ABI AND THATCHAM RESEARCH JOINT RESPONSE TO THE LAW COMMISSION AND SCOTTISH LAW COMMISSION’S JOINT PRELIMINARY CONSULTATION PAPER ON AUTOMATED VEHICLES

About the ABI

The ABI is the voice of the UK’s world-leading insurance and long-term savings industry. A productive, inclusive and thriving sector, we are an industry that provides peace of mind to households and businesses across the UK and powers the growth of local and regional economies by enabling trade, risk taking, investment and innovation.

The UK insurance industry is the largest in Europe and the fourth largest in the world. It is an essential part of the UK’s economic strength, managing investments of over £1.8 trillion and paying nearly £12 billion in taxes to the Government. It employs around 300,000 individuals, of which one third are employed directly by providers with the remainder in auxiliary services such as broking.

About Thatcham Research

Thatcham Research is the motor insurers’ automotive research centre. Established by the motor insurance industry in 1969, the centre’s main aim is to contain or reduce the cost of motor insurance claims whilst maintaining safety standards.

A founding member of the international ‘Research Council for Automobile Repairs’ (RCAR), Thatcham Research has also been a member of the European New Car Assessment Programme (Euro NCAP) since 2004.
Executive Summary

We agree with the proposal that the default position should be to require all vehicles that are captured by the definition of ‘automated vehicle’ under the Automated and Electric Vehicles Act 2018 to have a user-in-charge in a position to operate the controls. Path 2 vehicles may not require a user-in-charge, but instead a (potentially remote) operator to ensure safe and efficient operation.

The user-in-charge should not be subject to civil and criminal liabilities related to the driving task while the automated driving system is engaged. Consumers must have confidence that they will not be held accountable for accidents caused by system failure; otherwise they may be less willing to use these systems and the potential benefits of automated driving may not be realised in full.

A user-in-charge should only be able to take over after the driver monitoring system has assured that the user-in-charge is in a position to do so safely. Any intervention in the driving task by the user-in-charge must go through an ‘offer and confirm’ process and must be by a method that cannot be implemented accidentally by the driver.

We would expect safety requirements to be complementary; vehicles authorised to be used on roads, regardless of whether they are Path 1 or Path 2 vehicles, should conform with a minimum set of passive safety features to keep the driver and passengers protected within the vehicle from various crash forces. The precise requirements are likely to vary depending on the automated driving system’s operational design domain and local traffic conditions. Any vehicle capable of automation should also be expected to have a high level of active safety (such as Autonomous Emergency Braking) on board even when driven manually. Such systems should be fitted as a standard and switched on by default.

Automated vehicles must be capable of operating in clearly defined automated mode(s) which can safely drive the vehicle in specified design domains without the need to be controlled or monitored by an individual. As such, an automated driving system must be able to carry out a minimal risk manoeuvre where it is, for whatever reason, unable to cope with the situation or finds itself outside its operational design domain. The user-in-charge should be permitted to undertake secondary activities while the automated driving system is engaged as no monitoring is required.

It would be undesirable for vehicles that require a human driver to act as a fallback when the automated driving system is engaged to be authorised or type approved. There are already worrying misconceptions about vehicles’ capabilities. It is essential that consumers know exactly what the limits of technology are and the introduction of ‘conditionally automated vehicles’ would not be conducive to road safety.

Systems that offer automation, but rely on the driver to take back control in the event of a system failure, should be discouraged as they are likely to confuse drivers, who may over-rely on the system when it is not appropriate to do so. This poses significant safety risks and may undermine public trust in automated driving systems.

The automated driving system should always monitor the user-in-charge's status and be able to calculate the appropriate handover time to enable a controlled handover.
appropriate time will depend on a number of factors, such as road conditions and the user-in-charge’s level of engagement.

Only vehicles listed under s1 of the Automated and Electric Vehicles Act 2018 should be allowed to be used in automated driving mode. To enable insurers to carry out the appropriate risk assessment and monitoring, as well as claims handling, it is vital that any changes to a vehicle’s capabilities are recorded, at VIN level, in the database that will form the Secretary of State’s list under the Automated and Electric Vehicles Act 2018. The list must capture information at VIN level and be capable of recording (i) whether the vehicle has automated driving capability; and (ii) whether that automated driving capability is actually enabled on the vehicle.

Automated driving systems should undergo rigorous testing, including self-certification and a robust third-party testing regime, to ensure that they are as safe as possible before they are authorised to be used on roads or other public places. An approval regime based on both self-certification and third-party testing should be able to evolve to ensure the safety of new automated driving systems as far as is reasonably possible.

Insurers must have access to enough information to establish whether a vehicle’s system or a human driver was in control should an accident occur. If insurers are unable to access this data, the provisions of the Automated and Electric Vehicles Act 2018 will be unworkable in practice. The current regulatory gap regarding data standards and access to in-vehicle data must be addressed if the Government wants to harness the benefits of new transport technologies. The Law Commission should explore the option of amending the Automated and Electric Vehicles Act 2018 to make the capturing, storage and transfer of this data mandatory.

There should be no separate Highway Code or obligations depending on the driving mode as this could lead to confusion among road users and be detrimental to road safety. All automated driving systems should be law-abiding and be programmed to act as safely as possible. Allowing vehicle manufacturers or software developers to program vehicles to deliberately break the law would be unacceptable and set a dangerous precedent.
Introduction

1. We welcome the opportunity to respond to the Law Commission and the Scottish Law Commission’s joint consultation paper on automated vehicles. The insurance industry is a key stakeholder in this debate, having contributed to the Automated and Electric Vehicles Act 2018, and continues to be involved as partners in government-sponsored trials across the United Kingdom.

2. The ABI has always viewed the Automated and Electric Vehicles Act 2018 as an important first step in providing the right regulatory framework to facilitate the rollout and uptake of this technology. Further legislation is likely to be required in the future to ensure that the wider regulatory framework keeps up with technological developments.

3. The ongoing transformation of mobility-related technologies presents enormous opportunities to the United Kingdom. The development and availability of automated driving systems is a new challenge for national and international regulators who determine what systems can be legally sold and driven on our roads.

4. Insurers wholeheartedly support the development of automated vehicles, as they have the potential to significantly reduce the large number of road accidents caused by driver error. The adoption of this technology brings a number of new and exciting possibilities that will improve the lives of people in society, such as giving the elderly more independence and mobility and cutting emissions and congestion.

5. Improved road safety is one of the key benefits of automation. In order to realise these benefits, the transition phase (i.e. the period where we are likely to see a ‘mixed fleet’ of manually-driven and automated vehicles on our roads) must be carefully managed and careful attention must be given to the safety features that underpin the technology.

6. Insurers see a clear distinction between two levels of ‘driverless cars’:
   a. Assisted driving refers to systems that provide continuous support to the driver. The driver is required to remain engaged with the driving task and driver monitoring systems will be in place to ensure this happens.
   b. Automated driving refers to systems that are capable of operating in clearly defined automated mode(s) which can safely drive the vehicle in specified design domains without the need to be controlled or monitored by an individual.

7. Systems that offer automation but rely on the driver to take back control in the event of a system failure should be discouraged as they are likely to confuse drivers, who may over-rely on the system when it is not appropriate to do so. This poses significant safety risks and may undermine public trust in automated driving systems.
Consultation Question 1
Do you agree that:

(1) All vehicles which "drive themselves" within the meaning of the Automated and Electric Vehicles Act 2018 should have a user-in-charge in a position to operate the controls, unless the vehicle is specifically authorised as able to function safely without one?

8. Yes. We agree with the proposal that the default position should be to require all vehicles that are captured by the definition of 'automated vehicle' under the Automated and Electric Vehicles Act 2018 to have a user-in-charge in a position to operate the controls.

