



# Regulatory framework for automated vehicles

**KPMG's response to the Law Commission  
of England and Wales and the Scottish  
Law Commission's Consultation Paper 3**

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**9 April 2021**





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Dear Members of the Law Commissions,

Thank you, once again, for the opportunity to comment on your third consultation paper on the regulation of automated vehicles. We continue to be impressed by the thorough and detailed work that you are doing in this space, and believe that your thinking will go a long way in helping the United Kingdom to realise the potential benefits of self-driving cars and minimise the most significant risks.

In the following pages, we have outlined considerations in response to your consultation questions (note: chapter and question numbers correspond to the numbers in the summary document) where we felt we could provide meaningful insights. However, since this consultation asks more technical or legal questions on safety and liability than the previous consultation which asked broader policy questions, we have not responded to all the questions. For instance, we have not provided responses to the liability-focused questions in Chapters 7-9. Moreover, we have focused our responses on additional points for you to consider beyond those already outlined and the key principles that should be considered.

As outlined in our responses to the first and second consultation papers, we would once again like to commend your principles-based approach to designing legislation and regulation in this sector. In summary and conclusion, we believe that the key overarching principles behind the legislation and regulation should be as follows:

- **Correction of market failure:** Like with any other sector, the basic purpose of regulation should be to correct market failures. Two common market failures that you are seeking to correct are negative externalities (such as risk of fatalities) and information asymmetry (including manufacturers being much more informed than consumers). As you develop these recommendations into regulation and legislation, it will be important to frame the rationale in the context of these market failures, so that both domestic and international manufacturers understand where they are coming from.
- **Outcome-based and flexible:** As recommended in our previous responses, we believe that it is critical to ensure that the regulations were flexible and outcome-based since there are so many “known-unknowns” and “unknown-unknowns” that the law will eventually have to accommodate. Therefore, in several of our responses in this document, we have emphasised the need for regulations to be informed by data,

experience and outcomes over time. Regulatory sandboxes and testing/deployment data should therefore inform policymaking on the “known-unknowns”. For the “unknown-unknowns”, regulatory reviews and sunset clauses should be built in.

- **Collaborative and consultative, while preventing regulatory capture:** We continue to be appreciative of your explicit suggestions for consultation groups to inform the development and application of policy and regulation, particularly by diverse groups. Given the complexity of the questions in the sector, robustness of data, coupled with diversity of thought and opinion, we believe this is the only way forward. We also appreciate your question around preventing regulatory capture, which is a risk of consulting powerful interest groups. We believe that the benefit-cost analysis of establishing these regulations should therefore factor in the cost of preventing regulatory capture.

We hope that our inputs in these consultations, along with those of the many others who have responded, will continue to be useful in the development of your thinking. We look forward to seeing them in your final recommendations as well as in the updated or new legislation and regulations. We would be delighted to arrange a meeting to discuss any of the issues highlighted in this response, support you with more detailed research and evidence-gathering, or facilitate consultations and workshops with diverse stakeholders. Should you have any questions or require any further information regarding our submission, please do not hesitate to contact me.

Yours sincerely,

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## Chapter 2: The definition of self-driving

We have responded to the consultation questions on how to define complex terms like ‘self-driving’, ‘safe enough’, and ‘safely drive itself’ with our views on the definitions outlined in the paper, and the principles behind those views.

### **Response to Question 1: Definition of a self-driving vehicle and the requirement of the user-in-charge to respond to a clear and timely transition demand**

We agree with the principles behind these provisions for the following reasons:

- Given that a major rationale for the development of self-driving vehicles is the economic productivity benefits of using travel time for productive activities, it follows that a user-in-charge should not have to continually monitor the driving environment or vehicle.
- It is also sensible that the user-in-charge would have to occasionally respond to transition demands given that the automated vehicle cannot realistically be programmed to manage all scenarios.
- Given that human beings are inherently fallible and the potential high costs of their mistakes in these situations (including possible fatality), we agree that it is critical for the vehicle to be able to be ‘safe enough’ – for both occupants of the vehicle and other road users – following a transition demand if the human user does not respond.

### **Response to Question 2: Design of self-driving features to accommodate for those with hearing loss**

We agree that the design of self-driving features should be such that they accommodate for people with hearing loss – for instance, by providing haptic signals as suggested in the paper. This is because, again, a major rationale for the development of self-driving vehicles is that they will provide better access to disabled people. Therefore, fundamentally, they should not make some groups of disabled people worse off.

“Inclusive design” should be prioritised more widely as well to take into account how, for instance, the transition demand can be best communicated to people with other challenges, including cognitive or neural. To ensure that inclusivity and accessibility considerations are built into product design, it is worth considering the specification of regulatory standards and involving representatives with different types of challenges in the decision-making process. This is further explored in our response to Question 42.

Additionally, it would be worth clarifying whether one interpretation of this question is that people who are blind or have visual impairments would only be able to travel unaccompanied in a non-user-in-charge (NUIC) vehicle.

### **Response to Question 3: Decision-making for whether a vehicle is ‘sufficiently safe’**

The consultation paper proposes that the decision of whether a vehicle is ‘sufficiently safe’ should lie with the Secretary of State, as informed by advice from a specialist regulator. The counterfactual presented in the paper is obtaining type approval authority within one of the 56 UNECE countries, and it is argued that the decision regarding safety and risks should be taken at a national level.

We believe that one of the main principles that should be considered in responding to this question is flexibility. We agree that in initial years, having the decision taken at a national level would be sensible so that the unique requirements of the UK context can be considered. However, over time, as regulations evolve in other contexts and we have more examples and data at our disposal, a different regime could be considered for the sake of efficiency.

We also think that other counterfactuals should be considered – for instance, having the decision rights lie with the specialist regulator, such that the Secretary of State makes exceptions as required on a case-by-case basis. This counterfactual might have the benefit of removing political bias from the decision-making process, such that certain groups are not favoured based on the political base of the ruling government.

On balance, we believe that devolving this authority to multiple bodies could be inefficient, and also potentially result in disparities, gaps, and conflicts.

#### **Response to Question 4: Appropriate standard for assessing the safety of automated vehicles**

We believe the consultation document does a commendable job in laying out the strengths and weaknesses of different definitions for ‘how safe is safe enough?’. We particularly commend the point raised on equity and the need to mitigate for adverse distributional impacts, even if safety is improved for the system as a whole.

In addition to the points outlined, we think the following points should be considered:

- Since most drivers believe that they are safer than the average human driver, this may not be ‘acceptable enough’ to the public<sup>1</sup>.
- Some experts believe that since collision statistics factor collisions involve human actions which cannot apply to vehicles (e.g. drink-driving), automated vehicles should be held to a higher standard than human beings<sup>2</sup>.
- Ethics experts have put forward several reasons for why machines, more broadly, should be held to higher standards than humans – for instance, because an error in the machine’s algorithm will be magnified through machine learning in a way that human error would not or because it is more challenging to rectify and overturn these errors in complex models or because machines are inherently limited in recognising something as new when their model does not hold<sup>3</sup>. Many of these considerations will hold true for ADS as well.
- Some research shows that humans hold machines to higher standards than they do other humans, partly because they judge humans by intention and machines by outcome<sup>4</sup>. This would indicate that from a public acceptability perspective, automated vehicles need to be held to a higher standard.

