

Distr.: General  
17 December 2021

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**

**Second session**

Geneva, 6 December 2021

Item 5 of the provisional agenda

**Substantive activities**

### **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**

This document reproduces the responses provided by the experts of the Group of Experts on the drafting of a new Legal Instrument on Automated Vehicles in road traffic to the questions raised in a survey circulated on 27 November 2021 by the secretariat.

The answers provided to the survey were informal and reflecting personal opinions provided informally. They don't reflect the official answers the countries that the experts represent and therefore the corresponding countries cannot be held accountable or bound by the answers provided.

**3. What are the additional road safety risks posed by automated vehicles in comparison with traditional ones that you believe may require intervention by road safety authorities?**

In developing countries such as Zimbabwe, the roads and signages are not up to standard and this can affect the use of such vehicles causing accidents.
Systems for which the driver is the fall-back to ensure road safety - risk is the HMI, are drivers capable of resuming the driving task when required to do so? Systems for which the system is the fall-back to ensure road safety (no human intervention necessary to ensure road safety) - risk is the question if technology being is really capable of doing what it should do.
Risks arising from data protection, so that the vehicle cannot be controlled by an unwanted person. Risks due to the quality of data communications, such as the lack of internet coverage in different regions. Whether the car can decide on the safest operation in a dangerous situation. For example, driving in a ditch to avoid endangering a pedestrian.
My answer to this would be creating a new priority road for the automated vehicles for example tunnels single lane or sky road. - how the vehicle will recognise specific situations in road traffic (weather conditions, unpredicted behaviour of others., priority vehicles, medical care, police, fire brigades...) - how to predict all border conflict situations - ethical questions (ethical choice, responsibility) - vehicle malfunction, software system defects
Traffic related assessment, how do automated vehicles behave in different national traffic situations? How do people inside vehicles behave when ADS is either engaged or not (back in ADAS-mode?)? When is it considered safe? What requirements can we pose on manufacturers to ensure that they are built in a sense of "responsible innovation"?
<ul style="list-style-type: none"> <li>Safety risks may arise, if it is not clear, which responsibilities and rights prevail in every situation. The human in the vehicle cannot be called "the driver" when the ADS has the dynamic control, because he/she cannot take care of all the responsibilities attached to the driver role in the 1968 Vienna Convention. (Note: we have only looked at the Vienna Convention, we have no analysis of the 1949 Convention.) For example, hasty or abrupt at-tempt to take back the dynamic control because the human believes it is his/her responsibility may lead to incidents or accidents.</li> <li>Note: With automated vehicles, we mean vehicles with ADS systems.</li> </ul>
Difficult to say but, over reliance to the system capability, unsureness towards mode awareness (who is in charge, the human as a driver or the system)? The "normal" cooperation behaviour among road users will be different, e.g. how to understand an automated vehicle?
<p>1. Automated/autonomous vehicles often cannot respond properly to dynamically changing traffic conditions (or do not respond at all), so uniform measures need to be developed at the authority level to deal with such conditions, and the results of these measures need to be "taught" to autonomous vehicles. Dynamically changing traffic conditions are, e.g., traffic diversion and temporary road-markings for road constructions, changing weather conditions, rules for temporary traffic control by police officers, rules for the interaction with vehicles using emergency warning signals (police, ambulance, fire truck, etc.). The development of uniform/standardized measures in the case of these changing conditions at the authority level may simplify the preparation of automated vehicles for these situations.</p> <p>2. It could also be considered that in the case of PTI assessment of these highly automated vehicles, what kind of additional tests should be executed in order to extend the range of technical parameters required for compliance. For example, the appropriate calibration of sensors that are necessary for the automated functionality (e.g., radar, camera, LIDAR) should also be done.</p> <p>3. Minimum requirements also have to be identified for road-section where autonomous driving should be enabled (E.g., quality of road surface, traffic signs, lane marking, barriers, etc.). Generally, it has to be identified which cases can be handled at the authority level from the examples above.</p>
<p>The driver can become overburdened if he has too little time after the take-over request. Using the ADS regularly, he may lose his driving skills and routine.</p> <p>The authority can only assess the functionality of the system to a limited extent in the type approval procedure.</p> <p>In addition to road safety, the effects on traffic flow must also be taken into account.</p>

-Lack of effective communication of AVs with road infrastructure.  
 -Lack of cooperation between traditional and automated vehicles/Different operation philosophy/Different reactions by the "driver".  
 -Different expected (or unexpected) reactions of the vehicle to potential accidents.

- Automated and connected driving bears the potential to significantly improve traffic flows, reduce the incidence of critical situations, optimize the handling of corresponding scenarios and relieve the pressure on drivers.
- Regarding the potential intervention by road safety authorities, we believe that no intervention by road safety authorities will be needed.
- Automated driving systems need to be able to perform all tasks of a human driver. OEMs will need to ensure the development of systems which, just as a human driver, adhere to relevant road traffic and road safety regulations.

