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Written evidence submitted for self-driving vehicles call for evidence (SDV0002)

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UK Parliament

Written evidence submitted by Dr Hannah Stones (SDV0002)

Legal academic with a primary research focus within maritime law, especially in relation to liability rules, the safety of passengers at sea, and the development of remote-controlled and autonomous ships. This research has involved looking at the legal similarities and differences between cars and ships in the development of remote-controlled and autonomous systems. This evidence is being submitted due to these research interests.

The regulatory framework, including legal status and approval and authorisation processes.

1. The regulatory framework for self-driving vehicles presents many challenges, and thus this evidence will be largely constrained to fully autonomous self-driving vehicles, and on the applicability of regulations to the owner and driver, for the necessity of simplification.
2. The regulatory framework is partially predicated on the control and responsibility of the owner and driver, and when the vehicle drives itself, this may seem inappropriate. This then raises questions of what the legal status of these vehicles is, and whether they subsume the position and responsibilities of the owner and/or driver (i.e., ensuring that it is legally permissible to use the vehicle). The owner and driver are not always the same person, and thus this is one of the most problematic aspects in determining who should be legally responsible and to what extent.
3. My main area of research involves shipping law, which is presented with similar issues by autonomous ships. Therefore, my considerations and suggestions will be informed by the options that are best for autonomous ships. In shipping, it is likely that the emphasis of responsibility will continue to be on the owner. For vehicles, this means that the status of vehicles as vehicles remains unchanged, so that the vehicles do not subsume the role of the owner and are not conferred with legal personhood. This would maintain the emphasis for the registration, tax, insurance, and safety checks (e.g. servicing and MOTs) on the individual owner level. This is predicated on accepting that the owner has overall responsibility for the vehicle based on the decision to own a vehicle with an autonomous system.
4. This then raises the issue of when a vehicle has multiple owners, or the owner is not in/using the vehicle. In these situations, the owner should still be responsible for the vehicle. There are a few reasons for such an

approach. Firstly, it involves minimal change to the existing understanding of the role of the owner of the vehicle. This simplifies the process of integration. Secondly, it would be very clear who is responsible for following regulations or accepting responsibility for system errors, while avoiding the temptation to impose legal personhood on the vehicle or expand the liability of the manufacturer.[i] Thirdly, it emphasises the commonality between self-driving vehicles, current vehicles, and vehicles of various levels of autonomy (e.g., remote-controlled vehicles, or semi-autonomous vehicles).

5. Self-driving vehicles, and all their potential variants, mean that it is important to focus on the shared vehicular status to simplify the regulatory framework. Levels of autonomy can be consistent, but vary from vehicle to vehicle, or a vehicle may change the level of autonomy that it is exercising throughout its life (due to updates or the ability to select a level for a particular journey) or even vary throughout a journey.[ii] Additionally, the long lives of existing vehicles and the wide range of levels of autonomy mean that the interaction between different vehicles, with different levels of autonomy, will occur for a significant period of time, so the framework needs to be designed to allow for interaction between vehicles using different operating systems. It is therefore inappropriate to have different requirements for each level of autonomy and thus minimal change is necessary.
6. There is then also the issue of the person using the vehicle, the equivalent of the driver. Generally, the burden for maintaining and ensuring the compliance of the vehicle with regulations should remain on the owner, but some responsibilities should be on the user (the equivalent of the charterer, manager, or operator of ship). Once they take responsibility in using the vehicle then they will have some regulatory burdens to fulfil (e.g. licensing and insurance). This would mean that a user would be designated to have similar responsibility of the driver, despite having less direct control than current drivers. This would reduce the distinction between self-driving vehicles and current vehicles further, by having an equivalent of the driver. It focuses on the choice of the user in either driving a less autonomous vehicle or relying on an autonomous vehicle. Then it reflects the obligation in that choice to be responsible for ensuring the vehicle, however it operates, is regulatory compliant.