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<sup>1</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0022437518304511>

<sup>2</sup> <https://www.fleetnews.co.uk/fleet-management/future-fleet/autonomous-vehicles-how-safe-is-safe-enough>

<sup>3</sup> <https://medium.com/@Berran/judging-the-machines-d89610ec7e57>

<sup>4</sup> <https://www.weforum.org/agenda/2021/01/trusting-machines-versus-humans-we-must-understand-the-difference/>

- Humans are also thought to be worse at risk-assessment than machines – for instance we tend to underestimate risks that we can control. This is why, as highlighted by the psychologist Dr. Helweg-Larsen, even though driving a car is statistically much more dangerous than flying in an airplane, humans trust car journeys more<sup>5</sup>. Once again, from a public acceptability perspective, self-driving vehicles may therefore have to be held to a higher standard than humans.
- In the absence of a clear definition of “competent” or “careful”, it may be reasonable for an automated vehicle to be held to the standard of “not causing a fault accident unless otherwise avoidable” with the added condition of “taking the most appropriate course of action to minimise risk of injury to vehicle occupants and other road users.”

## Question 5

No response

## Response to Question 6: Practical suggestions for how AV regulators can fulfil their public sector equality duty

As stated above in response to Question 4, we highly commend the equity and equality lens that the Law Commissions have used to consider these questions around definitions. In addition to the points already highlighted in the paper, we would emphasise the following:

- *Representation of diverse communities in the regulatory body:*  
To ensure that the perspectives of diverse and particularly under-represented communities are factored into decision-making, the regulatory body should ideally be constituted with representatives from these communities through an explicit focus on this aspect during the recruitment process. At the very least, regular consultations with people from these communities should be built into the process.
- *Equality and equity criteria:*  
A standard set of criteria and questions should be developed for all regulators to consider in their decision-making on vehicle safety, potentially with a requirement to show that these criteria have been considered.
- *Inclusive collection and use of data:*  
When setting data standards and collecting trial data, it will be important to ensure that personal data is protected according to the General Data Protection Regulations (GDPR). However, data on usage (for example by communities with protected characteristics) can be used to inform trialling and deployment decisions, as long as it is anonymised and aggregated by the relevant authorities.
- *Dissemination of safety information and briefing material:*  
In addition to the equity and accessibility criteria mentioned in this document, we believe that it will be important for safety information to be disseminated widely by the Government and regulators, using the gov.uk platform as well as through channels that might be closer to specific populations, for example local or devolved authorities.

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<sup>5</sup> [Why You're Probably Not So Great at Risk Assessment - The New York Times \(nytimes.com\)](https://www.nytimes.com/2017/05/04/technology/why-youre-probably-not-so-great-at-risk-assessment.html)

## Chapter 3: Safety assurance before deployment

In this section, we have put forward our views on the specific aspects of the pre-deployment safety assurance regime that have been outlined in the paper, as well as provided additional considerations where applicable.

### Response to Question 7: Safety assessment before deployment

The consultation paper proposes a range of provisions for assessing safety pre-deployment. We agree with the principles behind these provisions and are therefore in broad agreement with the provisions themselves. Arguably, these should also be applied to Licensed Operators, as part of the process to be granted a licence, to prove that they have robust processes to manage and maintain vehicles.

1. **Safety assessment using a variety of techniques:** A variety of testing techniques will enable the assessment of multiple scenarios and situations which will improve the safety case for the automated driving system.
2. **Submission of a safety case:** The requirement for manufacturers and developers to submit a safety case will not only encourage them to prioritise this, but also help reduce the administrative burden of the assessment on the regulator.
3. **Requirements from regulators:** To ensure that the safety assessment is performed thoroughly and accurately, the regulator will have to perform audits and commission independent tests. We also agree that the regulator needs to provide clear guidance on what must be included in the safety case, since regulatory clarity will not only ensure safety but is also a hallmark of an attractive investment destination.

However, it will be critical for these regulations to be outcome-based and revised iteratively. Over time, as more data becomes available, we might find that certain requirements can be relaxed or modified to improve efficiency. It is therefore important to recognise and strategically communicate that regulations will evolve over time, while still promising a certain level of stability and predictability.

Additionally, a clever and robust design of tests is of the utmost importance, potentially with a broad catalogue such that there is no guarantee of what tests will be conducted. A key learning from the emissions-gate scandal<sup>6</sup> is that original equipment manufacturers (OEMs) knew what was in the tests and how to circumvent them.

### Response to Question 8: Consultation of road user groups

We are broadly in agreement with the principle that, for most technologies, the more consultation and dialogue that is had during the planning and testing process, the better the outcomes during the deployment and operation phases. We therefore agree that road user groups should be consulted on scenarios. During this phase, it will be important to consider both motorised and non-motorised users.

The scenarios for testing should also be determined based on real-world events using CRaSH database statistics, case records from Traffic Manager Command & Control systems, and by a knowledgeable team that understands which situations ADS solutions find the most

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<sup>6</sup> <https://www.cleanenergywire.org/factsheets/dieselgate-timeline-car-emissions-fraud-scandal-germany>

challenging. This may be informed by the establishment of a funded “shadow” AV software development team.

### **Response to Question 9: Compulsory authorisation of ADS**

We agree with both provisions. Given that safety is a priority, unauthorised automated driving systems should be prohibited on the UK’s public roads. At the same time, we are proponents of flexible policy and regulation, so agree that there should be a provision for unauthorised systems to be used in tests and trials, for example on private roads or campuses, without the need for an exemption. One consideration, however, is the potential administrative burden on the Secretary of State in respect of authorising a large quantum of systems over time. It will be important to ensure that this team is adequately resourced to avoid bureaucratic bottlenecks and delays.

### **Response to Question 10: National ADS approval scheme**

Again, we are in broad agreement with the principles behind these proposals. The UK has already emerged as a frontrunner in the CAV policy space as noted in KPMG’s Autonomous Vehicles Readiness Index<sup>7</sup>, in which it retained second place once again on the Policy and Legislation pillar. Therefore, it will be important for this success to be transferred to the regulatory space, and a national ADS approval scheme will be one way to do this.

However, it will be critical to align the scheme with the UNECE system of international type approvals, such that there is some regulatory predictability for manufacturers and developers, and if they are to be given a choice of which scheme to apply for, as specified in the second provision.

Finally, we agree with the inclusion of developers because it will be important for the UK to position itself as an attractive investment destination, not just for automotive manufacturers, but also for software developers, particularly by virtue of the research and development capabilities.

### **Question 11**

No response

### **Question 12**

No response

### **Response to Question 13: Categorisation of the ADSE by the safety regulator**

We agree that it is important to assess the vehicle as well as the ADS, and that this assessment should be done in the first instance by those with technical expertise, such as a safety regulator. We also agree with the classifications put forward.

However, we believe that more clarity should be provided on the situations in which the vehicle is self-driving with a user-in-charge versus those in which it is self-driving without a user-in-charge. For example, if a Level 4 vehicle is capable of driving on all motorways, A-roads, B-roads and car parks/driveways/on-street parking but not capable of driving on by-ways and unmade roads (on which it is never going to be used) should it be classified as the former or latter?

