

Distr.: General
02 May 2023

English only

Economic Commission for Europe

Inland Transport Committee

Global Forum for Road Traffic Safety

**Group of Experts on drafting a new legal instrument
on the use of automated vehicles in traffic**

Sixth session

Geneva, 4-5 May 2023

Item 5(a) of the provisional agenda

**Activities and development of a workplan, based on
the 2023 sessions of ITC and WP.1, and next steps:**

Assessment activities

Assessment of the gaps of in the Conventions and Resolutions under the auspices of WP.1 and identification of the issues to be addressed

– A scoping draft approach

**Submitted by the experts from Finland, Germany, Greece, Luxembourg, the
Netherlands, Poland, Portugal, Sweden and the United Kingdom of Great Britain
and Northern Ireland**

This document proposes a methodology for assessment of gaps in the Conventions and Resolutions under the auspices of WP.1 and identification of the issues that could be addressed in an international legal instrument, and presents the first steps and resources to apply the methodology. This document contains an introductory and justification part and a Scoping Draft which aims to demonstrate the possible gaps in a practical manner, to inform the discussion on the need for a legal instrument.

This document has been produced in expert level cooperation and does not reflect official positions of the countries which nominated the experts involved. The document is an exploratory work and was developed through an exchange of views between experts from Finland, France, Germany, Greece, Luxembourg, Malta, the Netherlands, Poland, Portugal, Sweden, the United Kingdom of Great Britain and Northern Ireland, academia and industry.

1. Contribution from the drafting volunteers towards the assessment of needs

1.1 Work by the Group of Experts to date

In 2021, the Inland Transport Committee (ITC) approved the establishment of the Group of Experts on drafting a new legal instrument on the use of automated vehicles in traffic (later GE.3) with the aim of preparing a draft new legal instrument on the use of automated vehicles in domestic and international traffic (Paragraph 1 of GE.3 Terms of Reference, later ToRs).

In the Fourth Session of GE.3 (1-2 September 2022), the experts from Finland, Malta, the Netherlands, Poland, Sweden and the United Kingdom of Great Britain and Northern Ireland volunteered to initiate drafting activities. The experts from France, Germany, Greece and Luxembourg also expressed interest in participating in this drafting exercise and confirmed their participation after the session, as did also Portugal.

At the Fifth Session of GE.3 (12 December 2022), the zero draft (informal document No. 1 GE.3-05-01) was presented. The document was prepared during seven informal meetings of drafting volunteers between September and November 2022, and submitted by Finland and the Netherlands.

At the Fifth Session of GE.3, the Group decided that the drafting volunteers may continue their work and invited delegations to join them to further develop the zero draft. The experts from Australia joined the drafting volunteers accordingly, in a consultative capacity. GE.3 also decided that experts who wish to work on the assessment work may proceed.

The drafting volunteers are representatives of their respective countries nominated by the Contracting Parties to the 1968 Convention on Road Traffic and those to the 1949 Convention on Road Traffic. When nominating their representatives, the Contracting Parties have taken into account the recommendation of the Terms of Reference of the Group of Experts that their representatives have professional experience, academic experience and/or research experience in road safety, traffic law, and/or transport policy (ToRs of GE.3, paras. 10 and 11).

1.2 Scoping Draft as a tool to support ITC decision

At its 85th Session (21-24 February 2023), the ITC decided to:

- (a) Endorse the extension of the mandate of the Group of Experts on drafting a new legal instrument on the use of automated vehicles in traffic (LIAV) until December 2024, with a focus to
 - (i) undertake the assessment collectively of any gaps in the conventions and resolutions under the auspices of WP.1, and
 - (ii) identify the issues to be addressed;
- (b) Note the work already done in this area; and
- (c) Recommend that WP.1 revisit the ToR of the Group of Experts.

There will be limited time for GE.3 to address the ITC decision before the next ITC meeting in February 2024 and therefore there is a need to draw on the activities which

have been completed and are ongoing within GE.3. Several activities have been undertaken so far under GE.3, using different approaches:

- 1) **An analysis of the risks brought by automated driving** – led by Canada and Sweden (see headline conclusions in section 2.1)
 - Summary report of the Group of Experts on drafting a new Legal Instrument on the use of Automated Vehicles in traffic (LIAV) informal meetings hosted by Canada and Sweden on 31 January 2022 and 31 March 2022 (Informal document No. 1 (GE.3-03-01))
 - Responses provided by the experts of the GoE on LIAV to the questions raised in the survey (circulated before the second session), Note by the secretariat (Informal document No. 3 (GE.3-02-03))
 - Revised Survey: "Safe Deployment of Automated Vehicles in International Traffic" – Figures generated by Microsoft Forms, Note by the secretariat (Informal document No. 2 (GE.3-05-02))
- 2) **An analysis of the history and rationale of existing legal instruments and the options for addressing the need**, covering the options for new legislation as well as development of guidelines – led by France and the GE.3 Secretariat (see conclusions in section 2.4)
 - “International Legal Instruments”, presentation by France (Presentation 1, 3rd GoE on LIAV, 16 May 2022)
 - “Geneva and Vienna Conventions on Road Traffic”, presentation by France (Presentation 2, 4th GoE on LIAV, 1-2 September 2022)
 - “Outcomes of the informal meeting on 5 July + some countries reactions”, presentation by France (Presentation 3, 4th GoE on LIAV, 1-2 September 2022)
 - The types of legal instruments within the United Nations – a brief overview by the secretariat (ECE/TRANS/WP.1/GE.3/2022/6)
 - Historical background of the Conventions related to road traffic and traffic safety, note by the secretariat (ECE/TRANS/WP.1/GE.3/2022/7)
- 3) **Questions and answers regarding the new legal instrument on the use of automated vehicles in traffic**, Submitted by the representatives of the United Kingdom of Great Britain and Northern Ireland (Informal document No. 2 (GE.3-05-02))
- 4) **Road Safety Challenges Posed by the Use of Automated Vehicles**, submitted by the experts from European Transport Safety Council (Informal document No. 4 (GE.3-03-04))
- 5) **Initial thoughts on “road safety challenges posed by the use of automated vehicles in traffic that an international legal instrument could adequately address”**, submitted by Professor Bryant Walker Smith (Informal document No. 2 (GE.3-03-02))
- 6) **Road Safety Risks and Challenges related to Automated Driving**, submitted by the experts from the International Organization of Motor Vehicle Manufacturers (Informal document No. 5 (GE.3-03-05))
- 7) **Key questions to support a needs assessment for the development of a new legal instrument for automated vehicles**, submitted by the representative of Canada (Informal document No. 2 (GE.3-02-02))
- 8) **“Picture the future automated safe system as a compass for GE.3/LIAV when drafting a new convention”**, presentation by Sweden (Presentation 1, 4th GoE on LIAV, 1-2 September 2022)
- 9) **The need of a conceptual model of a safe use of automated vehicles in traffic to support drafting a new legal instrument**, submitted by the representative of Sweden (Informal document No. 2 (GE.3-01-02))

