The regulatory framework for automated vehicles in Australia

February 2022

National Transport Commission

Report outline

Title	The regulatory framework for automated vehicles in Australia
Type of report	Policy paper
Purpose	For endorsement by the Infrastructure and Transport Ministers' Meeting, February 2022
Abstract	The purpose of this paper is to present proposals on the end-to-end regulatory framework for the commercial deployment of automated vehicles. This framework consists of existing Commonwealth and state and territory frameworks, frameworks already agreed by ministers as part of automated vehicle reforms, and recommendations for in-service safety. The NTC undertook targeted consultation with key stakeholders to understand whether the regulatory framework will achieve national outcomes, potential gaps, and how it will impact on different sectors. The framework presented here incorporates feedback and includes final recommendations on the detailed content of the in-service Automated Vehicle Safety Law. It also identifies further work as the reform program moves to the next stage, which focuses on amendments to state and territory law to accommodate automated vehicles.
Attribution	This work should be attributed as follows, Source: National Transport Commission 2021, *The regulatory framework for automated vehicles in Australia: policy paper*, NTC, Melbourne. If you have adapted, modified or transformed this work in anyway, please use the following, Source: based on National Transport Commission 2021, *The regulatory framework for automated vehicles in Australia: policy paper*, NTC, Melbourne.
Key words	automated vehicle, automated driving system, automated driving system entity, safety assurance, national law, regulator, first supply, type approval, in-service, general safety duty, driving, modifications, compliance and enforcement, roadside enforcement, intergovernmental agreement
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Foreword

The National Transport Commission (NTC) is pleased to present the end-to-end regulatory framework for the commercial deployment of automated vehicles in Australia. The design of this framework represents the culmination of work led by the NTC over the past five years on national reforms for automated vehicles, and was developed in close conjunction with governments and industry.

Automated vehicles are expected to transform the road transport system and benefit the lives of Australians through gains in safety, productivity, environmental, mobility and accessibility outcomes. Given these benefits, governments across the world have been working to develop regulatory settings that will allow this technology to operate legally and safely.

In Australia we have struck the balance between aligning with developing international standards and ensuring the framework is tailored to our unique conditions. Commonwealth, state and territory governments have worked together closely to develop a national framework and provide a clear signal to industry that there is a pathway for commercially deploying automated vehicles.

We would like to thank each organisation and individual who has contributed to developing this regulatory framework. Over the next five years, the Commonwealth and state and territory governments will work with the NTC implement the framework, and the NTC looks forward to continuing our close engagement with the stakeholder community to progress these important reforms.

Aaron de Rozario
Executive Leader, Regulatory Reform

Dr Gillian Miles
Chief Executive Officer and Commissioner

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1 About this paper

1.1 Purpose of this paper

The purpose of this paper is to present the end-to-end regulatory framework for the commercial deployment of automated vehicles in Australia.

The National Transport Commission (NTC) has been leading work on the regulatory framework for automated vehicles over the course of 2016–2021, in close consultation with government, industry and the broader public. The framework presented in this paper consists of existing regulatory frameworks and new regulatory frameworks agreed by infrastructure and transport ministers. The most recent ministers' decisions made in February 2022 are on the detail of the in-service framework, and these are included in Appendix A. Presenting both existing and new frameworks together provides a clear picture of the regulatory landscape that will govern automated vehicles once deployment begins in Australia. Legislation to implement the new frameworks will still, however, need to be drafted and to be passed by parliaments.

This paper represents the culmination of work by the NTC, governments and industry to develop the end-to-end regulatory framework for automated vehicles, in particular the safety assurance framework.

1.2 Background

Australia's laws do not currently support the deployment of automated vehicles. Our laws are designed for vehicles with human drivers. A review in 2016 found more than 700 barriers to the deployment of automated vehicles in state, territory and Commonwealth laws. Automated vehicles are expected to deliver safety, productivity, mobility and environmental benefits. Without reforms, Australians will not be able to gain these benefits.

