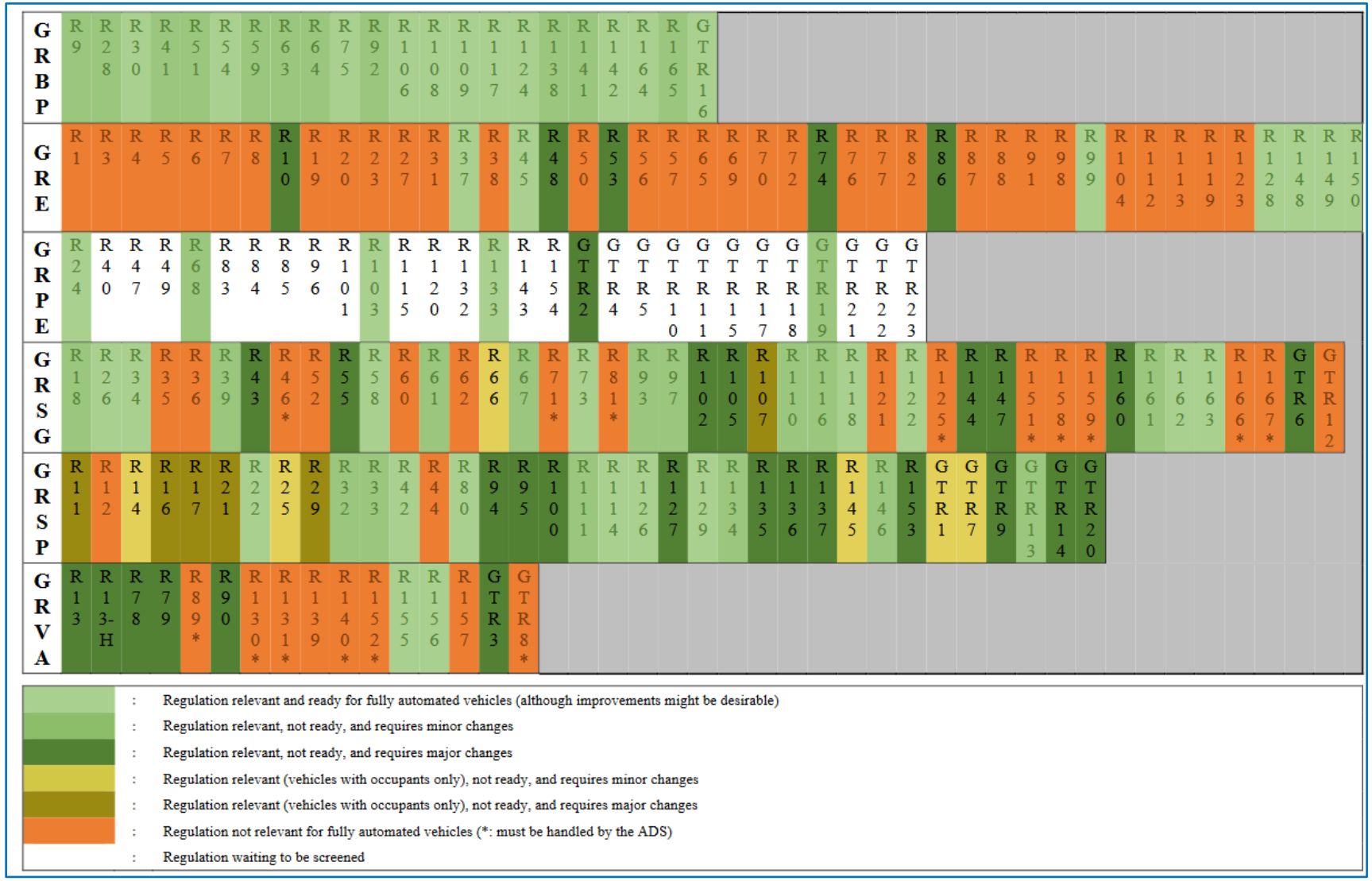
Regulation No.	*The number and title of the Regulation, including the exact Series of amendments and supplement used during the screening process.*	**Date of review**	*Date of the creation of this one-page summary*
Scope	*Categories of vehicles (as defined in R.E.3 or S.R.1) which the Regulation is applicable to.*		
Content of existing Regulation	*Short explanation of the purpose of the Regulations or the provisions contained therein.*	**Specifics for dual-mode vehicles**	*Any provisions that have a particular effect on dual-mode vehicles, e.g. because of interactions between manual driving capabilities and a driving task carried out by the ADS, or because of issues that may occur during transitions between manual and automated modes.*
Content relevant for vehicles equipped with an ADS	*Examples of provisions particularly relevant when the driving task is carried out by an ADS, whether the vehicle be "dual mode", without manual driving capabilities or not designed to carry occupants.*	**Specifics for vehicles without manual driving capabilities**	*Any provisions that have a particular effect on vehicles not equipped with manual driving capabilities. Example: a "driver's seat" still exists in a dual-mode vehicle, but not in a vehicle without manual driving capabilities.*
Content to be covered by (potential) ADS Regulation	*Concepts related to the Regulation, and which should be handled by the ADS.*	**Specifics for vehicles without occupants**	*Any provisions that have a particular effect on vehicles not equipped that are not designed to carry occupants. Example: a "passenger compartment" does not exist in a vehicle that is not designed to carry occupants.*
Summary of recommended changes	*Possible (non-exhaustive) changes that could contribute to making the Regulation applicable to automated vehicles.*		
Notes	*Additional comments from the screening task force.*		