1) problems of interaction between AVs and conventional vehicles when they move together in the traffic flow, between AVs and vulnerable road users (pedestrians, etc.);  
 2) problems of ensuring safe allocation of control functions between driver and vehicle at intermediate levels of automation, including problems of transferring control to the driver after AV's operation in unmanned mode;  
 3) limitations associated with imperfections in current technology and design (various aspects), maintenance and upgrades of AVs (including software);  
 4) problems of AVs hardware and software certification, vehicle type approval;  
 5) cybersecurity problems (various aspects);  
 6) the need to improve and (or) adapt road infrastructure to ensure safe operation of AVs;  
 7) problems of perception of new technologies by consumers (psychological barriers), ethical problems;  
 8) The lack of tested mechanisms for insurance coverage of road accidents involving AVs - the need to adapt the laws governing MTPL, Fully Comprehensive Insurance, the specifics of fixing road accidents and determining the insurance indemnity.

- Risk of poor communication / misunderstanding between the ADS and the human driver, in particular during takeover requests;  
 - risk associated with a late takeover request faced with an obstacle or a dangerous situation.  
 - Risk of poor communication / misunderstanding between the ADS and other road users (pedestrians, motorcyclists, drivers of other "traditional" vehicles)  
 - Gradual loss of skills of the human driver  
 - The qualitative assessment of a situation: for example, in public transport, a human driver will manage the braking differently if he/she is transporting standing people (given the risk of unbalanced passengers).  
 - Risk that the driver does activities other than driving incompatible with a takeover request within the allotted time.  
 - Risk of failure of the ADS  
 - Risk of incomplete perception of a situation by an ADS, leading to poor management of complex situations: for example, interactions with priority vehicles.

**4. What do you know about the potential scope/nature of these risks at this early stage in AV development, e.g., how likely are they to manifest themselves, and how frequent or severe do you anticipate these risks to be for road safety?**

<p>The risks will be severe as the infrastructure needs time to work on.</p>
<p>We know too little at this stage, at least I do, maybe others know more. The first systems who can be considered as automated and for which the driver is the fall-back to ensure road safety, ALKS, are just being regulated and put on the market. The potential risk is that drivers are to trustworthy vis-à-vis the systems and are not ready nor able to resume the dynamic driving task. The answer to this question can be twofold, either forbid drivers to perform other activities (current text of the convention) or to regulate other activities.</p> <p>For highly and fully automated vehicles, technology should be capable of ensuring road safety. Important is to start with making a difference between the different systems of automation, it is wrong to talk about automated systems in general, the roles and responsibilities depend on the level of automation.</p>
<p>The risk is likely to be low, but the consequences could be very serious.</p>
<p>The potential risks that we concerned to early stage to be road safety are technical error and nature disaster when the risks of accidents happen who is taking the responsibility.</p>
<p>We cannot estimate the potential scope yet.</p>
<p>We see clear risks in the early stages of development, those are related to unwanted effects in vehicle behaviour because of faulty software and sensorics input/recognition. We know we need to be able to test and experiment in the R&amp;D-phase in every country, before granting access to the road. We know that VRU's need extra protection and care in traffic, especially in built up areas.</p>
<ul style="list-style-type: none"> <li>• It will in any case probably take several years before the legally binding rules are in the force. At the same time, the technological development of the vehicles goes on. It is natural that legislation advances later than technologies, but the gap may not become too large, if we wish to direct the technologies towards safe and ethical development.</li> <li>• Discussion is needed, not all the tools are necessarily legislative.</li> </ul>
<p>These risks will be as most in the introduction phase and by evolution and learning by doing over time be lesser and lesser</p>
<p>(Although time constraints make it difficult to answer all of the questions,) It is important that in automated driving, the use of ADS ensures the same level of safety as in the presence of a human driver. In Japan, the Road Transport Vehicle Act defines ADS as " equipment for operating a car automatically according to the program, and the equipment with the function of substituting all of the capabilities related to the recognition, prediction, judgment and operation of a person, who operates the Vehicle, when it is used under the conditions granted by the Minister of MLIT."</p> <p>Safety regulations for automated operation devices are "There shall be no risk of interfering with the safety of passengers or other traffic within the operating environment." This means that "any device which operates a vehicle contrary to the provisions of the Road Traffic Law relating to the conventional driver's obligation to operate the vehicle does not meet the requirements of the safety regulations for automated operation devices and is therefore prohibited from being used for operation".</p>
<p>The usage of automated driving functions on public roads is allowed in Hungary, but only for development purposes (since April 2017). Those companies that are using this opportunity shall report their activity to the authority responsible for the transportation. To answer the question, the availability of these reports will be checked, and if possible, results can be provided.</p>
<p>The knowledge I have is related to the existing publicly available information provided by the AV manufacturers, as well as the tests performed. Taking into consideration the current status and progress in the AV industry, the risks are quite likely to occur, frequently and may be fatal with extent side damages.</p> <ul style="list-style-type: none"> <li>• It is first to be noted that safety benefits of AVs are expected to outweigh risks associated with AVs by far.</li> <li>• Compared to human drivers, the operation of AVs may be characterized as rather cautious (e.g., standing back in favour of other VRU), considering, thanks to their respective programming, their adherence to road traffic and road safety regulations.</li> <li>• In addition, current research projects testing AVs in real traffic show that most AVs move still rather slowly.</li> </ul>

