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Inland Transport Committee

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Working Party on Automated/Autonomous and Connected Vehicles

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Report of the Working Party on Automated/Autonomous and Connected Vehicles on its seventeenth session

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I. Attendance

1. The Working Party on Automated/Autonomous and Connected Vehicles (GRVA) met from 25 to 29 September 2023 in Geneva. The meeting was chaired by Mr. R. Damm (Germany). Accredited representatives from the following countries participated in the work, following Rule 1 of the Rules of Procedure of the World Forum for Harmonization of Vehicle Regulations (WP.29) (TRANS/WP.29/690/Rev.2): Austria, Canada, China, Czech Republic, Denmark, Finland, France, Germany, India, Italy, Japan, Lithuania, Luxembourg, Netherlands, Norway, Poland, Republic of Korea, Russian Federation, Slovakia, South Africa, Spain, Sweden, Switzerland, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Zimbabwe. A representative of the European Commission also participated.

2. Representatives of the following non-governmental organizations (NGOs) and international organizations participated: the American Automotive Policy Council (AAPC), European Association for Electric Mobility (AVERE), European Agricultural Machinery Organization (CEMA), International Motor Vehicle Inspection Committee (CITA), European Association of Automotive Suppliers (CLEPA/MEMA/JAPIA), European Tyre and Rim Technical Organisation (ETRTO), European Transport Safety Council (ETSC), European Association of Internal Combustion Engine Manufacturers (EUROMOT), Federation of European Manufacturers of Friction Materials (FEMFM), Institute of Electrical and Electronics Engineers (IEEE), International Automobile Federation (FIA), Forum 21 Institute, International Motorcycle Manufacturers Association (IMMA), International Road Union (IRU), International Organization for Standardization (ISO), International Telecommunication Union (ITU), International Organization of Motor Vehicle Manufacturers (OICA), International Road Federation, and SAE International.

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRVA/2023/16
Informal documents GRVA-17-01/Rev.1 and GRVA-17-02/Rev.1

3. GRVA considered the provisional agenda prepared for its seventeenth session (ECE/TRANS/WP.29/GRVA/2023/16). GRVA adopted it (without modifications), as reproduced in GRVA-17-02/Rev.1, which is a version that includes reference to all informal documents received until 25 September 2023 12.00 p.m. (All informal documents submitted are listed in Annex I of this report. Annex II provides the list of Informal Working Groups (IWG) reporting to GRVA.)

4. GRVA also agreed on the running order for the session (GRVA-17-01/Rev.1).

III. Highlights of the June 2023 session of WP.29 (agenda item 2)

Documentation: (ECE/TRANS/WP.29/1173)
Informal document GRVA-17-03

5. The secretariat presented GRVA-17-03, with highlights from the WP.29 session in June 2023, having relevance for GRVA. He referred to the session report ECE/TRANS/WP.29/1173 for more details. GRVA noted the report from the secretariat.

IV. Artificial Intelligence in vehicles (agenda item 3)

Documentation: ECE/TRANS/WP.29/GRVA/2023/17
Informal documents GRVA-17-04, Rev.1, Rev.2 and GRVA-17-26

6. The representative of OICA presented the proposal for a draft resolution with guidance on Artificial Intelligence (AI) in the context of road vehicles (ECE/TRANS/WP.29/GRVA/2023/17, as amended by GRVA-17-04), prepared together

with the support of the secretariat. The proposal included a preamble, definitions on AI in the context of vehicle regulations, a review of AI use cases in vehicles and the potential impact of AI on the News Assessment/Test Method for Automated Driving.

7. The delegations from Canada, the European Commission, France, Germany (GRVA-17-26) and the United States of America provided comments. The representatives of AVERE, ITU and FIA supported the document. The representative of OICA submitted GRVA-17-04/Rev.1, a revised proposal including the comments received. Following bilateral discussions during the week, the representative of OICA submitted GRVA-17-04/Rev.2, as the final outcome of all consultations during the week.

8. GRVA agreed to transmit ECE/TRANS/WP.29/GRVA/2023/17, as amended by GRVA-17-04/Rev.2, to the WP.29 November 2023 session as an informal document for information and for guidance on the next steps under this agenda item.

V. Automated/autonomous and connected vehicles (agenda item 4)

A. Deliverables of the Informal Working Group on Functional Requirements for Automated and Autonomous Vehicles

Documentation: Informal documents GRVA-17-33 and GRVA-17-34

9. The representative of the United States of America, Co-Chair of the IWG on Functional Requirements for Automated Vehicles (FRAV), presented the status report of the group (GRVA-17-34). He introduced (GRVA-17-33) the guidelines for regulatory requirements and verifiable criteria for Automated Driving System (ADS) safety validation, a document completing the submission at the May 2023 session, which now included the user/Human Machine Interface (HMI) section.

10. GRVA endorsed the document and requested the secretariat to distribute it as informal document for consideration by WP.29 at its in November 2023.

B. Deliverables of the Informal Working Group on Validation Methods for Automated Driving

Documentation: Informal documents GRVA-17-32 and GRVA-17-39

11. The representative of the Netherlands, Co-Chair of the IWG on Validation Methods for Automated Driving (VMAD), presented (GRVA-17-32) a brief overview of the deliverables being developed, as expected from the group by June 2024, and the two pillars of the work performed by the group, the first one related to the four subgroups' activities and the second one related to the collaboration with the IWG on FRAV.

12. The representative of Canada, Co-Chair of the IWG on VMAD, presented the status report (GRVA-17-39) of the FRAV/VMAD integration group's outcome. He explained the progress made by the integration group on definitions, on the structure of deliverables and on a matrix aimed at linking the safety requirements with the validation pillars.

13. The representative of OICA hoped that the forthcoming activities would involve all parties potentially interested in that workstream. The representative of Japan, Vice-Chair of GRVA, welcomed the three activities, from the IWG on FRAV, the IWG on VMAD and the Integration Group. He committed to support the process so that a final document is made ready in June 2024.

C. Deliverables of the Informal Working Group on Event Data Recorder / Data Storage Systems for Automated Driving

Documentation: Informal document GRVA-17-28

14. The representative of the United States of America, Co-Chair of the IWG on Event Data Recorder (EDR) / Data Storage Systems for Automated Driving (DSSAD), presented an update (GRVA-17-28) on progress achieved by the group. She provided, among others, an overview with the three systems addressed by the group: EDR, EDR for ADS and DSSAD.
15. The representative of OICA asked whether a specific EDR for ADS was needed or was part of DSSAD. He also asked whether the group considered on-board and off-board storage systems.
16. The Co-Chair replied that the data storage system might be off board in the future. She acknowledged that UN Regulation No. 160 only considered on-board data storage so far.
17. The representative of ITU noted that Driver Control Assistance System (DCAS) would have both DSSAD and In Service Monitoring and Reporting (ISMR) needs, like ADS. He inquired about existing coordination in that field.
18. The representative of OICA clarified that DSSAD was for ADS, not for Advanced Driver Assistance Systems (ADAS).
19. The representative of China raised the same question as ITU, regarding EDR/DSSAD for ADAS.
20. The Co-Chair clarified that DSSAD was indeed for ADS. She added that the group already advised GRVA on provisions for UN Regulation No. 157 and would be happy to do the same for DCAS.
21. GRVA welcomed the idea and invited the Task Force on ADAS to contact the IWG on EDR/DSSAD as needed.
22. The representative of OICA expressed concerns about the potential volume of data transmitted outside of the vehicles by the two systems: DSSAD and ISMR.
23. The Co-Chair understood the concern of vehicle manufacturers and confirmed that the Group would look at how much data would really be needed. Responding to the affirmation by OICA that EDR for ADS was not needed, she recalled that EDR for ADS was part of the mandate of WP.29 to the group. She agreed that, if the group concluded that there was no need for a specific EDR for ADS, then, this would be part of the group's final report.
24. GRVA endorsed the status report.

