



Australian Government

Australian Government response to the
House of Representatives Standing Committee on
Industry, Innovation, Science and Resources report:

Social issues relating to land-based automated vehicles
in Australia

June 2018

Government Response

Social issues relating to land-based automated vehicles in Australia

Report of the House of Representatives

Standing Committee on Industry, Innovation, Science and Resources

The Australian Government welcomes the Committee's report and its recommendations to prepare the Australian community for automated vehicles. The Government supports or supports in-principle all of the Committee's recommendations.

Automated vehicles bring significant opportunity for improved safety, more efficient and productive transport networks, more liveable cities and better access to transport services.

In particular, automated vehicle technology has significant potential to reduce the unacceptable impact of the large number of road crash fatalities and serious injuries in Australia every year. Human error may be a factor in more than 90 per cent of road crashes¹, which would be reduced by automated technologies. The economic cost of crashes in Australia is estimated to be around \$29.7 billion annually, in addition to the immeasurable social cost.²

Addressing potential social issues associated with automated vehicles is critically important to building public confidence in this emerging technology and ensuring an effective deployment. This includes the wide range of issues identified by the Committee, such as safe trials and deployments, cyber security, data protection, access for people with disability and people in regional Australia, infrastructure readiness and facilitating labour market transitions.

Significant national work is already underway to prepare for automated vehicles. Australia's transport ministers have agreed to a national policy and action plan, which includes work on automated vehicle safety, trials, cyber security, road rules, insurance, data protection and infrastructure readiness. Australia is progressing these reforms in step with other countries.

The Australian Government is committed to a national leadership role on future transport technologies, including on social issues relating to automated transport. This includes meaningful engagement and dialogue with the community, industry and all levels of government about the opportunities and challenges of emerging automotive technologies and innovative, technology-enabled business models.

As noted by the Committee, automated vehicle trials are currently underway in most states and territories. Ongoing trials will provide more clarity about how the public will respond to this emerging technology and the best way for Government to address any social issues that may arise.

¹ S Singh (2015), *Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey*, National Center for Statistics and Analysis, Washington D.C.

² Australian Automobile Association (2017), *Cost of Road Trauma in Australia*, Canberra.

Recommendation 1

The Committee recommends that the Commonwealth adopt as standard terminology the use of ‘automated vehicles’ and formally accept that the standard definition for the automation level of vehicles is that used by the Society of Automotive Engineers’ (SAE) International Standard J3016. The Committee recommends that the use of ‘driverless car/vehicle’ and ‘autonomous vehicle’ be discontinued.

The Australian Government **supports** this recommendation.

The SAE International Standard J3016 and the terminology ‘automated vehicle’ is already in use by Australian Government agencies in relation to on-road vehicles. Different terminology may be used in off-road applications where J3016 does not apply, for example vehicles used in mining or agriculture.

Recommendation 2

The Committee recommends that, noting the range of benefits automated vehicles are likely to bring and the need for public acceptance of the technology, the Commonwealth Government facilitate and encourage trials of automated vehicles in Australia, with particular focus on trials that enable members of the public to experience automated vehicles on public roads.

The Australian Government **supports** this recommendation.

In 2016, road crashes in Australia killed 1,296 people, and a great many more people were seriously injured.³ If automated technology reduces or eliminates human driving errors, as is generally expected, then benefits for road safety may be substantial. Trials which accelerate the deployment of automated vehicles in Australia should therefore be made the first priority.

The Government also recognises that real-world trials of automated vehicles, particularly those allowing public participation, are critical to understanding how automated vehicles will operate on Australian roads and interact with other roads users, as well as building public acceptance.

The Australian Government is working with states and territories to establish trials as part of a nationally coordinated approach to preparing Australia for automated vehicles. The Government has direct involvement in trials through its role as the regulator of vehicle standards. As of November 2017, nine applications for importation approval have been approved to enable a number of trials across the country.

