



Submission to NTC

# Regulatory barriers to more automated road and rail vehicles

Prepared by the ADVI Insurance and Regulation sub-group

## a) Preamble

### ***Who is ADVI?***

In mid-2014, the ARRB Group started advocating for driverless vehicle technology, and lobbied for the creation of a funded partnership program. Following an industry roundtable event later that year, the Australian Driverless Vehicles Initiative (ADVI) was launched on 21 July 2015 in Adelaide by the South Australian Premier, Hon Jay Weatherill.

Led and coordinated by ARRB, the ADVI initiative is now a cooperative partnership program comprising 53 Australian and international organisations, and is funded by a range of government, industry and academic research partners.

The ADVI is managing the safe and successful introduction of driverless vehicles onto Australian roads, and will ultimately position Australia as an international role model in the development of new technologies and attract developers, innovation and investors.

ADVI's role is to investigate and help inform the development of robust national policy; performance criteria; legislation; regulation; business models and operational procedures; and other processes. Running parallel with those efforts, work is also underway to raise public awareness and encourage acceptance of driverless vehicles through knowledge-sharing, demonstrations, and simulated and in-field investigation trials.

### ***What is the role of PRG within ADVI?***

The Policy and Risk Group (PRG) is drawn from ADVI membership to provide advice and direction on policy, risk, governance and regulatory challenges facing the introduction of autonomous vehicles.

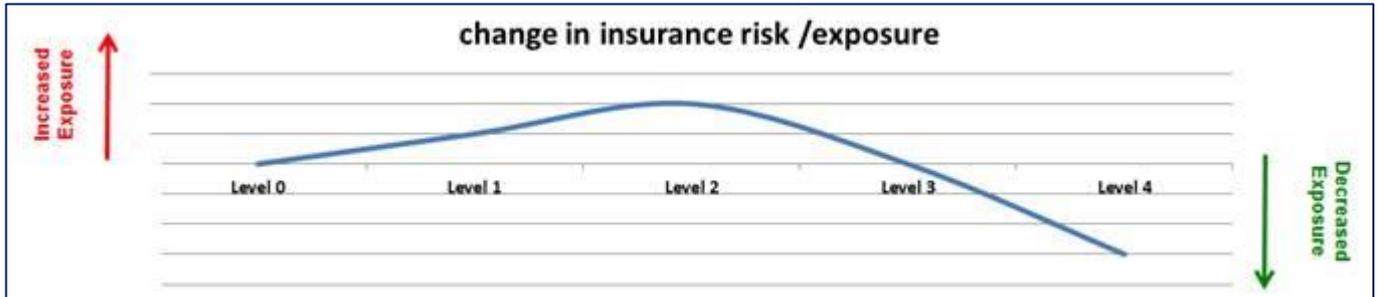
Insurance and legal representatives from the PRG comprise the Insurance and Regulation sub-group that provided input into this submission.

### ***Who to contact for further information?***

The PRG contact point is Jerome Carslake from ARRB who is the Chair; he can be contacted via phone (03) 9881 1670 or email [jerome.carslake@arrb.com.au](mailto:jerome.carslake@arrb.com.au).

## b) Key Points

Overall, the Insurance and Regulation sub-group thought that addressing regulatory and insurance risk was most important in the transition from (SAE<sup>1</sup>) Level 2 to Level 3 automation where there is a mix of autonomous/connected vehicles and human controlled vehicles. Beyond this, questions arise as to how governments and insurers respond to Level 3 and Level 4 vehicles given these vehicles are now in the market and numbers and sophistication will only increase over the next five years.