D. UN Regulation on Automated Lane Keeping Systems

Documentation: ECE/TRANS/WP.29/GRVA/2023/19

25. The representative of the Netherlands presented (ECE/TRANS/WP.29/GRVA/2023/19) a proposal for amendments to UN Regulation No. 157, proposing to align the reference to UN Regulation No. 10 (Electromagnetic Compatibility (EMC)) with the text adopted in other regulations and including the text proposal of the representative of France, clarifying the testing conditions for Automated Lane Keeping Systems (ALKS).
26. The representative of OICA informed GRVA that the Working Party on Lighting and Light-Signalling (GRE) was drafting the new 07 series of amendments to UN Regulation No. 10, which would address Electromagnetic Compatibility (EMC) for ADS.
27. The representative of France recalled the motivation of the proposal. He proposed to consult GRE at its October 2023 session on this matter, for consistency.
28. The representative of OICA explained the practical difficulties to test EMC in a laboratory with ALKS on, as the vehicle would not activate the system outside of its Operational Design Domain (ODD).

29. GRVA requested the secretariat to consult GRE and to prepare a revised document based on ECE/TRANS/WP.29/GRVA/2023/19 as well as ECE/TRANS/WP.29/2023/131.

E. Coordination of work on automation between working parties (GRs)

1. Fitness of UN GTRs and UN Regulations for ADS

Documentation: ECE/TRANS/WP.29/GRVA/2023/18
Informal document GRVA-17-29

30. The representative of France, Co-Chair of the Task Force (TF) on the Fitness for ADS of GRVA Regulations and Global Technical Regulations (FADS), presented the status report of the Group (GRVA-17-29). He detailed the context and the purpose of the work done, he introduced the final report of the first phase of activities, (ECE/TRANS/WP.29/GRVA/2023/18). He detailed the proposed next phases for the group.

31. The representative of Japan inquired why the group proposed to start amending UN Regulations Nos. 13, 13-H and 79 for dual mode vehicles, as it had not been needed for ALKS.

32. The representative of the United States of America recalled that the purpose of the group, in its first phase, was to identify the obstacles in UN Global Technical Regulations (GTRs) and UN Regulations for ADS and that the purpose of the second phase would be to remove these obstacles. He recalled that the IWG on FRAV did not provide a definition for dual mode vehicles.

33. The representative of ITU clarified that dual modes vehicles were vehicles with the possibility for Transition of Control (ToC).

34. The representative of France mentioned that vehicles equipped with an Automated Valet Parking feature would also be understood as dual mode vehicles.

35. The representatives of Canada and the United States of America cautioned on the use of the term dual mode.

36. GRVA recalled that the term was used in the guidance provided in informal document GRVA-14-54/Rev.1 when these activities were initiated, but was indeed not part of the guidelines and regulations under the scope of GRVA.

37. GRVA agreed that the TF on FADS would prioritize its activities by reviewing UN Regulations Nos. 13-H, 13 and 79, focusing on vehicles equipped both with an ADS and normal equipment for manual driving.

38. GRVA endorsed the report of the group (ECE/TRANS/WP.29/GRVA/2023/18).

2. Vehicle subcategories for ADS

Documentation: ECE/TRANS/WP.29/GRVA/2023/28
Informal document GRVA-17-37
(Informal document GRVA-16-47)

39. The representative of OICA recalled the purpose of informal document GRVA-16-47 presented in May 2023. He introduced ECE/TRANS/WP.29/GRVA/2023/28 (amended by informal document GRVA-17-37), with a detailed amendment proposal of the vehicle categories introducing subcategories for ADS. He proposed that GRVA and the Working Party on General Safety provisions (GRSG) organize a joint workshop to support the finalization of this workstream.

40. Several delegations welcomed the proposal for ADS subcategories but also noted the high number of subcategories proposed. They highlighted the need to focus not only on technical needs under WP.29 but also on the administrative interactions outside of WP.29's scope.

41. GRVA noted the rules applicable for amending the Special Resolution No. 1 (S.R.1) but agreed that documents can be produced, also by NGOs, for discussion. GRVA welcomed

the idea proposed by OICA to organize a joint event with the Working Party on General Safety provisions (GRSG). GRVA supported OICA's idea to present the document to GRSG at its next session.

F. Other business

Documentation: Informal documents GRVA-17-24 and GRVA-17-38

42. The representative of the European Commission presented GRVA-17-24, tabled by the European Commission and the United Kingdom of Great Britain and Northern Ireland. She recalled the activities performed by IWGs on FRAV and VMAD and the completion of the integration group's task expected by June 2024. She recalled previous presentations of the European Commission and the United Kingdom of Great Britain and Northern Ireland mentioning their respective ambitions for ADS in terms of regulation and timing. She proposed to establish a new Task Force on Automated Driving Systems (TF on ADS) for developing a UN Regulation on ADS and presented the corresponding draft Terms of Reference for the TF.

43. The representative of the United States of America recalled the ongoing approach at GRVA with the work of FRAV/VMAD being independent of the 1958 and 1998 Agreements. He urged GRVA to not engage in a process that would exclude Canada, China and the United States of America. She announced that the United States of America would sponsor the development of a UN GTR on ADS.

44. The representative of Italy noted that the basis for further work would be the outcome of the current process, that would need to be distilled in real world, i.e. under the two Agreements. He welcomed that Canada, China and the United States of America would join that process.

45. The representative of France agreed with the United States of America on the vision for a global approach. He proposed to clarify the schedules of work on a UN Regulation and a UN GTR. He called for a prompt conclusion as he felt that there was no need to delay decision and there was the possibility to anticipate and prepare for the post mid 2024 period.

46. The representative of Canada called for maintaining a global approach, independent from the 1958 Agreement. He advocated for the continuation of the existing format based on FRAV and VMAD.

47. The representative of China agreed and proposed to develop both a UN Regulation and a UN GTR.

48. The representative of Japan agreed with the proposal by the European Commission and the United Kingdom of Great Britain and Northern Ireland. He noted, as Chair of the Executive Committee of the 1998 Agreement (AC.3), that it was not for GRVA to discuss the development of a GTR, but for AC.3. He proposed to discuss the development of a GTR at AC.3 in November 2023 keeping in mind the global ambition of GRVA.

49. The representative of ITU felt that there was too much work for one single group. He proposed to split activities between the dual mode vehicles and the ADS dedicated vehicles.

50. The representative of Germany supported the proposal of the European Commission and the United Kingdom of Great Britain and Northern Ireland. He confirmed that no one should feel excluded, that he would support any group working on a common approach and that he could also support, if the work would start with the drafting of a UN Regulation.