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<sup>7</sup> <https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/07/2020-autonomous-vehicles-readiness-index.pdf>



Our response to Question 3 highlights some potential counterfactuals on decision-making.

### **Response to Question 14: New legislative framework**

While we agree that a new legislation specifying who should assess whether a vehicle is capable of self-driving, as well as the procedure and criteria for doing so, can help create some regulatory predictability and consistency, we believe that this principle needs to be balanced against the principle of flexibility, given that these technologies and how they should be governed will evolve over time. For instance, over time, as more data is collected in the UK and abroad, and different regimes develop in other countries, alternative procedures might emerge. Either way, however, the classification criteria for 'self-driving' could be specified in legislation since these are unlikely to change.

### **Question 15**

No response

### **Response to Question 16: Allowing deployment in limited numbers**

Two additional considerations in determining whether the regulator should have the power to allow deployment in limited numbers are –

- Criteria for deployment in limited numbers: Criteria such as fulfilment of additional requirements for safety case approval should be clearly specified to prevent unintended consequences like restriction of movement.
- Management at a local level: A key consideration in determining whether the regulator should have the power to allow the deployment in limited numbers should be whether the devolved, local or regional authority in charge of the area where the vehicles are being deployed have the adequate capability and capacity to manage the deployment. These questions and considerations should be explicitly built into the decision-making process.

## Chapter 4: Assuring safety in use

As above, we have commented on the specific proposals on a post-deployment safety assurance regime and provided some thoughts on additional considerations and caveats.

### **Response to Question 17: Enhanced responsibilities and powers to scheme regulators to assure the safety of automated driving systems following deployment**

In principle, we agree that post-deployment safety may need to be regulated in the short term to address two potential market failures: first, the potential negative externalities that the deployment of a connected and autonomous vehicle might cause (for example, to the safety of pedestrians) which are not necessarily factored into the market price of the vehicle; and second, the potential information failure because it may not be in the manufacturer's best interest to share all information about the vehicle or the ADS to the consumer.

Arguably the establishment of this assurance framework does not have to wait till the advent of more advanced ADS. This could be trialled voluntarily with connected vehicles to help the Government and regulator devise an appropriate framework. To determine questions of data access for different use cases, a Policy Alpha approach could be used.

However, as stated in our responses above, it will be critical for the regulation to be flexible and iterative. As more data emerges, the size and nature of the market failures may change. For example, the information gap may reduce. The regulations will have to respond to these changes, particularly if a relaxation increases efficiency.

### **Response to Question 18: Type of powers and responsibilities to the scheme regulator**

It is proposed that the scheme regulators should be responsible for comparing the safety of automated and conventional vehicles using a range of measures. We agree that this is crucial, in principle, because a key component of the use case for automated vehicles is predicated on their safety benefits vis-à-vis conventional vehicles. We also agree that specialist knowledge and expertise is required to conduct the analysis, and to the extent that the regulator will be an independent apolitical authority, it seems sensible that it should conduct analysis that is not influenced by political considerations.

It is also proposed that the regulator should have the power to collect information on leading and lagging measures that will enable the analysis of the relative safety of automated driving systems vis-à-vis conventional vehicles. We agree that this data is necessary for the analysis and, as outlined in the paper in Chapter 10, new vehicles will be equipped with event data recorders (EDRs) as per the EU General Safety Regulation 2019 that will enable road safety analysis. However, for regulatory reasons as well as to protect information that manufacturers may deem to be commercially sensitive, this data should be anonymised and aggregated since there is no requirement to know who was in the vehicle at the time of use.

The proposals state that regulators should have the power to require an ADSE to update software when needed, to ensure safety and continued compliance with the law. We agree that, in the short term at least, these regulations may be required. In our second consultation response, we listed some of the reasons for this view:

- In the future, manufacturers are anticipated to increasingly make software updates available over the air, no longer requiring vehicle owners to physically bring their cars

into dealerships for software updates. While the responsibility of installing these updates currently falls primarily on the vehicle owner, it should be considered whether any responsibility should fall on the manufacturer to ensure that the software is installed, given the expected reliance of vehicles on this software for safe travel. For example, software updates may need to be classified based on the level of urgency; then, for top levels of urgency, owners may need to be given a certain number of days to install the software before their vehicles are temporarily disabled by the manufacturer until the software is installed. This responsibility may need to be legally imposed.

- Additionally, it should be considered if there should be some sort of central body that must approve software in order to help ensure vehicles are acceptable for use on the roads. In the US, the Federal Aviation Authority (FAA) not only approves designs of aircraft<sup>8</sup>, but also approves potential software and electronic hardware, such as autopilots, flight controls, and engine controls<sup>9</sup>. The FAA certifies this software using set approval guidelines which includes not only procedures for inspection of the code, but also provides checks for proper uploads to aircraft<sup>10</sup>. A similar body and related guidelines could be established in the UK for certifying the design and software for autonomous vehicles.
- Additional considerations should be given to expectations around software updates. For example, consider that Apple's current iPhone software only supports phones released in the last five years<sup>11</sup> while the average age of vehicles is 8 years old in the UK<sup>12</sup>. Something to consider is if there should be any requirements for the minimum number of years that a vehicle should be expected to be updated or if there should be any requirements to make it clear to the consumer how long the vehicle's life is expected to be. Additionally, Apple and Samsung were both fined for intentionally using software updates to slow down old versions of their phones, helping support increased sales of newer models<sup>13</sup>. It should therefore be considered if there should be any laws proactively preventing vehicle manufacturers from following a similar course of action to improve vehicle sales. This may be particularly important in preventing an intentional reduction in performance of software that could create potential safety risks.

It is proposed that regulators should have the power to require an ADSE to keep maps up to date where an AV relies on maps to ensure safety and compliance with the law. We agree that this could be managed in the same way as a software update given the importance of updated maps to the safe functioning of an AV. Again, over time as more data becomes available, and consumers become more aware of what to demand from manufacturers and developers, the need for regulation could reduce. Consideration will also have to be given to the roles and responsibilities of Licensed Operators for both map and software updates, for example to prevent them from withholding updates for operational or commercial reasons.

Finally, the proposals set out that regulators should have the power to require an ADSE to communicate information about an ADS to users in a clear and effective way, including where necessary through training. We agree that to correct for the market failure of information asymmetry between manufacturers/developers and users, particularly in initial years, some regulation is required; however, as above, we would argue for a flexible and iterative approach to respond to changing market dynamics. We do not have a view on which regulatory body

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<sup>8</sup> [https://www.faa.gov/licenses\\_certificates/aircraft\\_certification/](https://www.faa.gov/licenses_certificates/aircraft_certification/)

<sup>9</sup> [https://www.faa.gov/aircraft/air\\_cert/design\\_approvals/air\\_software/](https://www.faa.gov/aircraft/air_cert/design_approvals/air_software/)

<sup>10</sup> [https://www.faa.gov/documentLibrary/media/Order/FAA\\_Order\\_8110.49\\_with\\_chg\\_2.pdf](https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8110.49_with_chg_2.pdf)

<sup>11</sup> <https://www.statista.com/chart/5824/ios-iphone-compatibility/>

<sup>12</sup> <https://www.smmmt.co.uk/wp-content/uploads/sites/2/SMMT-Motor-Industry-Facts-May-2019.pdf>

<sup>13</sup> <https://www.theguardian.com/technology/2018/oct/24/apple-samsung-fined-for-slowng-down-phones>

specifically should be accountable for this regulation; however, we would emphasise the need for clarity of roles and simplicity.