As noted in the Committee’s report, in May 2017 the Council of Australian Governments’ (COAG) Transport and Infrastructure Council adopted the *Guidelines for Trials of Automated Vehicles in Australia*. The Guidelines encourage trials by setting out nationally consistent conditions and ensuring safety protocols are in place, including for trials involving members

³ Transport and Infrastructure Council (2017), *National Road Safety Strategy 2011-2020: Implementation status report*. National Road Safety Strategy. Available at: <http://roadsafety.gov.au/performance/files/NRSS_Implementation_report_Nov2017.pdf>

of the public. The Guidelines inform trialling organisations on matters such as insurance, safety management and data provision.

The Guidelines are also intended to promote Australia as a test-bed for automated vehicle technology, facilitating increased trialling activity by international companies in Australia.

At the time of the Committee's report, trials were already underway in most states and territories, including several that involve members of the public. As automated vehicle technology matures, larger-scale trials that allow greater public participation will become possible.

Recommendation 3

The Committee recommends that the National Cyber Security Strategy specifically investigate automated vehicles (and associated transport systems) to address potential vulnerabilities relating to automation.

The Australian Government **supports** this recommendation.

The Department of Home Affairs is developing practical changes to lift the standard of security in the Internet of Things, as part of the Australian Cyber Security Strategy. This includes working with government and industry partners to embed strong cyber security in modern motor vehicles (including automated vehicles and associated transport systems), to mitigate and raise awareness of potential cyber vulnerabilities.

Further measures relating to automated vehicles will be considered as part of future updates to the Strategy.

The Department of Infrastructure, Regional Development and Cities is consulting with the automotive industry on potential best practice approaches to cyber security, based on international leads, and is participating in the United Nations Task Force on Cyber Security and Over-the-Air updates, which is identifying cyber threats and mitigations as they relate to vehicles. Mitigation strategies identified by the Task Force will be incorporated into international standards or guidance, which are likely to be adopted in Australia over time.

Recommendation 4

The Committee recommends that the Commonwealth Government further investigates the issue of data rights for consumers, vehicle manufacturers and third parties such as insurers and relevant government agencies.

The Australian Government **supports** this recommendation.

The Government announced in November 2017 that it would legislate the Consumer Data Right, in response to the Productivity Commission's Inquiry Report on *Data Availability and Use*.⁴ The Consumer Data Right will be applied sector-by-sector and will give consumers in designated sectors the right to access, and transfer to third parties, data about themselves.

Additionally, in November 2016 the Transport and Infrastructure Council tasked the National Transport Commission (NTC) to investigate options to manage government access to automated vehicle data. The NTC will report to the Transport and Infrastructure Council in 2018 with recommendations on balancing road safety, network efficiency and law enforcement outcomes with sufficient privacy protections for automated vehicle users. The outcome sought from the project is to develop a clear and consistent treatment of connected and automated vehicle data.

Recommendation 5

The Committee recommends that the Commonwealth Government establish a working party with industry and academic stakeholders to identify industry needs regarding the development of automated vehicles and support services, and implement a strategy to ensure that Australia is best placed to exploit emerging opportunities.

The Australian Government **supports in principle** this recommendation.

To position Australia to fully capitalise on the opportunities presented by automated vehicles, the Australian Government is already working with stakeholders across industry and the research sector on initiatives to enable the development and implementation of digital technologies, automated vehicles and advanced manufacturing.