9. Some vehicles (e.g. the Path 2 vehicles that are only deployed in limited local contexts where the role of the human occupant is that of a passenger) may still require a (potentially remote) operator to carry out necessary surveillance operations to direct a vehicle’s actions after that vehicle has carried out a minimal risk manoeuvre. In practice, we would envisage that these requirements may be similar to those imposed on the user-in-charge.

(2) The user-in-charge: (a) must be qualified and fit to drive; (b) would not be a driver for purposes of civil and criminal law while the automated driving system is engaged; but (c) would assume the responsibilities of a driver after confirming that they are taking over the controls, subject to the exception in (3) below?

10. We agree that, at least for Path 1 vehicles, the user-in-charge must be qualified and fit to drive. It is likely that driving tests will need to be adapted to incorporate the introduction, and keep pace with the development, of highly advanced driver assistance systems as well as automated driving systems. In addition to an updated driving test, manufacturers should take responsibility for providing those who are purchasing their vehicles with adequate training on automated driving systems. For highly advanced automated driving systems, the user-in-charge’s ability to deal with emergency situations may become more important than the ability to drive itself as the driving task would be delegated to the automated driving system. To ensure sufficient ongoing road safety, both the driving test and the manufacturers’ training should therefore contain regular assessments of the user-in-charge’s ability to deal with a takeover request.

11. The automated driving system must be designed in a way that the user-in-charge fully understands any takeover requests and the handover process to take back control and become a driver. There must be a clear offer-and-confirm process during any handover of control to/from the human driver/automated driving system. The recommended process has been authored as part of the Assisted and Automated Driving – Technical Assessment document.1 If the user-in-charge fails to confirm that they are prepared to retake control, the automated driving system must be capable of continuing to drive safely to complete a minimal risk manoeuvre and find ‘safe harbour’.

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12. We do not believe that the user-in-charge should be subject to civil and criminal liabilities related to the driving task while the automated driving system is engaged. Consumers must have confidence that they will not be held accountable for accidents caused by system failure; otherwise they may be less willing to use these systems and the potential benefits of automated driving may not be realised in full. After a handover of the driving task from the automated driving system to the user-in-charge, the user-in-charge effectively becomes a driver who assumes all responsibilities that relate to the driving task.

(3) If the user-in-charge takes control to mitigate a risk of accident caused by the automated driving system, the vehicle should still be considered to be driving itself if the user-in-charge fails to prevent the accident.

13. We disagree with this proposal as it risks blurring the lines of responsibility and liability. A clear allocation of responsibility is crucial for consumer trust and road safety.

14. UK insurers are highly supportive of automated driving technology because these vehicles should ultimately be safer than human drivers. A user-in-charge should only be able to take over after the driver monitoring system has confirmed that the user-in-charge is in a position to do so safely. We would, however, note that it is currently unlikely to be practicable to deny the driver the ability to have instantaneous control of the vehicle in a critical situation; and this may be in contravention of the Vienna Convention on Road Traffic.

15. Any intervention in the driving task by the user-in-charge must go through the equivalent of an ‘offer and confirm’ process and must be undertaken by a method that cannot be implemented accidentally by the driver. Therefore a clear, intuitive but multi-faceted approach that clearly signifies the wish of a driver to take back control must be implemented. Human factors research is currently being undertaken to determine recognisable actions for the purpose of actively taking back control and such factors should be taken into account as part of this review.

16. Additional education of the user-in-charge may be required, as automated driving systems should be able to react in a shorter time period than human drivers and may, for example, take evasive actions later than a human driver would in the same situation. Similarly, a user-in-charge may be distracted and mistakenly think that there is a need to intervene in the driving task. In such situations, it is paramount for road safety that the automated driving system only hands back control when it is safe to do so as the human driver may cause an accident that would not have happened had he/she not intervened.

17. In any event, the vehicle should be considered as driving itself until such time as the user-in-charge has completed the process of taking back control. Once the driver is in control of the vehicle, liabilities arising from the driving task should fall to the driver and not the automated driving system.
Consultation Question 2
We seek views on whether the label “user-in-charge” conveys its intended meaning.

18. We broadly agree with the term ‘user-in-charge’ for Path 1 vehicles, and that it should come with defined legal responsibilities. It is, however, important to emphasise that it should only apply to Path 1 vehicles that are capable of being driven manually. For Path 2 vehicles, the term ‘operator’ is likely to be more appropriate to capture the role and responsibilities of the person carrying out operations from a remote location.

19. The distinction between a user-in-charge and driver for Path 1 vehicles, while sensible in legal terms to clearly allocate liability, may cause confusion among consumers. In the motorway scenario given in para 3.28 of the consultation paper, the role of the human is dynamic and changes between user-in-charge and driver depending on the design domain that the vehicle operates in at any given point in time. It is vital that consumers are aware of their changing roles and responsibilities, and adequate information must be provided to them in general terms (e.g. in product information material); prior to embarking on a journey (e.g. through the human-machine interface); and when their status changes mid-journey. A clear ‘offer and confirm’ process is necessary during any handover of control between the human driver and the automated driving system (and vice versa) to provide clarity about who is driving at any given time.

20. Whilst we are supportive of the term ‘user-in-charge’, it may be appropriate to continue to refer to ‘drivers’ and ‘passengers’ in non-legal documents to clearly differentiate who is in charge of controlling the vehicle at any point throughout the journey to reduce the risk of confusion.

Consultation Question 3
We seek views on whether it should be a criminal offence for a user-in-charge who is subjectively aware of a risk of serious injury to fail to take reasonable steps to avert that risk.

21. We strongly oppose making it a criminal offence for a user-in-charge to fail to take steps to avert risks that they are subjectively aware of. As noted in our response to question 1(3), this risks blurring the lines of responsibility and would not be conducive to road safety and public acceptance of automated driving systems.

22. Whether or not an individual user-in-charge was, or ought to have been, aware of a risk of serious injury is a highly contentious question. The fundamental premise of automated driving and the concept of a user-in-charge, as we see it, is that no human monitoring of the driving task is required. This proposal undermines this premise. In many scenarios, the user-in-charge will likely lack the situational awareness needed to intervene effectively and avoid an accident. Placing a criminal liability on the user-in-charge may therefore lead to unnecessary and unhelpful interventions from humans who wish to avoid potentially falling foul of the law. This would have a detrimental impact on road safety.

23. Automated driving systems should reduce the risk of serious injury and introducing such a criminal offence may have the unintended consequence of encouraging developers to rely on human interventions to avoid accidents when the automated driving system
should have been able to do so. The situation is likely to be different if ‘conditionally automated’ vehicles, which we would classify as assisted driving systems, were to be type approved, as these vehicles would require the driver to monitor the driving task and respond to any request to take back control.

24. We would expect that any vehicle capable of automation will have a high level of active safety systems (such as AEB) on board even when driven manually. Such systems should fitted as a standard and switched on by default. Therefore, if mode confusion was to occur, the vehicle’s in-built active safety system would act to avoid or mitigate a crash.

Consultation Question 4
We seek views on how automated driving systems can operate safely and effectively in the absence of a user-in-charge.

25. All automated driving systems must be able to carry out a minimal risk manoeuvre where the system is, for whatever reason, unable to cope with the situation or finds itself outside its operational design domain. The exact nature of the minimal risk manoeuvre will depend on the particular circumstances but, in general, if the user-in-charge does not respond to a transition demand, the vehicle should decelerate, come to a safe stop and notify the appropriate authorities.

26. As such, a user-in-charge may not always be required to be present in the vehicle to guarantee safety. We expect that Path 2 vehicles would be operated by a licenced organisation and be subject to requirements by local authorities to ensure that these systems are able to cope with the scenarios that they are likely to encounter in their particular operational design domain and be able to carry out a minimal risk manoeuvre. For these systems, a controller operating remotely would be able to substitute the user-in-charge and we would expect the licence holder to be required to take necessary steps to ensure safe and efficient operation.

Consultation Question 5
Do you agree that powers should be made available to approve automated vehicles as able to operate without a user-in-charge?