Outcome of the review			
		Yes	**No**
Regulation relevant for fully automated vehicles		*See OBJECTIVE 1*	
Readiness:	**Regulation ready**	*See OBJECTIVE 2*	
	Major amendments needed	*See OBJECTIVE 3*	

Screening results for individual Regulations and GTRs

Task Force on Automated Vehicles Regulatory Screening

Results:



Task Force on Automated Vehicles Regulatory Screening

Results:

Subsidiary Working Party	*Regulations to be amended in priority*
GRBP	R9, R28, R51, R138, R165
GRE	R10, R48
GRPE	To be decided after all Regulations have been screened.
GRSG	R43, R107, R160, R.E.3, S.R.1
GRSP	R11, R14, R16, R 17, R 21, R29, R94, R95, R100
GRVA	R13, R13-H, R79

List of Regulations & GTRs to amend in priority

Task Force on Automated Vehicles Regulatory Screening

Results:

Theme	*Related keywords*				
Human person	Driver Rider	Passenger	Person	Occupant	Crew (member)
Areas within the vehicle	Cockpit Driver's compartment Driving cab	Passenger compartment			
Body Parts	Hand Foot Arm Etc.				
Manual action	Lever Button Handle Switch	Push Pull Press Rotate	Force Muscular (energy)	Reach Accessible	Manual

List of relevant keywords

be relevant to maintain basic performance tests for Regulations on braking or steering in the interest of ensuring the compliance of the automated vehicle to these existing performance requirements.

4. Dual-mode interactions

29. Dual-mode vehicles may be equipped with several features, which might only be relevant in manual mode, especially driver assistance or active safety features. If those features are suspended when switching from manual to automated mode, their behaviour when switching again to manual mode should be the object of clear provisions, supporting the driver to safely regain control of the vehicle, also for the case when transitions only occur while the vehicle is stationary.

5. Test mode

30. Many Regulations contain testing provisions which must be performed on a testing bench or a test track. In both cases, automated vehicles without manual driving capabilities should be able to perform the exact test scenarios described in the Regulation. While there are no requirements at this stage on how this can be achieved, one potential solution is for the manufacturer to equip their vehicles with a test mode, which would allow any specific driving scenario to be generated by a Type Approval Authority or Technical Service. Special

List of high-level issues

Task Force on Automated Vehicles Regulatory Screening

Next steps, after presentation at the June 2023 WP.29 session:

New mandate

- All groups may start drafting amendments to proposed “priority Regulations”
- The groups shall present a timeline for amending relevant regulations at WP.29 in March 2024
- **Coordination between groups** shall continue for common definitions, translations and solutions to cross-GR issues
- GRSG and GRVA should coordinate the work on **categories for automated vehicles** and report on the status of work to AC.2 and WP.29 in November 2023.

Task Force on Automated Vehicles Regulatory Screening

Next steps, after presentation at the June 2023 WP.29 session:

GR übergreifende Aufgaben

(Sub)categories for automated vehicles

Test mode

Dual-mode interactions

etc.

Einheitliche Definitionen

Based on FRAV definitions

Currently drafting the smallest possible list of needed definitions (example see next slide)

