

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

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Any personal email addresses and phone numbers have been excluded from this document.

Unanswered questions have been deleted from this document.

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What is your name?

Chris Alford

What is the name of your organisation?

University of the West of England, Bristol

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.]

Personal response

### **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

Some form of regulation and checking will be required - so new 'standards' will need to be put in place for HARPS. It makes sense for this be national rather than regional.

**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

Whilst basic safety standards need to be applied, there will need to be flexibility to allow for innovation and experimentation within the sector.

## **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.]

Other

There may be valid exemptions and special circumstances for use on roads - but which are not public and the vehicles are not used for access/transport by the public at large. for example, based on our Bristol based trials, we can see the potential for a local HARPS service within a (closed) community village to help the older residents maintain mobility and access. This may not need some of the features required by a public service vehicle operating on say a bus route, on a public road.

### ***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.

All HARPS vehicles should meet the minimum standards regardless of the auspices under which they are operated.

**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).

As a University based researcher, I can see the benefits of having Secretary of State exemptions for relevant and appropriate trials that are focused on the development and improvement of HARPS for UK.

### ***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.]

Other

I am not an expert in this area, but am aware of the public need, amplified by the older people we have undertaken co-design research with, for their to be adequate safeguards and checks for all applicants for HARPS operator licences, whether they are large transport companies or individuals operating a single vehicle, similar to an individual taxi service.

### ***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.]

Other

Broadly - 'Yes' it this.

However, a likely requirement is that the operator will need to have appropriate certification that their vehicle/s have met appropriate standards for a valid licencing period. In practice, this may mean that the vehicles will need the equivalent of an 'MOT' to show that they meet operational safety standards etc. The length of time between certification renewal will need to be determined for the component systems (e.g. basic mechanical safety and integrity of the vehicle; operational efficiency of the autonomous systems (sensors, other hardware software etc. for CAV to CAV and CAV to X comms. etc.); cyber security resilience etc.).

To achieve this, there will need to autonomous vehicle centres in all major cities etc. that can undertake the repeat certification testing. As well as having something akin to the old 'yellow card' health service type system for reporting problems common to specific vehicles and systems.

**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.]

Other

Whilst current legal/insurance models treat the driver as the 'insured' the future systems may need to be updated when the level of autonomy is such at the operator cannot effectively be in charge of the vehicle. However, the model may want to maintain the legal owner as responsible for the vehicle.

### ***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

It is logical that the operator is the person or organisation to be held responsible.

**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.]

Other

There will be a need for some level of monitoring, particularly in the 'early days' of HARPS operations when procedures are still under development and have yet to mature.

Whilst people are unlikely to report events or situations that may put them in jeopardy (as culpable or responsible [e.g. current manual drivers are unlikely to admit to falling asleep at the wheel]), it will be to the benefit of all travellers if untoward events can be collated and scrutinised in order to improve the system.

**Consultation Question 13** (Paragraph 4.128): Do you agree that the legislation should set out broad duties, with a power to issue statutory guidance to supplement these obligations?

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

Other

In practice, a common sense balance is needed to encourage reporting of problems and violations with a view to improving safety (e.g. the use of 'anonymous' 'CHIRPS' in the air transport industry) through to the need for legislation and enforcement to maintain operational safety and standards - not easy to balance.

## **CHAPTER 5: PRIVATELY-OWNED PASSENGER-ONLY VEHICLES**

***Allocating responsibility for a privately-owned passenger-only vehicle: placing responsibilities on keepers***

**Consultation Question 18** (Paragraph 5.40): Do you agree that where a passenger-only vehicle is not operated as a HARPS, the person who keeps the vehicle should be responsible for: (1) insuring the vehicle; (2) keeping the vehicle roadworthy; (3) installing safety-critical updates; (4) reporting accidents; and (5) removing the vehicle if it causes an obstruction or is left in a prohibited place?

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

Yes

Someone/some organisation needs to be responsible for these aspects.

**Consultation Question 19** (Paragraph 5.41): Do you agree that there should be a statutory presumption that the registered keeper is the person who keeps the vehicle?

Other

There may be small individual vehicles that are provided by the local authority for those in the community with special needs etc. the individual/s who then kept the vehicle (local to them) may not then be the registered keeper.

***Will consumers require technical help?***

**Consultation Question 21** (Paragraph 5.47): Do you agree that for passenger-only vehicles which are not operated as HARPS, the legislation should include a regulation-making power

to require registered keepers to have in place a contract for supervision and maintenance services with a licensed provider?