While the decision at the 5th Session of GE.3 only instructed the drafting volunteers to continue their work developing the zero draft, the drafting volunteers have found it

necessary to consider the ITC decision and the subsequent discussion at WP.1 and how their work could support it.

The drafting volunteers have therefore sought to identify the potential gaps in the existing Conventions and Resolutions under the auspices of WP.1 which could be addressed by a new legal instrument through the Scoping Draft they developed. It is anticipated that the Scoping Draft may provide a tangible document to facilitate engagement with a wider range of participants in discussions about the need for a legal instrument and what it should cover, which can contribute equally to the assessment of needs and the development of a legal instrument which addressed those needs (see section 1.5).

1.3 Examining the existing 1949 Geneva and 1968 Vienna Conventions to identify gaps to be addressed.

At the Fourth Session of GE.3, France, supported by the secretariat, presented an analysis of the existing legal instruments to identify which issues need to be addressed, as well as what instrument would be appropriate to address them (See presentations and documents listed as No. 2 under title 1.2). The drafting volunteers considered the conclusions reached and the comments from GE.3 members during the drafting process.

However, road transport automation presents a paradigm shift and will require a radical change to the legislative and regulatory landscape for road traffic. Since the development of road traffic rules, the core responsibilities have been centred on the driver, who is responsible for ensuring the safe behaviour of a vehicle in traffic. Consequently, an analysis of the existing legal instruments is insufficient as there is a need to consider how to address new issues – namely the concept that road transport automation shifts responsibilities from the driver. This means that an alternative approach is needed in order to achieve a more holistic understanding of the needs.

In developing the Scoping Draft, the drafting volunteers have identified the following issues to be addressed, to which the existing Geneva and Vienna Conventions do not provide appropriate answers:

- Are there any conditions for when the driver can delegate the dynamic control to the Automated Driving System (ADS)?
- How can it be determined who has or had responsibility for the dynamic control of the automated vehicle at any given time?
- What are the role and responsibilities of the driver when the ADS is engaged, if there still is a driver in the vehicle?
- If some or all of the responsibilities normally attributed to the driver are not borne by the driver anymore, then who should bear these responsibilities as the ADS does not have legal personhood?
- How do we identify possible new entities which bear responsibilities normally attributed to the driver?
- How do we make the necessary information about these entities available between different jurisdictions to enable enforcement of traffic rules?
- Who has responsibilities for vehicles where there is no driver in the vehicle? How can their safety in operation be ensured?
- Is there a need to define new concepts/terms?
- How to support international cooperation and data sharing especially between relevant authorities?

- How do we support the determination of liabilities in an accident involving an automated vehicle on national level?

1.4 Method for producing the Scoping Draft and proposed approach to support the work of GE.3

Grounded theory is a well-known methodology employed in many research studies. Qualitative and quantitative data generation techniques can be used in a grounded theory study. Grounded theory sets out to discover or construct models and theories from data, systematically obtained and analysed using comparative analysis.

Grounded theory is a form of inductive empiricism: empirical research has observations of reality as the only source of knowledge. The reality which has been observed for this analysis is by the expert discussions in order to be able to produce the scoping draft. The experts' input was informed by national and international publications and research. Also the considerable amount of work and materials that have been submitted to GE.3 (see items listed under title 1.2) has been taken into careful consideration by the drafting volunteers, especially the analysis presented to GE.3 of the risks that an international legal instrument could address and of the type of legal instrument that would be most suitable. The input from the experts and sources such as the WP.1 Resolutions have been used to generate suggestions of issues to be addressed and ways to address them in the form of provisions. These suggestions were later aggregated to sub-chapters and chapters which formed the scoping draft (for more information see SE presentation submitted to the 6th Session of GE.3).

1.5 Possible next steps

The Scoping Draft attached to this document and the list of issues identified in section 1.3 provide tools to seek views from all GE.3 participants as well as other experts on the gaps that need to be addressed through a legal instrument as well as the approaches that can be used to address those gaps. The drafting volunteers have recognised the immense value of the scoping draft as a basis enabling detailed discussions between the experts, which revealed the possible gaps in the existing Conventions. The concreteness of the scoping draft has made it possible to express opinions and views, and thus has been very helpful when identifying the differences and similarities in the respective approaches of the countries. Continuing the work would make it possible to engage a larger group of experts on discussions to identify potential needs for a new legal instrument, and also contribute to increasing understanding of legal challenges relating to road transport automation.

In the next phase, we propose that this informal document (including the scoping draft) could be scrutinized in further detail to develop our common understanding of the gaps in the existing conventions and the issues to be addressed and to develop consensus on how they should be addressed. As the first step, this scrutiny could be carried out in a format of a survey that would engage all the GE.3 members. Next steps could also involve verifying and testing how the proposed draft would apply to various use cases and undertaking industry consultation.