27. Yes. We envisage that Path 2 vehicles would, at least in the foreseeable future, mainly be operated in the context of Mobility as a Service. For these vehicles, a user-in-charge who is subject to the same qualifications and requirements as a driver would not be required.

28. For vehicles in relatively limited numbers designed to operate within a specific geographical area, approval via the proposed new assurance scheme would be appropriate. It is likely that, in the more distant future, manufacturers may produce such vehicles in much higher volumes. At this point, the type approval route will be more appropriate, as it will be for highly automated vehicles that are designed to be manually driven for at least some of the time.

29. However, some of the responsibilities allocated to a driver or user-in-charge remain relevant and should be allocated to the operator or licence holder. This would include
criminal liability for breaches of road rules, a requirement to keep the vehicle in proper repair and reporting accidents. Some of these responsibilities can be met by technological means. For example, if it is a requirement to wear seatbelts, the system should not operate unless it has ascertained that seatbelts are fastened. These standards could be set by relevant licencing authorities in light of what is required for the safe and efficient operation of a particular system in a particular locality.

**Consultation Question 6**

Under what circumstances should a driver be permitted to undertake secondary activities when an automated driving system is engaged?

30. The insurance industry’s view is that an automated driving system can safely drive the vehicle in specified design domains without the need to be controlled or monitored by an individual. As such, the user-in-charge (not the driver, as suggested in the question) should be permitted to undertake secondary activities while the automated driving system is engaged.

31. The vehicle should always monitor the user-in-charge’s status (such as driver attentiveness or drowsiness) and be able to calculate the appropriate handover time to enable a controlled handover. The appropriate time will depend on a number of factors, such as road conditions and the user-in-charge’s level of engagement. It may be, for example, shorter for a user-in-charge looking at the road ahead and longer where the user-in-charge is reading a book. Such driver monitoring technology already exists.

32. A user-in-charge should only be able to use devices that are connected to the vehicle system. Vehicle manufacturers should be encouraged to further improve integration of devices to enable a wide range of secondary activities via the vehicle system. The vehicle system must remain able to alert the user-in-charge to retake control (e.g. at the end of a journey). Until such time as vehicles are available that completely remove the ability for a user-in-charge to assume any control, a user-in-charge sitting in the driving seat with the ability to take control over the vehicle should be required to use in-vehicle systems to facilitate effective driver monitoring.

33. The use of items such as laptops, phones and tablets positioned between the user-in-charge and the steering wheel would be very likely to cause serious injury in the event of an airbag deployment and consideration needs to be given to whether or not the use of such items on the driver seat should be permitted.

34. Any vehicle that requires a human driver to act as a fallback system is not automated and should not fall under the definition of a vehicle that can ‘safely drive itself’ as defined in the Automated and Electric Vehicles Act 2018. If a human driver is relied on to take back control to guarantee road safety, the system is assisted and the driver bears responsibility for any accidents. Drivers of these vehicles should not be permitted to undertake any secondary activities.

35. The consultation paper highlights concerns that drivers of ‘conditionally automated driving systems’, which we hold to be advanced assisted driving systems, may not pay adequate attention and may not be able to take over when necessary (para 3.86). We
agree with these concerns. Allowing these systems to be used in ‘automated’ mode is likely to blur lines of responsibility, confuse consumers and lead to reduced road safety.

36. As highlighted in figure 1 below, an increase in technological capability does not necessarily lead to an increase in road safety. The overall safety of any assisted or automated driving system fundamentally depends on the interactions between the human and the driving system. Drivers are more likely to disengage if they believe that the vehicle is able to cope with road conditions. If the vehicle’s capabilities are not sufficiently advanced, road safety is likely to deteriorate.

![Figure 1 - AV Technology and Road Safety](image)

**Consultation Question 7**
Conditionally automated driving systems require a human driver to act as a fallback when the automated driving system is engaged. If such systems are authorised at an international level:
(1) should the fallback be permitted to undertake other activities?
(2) if so, what should those activities be?

37. We believe it would be undesirable for vehicles that require a human driver to act as a fallback when the automated driving system is engaged to be authorised or type approved. If a vehicle is unable to carry out a minimal risk manoeuvre and requires a human driver to act as a fallback, no secondary activities should be permitted.

38. For vehicles that are capable of carrying out a minimal risk manoeuvre, secondary activities should be limited within the operational design domain and be undertaken only via an in-vehicle infotainment system. The infotainment system must be able to provide the user-in-charge with adequate notice should they be required to take back control and any secondary tasks must immediately be stopped. Additionally, the driver monitoring system must ensure that the user-in-charge is in a position to take over.
Consultation Question 8
Do you agree that:
(1) a new safety assurance scheme should be established to authorise automated driving systems which are installed:
(a) as modifications to registered vehicles; or
(b) in vehicles manufactured in limited numbers (a "small series")?

39. Whilst there is some agreement with this proposal, it is unlikely to be necessary to create a secondary safety assurance scheme. All vehicles produced in significant numbers must go through the proposed automated vehicle type approval process to ensure that the whole vehicle is of an automated integrity mechanically, electrically and electronically; and aligned to an internationally recognised standard. The existing Individual Vehicle Approval (IVA) scheme should be maintained and enhanced, and requirements added to consider low volume production of automated vehicles. This will require an enhancement of an existing authority’s (most likely the Vehicle Certification Agency) remit.

40. A distinction also needs to be drawn between those vehicles that operate on the public road amongst other traffic and those that operate in a defined and confined area.

(2) unauthorised automated driving systems should be prohibited?

41. We agree that unauthorised automated driving systems should be prohibited. It should be a criminal offence to use an unauthorised automated driving system on roads or other public places. The Law Commission should further consider the merits of making it an offence to sell any unauthorised automated driving systems.

42. Only vehicles listed under s1 of the Automated and Electric Vehicles Act 2018 should be allowed to be used in automated driving mode. To enable insurers to carry out the appropriate risk assessment and monitoring, as well as claims handling, it is vital that any changes to a vehicle’s capabilities are recorded, at VIN level, in the database that will form the Secretary of State’s list under the Automated and Electric Vehicles Act 2018. The list must capture information at VIN level and be capable of recording (i) whether the vehicle has automated driving capability; and (ii) whether that automated driving capability is actually enabled on the vehicle. Given the likelihood of over-the-air software updates changing a vehicle’s capability and risk profile over its lifetime, this dynamic list will be crucial for insurers to be able to evaluate risk and offer appropriate products depending on each vehicle’s capability.

(3) the safety assurance agency should also have powers to make special vehicle orders for highly automated vehicles, so as to authorise design changes which would otherwise breach construction and use regulations?

43. We agree with this proposal. However, we believe that exemptions to vehicle types and regulations are undesirable and such vehicles should be considered under the appropriate regulations. Any vehicle that operates on public roads must be subject to the same design safety standards as manually-driven vehicles.
Consultation Question 9
Do you agree that every automated driving system (ADS) should be backed by an entity (ADSE) which takes responsibility for the safety of the system?

44. We agree that every automated driving system should be backed by an entity which has responsibility for the safety of the system and is subject to regulatory sanctions and criminal liabilities if the entity fails to identify and manage safety risks associated with the system. We believe that there should be a requirement for each ADSE to be locally registered and satisfy certain capital requirements to ensure that the entity can be interacted with and pursued if it fails to uphold necessary standards.

45. In many cases, we envisage that the ADSE would be a vehicle manufacturer. Vehicle manufacturers are already required to have a UK representative to apply to the Vehicle Certification Agency for a certificate of conformity and to ensure that certain local requirements are met (e.g. the direction that headlamps dip and that the speedometer displays information in miles per hour). A similar process may be used to ensure that the automated driving system complies with local requirements.

46. We would, however, point out that there may be genuine concerns about the remit of the ADSE, particularly with regard to after-market modifications. Holding the ADSE entirely responsible may lead to a legitimate desire to limit any modification of the vehicle, however minor, and therefore have a negative impact on the competitiveness of the wider automotive sector.