For all the above provisions, we believe that it will be important for the UK Government to work with industry, given that the latter has the required expertise and experience, including in other jurisdictions. Of course, this will have to be managed carefully to mitigate the risk of corporate influence and regulatory capture.

## Question 19

No response

## Response to Question 20: Separate bodies or combined body for type approval vs. post-deployment safety assurance

We agree with all the arguments and considerations laid out for and against having a single body versus two separate bodies for type approval and post-deployment safety assurance.

On balance, given that international regulation currently favours having two separate bodies, and that the existing system is geared towards having two separate bodies, it may be more sensible to continue to align with this approach. However, over time, if the risk of issues falling between the demarcation lines of these two bodies is borne out, then the two bodies could be combined.

One potential challenge – for instance with the VCA and DVSA – is that they are both agencies of the Department for Transport, and therefore subject to political pressure. An alternative may be to have an independent type-approval organisation, co-funded or government-funded by statute, which type-approves based on outcome-focused requirements and a government regulator who can assure safety.

## Response to Question 21: Formal mechanisms to ensure that the regulator is open to external views and guard against regulatory capture

We strongly commend the explicit consideration of how to prevent regulatory capture.

On the one hand, in a new and evolving sector such as this, it is important to consider the views and evidence provided by industry and other stakeholders. However, this comes with a high risk of legislators and regulators becoming unduly influenced by strong interest groups.

Various organisations and commissions, for example Transparency International<sup>14</sup> and the Committee on Standards in Public Life<sup>15</sup>, have been examining the UK's lobbying landscape to solve the problem of regulatory capture more broadly. We believe some of the recommendations in these reviews could be applied specifically to the regulatory body that is being developed for automated vehicles, such as publishing registers of interest as open data and meeting information, and advising bureaucrats, regulators and legislators to keep a record of meetings with lobbyists or interest groups. The obligation to put meetings on the public record will not only incentivise regulators and stakeholders to uphold standards of integrity in these meetings, but also incentivise regulators to consult more broadly.

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<sup>14</sup> [https://www.transparency.org.uk/sites/default/files/pdf/publications/TI-UK\\_Lifting\\_the\\_Lid\\_on\\_Lobbying.pdf](https://www.transparency.org.uk/sites/default/files/pdf/publications/TI-UK_Lifting_the_Lid_on_Lobbying.pdf)

<sup>15</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/407530/2901376\\_LobbyingStandards\\_WEB.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/407530/2901376_LobbyingStandards_WEB.pdf)



In addition, particularly while the sector is nascent and rules are evolving, mandating the establishment of a well-represented consultation group could help ensure that regulators are getting diverse perspectives.

Finally, given the complexity of the rules and the sector, mandatory ethics training and induction should be established for regulators.

## Questions 22-24

No response

## Response to Question 25: Creation of a specialist collision investigation unit

We agree that a specialist collision investigation unit would be useful for the reasons that have been highlighted i.e. to develop and provide expertise to ADSEs and regulators, promote compliance without formal sanctions, and promote a no-blame culture of safety. It could also address the inefficiencies of multiple police forces having specialist road traffic accident divisions as they do today. Given the automated nature of the technologies, it could be reasonably assumed that issues will be pervasive and cross-cutting. Whilst local data capture by attending traffic and police officers, analysis could therefore be done centrally.

We would ask that the following points be considered when making recommendations about this specialist unit:

- The risk mentioned in the paper of duplicating work already undertaken by the police could be mitigated by housing this unit within existing structures.
- Like with other regulations proposed here, it will be critical for formal mechanisms to be established to avoid regulatory capture.
- In addition to the advantages listed in the paper, this body could play an important role in public awareness since, as we know, collisions involving AVs get a higher amount of public attention than other types of collisions.

## Response to Questions 26 and 27: Forum for collaboration on the application of road rules to self-driving vehicles

As described above in previous responses, we believe that a defining bedrock of CAV legislation and regulation is greater collaboration and consultation. We therefore agree that a forum should be established to consider how road rules should be applied to self-driving vehicles. We believe that if the public is involved in defining the rules that apply to them, this will be particularly helpful in tackling the challenge of public acceptability.

The forum could provide views on a wide range of questions. In addition to the topics mentioned in the consultation document, for example, interpretation of indeterminate terms or reconsideration of rules that hold up topic, it could consider how the rules should be adapted for the interaction of automated vehicles with new forms of mobility (e.g. e-scooters) and how to balance the need for consistency with the need for geographical variation.

The defining principle in respect of composition of the forum should be diversity through multiple lenses – occupation (manufacturer, developer, road user), nature of road use (motorised and non-motorised road users), geography (different parts of the country, rural vs.

urban etc.), protected characteristics, etc. Such a group would also help mitigate the risk of lobbying and regulatory capture described above.

## Chapter 5: Responsibilities of the user-in-charge

The consultation questions in this chapter are predominately of a legal nature, around liabilities for driving and non-driving offences. As such, we are not best placed to provide a qualified response to each question but have provided our broad comments and some further considerations below.

### Response to Questions 28 and 29: Concept of the user-in-charge and failure to respond to a transition demand

We are in broad agreement with the concept of the user-in-charge that has been outlined as “*an individual in a position to operate the controls of a vehicle while an ADS is engaged*”. Following earlier consultations, we acknowledge that the definition of the user-in-charge has been extended to cover remote supervision where the vehicle is in direct sight of the individual, to take into account functionality such as automated parked or summoning a vehicle from its parked location. This flexibility in the user-in-charge concept would enable a wider range of automation use cases, such as self-parking in narrow garage spaces.

However, we would suggest making a clear distinction between the ‘in the vehicle’ user-in-charge and the ‘in direct sight of the vehicle’ user-in-charge when considering their ability to respond to a transition demand. Despite clear multisensory transition demand signals, a user-in-charge that is outside of the vehicle may not be able to take over the controls of the vehicle in the same way that a user-in-charge in the driving seat can. For instance, they may use a mobile phone app to control the vehicle while not in the vehicle and therefore may not be in a position at the end of the transition demand period to re-acquire the full obligations of a driver.

We are also in agreement with the ‘not a driver’ concept while ADS is engaged, and that the user-in-charge should not be liable for any dynamic driving offence, defined as “*a breach of a duty to monitor the driving environment and respond appropriately by using vehicle controls to steer, accelerate, brake, turn on lights or indicate*”.

However, one complexity that should be considered as a potential exception to user-in-charge immunity is when a user-in-charge engages ADS in a situation where the ADS is not capable of self-driving. Self-driving vehicles with Level 4 autonomy can only be expected to operate in certain conditions and not, for example, on byways and unmade roads. We believe the user-in-charge should be held responsible for knowing in which locations and situations ADS can and cannot be safely engaged.