Einheitliche Umsetzung

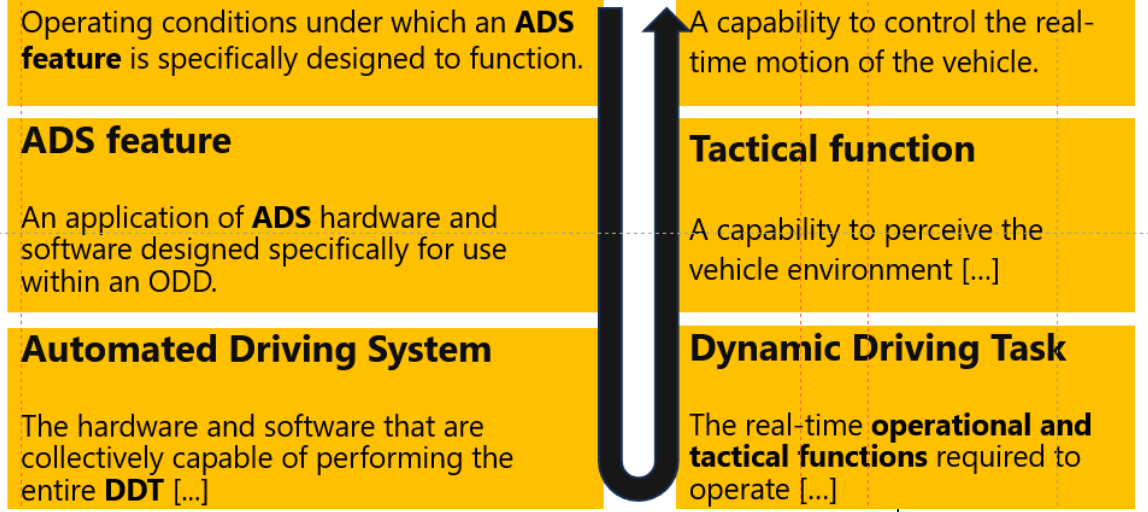
First draft (UN-R 48) transmitted to the other groups

Task Force on Automated Vehicles Regulatory Screening

Next steps, after presentation at the June 2023 WP.29 session:

Definition dependencies (from FRAV-43-04rev4)

Example: a definition such as *"maximum design speed of the vehicle"* needs to be changed to introduce the maximum speed supported by the **ODD**.



These definitions should not have to be added to each relevant Regulation

The groups would welcome a **central document at the WP.29 level**

FADS will consult FRAV for missing useful definitions (dual-mode vehicle, etc.)

Source:
Informal document
GRVA-17-29
17th GRVA, 25–29
September 2023

Task force on regulatory fitness for ADS

Results of the meeting of the TF Leader TF AVRS of all GR‘s, Paris, 16./17.10.2023:

JOINT STATEMENT OF THE WP.29 EXPERT GROUPS ON REGULATORY FITNESS FOR AUTOMATED DRIVING SYSTEMS

REGARDING THE

ESTABLISHMENT OF A TASK FORCE ON CATEGORIES FOR AUTOMATED VEHICLES

Task force on regulatory fitness for ADS

Results of the meeting of the TF Leader TF AVRS of all GR‘s, Paris, 16./17.10.2023:

THE WP.29 EXPERT GROUPS ON REGULATORY FITNESS FOR AUTOMATED DRIVING SYSTEMS (GRBP SIG AVRS, GRE IWG EMC, GRE TF AVSR, GRPE TF AVRS, GRSG TF AVRS, GRSP TF AVRS, GRVA TF FADS),

after convening in Paris on 16 and 17 October 2023 and acknowledging the reports from the subsidiary Working Parties on general safety (GRSG) and automated and connected vehicles (GRVA) of the World Forum,

understanding that a task force regarding the definition of categories for automated vehicles is to be established as a collaborative effort between GRSG and GRVA, and will be co-led by a representative from either subsidiary Working Party,

striving to contribute to the integration of automated vehicles into the regulatory framework of WP.29 and

concerned that although the International Organisation of Vehicle Manufacturers (OICA) has offered their services as secretary of this future task force, no Contracting Party to the 1958 Agreement or to the 1998 Agreement has come forward to lead this important group,

Task force on regulatory fitness for ADS

Results of the meeting of the TF Leader TF AVRS of all GR‘s, Paris, 16./17.10.2023:

REQUEST ALL CONTRACTING PARTIES TO SHOW THEIR COMMITMENT TO THIS UPCOMING WORK AND TO CONSIDER THE FOLLOWING PRINCIPLES.

1. Vehicle categories classify vehicles according to their typical usage and common characteristics, allowing their inclusion in (or exclusion from) the scope of individual UN Regulations, Global Technical Regulations, and specific requirements within these Regulations. WP.29 recognized the urgency to consider automated vehicles and their classification before March 2024.
2. Categories for automated vehicles are also needed for administrative considerations such as vehicle registration, traffic rules and their enforcement, taxation, and road traffic safety statistics.
3. Given the complexity that vehicle categories represent, the number of stakeholders involved across disciplines, and their implications for both the 1958 and the 1998 Agreement, the expert groups believe that work should begin immediately with a first meeting in January 2024, with a first report to WP.29 in March 2024

Task force on regulatory fitness for ADS

Results of the meeting of the TF Leader TF AVRS of all GR‘s, Paris, 16./17.10.2023:

REQUEST ALL CONTRACTING PARTIES TO SHOW THEIR COMMITMENT TO THIS UPCOMING WORK AND TO CONSIDER THE FOLLOWING PRINCIPLES.