Consultation Question 10
We seek views on how far should a new safety assurance system be based on accrediting the developers' own systems, and how far should it involve third party testing.

47. The two approaches are not mutually exclusive and one is not inherently preferable to the other – a strong self-certification regime would likely lead to better outcomes than a weak third-party testing regime. We believe that there should be a balance between accreditation of the developers’ own systems and third-party testing. To prevent developers from designing to a fixed set of tests, the third-party testing should use a randomised sample from an extensive set of test scenarios. This is usually referred to as the ‘grid’ method of testing. Vehicle simulation results must be validated physically using the final, complete, vehicle. The validation process should involve testing by external agents on test tracks and public roads.

Consultation Question 11
We seek views on how the safety assurance scheme could best work with local agencies to ensure that is sensitive to local conditions.

48. The safety assurance authority will need to work with the relevant local agencies responsible for the roads on which these vehicles will operate. This may be a specific transport authority (such as Transport for London) or a local highways authority. For Path 2 vehicles, which provide mobility-on-demand services, the relevant taxi/private hire vehicle licencing authority should also be involved. For clarity, it would be
preferable to move to a model where a single authority provides both safety assurance and a licence to operate these vehicles as far as is reasonable possible.

49. We would further expect these requirements to be complementary; vehicles authorised to be used on roads, regardless of whether they are Path 1 or Path 2 vehicles, should conform with a minimum set of passive safety features to keep the driver and passengers protected within the vehicle from various crash forces. The precise requirements are likely to vary depending on the automated driving system’s operational design domain and local traffic conditions. As stated in our response to question 8, vehicles must be approved either in accordance with existing international type approval regulations, or with an enhanced IVA national standard for small series / Path 2 vehicles.

Consultation Question 12
If there is to be a new safety assurance scheme to authorise automated driving systems before they are allowed onto the roads, should the agency also have responsibilities for safety of these systems following deployment?

50. We agree with the Law Commission’s view that pre-placement testing can only go so far. That being said, we believe that automated driving systems should undergo rigorous testing to ensure that they are as safe as possible before they are authorised to be used on roads or other public places. An approval regime based on both self-certification and third-party testing should be able to evolve to ensure the safety of new automated driving systems as far as is reasonably possible. We therefore do not accept the argument that regulatory standards or testing protocols may not be able to keep up with technological advances. The insurance sector has long championed the development of automated driving systems. The reason for this has been – and continues to be – the fact that this technology has the potential to deliver substantial road safety benefits.

51. As previously stated, we would recommend an enhanced IVA, rather than a new safety assurance scheme. The existing MOT structure should also be maintained with a self-check of systems. This will allow for conformity and prevent complications and confusion likely to arise from a divergence of approaches to vehicles. The organisation tasked with safety-related aspects of automated driving systems needs to set clear standards that must be met by the vehicle (passive safety features) and the automated driving system (hardware and software).

52. Providing consumers with marketing materials and potentially education and training to develop and maintain awareness of their responsibilities when using an automated driving system is likely to be a significant factor in road safety. We would recommend this issue is considered in more detail going forward.
If so, should the organisation have responsibilities for:

(1) regulating consumer and marketing materials?

53. There is a real need for more coherent messaging from manufacturers in their marketing materials. A survey commissioned by Thatcham Research found that seven in ten (71%) drivers globally and 53% in the UK believe that they can purchase a car that can drive itself today; and one in five (18%) British motorists think that a car marketed as being capable of automatic steering, braking and acceleration (i.e. an assisted driving system) allows them to ‘sit back and relax and let the car do the driving.’

54. A similar survey by AXA UK revealed that, when asked to choose a definition that best described a ‘driverless’ car from a list of SAE levels, only one third chose level 5 and 10% of respondents thought that SAE level 1 was the best definition.

55. This shows that there are still worrying misconceptions about the current state of vehicle technology. It is essential that consumers know exactly what the limits of technology are if the number of road traffic accidents is to be reduced. Whilst it is our view that existing entities such as the Advertising Standards Authority and Trading Standards should be responsible for these areas, there is a need to bring in specialist knowledge and expertise to assist in assessing the validity and accuracy of materials, in respect of both automated and advanced assisted driving systems.

(2) market surveillance?

55. We agree with the Law Commission’s analysis that safety concerns about automated vehicles may emerge in different ways from concerns about conventional vehicles (para 5.24). We anticipate that automated driving systems will receive regular software updates that may change the functionality of the vehicle. In these cases, the ADSE should be required to apply for this new system to be type approved to ensure that it is safe and fit for purpose. Using an unauthorised automated driving system should be prohibited.

56. Given the high levels of complexity inherent in automated driving systems, we agree that market surveillance will be necessary to provide adequate oversight and prevent serious risks to road safety.

57. We consider that the existing infrastructure should be used to support this work and be enhanced as required. There will be a need for coordination of any potential regulatory actions and issuance of product recalls or withdrawals where necessary. This will require a high level of technical understanding that is also required for the initial approval procedures. It will be necessary to ensure that adequate processes are in place to issue over-the-air software updates to remove unsafe software and ensure that such driving systems are no longer capable of being used.

58. As stated in our response to question 8(2), it is vital that any changes to a vehicle’s capabilities are recorded, at VIN level, in the database that will form the Secretary of

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2 https://www.thatcham.org/automated-driving-hype-is-dangerously-confusing-drivers-study-reveals/
3 https://www.axa.co.uk/newsroom/media-releases/2018/three-in-four-dont-believe-driverless-cars-will-reduce-accidents/
State’s list under the Automated and Electric Vehicles Act 2018 to enable insurers to carry out the appropriate risk assessment and monitoring.

(3) roadworthiness tests?

59. The current MOT test regime only relates to the roadworthiness of the vehicle in general. It does not check the vehicle's general mechanical condition and does not cover the state of several critical parts, including the engine. A more rigorous roadworthiness test would be appropriate to ensure continuous promotion of vehicle safety. We envisage that the safety assurance agency would have the appropriate expertise to devise and update the testing regime as necessary to uphold safety standards. Roadworthiness testing will further need to take into account software and should ensure that the latest version is installed.

We seek views on whether the agency's responsibilities in these three areas should extend to advanced driver assistance systems

60. Driver assistance systems are different from automated driving systems as they require a human driver to remain engaged with the driving task and act as a fallback should the system be unable to cope with a particular situation. However, there are some similarities between automated driving systems and advanced driver assistance systems that warrant an extension of the new safety assurance agency’s responsibilities in the areas highlighted above.

61. We note in particular the need for coherent messaging and marketing of such systems to ensure that consumers are aware of the limits of technology; and driver monitoring to ensure that the driver is, in fact, engaged in the driving task and does not undertake any secondary tasks that may undermine road safety.

62. When using advanced driver assistance systems, the driver is still ultimately in control and therefore responsible for the safe conduct of the vehicle. The driver should be capable of operating the vehicle if any such systems are faulty or switched off. Such systems should be properly tested within the MOT regime and the vehicle owner informed of any potential issues. Further thought should be given to the types of issues that may constitute ‘dangerous’, ‘major’ or ‘minor’ defects under this regime.

63. For all of these points it will be important to strike the right balance to ensure that the agency’s responsibilities do not lead to disproportionately expensive and/or onerous requirements while ensuring that only safe systems are authorised.
**Consultation Question 13**

Is there a need to provide drivers with additional training on advanced driver assistance systems? If so, can this be met on a voluntary basis, through incentives offered by insurers?

64. We agree that additional driver training would be beneficial for users of advanced driver assistance systems. Given the high degree of variation in functionality and design between different systems, it may be difficult to specify this in a regulatory framework and we believe that it would be appropriate for vehicle manufacturers / system developers to take primary responsibility for this task. This could potentially be supported by in-car safety videos similar to flight safety videos mandated for all passenger aircraft.