In 2016, infrastructure and transport ministers agreed to the development of an end-to-end regulatory framework for the commercial deployment of automated vehicles. Since then, the NTC has been working with government and industry to develop this framework. This work has led to ministers' decisions on:

- regulated parties
- determining control of an automated vehicle
- safety assurance for automated vehicles at first supply
- a new national law and new regulator for the in-service safety of automated vehicles
- the approach to motor accident injury insurance (MAII) for automated vehicles
- regulating government access to automated vehicle data.

In May 2021, ministers agreed a roadmap for implementing a national safety framework for automated vehicles. This included a set of principles for the end-to-end framework. The framework should:

a) be nationally consistent – support a single, national market for vehicles in Australia

b) be internationally aligned – maintain alignment with evolving international standards to keep Australia part of the global vehicle market

c) support and enable deployment through removing barriers to ensure Australians can gain the benefits of this technology

d) be effective – ensure safety as the key outcome

e) provide flexibility – be technology, application and business model agnostic through focusing on outcomes and principles-based approaches

f) provide consistent rules regardless of the method of market entry

g) be adaptable – allow technology and solutions to evolve over time

h) provide clarity for industry and consumers on their responsibilities and liabilities, including ensuring there is clear responsibility for the driving of a vehicle at all times

i) be efficient – the end state should be scalable to the size of the deployment and use existing systems/processes/legislation where possible. Regulators should be efficient, scalable and risk-based in their approach.

1.3 Approach and consultation

In 2020, the NTC consulted on the detailed content of an Automated Vehicle Safety Law (AVSL), the proposed new national law for the in-service safety of automated vehicles.[1] The consultation resulted in a range of proposals that infrastructure and transport ministers noted in May 2021. The NTC subsequently used the proposals to form the basis of a draft version of this paper. The paper showed how the proposals for an AVSL would fit within the end-to-end framework for automated vehicles – that framework also consisting of existing state, territory and Commonwealth transport laws and new frameworks for automated vehicles previously agreed by ministers. This provided an opportunity for government and industry to see the regulatory framework for automated vehicles in its entirety, before moving to the implementation stage. The paper also showed the practical impacts of two legislative implementation options for the AVSL across the end-to-end framework. The options were (i) complementary Commonwealth and state and territory law and (ii) state and territory applied law. The differences between the approaches are summarised in Appendix B.

The NTC undertook targeted consultation with government and industry and received feedback at consultation sessions, individual meetings and in 19 written submissions.

We asked stakeholders four questions about the regulatory framework:

1. In your view, will the proposed end-to-end regulatory framework for automated vehicles achieve the key national outcomes of:
   - better road safety?
   - a single national market for automated vehicles?
   - flexible and future-proofed regulation for automated vehicles?
   - clear responsibilities for regulators, regulated parties and consumers?
2. Are there any gaps in the regulatory framework?

[1] The proposals can be found in the policy paper *A national in-service safety law for automated vehicles* (May 2021) available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-policy-paper-national-in-service-safety-law-for-AVs.pdf.

3. What are the impacts of the regulatory framework on your sector, including potential future work required?

4. What are the impacts of each in-service safety legislative implementation approach on your sector?

Feedback received informed updates to the regulatory framework.

This paper covers the following substantive topics:

- how automated vehicles will enter the market (chapter 3)
- how automated vehicles will access the road (chapter 4)
- how regulated parties will maintain in-service safety (chapter 5)
- how driving and on-road interactions will work (chapter 6)
- how responsibility for an automated driving system can be transferred (chapter 7)
- how modifications to automated vehicles will be managed (chapter 8)
- how duties on regulated parties will be enforced (chapter 9)
- how the in-service framework will be established and maintained (chapter 10).

