

**Response to Law Commissions' second consultation on Automated Vehicles  
(Law Commission Consultation Paper 245; Scottish Law Commission Discussion Paper 169)**

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What is your name?

Alan Nettleton

What is the name of your organisation?

Connected Places Catapult

Are you responding to this consultation in a personal capacity or on behalf of your organisation?

[Respondents chose from the following options: Personal response; Response on behalf of your organisation; Other.]

Responding on behalf of organisation

### **CHAPTER 3: OPERATOR LICENSING – A SINGLE NATIONAL SYSTEM**

#### ***A single national scheme***

**Consultation Question 1** (Paragraph 3.82): Do you agree that Highly Automated Road Passenger Services (HARPS) should be subject to a single national system of operator licensing?

[Respondents chose from the following options: yes; no; other.]

Yes

This is interpreted as two questions. The first is should a new system of operator licensing be introduced for HARPS, which no longer attempts to make arbitrary distinctions based on number of passengers or fare structures. CPC agree that such distinctions are becoming irrelevant due to technology, blurring of modes, and are not in the interests of encouraging innovation or customer experience.

The second is should such a system be national rather than local, to which CPC's belief is that it should be national. HARPS have the potential to provide a flexible service to passengers at low cost. Such services could be free to cross local authority boundaries and travel long distances, and without a human driver may not need to return to a central base of operations in order to return the driver to where they need to be at the end of the shift. This operational flexibility could revolutionise public transport provision and should not be stifled. However, CPC would be interested in views of those advocating local regulatory frameworks, particularly from those with responsibility for implementing existing controls.

In relation to this question, there is a need for a mechanism to ensure the technology is ready for operation from a safety perspective when first implemented. It is noted that the Automated Driving System approval process is not considered in this paper. It is therefore assumed that before an operator can propose to run a HARPS, the system must have been approved by a regulatory body for the specific operational design domain in which the services are intending to operate. This is effectively the driving test for automated vehicles which must consider the technology's ability to respond appropriately and reliably in a broad range of scenarios.

Connected Places Catapult (then Transport Systems Catapult) touched on this theme in relation to trials (rather than for deployment of commercial services) when writing a report for CCAV, titled "Specification Information to Inform Approvals for Advanced Vehicle Trials". The Centre for Connected and Autonomous Vehicles and the DfT's International Vehicle Standards division instructed the Transport Systems Catapult to consider information Government could ask an automated vehicle testing organisation seeking to apply for an exemption to a Construction and Use Regulation, to enable testing of automated vehicles on UK public roads in a way which is likely to be inconsistent with UK law. Such information would help inform a decision by Ministers on whether to provide approval for that test.

The recommendation was that applications for exemptions to Construction and Use regulations could be examined and considered by an independent assessment panel, comprised of subject matter experts. The panel should be impartial and possess the necessary cutting-edge knowledge to ensure the right questions are asked and can assess the technology in detail.

The report can be downloaded from the following page:

<https://ts.catapult.org.uk/intelligent-mobility/im-resources/research-papers/>

Our view is that the regulatory body that approves the automated driving system within the proposed operational design domain should be national, and should cover all public highway roads in the United Kingdom. The body should consider appointing an independent assessment panel, as proposed in the above reports for advanced trials. The panel could consider how the HARPS can be operated safely in accordance with the safety standards.

Once the system is approved and is deemed ready to safely carry passengers, the organisation responsible for regulating ongoing operations of such a system should also be national, and should be closely linked to the body that granted initial approval.

We suspect that local authorities do not currently have the resources or expertise to take on these responsibilities.

**Consultation Question 2 (Paragraph 3.86): Do you agree that there should be a national scheme of basic safety standards for operating a HARPS?**

[Respondents chose from the following options: yes; no; other.]

Yes

We agree that there should be safety standards for operating HARPS, and they should apply nationally and should align with international safety standards.

## **CHAPTER 4: OPERATOR LICENSING –SCOPE AND CONTENT**

### ***Scope of the new scheme***

**Consultation Question 3** (Paragraph 4.33): Do you agree that a HARPS operator licence should be required by any business which: (1) carries passengers for hire or reward; (2) using highly automated vehicles; (3) on a road; (4) without a human driver or user-in-charge in the vehicle (or in line of sight of the vehicle)?

[Respondents chose from the following options: yes; no; other.]

Yes

Yes. It is assumed, but not explicitly clear, that this question relates to all clauses (1 to 4), however without any of the clauses then it could be argued that it is not defined as HARPS, or that a license is not required. Wording could be clarified.