This includes:

- the development of a national Digital Economy Strategy, to be launched in the first half of 2018. The strategy will set out a roadmap for government, the private sector and the community to work together to build Australia's competitive strengths; develop business capabilities; and drive cultural acceptance;
- in March 2017, the Australian Government announced \$55 million funding over 10 years for the iMOVE Cooperative Research Centre (CRC), to be matched by \$178.8 million in cash and in-kind participant contributions from industry and academic stakeholders. The iMOVE CRC will bring together government, industry and academia for applied research

⁴ Productivity Commission (2017), *Data Availability and Use*, Report No. 82, Canberra. Available at <<http://www.pc.gov.au/inquiries/completed/data-access/report>>

relating to smart transport and infrastructure, enhanced personal mobility and end-to-end freight solutions;

- in January 2017, the Australian Government committed \$12 million to test the next generation of Satellite-Based Augmentation System (SBAS) technology across a number of sectors, including road transport. The New Zealand Government later committed a further \$2 million to extend the testing to their region and industries. This infrastructure would improve and augment the accuracy, integrity and availability of basic Global Navigation Satellite System (GNSS) signals. SBAS could be an important enabler of connected and automated vehicles, and a number of industry groups are participating in the test-bed;
- CSIRO's Robotics Group has developed autonomous vehicles for industrial, natural and mining environments, used for area mapping, scene understanding and manipulation. These vehicles provide autonomous smart sensing, mapping and inspection. Mobile manipulators also provide adaptive sensing and object manipulation. CSIRO is engaging with industry partners in the development of these technologies, including Boeing, Rio Tinto Aluminium and Caterpillar;
- the Australian Government's \$230 million Cyber Security Strategy includes \$30.5 million to support the growth of Australia's cyber security industry capability through the establishment of the Australian Cyber Security Growth Centre, AustCyber. AustCyber is an industry led organisation that will bring together businesses and researchers to provide a foundation for the development of next generation products and services required to live and work securely in our increasingly connected world; and
- the Australian Government is also supporting the deployment of the next evolution of mobile wireless communications technology, known as 5G. The Government has established the 5G Working Group bringing together representatives from across government and industry. Further information on the Government's activities in relation to 5G is in the response to Recommendation 9, below.

Recommendation 6

The Committee recommends that the Commonwealth Government's preparation for autonomous vehicles includes consideration of how the needs of people with disability, older Australians and those in regional and rural areas can be met via automated vehicles.

The Australian Government **supports** this recommendation.

The Government recognises that automated vehicles have the potential to significantly improve mobility for groups that currently have difficulties accessing transport services and is conscious of the need for future deployments of automated vehicles to serve the needs of all Australians.

The National Disability Strategy 2010-2020 provides a 10-year national policy framework for all levels of government to improve the lives of people with disability. The strategy seeks to drive a more inclusive approach to the design of policies, programs and infrastructure so that people with disability can participate in all areas of Australian life.

The Australian Government already engages with relevant stakeholders in the disability sector on public transport issues affecting people with disability through the National Accessible Public Transport Advisory Committee, which brings together all governments, the public transport industry, the disability sector and other relevant stakeholders.

In relation to understanding the needs of people in regional and rural areas, the Government leverages the Regional Development Australia network to consult and engage with regional and rural communities and consider the needs and priorities of those communities.

Connected and automated vehicle technology features are already available that can provide benefits to people in regional areas. For example, lane keep assist, a function that keeps a vehicle automatically positioned within a lane and corrects vehicle course where necessary, is an important existing safety technology that benefits Australians travelling between regional areas on marked highways. It is estimated that lane keep assist which does not require driver activation and is capable of operation on roads with some curves can reduce the likelihood of a head-on or run-off-road vehicle crash by 33%.⁵

Additionally, emerging connected vehicle technologies that use vehicle-to-vehicle communications will not require supporting infrastructure, and could enable safety applications such as collision avoidance and hazard detection.

As of the release of the Committee's report, there are no automated vehicle trials underway in regional areas. As automated vehicle technology matures, there will be more opportunity for trials to be undertaken that examine the needs of people with disability, older Australians and those in regional and rural areas in more detail. Such trials are required to inform policy making in this area.

⁵ Austroads (2017), *Safety Benefits of Cooperative ITS and Automated Driving* (AP-R551-17), p.41. Retrieved from: <<https://www.onlinepublications.austroads.com.au/items/AP-R551-17>>

Recommendation 7

The Committee recommends that the Commonwealth Government, in association with state and territory governments and local councils, consider funding of trials of automated vehicles with public transport application, in both metropolitan areas and regional locations.