- Currently, limited data are available on risks from mixed traffic flows. It is however anticipated that many risks are due to human interaction and are not solely attributable to automated driving systems.
- Innovation, testing and regular operation will lead to more and better insights, and to more advanced hard- and software, making the performance of AVs more predictable. However, it will be difficult to grow the public accustomed to AVs as long as they are unable to recognize and experience AVs. As soon as the public gets accustomed to AVs, the likelihood of the mitigation of respective risks is quite probable.

The above risks appear to be very serious for road safety, they may exist individually, in groups, or all together, and they may also recur with different variations. New patterns of potential crashes and critical risks (e.g., software failure) are emerging. In addition, it is not entirely clear whether AVs can compensate for errors and inadequate actions of other road users.

The probability of technology-related risks occurring is high and the severity can be significant when dealing with vulnerable road users.

**5. Are these challenges completely novel and/or unique to automated vehicles? How do they differ from conventional road safety issues with human drivers that may already be addressed by international legal instruments?**

<p>They differ in that with conventional vehicles, control is driver based so navigation on bad roads is predicated upon the actions and omissions of the driver.</p>
<p>No for systems helping the driver in performing the dynamic driving task. I consider ALKS as well as such a system as a driver is necessary.</p> <p>Yes, for the roles of a user of highly and fully automated vehicle. The roles and responsibilities of the user of such systems need to be clarified in the new legal instrument.</p>
<p>There are challenges that apply to both people and automatic vehicles, but there are certainly challenges specific to automatic cars.</p>
<p>the challenges are completely new to AV that is why we need to create a new regulation on road safety issues without human drivers.</p>
<p>The above stated risks are completely novel. Responsibilities are not defined yet. There are no international legal instruments.</p>
<p>The interaction between driver and vehicles is new. And also, the fact that vehicles drive themselves is new. These items are not dealt with completely in international regulations. Furthermore, the driving lessons/license, training is not adjusted yet. People need to be able to learn to handle their vehicles, especially when it is possible to sometimes drive and sometimes will be driven by the vehicle. This process of adjustment can only start when we know these vehicles will enter the market. This is a time-phasing issue.</p>
<ul style="list-style-type: none"> <li>• These are novel issues. However, the basic principle that every vehicle must obey the traffic rules prevail universally. Not everything has to be changed. The scoping exercise is useful to locate and indicate what kind of changes are needed.</li> </ul>
<p>It is the same problem, but the interaction of responsibility between the system and the human operator will entail risks. The Operational part of driving simple to handle for an autonomous system but the tactical and strategic level is difficult. The more complex the driving situation is, the more will humans have to take responsibility</p>
<p>The responsibilities can be defined easier/more obviously in the case of human drivers. The responsibility problem of autonomous vehicles is one of the major challenges of their deployment.</p> <p>If the situation or traffic conditions in which an automated vehicle should be able to drive and react properly can be defined and standardized (and hence could be tested), maybe this could help clarify some of the responsibility questions in case of an accident.</p> <p>Of course, the responsibilities also have to be defined on more levels, e.g., who is responsible for the appropriate infrastructure and road quality, who is responsible for the approval of the vehicle for public-road usage, etc.</p>
<p>The risks associated with ADS and takeover requests are new.</p>
<p>The challenges are considered as novel, as road safety issues in the case of human drivers are established taking into consideration human actions and reactions. These actions and reactions are considered in the light of the local/regional/ international legislation. But they also consider human mentality, maturity, reflexes and ethics. The non-human driver is not expected to have such characteristics and any "self-training" of the AV may not lead to reactions in favour of humans, during traffic situations.</p>
<ul style="list-style-type: none"> <li>• At least the interaction with driverless vehicles is a novelty. Given the existence of road traffic rules of conduct, and the prerequisite that both human drivers and automated driving systems abide by such, the simultaneous presence of AVs and human driven vehicles should pose no problems.</li> <li>• That said, problems may arise in situations where a mutual understanding between the respective road users is needed but the human driver(s) do(es) not understand what the AV(s) is/are about to do.</li> <li>• Risks due to the misuse of the automated driving system may need to be addressed by respective behavioural regulations.</li> <li>• Last but not least, as has been done by WP.29 for decades, technical risks may be addressed in legal instruments, too.</li> </ul>
<p>In varying degrees, all of the above problems are new to road safety. The basic difference between the new problems and the traditional ones (involving drivers), is that the decisions and actions to drive the</p>

vehicle are handed over to the vehicle itself, with no reliable evidence yet that the new technologies are safe enough.

