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Australian Government

Department of Infrastructure, Transport,
Regional Development and Communications

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iMOVE CRC report makes recommendations to improve the accessibility of driverless vehicles for People with Disability

The Department of Infrastructure, Transport, Regional Development and Communications partnered with LaTrobe University and the [iMOVE](#) Cooperative Research Centre to investigate how CAVs will be regulated under the Disability Standards for Accessible Public Transport 2002 ([Transport Standards](#)), and also make recommendations for a national [reform](#) process currently underway.

The final [report](#) – *People with Disability and Connected and Automated Vehicles* - noted the introduction of CAVs was ramping up in Australia, with extensive road trials taking place.

The study explored a range of scenarios, including how people living with disability would enter and exit driverless vehicles, what to do if they need assistance but there is no one driving, and challenges in communicating via a touchscreen human-machine interface.

"What people with disability will experience in the next five years is a new type of vehicle, in situations where there is no direct assistance available, routes may not be linear and there may be a need to book and hail a vehicle using a digital human-machine interface," the report said.

"Some functions typically performed by the driver that are important to people with disability have not yet been included in the Transport Standards and will have to be delivered otherwise."

On human machine interface technology, the study found touch screens posed a challenge even in simple linear routes, let alone for people living with disabilities using variable route choices. "Given that the face-to-face interaction with a human driver will diminish or disappear, the need for universally accessible communications is required," the report said.

Following extensive consultation with people living with disability, peak body representatives, and leading manufacturers of connected and automated shuttles (2getthere, EasyMile, HMI and Navya), the report's headline recommendation is for urgent change to legislation.

"Without concrete action, there is a risk that the regulatory framework will not keep pace with changes in technology and transport choices made by customers," it said.

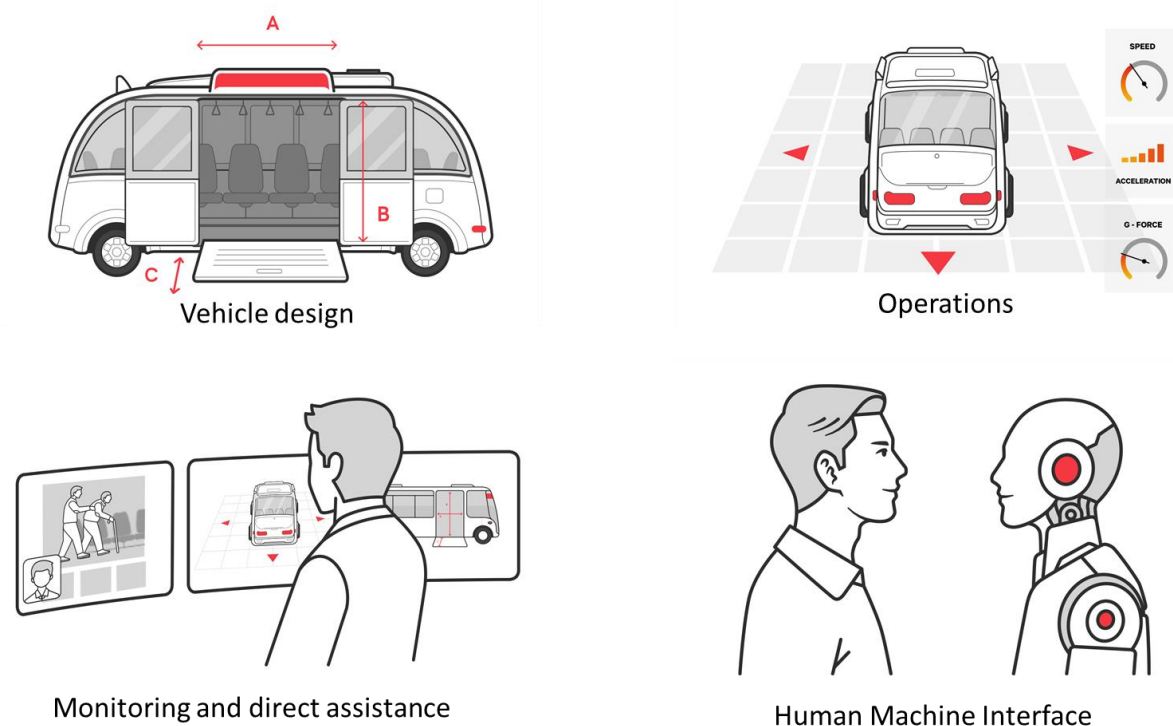
iMOVE CRC managing director Ian Christensen said CAVs "can make public transport easier for people living with disabilities, but they may also introduce new challenges and governments need to consider what that means in detail".

