

Law Commissions' consultation on automated vehicles: a regulatory framework for automated vehicles

OVERVIEW

This is a public consultation by the Law Commission for England and Wales and the Scottish Law Commission.

The consultation questions are drawn from our third consultation paper published as part of a review of automated vehicles. For more information about this project, visit:

<https://www.lawcom.gov.uk/project/automated-vehicles/>

In the consultation paper, we make provisional proposals for a new regulatory system, examining the definition of “self-driving”; safety assurance before AVs are deployed on the road; and how to assure safety on an ongoing basis. We also consider user and fleet operator responsibilities, civil liability, criminal liability and access to data.

We recommend that consultees read the consultation paper, which can be found on our websites:

<https://www.lawcom.gov.uk/project/automated-vehicles/> and

<https://www.scotlawcom.gov.uk/law-reform/law-reform-projects/joint-projects/automated-vehicles>

A shorter summary is also available on the same pages.

We are committed to providing accessible publications. If you require this consultation paper to be made available in a different format please email:

automatedvehicles@lawcommission.gov.uk.

ABOUT THE LAW COMMISSIONS:

The Law Commissions are statutory bodies created for the purpose of promoting law reform. The Law Commissions are independent of Government. For more information about the Law Commission of England and Wales please visit <https://www.lawcom.gov.uk/>. For more information about the Scottish Law Commission please visit <https://www.scotlawcom.gov.uk/>.

PRIVACY POLICY

Under the General Data Protection Regulation (May 2018), the Law Commissions must state the lawful bases for processing personal data. The Commissions have a statutory function, stated in the 1965 Act, to receive and consider any proposals for the reform of the law which may be made or referred to us. This need to consult widely requires us to process personal data in order for us to meet our statutory functions as well as to perform a task, namely

reform of the law, which is in the public interest. We therefore rely on the following lawful bases:

- (a) Legal obligation: processing is necessary for compliance with a legal obligation to which the controller is subject;
- (b) Public task: processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller.

Law Commission projects are usually lengthy and often the same area of law will be considered on more than one occasion. The Commissions will, therefore retain personal data in line with our retention and deletion policies, via hard copy filing and electronic filing, and, in the case of the Law Commission of England and Wales, a bespoke stakeholder management database, unless we are asked to do otherwise. We will only use personal data for the purposes outlined above.

FREEDOM OF INFORMATION

We may publish or disclose information you provide us in response to our papers, including personal information. For example, we may publish an extract of your response in our publications, or publish the response in its entirety. We may also share any responses received with Government. Additionally, we may be required to disclose the information, such as in accordance with the Freedom of Information Act 2000 and the Freedom of Information (Scotland) Act 2002. If you want information that you provide to be treated as confidential please contact us first, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic disclaimer generated by your IT system will not be regarded as binding on the Law Commissions. The Law Commissions will process your personal data in accordance with the General Data Protection Regulation, which came into force in May 2018.

Any concerns about the contents of this Privacy Notice can be directed to:
enquiries@lawcommission.gov.uk.

About you

What is your name?

Zoë Porter

What is the name of your organisation?

Assuring Autonomy International Programme, University of York

Are you responding to this consultation in a personal capacity or on behalf of your organisation? (Please select only one item)

Personal response

Responding on behalf of organisation

Other

If other, please state:

What is your email address? (If you enter your email address then you will receive an acknowledgement email when you submit your response.)

If you want the information that you provide in response to this consultation to be treated as confidential, please explain to us why you regard the information as confidential. As explained in our privacy notice, we will take full account of your explanation but cannot give an assurance that confidentiality can be maintained in all circumstances.

This is the response to the Law Commissions' 3rd Consultation from the Assuring Autonomy International Programme at the University of York. Our response focuses on the parts of the Consultation Paper (Questions 1-28) that cover the definition of 'self-driving', the authorisation process, and ongoing safety assurance.

We welcome the requirement for the ADSE to submit a safety case to regulators. It is an encouraging step in the right direction. We also agree that type approval alone is not sufficient to determine the safety of an ADS. Type approval is really designed to facilitate trade between countries by mutual recognition of having met some minimum standard. It works best when scoped to individual components that have simple properties, not to complex machines whose properties arise from the emergent behaviour of many smaller components. For example, it will also be necessary to demonstrate that an ADS assessed against a particular operational design domain (ODD) is deployed in an environment which is compatible with that ODD.

Our two main concerns are as follows:

1. **The overall approach to ADSs in the Consultation Paper still reflects the traditional view of autonomy as a separate component that is 'bolted on' to a vehicle.** The reality will be that it has to be far more deeply integrated into the vehicle than that. Moving to autonomy requires changing the whole way we think about road vehicles. Even though the section in the Consultation Paper on type approval emphasises a 'whole vehicle' approach, in practice this does not capture the depth and specificity of the systemic integration involved.
2. **We agree it would be unfair to hold the user-in-charge legally responsible for accidents that occur while the ADS is engaged. But it is not clear that the system as described is capable of fulfilling the function required of it.** For example, many things could cause a problem for an ADS during the 10 – 40 seconds before a transition demand is actioned by the user-in-charge. The system would need to pass strict tests to demonstrate it is capable of remaining safe during that period. It remains uncertain what would be adequate benchmarks to establish this, particularly since the system needs to be evaluated within its context of use.

Below we give our responses to some of the specific Consultation questions asked. While our focus is on the parts of the Consultation Paper mentioned above, we have also supplied answers to Questions 44, 45, 36, 48, 49, 50, 55, 56, and 58.