4. The co-chairs of the task force should represent GRSG and GRVA respectively, and the 1958 and 1998 Agreements should both be equally represented in its leadership.

5. Understanding how categories of vehicles can affect national and regional laws, the expert groups invite stakeholders from all affected Contracting Parties—including Regional Economic Integration Organisations—to strongly contribute to this work. Other stakeholders from international organisations and the industry should also be consulted.

6. Categories of vehicles are relevant to international and national activities beyond the World Forum. The task force should therefore gather not only experts with a strong technical expertise, but all stakeholders with a direct interest in the evolution of vehicle categories.

Task force on regulatory fitness for ADS

Results of the meeting of the TF Leader TF AVRS of all GR‘s, Paris, 16./17.10.2023:

REQUEST ALL CONTRACTING PARTIES TO SHOW THEIR COMMITMENT TO THIS UPCOMING WORK AND TO CONSIDER THE FOLLOWING PRINCIPLES.

7. The redefinition or addition of categories should be as simple as possible and limited to what is necessary. Furthermore, new subcategories represent a lower administrative impact than new categories. Finally, maintaining existing categories is less complex than a complete redefinition of all categories.

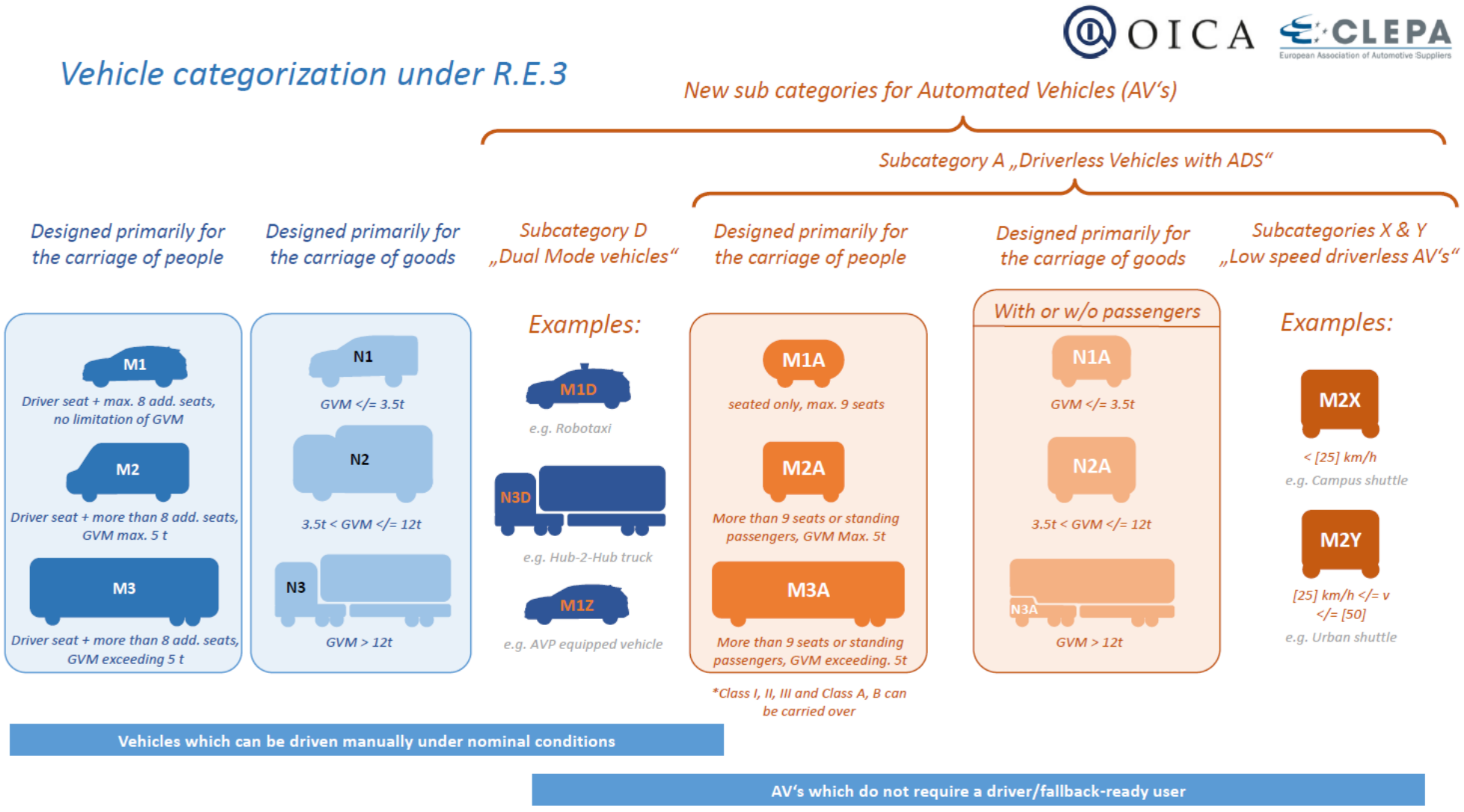
8. The updated categories should be technologically neutral and tackle all relevant use cases for automated vehicles transporting passengers, goods, a combination of both, or neither. This includes vehicles also equipped with manual controls, those which are not designed to carry human occupants and those which are also designed for off-road operation.