Additionally, we have observed that Question 28 uses the civil penalty example of a parking ticket which we believe is more complicated. While we agree that the user-in-charge should not be liable where dynamic driving has stopped the vehicle in a prohibited place, the user-in-charge may be considered responsible for ensuring a vehicle is parked legally and for the payment of any parking fares. A less complex civil penalty example that may be used to illustrate user-in-charge immunity for a dynamic driving offence is a speeding ticket.

Finally, there may be certain scenarios in which it may be unfair to hold either of the user-in-charge or the ADSE liable, if the offence is unavoidable. Using the parking ticket example, if a vehicle is unable to exit a parked spot at the end of the allocated parking timeslot due to congestion on the road, the liability for any resulting fines could not reasonably be assigned to either party. We believe for situations where there are potential blurred lines when it comes to determining liability, that these will need to be reviewed on a case-by-case basis.

## **Response to Questions 30 and 31: Criminal liability for being unqualified or unfit to drive**

We are in broad agreement with the criteria for a user-in-charge to be considered qualified and fit to drive. This includes the proposals to create new offences for using an automated vehicle as an unqualified or unfit user-in-charge, as well as causing or permitting the use by such an individual.

We recognise the significant opportunity that self-driving technology presents to removing barriers existing in the mobility ecosystem today for people with eyesight challenges and disabled people whose conditions or impairments are currently too severe to drive. However, we understand that the user-in-charge concept is intended to apply only to vehicles where handover is required in certain situations. We are therefore encouraged to see the acknowledgement that the availability of a range of self-driving vehicles that do not require a user-in-charge is considered (as explored in the next chapter).

On the matter of provisional driving licenses, we do believe it is important to enable learner drivers to be trained on automated features as they become an increasingly common part of the driving experience.

We do have some concerns with the proposal for the holder of the provisional license to assume the primary role of user-in-charge. A safer option to consider is for an approved driving instructor in the vehicle to retain user-in-charge responsibilities through dual controls fitted in the vehicle. While we appreciate that the consequence of this would be that the transition demand period would effectively be shared between the learner driver and the driving instructor, this is not dissimilar to how a typical response to an emerging road hazard would take place in a conventional driving lesson today. We believe it is reasonable to expect driving instructors to maintain situational awareness and intervene if required to avoid harm to themselves, to the learner driver or to other users of the road. In this case, situational awareness is extended to include any transition demand signals in the vehicle over and above the usual hazards that already exist.

To support this, supplemental training for driving instructors could be introduced in order to qualify to instruct learner drivers in vehicles with automated driving functionality.

## **Response to Questions 32 and 33: Being carried without a user-in-charge**

We believe it is reasonable that the default position for allowing oneself to be carried in a vehicle without a user-in-charge would be considered an offence. However, we do agree that there should be sensible exceptions, including the examples given in the paper of children, blind people, and anyone who is unconscious or asleep. These exceptions will need to be clearly defined to avoid grey areas that are open for interpretation. For example, the age at which a passenger is no longer considered a child could be set at any age up to 18 years old. We believe it would be sensible to align these exceptions to any existing precedent related to vehicles. For instance, as a driver, you can be fined if a child under 14 is not in the correct car seat or wearing a seat belt while you are driving<sup>16</sup>, so this age limit could be used to define the offence exemption for children being carried without a user-in-charge too.

It follows, therefore, that we also agree with the proposal that the offence should only apply if the person knew that the vehicle did not have a user-in-charge and that they knew or ought to have known that a user-in-charge was required. For the example outlined in the paper of four

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<sup>16</sup> <https://www.gov.uk/seat-belts-law>



adult passengers leaving a bar, all over the legal alcohol limit and travelling home in an automated vehicle, this would therefore mean all four passengers would be guilty.

However, in a future world where both user-in-charge and non user-in-charge vehicles co-exist in the mobility ecosystem, appropriate measures should be taken so it is clear to a person entering a self-driving vehicle whether a user-in-charge is required or not. For fleets where a user-in-charge is required, the licensed operator of the fleet could be held liable for ensuring a user-in-charge is always present when their vehicles are in operation. Alternatively, there could be a design requirement for vehicles which require a user-in-charge to only activate if there is an individual in the driving seat. Additionally, another design requirement could be for this individual to provide an active confirmation, via a prompt from the system, that they are qualified and fit to assume the responsibilities of the user-in-charge.

The other aspect to specifically clarify is what would happen in the situation where a dynamic driving offence occurs while any passengers are being carried without a user-in-charge. Our interpretation is that passengers in the vehicle would not be liable for the dynamic driving offence under the proposals set out, as even if there was a user-in-charge present, they would not be considered a driver while the ADS was engaged.

### **Response to Question 34: Criminal liability following handover**

We agree with the proposals set out that the user-in-charge is considered a driver following transition of control. Given the scenarios set out in the paper to illustrate the difficulty of determining whether the ADS or the user-in-charge is liable in certain circumstances, we agree with the view that these scenarios should be reviewed on a case-by-case basis rather than adopt a single blanket approach. Therefore, the caveat that the user-in-charge should have “*specific defence to an offence if, given the actions of the ADS, a competent and careful driver could not have avoided the offence*” seems reasonable.

Additionally, we reiterate the earlier suggestion to make a distinction between the ‘in the vehicle’ user-in-charge and the ‘in direct sight of the vehicle’ user-in-charge. For example, it may be unfair and impractical to consider a user-in-charge using a mobile phone app to control the vehicle as a driver in the same way as a user-in-charge in the driving seat.

### **Response to Questions 35 and 36: Offences that do not arise from the dynamic driving task**

We somewhat agree that the user-in-charge should be liable for certain offences that do not arise from the dynamic driving task whether ADS is activated or not, such as ensuring children wear seatbelts.

However, in a world where we are increasingly transitioning to “as a service” models where self-driving vehicles will predominantly be “robotaxis”, we do not agree that the user-in-charge should be liable for insurance and roadworthiness. As is the case when hiring a conventional vehicle, individuals are not responsible for checking and maintaining the roadworthiness of the hire vehicle; the vehicle hire company is responsible for this. In the same way, we believe that the licensed operator of these vehicles should be obligated to ensure they are roadworthy and insured.

We believe licensed operators should also be better placed at determining whether automated vehicles are roadworthy or not, as they can be expected to have the right capabilities to check a broader mix of mechanical and software related features. Even with conventional vehicles, it can be said that vehicle owners today often rely on other parties to ensure roadworthiness and detect any non-obvious mechanical issues, such as during routine servicing and MOT

checks. With increasing software deployed on board vehicles, this will in turn increase the number of factors that influence roadworthiness, that need to be (a) maintained, such as regular software updates, and (b) checked for failure to meet requirements, such as software bugs. It may be considered impractical and unsafe to place the responsibility for roadworthiness on the user-in-charge, and unrealistic to expect them to have all the skills and knowledge to do this effectively.