The definition of self-driving (Chapters 2 to 5)

Consultation Question 1

We provisionally propose that:

- (2) a vehicle should not be classified as self-driving if, with the ADS engaged, the user-in-charge needs to monitor the driving environment, the vehicle or the way it drives;
- (3) it is nevertheless compatible with self-driving to require the user-in-charge to respond to a clear and timely transition demand which:
 - (a) cuts out any non-driving related screen use;
 - (b) provides clear visual, audio and haptic signals; and
 - (c) gives sufficient time to gain situational awareness;
- (4) to be classified as self-driving, the vehicle must be safe enough even if the human user does not intervene in response to any event except a clear and timely transition demand.

Do you agree?

Yes No Other

Please expand on your answer

The classification in Q1(2) seems fair. We do wonder, though, whether a vehicle that *can have the ADS engaged* rather than *always has the ADS engaged* should be described as 'self-driving capable' rather than 'self-driving'.

With respect to Q1(3c), "sufficient time to gain situational awareness" is not obviously compatible with "I don't need to be monitoring the environment". If the minimum period between a transition demand and the user taking back control of the vehicle is not specified, it should not be said that this can be done. One approach could be that the vehicle gets itself into a safe state that gives people enough time to respond to a transition demand.

If a transition demand is made because something is going wrong (as opposed to just approaching the end of the ODD), it cannot be guaranteed that the vehicle will be 'safe enough' during this period. Therefore, it should be specified that the vehicle is 'safe enough' for the agreed and stated handover timeframe.

Also, the vehicle should never require a response from the user that is unreasonable (where what is 'reasonable' is determined by argument).

Consultation Question 2

We welcome views on whether self-driving features should be designed to ensure that they can be used by people with hearing loss.

Please share your views below

Yes, self-driving features should be designed to ensure that they can be used by people with hearing loss.

This is probably something that falls under an OEM's diversity policy. It could also fall, indirectly, under an AV regulator's public sector equality duty to give 'due regard' to identified equality needs. One way to meet this duty could be to make type approval contingent upon considerations of how AV functionality impacts users and drivers with disabilities. In addition, Section 20 of the Equality Act imposes a duty on employers to make reasonable adjustments for workers with disabilities. If the vehicle were being used by someone with hearing loss in a work-capacity, it would be a necessary feature to enable employers to meet that duty.

Consultation Question 3

We provisionally propose that the decision whether a vehicle is sufficiently safe to "safely drive itself" should be made by the Secretary of State, as informed by advice from a specialist regulator.

Do you agree?

Yes No Other

Please expand on your answer

Consultation Question 4

We welcome observations on which of the following standards is most appropriate when assessing the safety of automated vehicles:

- (a) as safe as a competent and careful human driver;
- (b) as safe as a human driver who does not cause a fault accident;
- (c) overall, safer than the average human driver.
- none of the above

Please expand on your answer

We agree with the full Consultation Paper that a blend of measures will be appropriate.

When assessing safety, it is important to make a distinction between the predicted performance and the actual performance. Actual performance is easy to measure, but the decision to deploy a vehicle will be made on the basis of predicted performance. A prediction of future performance will be based on two things: the defined (desired) intended behaviour in a variety of situations; and the predicted actual behaviour of the vehicle as a result of the many components that work together to produce the performance, taking into account the potential for systematic and random failures.

In addition, failure in an ADS is more significant than failure in a conventional, human-driven vehicle. Humans aren't systematic in the way they make mistakes; the systems will be.

More detailed observations on the sub-questions are as follows:

(a) as safe as a competent and careful human driver

- As the vehicles become more commonplace, the number of human drivers may reduce. This would mean that the standard is based on out-dated data and might become inappropriate if the ADS performs much better than humans.
- How would 'safe as a competent human driver' be determined? For example, we have no reliable data on how potential accidents are avoided by a human driver.

(b) as safe as a human driver who does not cause a fault accident

- The vehicle simply should not cause a fault accident (regardless of human comparator).
- Even this may not be safe enough. For example, sometimes the human driver does not cause a fault accident because of the good driving of another driver.

(c) overall, safer than the average human driver

- As with our response to (a), using the human driver as a standard could become outdated over time. There is also a question of how you determine what constitutes overall safer than the average human driver.
- In addition, being 'better overall' is not an acceptable measure. It fails to capture questions around justifiable risk transfer. For example, it might be better overall to have fewer fatalities, but this would not be fair if there were more fatalities amongst cyclists.
- Further, 'average' is not an acceptable measure. Using this would mean it could perform worse than a human driver in many scenarios if it performed significantly better in some others.
- Safety has to be assessed on a scenario-by-scenario basis: how would a human behave in scenario, and how does the vehicle's performance compare to this?

Consultation Question 5

We welcome observations on how automated vehicles can be made as safe as reasonably practicable.

Please share your views below

This is very difficult in a commercial setting. Over-engineering a solution would make a product uncompetitive and ultimately bankrupt an OEM. This is a reason not to use this criterion. Also, after an accident has occurred, it will always be possible to say that it was not ALARP, especially as the public will be looking for an authority to blame.

However, one way this can be achieved is by manufacturers providing specific justifications on a case-by-case basis as part of a safety case. Could the claims they need to make be mandated even if the means of demonstration cannot?

It is worth noting that from an ALARP perspective, all vehicles would have the same safety features. This would have an impact on the price of the vehicle.

This is a deep and complex topic, involving several trade-offs. We would be happy to discuss this further with the Law Commission.

Consultation Question 6 (Paragraph 5.121)

We welcome practical suggestions for how AV regulators can fulfil their public sector equality duty.