**Consultation Question 4** (Paragraph 4.34): Is the concept of “carrying passengers for hire or reward” sufficiently clear?

Yes

### ***Exemptions***

**Consultation Question 5** (Paragraph 4.46): We seek views on whether there should be exemptions for community or other services which would otherwise be within the scope of HARPS operator licensing.

We believe that safety is the main consideration in relation to the early deployment of HARPS. All organisations intending to operate HARPS should be capable of demonstrating professional competence and ensuring safe and well maintained vehicles, and therefore should fall within the scope of HARPS operator licensing.

**Consultation Question 6** (Paragraph 4.54): We seek views on whether there should be statutory provisions to enable the Secretary of State to exempt specified trials from the need for a HARPS operator licence (or to modify licence provisions for such trials).

We believe that, in the interests of encouraging innovation (which may be critical in realising the benefits of automated vehicles), the Secretary of State should be able to exempt specified trials from the need for a HARPS operator licence. However, safety should remain the primary consideration in deciding whether a testing organisation can be granted an exemption. The process and evidence required for granting an exemption should be considered carefully.

### ***Operator requirements***

**Consultation Question 7** (Paragraph 4.72): Do you agree that applicants for a HARPS operator licence should show that they: (1) are of good repute; (2) have appropriate financial standing; (3) have suitable premises, including a stable establishment in Great Britain; and (4) have a suitable transport manager to oversee operations?

[Respondents chose from the following options: yes; no; other.]

Yes

We agree with all points. With regard to suitable premises, it is acknowledged that it may not be necessary to keep vehicles in a garage when not in use, and there should not be a forced requirement to do so. More importantly, the organisation will need to demonstrate how the vehicle fleet will be adequately maintained. We assume for small operations the operating centre could be the effective and stable establishment. We would suggest flexibility around the requirements, rather than being too prescriptive without knowledge of the proposed operations.

**Consultation Question 8** (Paragraph 4.73): How should a transport manager demonstrate professional competence in running an automated service?

The role of the transport manager will need to be clearly defined. It may be necessary for the transport manager to have a good understanding of the vehicle technology, the applicable Operational Design Domain and how to detect faults early. They may also need to demonstrate an understanding of how passengers are likely to react to automated vehicles and have strategies in place for handling likely human factors issues and how to recover passengers safely from vehicles if necessary. This should be covered within the operational safety case documentation, which would be agreed with authorities prior to deployment of services.

On the technology side there are already Masters courses available in Connected Autonomous Vehicles offered by universities such as Cranfield University and the University of Warwick, and the Connected Places Catapult has worked with the Institute of Engineering and Technology to develop online courses in this area. More specialised courses could be made available by vehicle technology developers and vehicle manufacturers. The Transport Manager may benefit from completing such courses.

***Adequate arrangements for maintenance***

**Consultation Question 9** (Paragraph 4.89): Do you agree that HARPS operators should: (1) be under a legal obligation to ensure roadworthiness; and (2) demonstrate “adequate facilities or arrangements” for maintaining vehicles and operating systems “in a fit and serviceable condition”?

[Respondents chose from the following options: yes; no; other.]

Yes

Yes to both points. There is a risk that anti-social behaviour in relation to automated vehicles could result in vehicle roadworthiness being compromised. For example, sensors could be tampered with by passengers or members of the public outside the vehicle. The driver currently provides a figure of authority, but this is no longer in place with HARPS. The unexpected behaviour of members of the public can be overlooked in the design of transport systems. Technology developers, HARPS operators and regulators should discuss these aspects with the police and human factors experts.

**Consultation Question 10** (Paragraph 4.90): Do you agree that legislation should be amended to clarify that HARPS operators are “users” for the purposes of insurance and roadworthiness offences?

[Respondents chose from the following options: yes; no; other.]

Yes

### ***Compliance with the law***

**Consultation Question 11** (Paragraph 4.124): Do you agree that HARPS operators should have a legal duty to: (1) insure vehicles; (2) supervise vehicles; (3) report accidents; and (4) take reasonable steps to safeguard passengers from assault, abuse or harassment?

[Respondents chose from the following options: yes; no; other.]

Yes.

With regards to point 4, lessons could be learnt from existing transport environments, such as train carriageways or buses (particularly the top deck of double-decker buses where the driver is out of view). British Transport Police may have views on how systems can be designed to mitigate against such risks.

For work-premises linked to the operation of the HARPS, would need to follow HSE RIDDOR process which includes reporting near-misses. The vehicle itself could represent a workplace if there are HARPS employees on the vehicle, for example, undertaking customer care tasks.

