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Proposals to support advanced driver assistance systems and automated vehicle technologies

IFoA response to the Department for Transport

9 September 2016

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Tom MacHugh
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9 September 2016

Dear Tom

Proposals to support advanced driver assistance systems and automated vehicle technologies

General comments

1. The IFoA welcomes the opportunity to respond to the Centre for Connected and Autonomous Vehicles (CCAV) consultation on proposals to support advanced driver assistance systems and automated vehicle technologies. The IFoA's General Insurance Board and Risk Management Board are jointly responsible for the drafting of this response.

2. Given actuaries' expertise in the assessment, quantification and financial/practical management of risks, most of our comments on the consultation relate to Chapter 2 on insurance; however, we also comment on wider issues, including the public interest. The Roads Minister Andrew Jones said in a recent speech that there is a 'rare window of opportunity' for insurers to develop new insurance models and products for autonomous vehicles, and we envisage that actuaries will be at the forefront of innovation in this area. In addition, research into how the motor insurance market may develop in the coming years could help to ensure a smooth transition towards autonomous vehicles becoming the norm, and actuaries have the expertise to contribute to this, either alone or working with other professionals.

3. In our view the consultation paper implies that there is a clear distinction between an assisted driving world and an automated driving world. This may be true in theory, but in practice the boundary between the two is much less well-defined. There is a much smoother transition through the various degrees of assisted technology leading into full automation, as Chapter 1 of the consultation illustrates with the examples of motorway assist; remote control parking; and 'HGV platooning', where several vehicles operate like a single unit using Vehicle-to-Vehicle communication. It follows that the launch of a fully automated vehicle would be an incremental step rather than a dramatic jump, and a large number of the 'conventional' vehicles on the road at that point are likely to be highly assisted. We believe this has implications for how one thinks about the risks and costs at each stage.

4. Chapter 2 of the consultation focuses on resolving claims relating to Automated Vehicle Technology (AVT) and accidents that occur when the driver is 'out of the loop'. It is also important to consider the transitions when control of the vehicle passes from the car to the driver or vice-versa, and the need for clarity on which mode the vehicle is in at any given time.

We suggest that there could be insurance issues with assisted driving as well as automated driving. For example, even though the driver remains in the loop, it does not seem far-fetched to imagine that a malfunction of the assisted technology could cause an accident that is hard for the driver to control. Given that possibility, we would urge the Government to consider how it could extend its product liability proposals to assisted technology.

5. The consultation discusses data recording and data sharing without posing specific questions. We would like to comment on this area. We believe it will be vital to clarify who owns or can access data on both driver behaviour and the functioning of vehicle technology. If such data is owned by manufacturers there is a risk that they could try to avoid liability in order to protect their reputations. Similarly if data is owned by the vehicle's insurer this could impede competition. The IFoA therefore believes that there should be open access to data, within the constraints of data protection legislation.

6. While our main focus is insurance, we also have some comments on the proposed changes to the Highway Code and the Construction and Use Regulations outlined in Chapter 3. We support the proposals to update the Highway Code. In addition we believe that the Government should consider whether drivers need to be retested on the Code. Demonstrating this competence would be valuable in itself, and could also be one factor to take into account when assessing if a driver is liable for an accident.

7. We would also welcome more information on Government plans for the infrastructure to encourage widespread use of Advanced Driver Assistance Systems (ADAS) and AVT on UK roads, such as traffic data systems that all vehicles can link to. The Government should also clarify whether platooning would only be allowed on certain roads.

Question 2A – Do you agree with the proposition to amend road vehicle compulsory insurance primary legislation in Part 6 of the Road Traffic Act 1988 to include product liability for automated vehicles? Why?

8. We agree with the proposal. An example of how the two models of insurance products in 2.14 could work would be helpful.

9. In our view the manufacturer should ultimately pay the cost of claims that would fall under product liability. Buyers of automated vehicles should have confidence that it will be the manufacturer rather than themselves who will be paying for that product liability cover.

10. One way to implement this would be for the buyer to purchase a single policy that includes product liability cover, with the insurer then recovering claims costs under that element from the manufacturer. This option would not be ideal for buyers, since premiums could go up if insurers are not able (or not always able) to recover product liability claims costs from the manufacturer.

11. It seems unclear how the "risk-sharing" option between the insurer and the manufacturer would work in practice. Would manufacturers be tied to particular insurers, or possibly to a panel of insurers with the buyer picking one of these at the point that they buy the car? We think such an arrangement could be workable without changing the basic content of the policies that individual buyers take out. The buyer could also receive a document to confirm that the manufacturer has product liability cover in place.

Question 2B – What, if any, other changes to the insurance framework should be considered to support use of automated vehicle technologies, and why?

12. It is unclear how the market for autonomous vehicles will develop, or the balance between private and company ownership. Risk identification, quantification and practical management will need to evolve to cover all of the possible operating models and insurance will become ever more sophisticated (particularly with the enormous growth in data) to share the cost of risk properly.

13. At some future date the Government may need to decide if it wants to be actively involved in developing the market. If it does, one lever it could use to encourage either individuals or companies with fleets of vehicles to buy autonomous vehicles might be to create incentives through changes to road vehicle tax.