Please share your views below

Given the complexity of the technical issues, and the fact that different equality issues will arise at different stages of the AV development and deployment lifecycle, we suggest the first step should be that AV regulators work closely with the Equality and Human Rights Commission (EHRC) to take this matter forward in a structured way.

This work would require, in the first instance, a focus on a “common language” between the technical and equality communities to underpin a common understanding of the detailed and often nuanced issues on each side.

Ideally, the joint work between AV regulators and the EHRC would: scope and identify where and how indirect discrimination could arise across the AV development and deployment lifecycle (it is not just a dataset issue); produce standardized guidance for OEMs and ADSEs on how best to mitigate indirect discrimination and optimize for equality, drawing on best practice in the field; establish how equality impact assessments can be integrated into the safety case and wider assurance framework for AVs.

AV regulators should also promote equality by strongly encouraging as best practice more diverse design and engineering teams, and more diverse senior management teams within OEMs, developers, and ADSEs.

Safety assurance before deployment (Chapters 6 to 8)

Consultation Question 7 (Paragraph 7.99)

We provisionally propose that:

- (1) safety assessment should use a variety of techniques;
- (2) manufacturers/developers should submit a safety case to regulators showing why they believe that the automated driving system is safe;
- (3) regulators should:
 - (a) provide guidelines for what is in the safety case;
 - (b) audit the safety case;
 - (c) prepare guidance for manufacturers and developers on preferred standards; and
 - (d) carry out at least some independent tests.

Do you agree?

Yes No Other (**'No' to 3d**)

Please expand on your answer

Broadly, this is an encouraging step in the right direction. More detailed answers on the sub-questions are as follows:

(1) safety assessment should use a variety of techniques;

- It is not just about the techniques, but about the whole approach. Safety assessment should make a distinction between assessing the intended functionality (including any human interactions) and assessing whether this functionality can be implemented and delivered.
- In particular, there needs to be a step-change from thinking about autonomy as something that sits on top of a conventional vehicle (which would mean that only the components relevant to autonomy are considered). Even the more conventional components will need to be assessed in this new context, because they have not been developed taking the consequences of autonomy into account.

(2) manufacturers/developers should submit a safety case to regulators showing why they believe that the automated driving system is safe;

- This is a good step forward. The safety case should be for the vehicle as an integrated whole, not just for the ADS. In practice, the autonomy capabilities will be integrated with the traditional components. Separating them out won't work.

- As above, the safety cases need not just to assess intended function but also whether it can be implemented and delivered.
- Tests should be included as part of the safety case. The approach to testing should be risk-based. For example, there are some things that should *only* be tested in simulation.
- The question is worded in terms of belief that the ADS is safe. In actuality, this claim will be a prediction, and it would be better phrased as “why they believe that the automated driving system will be safe”.

(3) regulators should:

(a) provide guidelines for what is in the safety case;

- The guidelines will be particularly important. Some of the documents that people call "safety cases" are often not worth the paper they are written on. It is not just having a safety case that is important, but the quality of it. The guidelines should be detailed in terms of overall structure and what is accepted as evidence.

(b) audit the safety case;

- Yes. In addition, the regulator should witness the safety case tests. It needs to take an independent view of the argument and its evidence.

(c) prepare guidance for manufacturers and developers on preferred standards;

- Yes.

(d) carry out at least some independent tests.

- The regulator should not carry out the tests. Typically, regulators have insufficient resources to do this effectively. There is also a black box issue. Judging the performance/capability without understanding how this is achieved means that many potential issues will not be detectable. However, we would expect regulators (or technical experts working on their behalf) to witness tests.

Consultation Question 8

We seek views on whether an approval authority that intends to use a scenario database as part of the testing procedure should consult road user groups on the range of scenarios to be included.

Please share your views below

This is a good idea. Generating an adequate set of scenarios is very difficult and different perspectives will help to ensure fewer things are overlooked.

Consultation Question 9

We provisionally propose that:

- (1) unauthorised automated driving systems should be prohibited; and
- (2) this should be subject to an exemption procedure by which the Secretary of State may authorise unauthorised systems to be used in tests and trials.

Do you agree?

Yes No Other

Please expand on your answer

Yes. In addition, there should be a specific test and trial safety case requirement as part of the exemption approval by the Secretary of State. More generally, there is likely to be a need for a more “incremental” approval process reflecting the fact that vehicle capabilities will change over time, e.g., via over-the-air (OTA) updates, after the vehicle has initially been approved. This is a shift from current approval processes not only in the automotive sector but is also at variance with approval processes in most industries, consequently the introduction of AVs is likely to need quite a radical change in regulatory processes.

Consultation Question 10

We provisionally propose that:

- (1) the Government should establish a domestic scheme to approve automated driving systems (ADSs) for use on roads in Great Britain (a “national ADS approval scheme”);
- (2) manufacturers should have a free choice to apply for approval under either the UNECE system of international type approvals or through the national scheme;
- (3) developers should be able to submit an ADS for national approval, even if they are not responsible for manufacturing the whole vehicle.

Do you agree?

Yes No Other

Please expand on your answer

The most important thing is that the safety-case related measures, as set out in Q7, are applied.

We have no strong view on whether manufacturers should apply for approval under a UNECE or a national scheme, but as a practical point, if you had approval under a national scheme, the first thing you’d want to do is to get it accepted by the rest of the world.

The ongoing project is to get global harmonization.

With respect to Q10(3), it is important to recognise that you cannot take an approved ADS, put it on an approved vehicle, and expect them to be approved together.