At the same time, we do expect that automated and connected functionality fitted in vehicles will be increasingly smarter at self-diagnosing mechanical, hardware and software issues. As well as the obvious benefits, this may impact the perceived balance of responsibility for identifying faults between the licensed operator (under our suggestion) and the vehicle itself. It also may vary from one vehicle to another, based on the different model specifications and features.

We therefore believe a sensible proposal for the default position of roadworthiness obligations to sit with the licensed operator. However, in recognition of the expected development of vehicle sophistication in coming years, we agree it would be beneficial for a regulation-making power to be established or assigned to maintain a list of roadworthiness conditions that are the responsibility of the licensed operator and those which are the responsibility of the ADSE. It will be important to recognise that this list will have to be frequently updated based on data that becomes available from testing and deployment, as well as the evolution of the technology.

As mentioned in response to Question 28, we believe liabilities for parking offences are a more complicated area. For example, a situation may arise where the ADS interprets that the vehicle is permitted to park in a space based on the digital TRO map or the data available. However, there may be a physical sign that shows that this is not the case, maybe because there are temporary parking restrictions or a recent parking permissions change that has not been updated in the mapping software. The liability of a resulting parking offence may be difficult to determine in this scenario. The ADSE could be considered liable due to the shortfalls of its software, if like other dynamic driving tasks, it could reasonably be expected to perform this task autonomously. The licensed operator may be considered liable for the offence if they have failed to perform software updates regularly enough. Or the user-in-charge may be held liable if there is a responsibility on them to ensure the vehicle is parked legally after a vehicle has self-parked. We believe parking is an area of complexity that needs to be explored further.

Finally, we do agree that the user-in-charge should be responsible for reporting accidents and providing information following such an event, but not necessarily solely responsible. Given AVs will be fitted with event data recorders (EDRs) and Data Storage Systems for Automated Driving (DSSADs), we believe that there could also be an obligation for ADSEs and/or licensed operators to report accidents and provide information too. This should be considered for accidents that occur when the ADS is engaged, as well as when disengaged.

## Chapter 6: Remote Operation: No user-in-charge vehicles

We have acknowledged that the scope of this regulatory scheme applies to self-driving vehicles only, which presents some grey areas for no user-in-charge (NUIC) vehicles depending on the level of remote control that is exercised.

We also appreciate the complexities in determining the regulatory requirements for the remote operation for vehicles, especially as real progress to date in this area has been limited to off-road, enclosed, controlled and monitored settings. The remote operation for NUIC vehicles in public areas is predominantly conceptual and is expected to have more safety considerations and complexities, so we appreciate that this is a regulatory area that will need to evolve with experience.

### Response to Question 37: The different meanings of “remote operation”

We share the view that there is a spectrum of remote operation modes that ranges from complete control to monitoring to supporting NUIC vehicles with non-dynamic driving tasks. We therefore also agree that policies need to be differentiated to recognise the levels of remote control. The resulting three remote modes that have been set out in the paper as fleet operations, remote driving and remote assistance appear reasonable as groupings across this spectrum.

We broadly agree with the proposed definitions of what constitutes ‘self-driving’ and ‘not self-driving’ in the context of the remote operation of NUIC vehicles. Where the steering and braking for a vehicle is fully operated remotely by individuals i.e. remote driving, it is sensible to consider this as out of the scope of self-driving. On the other hand, if a NUIC vehicle is fitted with ADS that is capable of operating the steering and braking, it is sensible for this to be regarded as self-driving and therefore covered by the regulatory scheme, even if control is mixed with periods of remote driving, such as in the case of remote assistance.

However, we do believe there needs to be a distinction made in wider government regulations between a driver that is in a vehicle versus a remote driver, due to the significant difference in the levels of situational awareness that can be reasonably achieved. Holding a remote driver to the same level of responsibility and potential liability as a driver in the vehicle could be deemed unfair, especially as a remote driver is dependent on the sophistication and real-time reliability of the operating systems to enable safe control of the vehicle.

We also agree that there should be a review for NUIC vehicles of the current definition by the Automated and Electric Vehicles (AEV) Act 2018, which states that a vehicle is “driving itself” if it is operating in a mode in which it is not being controlled and does not need monitored by an individual. As in the case of vehicles with a user-in-charge that can respond to a transition demand and take control of driving obligations, we believe it is similarly reasonable to expect remote intervention in response to a clear alert for remote assistance. We therefore do agree with the proposal that the AEV Act’s definition of self-driving should be clarified to cover elements of remote monitoring for NUIC vehicles. This may also include the monitoring of other parameters such as vehicle charge levels and traffic information that support the operational continuity of a fleet, but do not mean that the vehicles cannot be considered as self-driving.

While we do not expect that licensed operators will have a one-to-one relationship between remote drivers and vehicles due to operational efficiencies, and nor should they be expected to, we do believe it is critical that they are sufficiently staffed with fit and qualified individuals to be able to respond to all transition demands across the full fleet that they operate. We believe it would be reasonable for this to be required by legislation, and for this to be

demonstrated by stress testing for higher levels of transition demands than expected in routine operation.

### **Response to Question 38: The distinction between the ADSE and the operator**

We believe the proposal for self-driving regulations to distinguish between the ADSE and the day-to-day operator is sensible. We do recognise the benefits of an integrated approach that sees a single organisation take end-to-end responsibility for the safe operation of AVs, and the removal of potential grey areas where it is difficult to ascertain which party is at fault in the case of a vehicle incident. However, both in the UK as well as globally, we are seeing the growing importance and increased instances of intra-organisation partnerships to accelerate the development of smarter vehicles, such as between automotive OEMs and technology platform providers like Daimler and Nvidia. We therefore agree that there is more value to advancement of the UK AV market to decouple regulatory requirements for ADSEs and operators, as this will encourage more entrants into the market and greater innovation. This would help inject more private capital into the market to accelerate uptake, such as through fleet purchase and management, which should result in more competition and higher levels of customer service.

We do not agree with the proposal that all NUIC vehicles authorised for use on the roads and other public places should be operated by a licensed operator or be covered by a contract with a licensed operator. We believe individuals should be able to privately own a NUIC vehicle and should have the option to assume liability for its supervision and maintenance, such as updating software in a timely manner. We are of the view that mandating NUIC vehicle owners to pay a third party to do this would be too significant a departure from how the automotive system works today. Such a restriction would likely result in large additional costs and may discourage or price prospective consumers out of the market. However, we do appreciate how important effective maintenance and supervision is for safety and security, and we believe it would be reasonable to penalise vehicle owners who fail to meet their responsibilities. Other precautionary measures could be considered, such as legislating design requirements that prevent a NUIC vehicle from driving until it is running on the latest software.

### **Response to Question 39: Operator requirements**

Caveat: please note our response to Question 38, where we express our view that NUIC vehicle owners should not be legally obligated to enter maintenance and supervision contracts with licensed operators. We would suggest making a distinction between:

- NUIC vehicles that are authorised for non-commercial purposes i.e. private use only
- NUIC vehicles that are authorised for commercial purposes i.e. the public or other people can use them

Our response to Question 39 here is therefore specifically with respect to commercial NUIC vehicles.