We should remember that fully-automated passenger transport services are already in service in certain environments, such as people-movers at airports, the Heathrow Pods system, and the Rivium Parkshuttle system in the Netherlands. These systems could be examined to ascertain the extent of assault, abuse and harassment that takes place and under what circumstances.

**Consultation Question 12** (Paragraph 4.125): Do you agree that HARPS operators should be subject to additional duties to report untoward events, together with background information about miles travelled (to put these events in context)?

[Respondents chose from the following options: yes; no; other.]

Yes

We agree with the principle of reporting untoward events, although we acknowledge the challenge in defining such events in a manner that they are comparable between different systems. This reporting is important to ensure that a safe standard of operation can be realised across operators and lessons can be learnt. This could be a role for a regulator to oversee and enforce.

**Consultation Question 14** (Paragraph 4.133): We invite views on whether the HARPS operator licensing agency should have powers to ensure that operators provide price information about their services. In particular, should the agency have powers to: (1) issue guidance about how to provide clear and comparable price information?

[Respondents chose from the following options: yes; no; other.]

Other

Whilst we agree with the general principle of what the powers are seeking to achieve, i.e. clear price information to customers, there could be a risk of constraining the business model through legislation prematurely. The theme of Mobility as a Service is developing methods of

integrated ticketing and subscription-based offerings for which it may not be necessary to provide the cost of individual journeys in advance.

And/or (2) withdraw the licence of an operator who failed to give price information?

[Respondents chose from the following options: yes; no; other.]

Other

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### ***Who should administer the system?***

**Consultation Question 15** (Paragraph 4.138): Who should administer the system of HARPS operator licensing?

As discussed in response to Q1, we believe that the organisation responsible for administering the system of HARPS operator licensing should be a national body and should have close links with the organisation that decides if the Automated Driving System is fit for purpose within the operational design domain and assesses the safety case. Both organisations could be guided by an impartial expert panel, that includes industry experts with the cutting-edge knowledge necessary.

### ***Freight Transport***

**Consultation Question 16** (Paragraph 4.140): We welcome observations on how far our provisional proposals may be relevant to transport of freight.

Broadly speaking, the approach can be similar for freight. One advantage of freight is that there are fewer human factors-related issues to consider in that the vehicle will not be carrying members of the public. However, the role of the driver is often much more than simply driving the vehicle, and consideration is needed about how other tasks can be handled without a driver in the vehicle and how responsibilities for cargo can be alternatively assigned where necessary.

Like with passenger vehicle, freight vehicles will still need to interact dynamically with other road users, therefore the importance of safety is comparable.

## **CHAPTER 6: ACCESSIBILITY**

### ***What we want to achieve***

**Consultation Question 24** (Paragraph 6.11): We seek views on how regulation can best promote the accessibility of Highly Automated Road Passenger Services (HARPS)? In particular, we seek views on the key benefits and concerns that regulation should address.

In addition to what has been listed:

This remit should also further consider gender, race, locational and financial differences, see papers published by Professor Karen Lucas, University of Leeds (<https://environment.leeds.ac.uk/transport/staff/954/professor-karen-lucas>)

The Government and Local Authorities also have a part to play in the utilisation and spread of these services and how such services can complement each other to provide robust and viable offerings across the UK.

The viability of business models/funding sources needs further consideration to ensure enhancements to services can be sustainably issued and to ensure longevity of such services.

### ***Core obligations under equality legislation***

**Consultation Question 25** (Paragraph 6.31): We provisionally propose that the protections against discrimination and duties to make reasonable adjustments that apply to land transport service providers under section 29 of the Equality Act 2010 should be extended to operators of HARPS. Do you agree?

[Respondents chose from the following options: yes; no; other.]

Yes

Future design of HARPS shows promising potential to cater for a wide range of user needs and abilities. Therefore, operators should follow current practice and even lead in terms optimum design for equal services. Should an operator struggle to provide appropriate services at any given time, they could perhaps ensure agreements are in place to partner with other operators to provide the required service.

### ***Specific accessibility outcomes***

**Consultation Question 26** (Paragraph 6.106): We seek views on how regulation could address the challenges posed by the absence of a driver, and the crucial role drivers play in order to deliver safe and accessible journeys. For example, should provision be made for:

(1) Ensuring passengers can board and alight vehicles?

[Respondents chose from the following options: yes; no; other.]