The Infrastructure and Transport Ministers' Meeting (ITMM) agreed the NTC's final recommendations on in-service safety in February 2022. This included further work to confirm the safety requirements for in-service ADS modifications and aftermarket switch-ons and installations (described in chapters 3 and 8). Work will now begin to draft the AVSL, develop corresponding amendments to state and territory legislation and establish the new in-service regulator for automated vehicles. Work will also continue on implementing the first-supply process and developing an intergovernmental agreement to support the framework. Ministers have agreed a roadmap to implement the framework by the end of 2026, in line with likely timelines for commercial deployment. This includes the passage of legislation and setting up the in-service regulator.

1.4 Key concepts

The following concepts are central to the end-to-end framework described in this paper.

Automated driving system (ADS): the hardware and software collectively capable of performing the entire dynamic driving task (DDT, defined below) on a sustained basis without human input.

Automated driving system entity (ADSE): the party that will self-certify the safety of the ADS and take responsibility for it over its life. The ADSE will self-nominate at first supply when applying for type approval or when applying to take responsibility for an ADS in service.

Automated vehicle: a vehicle that has an ADS. It is distinct from a vehicle with advanced driver-assistance systems such as lane-keep assist.

Automated Vehicle Safety Law (AVSL): a proposed new national law to regulate the in-service safety of automated vehicles. The AVSL will regulate ADSEs, their executive officers and remote drivers, and operate in conjunction with existing road transport laws. It will also establish an in-service regulator for automated vehicles.

Complementary law approach: the AVSL implemented as a Commonwealth law. Human users of automated vehicles (fallback-ready users) will be regulated in individual state and territory laws due to the constitutional limits of Commonwealth law. This legislative implementation approach was agreed by ministers in February 2022.

Control: ministers have agreed that when an automated vehicle's ADS is engaged, the ADS is in control and the ADSE is responsible for complying with DDT obligations.

Dynamic driving task (DDT): all the operational and tactical functions required to operate a vehicle in on-road traffic. This includes steering, acceleration and deceleration, object and event detection and response, manoeuvre planning and enhancing conspicuousness through lighting, signalling and so on. The DDT excludes strategic functions such as trip planning.

Fallback-ready user: a human in a level 3 vehicle who can operate the vehicle, and who is receptive to requests from the ADS to intervene and to evident DDT performance-relevant system failures. The fallback-ready user is expected to respond by taking control of the vehicle.

First supply: the point at which vehicles enter the Australian market for the first time. Ministers have agreed a safety assurance approach for the first supply of automated vehicles consisting of ADSEs self-certifying the safety of their ADS against safety criteria and obligations under the existing type-approval process.

First-supply regulator: the Commonwealth Department of Infrastructure, Transport and Regional Development (DITRDC) administers the regulation of road vehicles up to the point of first supply in Australia. The enabling legislation for this framework is the *Road Vehicle Standards Act 2018* (Cwlth) (RVSA).

General safety duty: an overarching and positive obligation on the ADSE to ensure the safe operation of its ADS so far as is reasonably practicable. This type of duty is used in other transport sectors in Australia including heavy vehicles, commercial passenger vehicles, rail and domestic commercial marine vessels. What is 'reasonably practicable' will vary over time as technologies and practices evolve.[2]

In-service: when vehicles have entered the Australian market and can be operated on the road. Ministers have agreed the key elements of the in-service framework for automated vehicles – a new national in-service safety law for automated vehicles (the AVSL), a new in-service regulator, a general safety duty on ADSEs and due diligence obligations on ADSE executive officers.

In-service regulator: the new regulator for the in-service safety of automated vehicles. The regulator will be established once the AVSL is passed and is expected to commence operations by the end of 2026. It will be small to begin, scaling up as the automated vehicle market grows.

Levels 3, 4 and 5 vehicles: automated vehicles are commonly identified by automation level, as defined by SAE International.[3] Automated vehicles have level 3 or above

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[2] Hopkins A 2012, *Explaining 'safety case'*, Australian National University, Canberra.

[3] Defined in the SAE J3016 standard *Taxonomy and definitions for terms related to driving automation systems for on-road motor vehicles*, 2018, published by the Society of Automotive Engineers International (SAE).

automation (while advanced driver-assistance systems vehicles have levels 1 or 2 automation).

