My Lords,

Thank you for attending the drop-in meeting on Monday 26 March, in response to questions at Second Reading about some of the terminology used in the Automated and Electric Vehicles (AEV) Bill.

As we discussed, I thought it might be helpful for me to provide further information on a few outstanding points that were raised.

A definition for ‘keeper’

The provisions within the Bill amend and supplement the provisions in the Road Traffic Act (RTA) 1988. The Bill makes it compulsory for users of automated vehicles to have insurance that covers the technical failure of the automated vehicle technology, and extends the compulsory insurance cover to include ‘drivers’ who are legitimately disengaged from the driving task so they can also be compensated in the same way as third parties.

An ‘insured person’, in relation to an insured vehicle, is defined within the Bill to mean any person whose use of the vehicle is covered by the policy in question.

In practice, we are expecting that the overwhelming majority of software updates will be automatically installed over-the-air without the owner needing to do anything. Clause 4 is there to deal with the small number of potential situations where an insured person does need to act to install a safety-critical update.

An insurer may exclude or limit their liability for damage suffered by an insured person arising from an accident resulting directly from software alterations made by the insured person, or with the insured person’s knowledge, that are prohibited under the policy; or from a failure to install safety-critical software updates that the insured person knows, or ought reasonably to know, are safety-critical.
The Bill also makes an exception for insured persons who are not the holder of the policy, where an insurer may limit or exclude their liability only if the person knew the software alterations were prohibited under the policy.

This set of identifiers and accompanying regime for insurance exclusions is also used in certain ways to allow insurers to recover from an insured person where the latter’s own prohibited alterations or failures to update software caused an accident.

We do not feel, given the definition of ‘insured person’, and its relationship with the above regime, that it is necessary to provide a definition of keeper within the AEV Bill.

Inclusion of an additional definition for ‘control’

The term ‘controlled’ is used in the Bill in the definition ‘driving itself’ – ‘a vehicle is ‘driving itself’ if it is operating in a mode in which ‘it is not being controlled, and does not need to be monitored, by an individual’. We consider the concept here is clear from these words. If a more detailed description were used there is a risk of the term inadvertently departing from the policy intention, particularly given that we are legislating to cover future technology.

We do not, therefore, feel that it is necessary to provide a separate definition of control within the AEV Bill.

The impact of automated vehicles on traffic levels and traffic flows

In 2016, the department commissioned Atkins Ltd, a British multinational engineering, design, planning, architectural design, project management and consulting service, to investigate how automated and connected vehicle technologies affect traffic flow and road capacity. The study examined different scenarios including the level of automation, the proportion of vehicles equipped with the technology, and different automated driving styles.

Their research also analysed the potential impacts of advanced driver assistance systems, consisting of a review of existing evidence and ongoing research, and modelling analysis to quantify the potential impacts in a range of scenarios.

The main findings of the report included that:

- On major roads, where traditional vehicles outnumbered automated vehicles, the benefits are initially relatively small. However, these increase as the percentage of self-driving cars on the roads increases. When measuring peak traffic periods with a maximum of up to 100% of self-
driving vehicles, journey times were reduced by more than 11% and delays cut by more than 40%.

- On urban roads, benefits are seen in peak traffic periods even with low levels of automated vehicles on the roads. Benefits included a 12% improvement in delays and a 21% improvement in journey time reliability.

The study demonstrated that self-driving cars offer major potential benefits when the proportion of automated vehicles on the road is higher than the proportion of older, more traditional vehicles. Delays and traffic flow were all shown to improve as the proportion of automated vehicles increased above specific levels.

This research was published online on 6 January 2017. Copies of the Summary Report, Evidence Review and the Technical Review can be found on the Centre for Connected and Autonomous Vehicles page of the gov.uk website.¹

**Future legislation**

Several questions were raised about how automated vehicles will result in significant changes to the way we use private vehicles. For example, we will potentially be able to use automated vehicles to take children to school or to return home after an evening out. As I set out at various points in the meeting, this Bill is only the first step towards regulating this new technology and such issues fall beyond its scope. Further legislation may be required in the future as the technology develops.

As you are aware, the Law Commission is also currently undertaking a three-year review to consider the potential impacts of automated vehicles on the UK’s roads and propose any further legislation we may need to introduce to facilitate their safe deployment and use.