These issues are new because they are intrinsically linked to the operation of automated driving systems. International legal instruments make provisions applicable to "driver" or to "road users". Those provision do not apply to ADS.

**6. Do you have sufficient information at this time to appropriately define the problem and identify safety expectations in a legal instrument?**

No
No. For systems for which the driver is the fallback, ALKS for example, we should therefore choose a prudent approach. Better to be too conservative than to be "liberal" at this stage. For systems for which no human intervention as a fall-back is needed to ensure road safety we will have to believe in the technology. The roles and responsibilities of the user of such systems can already be elaborated, even without sufficient information.
More information would be needed.
The Responsibility
Absolutely no.
"The problem" is not defined explicitly yet.
<ul style="list-style-type: none"> <li>• Our understanding of the new phenomena and possibly needed changes increases all the time. Yet, we can not wait to have a complete picture one day, because that will not hap-pen. With digitalization, the future remains unseen, and we only can see (with tolerable amount of certainty) only few steps ahead of us. This does not mean that we should not prepare for example the regulatory landscape to enable future technological developments.</li> <li>• We need adequate international regulatory frameworks, at least on the principal level, to guide the development of automation in a manner that ensures traffic safety.</li> </ul>
No, unfortunately not!
No
No, for the time being I consider the relevant information as insufficient, as the fully automated vehicle operation is not advanced to an extent that covers all safety aspects.
<ul style="list-style-type: none"> <li>• Relevant safety expectations as well as prerequisites for the introduction of AVs operating on public roads are addressed in the German Act on Autonomous Driving (2021) and the Eighth Act Amending the (German) Road Traffic Act (2017).</li> <li>• Taking into consideration that around 90% of road accidents are due to human misconduct, it is expected that AVs participate in traffic with a significantly higher safety record than human drivers.</li> </ul>
At this point, there is insufficient information on all of the issues identified, making it impossible to unequivocally define safety expectations in a legal document.



**7. What are the potential risks faced by you as a contracting party if a new/existing legal instrument is not developed/adapted to address these issues?**

If there is no legal instrument, enforcement will be impossible.
The convention is meant to facilitate international road traffic and to increase road safety through the adoption of uniform traffic rules. A new legal instrument to accommodate highly and fully automated vehicles is needed, therefore. Without such a legal instrument, countries will regulate this on their own leading to issues around the use of automated vehicles in international traffic. Harmonization and consistency are absolutely crucial to allow the use of such systems in international traffic.
In the absence of uniform regulations, there is a risk that each country will impose different requirements, in which case it will be impossible to travel to another country in an automatic vehicle.
Experience and Knowledge
Delay in implementation of automated driving, ban of use, pressure from industry and potential buyers, illegal use of automated vehicles
International traffic will be hampered. Drivers and owners will be in a position that is not desirable, especially related to liability-issues, division of responsibilities and lack of harmonized approach towards safety-assessment.
<ul style="list-style-type: none"> <li>• The transport sector is global by nature. All the companies and other stakeholders around the world will have problems, if the laws and regulations start to develop into various directions in various countries.</li> </ul>
We can handle the need for legality nationally, but no international legal instrument will make it difficult to harmonize international automated traffic cross borders (which is the idea if UNECE-regulations)
In the absence of uniform international regulation in the EU, national regulation is also almost impossible. If the national regulation still can be developed, then cross-country transportation can be difficult.
<ul style="list-style-type: none"> <li>-People will not trust the AVs for transportation, as well as for mobility in the AVs environment.</li> <li>-Not clear legal framework when facing accidents between AVs, between AVs and traditional vehicles, AVs and infrastructure.</li> <li>-Waste of investments both from the State (for the infrastructure) and the industries(for AVs and their components).</li> <li>-Lack of trust to the Government, because of inability to provide objective justice.</li> </ul>
No regulatory harmonisation might lead to the isolated application of AV related legislation which is not constructive at all.
Since the Russian Federation is a Contracting Party to the 1968 Convention, it is currently impossible to adjust the national rules of the road traffic in such a way as to provide for fully unmanned driving on public roads. This may lead to a slowdown in the development of the road transport industry and technological lag. At the same time, it is possible to implement unmanned driving in more specialized operational design domains
In the absence of such an international legal instrument, we consider that there is a lack of international harmonization of automated vehicles traffic rules. From our perspective, all provisions (included in the 1968 Conventions and) applicable to the driver or to other road users are not in principle applicable to ADS/ automated vehicles. The risk is therefore the development of non-harmonized national rules, or the absence of rules which would be even more detrimental.