Other

Some form of statutory regulations will be required to maintain standards and ensure current certification of all road going vehicles.

### ***Peer-to-peer lending***

**Consultation Question 22** (Paragraph 5.53): We welcome views on whether peer-to-peer lending and group arrangements relating to passenger-only vehicles might create any loopholes in our proposed system of regulation.

Other

These arrangements may be beneficial to maintaining mobility and limiting isolation. Therefore, they should be accepted rather than prohibited, although there are challenges over who is responsible for the vehicles.

## **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.

Regulation may have a role to play in the following:

**Affordability**- many people with diverse needs are on the lower end of the income scale as a result of their limitations. CAVs (Connected AVs) and HARPS will need to be 'accessible' to them in the widest sense of the word – i.e. this will include affordability, likely through Govt., or local council community schemes.

**Physical Accessibility** – People will need to be able to gain easy physical access to CAVs/HARPS without changing their own 'at home' transport mode. For example, a wheelchair user will need to either be able to easily access the nearest pick up point, or the personalised CAV will need to be able to come to their door. This will require updating access regulations. CAV/HARPS UK manufacturers are beginning to recognise this and include appropriate wheelchair access and space in their vehicles (e.g. RDM/Aurrigo 'minibus'). Easy pavement level access also required (e.g. when attending PACTS meeting a wheelchair user needed special assistance because the train station was on a bend and the platform/train gap was then too large to go straight on to the underground train).

**Connectivity** - People with diverse needs will require 'CAVs' i.e. connectivity, this includes the ability to call up a CAV from their home through comms, as well as having door-to-door/first-last mile compatible transport – that they can access easily. Currently, there are limited small pods that will take a wheelchair – this will need to change.

### ***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.]

Other

Basically - 'yes'. However, as roll-out of HARPS is undertaken, it will be more practical to have more infrastructure/services within 'smart cities' and the like enabling a wider range of people with special needs. The roll out may have geographical limitations whereby more remote locations are not equipped to enable independent usage by those with a high level of special needs - as this would be uneconomic.

Therefore, Resourcing practicalities will need to be weighed against potential discrimination. Discrimination is obviously not acceptable.

### ***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.]

Regulations could promote basic accessibility and safety. There may be a case for maintaining human personnel on larger public vehicles - though the role may change from that of driver to more of journey assistant and journey warden.

Trust in public transport services, whether larger or smaller vehicles (carrying 1 or more people) is of upmost concern to future passengers of CAVs/HARPS based on our research to date.

There may be opportunities to develop more remote monitoring and surveillance of all HARPS vehicles - but it will need to be 'trusted' by the users.

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

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

Yes

Again as above, it is of key importance that trust is maintained.

The elderly, and those with special needs, will be more vulnerable and therefore more affected by disruption or any unexpected events. They will therefore need assurance that if they begi

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

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

Other

End-to-end or first and last mile travel needs to be made possible for the elderly and those with special needs. This may mean the use of a 'smart travel card' (as above that holds personal details of their special requirements. For a smaller (e.g. individual passenger) HARPS this may also mean the use of a generic plug-in interface that similarly holds their personal information but also enable them to communicate with and control the vehicle within their capabilities re. modes of operations (e.g. voice control for those with limited physical abilities, similarly, significant visual limitations). A generic control interface that reads their personal travel card and automatically sets up compatible communication would also be appropriate here.

There will be the need for a range of vehicles to enable end-to-end journeys - so some smaller HARPS to go directly to the front door and then either complete the (local) journey or interface with the local transport hub to enable transfer to a larger public service HARPS for longer journeys etc.

As previously, public surveillance, monitoring will be required to check that vulnerable people are safe in their HARPS travel including end-to-end journeys, and that they are not 'stuck' at the transport hub unable to successfully transfer between HARPS vehicles and so on.

### ***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.

Where a vehicle is operating then it should aspire to meet the standards enabling the points outlined above (Q24).

Affordability, accessibility, connectivity.

However, resourcing practicalities may limit availability of some HARPS facilities in more remote locations. For example, we could not reasonably expect the same connectivity and First/last mile HARPS facilities at Corroul railway station as you might at Paddington.

### ***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.]

Other

Whilst not a supporter of the 'Big Brother' approach generally - it would help future development and understanding of HARPS provision for older people and those with special needs if some kind of data were collected and collated. This would include a level of personal information regarding journey purpose, requirements, and their potential personal mobility limitations.