2. Background

2.1 What is the problem and why is it a problem?

When drafting the 2018 Resolution on the Deployment of Highly and Fully Automated Vehicles in Road Traffic (later 2018 Resolution), WP.1 noted that the continuous progress of automotive and digital technologies could contribute to improving road safety. WP.1 also recognised the potential for innovative safety technologies to improve social well-being by preventing motor vehicle accidents, both in ways that already could be foreseen in 2018 and in ways that could not yet be predicted at that time. By drafting the Resolution, WP.1 desired to avoid further obstacles that could impede the development of technologies that could offer significant benefits.

Furthermore, WP.1 also recognised the potential for the mentioned technologies to support the United Nations Sustainable Development Goals by improving road traffic safety, inclusive mobility (including for those who cannot currently drive a motor vehicle), and by creating strategies where safe and efficient mobility is a tool for socio-economic growth and governance.

Since 2018, the potential of road transport automation to promote safer, more efficient and more sustainable transport has been acknowledged in many national strategies (see the main sources below). However, it is also commonly recognised that there are potential threats linked to the development of road transport automation. In order to make the most out of the road transport automation and to avoid possible negative outcomes there is a need for active decision making both on national and international level.

At the Third Session of GE.3 (16 May 2022), a Summary report on the GoE on LIAV informal meetings hosted by Canada and Sweden on 31 January 2022 and 31 March 2022 (Informal document No. 1 (GE.3-03-01)), presented the results of a survey conducted amongst the Contracting parties partaking in the activities of GE.3. The survey identified the following top three road safety risks related to automated vehicles:

- (i) Risks related to the lack of clarity on roles and responsibilities;
- (ii) Risks related to take over requests, fallback user expectations during transition demands; and
- (iii) Risks related to technical performance and skill of the vehicle automation, risks related to mode awareness, and risks related to data protection and hacking.

It is expected that the number of automated vehicles will gradually increase as the technology develops. UN Regulation No. 157 on Automated Lane Keeping Systems (ALKS, document ECE/TRANS/WP.29/2020/81) relating to SAE3-level automation already entered into force in January 2021, and the increase in speed up to 130 km/h entered into force in January 2023. The industry estimates that the introduction of fully automated vehicles on road could happen from the end of 2025. Furthermore, countries have been developing approaches to enable trialing and commercial deployment of automated vehicles in their territories. Without more unified rules on the use of automated vehicles in traffic the potential threats to sustainability, effectiveness and especially to road safety may increase considerably in the near future.

2.2 Why should WP.1 act?

WP.1 is the only permanent body in the United Nations system that focuses on improving road safety. Its primary function is to serve as guardian of the United Nations legal instruments aimed at harmonizing traffic rules that address the main factors of road accidents (road user behavior, vehicle and infrastructure), and so it is a tangible contributor to improving road safety.

As noted by WP.1 in the preamble of the 2018 Resolution, the Convention on Road Traffic done at Geneva on 19 September 1949, and the Convention on Road Traffic done at Vienna on 8 November 1968 have had significant bearing on the definition of domestic road traffic legislation and regulation and have noticeably improved road safety.

In July 2022, an amendment to the 1968 Vienna Convention entered into force, inserting a new Article 34 bis and amending Article 1, with the aim to provide the legal clarity required by some countries to allow automated vehicles in their territory. The amendment provided a pragmatic approach to avoid hindering technological development. However, the amendment did not set any provisions to prevent the development of inconsistencies in how automated vehicles are regulated at national level which may negatively impact the introduction and safe use of automated vehicles.

As a result, WP.1 therefore decided to establish the Group of Experts to draft a new legal instrument which is expected to complement the 1949 and 1968 Conventions on Road Traffic. It will include, in addition to the typical sections on definitions and final clauses, a set of legal provisions for the safe deployment of automated vehicles in international traffic. These provisions will specifically aim to ensure road safety, in particular the safety of vulnerable road users. (See ToRs of GE.3, paragraphs 1 and 4)

2.3 What should be achieved?

The aim of the 1949 Geneva Convention is, according to its opening clause, to promote the development and safety of international road traffic. The 1968 Vienna Convention aims to facilitate international road traffic and to increase road safety. The Conventions achieve these aims through the adoption of uniform rules on road traffic, which are implemented by the Contracting Parties.

The new legal instrument should aim to make a substantial contribution to the following UNECE objectives (From Implementation of the ITC Strategy until 2030, ECE/TRANS/2022/3):

- Help inland transport to efficiently address global and regional needs in inland transport.
- Contribute to sustainable inland transport and mobility for achieving the sustainable development goals in the ECE and UN Member States.
- Enhance support to international traffic with automated vehicles.

2.4 What are the various options to achieve the objectives and why did we choose this one?

Level 0 option is to rely on the existing international legal framework, i.e. the existing Conventions with the latest amendment to the Vienna Convention. This option would not lead to uniform rules to guide the use of automated vehicles. Furthermore, it would not

lead to increased road safety by establishing standard traffic rules among the countries or to recognize the legality of automated vehicles from other signatory countries.

Level 1 option would be to draft a new non-binding instrument on automated driving. This option might give an opportunity to start proper discussions on the legal framework that is needed internationally. However, as seen in the past, the Resolutions, however valuable they are, very seldom lead to the adoption on national rules accordingly. As a result, the lack of uniform rules would still prevail.

Level 2 option would be to draft binding legal provisions. There was a majority view among attendees at the Third Session of GE.3 on 6 May 2022 that a new legal instrument should take the form of another convention, because this supports greater international consistency on rules for use of automated vehicles which is needed for safe deployment in international traffic, cross-border traffic flow and trade. As seen in the past, international conventions are the best way to guarantee the uniform rules needed to achieve these goals.