As outlined in the paper, the need for a transport manager in the capacity that the role exists today may no longer apply in a future environment, with some duties replaced by other technology solutions. However, we do believe individuals involved in NUIC operations will need to have new skills over and above that of a traditional transport manager, especially technical skills in software technology.

At the same time, we also agree that the remote fleet operation model moves away from the idea of a single qualified individual, in favour of a broader capability or workforce that has the right processes and ways of working in place to support a comprehensive set of safety and security scenarios.



In that respect, we do think it sensible that NUIC operators should be required to demonstrate professional competence through a safety management system, as set out in a safety case. This could include providing evidence of operational management processes, including incident management and routine maintenance, as well as governance and reporting. As part of this, we would still suggest that all individuals involved in NUIC operations would need to be qualified, which may involve an assessment of adequate knowledge of rules and regulations, including topics such as:

- Rules of the road
- Insurance requirements
- Safety requirements
- Vehicle maintenance requirements
- Roadworthiness
- Cyber-security
- Vehicle registration and certification
- Accident reporting

### **Response to Questions 40: Tier 1 operator duties**

Caveat: please note our response to Question 38, where we express our view that NUIC vehicle owners should not be legally obligated to enter maintenance and supervision contracts with licensed operators. We would suggest making a distinction between:

- NUIC vehicles that are authorised for non-commercial purposes i.e. private use only
- NUIC vehicles that are authorised for commercial purposes i.e. the public or other people can use them

Our response to Question 40 here is therefore specifically with respect to commercial NUIC vehicles.

We broadly agree with the proposed Tier 1 duties that have been outlined in the paper to apply to licensed operators, including remote supervision, maintenance, insurance and reporting requirements.

### **Question 41**

No response, noting our response to Question 38

### **Response to Question 42: Tier 2 operator duties – accessibility**

In the UK, there are significant current challenges around accessible mobility resulting in a national transport accessibility gap of 38%<sup>17</sup>. In London, disabled travellers are 33% less likely to hold a driver's license<sup>18</sup>. As mentioned, we believe one of the strongest cases for self-driving vehicles and more specifically Highly Automated Road Passenger Services (HARPS) is the opportunity for greater inclusion of disabled people. We therefore support that services should be designed in an accessible way that does not discriminate and in fact, are designed with disabled people in mind from the outset. It is also important to note that making HARPS more accessible would increase ridership and, therefore, fare revenue.

Based on the extensive advisory work we have undertaken with notable public transport bodies on improving accessibility, we have been able to appreciate the complexity and nuances that should be considered. We broadly identify the following types of accessibility that needs to be addressed in the development of accessibility standards:

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<sup>17</sup> <https://www.gov.uk/government/statistical-data-sets/nts01-average-number-of-trips-made-and-distance-travelled>

<sup>18</sup> <http://content.tfl.gov.uk/disabled-people.pdf>

- Physical access point accessibility, the most obvious example of which is wheelchair accessibility
- Digital and information accessibility, such as whether the data used in self-driving decisions supports accessible journey planning
- Interchange accessibility, where HARPS may fit into a wider accessible multi-modal transport system

To develop accessibility standards for HARPS, a good starting point would be the Inclusive Transport Strategy<sup>19</sup> as published by the Department of Transport (DfT). This sets out the government's 2030 ambition for equal access for disabled people across the public and private transport ecosystem, including taxis, private hire vehicles (PHVs) and cars. This is supported by a suite of government policy and guidance on transport accessibility and mobility published by the UK Government<sup>20</sup>. Understanding the broader strategy and policies in place in the UK will inform the development of accessibility objectives and standards for HARPS. In fact, we would suggest working with the DfT and other public transport bodies to achieve a more joined up approach to designing for accessibility. There could be real value in the intra-organisation sharing of learnings, such as the impact on accessible design of changes in wheelchair design and other powered mobility aids.

There is also a library of learnings on various topics including accessibility from other nations available on the International Transport Forum website<sup>21</sup>, including case studies, reports and discussion papers.

However, even the leading countries in our annual AV Readiness Index<sup>22</sup> are yet to define accessibility standards for self-driving vehicles and so, a fully desk-based approach will struggle to deliver a comprehensive set of accessibility standards for AVs. We expect that, while AVs will share common accessibility requirements with taxis, PHVs and cars, there will be a need for additional requirements.

Therefore, we agree that the establishment of disabled representative groups is critical in developing accountability standards that consider the lived experience of people that stand to benefit from the introduction of HARPS. Across the work we have done in the transport accessibility space, a common learning has been the value of factoring in the voice and experience of disabled customers. The proposal to form an accessibility advisory panel that includes representative groups for disabled and older persons, as well as the Equalities and Human Rights Commission, sounds like a sensible approach. Again, we would suggest working with other public transport bodies to leverage the accessibility panels and forums that have already been established. We also believe that people who take part in these panels should be remunerated for their time.

We agree that the panel should be consulted prior to setting any national accessibility standards. We would encourage as collaborative an approach as feasible to standard setting with this group, such as running workshops to test different accessibility options and refining these based on feedback.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/728547/inclusive-transport-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728547/inclusive-transport-strategy.pdf)

<sup>20</sup> <https://www.gov.uk/transport/transport-accessibility-and-mobility>

<sup>21</sup> <https://www.itf-oecd.org/>

<sup>22</sup> [Autonomous Vehicles Readiness Index \(AVRI\) - KPMG Global \(home.kpmg\)](#)

We would highlight here that, at the same time as defining accessibility standards for the HARPS vehicles themselves, it is important to ensure that the accessibility of any briefing materials and safety information is also considered.

We also agree with the proposal that the panel should continue to be consulted periodically following agreement of the first version of the accessibility standards, so that these develop in line with technology advancements and changing needs of these groups. When setting the period for re-consultation, care should be taken that this is not too short and does not result in requirements that change so often that automotive and technology companies are discouraged from innovating and funding projects in the AV space.

### **Question 43**

No response

## Chapter 10: Access to data

We appreciate that issues related to data protection and privacy are predominantly out of scope, but that many of the proposals put forward in this paper will have data protection and privacy implications, especially when establishing liability in the event of a driving offence.

In appreciation of the complex data access, governance and protection challenges involved in delivering AV technology, we believe that solving for these may benefit from applying processes and learnings from prior Policy Alphas run by Government departments. In supporting these undertakings, we have seen these be an effective tool in convening large and diverse stakeholder groups, clarifying their highly intermeshed relationships, interests and commercial concerns, particularly in relation to protection of existing commercial interests and incentivising continued investment and innovation. Policy Alpha development has previously provided a channel for public/private sector engagement, structuring and focusing problem solving on the most pertinent challenges faced by stakeholder groups and clearing the way for development of standards, regulatory approaches and policy positions.

### Response to Question 55: Location data

It could be argued that self-driving is as novel a concept as when telephone handsets were introduced, if not more novel. Therefore, it is not surprising that existing data privacy and protection laws cannot reasonably be expected to cover AV technology as they were not drafted with this type of technology in existence. The successful operationalisation and integration of AVs into the existing mobility ecosystem will need a shift in data privacy and protection mindset.