Approval has to be for the ADS fitted to a particular vehicle. Each different vehicle to which it is fitted will require its own approval. The reason for this is that the characteristics of the target related to powertrain, brakes, steering, suspension and the mounting position of the sensors will have a large impact on the overall performance of the ADS. As a real example, even the type of paint used can affect radar performance depending on where the radar is mounted.

Consultation Question 11

We provisionally propose that:

- (1) an ADS approval scheme should be established through regulation under the Road Traffic Act 1988, without further legislative reform;
- (2) an ADS should be defined as a combination of software, hardware and sensors, which can be installed in a “type” of vehicle;
- (3) when an ADS is approved, the approval should be accompanied by specifications for:
 - (a) the type of vehicle in which it can be installed; and
 - (b) how the ADS is installed within the vehicle;
- (4) where an ADS is installed in a pre-registered vehicle, an example vehicle should be submitted to the regulator for approval of the installation.

Do you agree?

Yes No Other

Please expand on your answer

This question strongly implies that the Consultation is taking the traditional and misguided approach of thinking of autonomy as something that is ‘bolted on’ to a vehicle.

More detailed answers on the sub-questions are as follows:

(2) an ADS should be defined as a combination of software, hardware and sensors, which can be installed in a “type” of vehicle;

- First, an ADS is not installed. It is weaved and integrated into all the other systems that exist. This is not about treating the ADS as a separate component and then bolting it on. The ADS needs to be absorbed into the warp and weft of the whole vehicle. Moving to autonomous systems requires changing the whole way we think about the vehicles.

- Second, as it stands this definition is insufficient. Where is the data in this definition?

(3) when an ADS is approved, the approval should be accompanied by specifications for:

(a) the type of vehicle in which it can be installed; and (b) how the ADS is installed within the vehicle;

- See our comment above about 'installing'.

(4) where an ADS is installed in a pre-registered vehicle, an example vehicle should be submitted to the regulator for approval of the installation.

- Same issue as above.

Consultation Question 12

We invite observations on the appeal process in regulation 19 of the Road Vehicles (Approval) Regulations 2020, including:

- (1) how it works in practice; and
- (2) how well it is suited to the proposed national ADS approval scheme.

Please share your views below

n/a

Consultation Question 13

We provisionally propose that:

- (1) once an ADS has received type approval at either international or domestic level, an Automated Driving System Entity (ADSE) would need to submit the vehicle to the UK safety regulator for categorisation as able to safely drive itself;
- (2) the safety regulator should make a recommendation to the Secretary of State for how the vehicle should be classified;
- (3) it should be open to the safety regulator to recommend that an ADS-enabled vehicle is classified in one of three ways: as not self-driving but driver assistance; as self-driving only with a user-in-charge; or as self-driving without a user-in-charge;
- (4) the safety regulator should only recommend classification as self-driving (either with or without a user-in-charge) if it is satisfied that:
 - (a) an ADSE is registered as taking responsibility for the system;
 - (b) the ADSE was closely involved in assessing safety and creating the safety case; and

- (c) the ADSE has sufficient funds accessible to the regulator to respond to improvement notices, to pay fines and to organise a recall.

Do you agree?

Yes No Other

Please expand on your answer

Again this question seems to apply the old way of thinking that everything but the ADS capability in a system stays fixed.

Software will need to be updated quite frequently, both to address issues found during operation (see below) and to enhance the customer experience.

With respect to Q13 (4b), it should be noted that the ADSE will not necessarily be the legal entity that has done all the development of the system, and so its capacity to be closely involved in assessing safety may be limited.

In addition to Q13 (4a-c), the ADSE should be able to support the system throughout its lifecycle, including managing change. The ADSE will have to have technology to monitor vehicle performance in the field and feed it back to a central database. It will need procedures to analyse the feedback and determine issues and their causes, in order to react to and prevent issues before they cause accidents. It will need to maintain the capability to modify the software throughout the life of the production run and for 10 years afterwards - this could be up to 20 years and includes all the software sourced from the supply chain. It will also need the technology to trace and update the vehicles in the field.

Consultation Question 14

We provisionally propose that a new legislative framework should provide regulation-making powers to specify:

- (a) who should assess whether a vehicle is capable of self-driving;
- (b) the procedure for doing so; and
- (c) criteria for doing so.

Do you agree?

Yes No Other

Please expand on your answer

The existing legislative framework is not strong enough to support the level of scrutiny required for these systems.

Consultation Question 15

We seek views on whether the new legislation should include provisions for appeals against a categorisation decision. If so, should these be similar to those in regulation 19 of the Road Vehicles (Approval) Regulations 2020?

Please share your views below

n/a

Consultation Question 16

We seek views on whether the regulator that classifies vehicles as self-driving should have power to allow their deployment in limited numbers, so as to gather further data on their safety in real world conditions.

Please share your views below

The notion of deploying in limited numbers is broadly sensible. In fact, it is not just about limited numbers of vehicles deployed, but also other limitations (e.g. to the ODD).

But we do not think this is something the regulator should decide. It should be the ADSE that prepares a safety case where the use of limited numbers would be part of the argument. The role of the regulator should be to confirm the reasonableness of the safety case argument and ensure that the ADSE is not being over-optimistic. Permission to proceed should also be contingent on there being a robust and efficient data-gathering facility to monitor the performance of this limited number of vehicles.

Overall, a risk-management approach certainly suggests the value of a more incremental deployment process (but it is hard to work out in detail exactly what that would look like).

Assuring safety in use (Chapters 9 to 11)

Consultation Question 17

We provisionally propose that legislation should establish a scheme to assure the safety of automated driving systems following deployment, giving scheme regulators enhanced responsibilities and powers.