Question 2C: If you are an insurer or vehicle manufacturer or other organisation directly affected by these changes, what costs do you estimate your organisation will incur as a direct result of these changes?

14. Not relevant to IFoA.

Question 2D: Do you anticipate the cost of insurance products for automated vehicles to be higher than for conventional vehicles? (Y/N); By how much and why? (free text)

15. From an insurer's perspective we can identify a number of factors which will affect whether net costs increase or decrease. Providing compensation to 'not at fault' drivers of automated vehicles will increase costs, although such compensation would come under product liability and so should affect the manufacturer rather than increasing premiums for consumers.

16. Other sources of higher costs include:

    - The cost of seeking recovery from manufacturers. One successful claim might mean product recall (or more simply a new software patch issued to all similar vehicles) which could seriously damage the reputation of a manufacturer. We believe this process could be fraught with problems due to the potentially high stakes it entails, and legal costs could therefore increase;
    - The cost of replacing damaged items that do not exist in conventional vehicles, such as smart technology embedded in bumpers and windscreens;
    - The amount of data available to insurers will affect their degree of certainty about claims costs, and more uncertainty will imply greater margins on costs and premiums;
    - There will be a new risk that technological malfunction could affect many vehicles simultaneously. Insurers will face increased reinsurance costs to cover this risk;
    - One-off product development costs for insurers to adapt their processes to automated vehicles. Defining processes for gathering claims data and assessing liability could be complex given the radical differences between autonomous and conventional vehicles. This work could also be ongoing for some years as early incidents, technological adjustments and case law act as feedback mechanisms to insurers' processes.

17. Against these increases in cost, the statistic that 90% of road accidents are caused by human error suggests that the frequency of accidents will decrease over time, and the evidence from existing ADAS supports this[1].

[1] See e.g. http://cyberlaw.stanford.edu/blog/2013/12/human-error-cause-vehicle-crashes

18. As we suggest in the General comments, the transition through the various degrees of assisted technology leading into full automation is likely to be a gradual process. This suggests that the factors we have highlighted could affect costs in a gradual way.

Question 2E: Do you anticipate that the introduction of automated vehicles will increase insurance premiums for conventional vehicles? (Y/N) Why? (free text)

19. It may in the short term. We have suggested that product development costs for new insurance products could be high. Insurers may be looking to build new business as the autonomous sector expands, and they could choose to allocate some of these extra costs to premiums for conventional vehicles in order to keep those for autonomous vehicles down.

20. While autonomous vehicles can be expected to reduce road accident numbers once they become established, this reduction may need to be evidenced over a few years before it achieves general acceptance. In the short term, there would only be a small number of autonomous vehicles on the roads but they would be highly publicised and could lead to a perception of higher risk. Such a perception could cause real accidents and could even increase premiums.

21. In the longer term, as the number of autonomous vehicles grows and accident numbers fall, premiums for all vehicles could reduce.

Question 2F: What do you estimate will be the costs to insurers, vehicle manufacturers, or other parties of providing product liability cover for automated vehicles, and why? (free text)

22. As we have already suggested, developing product liability insurance products for automated vehicles is likely to be a highly technical process. As such, development costs could be high in the early years, and they may remain significant to deal with ongoing changes during the – possibly quite long - transitional period until automated vehicles are the norm. Also, we would expect insurers and manufacturers to collaborate to maximise compatibility between automated vehicle technology and product liability claims processes, and this will generate costs for manufacturers.

23. Manufacturers might be nervous about accidents involving automated vehicles, because with traditional cars a single incident would not have repercussions, but a single accident for an automated vehicle could be relevant for all vehicles using certain software. It could lead to a product recall and push up the price of insurance. So manufacturers might be reluctant to admit liability; on the other hand, they would want to avoid pushing up insurance costs as this could harm vehicle sales.

24. In our view the prospect of disputes between insurers and manufacturers is an argument for ensuring that individual buyers do not have to take out product liability cover (see our response to 2A above).

Question 2G: Do you anticipate that this cost will be passed on to the consumer? (Y/N) Why, and by how much? (free text)

25. We believe that the total cost of product liability insurance (taking account of increased costs and savings achieved) will be passed on to consumers as insurance companies seek to make a return on their capital but do so in a competitive market. It may be that motor manufacturers seek to provide some subsidy into the insurance model (e.g. through bundling insurance into the car purchase) to promote sales of these vehicles.

Question 2H: Do you agree that where a driver attempts to circumvent the automated vehicle technology, or fails to maintain the automated vehicle technology, the insurer should be able to exclude liability to the driver but not to any third parties who are injured as a result? (Y/N) Why? (free text)

26. We agree that if the owner or named driver misuses an automated vehicle injuring a third party then that third party should be compensated. The insurer should be able to recover the damages from the owner or named driver (depending on which of them was responsible for misusing or not properly maintaining the vehicle), and the owner/named driver should not themselves receive compensation. Since insurance policies including automated vehicles will be untested, we suggest that there may well be legal disputes, at least in the initial period, about the definitions of circumventing or failing to maintain or inappropriately using the automated vehicle technology.