- **Level 3 vehicles:** the ADS undertakes the entire DDT within its operational design domain (ODD, defined below). When the ADS is driving, the human operator does not have to monitor the driving environment or the driving task but must be receptive to ADS requests to intervene and any system failures.
- **Level 4 vehicles:** the ADS undertakes the entire DDT within its ODD. When the ADS is driving, the human operator is not required to monitor the driving environment or the driving task, nor are they required to intervene because the ADS can bring the vehicle to a safe stop unassisted.
- **Level 5 vehicles:** the ADS undertakes all aspects of the DDT and monitoring of the driving environment. The ADS can operate on all roads at all times. No human operator is required.

Operational design domain (ODD): the specific conditions under which an ADS or feature is designed to function (for example, location, weather conditions, driving modes).

Remote driver: a human who can operate an automated vehicle but who is not seated in a position to manually operate vehicle controls such as brakes and steering.[4] A remote driver may operate the vehicle from outside it or inside it.

State and territory applied law approach (or applied law approach): the AVSL is a state or territory law made by a host jurisdiction, with application Acts made in each participating jurisdiction.[5] Human users of automated vehicles are still regulated in individual state and territory laws (however, there are no constitutional limits associated with regulating them in the AVSL). This legislative implementation approach was considered by ministers but not agreed.

[4] Ibid., p. 16.

[5] The Heavy Vehicle National Law scheme is an example of a state and territory applied law approach.

2 Context

The purpose of this chapter is to:

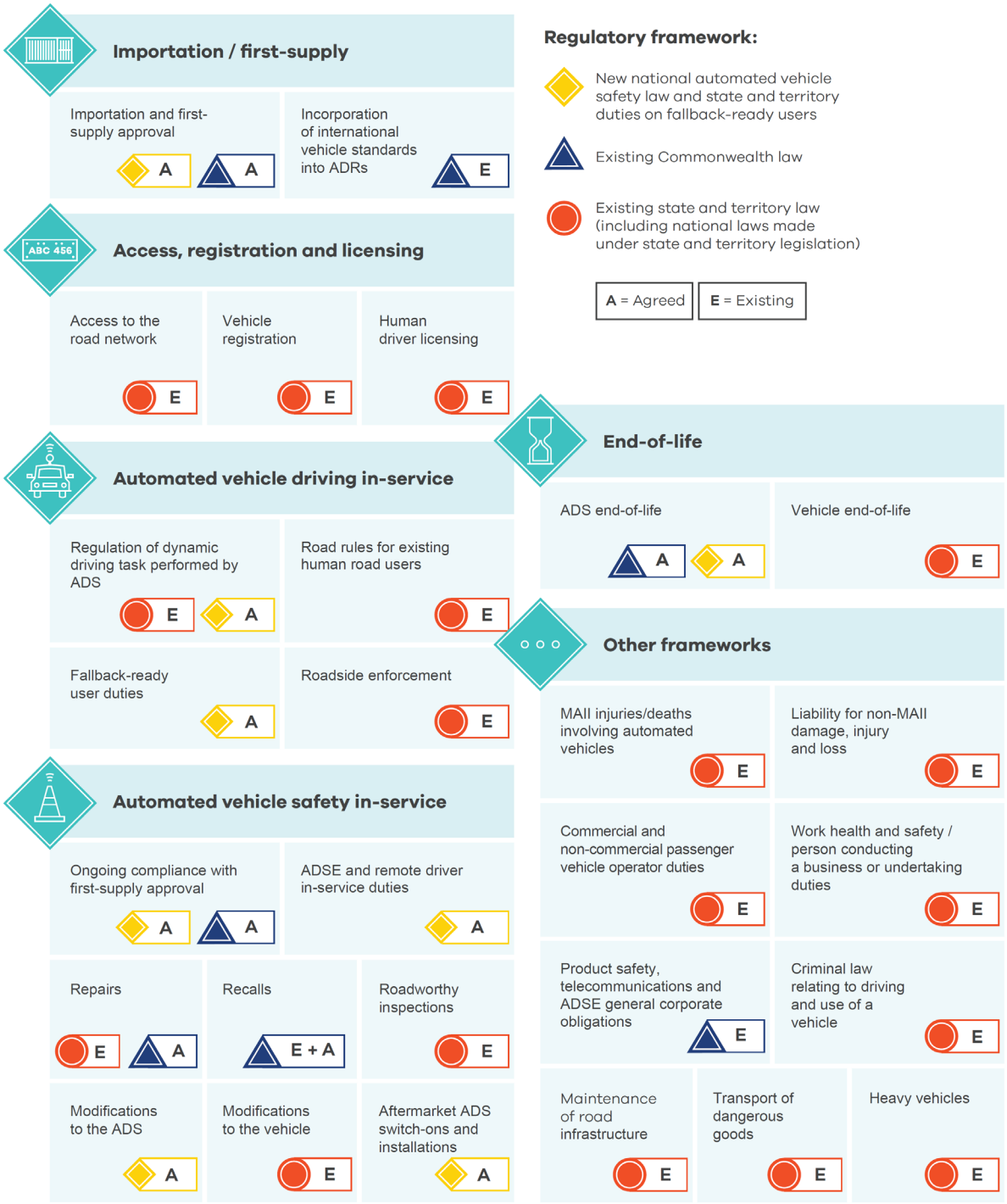
- outline the regulators and agencies that will be involved in the end-to-end regulatory framework for automated vehicles
- outline the key parties that will be regulated in the end-to-end regulatory framework for automated vehicles
- explain the elements of the regulatory framework that have been agreed by ministers as part of automated vehicle reforms, and those that are part of existing frameworks.