Do you agree?

Yes No Other

Please expand on your answer

Broadly, yes. One advantage of this approach is that the general public would be able to notify the scheme regulators of a problem. This can be a safeguard in cases where the OEM or the ADSE does not inform regulators of a problem.

However, we think the statutory power should be to suspend or prohibit *use* of ADSs rather than to suspend or prohibit *supply* of ADSs.

Finally, we note two pragmatic considerations:

- The scheme regulators would need to have enough people who are sufficiently qualified and experienced to do the job effectively. This is not a trivial requirement.
- The ADSE still actually carries out the recalls.

Consultation Question 18

We provisionally propose that the enhanced scheme should give regulators the following responsibilities and powers:

- (1) scheme regulators should be responsible for comparing the safety of automated and conventional vehicles using a range of measures;
- (2) to do this the regulator should have power to collect information on:
 - (a) leading measures (instances of bad driving which could have led to harm) and
 - (b) lagging measures (outcomes which led to actual harm);
- (3) regulators should have power to require an ADSE:
 - (a) to update software where an update is needed to ensure safety and continued compliance with the law;
 - (b) to keep maps up-to-date, where an AV relies on maps to ensure safety and compliance with the law;

- (c) to communicate information about an ADS to users in a clear and effective way, including where necessary through training.

Do you agree?

Yes No Other (**'Other' to 2a and 3c**)

Please expand on your answer. In particular, if you think the enhanced scheme should give regulators some but not all of the listed responsibilities and powers.

Our answers to each sub-question are as follows:

(1) scheme regulators should be responsible for comparing the safety of automated and conventional vehicles using a range of measures;

- Comparisons between automated and conventional vehicles will inevitably happen. We therefore agree on the grounds that it is better that these are based on objective data. However, there should be careful consideration about what is measured. For example, the ability of human drivers to anticipate the behaviour of other drivers and thus to avoid impending accidents is important to road safety, and AVs will need to be programmed to do the same, although it is difficult to know how to achieve this, e.g., replicating human social cognition. Further, there is a lack of data on the skills of human drivers on which to make objective comparisons.
- It is important that the measures used do not rely on average performance. As we said in our answer to Q4, 'average' is not an acceptable measure. Using this would mean it could perform worse than a conventional vehicle in many scenarios if it performed significantly better in some others.

(2) to do this the regulator should have power to collect information on:

(a) leading measures (instances of bad driving which could have led to harm)

- This would be extremely hard. Failures to follow road rules, and 'near-miss events', would be hard to collect, for example. As acknowledged, collecting traffic infraction data would also have implications for civil liberties.

(b) lagging measures (outcomes which led to actual harm);

- Yes, and this is happening anyway

(3) regulators should have the power to require an ADSE:

(a) to update software where an update is needed to ensure safety and continued compliance with the law;

(b) to keep maps up-to-date, where an AV relies on maps to ensure safety and compliance with the law;

(c) to communicate information about an ADS to users in a clear and effective way, including where necessary through training.

- Broadly, we agree. But it is important not to be prescriptive; the requirements should be about providing effective risk mitigation, whatever that involves.
- We are less convinced about Q18(3c). It is not very realistic to expect the ADSE to provide training. Training would not carry over, for example, to cases where the vehicles are hired. And then there are issues of re-training.
- Users should be told about the broad capabilities of the vehicles, but ideally the vehicles would be so intuitive that training would not be necessary for them to be used safely. This requirement for intuitively designed ADSs might mean legislation and mandatory standards are needed to reduce the variability in design from vehicle to vehicle.

Consultation Question 19

We welcome views on the following issues:

- (1) Should scheme regulators be empowered to approve software updates that apply only within the UK, without requiring the manufacturer to return to the original type approval authority?
- (2) Should the scheme also deal with cybersecurity?
- (3) Are other powers needed? (Note that data is discussed in Chapter 17.)

Please share your views below

Our answers to the first two sub-questions are as follows:

(1) Should scheme regulators be empowered to approve software updates that apply only within the UK, without requiring the manufacturer to return to the original type approval authority?

- There needs to be some sort of control process. What this process should be depends on the nature and scope of the software change, e.g. whether or not it changes the function and has a potential safety impact. However, it would be reasonable for the UK regulator to approve (or not) proposed software updates.
- As a general point, it should be noted that to do software update approvals properly would be an onerous task. It should not just be a 'checkbox' exercise.

(2) Should the scheme also deal with cybersecurity?

- Yes, but it also needs to understand inter-dependence between cybersecurity and safety.

Consultation Question 20

Should the authority administering the scheme to assure safety while automated vehicles are in use be kept separate from type approval authorities (as is already the case)? Alternatively, should both functions be combined in a single body?

Separate bodies Single body Other

Please expand on your answer

In general, there is likely to be a need for more incremental approval processes (see the answer to Q9 above), which suggests that merging the bodies has merits.

However, there are additional issues to address in operation that do not arise in type approval, e.g., operational monitoring of vehicle behaviour and safety performance, and the skill sets required for the two regulatory activities are different. This suggests keeping the regulatory bodies separate.

Ultimately, we do not have a strong view on this. Whatever is done, however, there will need to be effective communication so that those responsible for type approval and those responsible for safety in operation are able to manage safety of a given ADS through life effectively.

Consultation Question 21

What formal mechanisms could be used to ensure that the regulator administering the scheme is open to external views (such as duties to consult or an advisory committee)?