51. The representative of OICA felt that it was the right timing to discuss such proposal. He supported an Agreement neutral approach that can avoid fragmentation. He proposed to not exclude the 1998 Agreement parties and also, to not delay the work on a UN Regulation. He presented (GRVA-17-38) a draft action plan and proposed preliminary activities supporting the development of regulations on ADS. He recalled their position presented at the fifteenth session (GRVA-15-54), mentioning the necessary preparatory work for prompt progress under both Agreements.

52. The representative of the European Commission heard the different arguments and agreed that agreement neutrality was important. She clarified that she would not desire any exclusion. But, she also mentioned that she did not hear any statement indicating a potential risk, if the drafting would start under the framework of the 1958 Agreement.

53. The representative of the United States of America answered that the risk of exclusion could be explained by the first lines of the proposed terms of reference. He highlighted the fragmentation risks if two groups would work in parallel on requirements for ADS.

54. The Chair noted the commonalities of the different approaches mentioned and the few divergences. He proposed to continue to rely on the framework document process, at WP.29 level, to guide the activities of GRVA.

55. The representative of Canada felt that it was premature to consult WP.29 and that an alternative could be to rediscuss that point in January 2024 at GRVA level. The representative of EU answered that her proposal reflected the need of contracting parties. She added that delaying the process of the 1958 Agreement contracting parties was also a form of exclusion.

56. GRVA agreed to request an ad hoc meeting of the Administrative Committee for the coordination of work (AC.2) for further discussing this item, within the established process of the Framework Document on Automated Vehicles at WP.29.

VI. Connected vehicles (agenda item 5)

A. Cyber security and data protection

Documentation: Informal documents GRVA-17-06, GRVA-17-13, GRVA-17-30, GRVA-17-31 and GRVA-17-43

1. Report from the IWG on CS/OTA

57. The representative of Japan, Co-Chair of the IWG on Cyber Security and Over the Air (CS/OTA) issues, presented a status report (GRVA-17-31), highlighting the recent achievements by the group regarding the interpretation document for UN Regulation No. 156, amendments to Annex 7 of R.E.3 and the post registration software update processes. He also mentioned the outcome of the workshops of Contracting Parties on the implementation of UN Regulations Nos. 155 and 156.

58. The representative of France supported the continuation of the workshops. He supported that the review efforts of Annex 7 be pursued. He noted that the processes for manufacturers not using software numbering according to the Regulation X Software Identification Number (RxSWIN) would need to be clarified. On the latter, the representative of Japan proposed to align the text of Annex 7 with the one in UN Regulation No. 156 for such a case.

59. GRVA agreed with the intervention from the representative of France, stating that the benefits of software updates could only be seized if proper reference to UN Regulation No. 156 is made in the relevant UN Regulations. GRVA agreed to promote the text of Annex 7 and references to UN Regulation No. 156 in other UN Regulations under the purview of the other WP.29 subsidiary bodies. GRVA agreed to review a list of regulations under GRVA where software updates provisions could be inserted and requested the secretariat to inform WP.29 that other GRs could do a similar review to get the benefits of UN Regulation No. 156.

60. GRVA agreed to prepare a document on this review for presentation to WP.29 in March 2024.

2. Inclusion of the vehicle categories L, S, R and T in the scope of UN Regulation No. 155

61. The representative of France presented (GRVA-17-13) an amendment proposal to the scope of UN Regulation No. 155 on behalf of France and the United Kingdom of Great Britain and Northern Ireland, in response to a GRVA request. He explained that the scope of

UN Regulation No. 155 should be the same as the scope of UN Regulation No. 156. He clarified that this addition to the scope of UN Regulation No. 155 would not lead to automatically mandating the application of this regulation for the vehicles categories added. He added that not inserting these categories in the scope would prevent the manufacturers, who want it, to apply for an approval pursuant to this regulation for their products falling in these categories. He concluded his intervention by recalling that GRVA never heard any technical arguments against the inclusion of these categories in the scope.

62. The representative of IMMA supported (GRVA-17-06) the instruction of the Category L in the scope of UN Regulation No. 155. He recalled that his organization proposed to postpone this insertion back in 2020 until review by the industry would be completed. He explained that, in the European Union context, the Cyber Resilience Act was developed to cover all kind of products, from the smartphone to the washing machine, would not necessarily cover the specific needs of powered two wheelers. He called for avoiding fragmentation and double requirements and clarified that IMMA was seeking for a clear agreement in principle already at this session.

63. The representative of CEMA presented their views (GRVA-17-30), in response to GRVA-17-13. He proposed to restrict the inclusion in the scope of UN Regulation No. 155 of the vehicles of Categories S, R and T equipped with an ADS of level 3 or more.

64. GRVA agreed to include the Category L in the scope of UN Regulation No. 155 and requested the secretariat to prepare the corresponding formal proposal for review at GRVA in January 2024, on the basis of GRVA-17-43.

65. The representatives of Spain, Italy and CEMA were not in favour to include the categories S, R and T in the scope. The representative of France, Germany, the United Kingdom of Great Britain and Northern Ireland and CLEPA supported this inclusion. The representatives of Japan and Denmark were neutral (The representative of Denmark recalled that the Ministry of Transport in his country would not express an opinion on the categories R and S). GRVA agreed to resume consideration of this item for these three vehicle categories at its next session.

B. Software updates and over-the-air issues

66. No document was submitted under this agenda item.

C. Data and vehicle communications

Documentation: Informal document GRVA-17-36

67. The representative of Japan, Co-Chair of TF on Vehicular Communication (VC), presented GRVA-17-36, informing GRVA about the current status of the IWG on Intelligent Transport System and the TF on VC. He mentioned the activities performed and the workshop on Electric Vehicle Charging, Communication and Infrastructure scheduled in august 2023. GRVA noted the report.

D. Other business

Documentation: Informal document GRVA-17-20

68. The representative of FIA explained (GRVA-17-20) the importance of clarifying rules related to vehicle data access and he illustrated this position with several examples such as refilling Adblue or replacing a 12 Volts Battery, two cases where some manufacturers define such consumables and parts of their vehicles as security relevant and set specific conditions as a prerequisite for repairs.

69. The representative of FIA also presented views on data privacy in connected vehicles. He referred to the study called privacy not included, by the Mozilla Foundation. He explained that consumers were not informed in detail of the data collected by their vehicles and for what purpose they are used. He stated that, in these conditions, an informed consent by

consumers on data collection and data use was not possible. He also stated that consumers were not able to submit consent or revoke consent on single services, due to e.g., bundles (including bundles that include mandatory updates for safety). He called for privacy-by-design related technical requirements.

70. The representative of SAE International supported the views of FIA.

71. The representative of China supported the concerns expressed by FIA and suggested to address several items such as personal data protection, videos and images taken inside and outside of the vehicles, including elements such as licence plates or pedestrian faces.

72. The representative of the United Kingdom of Great Britain and Northern Ireland noted the limited scope of WP.29 when it comes to privacy but agreed that new technical items could be addressed.

73. The representative of OICA mentioned that the FIA position was similar to the CITA position expressed at previous sessions. He stated that these considerations were not for GRVA but to be dealt with at national or regional level. The representative of Japan supported the view of the United Kingdom of Great Britain and Northern Ireland and OICA. The representative of AVERE supported OICA and inquired if UN Regulation No. 155 would be the right place for privacy-by-design.