Main sources:

Global Forum for Road Traffic Safety (WP.1)

- Convention on Road Traffic done at Geneva on 19 September 1949
- Convention on Road Traffic done at Vienna on 8 November 1968 (as amended with adding Article 8(5 bis) and Article 34 bis, as well as amending Article 1 by inserting new points a(b) and a(c))
- Global Forum for Road Traffic Safety (WP.1) resolution on the deployment of highly and fully automated vehicles in road traffic (2018)
- Global Forum for Road Traffic Safety (WP.1) resolution on safety considerations for activities other than driving undertaken by drivers when automated driving systems issuing transition demands exercise dynamic control (2022)

Informal documents submitted to the WP.1

- * Human Factors Principles to Guide the Design, Standards and Policies for Automated Driving Systems, submitted by Human Factors in International Regulations for Automated Driving Systems, Informal paper No.3, WP.1 85th session
- * Discussion paper on key human roles in the context of automated driving, submitted by Finland, Informal document No.8, WP.1 85th session
- * Human factors and automated driving as key issues for future road traffic, submitted by the Netherlands, Informal document No.3, WP.1 86th Session
- * Automated driving, Situations when a driver operates a vehicle from the outside of the vehicle, Submitted by Finland, Germany, and the United Kingdom, Informal document No. 1/Rev.2 (September 2021), WP.1 86th Session
- * Remote management of automated vehicles, Submitted by Finland and the United Kingdom, Informal document No.16, WP.1 86th Session

Informal documents submitted to the GE.3

- * An analysis of the risks brought by automated driving – led by Canada and Sweden (see headline conclusions in section 2.1)

- Summary report of the Group of Experts on drafting a new Legal Instrument on the use of Automated Vehicles in traffic (LIAV) informal meetings hosted by Canada and Sweden on 31 January 2022 and 31 March 2022 (Informal document No. 1 (GE.3-03-01))
- Responses provided by the experts of the GoE on LIAV to the questions raised in the survey (circulated before the second session), Note by the secretariat (Informal document No. 3 (GE.3-02-03))
- Revised Survey: "Safe Deployment of Automated Vehicles in International Traffic" – Figures generated by Microsoft Forms, Note by the secretariat (Informal document No. 2 (GE.3-05-02))
- * An analysis of the history and rationale of existing legal instruments and the options for addressing the need, covering the options for new legislation as well as development of guidelines – led by France and the GE.3 Secretariat (see conclusions in section 2.4)
- "International Legal Instruments", presentation by France (Presentation 1, 3rd GoE on LIAV, 16 May 2022)
- "Geneva and Vienna Conventions on Road Traffic", presentation by France (Presentation 2, 4th GoE on LIAV, 1-2 September 2022)
- "Outcomes of the informal meeting on 5 July + some countries reactions", presentation by France (Presentation 3, 4th GoE on LIAV, 1-2 September 2022)
- The types of legal instruments within the United Nations – a brief overview by the secretariat (ECE/TRANS/WP.1/GE.3/2022/6)
- Historical background of the Conventions related to road traffic and traffic safety, note by the secretariat (ECE/TRANS/WP.1/GE.3/2022/7)
- * Questions and answers regarding the new legal instrument on the use of automated vehicles in traffic, Submitted by the representatives of the United Kingdom of Great Britain and Northern Ireland (Informal document No. 2 (GE.3-05-02))
- * Road Safety Challenges Posed by the Use of Automated Vehicles, submitted by the experts from European Transport Safety Council (Informal document No. 4 (GE.3-03-04))
- * Initial thoughts on "road safety challenges posed by the use of automated vehicles in traffic that an international legal instrument could adequately address", submitted by Professor Bryant Walker Smith (Informal document No. 2 (GE.3-03-02))
- * Road Safety Risks and Challenges related to Automated Driving, submitted by the experts from the International Organization of Motor Vehicle Manufacturers (Informal document No. 5 (GE.3-03-05))
- * Key questions to support a needs assessment for the development of a new legal instrument for automated vehicles, submitted by the representative of Canada (Informal document No. 2 (GE.3-02-02))
- * "Picture the future automated safe system as a compass for GE.3/LIAV when drafting a new convention", presentation by Sweden (Presentation 1, 4th GoE on LIAV, 1-2 September 2022)
- * The need of a conceptual model of a safe use of automated vehicles in traffic to support drafting a new legal instrument, submitted by the representative of Sweden (Informal document No. 2 (GE.3-01-02))

World Forum for the harmonization of vehicle regulations (WP.29) and Working Party on Automated/Autonomous and Connected Vehicles (GRVA)

- UN Regulation No. 157 on Automated Lane Keeping Systems (ALKS, document ECE/TRANS/WP.29/2020/81)

- UN Regulation No. 155 on Uniform provisions concerning the approval of vehicles with regards to cyber security and cyber security management system, (ECE/TRANS/505/Rev.3/Add.154)
- UN Regulation No. 156 Uniform provisions concerning the approval of vehicles with regards to software update and software updates management system, (ECE/TRANS/505/Rev.3/Add.155)
- Framework Document for Automated/Autonomous Vehicles adopted by the World Forum for Harmonization of Vehicle Regulations (WP.29) at its 178th session, ECE/TRANS/WP.29/1147
- Guidelines and Recommendations concerning safety requirements for automated driving systems (Informal document WP.29-187-10)
- Terms and Definitions Developed under the Draft FRAV Guidelines on ADS Safety Requirements (Informal Document GRVA-15-36)

Regional sources

- Commission implementing regulation (EU) 2022/1426 laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and of the Council as regards uniform procedures and technical specifications for the type-approval of the automated driving system (ADS) of fully automated vehicles
- Uniform automated operation of vehicles act, drafted by National Conference of Commissioners of Uniform State Laws (ULC), 2019