## **CHAPTER 7: REGULATORY TOOLS TO CONTROL CONGESTION AND CRUISING**

### ***Regulating use of the kerbside***

**Consultation Question 30** (Paragraph 7.59): We welcome views on possible barriers to adapting existing parking provisions and charges to deal with the introduction of HARPS.

In particular, should section 112 of the Road Traffic Regulation Act 1984 be amended to expressly allow traffic authorities to take account of a wider range of considerations when setting parking charges for HARPS vehicles?

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

Other

Another complex one - a 'parked' small HARPS vehicle may be saving energy by laying up until the next scheduled journey request is actioned. Similarly, HARPS for those with mobility impairments would need special parking allowances if they are to enable access by the mobility impaired to towns etc.

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

**Consultation Question 38** (Paragraph 8.109): We seek views on a new statutory scheme by which a transport authority that provides facilities for HARPS vehicles could place requirements on operators to participate in joint marketing, ticketing and information platforms.

Systems which facilitate multi-mode travel including single tickets (booked from home) for multi-mode travel as well as booking and scheduling, are likely to improve uptake and usage. Including use by the older people and those with disabilities.

**Consultation Question 39:** Is there any other issue within our terms of reference which we should be considering in the course of this review?

Expanding on the earlier comments for smart travel cards and the like to improve usability and accessibility for older people and those with disabilities and limitations:

There are a number of possibilities, including 'smart user licences' that will store individual requirements. This will mean that the right kind of HARPS will come to collect someone, or be at the 'bus stop' so they are not left stranded.

For more individualised transport (personal or shared AVs/CAVs) this will also require manufacturers to move away from the branded ideosyncratic control panels/HMIs (dash boards etc.) to either a universal connector whereby the user brings their screen and hooks up, or a universal HMI that will pick up the user's code and configure accordingly. In this way, we will no longer need individual modification of vehicles to meet wider user requirements. There are huge mass benefits in favour of cost saving and non-discrimination potential.

However with this are a number of challenges:

Privacy of sensitive data, as ever – cyber security if individual interfacing via their hardware etc.

The following responses are based on our work through Flourish which included working with older people as well as a wider age range of people with limitations including sight loss,



multiple sclerosis, and younger people with both cognitive and physical limitations (aspects of this research are continuing at UWE).

These are key to the success of those with diverse needs being able to successfully utilise either their own or community/council provided AVs or HARPS.

Through Flourish we produced some design principles for interface designs which are relevant for those with diverse needs – including the elderly with age related impairments, as well as members of the wider population who have specific access or mobility needs (see Flourish deliverables).

Key Principles: Adaptability and Flexibility – there is not ‘one size fits all’ for an interface, no matter how good the basic principles and execution of the design has been. In order to meet diverse needs we will need diverse interfaces that use a range of communication modalities (visual, audio, haptic). This is therefore in addition to implementation of design standards for users with diverse needs. Example: Relatively large and well spaced buttons on control screen, with a high contrast relative to the background. This enables those with impaired vision (but not total sight loss), to be able to discriminate and use the buttons. This also enables those with limited hand movements or fine motor control (arthritis or limited capacity from other causes including birth difficulties) to be able to safely operate the controls.

Control and Trust – important for any user, but more so for those with diverse needs, feeling and being in control of the vehicle/journey is important. The user therefore needs to be able to stop the vehicle and terminate the journey if they require it or wish it. They also need to be able to change the journey from the initial setup.

Some obvious examples include: The Blind/those with a visual limitation – need voice control.

Level of Feedback and Interaction – needs to be adjustable, including during journey. For example, voice (or for hearing impaired – text) notifications. These are initially re-assuring and help build user trust, but can become annoying and distracting to the user – who then needs to be able to turn them off, or change modality etc. So adaptable at set-up – voice control please; but flexible in-journey – please turn of voice notifications of upcoming turns; route change due to traffic incident, vehicle time to destination, or which ever is selected.

For all independent users, it is key that they are able to be in control, and can redirect journey destination, stops etc after embarking on a journey. – this is part of user empowerment, and also supports trust.

Journey Assist – another feature, and an extension of the traditional ‘emergency stop’ on public transport, is the ability for diverse users to be able to call for (specialised) assistance if required. Whilst privacy issues need to be considered, for those with a high level of very specific needs, they need to be able to call for appropriate assistance and feel confident that it can be provided – again part of the trust required for them to have faith in making AV/HARPS journeys unaccompanied and living independent lives.