74. The representative of the European Commission mentioned that the fair and lawful collection of data was for national or regional level, but that GRVA could focus on the transparent processing of data.

75. Upon request, the secretariat mentioned that WP.29 already adopted in 2016 guidelines on security-by-design and privacy-by-design, reproduced in Annex 6 to the Consolidated Resolution R.E.3. Noting comments on the lack of information on applicable rules on data privacy, the secretariat offered to contact the leadership of the IWG on ITS to evaluate whether there would be an interest to collect information via that group. The representative of Japan inquired whether this would be the right to tackle this issue. The Chair clarified that this proposal should be limited to collecting information, which would fit under the current mandate of the group.

76. GRVA agreed that the two topics, namely vehicle data access and privacy-by-default shall be addressed, from the technical side, by the IWG on CS/OTA.

VII. Advanced Driver Assistance Systems and UN Regulation No. 79 (agenda item 6)

A. Advanced Driver Assistance Systems

Documentation: ECE/TRANS/WP.29/GRVA/2023/20
Informal documents GRVA-17-05, GRVA-17-07, GRVA-17-10, GRVA-17-11, GRVA-17-12, GRVA-17-21, GRVA-17-25, GRVA-17-35, GRVA-17-41, GRVA-17-44 and GRVA-17-49

77. The representative of the Russian Federation, Co-Chair of TF on ADAS, presented the status report of the group contained in GRVA-17-10. He detailed the progress made since the last GRVA session, he recalled the process initiated by GRVA on DCAS and explained the status of the documents submitted to GRVA, (ECE/TRANS/WP.29/GRVA/2023/20 and GRVA-17-05). He presented the outline of the draft regulation in detail (GRVA-17-12).

78. The representative of the European Commission presented, on behalf of the European Commission, Germany and the United Kingdom of Great Britain and Northern Ireland, some suggestions (GRVA-17-25) on how to prioritize the work on DCAS. She proposed to finalize the section 5 of the draft regulation, the provisions for systems supporting driver-initiated and driver-confirmed manoeuvres, driver monitoring with both motoric and visual disengagement and in-service reporting. She clarified upon request that in-service monitoring should be, in her view, addressed as a second step, given the complexity of this task. GRVA supported the priorities proposed.

79. The representative of the Russian Federation presented draft amendments to UN Regulation No. 79, aimed to differentiate the scope of UN Regulation No. 79 and the draft DCAS UN Regulation (GRVA-17-07). The representative of the United Kingdom of Great Britain and Northern Ireland presented comments (GRVA-17-44 and GRVA-17-49).

80. The representative of the Russian Federation asked for guidance from GRVA on several items (GRVA-17-11), including on speed assistance. The representative of OICA presented their views (GRVA-17-21) advocating for letting the driver decide on speeds as there might be factors (misdetection, infrastructure shortcomings, ambiguous situations, traffic flow considerations, speedometer offset etc.) where only the driver could decide.

81. The representative of the European Commission Joint Research Center presented the outcome of their research (GRVA-17-41) on the impact of speed variance in traffic and correlations with crashes, which showed that a high variance of vehicle speeds for vehicles on the same road led to more crashes. He concluded that speed management was more effective for all vehicles on the road than for selected vehicles, which would speak in favour of option 1 in GRVA-17-11. The representatives of France, Germany, Japan and the United Kingdom of Great Britain and Northern Ireland expressed reasons why they supported this option.

82. The representative of ETSC advocated for assistance systems that technically enforce speed limits as detected (GRVA-17-35). He stated that there was no justification for drivers to set speed above the speed limit. He added that allowing an override with the acceleration pedal was a good compromise between the two options proposed. The representative of Norway supported option 2 as DCAS was a bridging technology until ADS is available and that postponing the question of speed limits would not help GRVA.

83. GRVA agreed for option 1 and noted the positions of Norway and ETSC.

84. The representative of Sweden stated that their final view on the question would depend on the assessment of the whole system.

B. UN Regulation No. 79 (Steering equipment)

Documentation: ECE/TRANS/WP.29/GRVA/2023/21
ECE/TRANS/WP.29/GRVA/2023/26
ECE/TRANS/WP.29/GRVA/2023/27
(Informal document GRVA-16-06)

85. The representative of OICA presented a revised proposal for amendments to UN Regulation No. 79 (ECE/TRANS/WP.29/GRVA/2023/21) with clarifications for the Automatically Commanded Steering Function of Category A for vehicles towing a trailer, prepared by the representatives of the European Association of Automotive Suppliers (CLEPA) and the International Organization of Motor Vehicle Manufacturers (OICA) and based on informal document GRVA-16-08. He reminded GRVA of the comments provided at the previous session. Several delegations advocated for further provisions covering overhanging cargo, which could be addressed technically. Other felt that the problem mentioned could be addressed with in use prescriptions or with trainings.

86. The secretariat presented two proposals on behalf of the representative of Australia (ECE/TRANS/WP.29/GRVA/2023/26 and ECE/TRANS/WP.29/GRVA/2023/27), with his written authorization, as he could not join to session due to unforeseen circumstances. GRVA recalled that the two proposals as well as the related proposal under item 7(b) had been already introduced by Australia at the May 2023 session of GRVA. The representative of OICA mentioned that the issue at stake was the cross reference to lane markings described in the Annex of that regulation. He added that only light vehicles (M_1) were at stake, while UN Regulation No. 130 (LDWS) only touched on heavy vehicles. He doubted that the amended provisions in para. 5.6.2.2.3 were necessary. He concluded that, in general, the proposals could be adopted as a short-term solution. GRVA adopted the two proposals and requested the secretariat to submit them as draft Supplement 10 to the 03 series of amendments and Supplement 5 to the 04 series of amendments to UN Regulation No. 79 to WP.29 and the Administrative Committee of the 1958 Agreement (AC.1) for consideration and vote at their March 2024 sessions.

C. Acceleration Control for Pedal Error

Documentation: Informal document GRVA-17-40

87. The representative of Japan, Chair of the IWG on Acceleration Control for Pedal Error (ACPE), presented a status report of the IWG (GRVA-17-40). GRVA endorsed the report and looked forward to reviewing the first ACPE draft in January 2024.

D. Other business

88. No document was submitted under this agenda item.

VIII. Advanced Emergency Braking Systems (agenda item 7)

A. UN Regulations Nos. 131 and 152

Documentation: ECE/TRANS/WP.29/GRVA/2023/22
Informal documents GRVA-17-16 and GRVA-17-22
(ECE/TRANS/WP.29/GRVA/2022/24)

89. GRVA did not receive further input and agreed to keep ECE/TRANS/WP.29/GRVA/2022/24 (Urban Emergency Braking System (UEBS)) on the agenda for its next session.

90. The representative of France presented (GRVA-17-22) their views on virtual testing for the purpose of UN Regulation No. 152 (ECE/TRANS/WP.29/GRVA/2023/22). The representative of OICA provided comments (GRVA-17-16). GRVA noted the invitation by the representative of France to further exchange in a workshop that would take place on 7 November 2023 in Paris and agreed to consider a revised proposal at its January 2024 session.