65. The UK motor insurance market is highly competitive and while some insurers are already offering discounts for ADAS systems, the pricing of any particular product is subject to the commercial decisions of individual firms. If additional training on advanced driver assistance systems improves road safety and results in a reduction in claims costs, this is likely to be reflected in the cost of insurance across the wider motor insurance market. As figure 2 shows, there is a strong correlation between the average claims cost and the average premium paid for motor insurance.

*Figure 2 – Average premium and average claims cost for motor insurance. Source: ABI data.*
**Consultation Question 14**

We seek views on how accidents involving driving automation should be investigated. We seek views on whether an Accident Investigation Branch should investigate high profile accidents involving automated vehicles? Alternatively, should specialist expertise be provided to police forces?

66. The root causes of road traffic accidents are well known and many police forces have built up considerable expertise in the investigation of accidents. It will be important to retain this knowledge and expertise. However, there has long been a case for high-profile motor accidents (e.g. those leading to large number of injured parties) to be investigated via an Accident Investigation Branch and the introduction of automated vehicles provides a welcome opportunity to take this forward. This would be driven by the need to establish cause and to produce recommendations to prevent similar accidents in future, which is the way other accident investigation authorities operate, rather than to establish fault and/or lay criminal charges, which would naturally tend to be the focus of police investigations.

67. Initially, we expect a limited number of automated driving systems to be deployed. It is therefore absolutely critical for consumer confidence in this technology that all events and near-misses are tracked. In-depth analysis of specific events will depend on their nature and the potential consequences if a near-miss had been an event.

**Consultation Question 15**

(1) Do you agree that the new safety agency should monitor the accident rate of highly automated vehicles which drive themselves, compared with human drivers?

68. One of the key benefits of automated driving systems is their potential to reduce the large number of road traffic accidents that are currently caused by human factors. We strongly believe that only automated driving systems that are able to deliver on this benefit should be authorised to be used on roads or public places in the UK.

69. The question of how safe these systems ought to be when compared to human drivers, however, is one that should be considered by wider society and cannot be answered by any one sector – including the insurance industry.

70. Monitoring the number and severity of accidents involving automated driving systems in practice may provide valuable information about the automated driving system itself, as well as its interactions with other road users. This could, in turn, provide helpful material to publicise the increase in road safety that the widespread adoption of these systems could bring. It would seem sensible to collect this data as part of the Department for Transport’s statistics and data about reported accidents and casualties on public roads in Great Britain (Stats19) to facilitate comparability.

71. It will be important to take into account that the factors impacting the accident rate for human-driven vehicles may not always be applicable to automated driving systems and vice versa. Road usage, driver behaviour and other factors are likely to skew the analysis (see our response to question 16(1)).
(2) We seek views on whether there is also a need to monitor the accident rates of advanced driver assistance systems.

72. The insurance industry should be well placed to interpret and understand the relative accident rates and the cost of accidents of vehicles fitted with advanced driver assistance systems. However, it is currently difficult to establish on which vehicles they are fitted, particularly where the customer has chosen to purchase them as an optional extra for fitment to their vehicle. This is an area where the sharing of data held by the ADSE or vehicle manufacturer is critical and the Law Commission should explore access to in-vehicle data more generally as part of its ongoing review.

73. We would further suggest that market studies into the effectiveness and usage of ADAS systems will help to increase the deployment of ADAS and result in a faster reduction in accidents. The associated accident rates for non-ADAS vehicles would be needed for comparisons. There should be a formal process to analyse relative performance to provide a rapid feedback loop for system refinement.

Consultation Question 16
(1) What are the challenges of comparing the accident rates of automated driving systems with that of human drivers?

74. Like-for-like comparisons will be difficult for a number of reasons. Automated vehicles are likely to operate in the first instance in specific urban areas and on motorways, both of which have lower accident rates than inter-urban and rural roads. It is also important to understand levels of exposure on different types of road. Comparisons will also need to take into account the likely high initial cost of automated vehicles. Data sets may therefore be biased towards certain socio-demographic and geographic risk profiles, and additional standardisation would need to be considered to allow for meaningful comparisons.

75. For comparisons of accident rates between different automated driving systems, performance could be benchmarked against simple metrics applicable to a wide range of operational design domains. Generally, the mileage driven is the most accurate indicator of exposure. While insurers are well-placed to interpret relative accident rates and costs, they do not accurately know the mileage driven on different road types by individual manually-driven vehicles with the exception of vehicles insured on telematics/usage-based policies.

(2) Are existing sources of data sufficient to allow meaningful comparisons? Alternatively, are new obligations to report accidents needed?

76. Stats19 already provides detailed statistics about road accidents, vehicles and casualties involved. However, these statistics are based on road accidents that are reported to the police and may therefore not provide an adequate analysis of low-impact and low-severity accidents, which may not be reported to the police.
77. If established, the new Accident Investigation Branch (AIB) would be in a position to make comparisons, analyse trends and make recommendations. To allow meaningful comparisons, this would likely require new obligations for data provision to the AIB.

78. Many modern vehicles have the capability to store crash data in their internal network. Article 7 of the European Commission’s proposed Regulation on type-approval requirements lays down the specific requirements for cars and vans and requires them to be equipped with an event (accident) data recorder (EDR). Such a requirement could facilitate the collection of in-depth accident data and comprehensive monitoring of the road safety performance of vehicles. However, EDR is usually triggered by airbag deployment and may not provide meaningful information on low-impact accidents.

79. An additional challenge may arise from the need to manage the risk of ‘hit-and-run’ events where a vehicle does not register an impact and the user-in-charge has disengaged and is not aware of the event. Video capture may provide a record of these events for investigation purposes. Ideally, automated driving systems will have sufficient capability to track and record location at all times.

80. Access to in-vehicle data after an accident involving an automated vehicle has occurred is vital to any investigation, both to establish liability and to determine whether any offence has been committed.

81. Insurers must have access to enough information to establish whether a vehicle’s system or a human driver was in control before an accident that has occurred. The data will include a GPS-event time stamp, whether the automated system was on or off, a time-stamped change in automated mode; a record of driver intervention (steering, braking, acceleration or gear shift); driver seat occupancy; whether a minimal risk manoeuvre has been triggered; and whether the automated driving system has failed.

82. This is critical to settling claims and establishing liability. If insurers are unable to access this data, the provisions of the Automated and Electric Vehicles Act 2018 will not work in practice. The current regulatory gap regarding data standards and access to in-vehicle data must be addressed if the Government wants to harness the benefits of new transport technologies.

83. The key requirement will be for automated vehicles to report any accident in which they are involved and to send a ‘crash alert’ message to the insurer concerned. The message will need to contain a relatively small set of data (known as Data Storage System for Automated Vehicles; DSSAV), which is necessary for insurers to establish liability.

84. We therefore believe that there is merit in exploring a statutory requirement to collect, store and transfer DSSAV to a secure neutral server. While we would hope that the data standards are introduced via the type approval process, the Law Commission should explore the option of amending the Automated and Electric Vehicles Act 2018 to

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4 https://eur-lex.europa.eu/resource.html?uri=cellar:f7e29905-59b7-11e8-ab41-01aa75ed71a1.0003.02/DOC_1&format=PDF
5 For a list of data fields required by insurers see: https://www.abi.org.uk/globalassets/files/publications/public/motor/2017/07/regulating-automated-driving/
make the capturing, storage and transfer of this data mandatory. A similar requirement has been introduced in Germany’s Road Traffic Act (§63a StVG).^6^

**Consultation Question 17**

We seek views on whether there is a need for further guidance or clarification on Part 1 of Automated and Electric Vehicles Act 2018 in the following areas:

(1) Are sections 3(1) and 6(3) on contributory negligence sufficiently clear?