We agree that location data, as well as time stamps for activation and deactivation of ADS, are required to correctly determine liability in the event of a vehicle incident. In earlier chapters, we have provided our views on the obligations of the “driver” sitting solely with a single entity at any given time - either the user-in-charge, a remote operator or an ADSE. We have agreed with proposals that the liability for a driving offence should, in most cases, sit with the “driver” at the time of the incident. However, without the collection of the data points in question, we believe it would be near impossible to prove without reasonable doubt whether a user-in-charge, an operator or an ADSE was responsible. In particular, it would be challenging for a user-in-charge to provide evidence that *“given the actions of the ADS, a competent and careful driver could not have avoided the offence”* if the time stamp for deactivation of the ADS could not be shown to be just prior to the timing of the alleged offence. This would leave room for fraud, uncertainty and liability gaps, as set out in the paper.

At the same time, we do appreciate the sensitive nature of the data that can reveal personal information about an individual based on the location. With increased connectivity and automation, vehicles are more vulnerable to data theft and hacking by unauthorised and malicious third parties. This can have serious consequences, both for users of AVs as well as public road users. For instance, advertisers or scammers may unlawfully gain information about people with certain health conditions or injuries based on the medical clinics they visit, and this may make it easier to target them regarding health insurance and injury claims. Perhaps an even greater threat to public safety is the opportunity AVs present to terrorists who may attempt to exploit self-driving technologies to cause injuries and fatalities, as has been seen in recent years by ‘vehicle as a weapon’ (VAW) attacks in the UK and around the world.

While we understand that there are conditions in the GDPR which could allow the permissible recording of this data, we do believe that appropriate safeguards must be in place to only

collect the data that is required, ensure the data is stored securely and that the information is only shared with and accessed by those with a legitimate use for it, such as police, insurers, vehicle licencing and taxation authorities. The Information Commissioner's Office (ICO) provides useful detailed guidance on organisations' obligations and how to comply<sup>23</sup>. Our response to Question 58 provides our views on the key data management elements that we believe ADSEs need to have in place and evidence to regulators to hold a license to operate.

We therefore agree that the Government should work with the United Nations Economic Commission for Europe (UNECE) to ensure Data Storage Systems for Automated Driving (DSSADs) are permitted to collect and store this data, and that any national system set up to authorise an ADS should require this data to be collected, but that this must be supported with a stringent set of mandated safeguards in place to protect AV users and public safety.

### **Response to Question 56: Sharing data with insurers**

We agree with the proposal that those controlling AV data should be subject to a legal obligation to disclose data with insurers, where this is required to decide a claim fairly and accurately. This is in alignment with one of the key reasons for collecting and storing this data. It would ensure that ADSEs are permitted to share the data only when necessary and remain compliant under the GDPR. As outlined in the paper, this legal obligation would also avoid opening up the opportunity for ADSEs to form anti-competitive allegiances with nominated insurers and fix higher insurance prices for AV customers.

This is not too dissimilar to black box insurance policies today, whereby drivers voluntarily share data regarding their driving habits with their insurers in the hope that this drives down the costs of their insurance premiums through safe and responsible driving. This could be used as a form of precedent and adopted by automotive OEMs in their existing fleet, in order to test the workability and help define future requirements.

We would also suggest an extension of this proposal to make controllers of AV data legally obligated to disclose data with the police too, where this is required to confirm the timing of the incident and/or whether the ADS was engaged at the time of the incident.

### **Response to Question 57: Data retention period**

As the current limitation period that claimants have in the UK to bring a claim to action under the AEV Act is usually three years, we support the proposal to set the initial retention period for the data on DDSADs to three years. While storing this volume of data could be expensive and technically challenging, the downside of erasing this data and subsequently not being able to decide a claim fairly and accurately could be argued as greater. We believe this could harm investor confidence in and public perception of self-driving technologies if such claims were to feature in news outlets.

We do believe that with practical experience, the data retention period could be shortened in the future if economical and less cumbersome data storage solutions are not found in the meantime. However, the limitation period for claims would need to be reduced to match. From a data perspective, the limitation period would only need to be changed for incidents involving a self-driving vehicle. However, from a practical perspective, we think the limitation period would need to be changed for all driving incidents, as claimants could not be expected to know whether the vehicle that is the subject of their claim has self-driving capabilities or not. Additionally, it would make policies on the limitation periods for claims more complicated for the public to understand. Any change to the current limitation period in the future would ideally

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<sup>23</sup> <https://ico.org.uk/for-organisations/>



be supported by a public awareness campaign that makes people aware of the changes and how it impacts them.

The data retention period discussed above relates solely to the proposed location data and time stamps for activation and deactivation of ADS. If the DDSAD stores any other data about the vehicle, such as vehicle make and model information required to register the vehicle on the system, we expect this would need to be retained for the life of the vehicle.

### **Response to Question 58: Accountability**

We strongly agree that an ADSE should only receive approval for a vehicle to be listed as self-driving from a designated regulatory body if it can satisfactorily demonstrate how this data will be recorded, stored, accessed and protected against data breaches, and that the ADSE has systems to comply with obligations under the GDPR. We would also suggest that these requirements should also apply to licensed operators, who are similarly likely to process large volumes of sensitive data.

We would highlight that the GDPR is not the only data regulatory framework that the regulatory body should expect ADSEs and licensed operators to demonstrate their compliance with, and that this expectation should be extended to a broader set of data protection and security compliance requirements. We expect that the sensitivity of data and self-driving systems will evolve over time, such as with increased use of artificial intelligence, and therefore we anticipate that the regulatory landscape will evolve in line.

We expect that that demonstration of how location and ADS time stamp data will be securely managed will sit within the ADSE or licensed operator's wider data management framework. This would cover a much larger range of datasets processed by the organisation. However, given the personal nature of the location data and ADS time stamps, it could be expected for ADSEs and licensed operators to demonstrate the additional safeguards and more stringent measures in place to specifically process these datasets.

We have reviewed this against our Advanced Data Management (ADM) Framework and believe the following areas at a minimum should be comprehensive and able to stand up to scrutiny by the regulator:

- *Data architecture:*  
Definition of data model, policies and standards, including but not limited to classification, retention periods, access and third-party legal disclosure obligations, and privacy and protection requirements including under the GDPR. There could also be an expectation for the organisation to have a mechanism in place for updating data architecture in line with any future changes in requirements.
- *Data operations:*  
How the organisation will enforce the data standards, including processes for data collection, storage and protection, and the organisational capabilities in place to operationalise these processes.
- *Data governance:*  
How the organisation will ensure and assure adherence with the data policies and standards, and alert necessary bodies in the event of any data-related problems such as data breaches.
- *Data security:*  
Specific detail on the protection, detection and response mechanisms that the organisation has in place to mitigate and manage unauthorised access to the data it

controls. The UK Government has published a set of key principles of cyber security for connected and autonomous vehicles<sup>24</sup>, which has a list of applicable cyber security standards and frameworks including SAE, ISO, DEFSTAN and NIST. There could be an expectation set by the regulator for ADSEs and licensed operators to demonstrate alignment with the relevant elements of these industry standards to qualify for approval.

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<sup>24</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/661135/cyber-security-connected-automated-vehicles-key-principles.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661135/cyber-security-connected-automated-vehicles-key-principles.pdf)