2.1 Overview of the end-to-end regulatory framework for automated vehicles

A range of activities will be regulated to ensure the safe design and operation of automated vehicles at all stages of the automated vehicle's life. Figure 1 shows:

- the key activities relevant to automated vehicle safety
- the relevant governance frameworks
- whether the regulatory frameworks are existing or have been agreed by ministers as part of their automated vehicle reform decisions over 2017–2021.

Figure 1. Key regulatory frameworks for automated vehicles



2.2 The three key regulators for automated vehicle safety

The three key regulators for maintaining automated vehicle safety are:

- the first-supply regulator
- the in-service regulator
- state and territory road transport regulators.

2.2.1 First-supply regulator

DITRDC is the government agency that administers the first supply of vehicles under the RVSA.

The first-supply regulator will approve the entry of new automated vehicles to the market for the first time, by assessing the quality of evidence provided by applicants about the safety of their ADS and certifying ADSEs at first supply. It will also maintain the first-supply framework by incorporating international standards for automated vehicles into Australian Design Rules (ADRs) as they develop.

The first-supply regulator will have a role in the in-service safety of automated vehicles through ensuring that ADSE's maintain compliance with type-approval conditions. The first-supply regulator will also be responsible for issuing and administering recalls of automated vehicles that have entered the market through the first-supply process.

Other roles include accepting a variation of type-approval to transfer it to a new ADSE approved by the in-service regulator where a previous ADSE has exited the market. The first-supply regulator will also assess the quality of evidence provided by ADSEs wanting to vary their type-approval when introducing modifications to new automated vehicles. In both instances, this occurs where the ADSE wants to bring new vehicles into the market under an existing type-approval.

2.2.2 In-service regulator

The in-service regulator's key function will be to ensure regulated parties assure the safety of an ADS over its life cycle. It will have a range of functions and powers to ensure safety risks are comprehensively managed. It will use these tools to take a proactive and risk-based approach to compliance and enforcement. This proactive oversight will give the in-service regulator a holistic view of the automated vehicle market.