85. We are highly supportive of the Government’s approach to creating new insurance provisions for automated vehicles. We are confident that, by the time these vehicles start to appear on the roads, the competitive motor insurance market will be ready to provide appropriate insurance policies to cover the risks associated with drivers and other road users adapting to a new mode of driving. We share the Government’s objective of making it as easy as possible for consumers to understand what insurance cover they need; and ensuring that any injured parties (including users of these vehicles) have their claims settled quickly.

86. Sections 3(1) and 6(3) of the Act are sufficiently clear for the time being; while the wording may not be ideal, the intent is reasonably clear and the view across the motor insurance market is that the provisions will work in practice.

87. The insurance industry has always viewed the Automated and Electric Vehicles Act 2018 as an important first step in providing the right framework to facilitate the rollout and uptake of automated driving systems. We accept that further changes to the legal regime may be necessary as this technology develops and a greater proportion of the population uses automated driving systems. Once insurers have had exposure to claims arising from the use of these vehicles, we will be in a better position to determine how well the contributory negligence provisions of the Act work in practice. We would therefore welcome the Law Commission continuing to keep this area of law under review.

(2) Do you agree that the issue of causation can be left to the courts, or is there a need for guidance on the meaning of causation in section 2?

88. Causation in relation to the Automated and Electric Vehicles Act is an area that has generated much debate in the insurance industry and we believe that further guidance on the meaning of causation in section 2 of the Act would be helpful. Leaving the question of causation to the courts may lead to a considerable degree of uncertainty and insurers may be less able to price accurately to reflect the risks they will be liable for.

89. For example, if an automated vehicle takes evasive action to avoid an accident with road user A (who swerves in its path with no prior warning or indication) and collides with another road user, our understanding is that the resulting accident would be ‘caused’ by road user A and not the automated driving system. Section 2(1) of the Act may, however, be interpreted to mean the insurer of the automated vehicle is liable for

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^6^ [https://dejure.org/gesetze/StVG/63a.html](https://dejure.org/gesetze/StVG/63a.html)
this accident. This would be particularly problematic in scenarios where road user A is a pedestrian or cyclist.

90. Insurers appreciate the difficulties in providing a full list of accident scenarios that takes into account the capabilities of automated driving technologies before these vehicles are used on roads in larger numbers. We believe, however, that current accident scenarios would provide a sufficiently comprehensive overview. It would be desirable to consider a range of accident scenarios and determine the likely liability outcome for each. This could then be translated into a ‘liability code’ for automated vehicles. Thatcham Research already use a standard set of collision types scenarios in their work and this may be a logical starting point. We believe that the Law Commission should consider whether and how such a code could be legally enforceable.

91. We would, however, point out that a legally binding ‘liability code’ may lead to compatibility issues with the Motor Insurance Directive if injured parties are unable to claim compensation in a scenario that is not covered in that code. This area warrants further consideration in the Law Commission’s ongoing work.

(3) Do any potential problems arise from the need to retain data to deal with insurance claims? If so:

(a) to make a claim against an automated vehicle’s insurer, should the injured person be required to notify the police or the insurer about the alleged incident within a set period, so that data can be preserved?

(b) how long should that period be?

92. Whenever a collision occurs where an automated driving system is undertaking the dynamic driving task, the question will be asked: Who caused the crash? The driver or the vehicle (with the driver as a passenger)? Who is liable? Who requires compensation? Answering these questions accurately and impartially will be essential to ensure that motor insurers have a level playing field with vehicle manufacturers when establishing liability as it may not be in a manufacturer’s interest to cooperate if they are likely to face a recovery action from the insurer. Answering these questions will further be crucial to the continuous improvement of automated driving systems and the optimisation of road safety.

93. As stated in our response to question 16(2), insurers must have access to enough information to establish whether a vehicle’s system or a human driver was in control when an accident has occurred. If insurers are unable to access this data, the provisions of the Automated and Electric Vehicles Act 2018 will not work in practice. Access to in-vehicle data is vital and a statutory requirement on vehicle manufacturers to share this data should be prioritised over discussions about data retention periods.

94. We would expect that the automated driving system would automatically and immediately notify the insurer when an accident occurs; and that the data necessary to establish liability is transferred to the insurer. However, it may be the case that some accidents do not trigger the vehicle’s data transfer mechanisms either because of their low impact or because the vehicle itself is not directly involved in an accident. In those scenarios, it would be our preferred approach to require injured parties to notify the
police immediately. This would also act as a powerful safeguard against potential unmeritorious claims.

95. Following a collision that triggers a vehicle’s DSSAV transmission, that data should be stored on a secure neutral server for the limitation period. As this data package is only needed to establish liability, it does not contain any images or video footage and we would expect it to be small enough to be stored for longer periods of time.

96. As noted in the consultation paper, the limitation period can be very long (up to 21 years) in circumstances involving children. According to Department of Transport data, 14% of road traffic accidents reported to the police involve an injured minor.7 To enable insurers to be in a position to deal with claims many years after an accident has occurred, it will be necessary to store data that provides information in addition to the minimum that is necessary to establish whether or not the car was in automated mode. This may include EDR data and potentially images from the time of the accident.

97. The additional data that would be required to investigate an accident in more detail may be substantially larger but is still necessary for insurers and manufacturers to deal with claims that may arise several years after the accident has occurred. It should be stored for the relevant limitation period or until a claim has been made.

98. The Law Commission’s proposal that claimants should only be permitted to bring a claim for an accident involving an automated vehicle if they have notified the police or the insurer about the alleged incident within a set period may be problematic in some circumstances, for example if a child is injured in an accident caused by an automated vehicle. In these cases, it may be more appropriate to require the child’s guardian to notify the relevant authorities of the accident to ensure that relevant data is retained. A duty on an injured person to report an accident may further be difficult if the injuries sustained prevent the person from making such a notification. These scenarios underline the importance of ensuring access to vehicle data and an automated accident notification by the ADS to relevant parties.

**Consultation Question 18**

Is there a need to review the way in which product liability under the Consumer Protection Act 1987 applies to defective software installed into automated vehicles?

99. We believe that it is highly unlikely that a software update (or automated driving software in general) would be provided by an organisation that is completely separate from the vehicle manufacturer or supplier. It is, however, not impossible and we would therefore be in favour of reviewing the UK’s product liability regime.

100. Under the Consumer Protection Act 1987, it is necessary to prove that a product is defective. It must further be proven that the defect has caused a particular loss. In practice, this can often prove difficult because a claimant may have to identify a precise defect in order to show a causal link and courts might have to eliminate other possibilities.8 The complexity of automated driving systems and the potential difficulties in acquiring the data necessary to prove the presence of a defect that has caused a

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7 [https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data](https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data)

8 See, for example, *Love v Halfords Limited* [2014] EWHC 1057 (QB) and *Richardson v LRC Products* [2000] PIQR P164
particular accident may severely restrict insurers’ ability to claim against those involved in the development of automated driving systems. A reversal of the burden of proof where an ADS, while driving itself, is involved in an accident would encourage manufacturers to share relevant data and would act as a deterrent to bringing any systems to market where safety concerns have been identified during the development stage.

101. The Law Commission should keep this area of law under active review and we believe that there is merit in a comparative analysis of the burden of proof for product liability claims in various jurisdictions; and how this impacts on producers, suppliers and claimants. In this context, it is worth noting that in the recent case of *W v Sanofi Pasteur* (C621/15), the CJEU confirmed that it is for national courts to decide on what evidential rules to apply, provided that these rules do not undermine the effectiveness of the system established by the Product Liability Directive (Council Directive 85/374/EEC of 25 July 1985).

102. As noted in our response to question 8, we believe that it should be an offence to use an unauthorised automated driving system. It would be our preferred approach to subject any vehicles that are equipped with third-party software to the same rigorous construction and use requirements, and roadworthiness tests to avoid unsafe systems from being deployed on UK roads.

**Consultation Question 19**

Do any other issues concerned with the law of product or retailer liability need to be addressed to ensure the safe deployment of driving automation?