National sources

Finland

- Amendment to the Vehicles Act (ajoneuvolaki, Law 439/2023) concerning testing of automated vehicles (+ Government proposal HE 291/2022)
- Valtioneuvoston periaatepäätös liikenteen automaation edistämisestä (in English: Government Resolution on Promotion of Transport Automation), 25 November 2021
- Liikenteen automaation lainsäädäntö- ja avaintoimenpidesuunnitelma (in English: Action Plan for legislative and other key measures needed by transport automation), Ministry of Transport and Communications, 25 November 2021
- Kuljettajan tukijärjestelmistä automaatioon (in English: From driver support systems to automation), Transport and Communications Agency Traficom, 2020
- Esiselvitys tieliikenteen automaattisten ajoneuvojen ja liikennepalvelujen esteettömyydestä ja saavutettavuudesta (in English: Preliminary report on the accessibility of automated road vehicles and transport services), Transport and Communications Agency Traficom 2019
- Ehdotus tieliikenteen automaation toteutussuunnitelmaksi (in English: Proposal for road transport automation action plan), Finnish Transport Infrastructure Agency 2023

France

- “LOM” law (article 31 & 32/Law no. 2019-1428 of December 24, 2019)
- Ordinance No. 2021-443 of April 14, 2021 relating to the criminal liability regime applicable in the event of the circulation of a vehicle with driving delegation and its conditions of use
- Ordinance no. 2021-442 of April 14, 2021 relating to access to vehicle data

- Decree No. 2021-873 of June 29, 2021 implementing Ordinance No. 2021-443 of April 14, 2021 relating to the criminal liability regime applicable in the event of circulation of a vehicle with driving delegation and its conditions of operation use
- French regulatory framework on automated vehicles' conditions of use and automated road transport systems' commissioning, Ministry of Transport 2022

Luxemburg

- The government programme considers CCAM: <https://gouvernement.lu/dam-assets/documents/actualites/2018/12-decembre/accord-de-coalition-2018-2023.pdf> Pages: 13, 15, 135 (in French language)
- Luxembourgish highway code: Arrêté grand-ducal du 23 novembre 1955 portant règlement de la circulation sur toutes les voies publiques [<https://legilux.public.lu/eli/etat/leg/code/route/20221023>] (in French language)

Germany

- Report by the Ethics Commission on Automated and Connected Driving – 2017
- Eight Act amending the Road Traffic Act (Level 3) – 2017
- Act amending the Road Traffic Act and the Compulsory Insurance Act – Act On autonomous Driving (Level 4) – 2021
- Ordinance regulating the operation of motor vehicles with automated and autonomous driving functions and amending road traffic legislation (Level 4) [2 parts, regulation and annexes] – 2022
- Technical catalogue of requirements for the fully automated driving function “Automated Valet Parking (AVP)” – 2022

Greece

- Documentation, terms, conditions and procedures for the position in traffic of a passenger vehicle without the presence of a driver, on it” published in December 2022: https://www.et.gr/api/DownloadFeksApi/?fek_pdf=20220206414

The Netherlands

- Monitoren van de transitie naar autonoom vervoer, Ministry of Infrastructure and Water Management 2020
- Rapportage: Lessen leren van de pilots met zelfrijdende shuttles in Nederland - Evaluaties uit de pilots in Nederland. Ministry of Infrastructure and Water Management 2019
- Impactstudie autonome voertuigen, Provincie Noord-Holland, Vervoerregio Amsterdam, TNO/Arcadis 2018
- De maatschappelijke waarde van Smart Mobility (in English: The societal value of smart mobility), TNO
- LEVITATE: Road safety impacts of Connected and Automated Vehicles
- Wie stuurt? Verkeersveiligheid en automatisering in het wegverkeer. OVV 2019
- Monitoren van de transitie naar autonoom vervoer, Ministry of Infrastructure and Water Management 2020

Sweden

- Vägen till självkörande fordon– försöksverksamhet - Regeringen.se (In english: The road to self-driving vehicles – trial operations)
- Ansvarsfrågan vid automatiserad körning samt nya regler i syfte att främja en ökad användning av geostaket (In english: The question of liability in automated driving and new rules with the aim of promoting increased use of geofences)
- Förordningen (SFS 2017:309) om försöksverksamhet med automatiserade fordon (In english: Ordinance (SFS (Swedish Code of Statutes) 2017:309) on experimental activities with automated vehicles)
- Transportstyrelsens föreskrifter och allmänna råd (TSFS 2021:4) om tillstånd att bedriva försök med automatiserade fordon (konsoliderad elektronisk utgåva) (The Swedish Transport Agency's regulations and general advice (TSFS 2021:4) on permission to conduct trials with automated vehicles (consolidated electronic edition))
- Automated vehicles - Transportstyrelsen (<https://www.transportstyrelsen.se/en/road/Vehicles/self-driving-vehicles/>)

The United Kingdom

- Automated Vehicles: Joint report, Law Commission of England and Wales and the Scottish Law Commission, 26 January 2022
- Connected & Automated Mobility 2025: Realising the benefits of self-driving vehicles in the UK, UK Government, August 2022
- Remote driving: Advice to Government, Law Commission of England and Wales and the Scottish Law Commission, February 2023

Scoping Draft

Draft Convention on the use of automated vehicles in traffic

The Contracting Parties,

Desiring to promote the safe international deployment of automated vehicles in road traffic by establishing certain uniform rules,

Have agreed upon the following provisions:

Chapter I

General provisions

Article 1

Scope

This Convention:

1. Does not supersede the legal obligations arising from the Convention on Road Traffic done at Geneva on 19 September 1949 and the Convention on Road Traffic done at Vienna on 8 November 1968, but complements them with respect to the safe deployment of automated vehicles in road traffic, and with the aim to enhance road safety.
2. Aims to set legal provisions for:
 - a) The safe deployment of automated vehicles in road traffic, in particular interaction between automated vehicles and the road users, especially vulnerable road users;
 - b) The changing roles and responsibilities of natural and legal persons in relation to automated vehicles.
3. Only concerns vehicles equipped with an Automated Driving System (ADS) when the ADS is engaged. [When the ADS is not engaged the provisions of this Convention do not apply, but the provisions of the Geneva and Vienna Conventions apply to their respective parties.]