Please share your views below

There could be a yearly audit of its processes and compliance with them by a suitable body. In general, approvals should in part be based on assessment and audit of the capabilities of the ADSE, not just a focus on individual vehicle types.

Consultation Question 22

We provisionally propose that a statutory scheme to assure AVs in-use should:

- (1) investigate safety-related traffic infractions (such as exceeding the speed limit; running red lights; or careless or dangerous driving);
- (2) investigate other traffic infractions, including those subject to penalty charge notices;
- (3) if fault lies with the ADSE, apply a flexible range of regulatory sanctions.

Do you agree?

Yes No Other

Please expand on your answer.

Yes, this is important.

But, with respect to Q22(1-2), it will be extremely difficult to do:

- First, where does the data come from? Often, investigators will only have the vehicle's perception of the event, which is only half of what you need to understand the infraction or accident.
- Second, how broad and deep should the scheme's level of investigation be? These are complex systems-of-systems, where it becomes difficult to know what data actually to collect.
- In addition, it needs to be recognised that it is sometimes necessary to break rules in order to prevent a more serious outcome.

This is potentially very complex and subtle. We would be happy to discuss this further with the Law Commissions.

Consultation Question 23

We provisionally propose that the regulator which assures the safety of AVs in-use should have powers to impose the following sanctions on ADSEs:

- (1) informal and formal warnings;
- (2) fines;
- (3) redress orders;
- (4) compliance orders;
- (5) suspension of authorisation;
- (6) withdrawal of authorisation; and
- (7) recommendation of attendance at a restorative conference.

Please select the sanctions which you think the regulator should have powers to impose, leaving blank those which you do not think the regulator should be able to impose.

Please explain the reasons for your selection above.

We agree with each of the above.

If the ADS produces a safety-related traffic infraction, then this is most likely a systematic fault which will be present in all such vehicles. So, whereas a single driver causes only one infraction at a time, potentially the ADS type will be causing a very large number. The

severity of the penalties and sanctions on the ADSE should reflect these far-reaching consequences of systematic fault.

It is important that the measures create incentives for the ADSE or the OEM to get it right. Strong penalties for systematic fault is one such incentive. In addition, under Q23(7), we suggest that it is mandatory for senior management and board members to be present at restorative conferences and that they be made public, so that boards are made accountable.

Consultation Question 24

We provisionally propose that the legislation should provide the regulator with discretion over:

- (1) the amount of any monetary penalty; and
- (2) the steps which should be taken to prevent re-occurrence of a breach.

Do you agree?

Yes No Other

Please expand on your answer.

n/a

Consultation Question 25

We provisionally propose that a specialist incident investigation unit should be established:

- (1) to analyse data on collisions involving automated vehicles;
- (2) to investigate the most serious, complex or high-profile collisions; and
- (3) to make recommendations to improve safety without allocating blame.

Do you agree?

Yes No Other

Please expand on your answer.

Yes, but this raises many of the issues we raised in answer to Q22 about how this can be done.

There may need to be the equivalent of a forensic science unit that can investigate the vehicle at a technical level and provide factual information to the incident investigators. This could draw on experience of forensic analysis of computer-related crime. For public trust, the results should be put into the public domain. This information, giving access to real world data, would also be helpful for researchers in the field.

Consultation Question 26

We provisionally propose that the UK Government should establish a forum for collaboration on the application of road rules to self-driving vehicles.

Do you agree?

Yes No Other

Please expand on your answer.

This is essential.

Consultation Question 27

We welcome views on:

- (1) the issues the forum should consider;
- (2) the composition of the forum; and
- (3) its processes for public engagement.

Please share your views below

With respect to Q27(1), the forum should consider response to emergency situations, and specifically those where there may be a need not to follow rules:

- The need to not follow rules in order to avoid an accident, or response to one that has happened.
- The need to not follow rules in order to follow the instructions of someone directing the traffic, this may be an official person or just a member of the public.
- The need to not follow rules in order to allow emergency vehicles to pass.

Responsibilities of the user-in-charge (Chapter 12)

Consultation Question 28

We provisionally propose that that the user-in-charge:

- (1) should be defined as an individual in position to operate the controls of a vehicle while an ADS is engaged and who is either in the vehicle or in direct sight of the vehicle; and
- (2) is not a driver while the ADS is engaged, and would not be liable for any criminal offence or civil penalty (such as a parking ticket) which arises out of dynamic driving.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 29

We provisionally propose that following the end of the transition demand period:

- (1) the user-in-charge should re-acquire the legal obligations of a driver, whether or not they have taken control of the vehicle; and
- (2) if, following a failure to respond to a transition demand, the vehicle stops in a manner which constitutes a criminal offence, the user-in-charge should be considered a driver and should therefore be liable for that offence.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 30

We seek views on whether a person with a provisional licence should be allowed to act as a user-in-charge, if accompanied by an approved driving instructor in a vehicle with dual controls.

Please share your views below

Consultation Question 31

We provisionally propose that legislation should create new offences of:

- (1) using an automated vehicle as an unfit or unqualified user-in-charge; and
- (2) causing or permitting the use of an automated vehicle by an unfit or unqualified user-in-charge.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 32

We provisionally propose that persons carried without a user-in-charge should be guilty of a criminal offence.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 33

We seek views on whether the new proposed offence of being carried without a user-in-charge should only apply if the person:

- (1) knew that the vehicle did not have a user-in-charge; and
- (2) knew or ought to have known that a user-in-charge was required.

Please share your views below

Consultation Question 34

We provisionally propose that a user-in-charge who takes over control of the vehicle:

- (1) should be considered a driver; but
- (2) should have a specific defence to a criminal offence if, given the actions of the ADS, a competent and careful driver could not have avoided the offence.