B. Lane Departure Warning System

Documentation: ECE/TRANS/WP.29/GRVA/2023/25

91. The secretariat introduced, on behalf of the representative of Australia (see para. 86 above), the proposal for amendments to UN Regulation No. 130 concerning the introduction of Australian lane markings in the regulation (ECE/TRANS/WP.29/GRVA/2023/25). The representative of OICA explained that the proposal would affect vehicles not sold in Australia and asked for longer transitional provisions. GRVA adopted the document and, following email exchange with Australia, agreed with the transitional provisions to be extended until 2026. GRVA requested the secretariat to submit the document (with the modifications noted in Annex III) as draft new 01 series of amendments to UN Regulation No. 130 to WP.29 and AC.1 for consideration and vote at their March 2024 sessions.

IX. UN Regulations Nos. 13, 13-H, 139 and 140 and UN GTR No. 8 (agenda item 8)

A. Electronic Stability Control

Documentation: ECE/TRANS/WP.29/GRVA/2023/23
Informal document GRVA-17-47

92. The representative of OICA presented (GRVA-17-47) their latest amendment proposal (ECE/TRANS/WP.29/GRVA/2023/23) to the Electronic Stability Control testing procedure to take account for vehicles with low steering gear.

93. The representative of the United States of America reminded GRVA that the original testing procedure was globally harmonized and part of UN GTR No. 8. He did not identify

technical issues with the proposal. He asked that field data were collected to support a potential similar amendment of the testing procedure under the 1998 Agreement.

94. GRVA requested the secretariat to transmit ECE/TRANS/WP.29/GRVA/2023/23 as draft Supplement 6 to UN Regulation No. 140 to WP.29 and AC.1 for consideration and vote at their March 2024 sessions. GRVA also agreed that data is collected to support a similar workstream under the 1998 Agreement.

95. The representative of Czechia suggested GRVA to share views, at one of its next sessions, on the safety of steering systems with a low gear ratio in the context of UN Regulation No. 79.

B. Electromechanical braking

Documentation: Informal document GRVA-17-19
(ECE/TRANS/WP.29/GRVA/2023/3,
ECE/TRANS/WP.29/GRVA/2023/10,
Informal document GRVA-16-41)

96. The representative of the United Kingdom of Great Britain and Northern Ireland, Chair of the Special Interest Group on Electromechanical Braking, presented the status report of the group (GRVA-17-19). He alerted GRVA on the ambitious schedule proposed by the group as well as on the concept being developed, which might require careful review by the delegations. The representative of CLEPA provided details on how the industry is envisaging such systems. The group invited GRVA to reflect on the fact that these new braking systems may not measure but deduce the level of energy available for braking, may not have an energy reserve strictly dedicated to braking, may use an energy reserve that is available to several vehicle systems as an energy storage device for the braking system.

97. Several delegations offered comments, stating that an indirect deduction might be acceptable if a robust validation is available and asking the group to envisage limitations in case the energy reserved could be used by non-safety critical systems. They also inquired what the group would do to address the case were several safety critical systems e.g. steering an braking would share the same energy reserve. GRVA supported the path taken by the group so far.

98. The representative of the United Kingdom of Great Britain and Northern Ireland clarified, upon request, that the consideration their amendment proposal to Annex 18 of UN Regulation No. 13 with the requirements for electronic vehicle control systems (ECE/TRANS/WP.29/GRVA/2023/10) could be postponed until the January 2024 session, while the EMB documents are being developed.

99. The representative of CLEPA clarified that the consideration of the amendment proposal to UN Regulation No. 13 to consider the approval of the so-called e-axles (ECE/TRANS/WP.29/GRVA/2023/3) can be postponed until the January 2024 session of GRVA.

C. Clarifications

Documentation: ECE/TRANS/WP.29/GRVA/2023/24
Informal documents GRVA-17-17, GRVA-17-18 and GRVA-17-42

100. GRVA resume consideration of a proposal for amendments to UN Regulation No. 13, tabled by the representative of United Kingdom of Great Britain and Northern Ireland. He explained that the proposal (ECE/TRANS/WP.29/GRVA/2023/24) was drafted following discussions at a recent session of the Working Party on the Transport of Dangerous Goods, with the aim to foster uniform application of the regulation. GRVA agreed with the clarifications proposed. GRVA requested the secretariat to submit the proposal as draft Supplement 21 to the 11 series of amendments, Supplement 3 to the 12 series of amendments and Supplement 1 to the 13 series of amendments to UN Regulation No. 13 to WP.29 and AC.1 for consideration and vote at their March 2024 sessions.

101. The representative of Germany presented (GRVA-17-18) an amendment proposal to UN Regulation No. 13 (GRVA-17-17) clarifying the determination of the maximum mass to be used when performing the endurance braking test. The proposal received some comments. The representative of Germany announced that he would submit the proposal as official working document for consideration in January 2024.

102. The representative of the Netherlands consulted GRVA on the need to amend Annex 15 to UN Regulation No. 13, following the adoption of Supplement 18 to the 11 series (GRVA-17-42). GRVA provided some comments and agreed to resume consideration of this item at its January 2024 session based on an official document tabled by the representative of the Netherlands.

X. Motorcycle braking (agenda item 9)

A. UN Global Technical Regulation No. 3

103. No document was submitted under this agenda item.

B. UN Regulation No. 78

Documentation: Informal documents GRVA-17-08, GRVA-17-09

104. The representative of IMMA introduced (GRVA-17-09) their proposal (GRVA-17-08) to improve the transitional provisions for the 06 series of amendments to UN Regulation No. 78 (Motorcycle braking). GRVA agreed to resume consideration of this proposal and requested the secretariat to distribute it with an official symbol at the eighteenth session.

XI. UN Regulation No. 90 (agenda item 10)

Documentation: ECE/TRANS/WP.29/GRVA/2023/13
ECE/TRANS/WP.29/GRVA/2023/14
ECE/TRANS/WP.29/GRVA/2023/15
Informal document GRVA-17-45

105. The representative of FEMFM recalled the purpose of the three proposals in ECE/TRANS/WP.29/GRVA/2023/13, ECE/TRANS/WP.29/GRVA/2023/14 and ECE/TRANS/WP.29/GRVA/2023/15. He presented their most recent amendment proposal (GRVA-17-45) considering the text proposed by the representative of CLEPA, adopted at the last session. The proposal received some comments, including from the representative of FIA who inquired why access to safety instruction would require the collection of personal data for access to the website hosting them. He noted the difficulties related to addressing internet coverage in the WP.29 framework and consulted ITU. The representative of ITU mentioned that the solution envisaged was not workable. The representative of Switzerland proposed to envisage a footnote like it exist in UN Regulation No. 65 acknowledging a specific role to national authorities. GRVA agreed to resume consideration of this item in January 2024.

XII. Exchange of views on guidelines and relevant national activities (agenda item 11)

Documentation: Informal documents GRVA-17-23 and GRVA-17-27

106. The representative of Japan shared information (GRVA-17-23) with GRVA on Japan's Policy for Automated Driving. He presented their motivations for promoting ADS, the current status and challenges in that field as well as examples of ADS based mobility services. He presented Japan's study to ensure safety of ADS and the future perspective in

terms of expanding step-by-step the Operational Domain Design. He answered to clarification requests.