**8. Are there other tools that might be more appropriate to address certain risks/provide direction to you as a contracting party at this early juncture?**

No
Yes, amend the current conventions in a way that they I also highly and fully automated vehicles. I know this is difficult for the 49 convention, but nothing is impossible.
Email or Online Meeting
strong connection among producers, scientists, and legislators
The European whole vehicle type approval system is an alternative way to harmonize vehicles and assessment for the European Union. But global guidelines for safety are desirable, because the vehicles are designed today and tomorrow.
<ul style="list-style-type: none"> <li>• We would not exclude other tools (like for example resolutions), if they can provide for common guidance with less burdensome processes. However, we do consider it as a wise approach to start the discussions on the new legal instrument now, given that the process might take a while.</li> </ul>
WP.29 regulations, other international conventions, EU-directives regarding driver licenses, Machine directive EG. 2006/42
Currently no
An appropriate source of information on identified risks and approaches for addressing them, might be studies and researches conducted by governments, state institutes and independent scientific bodies.
No.
An international legal instrument seems to be the appropriate tool.

**9. According to your opinion, which stakeholders should be consulted on road safety risks as part of GE.3's analysis?**

Law enforcement, local authorities
WP29 (GRVA) and WP1.
Car manufacturers, data security experts, countries that already have certain regulations on automatic vehicles should be consulted.
The Government
<ul style="list-style-type: none"> <li>- automotive industry</li> <li>- scientists and experts from wide areas (not only technical point of view)</li> <li>- legislators</li> <li>- users</li> <li>- infrastructure planning</li> <li>- spatial and urban planning</li> <li>- insurance companies</li> <li>- lawyers</li> </ul>
Euro Ncap, OICA, ETSC, Global or regional organisations who deal with VRU's and/or handicapped people. How to deal with blind people?
<ul style="list-style-type: none"> <li>• Organizations for vulnerable road users, supervising bodies, organizations for persons with disabilities.</li> </ul>
CPs, OICA, CLEPA, ICAO, IMO, Universities and Research Institutes
<ul style="list-style-type: none"> <li>- Road infrastructure operators and construction companies,</li> <li>- Companies that are responsible for traffic management (control, data collection, etc.)</li> <li>- Driver training facilities</li> <li>- Police and courts</li> <li>- Large transportation companies</li> <li>- Local OEM-s, Tier1 suppliers who are working on automated vehicles, executing public road testing, etc.</li> </ul>
Road safety organizations (e.g. Swiss Council for Accident Prevention BFU), Consumer protection organization in the mobility sector (e.g. TCS)
The stakeholders that should be consulted on road safety risks, should be: Road traffic operators, traffic enforcement entities (e.g. police, municipal police), higher education traffic related faculties, motorists' associations, public transport associations, road infrastructure management entities, transport services consumers, drivers associations, car insurance associations, bar associations.
For instance, associations for pedestrians, bikers and mobility-impaired persons, associations representing relevant industries; dedicated research facilities, OEMs, infrastructure operators, driving school associations and road safety organizations.
It is advisable to consult on road safety risks with all stakeholders - automobile manufacturers, developers of automated driving systems, government officials and the public, and, in particular, with expert colleagues from WP.29 and GRVA.
<ul style="list-style-type: none"> <li>- Representatives of vehicle manufacturers and / or automated driving systems;</li> <li>- WP29, GRVA;</li> <li>- academics, researchers, research laboratories;</li> <li>- representatives of other road users and civil society more broadly;</li> <li>- insurers, ...</li> </ul>

**10. According to your opinion, do the existing conventions adequately address the topic of automated vehicles in international traffic?**