Do you agree?

Yes No Other

Please expand on your answer. If you do not agree with the proposal, we welcome your views on alternative legal tests.

If not, we welcome views on alternative legal tests.

Consultation Question 35

We provisionally propose that the user-in-charge should be liable for criminal offences which do not arise from the dynamic driving task, including those related to:

- (1) insurance;
- (2) maintaining the vehicle in a roadworthy condition (including installing safety critical software updates);
- (3) parking;
- (4) duties following accidents to provide information and report accidents to the police; and
- (5) ensuring child passengers wear seatbelts.

Do you agree? *(please tick one of the following)*

- Yes, the user-in-charge should be liable for all offences not arising from the dynamic driving task
- No, the user-in-charge should not be liable for any offences
- The user-in-charge should be liable for some but not all of the offences listed
- Other

Please expand on your answer. If you indicated that you think the user-in-charge should be liable for some but not all of the offences which do not arise from the dynamic driving task, please indicate which offences you think the user-in-charge should be liable for.

Consultation Question 36

We provisionally propose that the legislation should include a regulation-making power to clarify those roadworthiness failings which are (and those which are not) the responsibility of the user-in-charge.

Do you agree?

Yes No Other

Please expand on your answer.

Remote operation: no user-in-charge vehicles (Chapter 13)

Consultation Question 37

We provisionally propose that:

- (1) where an individual is exercising latitudinal and longitudinal control (steering and braking) over a vehicle remotely, that should not be regarded as a form of “self-driving”; and
- (2) where lateral and longitudinal control are exercised by an ADS, all other forms of remote operation should be regulated as “self-driving”.

Do you agree?

Yes No Other

Please expand on your answer.

We welcome views on whether the current definition of when a vehicle “drives itself” under the Automated and Electric Vehicles Act 2018 should be amended to deal with some forms of remote operation which may involve a degree of “monitoring”.

Please Share your views below.

Consultation Question 38

We provisionally propose that:

- (1) the regulation of self-driving vehicles should distinguish between an Automated Driving System Entity (which vouches for the design of the system) and an operator (responsible for the operation of individual vehicles);
- (2) all vehicles authorised for use on roads or other public places with no user-in-charge should either:
 - (a) be operated by a licensed operator; or
 - (b) be covered by a contract with a licensed operator for supervision and maintenance services;

- (3) it should be a criminal offence to use a NUIC vehicle on a road or other public place unless it is operated by a licensed operator or is covered by a contract with a licensed operator for supervision and maintenance services.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 39

We welcome views on whether NUIC operators should be required to demonstrate professional competence through a safety management system, as set out in a safety case.

Please share your views below.

Consultation Question 40

We provisionally propose that, irrespective of the nature of the vehicle, a licensed operator should be under a duty to:

- (1) supervise the vehicle;
- (2) maintain the vehicle;
- (3) insure the vehicle;
- (4) install safety-critical updates and maintain cybersecurity; and
- (5) report accidents and untoward events (as defined by the regulator).

Do you agree?

- Yes, a licensed operator should be subject to all the listed duties
- No, a licensed operator should not be subject to any of the listed duties
- A licensed operator should be subject to some but not all of the listed duties
- Other

Please expand on your answer. If you think a licensed operator should be subject to some but not all of the listed duties, please indicate which listed duties you think should be placed on a licensed operator.

Consultation Question 41

We provisionally propose that legislation should include a regulation-making power by which some or all of these duties could be transferred to the registered keeper or owner, if it was shown that it was appropriate to do so.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 42

We welcome views on how accessibility standards for Highly Automated Road Passenger Services (HARPS) might be developed.

Please share your views below

We provisionally propose that:

- (1) an accessibility advisory panel should be formed to include:
 - (a) the Equalities and Human Rights Commission; and
 - (b) representative groups for disabled and older persons;
- (2) the Secretary of State should be obliged to consult with the accessibility advisory panel prior to setting any national minimum standards on HARPS;
- (3) there should be a duty to periodically re-consult the accessibility advisory panel at set intervals to ensure requirements keep pace with developing evidence of technical feasibility and changing needs.

Do you agree?

Yes No Other

Please expand on your answer.

We welcome views on what the set interval for periodically re-consulting the accessibility advisory panel should be.

Please share your views below

Consultation Question 43

We welcome views on who should administer the operator licensing scheme.

Please share your views below

CHAPTER 14: CRIMINAL OFFENCES BY ADSEs AND THEIR SENIOR MANAGERS

Consultation Question 44

We provisionally propose that:

- (1) it should be a criminal offence for an ADSE to omit safety-relevant information or include misleading information when putting a vehicle forward for classification as self-driving or responding to information requests from the regulator;
- (2) the offence should apply to senior managers (where it was attributable to the manager's consent, connivance or neglect);
- (3) the offence should not apply to more junior employees;
- (4) the offence should carry a higher sentence if it is associated with a death or serious injury;
- (5) the offence should be prosecuted in England and Wales by either the regulator or the Crown Prosecution Service and in Scotland by the Procurator Fiscal.

Do you agree?

Yes No Other

Please expand on your answer.

In general, we would expect vicarious liability to apply.

Consultation Question 45

We seek views on the following proposed offences.

Offence A: non-disclosure and misleading information in the safety case

When putting forward a vehicle for classification as self-driving, it would be a criminal offence for the ADSE to

- (1) fail to provide information to the regulator; or
- (2) provide information to the regulator that is false or misleading in a material particular

where that information is relevant to the evaluation of the safety of the ADS or the vehicle.