Article 2

Definitions

For the purpose of this Convention the following expressions shall have the meanings hereby assigned to them:

- a) “Automated driving system (ADS)” refers to a vehicle system that uses both hardware and software to exercise dynamic control of a vehicle on a sustained basis;
- b) “Dynamic control” refers to carrying out all the real-time operational and tactical functions required to move the vehicle. This includes controlling the vehicle’s lateral and longitudinal motion, monitoring the road, responding to events in the road traffic, and planning and signaling for manoeuvres;
- c) “Automated vehicle” means a vehicle equipped with an automated driving system;
- d) “Driver” means any person who drives a vehicle on a road;
- e) “Driver-in-readiness” means a driver who has delegated dynamic control to the ADS, but retains responsibility for the other duties placed on a driver;
- f) "Minimal Risk Manoeuvre (MRM)" means a manoeuvre whose ultimate purpose is to stop the vehicle in a situation of minimal risk for its occupants and other road users, and is automatically carried out by the ADS;
- g) “Operational Design Domain” (ODD) refers to the environmental, geographic, time-of-day, traffic, infrastructure, weather and other conditions under which an automated driving system is specifically designed to function;
- h) “Transition demand” refers to an instruction from the automated driving system to the driver- in-readiness to take over dynamic control of the vehicle;
- i) “Automated Driving Provider” means an entity that assumes responsibilities for the behaviour of the automated vehicle on the road when the ADS is engaged;
- j) “Remote management” means the activities required to manage one or more automated vehicles which do not require a driver in the vehicle, including beyond-line-of-sight using telecommunications;
- k) “Remote Management Provider” means an entity responsible for the remote management of an automated vehicle;
- l) “Remote Management Agent” means a natural person performing remote management activities on behalf of the Remote Management Provider.

Article 3

Obligations of the contracting parties

1. Contracting Parties, when allowing the use of automated vehicles in their territories, shall take all appropriate measures to comply with the provisions of this Convention.
2. Provided that the domestic measures are fully compatible with this Convention, the Contracting Parties may:
 - a) Not reproduce any of the provisions of this Convention which are applicable to situations that do not arise in the territories of the Contracting Parties in question;
 - b) Include in the measures provisions not contained in this Convention.
3. Contracting Parties shall take appropriate measures to ensure that:
 - a) The rules in force in their territories concerning the technical requirements to be satisfied by the automated vehicles conform to the provisions of applicable UN Regulations;
 - b) Any provisions of the rules in force in their territories and not contained in UN Regulations, are in no way contrary to the safety principles governing the provisions of this Convention.
4. Contracting Parties should review any existing mechanisms to grant compensation to victims of road accidents in their territories, and consider the need for any amendments to ensure that that victims of road accidents involving automated vehicles can access compensation.
5. [Contracting Parties should consider measures to ensure that, in their territories, marketing of vehicles does not mislead users on whether they can delegate dynamic control to a particular vehicle system.]
6. Contracting Parties should endeavor to promote necessary data flows between the automated vehicles and between the automated vehicles and the infrastructure for example by developing common standards and other elements of interoperability.
7. Contracting Parties should co-operate in order to facilitate trialing on open roads across the international borders.
8. Contracting Parties should consider the future needs for necessary infrastructure to support deployment of automated vehicles, in their respective territories.

Chapter II

Safe behaviour of automated vehicles in road traffic

Article 4

General ethical principles

1. Every automated vehicle should be designed, constructed, maintained and used in such a way as to avoid endangering or obstructing traffic, endangering humans, and causing damage to public or private property.
2. Automated vehicles shall prevent accidents wherever this is practically possible and, in the event of an unavoidable accident, shall minimize harm. In this respect, the protection of human life inside and outside the vehicle has the highest priority in the balancing of legally protected interests.
3. Automated vehicles must pay particular attention to the safety of vulnerable road users, such as pedestrians and cyclists and in particular children, elderly persons and persons with disabilities.

Article 5

Dynamic control of an automated vehicle

1. At any given time, either a human or an ADS must bear sole responsibility for the dynamic control of an automated vehicle.
2. Where a vehicle system relies on a human to monitor the driving environment with a view to immediate and safety-critical intervention by exercising the vehicle controls for ensuring road safety, it is not an automated driving system exercising dynamic control and the human bears all the responsibilities of a driver.

Article 6

Minimum safety performance of an ADS

1. When exercising dynamic control, the ADS shall, without requiring any human to monitor the road or the behaviour of the vehicle:
 - a) Manoeuvre the vehicle in compliance with the applicable traffic rules;
 - b) Manage all traffic situations likely to arise in its ODD;
 - c) Adapt the driving to suit prevailing conditions and to drive with adequate margins of safety;
 - d) Recognise the situations when human intervention is needed, and request intervention through a process that allows the human the time to respond appropriately;
 - e) React to unforeseen situations in a way that minimizes risks to road safety, and if necessary, perform a minimal risk manoeuvre in a controlled manner.

Article 7

ADS interaction with other road users

1. ADS shall monitor the surrounding environment and safely interact with the other road users in a manner that is consistent and predictable and shall not require other road users to have any special consideration for automated vehicles.
2. The ADS shall communicate with the other road users in a clear, effective and consistent way, by providing sufficient information about their intentions.
3. The ADS shall endeavour to safely tolerate errors of the other road users in order to minimize potential effects of such errors.
4. ADS shall pay special attention to the safety of vulnerable road users.