Question 2I: Do you agree that in the event of 3rd party hacking of an automated vehicle, an insurer should not be able to exclude liability, as set out in the Consultation Document? (Y/N) Why? (free text)

27. We accept the comparison with a stolen vehicle, since a hacked vehicle would essentially be out of the driver's control through no fault of their own (if the hacker could not be traced the appropriate comparison might be with an uninsured vehicle covered by the Motor Insurers' Bureau).

28. However, the liability could be unclear if the owner was negligent in maintaining the security systems within the automated vehicle technology and this gave an opening for the car to be hacked. We note that the risk of hacking already exists with ADAS.

29. We suggest that insurance cover for hacking could be provided either by product liability insurance or by cyber insurance. This should preferably be paid for by the manufacturer, not by the driver. Terrorism reinsurance may be needed to cover the risk of many vehicles being hacked simultaneously.

Question 2J: Do you agree that the product liability and insurance requirements for automated vehicles should

- **follow the normal rules on product liability with different rules depending on whether the injured party was an individual or a company? (Y/N)**
- **be limited by the 'state of the art' defence? (Y/N)**

Why?

30. We would not support a change to the legal operation of product liability to give different treatment for autonomous vehicles, since this creates unnecessary complexity. However, it is important to clarify how this would work in practice.

31. The consultation does not give the reason why companies already have more demanding requirements than individuals in their product liability claims. It would be helpful to explain this and to justify why there should be a difference as to the liability if an automated car hits a private building/car versus a corporate building/car.

32. The IFoA believes it is vital that the proposals do not leave any gap in cover so that an innocent third party is not compensated (which seems consistent with the Government's stated policy aims in 2.9). If a person driving a company car is hit by a driver in a semi-autonomous vehicle using some of the autonomous features, then they should be able to

claim against the driver's insurance policy. If that policy included product liability cover, the injured party would be fully compensated including damage to their company car. It would then be for the insurer to decide if the manufacturer was at fault, and if so to seek the recovery from the manufacturer. A potential concern would be if a gap emerged, where the manufacturer's liability could not meet the threshold test of 'negligent' and hence the insurer for the driver refused to pay out the repair costs for the third party company car.

33. The same argument applies in the case of the 'state of the art' defence. The proposal will be effective as long as the third parties (and 'driver') get claims paid by the driver's insurer, even if the insurer may not always be able to make a recovery from the manufacturer. However we would be concerned if this creates a compensation gap whereby innocent third parties cannot get compensated.

Question 2K: Alternatively, should we extend insurance/liability rules specifically for automated vehicles? (Y/N) Why? (free text)

34. In general we would not support a change in the rules unless a case can be made that automated vehicles are fundamentally different from other products and require different treatment. However, as we have argued, the risk of creating a compensation gap could justify extending the Consumer Protection Act to cover damage to company-owned vehicles.

Question 2L: Do you agree with the proposal that, with respect to automated vehicles, the public sector can continue to self-insure but, where they choose to self-insure, they would then be required to step into the insurer's position in respect of product liability damages? (Y/N) Why? (free text)

35. The public would expect the risks to be paid for by the Government. However, if claim costs proved higher than expected there could be political pressure for Government Departments to take out external product liability insurance.

36. We have already referred to the potential difficulty for insurers to obtain damages from manufacturers. We therefore think it would be helpful if the document could state explicitly that a self-insuring public sector body should act in exactly the same way as an insurer, i.e. first to pay out the compensation due and then seek to resolve where the liability lies (with driver or manufacturer) and if appropriate seek recovery from the manufacturer. This approach would achieve the overall aim of avoiding significant delays to fair compensation for the injured party. Compensation for the third party should not have to wait until it can be established if the driver or the vehicle is at fault.

Question 2M: Do you agree that an alternative first party model option would not be proportionate while automated vehicles represent a small proportion of the fleet? (Y/N); please explain your answer (free text)

37. Moving to a first party model for all vehicles would not be proportionate just for the sake of a relatively small number of automated vehicles, unless extending the third party model to automated vehicles could be shown to be impossible to implement. In addition the consultation document points out some possible problems with a first party approach, such as higher premiums and greater uncertainty for insurers. However, we assume that those who have suggested the first party approach can point to some potential advantages of this, and it would have been helpful to see these described in the consultation paper.

Question 2N: What do you anticipate the cost of implementing a first party insurance model would be? (free text/upload)

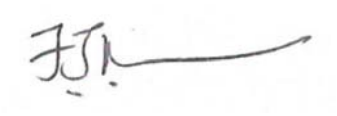
38. We do not have evidence for estimating this.

Question 2O: Do you have data to support your answers on insurance for automated vehicles?

39. We do not have direct access to such data but our response reflects the expertise of our members, some of whom are aware of confidential data within their firms.

Should you want to discuss any of the points raised please contact (Matthew Levine, Policy Manager at Matthew.Levine@actuaries.org.uk / 020 7632 1489 in the first instance.

Yours sincerely,



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