The in-service regulator will regulate ADSEs, ADSE executive officers and remote driving[6] under the AVSL. Under this law, ADSEs will be subject to a general safety duty to ensure the safe operation of automated vehicles so far as is reasonably practicable, as well as specific prescriptive duties. Executive officers of the ADSE will have due diligence obligations corresponding with the ADSE's general safety duty. Remote driver obligations will be further determined as international standards develop.

The in-service regulator will also be responsible for regulating significant modifications to in-service ADSs and aftermarket installations and switch-ons to conventional vehicles in-service, and certifying new ADSEs that enter the market in service.

2.2.3 State and territory road transport regulators

State and territory road transport regulators will retain responsibility for an automated vehicle's access to the road network, vehicle registration, road management, regulation of human drivers and other road users as well as human driver licensing under existing state and territory laws. They will also maintain responsibility for roadworthy inspections of automated vehicles as well as the regulation of physical modifications and repairs to vehicle

[6] Ministers have agreed remote driving will be regulated under the AVSL, however, further work is ongoing on to understand any constitutional limits impacting on the ability to regulate remote drivers under a Commonwealth AVSL.

hardware. The human users of automated vehicles, including fallback-ready users and third parties interfering with an automated vehicle, will also be regulated by states and territories.

2.3 Other relevant regulators and agencies

2.3.1 State and territory roadside enforcement agencies

State and territory roadside enforcement agencies will be responsible for roadside enforcement issues and interacting with automated vehicles on the ground. This includes observing breaches of road rules by automated vehicles and responding to crashes. These agencies will also retain responsibility for crash investigations involving automated vehicles.

2.3.2 Other transport regulators

The National Heavy Vehicle Regulator and commercial passenger transport regulators will have a role in regulating ADSEs when the ADSE's functions also fall under those frameworks. For example, an ADSE that is a heavy vehicle fleet operator will also have duties under the Heavy Vehicle National Law (HVNL) and other road transport laws, and an ADSE that operates a commercial passenger fleet will have duties under commercial passenger transport legislation to provide a safe service.

2.3.3 Work health and safety regulators

Where an ADSE operates vehicles used for work (such as a fleet of vehicles used for commercial passenger transport), the ADSE will be subject to duties of care under work health and safety (WHS) legislation for the health and safety of their employees, including drivers and passengers.

2.3.4 Australian Competition and Consumer Commission

An ADSE may have limited obligations under the Australian Consumer Law (ACL), including that it must not engage in misleading or deceptive conduct.[7] Compliance obligations under the ACL apply to those who supply consumer goods in trade or commerce. It is possible that some types of ADSs (for example, an aftermarket device) could be considered a consumer good. For such ADSs, the ACL includes some product safety provisions that apply to consumer goods and product-related services that may require ADSEs to meet certain consumer guarantees when supplying ADSs to consumers. However, the primary regulator for ADSEs supplying aftermarket ADSs will be the in-service regulator under the AVSL.

2.3.5 Australian Securities and Investment Commission

The NTC is recommending that certain circumstances like the cessation of trading by an ADSE or the merger or acquisition of an ADSE with a new entity may trigger a requirement for the ADSE, or the new entity, to notify the in-service regulator of the event. Generally, these events also trigger a notification requirement to ASIC.

The *Corporations Act 2001* (Cwlth) requires directors and officers of a corporation to discharge their duties to the corporation with reasonable care and diligence. It also obliges