107. The representative of China shared information (GRVA-17-27) on China's guideline on Intelligent and Connected Vehicle Standard System. He provided background information, he presented the content of the guideline and detailed the future plans.

108. GRVA thanked both representatives for sharing information on national activities.

XIII. Revision 3 of the 1958 Agreement (agenda item 12)

A. Implementation of relevant provisions in Revision 3 to the 1958 Agreement

Documentation: Informal document GRVA-17-46

109. The representative of CITA presented (GRVA-17-46) some thoughts on the Unique Identifier. He mentioned the benefits as well as the disadvantage related to the use of UI (e.g., more time needed to obtain the same information as the one provided by physical markings) and proposed ideas to clarify the concept. GRVA thanked him for these observations.

B. International Whole Vehicle Type Approval

110. No document was submitted under this agenda item.

XIV. Election of Officers (agenda item 13)

111. In compliance with Rule 37 of the Rules of Procedure (TRANS/WP.29/690 as amended), GRVA called for the election of officers, by acclamation.

112. Mr. R. Damm (Germany) was elected as Chair for the GRVA sessions in 2024. Ms. C. Chen (China) and Mr. T. Naono (Japan) were elected as Vice-Chairs for the GRVA sessions in 2024.

XV. Other business (agenda item 14)

A. Inland Transport Committee Climate Change Mitigation Strategy

Documentation: Informal documents GRVA-17-14, GRVA-17-15 and GRVA-17-48

113. The secretariat reminded GRVA of the Inland Transport Committee (ITC) request to ECE to prepare a draft Climate Change Mitigation Strategy and the ITC Secretary request to provide comments on the outline prepared. The secretariat presented (GRVA-17-48) the draft contribution of WP.29 prepared the GRPE task force on this matter (GRVA-17-15). GRVA noted with interest the documents.

114. The secretariat introduced a note (GRVA-17-14) proposing GRVA comments on the ITC Climate Change Mitigation Strategy outline. The representative of Japan mentioned the importance of the greenhouse gas emissions reduction in transport and of the coordination role of WP.29. GRVA endorsed GRVA-17-14 and provided further comments related to potential GRVA contributions in that field, mentioning the activities on e-axles, the possibility to optimize weight and dimensions of trucks and the long-term considerations related to ADS and their GHG emissions (see Annex IV).

B. Arrangement of meetings

115. GRVA noted that the GRVA session originally planned in May 2024 would take place from 20-24 May 2024 in Troy (Michigan) as informal session (as agreed by WP.29). The representative of the United States of America thanked the Chair for supporting this idea and SAE International for their support. She explained that this informal session would offer the possibility to witness demonstration and potentially experience ADS. The secretariat announced that further information on logistics would be shared with the delegations before the end of the year. The representative of Japan thanked the United States of America and SAE International for these arrangements. He announced that Japan would be a candidate for a similar session, in Japan in 2025. The representative of China also volunteered and hoped to be able to show pilots running in her country.

C. Programme of Work

Documentation: (Informal document GRVA-16-28/Rev.2)

116. GRVA agreed to resume consideration of the GRVA programme of work update (GRVA-16-28/Rev.2) once decisions on the structure to develop regulation on ADS.

D. Any other business

Documentation: Informal documents GRVA-17-50 and GRVA-17-51

117. The secretariat presented the draft revised UNECE publication on Intelligent Transport Systems (GRVA-17-50), invited GRVA to provide comments, suggestions as well as correction by mid-October 2023 and announced that potential conflicting comments would be resolved at the next IWG on ITS meeting on 7 November 2023.

118. The secretariat prepared an overview of all documents discussed during the week and their agreed follow-up (GRVA-17-51). GRVA noted that the next session of GRVA would take place on 22-26 January 2024 and that the deadline for submission of official working document was one month after this session, before its session report would be issued.

E. Tributes

119. GRVA learned that Mr. F. Epple (Austria) and Mr. Y. Shiomi (Japan) would no longer attend GRVA sessions. GRVA acknowledged their great contributions to GRVA and wished them all the best for their retirement.

120. GRVA learned that Ms. L. Dotzauer, Junior Professional Officer at UNECE from November 2021 to November 2023, would no longer attend GRVA session. GRVA wished her all the best for her new carrier step at the European Space Agency.

Annex I

[English only]

List of informal documents (GRVA-17-...) considered during the session

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
1/Rev.1	(Chair) Running order of the seventeenth session of GRVA	A
2/Rev.1	(Secretariat) Consolidated and updated provisional agenda for the 17 th GRVA session	A
3	(Secretariat) General information and highlights from the WP.29 session (June 2023)	C
4/Rev.2	(OICA, CLEPA) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2023/17 - Draft resolution with guidance on AI	A
5	(TF on ADAS) Proposal for amendments to ECE/TRANS/WP.29/GRVA/2023/20 - Draft UN Regulation on DCAS	C
6	(IMMA) Proposal for a new supplement to UN Regulation No. 155	C
7	(ADAS) Proposal for draft amendments to UN Regulation No. 79 to differentiate the scope of UN Regulation No. 79 and the draft DCAS UN Regulation	C
8	(IMMA) Proposal for a supplement to the 06 series to UN Regulation No. 78	B
9	(IMMA) Information supporting GRVA-17-08	C
10	(TF on ADAS) Report of the TF on ADAS for the 17th GRVA session	C
11	(TF on ADAS) Issues to seek guidance from GRVA	C
12	(TF on ADAS) Draft UN Regulation on DCAS - Outline	C
13	(France, UK) Proposal for a new supplement to UN Regulation No. 155	C
14	(Secretariat) Draft GRVA comments on the ITC strategy on reducing GHG emissions	A
15	(TF on ITC climate change mitigation strategy) Inputs and feedback from [GRPE/WP.29] to the outline of the ITC climate change strategy and to the biennial report	C
16	(OICA, CLEPA) CLEPA/OICA position on the introduction of Virtual Testing in UN R152	C
17	(Germany) Proposal for amendments to UN Regulation No. 13	B
18	(Germany) Amendments to UN R13 Type II A test (endurance brake) provisions with regard to test mass	C
19	(SIG on EMB) Status Report of the Special Interest Group on Electrical Braking - Monitoring the Electrical Energy in an Electrical Braking System	C
20	(FIA) Access to Data and Data Privacy in Connected Vehicles	C
21	(OICA, CLEPA) DCAS Speed Limit Compliance - in response to GRVA-17-11	C
22	(France) Virtual testing for AEBS – UN R152	C
23	(Japan) Japan's Policy for Automated Driving	C
24	(EC, UK) Proposal for establishing a new Task Force on Automated Driving Systems (TF ADS)	C
25	(D, EC, UK) Prioritization of DCAS	C
26	(Germany) Input on AI (Based on GRVA-17-04)	C
27	(China) Guideline - Intelligent and Connected Vehicle Standard System	C
28	(EDR/DSSAD) Activities/Deliverables of IWG on EDR/DSSAD	C
29	(TF on FADS) Status Report	C
30	(CEMA) CEMA proposal in response to GRVA-17-13	C
31	(IWG on CS/OTA) Status report from the IWG on CS/OTA	C
32	(VMAD) Status report	C