"Connected and automated vehicles are being built now, even if they make up a small portion of the market. Developing CAV guidelines is an opportunity for communities, industry, and government to comprehensively consider CAV public transport from the perspective of people living with a disability.

"Engagement with people living with a disability and CAV manufacturers has already resulted in the development of key areas requiring standardization that have a high degree of support across stakeholder groups," Christensen said.

Barriers and Opportunities

The report identifies four areas and associated barriers and opportunities:



1. Vehicle design – seating availability, wheelchairs, handles and support, controls, colours, seating design and signage.
2. Monitoring and Direct Assistance – identification of passengers, safety monitoring, conflict resolutions, stewards, platform assistance, emergency management plans, emergency communications, emergency training and consistent responses, emergency phones and customer service.
3. Human Machine Interface – touch screens, communication of trip progress, announcements, planning, hailing, paying and booking, identification of the correct vehicle and boarding locations, payment, no reliance on smart phones, privacy and reducing stress and anxiety.
4. Operations – Easy entry and exit practices, service customisation, safe departure and arrival, safe vehicle movements, and easy transfer.

Recommendations

The report recommendations for CAVs include non-regulatory approaches, regulatory changes and other regulatory considerations. The full recommendations can be viewed here:

<https://www.infrastructure.gov.au/infrastructure-transport-vehicles/transport-accessibility/people-with-disability-connected-automated-vehicles>

People living with disabilities quotes about using driverless vehicles

The quotes below are from study participants

"My big thing is that I want to be able to get on to this vehicle without assistance. I want to be totally autonomous in an autonomous vehicle. So, I don't need to rely on other people to get down a ramp or put my bag up or tie down my wheelchair or anything like that. I want to be able to get on and off in the flow just like able bodied people, I guess. I need it to be simple so the simplicity of it means that I just get on and the payment is taken care of somehow without me having to arduously get a card out or tap my watch or whatever." – Study Participant

"Just thinking about I guess in my point of view automated vehicles because I have a hearing loss and a vision impairment called Usher syndrome and I have to tell you I struggle with machines, I struggle with audio voices, like announcements, I struggle understanding what's being said because the computerised voice doesn't work well with my hearing aids. So, I'm wondering whether technology would work in with the automated vehicles with my hearing aid with Bluetooth that could connect right into the hearing aid, it could be an option, and also with announcements with TV screens I don't see very well and knowing I'd like to know where I am and when I need to get off because it could be 20 stops, or something like that. If I could have an app that's connected to that automated vehicle, like a public transport system, that would just tell me what stop I'm approaching, like 'The next stop is Flinders Street'. So that's something that would be valuable for me." – Study Participant

"I would say pretty much on almost every trip I will at some point rely on human interaction. Even though I use technology on my phone, inevitably for every trip I will at some point rely on another human being just to fill in the gaps." – Study Participant

For more about this iMOVE CRC project, see <https://imoveaustralia.com/project/project-outcomes/cavs-barriers-and-opportunities-for-people-with-disability>

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ABOUT iMOVE

iMOVE is the national centre for collaborative R&D in transport and mobility. It facilitates, supports and co-funds research projects that improve the way people and goods move in Australia. It has 44 industry, government and academic partners and has over 50 projects completed or currently underway in a broad range of transport areas. Find out more about iMOVE: <https://imoveaustralia.com/>

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[La Trobe University](#) has a proud history of conducting research to address pressing societal needs. Our researchers work in partnership with community, industry, and government to create opportunities and address issues of local, national, and international importance. Our research positively impacts the communities we serve.