### Points for consideration

#### Transition

- Transition lines from human controlled drivers to autonomous must be clear.
- Consideration of interim interactions between the various levels of road users.
- Social issues of removing the right to drive – resistance.
- Issues should address all levels of autonomy and not focus on Level 5 automation.
- Governments may view this as a two-step process.
  - Step 1
    - The first step is to make whatever changes are necessary to introduce Level 3 and Level 4 which will require governments to be satisfied that the vehicles are safe for use by an appropriately trained operator.
    - This may require introduction into the ADRs<sup>2</sup> of requirements to maintain and update software and provide operator training (similar to mandatory advanced-driver training). Questions also arise on potential restrictions of use of autonomous features to certain sections of the road network such as A-Roads and motorways.
  - Step 2
    - The second-step will be around introduction of Level 5 automation which may not happen for some years and may require further amendment to Road Rules and infrastructure.

In the first-step, liability/insurance might not be too different from now. If an accident is caused by a vehicle in autonomous mode, third party insurance will still apply. Thereafter, there may be fact-finding and our subrogated claims.

The second-step is the major change which will require more significant policy and regulatory consideration.

<sup>1</sup> SAE International's new standard J3016: Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems

<sup>2</sup> Refers to the Third Edition of the Australian Design Rules (ADRs)

## Insurance

- Challenges about insuring the vehicles – is the vehicles fool proof?
- There is potential to eradicate uninsured and dangerous drivers from the road networks. This is achieved because the human element is removed as the vehicle is increasingly automated and connected with others. The vehicle will make decisions based on its programming, sensor feeds and the surround network inputs.
- There is potential for driverless vehicles to increase mobility of aged and impaired people otherwise not able to drive without increasing road safety and insurance risks.
- The potential to reduce third party insurance premium costs through lower accident rates.
- Greater understanding required on the impact of increasingly automated vehicles on insurance premiums as the environment changes in response to lower accidents.
- Car fleet redundancy – implications for insurance and incentives to transition to automation.

## Regulation and Governance

- Will governments limit the functionality of vehicles for sale? Is this the role for government?
- Will governments require that all vehicles be “driven” even if some vehicles have automated features through Levels 3 and 4?
- Ownership and access of accident data from vehicle’s “Black Box”. There is a risk of concealment of information if owned by stakeholders such as car manufacturers and insurance companies.  
Consideration of an independent body to oversee data ownership to address:
  - Risk of variation of regulations across states regarding privacy and data could restrict movement/insurance of vehicles across jurisdictions.
  - Clear guidelines could prevent legal disputes following an accident.
  - People involved will want a clear path to compensation or recovery of damages.
- Potential to use COAG to harmonise road rules, regulations and driver training nationally for the heavy/light commercial fleet and private vehicles.
- How is “road worthy” defined for autonomous vehicles which are reliant upon software upgrades? For example, a missed system upgrade, a degraded operating system, a new firewall to block a virus could all potentially threaten the road worthiness and safety performance of an autonomous vehicle on the network.
- Should there be a new class of licence for “operators” of Level 3 and/or Level 4 automation? Is this feasible if automation features are likely to be proprietary? For example one may be trained to operate an automated Audi but not be able to operate an automated Lexus because the features and controls are different. Should features be “locked” until the operator has been trained? Could this work where a car may be driven by several people? This approach already exists with layered licensing for manual versus automatic transmission capable drivers.
- The use of a co-regulatory ‘safety management system (SMS)’ approach is preferred rather than a prescriptive government regulated approach.
- SMS have been successfully applied within the aviation and rail sectors. The introduction of autonomous vehicles could allow a similar regulatory approach to road transport.

## Technology

- Cyber security risk and ensuring updates take place, how does this fall into ADRs?
- Scope for the implementation of SMS similar to rail and aviation.



- Does it matter what degree of automation the vehicle may have if those features may not be used? Current levels of ADAS<sup>3</sup> may be deactivated by car owners, should this be outlawed?

## c) Comments Relating to Issues Paper Questions

### Question 1 – what are automated vehicles?

ADVI has adopted and supports the use of SAE International Standard J3016. It is appropriate that an internationally acceptable definition is used given the global move towards this emerging technology.