**The steps other countries are taking for the introduction of automated vehicles, and how the UK compares**

The UK is a highly attractive place to undertake research and demonstration in this field. Our open regulatory framework, the UK Code of Practice for testing automated vehicles, our world class scientists and engineers, and state-of-the-art research and testing facilities, allow us to remain competitive compared to other leaders in this space. I have provided information on international comparisons in **Annex A**.

¹ [www.gov.uk/ccav](http://www.gov.uk/ccav)
You may also wish to read KPMG's report *Autonomous Vehicles Readiness Index*, published in January 2018, which gives a more detailed comparison.\(^2\)

**United Nations Economic Commission for Europe (UNECE)**

To provide some clarity around the role of the UNECE, Annex B provides an overview of the role of the Commission and the Working Parties which relate to road transport (and in this regard, automated vehicles). I can confirm that, despite its name, the UNECE is a global organisation, and we will still be able to participate fully in UNECE fora after we exit from the EU.

**Public or private chargepoints**

As defined in the draft Bill, a charge point or a hydrogen refuelling point is a 'public' charging point if it is provided for use by members of the general public. This is anticipated to include chargepoints situated in public locations such as public car parks. It is not anticipated to include locations such as domestic properties.

I hope you find this information helpful and I look forward to discussing the Bill with you all in more detail at Grand Committee. As I said at the meeting, we aim to publish the policy scoping notes in advance of this.

This letter will be placed in the libraries of both Houses.

\[\text{Signature}\]

**BARONESS SUGG**

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\(^2\) [https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2018/01/avri.pdf](https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2018/01/avri.pdf)
Annex A: What steps other countries are taking for the introduction of automated vehicles

The table below provides a snapshot of AV activities in other countries; it is not intended to be exhaustive.

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<th>Country</th>
<th>Regulation</th>
<th>Testing</th>
<th>Other</th>
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<td>Germany</td>
<td>A recent change to German law allows the use of conditional/Level 3 and highly/Level 4 automated vehicles, where a driver is present in the vehicle, and places liability on the driver. The law also allows those drivers to undertake ‘non-driving tasks’ but drivers are responsible for the consequences should a collision occur. <em>The German approach would not fit well with the approach the UK government is taking for insuring highly and fully automated vehicles.</em> The legislation stops short of legalising cars operating without a driver or cars that do not have steering wheels and pedals.</td>
<td>Testing requirements are stricter than the UK regime. Developers must seek permission and are limited to a small number of roads.</td>
<td>The German federal government has adopted new guidelines for self-driving cars inside the country, that stress that self-driving cars must do the least amount of harm if put into a situation where hitting a human is unavoidable. They must not discriminate based on age, gender, race, disability, or any other observable factors. In other words, all self-driving cars must be programmed to understand that human life is equal.</td>
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<tr>
<td>USA</td>
<td>The ambitious SELF DRIVE Act. (Safely Ensuring Lives Future Deployment and Research in Vehicle Evolution Act), which aims to establish a federal framework for the regulation of self-driving cars, cleared the US House of Representatives with unanimous support in September 2017, but the AV START Act (American Vision for Safer Transportation through Advancement of Revolutionary Technologies Act) is facing opposition in the Senate, and efforts will be needed to reconcile the two.</td>
<td>The ‘rules of the road’ vary: manufacturers are targeting the most permissive states (California and Michigan are in the lead, California have updated their permit system to allow developers to test with a driver outside the vehicle (something our framework already recognised as possible)). Companies such as Waymo (Google), and GM are conducting trials in cities, running on demand taxi style services. Both AV START and SELF DRIVE focus more on the testing of automated vehicles, recognising the rights of states. As such, there is a possibility this will not reduce the likelihood of different states having different rules and requirements.</td>
<td>The recent fatal collision between an automated Uber vehicle and a pedestrian has led to a suspension of the Uber trials. The National Transport Safety Board is investigating the collision. <em>It would be inappropriate to speculate on the causes of the collision and the wider implications at this time.</em> The American Uniform Law Commission (analogous to the Law Commission for England and Wales) has been tasked with preparing a set of ‘model’ state level regulations to help avoid a patchwork of regulations across the USA.</td>
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| Singapore | Regulatory activity has, thus far, focused on amending the Singaporean Road Traffic Act to enable, and regulate, tests of automated vehicles. | Companies such as nuTonomy and Delphi are actively trialling AVs as part of public transport. More advanced trials without a safety driver are likely in the next couple of years. 