Article 8

ADS interaction with law enforcement officers, first responders and other authorities

1. The ADS shall be able to recognise law enforcement officers and others authorised to direct traffic and to have an approach to comply with their instructions.
2. The ADS shall enable verification by law enforcement officers, others authorised to direct traffic and first responders quickly, reliably and credibly, as to whether or not the ADS is or was engaged and performing dynamic control.

Article 9

Identification of automated vehicles

1. Contracting Parties shall establish appropriate means to identify vehicles which are equipped with automated driving systems.

Chapter III

Automated vehicles with a driver in the vehicle

Article 10

Scope of the Chapter

1. This Chapter concerns situations where there is a human driver in the vehicle.
2. Automated vehicles that are not subject to remote management (defined in Art. 2(k)), including those that issue transition demands, require a driver.

Article 11

Duties while exercising dynamic control

1. While a person exercises all or part of the dynamic control of an automated vehicle, including monitoring its behaviour on the road with a view to immediate and safety-critical intervention, that person is considered to be a driver and bear all the duties of a driver.

Article 12

Automated vehicles with drivers-in-readiness

1. When a driver delegates dynamic control to the ADS, then, for as long as that system is engaged:
 - a) They are a driver-in-readiness and are responsible for the relevant duties;
 - b) The Automated Driving Provider assumes responsibilities for the behaviour of the vehicle on the road.

2. An ADS ceases to be engaged when:
 - a) A driver takes control of the vehicle;
 - b) The transition period ends following a transition demand; or
 - c) Where the vehicle comes to a stop and:
 - i. the ADS or the vehicle engine is switched off;
 - ii. the ADS issues an alert to say that it is no longer performing the DDT; or
 - iii. the driver-in-readiness leaves the vehicle.

Article 13

ADS interaction with the driver

1. The driver can either exercise dynamic control of their automated vehicle or delegate the dynamic control to the ADS. The ADS must enable the driver to request to take over dynamic control at all times and support a safe take-over process.

2. The ADS shall safely exercise dynamic control when engaged and interact with the driver through an effective and intuitive human-machine interface. The ADS shall indicate clearly to the driver whether or not it is engaged and has the dynamic control.

3. The ADS shall only operate within its ODD. The ADS shall recognize its ODD conditions and limits of the ODD. Where possible, the ADS shall give early notices to the driver, when the boundaries of the ODD are approaching.

4. Automated driving systems issuing transition demands must:
 - a) Monitor the driver-in-readiness's availability and manage the driver-in-readiness's attention to ensure that the driver-in-readiness is ready and able to respond to a transition demand;
 - b) Issue a transition demand when appropriate, in an effective manner with sufficient lead time for the driver-in-readiness to safely assume dynamic control;

- c) After issuing a transition demand, continue exercising dynamic control until the driver has taken dynamic control of the vehicle;
- d) Transition dynamic control safely and in a clear and foreseeable manner to the driver; and
- e) Verify that the driver is exercising dynamic control at the end of a transition process;
- f) Perform a minimal risk manoeuvre if the driver does not take over dynamic control.

Article 14

General duties of the drivers of automated vehicles

1. Drivers must:

- a) Be aware and informed of the proper use of their automated vehicle;
- b) Be aware of their roles and responsibilities as a driver-in-readiness when the ADS is engaged, and as a driver when the ADS ceases to be engaged;
- c) Meet the requirements for the safe use of their automated vehicle and follow the procedures for their use;
- d) Respond appropriately to the vehicle's alerts and requests;
- e) Understand if, and when, it is necessary to exercise dynamic control to complete a journey;
- f) Refrain from interfering with automated driving systems in a way that could compromise the safe functioning of those systems and road safety in general.

Article 15

Duties of the drivers-in-readiness when the ADS is engaged

1. When delegating dynamic control to an ADS, a driver-in-readiness must:

- a) Be ready to assume dynamic control as the driver, including by:
 - i. Holding the necessary knowledge and skill /driving permits required by domestic legislation for driving the vehicle;
 - ii. Maintaining the physical and mental ability to drive;
 - iii. Remaining in the vehicle and in a position to exercise dynamic control of it; and
 - iv. Refraining from performing activities other than driving if those activities impede the take-over of dynamic control when a transition demand is issued to which the driver-in-readiness is under a legal obligation to respond;
 - b) Respond to requests from the ADS in an appropriate and timely manner.
2. At all times, a driver-in-readiness is responsible for all driver duties not related to the behaviour of the vehicle on the road.
3. While the conditions in Article 12(1) are met, the driver-in-readiness does not have responsibility for how the vehicle behaves in road traffic.

Article 16

Activities other than driving

4. The Contracting Parties should consider setting rules on activities other than driving undertaken by the driver-in-readiness when their automated driving system exercises dynamic control, in order to promote the safe use of automated vehicles.

Chapter IV

Entities responsible for automated driving

Article 17

Identification of Automated Driving Providers

1. When the ADS of an automated vehicle is engaged, the entity responsible for the ADS, *the Automated Driving Provider*, is responsible for the behaviour of the vehicle on the road.
2. The Contracting Parties shall establish appropriate means to identify Automated Driving Providers and the responsible persons within them, for each automated vehicle equipped with an ADS.
3. The Contracting Parties shall establish requirements designed to ensure that the Automated Driving Providers have the necessary resources and abilities to meet their obligations.

Article 18

General duties of the Automated Driving Providers

1. The Automated Driving Provider is responsible for maintaining and implementing a set of organisational structures, accountabilities, policies and procedures to perform the following duties:
 - a) Identifying, managing and minimizing the risks arising from the operation of the ADS;
 - b) Ensuring compliance with the road traffic laws of the country of use and other applicable standards for road traffic use;
 - c) Informing the relevant authorities about possible safety concerns about their vehicles; and
 - d) The other duties on the Automated Driving Provider included in this Chapter.
2. The Automated Driving Provider is responsible for providing appropriate information for the users of automated vehicles on the vehicles' capability and supporting the safe use of the automated vehicles. The Automated Driving Provider shall inform the users of any changes in vehicles' capability and how to operate the automated vehicles safely.