The Australian Government **supports in-principle** this recommendation.

The Government is already engaged with state and territories on a range of trials and welcomes further trials of automated public transport applications, particularly those that address existing challenges, such as providing first and last mile connections. These are connections between a person's home or place of work and the nearest public transport service.

State and territory governments are primarily responsible for the provision of public transport services and are best placed to undertake trials of automated services. Current and future trials will inform how they undertake their roles as operators of public transport networks and as the primary providers of public transport infrastructure.

The Australian Government is conscious that deployment of automated vehicles in regional Australia with public transport application will likely differ from that in metropolitan areas.

Trials are already underway in a number of states and territories involving highly automated shuttle buses, with future plans to integrate them into larger public transport networks. For example, Flinders University is undertaking a highly automated shuttle bus trial on its Adelaide campus, which will connect with bus and train services in the campus' vicinity via the development of a mobile phone app.

The Government will continue to support trials by considering vehicle standards exemptions as required.

Recommendation 8

The Committee recommends that the Commonwealth Government, in consultation with state and territory governments, continues to coordinate their approach to automated vehicles, ensuring consistent regulations and policy settings.

The Australian Government **supports** this recommendation.

The COAG Transport and Infrastructure Council (the Council) has a comprehensive program of national work to prepare for automated vehicles. The objectives of the program are to ensure that automated vehicles are safe, that regulatory barriers are removed and that infrastructure is ready for automated vehicle deployment.

The *National Policy Framework for Land Transport Technology* sets out the Council's overarching approach to supporting the deployment of emerging technologies. Agreed in August 2016, the Policy Framework outlines a principles-based policy approach to emerging technologies and sets out an agreed role for all governments.

The Policy Framework is underpinned by a three-year action plan, which is being implemented collaboratively with all jurisdictions. Eight of the fourteen action items directly

relate to connected and automated vehicles and include many of the achievements considered by the Committee, including the development of national guidelines for trials of automated vehicles and the establishment of the SBAS test-bed. Work is ongoing on issues such as standards, cyber security and infrastructure readiness.⁶

The Policy Framework action plan is intended to be flexible to meet technological developments and will be updated over time to reflect the next steps governments need to take to prepare Australia for automated vehicles.

In addition, in November 2016 the Council asked the NTC to lead a phased reform program that establishes a nationally consistent regulatory framework for automated vehicles. This includes engagement with all jurisdictions on issues such as safety regulation, road rules and other driving laws, insurance and access to data.⁷

Finally, Austroads, the peak body representing Australasian road transport and traffic agencies, supports the Council's national approach to automated vehicles by considering the impacts of automated vehicles on road operations and potential changes to infrastructure design, driver licencing and vehicle registration.⁸

Recommendation 9

The Committee recommends that the Commonwealth Government coordinates efforts to standardise road infrastructure in Australia, particularly as it relates to signs and road markings, and that the Commonwealth Government considers ways to ensure that the benefits of automated vehicles are available across Australia, including in regional Australia.

The Australian Government **supports** this recommendation.

Austroads plays a central role in the standardisation of road infrastructure in Australia. Austroads guidelines are available and in use by states and territories that set out nationally consistent guidance for road design and traffic management, including signs and line markings.

Federal, state and territory governments are investigating physical and digital infrastructure requirements for automated vehicles. At this time there is significant uncertainty about whether new infrastructure is required to support automated vehicles, or whether any new requirements will be the same between manufacturers. For example, digital mapping may provide a viable alternative to today's road signs and line markings. This also means that, at the current time, the best approach to supporting deployment in regional Australia is unclear.

For these reasons it is prudent for Government to take a cautious approach to any current investment to support future technologies.