All automated test vehicles undergo a vehicle safety assessment before they are approved for on-road trials. Test vehicles can only be driven in autonomous mode within an approved test-site. All test vehicles are required to have a qualified safety driver who is ready to take control, until autonomous vehicle trials demonstrate that the technology is ready for fully autonomous operations. All trial participants are also required to have third-party insurance for test vehicles and must share data. |
|---|---|---|
| Japan | Japan are thought to be considering introducing new laws to enable the use of Level 3 vehicles, and Level 4 (dual use) where a human driver is in the vehicle. They are also looking into requiring onboard data recorders for automated vehicles. | All vehicles on roads require a driver to be sitting in the driver's seat, according to the Transport Ministry. 

As long as someone is in the driver's seat during an automated driving test and has his or her hands close to the wheel at all times, no special permit is needed to conduct self-driving tests. | Japan have a stated ambition to use automated vehicles for the 2020 Olympic games (probably shuttle style vehicles). |
Annex B: The United Nations Economic Commission for Europe

Map showing UNECE members in orange (as of 2018).

- Established in 1947 to encourage economic cooperation among its Member States, and reports to the United Nations Economic and Social Council (ECOSOC).

- One of five regional commissions under the administrative direction of United Nations headquarters. UNECE secretariat headquarters are located at the United Nations Operations Geneva, Switzerland.

- Has 56 Member States. In addition to the European countries Canada, the Central Asian republics, Israel, the Russian Federation and the United States of America are also members.

- All interested United Nations Member States may participate, and this is actively encouraged.
Map showing Number of Contracting Parties to each Legal Instrument / Number of UN Transport Conventions and Agreements per country

- An international platform - providing regulatory, analytical and technical assistance on transport matters.

- There are 58 Conventions and Agreements (Legal Instruments); the vast majority of UN members are Contracting Parties (i.e. they have ratified) to one or more of the Conventions.

- As of 2018, there are 1,741 individual Contracting Parties to these UN Legal Instruments on transport.
WP.1 – The Global Forum for Road Traffic Safety

Map showing countries ratified to 1949 Geneva Convention, 1968 Vienna Convention, or both

- Established in 1950 as an ad-hoc Working Group on the prevention of road accidents.

- In 1988, the Working Party on Road Traffic Safety (WP.1), an intergovernmental body, was established. It was renamed the Global Forum for Road Traffic Safety in 2017.

- Primary function is to improve road safety in the UNECE and beyond (there is currently a drive to improve conditions in South and South-East Asia).

- Serves as the guardian of the United Nations legal instruments aimed at harmonizing traffic rules – 1949 Geneva Convention on Road Traffic, and 1968 Vienna Convention on Road Traffic:
  - Countries can ratify one or both Conventions.

- The UK has ratified the 1949 Convention, and is in the process of acceding the 1968 Convention.
Established in June 1952 as the "Working Party of experts on technical requirement of vehicles" – within the Sustainable Transport Division of the UNECE.

Tasked with creating a uniform system of regulations, for vehicle design in order to deliver high levels of vehicle safety, environmental protection and to facilitate international trade.

Three UN Agreements, adopted in 1958, 1997 and 1998, provide a legal framework allowing Contracting Parties (member countries) to establish harmonised regulatory instruments concerning motor vehicles and motor vehicle equipment.

- 1958 Agreement - 54 Contracting Parties\textsuperscript{vi} who mutually recognise the individual UN Regulations, removing the potential for trade barriers based on technical differences.

- 1998 Agreement - 36 Contracting Parties\textsuperscript{vii} including the Canada, India, the Peoples Republic of China and the United States of America. Global Technical Regulations are developed with the objective of the adoption of the technical requirements into the legislation of the Contracting Parties; there is no mutual recognition.
1997 Agreement - 14 Contracting Parties (*not shown on map*). The Agreement establishes harmonised requirements for vehicle roadworthiness (safety and environmental). These requirements and those of the EU broadly mirror each other.

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i [https://www.unece.org/mission.html](https://www.unece.org/mission.html)