103. No. The current framework appears to be fit for purpose.

**Consultation Question 20**

We seek views on whether regulation 107 of the Road Vehicles (Construction and Use) Regulations 1986 should be amended, to exempt vehicles which are controlled by an authorised automated driving system.

104. Regulation 107 will require amendments to allow for fully automated vehicles operating on public roads without a driver and without a centralised remote control capability. We would anticipate most autonomous mobility on demand services to operate in this way.

**Consultation Question 21**

Do other offences need amendment because they are incompatible with automated driving?

Regulation 104 may also require amendment to clarify what is meant by ‘road and traffic ahead’. We can envisage a scenario where an automated vehicle has turned into a blind alley and its only way out is to reverse back onto the main road and it needs the intervention of a remote operator to do so. In this case, a view of the road and traffic *behind* would be required.
Consultation Question 22
Do you agree that where a vehicle is: (1) listed as capable of driving itself under section 1 of the Automated and Electric Vehicles Act 2018; and (2) has its automated driving system correctly engaged; the law should provide that the human user is not a driver for the purposes of criminal offences arising from the dynamic driving task?

105. Yes. Consumers must have confidence that they will not be criminally liable for accidents caused by system failure; otherwise they may be less willing to use these systems and the potential benefits of automated driving may not be realised in full. For vehicles listed under section 1 of the Automated and Electric Vehicles Act 2018 the user-in-charge should, while the automated driving system is engaged, not be defined as a driver for the purposes of criminal offences arising from the driving task.

Consultation Question 23
Do you agree that, rather than being considered to be a driver, a user-in-charge should be subject to specific criminal offences? (These offences might include, for example, the requirement to take reasonable steps to avoid an accident, where the user-in-charge is subjectively aware of the risk of serious injury (as discussed in paragraphs 3.47 to 3.57)).

106. No. We refer to our response to question 3. It would be unfair to criminalise people for failing to take control when there is no requirement to monitor the driving task in the first place.

107. Should ‘conditionally automated’ driving systems be type approved, the driver would be expected to monitor the driving task and should accordingly continue to be subject to specific criminal offences arising from this task.

108. We agree that a person should be criminally liable for setting a driving system to drive in a prohibited place (para 7.61 of the consultation paper). We would, however, expect that automated driving systems are limited to their operational design domain and would not engage in prohibited places.

109. This question further highlights the need for clear rules about the capability of automated driving systems. If the system is not capable of providing a speedier and safer response than a human driver in the same situation, it should not be classed as ‘automated’ in the first instance.

Consultation Question 24
Do you agree that:
(1) a registered keeper who receives a notice of intended prosecution should be required to state if the vehicle was driving itself at the time and (if so) to authorise data to be provided to the police?

110. We agree that such a requirement may facilitate investigations. However, there may be more efficient means of achieving this, for example by utilising V2X communications at the point the alleged offence was committed. A fast and efficient data transfer mechanism will be required since such a prosecution would suggest a significant fault which may be replicated across other systems and require a product recall.
(2) where the problem appears to lie with the automated driving system (ADS) the police should refer the matter to the regulatory authority for investigation?

111. We agree that this would appear to be an appropriate course of action. The proposed new safety assurance agency would be well placed to act as a conduit between the police and the system’s manufacturer / ADSE.

(3) where the ADS has acted in a way which would be a criminal offence if done by a human driver, the regulatory authority should be able to apply a range of regulatory sanctions to the entity behind the ADS?

112. We agree with this proposal.

(4) the regulatory sanctions should include improvement notices, fines and suspension or withdrawal of ADS approval?

113. We agree with this proposal. The proposed new safety assurance agency should work with manufacturers and ADSEs to identify potential problems and issue improvement notices to ensure that the automated driving system works in practice. While we would expect ADSEs to work with regulators to ensure that their systems are safe and work effectively on public roads, it may be necessary to withdraw or limit an ADSE’s rights to put forward new automated driving systems if that entity consistently fails to comply with improvement notices.

Consultation Question 25
Do you agree that where a vehicle is listed as only safe to drive itself with a user-in-charge, it should be a criminal offence for the person able to operate the controls (“the user-in-charge”):
(1) not to hold a driving licence for the vehicle;
(2) to be disqualified from driving;
(3) to have eyesight which fails to comply with the prescribed requirements for driving;
(4) to hold a licence where the application included a declaration regarding a disability which the user knew to be false;
(5) to be unfit to drive through drink or drugs; or
(6) to have alcohol levels over the prescribed limits

114. We agree with these proposals.
Consultation Question 26
Where a vehicle is listed as only safe to drive itself with a user-in-charge, should it be a criminal offence to be carried in the vehicle if there is no person able to operate the controls?

115. We agree with this proposal. This should include the additional requirement that the user-in-charge is able to operate the controls at all times and not, for example, on the backseat of the vehicle. This would be particularly important if 'conditionally automated' driving systems were to be type approved at international level.

Consultation Question 27
Do you agree that legislation should be amended to clarify that users-in-charge:
(1) Are “users” for the purposes of insurance and roadworthiness offences; and
(2) Are responsible for removing vehicles that are stopped in prohibited places, and would commit a criminal offence if they fail to do so?

116. We agree with this proposal. For vehicles that are authorised to operate without a user-in-charge, these requirements should fall onto the ADSE or operator.

Consultation Question 28
We seek views on whether the offences of driving in a prohibited place should be extended to those who set the controls and thus require an automated vehicle to undertake the route.

117. This reiterates the need for clear rules to define automated vehicles to ensure that the level of capability of the system is appropriate. As noted in our response to question 23, we would expect automated driving systems to be programmed in a way that does not allow them to be used in prohibited places. We are, however, aware of some vehicle manufacturers’ intention to develop autonomous off-road capability and this is likely to make geofencing more difficult. For these types of vehicles, the user-in-charge may ultimately have to bear responsibility for any associated offences.

Consultation Question 29
Do you agree that legislation should be amended to state that the user-in-charge is responsible for:
(1) duties following an accident;
(2) complying with the directions of a police or traffic officer; and
(3) ensuring that children wear appropriate restraints?

118. We agree with this proposal. For vehicles that are authorised to operate without a user-in-charge, these requirements should fall onto the ADSE or operator. The eventuality of a fortuitous 'hit-and-run' event, as described in our response to question 16, should further be considered.
**Consultation Question 30**

In the absence of a user-in-charge, we welcome views on how the following duties might be complied with:

(1) duties following an accident;

119. This is an area that is likely to require careful consideration. It will be desirable to automate this process as far as possible. In practice, the vehicle may only transfer the relevant data points to the ADSE and insurer. If data transfer to a neutral server (see our answer to question 16(2)) is made mandatory, the police and relevant authorities would likely require access to this as well. There will also need to be some safeguards to discourage fraudsters from notifying non-existent collisions with automated vehicles, particularly where there are no (human) witnesses.

(2) complying with the directions of a police or traffic officer; and

120. The most sensible answer may be the use of technology which, in this case, would probably be V2X communications. As the police officer gives directions to manually-driven vehicles, at the same time an instruction would be sent electronically to the automated vehicle. For vehicles that operate without a user-in-charge, these duties would fall onto the ADSE or operator who may ensure compliance via remote controls.

(3) ensuring that children wear appropriate restraints.

121. The approach taken in Tennessee, which makes any accompanying adult or guardian responsible, seems to be the most sensible solution. For Path 2 vehicles, the automated driving system should ascertain that all passengers wear appropriate restraints prior to departure. If there is no accompanying adult or guardian, criminal liability for non-compliance would have to fall onto the ADSE or operator. Whilst the system may be able to detect the engagement of the restraints, the use of appropriate child seats would likely have to remain the responsibility of the accompanying adult or guardian.

**Consultation Question 31**

We seek views on whether there is a need to reform the law in these areas as part of this review.