No
No
No
No
No
No
No
No
No
No
No
No
No
No
No

**11. Please briefly explain your answer in question 10**

They are anachronistic as they did not move with time.
The scope of 8.5bis could be clarified a bit better but it was the will of the legislator at that time to regulate driving systems which need a human intervention as a fall-back to ensure road safety and systems who intervene in case of an emergency. If secondary activities are allowed this should better be clarified in art. 8.6 as it is more about maximizing other activities than about minimizing other activities. For vehicles who do not need a human intervention as a fall-back to ensure road safety the convention is not apt. Some obligations which are meant for the driver should also apply to the user of highly and fully automated vehicles, such as securing the load, use the safety belt, act in case of an accident,... Art. 8.5 should also be altered to allow for vehicles without a human driver.
1949 Convention stipulates that every vehicle or combination of vehicles proceeding as a unit shall have a driver, so it is not possible to allow automatic vehicles. The 1968 Convention allows for the absence of a driver, but there is too little regulation of the requirements for an automatic vehicle.
Because AV is the new technology that mankind has never thought about nor experienced before.
definition of responsibility does not cover fully automated driving (level 4-5) clear definition of automated driving is not defined
They are not similar and not capable to deal with driver and traffic situations in a way that is contemporary and not future proof. We will have to deal with a lot of problems in the (near) future and we need to be able to adjust accordingly. These legal instruments are the basis for further adjustment in national legislation, so we need to be able to make progress, based on a sturdy and flexible global instrument.
<ul style="list-style-type: none"> <li>• The structure of the Convention is somewhat challenging, since the responsibilities defined in it are mainly attached to “the driver” which, according to the definitions, is a person. Even adding Article 34 bis to the Convention does not solve this issue, since the ADS can not be a person. Furthermore, ADS could not be defined as a driver even by altering the definition, because there are a number of obligations that can only be attached to the hu-mans (E.g. Art. 8(3): Every driver shall possess the necessary physical and mental ability and be fit in a physical and mental condition to drive.)</li> </ul>
Nationally is all well as we can rely on Swedish legislation, however there is no use of the 1949 and 1968 conventions when agree on and regulate cross border automated traffic. Such a common understanding of which basic harmonized rules is needed, agreed upon and concluded in a convention is what we will strive for,
The existing rules or regulations are focusing on rather the testing and the system developments aspects of the automated vehicles and not their behaviour in international traffic.
At the moment, the existing conventions can be considered sufficient. However, with the spread of vehicles with ADS, the rules of use and the obligations of the driver in cross-border traffic should be regulated when the ADS is activated.
Both conventions do not address the topic of automated vehicles, as the prerequisite for active participation of at least one present person, as driver, having full and continuous control of an operating vehicle, is not covered in the case of AV.
The current regulations are based on the presence of a driver. In AVs, the driver is fully/partially replaced by an autonomous/automated system. Almost no explicit regulations in relation to AVs exist.
The 1949 and 1968 Conventions were drafted and adopted in the absence of the concept of automated driving and cannot reflect this topic.
<p>-The purpose of the Vienna Convention is to govern rules applicable to “human” persons. However, it does not apply to ADS (a machine).</p> <p>-Automated vehicles cannot be related to any specific category of road users.</p>

**12. On the national level, have you previously conducted an analysis of one or both of the Conventions in order to determine its/their shortcomings in relation to automated vehicles?**

No
Yes
No
No
No
Yes
Yes
No
No
No
No
No
No
Yes
Yes

**13. What was/were the main finding(s) of your analysis/analyses?**

Geneva 49 is not adjustable yet contracting parties will keep on developing automated vehicles. Vienna 1968 is adjustable, but if we diversify too much, we will create new problems and international resistance. Therefore, a dedicated legal framework that is suitable for the subject of automated vehicles is necessary.

- The Finnish Road Traffic Act (729/2018) was quite recently reformed. In that context, we wanted to make sure that the law would not hinder the future developments and tried to make it flexible in that sense. The obligations are targeted to the road users or written in a passive format. For example, Art. 13(5) of the Vienna Convention states: “The driver of a vehicle moving behind another vehicle shall keep at a sufficient distance from that other vehicle to avoid collision if the vehicle in front should suddenly slow down or stop.” In the Finnish Road Traffic Act paragraph 20(1) this is expressed as following: “The vehicle must be kept at such a distance from the vehicle or tram in front that there is no danger of collision.”

- However, there might be some needs also in the Finnish national legislation which would help the humans to understand their responsibilities in various situations, like the possible definition of “user in charge” type of role when the ADS has the dynamic control. This is why we have launched a project to examine possible needs and finding possible solutions. We hope to have some international common lines for that work.

The concept of driver in the Vienna Convention: even if they are road users, they are necessarily human and associated with driving a vehicle

The concept of an automated driving system is not related to the concept of driver nor to the concept of road user.

**14. According to your opinion, what type of legal instrument is best suited to complement the existing 1949 and 1968 Conventions, without restricting the current margin of manoeuvre of Contracting Parties, and flexible enough for amendments, paying due regard to the ever evolving AV technologies?**

Protocol
I would prefer a change of the current conventions. I know the 49 is difficult to amend but if countries also in the future want to adhere to the 49, it seems to me that the procedure to amend the convention of 49 should first be amended. It should be brought in line with the procedure which is in use for the 68 convention. In the meantime, work can be done on amending both conventions to accommodate highly and fully automated vehicles.
Technology is developing and AI is replacing these AV Technologies and it makes it easier for us to understand to use in road safety.
Convention (amendments) or any other type of binding international legal act.
We need a new and dedicated treaty/convention for automated vehicles, their use and requirements.
We do not exclude any options.
A new convention is definitely needed as a binding legal instrument, a resolution is not enough as such solution will enable a need for common rules and regulation within the European Union. Another solution is agreements between states to allow automated vehicles to cross borders. A new convention is however the best option
We are of the view that the most important thing is to make a work product (deliverable) of the group which leads to the formulation of a uniformed international rule, and that the form of the rule should be considered according to its contents.
An additional/modifying Conventional Act should be the appropriate means to complement the existing Conventions. Then, Regulatory Acts should follow the modified Convention. A third level, with indicative, dynamic applicable standards, practices and/ or guidelines should support the Regulatory Acts and give guidance to their application as well as testing means. In all levels, conformity assessment entities should assess the conformity to the Convention and the regulatory acts, under the supervision of international organizations.
<ul style="list-style-type: none"> <li>• To date, our consultations, both internally (intra- and inter-ministerial level) and externally (with renowned experts) are still ongoing regarding the identification of the type of legal instrument, which, according to our opinion, will be best suited to complement the existing 1949 and 1968 Conventions.</li> <li>• That said, we believe that the document itself should be drafted in a technology-neutral, future-oriented way, and, instead of focusing on details, rather provide a framework for automated/autonomous driving, based on neutral formulations and generic prerequisites, paying due regard to the fact that a certain objective may be accomplished in many different ways, provided they are in compliance with the underlying domestic legal order of the respective CP.</li> </ul>
<ol style="list-style-type: none"> <li>1. A package of amendments to the 1968 Convention allowing the use of AV on regular roads.</li> <li>2. Convention on AV. It establishes the basic concepts and conceptually describes the framework for the use of AV.</li> <li>3. Further adaptation to new technologies at the level of changes in national legislation.</li> </ol>
An international instrument that could easily adapt to future technological developments in this area. Our preference goes to a binding legal instrument: a convention.