3. The Automated Driving Provider shall record, retain and make available to the relevant authorities data to demonstrate vehicle safety in use.

Article 19

Duties related to traffic incidents

1. The Automated Driving Provider is required to report to the authorities incidents involving automated vehicles when the ADS is engaged.
2. The Automated Driving Provider shall record, retain and make available to the relevant authorities data which enables the authorities to determine liabilities in case of an incident.

Article 20

Cyber security

1. The Automated Driving Provider must take necessary measures to ensure that the automated vehicles are and remain resilient against cyber security threats to the safe operation of the vehicle, and that the effects of such threats on road traffic safety are minimised.
2. The Automated Driving Provider shall inform the relevant authorities and the users of the automated vehicles, if necessary, of possible cyber security threats and incidents.

Article 21

Data exchange between the authorities

1. The Contracting Parties shall make sure that the information referred to in Article 17(2) concerning the Automated Driving Providers is available to the relevant authorities in the country where the vehicle is being used.
2. The Contracting Parties shall make sure that the information referred to in Article 19(2), which enables liabilities in case of an incident to be determined, is available to the relevant authorities in the country where the incident has taken place.
3. The Contracting Parties shall ensure that the information referred to in paragraphs (1) and (2) received by their authorities shall be used only for road traffic enforcement and management, and with due regard to safeguarding personal and commercially-sensitive information, including intellectual property.

Chapter V

Automated vehicles without a driver in the vehicle

Article 22

Scope of the Chapter

1. This Chapter concerns situations where there is no human driver in the vehicle.
2. Automated vehicles without a driver inside the vehicle shall be subject to remote management according to the requirements of this Chapter.

Article 23

Remote management

1. *Remote management* can consist of measures of remote assistance and remote driving.
2. Remote assistance includes measures to support safety inside and outside the vehicle whilst the ADS has the dynamic control. Remote assistance can include the following measures:
 - a) General vehicle status monitoring, including the location of the vehicle at all times, with no requirement for full situational awareness;
 - b) General monitoring of the inside of the vehicle, especially passenger and cargo status;
 - c) Summoning assistance when needed and managing technical incidents and breakdowns;
 - d) Providing the strategic elements of the driving task;
 - e) Instructing an ADS to perform specific manoeuvres or to approve manoeuvres proposed by the ADS; and
 - f) Communication with the authorities, first responders and other road users.
3. Remote driving means situations where a person outside the automated vehicle exercises all or part of the dynamic control of that vehicle, including monitoring its behaviour on the road with a view to immediate and safety-critical intervention. Where they do so, they are considered to be the driver and bear sole responsibility for the dynamic control of the automated vehicle.

Article 24

Minimum requirements for remote management

1. Remote management shall, as the minimum, include measures listed in subparagraphs a, b, c and f of Article 23(2).
2. If the vehicle is designed to carry passengers, there must be a communication system that allows two-way communication between the passengers and the remote management agents at all times.
3. The ADS must be able to perform a minimal risk manoeuvre that can be launched by the remote management agents, if necessary.

Article 25

Remote management provider

1. The Contracting Parties shall establish appropriate means to identify the entities responsible for remote management, *Remote management providers*, and the responsible persons within the entities. Furthermore, the Contracting Parties shall establish appropriate means to identify the vehicles for which each Remote Management Provider is responsible.
2. The Remote Management Provider is responsible for managing the possible risks associated with the remote management activities that are required for safe deployment of automated vehicles.
3. The Contracting Parties shall establish requirements designed to ensure that the Remote Management Providers have the necessary resources and abilities to meet their obligations.

Article 26

General duties of remote management providers

1. The Remote Management Provider is responsible for implementing and maintaining a set of organisational structures, accountabilities, policies and procedures to perform the following duties:
 - a) Ensuring the safety of remote management activities, including physical security of the operational locations for remote management;
 - b) Ensuring adequate communications network connections and cybersecurity of their operations and resilience of the operation in case of any disruption to the connections;
 - c) Maintaining a record that enables verifying the events relating to remote management activities, including separating the activities of remote assistance and remote driving;
 - d) Ensuring remote drivers and remote agents have the required training, qualifications and driving licenses; and
 - e) Ensuring adequate staffing as well as organization of work and work stations in manner that reduces tiredness and distraction.

Article 27

Duties relating to incidents

1. The Remote Management Provider shall establish procedures for appropriate cooperation with the relevant authorities, enforcement officers and first responders in cases of incidents. The Remote Management Provider shall provide clear information to the authorities on how to contact Remote Management Agents on duty, and on how to handle vehicles when incidents occur.
2. The Remote Management Provider is required to report to the relevant authorities safety incidents involving vehicles under remote management.

3. The Remote Management Provider shall make available to the relevant authorities the necessary data from their records referred to in Article 26(1)(c) to assist the authorities in investigating an incident.

Article 28

Duties of Remote Management Agents

1. A *Remote Management Agent* is a natural person acting on behalf of a Remote Management Provider. The remote management agent is required to:
 - a) Hold appropriate training and qualifications for conducting the relevant activities of remote management;
 - b) Have and maintain necessary physical and mental capabilities while on duty;
 - c) Remain attentive to communications from the vehicle and respond to road traffic incidents and situations.
2. If a Remote Management Agent is a driver according to Article 23(3), they should pay necessary attention to the difference in legal obligations and responsibilities between remote assistance and remote driving.

Chapter VI

Final provisions (to be developed later)

Article 29: Ratification process

Article 30: Notifications

Article 31: Entry into force

Article 32: Amendments to the Convention

Article 33: Dispute solving