122. The law will need to be reformed to effect the changes outlined above.

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Consultation Question 32
We seek views on whether there should be a new offence of causing death or serious injury by wrongful interference with vehicles, roads or traffic equipment, contrary to section 22A of the Road Traffic Act 1988, where the chain of causation involves an automated vehicle.

123. We agree that a new offence is needed.

Consultation Question 33
We seek views on whether the Law Commissions should review the possibility of one or more new corporate offences, where wrongs by a developer of automated driving systems result in death or serious injury.

124. We agree that new corporate offences that hold individual managers or directors, as well as the organisation, to account should be considered. Such offences would be particularly appropriate where it is evident that an organisation’s culture has led to the systematic neglect of safety standards and resulted in death or serious injury.

Consultation Question 34
We seek views on whether the criminal law is adequate to deter interference with automated vehicles. In particular:
(1) Are any new criminal offences required to cover interference with automated vehicles?
(2) Even if behaviours are already criminal, are there any advantages to re-enacting the law, so as to clearly label offences of interfering with automated vehicles?

125. As the Government’s recent proposals for new cycling offences10 illustrates, there is always a risk that existing offences do not adequately cover all scenarios. While the described behaviours are already criminal offences, we believe that it would make sense to create specific offences to act as a deterrent. These could be framed as ‘(causing death by) interference with the lawful operation of automated driving systems’. It would seem sensible to clarify the law to ensure that all mischievous behaviours are captured by existing or new offences. With functionality increasingly being driven through software, there should be a new offence to address the bypassing and ‘cracking’ of software by users.

Consultation Question 35
Under section 25 of the Road Traffic Act 1988, it is an offence to tamper with a vehicle’s brakes “or other mechanism” without lawful authority or reasonable cause. Is it necessary to clarify that “other mechanism” includes sensors?

126. It is our understanding that ‘mechanism’ is already interpreted to include equipment such as sensors and a legislative amendment is unlikely to be necessary. It may, however, be necessary to provide additional clarification to ensure that this includes the full process from sensor detection and software processing to the use of braking, steering or acceleration.

Consultation Question 36
In England and Wales, section 12 of the Theft Act 1968 covers “joyriding” or taking a conveyance without authority, but does not apply to vehicles which cannot carry a person. This contrasts with the law in Scotland, where the offence of taking and driving away without consent applies to any motor vehicle. Should section 12 of the Theft Act 1968 be extended to any motor vehicle, even those without driving seats?

127. Whilst appreciating that the legal system in Scotland is distinct from that in England and Wales, we believe that a consistent approach across all parts of the UK would be beneficial.

Consultation Question 37
In England and Wales, section 22A(1) of the Road Traffic Act 1988 covers a broad range of interference with vehicles or traffic signs in a way which is obviously dangerous. In Scotland, section 100 of the Roads (Scotland) Act 1984 covers depositing anything a road, or inscribing or affixing something on a traffic sign. However, it does not cover interfering with other vehicles or moving traffic signs, even if this would raise safety concerns. Should section 22A of the Road Traffic Act 1988 be extended to Scotland?

128. If specific offences, as suggested in our response to question 34, are created, this may not be necessary. Otherwise, we would agree that section 22A of the Road Traffic Act 1988 should be extended to Scotland.

Consultation Question 38
We seek views on how regulators can best collaborate with developers to create road rules which are sufficiently determinate to be formulated in digital code.

129. The priority for insurers on this issue is that road rules can be applied equally to human drivers and automated driving systems. There should be no separate Highway Code or obligations depending on the driving mode as this could lead to confusion among road users and be detrimental to road safety.

130. Investment in road furniture, markings and surface maintenance all need consideration when addressing the need to accurately and safely formulate a digital view of the environment. Initial automated vehicles will require ‘roads cars can read’ and therefore...
an investment in infrastructure (such as white lines) will be a prerequisite to enable the use and safe function of automated systems.

Consultation Question 39
We seek views on whether a highly automated vehicle should be programmed so as to allow it to mount the pavement if necessary:
1. to avoid collisions;
2. to allow emergency vehicles to pass;
3. to enable traffic flow;
4. in any other circumstances?

131. As noted in our response to question 38, we believe that requirements for human and automated driving should be equal and codified. It seems sensible to establish under which circumstances it is acceptable for vehicles to mount the pavement and apply the same rules consistently regardless of who is in control of the vehicle.

Consultation Question 40
We seek views on whether it would be acceptable for a highly automated vehicle to be programmed never to mount the pavement.

132. If it continues to be illegal for human drivers to mount the pavement under any circumstances (despite the low likelihood of prosecution if this is done to allow emergency vehicles to pass), the same rules should apply to automated driving systems. Our preferred approach would be to enact legislative change to clarify under which circumstances it would (not) be lawful to mount the pavement.

Consultation Question 41
We seek views on whether there are any circumstances in which an automated driving system should be permitted to exceed the speed limit within current accepted tolerances.

133. We do not believe that an automated driving system should be permitted to exceed the speed limit. Automated vehicles should be programmed to be law abiding.

134. If automated-vehicles-only lanes were to be considered in the future, it may be appropriate to revise this in the future and explore separate speed limits for these design domains, provided that there is evidence that automated driving systems can safely travel faster under these circumstances.

Consultation Question 42
We seek views on whether it would ever be acceptable for a highly automated vehicle to be programmed to “edge through” pedestrians, so that a pedestrian who does not move faces some chance of being injured. If so, what could be done to ensure that this is done only in appropriate circumstances?

135. A human driver should only ever edge forward safely into unoccupied space in front of the vehicle. This will sometimes mean only moving an inch or two at a time in order to
avoid touching a pedestrian. An automated vehicle should be programmed to do the same. Any suggestion of an automated vehicle aggressively nudging its way through pedestrians runs the risk of compromising road safety.

**Consultation Question 43**
To reduce the risk of bias in the behaviours of automated driving systems, should there be audits of datasets used to train automated driving systems?

136. Any discrimination based on protected characteristics is both unlawful and unacceptable. There may be merit in auditing datasets as part of overall validation / approval procedures to avoid biased behaviour. However, we do not expect automated driving systems to make ethical judgments. These systems should be safe enough to avoid accidents in most circumstances; if they are faced with a situation where an accident is unavoidable, we would not expect the system to be capable of making such decisions in the first place.

137. Automated driving systems need to be ‘trained’ in appropriate domains for their design. This will differ between various localities and appropriate controls need to be in place to ensure that this training is adequate.

**Consultation Question 44**
We seek views on whether there should be a requirement for developers to publish their ethics policies (including any value allocated to human lives)?

138. We believe that an undue focus on hypothetical ethical dilemmas, such as the ‘trolley problem’ should be avoided. It is far more important to have the adequate regulatory regime in place to ensure that automated vehicles are programmed to drive defensively and therefore avoid situations that are likely to lead to accidents. We would oppose the introduction of any automated driving system that assigns different values to human lives. Automated vehicles should attempt to remain out of a crash zone at all times.
Consultation Question 45
What other information should be made available?

139. There may be merit in disclosure of any policies that relate to aspects of the automated driving system’s behaviour in particular circumstances. However, this could potentially become both tedious and complicated, and therefore it may be more proportionate to work to relatively simple rules around avoiding animate and inanimate objects.

Consultation Question 46
Is there any other issue within our terms of reference which we should be considering in the course of this review?

140. One of the most critical areas for insurers is the availability of in-vehicle data immediately following any crash or collision – this will enable the consumer to be looked after quickly and efficiently and ensure the Automated and Electric Vehicles Act operates in the way it was intended to. If in-vehicle data is not made available to insurers following an accident involving an automated driving system, the provisions of the Automated and Electric Vehicles Act 2018 will not work in practice. As noted in our response to question 16(2), we believe that there is merit in exploring a statutory requirement to collect, store and transfer this data.

141. Mobility as a Service and the future operation of autonomous mobility on demand services, its licensing and its integration into the transport ecosystem are further key areas. Responsibilities of registered keepers for updating software, maintenance and insurance should also be covered.

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