Other

Further innovation and co-design is required to consider appropriate and robust solutions, which are more intelligent than on the market today. Vehicles should work to also determine where is appropriate to stop in order to facilitate safe and comfortable boarding and alighting.

Clear guidance as to how the boarding/alighting solutions work should be provided via a range of communicable methods.

End user(s) could be provided with the choice dependent on their needs and wellbeing for that time, as to whether they require the assistance of another person.

(2) Requiring reassurance when there is disruption and accessible information?

[Respondents chose from the following options: yes; no; other.]

Yes

This should at least be provided by a solution to connect to a service centre, e.g. remote support. However, communication regarding this and availability of information for those working for the service should be greatly improved to avoid further frustration or panic. For

example, in the rail industry train and station guards often receive late and conflicting information which can lead to more concern and distrust. This is an area which must be improved.

End user(s) could be provided with the choice dependent on their needs and wellbeing for that time, as to whether they require the assistance of another person.

### (3) Expansion of support at designated points of departure and arrival?

[Respondents chose from the following options: yes; no; other.]

Yes

This will enable all user groups to access the destinations and services they desire. Otherwise the travel offering maybe sufficient but all else is not possible and therefore, they cannot carry out the journeys they need to take in order to do the activities they want to. If the UK wants to provide seamless travel experiences then linking services from departure points, during travel and at destinations is required.

### ***Developing national minimum accessibility standards for HARPS***

**Consultation Question 27** (Paragraph 6.109): We seek views on whether national minimum standards of accessibility for HARPS should be developed and what such standards should cover.

Standards to improve:

- HMI
- Appropriate staff training and knowledge
- Stowage of wheelchairs
- The physical design to provide for the needs of realistic numbers of people in shared travel services, current buses do not facilitate enough space for users with mobility aids (including: trolley bags), parents and children in push chairs and those in wheel chairs to travel at the same time.
- Specifications for boarding and alighting HARPS
- Co-design methods and inclusive evaluation best practice
- Data governance

### ***Enforcement mechanisms and feedback loops***

**Consultation Question 28** (Paragraph 6.124): We seek views on whether operators of HARPS should have data reporting requirements regarding usage by older and disabled people, and what type of data may be required.

[Respondents chose from the following options: yes; no; other.]

Yes



The option to provide real-time and easy presentation of evidence about the journey experience should be improved, appropriate provision to analyse and respond to this data by HARPS providers should also be offered. The review of these outputs will also e

## **CHAPTER 8: INTEGRATING HARPS WITH PUBLIC TRANSPORT**

### ***The current system of bus regulation: HARPS as mass transit***

**Consultation Question 35** (Paragraph 8.92): Do you agree that a HARPS vehicle should only be subject to bus regulation if it:

(1) can transport more than eight passengers at a time and charges separate fares?

[Respondents chose from the following options: yes; no; other.]

Other

We feel bus operators and local authorities are better placed to answer this question. However, we would encourage all stakeholders to consider what automation could enable, rather than thinking we are simply removing the driver from a traditional bus service. Removal of the driver enables lower operating costs, but it also provides the operational flexibility of not needing to return the driver to where they need to be at the end of a shift. Automated buses could remain in service at all times (other than when being maintained) at negligible operating cost. This could enable a more demand-responsive service. When not demanded, vehicles could wait at stops for passengers, like how a taxi will wait in a rank, and could distribute themselves along the routes.

Another analogy is to consider automated buses as horizontal lifts. To demand a vertical lift, users push a button at their floor of origin, which simply tells the lift which direction they want to travel, up or down. A user will enter the lift and tell it which floor they require. Others can enter the lift and select different floors and there is an element of 'ride-sharing'. The lift is demand-responsive, in that if there is no demand to board or alight at a floor it will not stop. When the lift is not in use it simply waits, and incurs no (or negligible) running costs. The same principles could apply to automated buses. Automated buses could wait on the street for passengers, and in the case of electric power trains can charge inductively whilst doing so. Automated buses can offer the additional flexibility of using different sized vehicles depending on demand, and can offer a variety of route options (only limited by the operational design domain of the automated driving system).

The lower running costs could result in many more automated buses than there are traditional buses, and the level of service to passengers could be greatly improved, with much lower waiting times. This significantly improved service offering would lead to less private car usage, and ultimately less private car ownership. By enabling shared use we could still encourage greater vehicle occupancy compared a system dominated by private car use.

These types of exciting opportunities should be considered in relation to the applicability of existing bus regulation. The presence or absence of a driver is more fundamental to licensing than restrictions over passenger numbers.