In an effort to assist with simple communication, the various levels of automation are explored in PRG's first position paper - Narrative of ADVI.

### Question 2 – Role of government

Government has a crucial role to ensure a seamless introduction of autonomous to Australia. Government will be needed to provide a clear pathway for the technology whilst also ensuring the community is both protected and reassured.

For Australia, it is about harmonised road rules, vehicle standards and their application across the nation. Ideally, autonomous vehicles should function under a single set of national laws.

Australia should consider autonomous vehicle regulations similar to those within the aviation sector - a single consistent set applied nationally mainly because they were developed post-federation and did not have the legacy issues of state based legislation.

Continuing to draw learnings from other transport sectors, government could apply a co-regulatory approach through a SMS as applied in the regulation of rail and aviation.

The other area for consideration is the management and security of data generated by autonomous vehicles. To ensure a social license to operate the community will need assurances that data generated and captured is bound by clear legal guidelines as to how it can be captured, stored, utilised and security which underpins it. This may initially require the establishment of a separate regulatory entity to address issues and concerns raised by the community similar to the Telecommunications Industry Ombudsman.

### Question 3 - Issues with regulating the driver

Clear guidelines are required with regards to defining the transition from autonomous to human control in levels 3 and 4 because should the vehicle be involved in an incident during this point there can be no conjecture as to accountability. Control needs to be clearly defined.

A new class of license may be required for "operators" of Level 3 and/or Level 4 similar to the layered approach regarding layered licensing for manual versus automatic transmission capable drivers. Drivers need to have the necessary skill, license and capacity to be the operator in control of the vehicle when required.

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<sup>3</sup> Advanced Driver Assistance Systems

#### **Question 4 - Issues with regulating the road vehicle**

Since Australia will no longer have its own motor vehicle manufacturing base beyond 2017, regulations should not constrain the entry of imported vehicles by ADRs diverging from international standards. ADRs should mirror those established internationally.

The ADRs should also include:

- a) Ongoing obligation to maintain vehicle—e.g. to download software updates to manage risk of tamper and cybersecurity; and
- b) Development of performance standards for software necessary for autonomous vehicles

As Level 4 and Level 5 automation is introduced, the ADRs should be explored to include the ability for a vehicle to monitor its condition, and if not compliant the vehicle should not function or only provide limited function in order to drive to be repaired.

#### **Question 5 - Issues with regulating heavy vehicles**

Until heavy vehicles become very sophisticated, it is likely that there will always be a person in the vehicle, whether driving or not, responsible for cargo loading/unloading etc.

The Heavy Vehicle National Law (HVNL) is largely concerned with human factor safety. If the human factor is removed then the HVNL probably does not apply.

It is more likely that, like aircraft, heavy vehicles will be capable of operation in autonomous mode when appropriate, including platooning.

To the extent that current laws require a “person” to “drive” a heavy vehicle then the considerations are similar to cars i.e. the Road Rules could be adapted to refer to a “controller” which could be defined as a human driver or autonomous or remote driving program or system.

#### **Question 6 - Liability**

While current liability regimes are well established, there is room for improvement and harmonisation which could perhaps include consideration of a “no-fault” compensation scheme.

The current CTP system could apply to autonomous vehicles, though we note concern in some sectors of the insurance community that autonomous vehicle manufacturers may attempt to “bundle” insurance products with vehicles.

If an accident results from a failure of the autonomous operating system and/or a software flaw these could fall under product liability laws. While CTP would operate in any event, there may be issues as to whether human error caused or contributed to the accident. This could be complex from an evidentiary perspective.

#### **Question 7 - Privacy and access to data**

The capture, storage and use of otherwise private data associated with operation of autonomous vehicles will pose privacy concerns.



These will include the extent to which government wishes to access, store and utilise data captured by vehicles; whether governments wish to be able to outsource such a function; third parties' rights to access data.

**End of submission**