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
33	(FRAV) Guidelines for Regulatory Requirements and Verifiable Criteria for ADS Safety Validation	A
34	(FRAV) Status report	C
35	(ETSC) Proposal for amendments to GRVA-17-05	C
36	(IWG on ITS) Status of Informal Working Group on Intelligent Transport Systems and Task Force on Vehicular Communication	C
37	(CLEPA, OICA) Considerations on the categorization of Automated Vehicles - update	C
38	(CLEPA, OICA) View on the Certification of AV's - current achievements and future tasks	C
39	(FRAV/VMAD) Status Report of FRAV/VMAD Integration Group	C
40	(ACPE) Status Report	C
41	(EC) Assessment of speed variance - in response to GRVA-17-11	C
42	(Netherlands) Proposal for a new supplement to UN Regulation No. 13	C
43	(France, Italy, UK, IMMA) Proposal for a new supplement to UN Regulation No. 155	B
44	(D, FR, NL, UK, EC) Proposal for draft amendments to UN Regulation No. 79 to differentiate the scope of UN Regulation No. 79 and the draft DCAS UN Regulation	C
45	(FEMFM) Proposal for a supplement to the 02 series of amendments to UN Regulation No. 90 (Replacement braking parts)	D
46	(CITA) Some thoughts about the Unique Identifier	C
47	(OICA) UN Regulation No. 140 - modification proposal	C
48	(UNECE) Introduction to GRVA-17-15	C
49	(France, Germany, Netherlands, United Kingdom, European Commission) Proposal for draft amendments to UN Regulation No. 79 to differentiate the scope of UN Regulation No. 79 and the draft DCAS UN Regulation	C
50	(Secretariat) Draft revised UNECE publication on Intelligent Transport Systems	C
51	(Secretariat) List of decision on documents	A

Notes:

Administrative follow-up, for the secretariat, with the informal documents:

- A Adopted/Endorsed/Agreed;
- B Distribute with an official symbol at the next session;
- C Consideration completed;
- D Resume consideration at the next session.

Annex II

List of Informal Working Groups reporting to GRVA (as of September 2023)

<i>Informal Working Group</i>	<i>Chair/Co-Chairs</i>	<i>Country</i>	<i>Mandate until</i>
Functional Requirements for Automated and Autonomous Vehicles (FRAV)	Ms. C. Chen ¹ Mr. R. Damm ¹ Mr. E. Wondimneh ¹	China Germany USA	June 2024
Validation Method for Automated Driving (VMAD)	Mr. I. Sow ¹ Mr. H. Matsukawa ¹ Mr. P. Striekwold ¹	Canada Japan Netherlands	June 2024
Cyber Security and Over-The-Air software updates (CS/OTA)	Mr. T. Niikuni ¹ Mr. D. Hannah ¹ Ms. M. Wondimneh ¹	Japan UK USA	November 2024
Event Data Recorder / Data Storage System for Automated Driving (EDR/DSSAD)	Mr. T. Guiting ¹ Mr. H. Matsukawa ¹ Mrs. J. Doherty ¹	Netherlands Japan USA	June 2024
Acceleration Control Pedal Error	Mr. T. Hirose Mr. P. Seiniger	Japan Germany	May 2024

¹ IWG Co-Chairs

Annex III

Agreed amendments to ECE/TRANS/WP.29/GRVA/2023/25

Agreed during the session (see para. 91)

In ECE/TRANS/WP.29/GRVA/2023/25, new paras. 12. to 12.4., amend to read:

"12. Transitional provisions

- 12.1.** As from the official date of entry into force of the 01 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approvals under this Regulation as amended by the 01 series of amendments.
- 12.2.** As from 1 September 2026, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to the preceding series of amendments, first issued on or after 1 September 2026.
- 12.3.** Until 1 September 2028, Contracting Parties applying this Regulation shall accept type approvals to the preceding series of amendments, first issued before 1 September 2026.
- 12.4.** As from 1 September 2028, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series of amendments to this Regulation."

Annex IV

Endorsed comments on the outline of the draft ITC strategy on Climate Change Mitigation

The text below is based on GRVA-17-14 and includes remarks mentioned during the session.

I. Preamble

1. GRVA received, at its May 2023 session, a presentation from the ITC Secretary on the development of the ITC Strategy on reducing greenhouse gas emissions in inland transport, in line with the decisions of ITC in February 2023 (See GRVA-16-46). GRPE established a task force to deal with ITC's request. WP.29 agreed, at its June 2023 session, that all GR's could contribute to this task force.
2. The following text contains suggestions from GRVA to inform the development of the ITC strategy as well as very brief context elements in the field of automated and connected vehicles having some relevance for this exercise, in the appendix.

II. GRVA comments on the proposed outline

Documentation: Presentation GRVA-16-46

3. The ITC strategy outline reads:
 - I. Inland transport and climate;
 - II. ITC vision and mission on climate action;
 - III. Strategic objectives;
 - IV. ITC-administered instruments to assist in mitigating climate change;
 - V. ITC Climate Action Plan with milestones–ITC to help deliver on climate goals;
 - VI. List of priorities;
 - VII. Resource mobilization for the delivery of the strategy
 - VIII. Strategic partnerships for the delivery of this Strategy.
4. This paper does not propose comments for each section, only general comments that may inform the development of the strategy:
 - (a) Neither the preparatory documents from ITC nor the ITC strategy outline includes a review of what has been achieved during the last decades, what were the results and the potential lessons learnt. **These elements could potentially inform the development of the ITC strategy and GRVA activities.**
 - (b) The CO₂ emissions related to automated and connected vehicles may differ from the typical CO₂ emission of traditional road vehicles in their whole life cycle especially during their development and their use. **It may be expected that the GHG/CO₂ emissions (or fuel/energy consumption) will be optimized and will not provide the same variability that drivers may cause.**
 - (c) GRVA is aware of the trials and measures implemented in various place of the world in line with the Avoid/Shift/Improve principle. The diversity of measures in place or envisaged for transforming the transport system is significant. ITC is recognized for establishing provisions supporting harmonization and uniform application by the contracting parties. **The ITC strategy may wish to consider addressing unnecessary diversities and variabilities in terms of transport policies that could lead to a sub-optimum use of automated transport.**
 - (d) The automotive sector has already informed GRVA of the impact of small variations that occurred in the local implementations of international traffic rules set in road transport conventions. By comparison, it may already be anticipated that strategic differences in terms of transport management and rules may have a strong impact on harmonization and performance optimization. **The impact of the vehicle environment on the vehicle performance may increase and might need to be considered.**
 - (e) Specifically on Chapters VII and VIII, GRVA recommends, learning from the coordination challenges posed by the number of partnerships and projects on Automated Driving Systems (ADS), to carefully implement **partnership projects** to facilitate implementation and maximize benefits.

(f) The development and innovation in the field of automated and connected vehicles is ongoing. **GRVA's input, actions and milestones might need to be revised, recognizing the nascent nature of the ADS technology** and the high level of uncertainty regarding the ADS performance and impact (see Appendix below, chapter II).