**15. What is/are the priority aspect(s) that a new legal instrument on the use of automated vehicles in traffic should address?**

Enforcement and self-regulation
As said before, the (new) legal instrument should only be about highly and fully automated vehicles, and the role and responsibilities of the user of such systems.
The most important thing is to set such technical requirements for cars that they are safe in traffic.
The priority aspect on the legal instrument in AV traffic is the responsibility.
definition of responsibility covering fully automated driving (level 4-5) clear definition of automated driving
Safety of systems, human machine interaction. Road safety.
<ul style="list-style-type: none"> <li>• See above.</li> <li>• On the top of the general safety related criteria for the proper functioning of ADS systems and possible questions relating to human-machine interaction, focus should be on the concrete traffic rules, that is, how the vehicle must or must not behave in the traffic, not the questions of technical safety equipment.</li> </ul>
Harmonization of safety demands to allow automated vehicles. Also, to include areas as how to design the road and streets so an automated system can perform as it is supposed to do. Maybe also include how the automated vehicles should communicate with different databases and with other automated vehicles etc. To agree about how to function between countries is important, and a how to connect all automated vehicles to countries' traffic rules is also needed (see above about connectivity)
The most important thing is to make a work product (deliverable) of the group which leads to the formulation of a uniformed international rule as mentioned above. At the same time, it should be made clear that the highly and fully automated driving is compatible with the 1949 Convention even without a new legal instrument.
Operational boundaries Driver, safety operator requirements Data storing and management Responsibilities in the case of an accident Interaction of vehicles and communication networks.
The exact duties that fall to the driver when the ADS is activated.
<ul style="list-style-type: none"> <li>• Protection of humans and living creatures</li> <li>• Elimination of car accidents</li> <li>• Fair and objective delivery of Justice</li> <li>• Equal treatment of citizens</li> <li>• Maintaining smooth traffic conditions</li> <li>• Providing uninterrupted and high degree of mobility</li> <li>• Minimize financial impact for citizens and Economies</li> </ul>
<ul style="list-style-type: none"> <li>• Provisions regarding the operation of AVs without a driver;</li> </ul> Provisions enabling tele-operation or other alternative methods of driving; <ul style="list-style-type: none"> <li>• Provisions regarding potential technical oversight of AVs;</li> <li>• Provisions assuring the safety and the rule-consistent operation of automated driving systems.</li> </ul>
Redefining "driver" in the 1968 Vienna Convention on Road Traffic. Explicit permission to operate unmanned vehicles on public roads under certain conditions. Framework description of these conditions. Ensuring uniformity of road signs, signals and markings related to AV traffic.
A binding instrument to support a national liability regime applicable to the manufacturer in the event of an accident while an automated driving system is in operation in accordance with its conditions of use.
A binding instrument establishing the principle of a harmonized human-machine interaction.

**16. What are the main obstacles that may arise in the foreseeable future for the development of a new legal instrument on the use of automated vehicles in traffic and what may be the expected validity period of this instrument or the timing of its revision?**