⁶ Further information available on the Department of Infrastructure, Regional Development and Cities website at: <<https://infrastructure.gov.au/transport/land-transport-technology/national-policy-framework-land-transport-technology.aspx>>

⁷ Further information on the projects in the reform program is available at: <<http://ntc.gov.au/roads/technology/automated-vehicles-in-australia/>>

⁸ Further information on the Austroads Connected and Automated Vehicle Program is available at: <<http://www.austroads.com.au/drivers-vehicles/connected-and-automated-vehicles>>

Investments and trials by Government of currently available technology lay a strong foundation for deployment of connected and automated vehicles in regional Australia. As previously discussed in response to Recommendation 5, the Government's \$12 million investment in the SBAS test-bed is trialling a positioning service with universal coverage across Australia.

The Government is also supporting the deployment of 5G networks. This will provide improved connectivity, greater network speeds and bandwidth, very low latency and could be an important enabler for future connected and automated driving applications. In the immediate future, the Government is preparing for 5G by:

- making spectrum available in a timely manner;
- actively engaging in the international standardisation process;
- streamlining arrangements to allow mobile carriers to deploy infrastructure more quickly, and
- reviewing existing telecommunications regulatory arrangements to ensure they are fit-for-purpose.

Consultation is ongoing on future steps to support 5G rollout. The Government has established the 5G Working Group bringing together representatives from across government and industry. The Working Group will create a platform for this strategic dialogue with a mandate to seek out opportunities and emerging issues on 5G. This will provide better coverage across Government of the evolving policy and regulatory challenges associated with 5G.

The first meeting of the 5G Working Group was held in February 2018.

Recommendation 10

The Committee recommends that the Commonwealth Government consider the merits of establishing either a dedicated national body or cross-agency taskforce, in conjunction with state and territory jurisdictions and working with vehicle and software manufacturers, to coordinate Australia's preparation for the introduction of land-based automated vehicles. This body would have regard to topics including, but not limited to:

- Methods of public engagement to ensure that concerns about automated vehicles are addressed and benefits are explained
- The employment ramifications, both direct and indirect, of automated vehicles
- How to best ensure that people with disability and older Australians are able to benefit from automated vehicle technology
- How to best ensure that people in regional and rural Australia can access the benefits of automated vehicles
- The infrastructure needs, both physical and digital, of automated vehicles and the role of governments in ensuring that those standards are met, particularly in regional and rural areas of Australia
- The ownership, use and security frameworks applicable to the data generated by automated vehicles
- Legal liability and insurance implications of automated vehicles.

The Australian Government **supports** this recommendation.

In July 2017, the Government established the Transport Technology Futures Taskforce within the Department of Infrastructure, Regional Development and Cities to take a national leadership role and act as a point of coordination for transport technology across the Commonwealth and between levels of government, especially in preparing Australia for the introduction of automated vehicles.

The Taskforce's remit includes:

- actively communicating and engaging with the public to address concerns about automated vehicles and explaining the benefits of these emerging technologies;
- supporting the COAG Transport and Infrastructure Council automated vehicle program, including implementation of the *National Policy Framework for Land Transport Technology* in collaboration with state and territory governments through a dedicated working group;
- working with other Australian Government agencies on cross portfolio issues, which include labour market impacts, cyber security, infrastructure readiness and other matters as they arise;
- leading policy development within the Transport and Infrastructure Portfolio on automated vehicles and infrastructure provision, safety regulation, implications for regional and remote Australia, and transport accessibility.

Cross-agency collaboration is already underway with the Department of Home Affairs, the Department of Industry, Innovation and Science, the Department of Communications and the

Arts, the Department of the Environment and Energy and the Department of Jobs and Small Business. This cross-agency collaboration will continue and expand over time, including on the issues identified in this recommendation.

The Taskforce is also strongly engaged with industry stakeholders, including vehicle manufacturers, peak bodies, software providers, data firms, telecommunications firms, policy bodies and academia. It is expected that its role will further develop as transport automation technology advances are made.