Appendix

I. Benchmarking - IMO and ICAO strategies

A. IMO

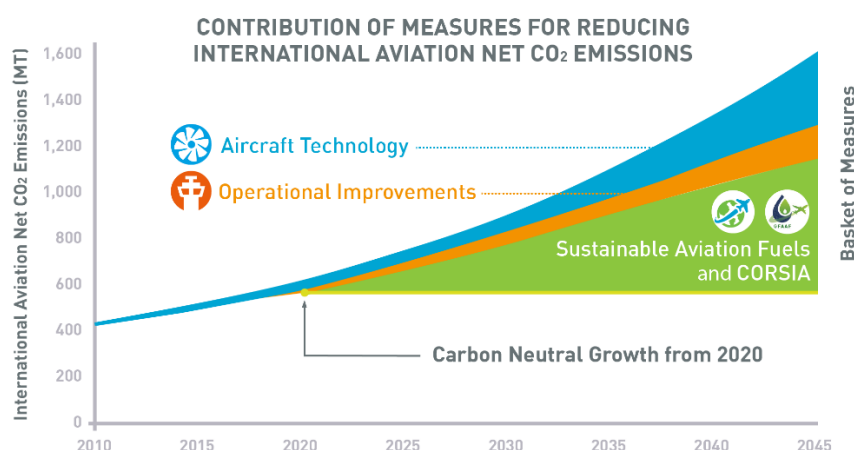
1. The International Maritime Organization (IMO) is a specialised agency of the United Nations responsible for regulating shipping. IMO was established following agreement at a UN conference held in Geneva in 1948 and came into existence ten years later, meeting for the first time on 17 March 1958. Headquartered in London, United Kingdom, IMO currently has 175 Member States and three Associate Members.

2. Member States of IMO, meeting at the Marine Environment Protection Committee (MEPC 80), have adopted the 2023 IMO Strategy on Reduction of GHG Emissions from Ships, with enhanced targets to tackle harmful emissions. The revised IMO GHG Strategy includes an enhanced common ambition to reach net-zero GHG emissions from international shipping close to 2050. IMO's strategy includes a commitment to ensure an uptake of alternative zero and near-zero GHG fuels by 2030, as well as indicative checkpoints for 2030 and 2040, both relative to 2008. It includes a basket of candidate mid-term GHG reduction measures as well as measures addressing the needs of SIDS and LDCs.

B. ICAO

3. The International Civil Aviation Organization (ICAO) assists the 193 Contracting States to the Chicago Convention as they cooperate to adopt standards, practices, and policies for international civilian flight.

4. The ICAO Assembly adopted the collective long-term global aspirational goal for international aviation (LTAG) of net-zero carbon emissions by 2050, in support of the Paris Agreement's temperature goal. To achieve the global aspirational goals and to promote sustainable growth of international aviation, ICAO is pursuing a basket of measures including aircraft technology improvements, operational improvements, sustainable aviation fuels, and market-based measures (CORSIA).



(Source: <https://www.icao.int/environmental-protection/Pages/climate-change.aspx>)

C. Remarks

5. The strategies of the two sister organizations of UNECE/ITC have in common that they predominantly address the “improve”, more than the “shift” or “avoid” of the ASI principle.

II. IPCC about automated vehicles

Table 10.3 | Components of systemic change and their impacts on the transport sector.

Systemic change	Mechanisms through which it affects emissions in transport sector and is likely to affect emissions
Changes in urban form	Denser, more compact polycentric cities with mixed land use patterns can reduce the distance between where people live, work, and pursue leisure activities, which can reduce travel demand. Case studies suggest that these changes in urban form could reduce transport-related GHG emissions between 4 to 25%, depending on the setting (Creutzig et al. 2015a; Creutzig et al. 2015b; Pan et al. 2020).
Investments in transit and active transport infrastructure	Improving public transit systems and building infrastructure to support active transport modes (walking and biking) could reduce car travel. Case studies suggest that active mobility could reduce emissions from urban transport by 2% to 10% depending on the setting (Creutzig et al. 2016; Zahabi et al. 2016; Keall et al. 2018; Gilby et al. 2019; Neves and Brand 2019; Bagheri et al. 2020; Ivanova et al. 2020; Brand et al. 2021). A shift to public transit modes can likely offer significant emissions reductions, but estimates are uncertain.
Changes in economic structures	Higher demand as a result of higher incomes could increase emissions, particularly from aviation and shipping. Higher prices could have the opposite effect and reduce emissions. Structural changes associated with financial crises, pandemics, or the impacts of climate change could affect the elasticity of demand in uncertain ways. Thus, the effect of changes in economic structures on the GHG emissions from the transport sectors is uncertain.
Teleworking	A move towards a digital economy that allows workers to work and access information remotely could reduce travel demand. Case studies suggest that teleworking could reduce transport emissions by 20% in some instances, but likely by 1%, at most, across the entire transport system (Roth et al. 2008; O’Keefe et al. 2016; Shabanpour et al. 2018; O’Brien and Aliabadi 2020).
Dematerialisation of the economy	A reduction in goods needed due to combining multiple functions into one device would reduce the need for transport. Reduced weights associated with dematerialisation would improve the efficiency of freight transport. However, emissions reductions from these efforts are likely dwarfed by increased consumption of goods.
Supply chain management	Supply chains could be optimised to reduce the movement or travel distance of product components. Logistics planning could optimise the use of transport infrastructure to increase utilisation rates and decrease travel. The effect of these strategies on the GHG emissions from the transport sector is uncertain.
e-commerce	The effect of e-commerce on transport emissions is uncertain. Increased e-commerce would reduce demand for trips to stores but could increase demand for freight transport (particularly last-mile delivery) (Jaller and Pahwa 2020; Le et al. 2021).
Smart mobility	ICT and smart city technologies can be used to improve the efficiency of operating the transport system. Furthermore, smart technologies can improve competitiveness of transit and active transport over personal vehicle use by streamlining mobility options to compete with private cars. The effect of smart mobility on the GHG emissions from the transport sector is uncertain (Creutzig 2021).
Shared mobility	Shared mobility could increase utilisation rates of LDVs, thus improving the efficiency of the system. However, shared mobility could also divert users from transit systems or active transport modes. Studies on ride-sourcing have reported both potential for reductions and increases in transport-related emissions (Schaller 2018; Ward et al. 2021). Other case studies suggests that carpooling to replace 20% of private car trips could result in a 12% reduction in GHG emissions (ITF 2020a; ITF 2020b). Thus, the effect of shared mobility on transport-related GHG emissions is highly uncertain.
Vehicle automation	Vehicle automation could have positive or negative effects on emissions. Improved transit operations, more efficient traffic management, and better routing for light- and heavy-duty transport could reduce emissions (Nasri et al. 2018; Vahidi and Sciarretta 2018; Massar et al. 2021; Paddeu and Denby 2021). However, autonomous cars could make car travel more convenient, removing users from transit systems and increasing access to marginalised groups, which would in turn increase vehicle-kilometre travelled (Harper et al. 2016; Auld et al. 2017; Sonleitner et al. 2021). Drones could reduce energy use and GHG emissions from freight transport (Stolaroff et al. 2018).

Source: https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter10.pdf

III. Comments provided during the session

6. GRVA recalled its work on new braking technologies, employing both electric control transmission and electric energy transmission. Such technology is seen as an important element in the transition from vehicles employing internal combustion engines to alternatives powered by electrical energy.
7. GRVA noted the comment provided that further work on “mass and dimension” can provide benefits for the greenhouse gas emissions of trucks.
8. GRVA noted the potential of the work initiated on e-axles under agenda item 8(c).