Differences in development of state parties
Defining the scope is the difficult part. In my view this should be highly and fully automated vehicles only. Once this is clear, it does not seem too difficult to develop what is needed to accommodate those type of vehicles into the current conventions or in a new legal instrument if needed.
Regulatory renewal should go hand in hand with technological developments.
the main obstacles are human prevention and overpopulation.
<ul style="list-style-type: none"> <li>- different development levels among contracting parties</li> <li>- difficulties to reach global agreement</li> <li>- the gap between technology and legislation is quite wide and is growing</li> <li>- validity app.10 years with adopted procedures of timely revisions</li> </ul>
Main obstacle is the time to make the convention and its ratification.
<ul style="list-style-type: none"> <li>• It would be advisable to try to amend the Conventions in a way that would allow for future developments as well. There will be need also for the human drivers to the foreseeable future, so this aspect can not be lost either when drafting the amendments.</li> <li>• When remaining on the level of basic principles, they endure time very well. For example, the basic principal of caution has prevailed for a century.</li> </ul>
The specific questions that the new convention must answer need to be visualized and broken down so that the convention can provide answers to them (see the Swedish informal paper SE ECE-TRANS-WP.1-GE.3-2021-1-inf.2 e). To our opinion do GE.3 need to visualize a safe system including automated vehicles, then will it be possible to use this knowledge to perform a GAP-analysis to see if the 49 and/or the 68 Conventions are enough to handle this safe system or in which part they are not sufficient, the remaining parts can then be the base for the new convention. The new convention should apply for the time being and then be developed through needed additions to it over time.
Different legislative background in the countries.
Different assessments and evaluations between industry and consumer protection organisations.
<ul style="list-style-type: none"> <li>• Lack of technological maturity</li> <li>• Lack of interest from the stakeholders / inaction</li> <li>• Reaction from organized interests</li> <li>• Society's reaction to the changes that will occur in the Law</li> </ul> <p>It is estimated that the validity of the amending provision should not exceed 10 years, with an adaptation/ optional application period.</p>
<ul style="list-style-type: none"> <li>• The GE.3 drafting process of a new legal instrument should continuously take into consideration relevant developments at WP.29, esp. at GRVA, and possibly align its draft technical provisions with those developed under WP.29/GRVA.</li> <li>• Regarding potential future revisions of the new legal instrument, as the case in other international legal instruments covering constantly evolving themes, the instrument should contain the standard state-of-the-art clauses regarding revision, accession of additional CPs, etc.</li> </ul>
Different interpretation of the provisions of the Conventions, different approaches of the contracting parties to automation (example - obligations or recommendations to ensure vehicle connectivity). The anticipated duration of the proposed package of amendments to the Convention is until 2030. In the long term it is necessary to adopt a new legally binding document, replacing the 1949 and 1968 Conventions.
Have an appropriate writing to support technological developments in the medium term

## IV. Available material (studies, reports, etc.)

Name:	Link:
Finnish Road Traffic Act (729/2018).	<p>The Act itself is available on the internet:</p> <p><a href="https://www.finlex.fi/fi/laki/ajantasa/2018/20180729">https://www.finlex.fi/fi/laki/ajantasa/2018/20180729</a>  but unfortunately only in Finnish and Swedish.  We are currently working on the English translation.</p>
Sweden has done two major studies on the topic of automated vehicles; they are written in Swedish but have summaries in English	<p><a href="https://www.regeringen.se/rattsliga-dokument/departementsserien-och-promemorior/2021/10/ds-202128/">https://www.regeringen.se/rattsliga-dokument/departementsserien-och-promemorior/2021/10/ds-202128/</a></p> <p><a href="https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2018/03/vagen-till-sjalvkorande-fordon---introduktion/">https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2018/03/vagen-till-sjalvkorande-fordon---introduktion/</a></p>
Swiss Council for Accident Prevention BFU: "Mixed traffic" and "Formation à la conduite"	<p><a href="https://www.bfu.ch/api/publications/bfu_2.376.08_automated%20driving%20%E2%80%93%20mixed%20traffic.pdf">https://www.bfu.ch/api/publications/bfu_2.376.08_automated%20driving%20%E2%80%93%20mixed%20traffic.pdf</a></p> <p><a href="https://www.bfu.ch/api/publications/bfu_2.387.02_conduite%20automatis%C3%A9e%20%E2%80%93%20formation%20%C3%A0%20la%20conduite.pdf">https://www.bfu.ch/api/publications/bfu_2.387.02_conduite%20automatis%C3%A9e%20%E2%80%93%20formation%20%C3%A0%20la%20conduite.pdf</a></p>
Legal Framework for Automated Driving: summary of the study "Legal Framework for Automated and Connected Transportation Systems"	<p><a href="https://www.tib.eu/en/suchen/id/TIBKAT:1684865050/">https://www.tib.eu/en/suchen/id/TIBKAT:1684865050/</a> (2019)</p> <p>N.B.: Due to still missing translations into English, additional material can only be made available in the future.</p>
Decree of the Government of the Russian Federation No. 1415 dated November 26, 2018 "On Conducting an Experiment on Pilot Operation of Highly Automated Vehicles on Public Roads" - Decree of the Government of the Russian Federation of 03/25/2020 N 724-r "On approval of the Concept of road safety with the participation of unmanned vehicles on public roads"	<p><a href="http://publication.pravo.gov.ru/Document/View/0001201811270008">http://publication.pravo.gov.ru/Document/View/0001201811270008</a></p> <p><a href="https://docs.cntd.ru/document/564526787">https://docs.cntd.ru/document/564526787</a></p>