The ADSE would have a defence if it could show that it took reasonable precautions and exercised all due diligence to prevent the wrongdoing.

The penalty would be an unlimited fine.

Offence B: non-disclosure and misleading information in responding to requests

When a regulator requests specific information from an ADSE (whether before or after deployment), it would be a criminal offence for the ADSE to

- (1) fail to provide information to the regulator; or
- (2) provide information to the regulator that is false or misleading in a material particular

where that information is relevant to the evaluation of the safety of the ADS or the vehicle.

The ADSE would have a defence if it could show that it took reasonable precautions and exercised all due diligence to prevent the wrongdoing.

The penalty would be an unlimited fine.

Offence C: offences by senior management

Where offence A and/or offence B committed by a body corporate is proved—

- (1) to have been committed with the consent or connivance of an officer of the body corporate; or
- (2) to be attributable to neglect on the part of an officer of the body corporate,

then that officer is guilty of the offence.

An officer includes any director, manager, secretary or other similar officer or any person who was purporting to act in any such capacity.

We see this as equivalent to offences under the Human Medicines Regulations 2012 and General Product Safety Regulations 2005, which carry a penalty of a fine and/or a maximum two years' imprisonment.

Offence D: aggravated offences in the event of death or serious injury following non-disclosure or provision of misleading information to the AV safety regulator

Where a corporation or person commits Offences A to C, that offence is aggravated where the misrepresentation or non-disclosure:

- (1) related to an increased risk of a type of adverse incident; and
- (2) an adverse incident of that type occurred; and
- (3) the adverse incident caused a death or serious injury.

We see this as equivalent to the offence of causing death by dangerous driving, which carries a penalty of an unlimited fine and/or a maximum of 14 years' imprisonment.

Please share your views below

The intent of these provisions seems entirely sound, but we are not in a position to pass judgement on the framing of such offences.

Consultation Question 46

We welcome views on whether an ADSE should be under a duty to present information in a clear and accessible form, in which safety-critical information is indexed and signposted.

Please share your views below

Yes, but consideration needs to be given to the intended audience for the information and the level of expertise that can be expected of a regulator (and/or the need to have specialist technical advisors to the regulator).

New wrongful interference offences (chapter 15)

Consultation Question 47

We provisionally propose that legislative amendment should clarify that the tampering offence in section 25 of the Road Traffic Act 1988 applies to anything that is physically part of a vehicle and any software installed within it.

Do you agree ?

Yes No Other

Please expand on your answer.

Consultation Question 48

We welcome views on whether the tampering offence should apply to external infrastructure required for the operation of the AV.

Please share your views below

Consultation Question 49

We provisionally propose that there should be an aggravated offence of wrongfully interfering with an AV, the road, or traffic equipment contrary to section 22A of the Road Traffic Act 1988, where the interference results in an AV causing death or serious injury, in:

- (1) England and Wales; and
- (2) Scotland.

Do you agree?

- Yes, in both England and Wales and Scotland
- In England and Wales only
- In Scotland only
- In neither jurisdiction

Please expand on your answer.

Yes, because of the potential to cause widespread harm.

Consultation Question 50

We provisionally propose that the appropriate mental element for the aggravated offence is intent to interfere with a vehicle, the road or traffic equipment.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 51

We seek views on whether an approved work defence for repair or maintenance operations authorised by a vehicle manufacturer or Automated Driving System Entity is desirable.

Please share your views below

Civil liability (Chapter 16)

Consultation Question 52

We provisionally propose that the way the Automated and Electric Vehicles Act 2018 deals with contributory negligence and causation is:

- (1) adequate at this stage; and
- (2) should be reviewed by the UK Government in the light of practical experience.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 53

We provisionally propose that measures should be put in place to compensate the victims of accidents caused by uninsured AVs.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 54

We provisionally propose that:

- (1) product liability law should be reviewed to take account of the challenges of emerging technologies;
- (2) any review should cover product liability as a whole, rather than be confined to automated vehicles; it should not, therefore, form part of this project on automated vehicles.

Do you agree?

Yes No Other

Please expand on your answer.

Access to data (Chapter 17)

Consultation Question 55

We provisionally propose that:

- (1) for a vehicle to be classified as self-driving, it needs to record the location as well as the time at which the ADS is activated and deactivated;
- (2) the Government should work within the UNECE to ensure data storage systems for automated driving record these data; and
- (3) any national system to approve an ADS should require these data to be collected, subject to safeguards.

Do you agree?

Yes No Other

Please expand on your answer.

In general, data and data access will be central to any regulatory scheme for vehicles fitted with ADS. This may be an area where a more specific consultation is required. It should be noted that the BSI has recently launched a PAS which addresses these issues. Whilst this is unlikely to be a “final word” on these issues it reflects the sort of approach that might be practicable.

Consultation Question 56

We provisionally propose that legislation should impose a duty on those controlling AV data to disclose data to insurers, where the data is necessary to decide claims fairly and accurately.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 57

We provisionally propose that:

- (1) initially, DSSAD data from self-driving vehicles should be stored for three years; and
- (2) the issue should be reviewed in the light of experience.

Do you agree?

Yes No Other

Please expand on your answer.

Consultation Question 58

We provisionally propose that:

- (1) when an ADSE applies for categorisation of its vehicle types as self-driving, it should present the regulator with details on how data will be recorded, stored, accessed and protected;
- (2) the regulator should only categorise a system as self-driving if it is satisfied that that the ADSE has systems to abide by its obligations under the GDPR.

Do you agree?

Yes No Other

Please expand on your answer.