THE EXPERT GROUPS ON REGULATORY FITNESS FOR AUTOMATED DRIVING SYSTEMS, CLOSELY INVOLVED WITH THE TECHNICAL IMPACT OF CATEGORIES ON UN REGULATIONS AND GTRS, PLEDGE TO OFFER THEIR SUPPORT TO THE UPCOMING TASK FORCE

.

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories



Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

Categories according to Consolidated Resolution R.E.3

Required amendments to existing Definitions:

2.2. Category M - Power-driven vehicles having at least four wheels and used for the carriage of passengers

2.2.1. "Category M1": Vehicles used for the carriage of passengers and comprising not more than ~~eight~~ nine seats ~~in addition to the driver's seat~~.

2.2.2. "Category M2": Vehicles used for the carriage of passengers, comprising more than ~~eight~~ nine seats ~~in addition to the driver's seat~~ or designed to carry standing passengers, and having a maximum mass not exceeding 5 tonnes.

2.2.3. "Category M3": Vehicles used for the carriage of passengers, comprising more than ~~eight~~ nine seats ~~in addition to the driver's seat~~ or designed to carry standing passengers, and having a maximum mass exceeding 5 tonnes.

2.2.4. Vehicles of categories M2 and M3 belong to:

2.2.4.1. For vehicles having a capacity exceeding [23] occupants ~~22 passengers in addition to the driver~~, there are three classes of vehicles:

2.2.4.1.1. "Class I": Vehicles constructed with areas for standing passengers, to allow frequent passenger movement.

2.2.4.1.2. "Class II": Vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats.

2.2.4.1.3. "Class III": Vehicles constructed exclusively for the carriage of seated passengers.

2.2.4.1.4. A vehicle may be regarded as belonging in more than one class. In such a case it may be approved for each class to which it corresponds.

2.2.4.2. For vehicles having a capacity not exceeding [23] occupants ~~22 passengers in addition to the driver~~, there are two classes of vehicles:

2.2.4.2.1. "Class A": Vehicles designed to carry standing passengers; a vehicle of this class has seats and shall have provisions for standing passengers.

2.2.4.2.2. "Class B": Vehicles not designed to carry standing passengers; a vehicle of this class has no provision for standing passengers.

Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

Categories according to Consolidated Resolution R.E.3

New categories:

New "Dual-mode" sub category:

2.x. Dual-mode vehicles with Automated Driving Systems

2.x.1. Definition.

Dual-mode vehicles are vehicles of category M or N which can be driven manually and which are equipped with an Automated Driving System allowing the vehicle to be driven in an automated mode not issuing a [system initiated deactivation to manual driving] requiring an interaction by a driver to take back manual control (e.g. a fallback user).

2.x.2 Categorization

Dual-mode vehicles are categorized into two categories, based on the maximum operational design speed of the Automated Driving System. In cases were the Automated Driving System consists of multiple features, e.g. low-speed and high-speed ADS features, the feature with the highest maximum design speed is defining the maximum design speed of the Automated Driving System and therefore considered for the dual-mode categorization.

2.x.2.1. Category D are dual mode vehicles having a maximum operational speed of the Automated Driving System exceeding [25] km/h.

2.x.2.2. Category Z are dual mode vehicles having a maximum operational speed of the Automated Driving System not exceeding [25] km/h.

2.x.3. Combined designation

Symbols M and N may be combined with symbol D or Z. For example, a vehicle of category M1 which is suited for dual-mode use having a maximum operational speed of the Automated Driving System exceeding [25] km/h may be designated as M1D.

Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

Categories according to Consolidated Resolution R.E.3

New categories:

New "Dual-mode" sub category:

2.x. Dual-mode vehicles with Automated Driving Systems

2.x.1. Definition.

Dual-mode vehicles are vehicles of category M or N which can be driven manually and which are equipped with an Automated Driving System allowing the vehicle to be driven in an automated mode not issuing a [system initiated deactivation to manual driving] requiring an interaction by a driver to take back manual control (e.g. a fallback user).