7. There is one other approach that is favoured for self-driving vehicles, which is based on the responsibility for developing and updating these autonomous systems. Following that approach, the manufacturer maintains control and responsibility for self-driving vehicles (in designing, programming and updating the autonomous system). This is favoured for the more direct and ongoing influence the manufacturer has on the operation of the vehicle. However, if more regulatory burdens were imposed directly on the manufacturer then this could stifle innovation and lead to a confused system overall for all vehicles. Therefore, the former approach of minimal change is more favourable. (This option is, however, useful for the testing/experimental stage.)
8. Minimal change to the existing system, will lead to more effective integration and make interaction between vehicles and all vehicles' owners and users less legally complicated. This is vital to facilitate the integration of these systems and to benefit from their safety developments. Greater change and variation would over-complicate the regulatory system, so that people may find it harder to comply with the regulatory requirements.

Safety and perceptions of safety, including the relationship with other road users such as pedestrians, cyclists and conventionally driven vehicles.

9. The point of interaction between vehicles of various levels of autonomy is likely to be of concern and considered particularly risky. Therefore, it is vital that these vehicles are considered safe within the autonomous system itself and in their interaction with vehicles of all levels of autonomy. Being able to address areas of concern through the same minimal standards for safety across all vehicles and a clear regulatory system is vital to addressing concerns and misconceptions as to the safety and risk of self-driving vehicles.
10. Self-driving cars naturally will be perceived as risky due to their unfamiliar nature, and that unfamiliarity will lead to them being considered as riskier than the known risks of current vehicles.[iii] Therefore, through emphasising the commonality of all vehicles, regardless of their level of autonomy, and providing a clear regulatory system (as well a clear liability system) ensures the safety of self-driving vehicles, and emphasises an improvement in safety rather than an increase in risk.[iv]

The role of Government and other responsible bodies, such as National Highways and local authorities; and potential effects on patterns of car ownership, vehicle taxation and decarbonisation in the car market.

11. A study by Li et al found that there is a perception of less responsibility on the driver for self-driving vehicles and of more responsibility on manufacturers and governments.[v] In order to avoid this perception of greater responsibility on Government for self-driving vehicles, compared to existing vehicles, it is important that Government provide a clear regulatory framework that addresses the increased perception of risk for these vehicles through emphasising the common nature of all vehicles (i.e. that they are fulfilling the same safety requirements). This will be the most effective way of the state protecting its citizens and discharging this increased responsibility.

Conclusion

12. Minimal change and effective integration into the existing system are necessary for emphasising the continued high standard of vehicle safety, regardless of whether the vehicle is self-driving. In taking this approach, Government can encourage innovation and foster the confidence of the public in the future of transportation.

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Endnotes

[i] Hannah Stones, 'Will the smart ship also be the liable ship?: An analysis of the application of liability to the ship itself' in Smart Ship Technology, 24-5 January 2017, London, UK, Papers (Royal Institution of Naval Architects 2017).

[ii] Robert Veal, Michael Tsimplis, Andrew Serdy, Alexandros Ntovas and Simon Quinn, 'Liability for Operations in Unmanned Maritime Vehicles with Differing Levels of Autonomy' (University of Southampton, European Defence Agency, 2016) 6-9.

[iii] Richard A Posner, Economic Analysis of Law (9th edn, Wolters Kluwer 2014) 21; Amalia Tzima and Phillip Morgan, 'Justifying Global Limitation of Liability for Maritime Claims in the Modern Business Environment' [2021] LMCLQ 292, 315.

[iv] Hannah Stones, 'Objective and subjective safety in unmanned shipping' [2016] 16(9) Lloyd's Shipping and Trade Law 4.

[v] J Li, M J Cho, X Zhao, W Ju and B F Malle, 'From Trolley to Autonomous Vehicle: Perceptions of Responsibility and Moral Norms in Traffic Accidents with Self-Driving Cars' (Society of Automotive Engineers World Congress, Detroit, 12-14 April 2016).