2.x.2 Categorization

Dual-mode vehicles are categorized into two categories, based on the maximum operational design speed of the Automated Driving System. In cases were the Automated Driving System consists of multiple features, e.g. low-speed and high-speed ADS features, the feature with the highest maximum design speed is defining the maximum design speed of the Automated Driving System and therefore considered for the dual-mode categorization.

2.x.2.1. Category D are dual mode vehicles having a maximum operational speed of the Automated Driving System exceeding [25] km/h.

2.x.2.2. Category Z are dual mode vehicles having a maximum operational speed of the Automated Driving System not exceeding [25] km/h.

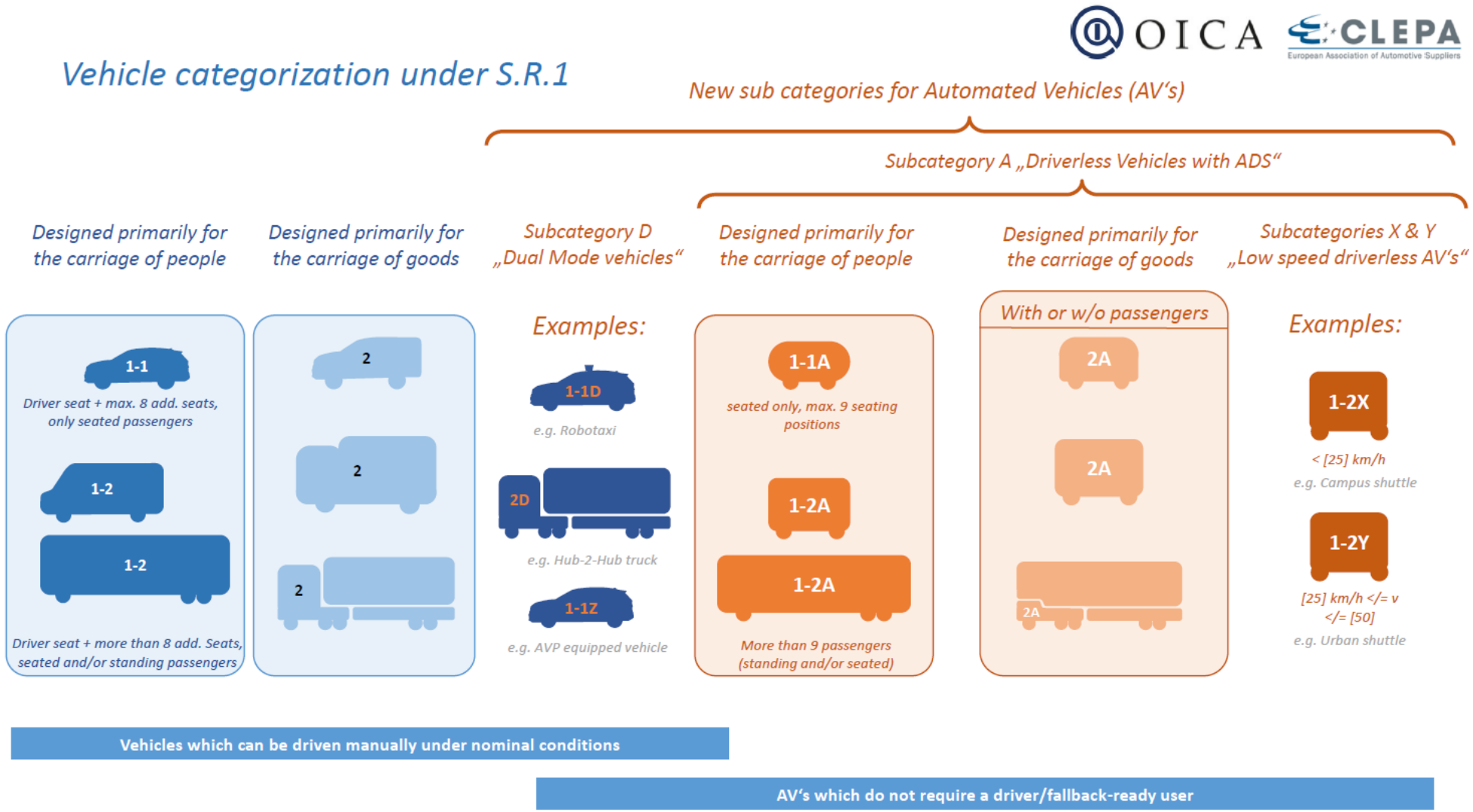
2.x.3. Combined designation

Symbols M and N may be combined with symbol D or Z. For example, a vehicle of category M1 which is suited for dual-mode use having a maximum operational speed of the Automated Driving System exceeding [25] km/h may be designated as M1D.

Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

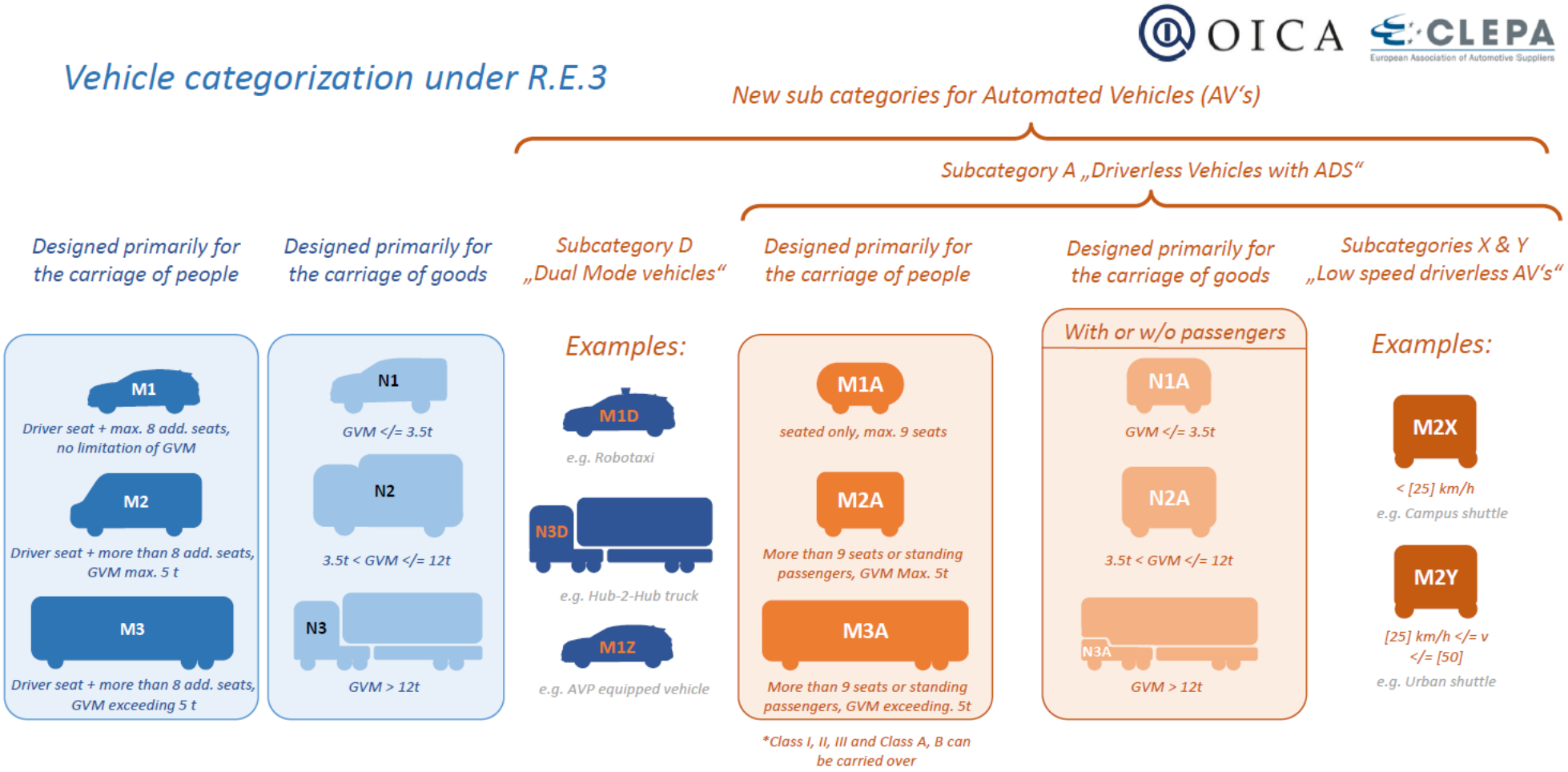
Additional task: New vehicle (sub)-categories



Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

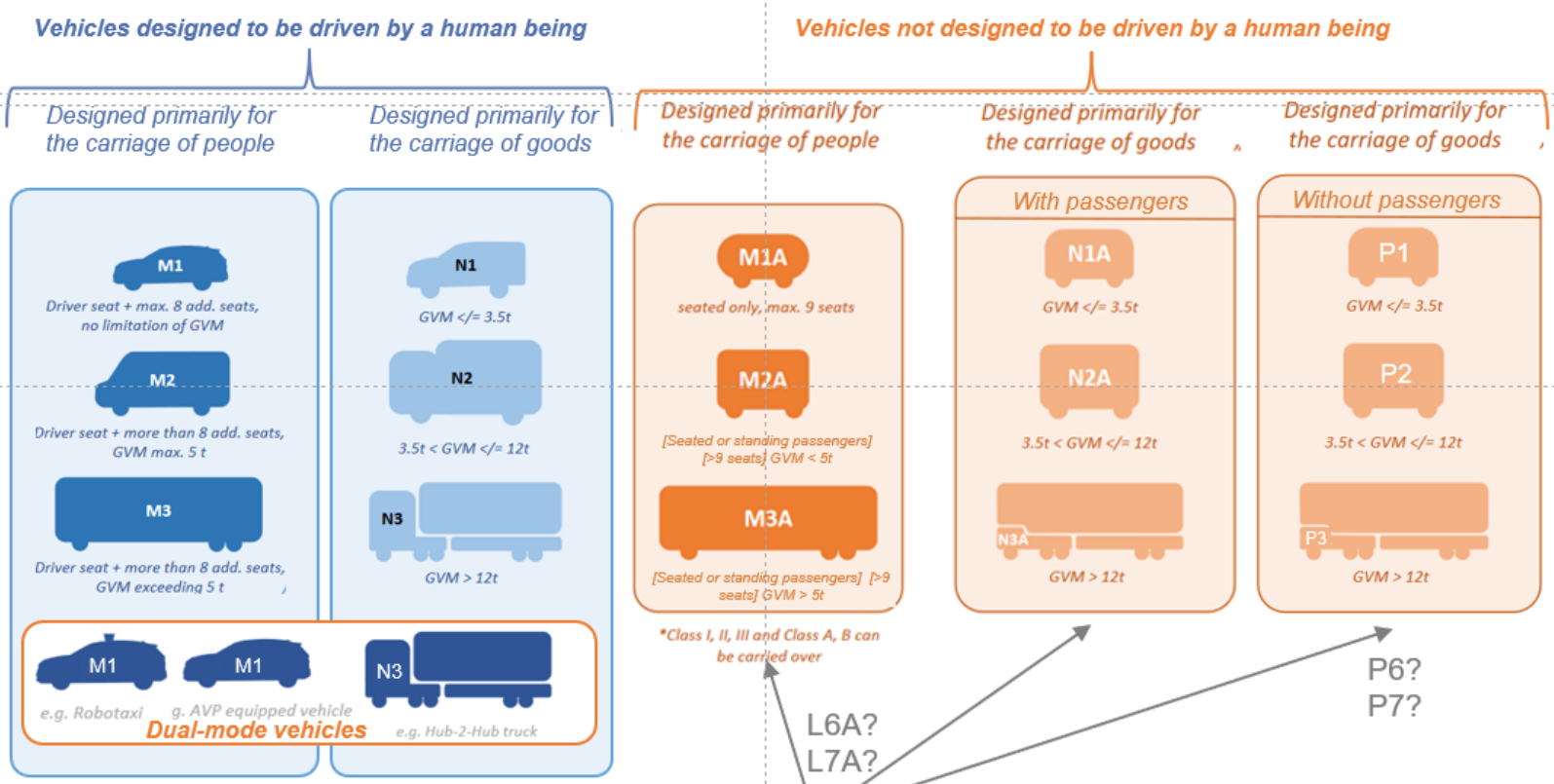


Source: OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE ET DE LA COHÉSION DES TERRITOIRES



Adapted from GRVA-17-37

Quelle:

- French poposal FADS-J1-06 presented at the TF leader meeting of all GR TF‘s AVRS, Paris 16./17.10.2023, based on OICA/CLEPA proposal GRVA-17-37

GRVA and GRSG Task force on regulatory fitness for ADS

Additional task: New vehicle (sub)-categories

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE ET DE LA COHÉSION DES TERRITOIRES

Comments on OICA proposal

"Low-speed driverless AV's"

- Low maximum speed is not specific to AVs
- Regulations already handle low max speed in their scope

  R13: "*This Regulation does not cover vehicles with a design speed not exceeding 25 km/h*"

- Shuttles with **standing passengers and < 9 seats** could be considered, but are not always AVs

From GRVA-17-37

Quelle:

- French poposal FADS-J1-06 presented at the TF leader meeting of all GR TF's AVRS, Paris 16./17.10.2023, based on OICA/CLEPA proposal GRVA-17-37

Thank you very much for your time and interest!

Rudolf Gerlach

TF Leader GRSP TF-AVRS

Manager Global Regulations- and Business-Development Type Approval Mobility

gerlach@de.tuv.com

Am Grauen Stein

51105 Köln

Germany