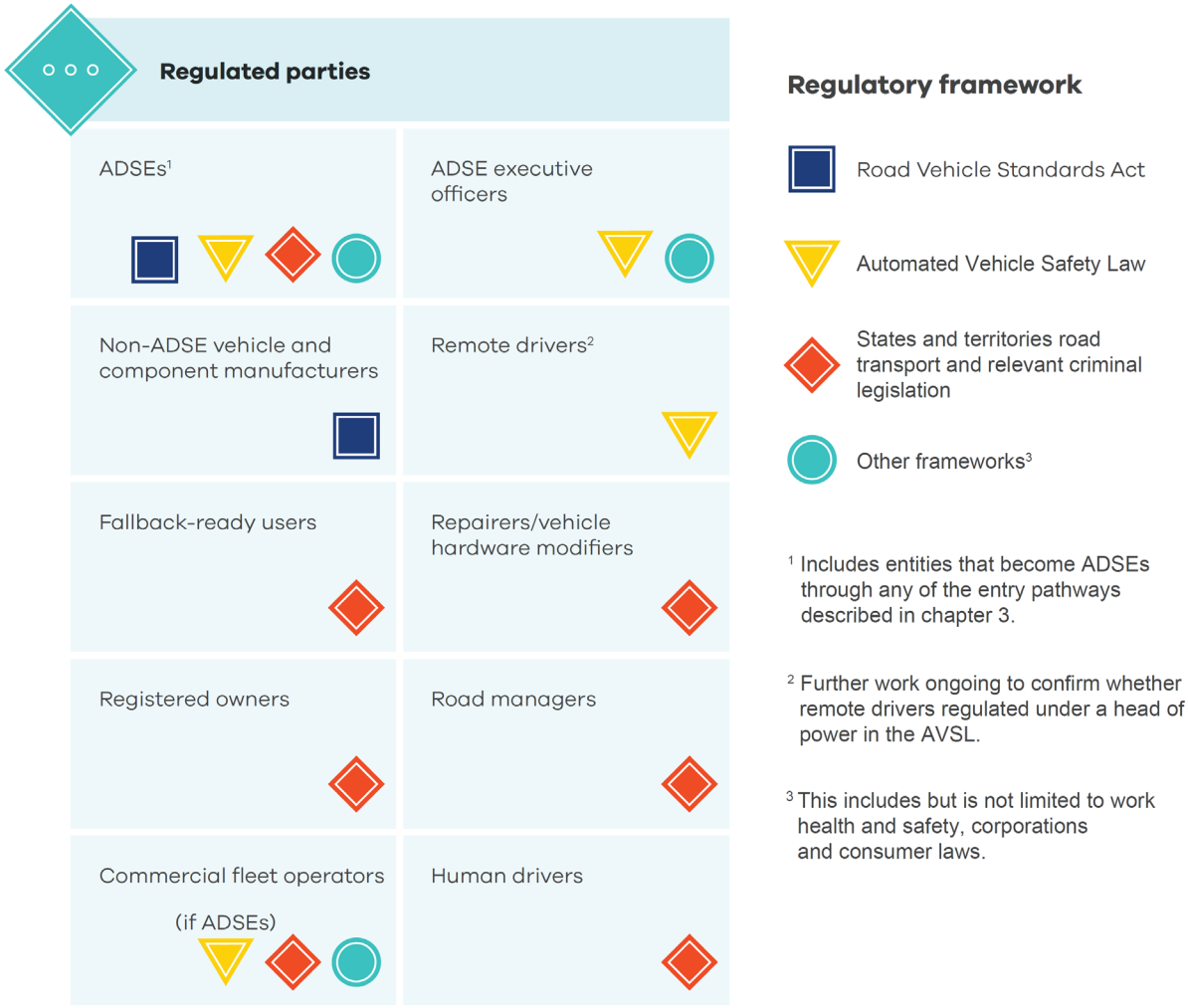
[7] Due to the agreed first-supply requirements for automated vehicles, an ADSE will be the type-approval holder under the RVSA and therefore the importer or manufacturer for the purposes of the ACL.

those persons to discharge their duties in good faith and in the best interests of the corporation. ADSE executive officers will be subject to these duties.

2.4 Regulated parties

Our previous work has identified the various parties for regulating automated vehicle safety and the applicable regulatory frameworks. Figure 2 provides a list of the main parties that have an impact on automated vehicle safety and which regulatory frameworks they are covered by.

Figure 2. Regulated parties and regulatory frameworks



2.5 Agreed and existing elements of the end-to-end regulatory framework

In November 2018, the then Transport and Infrastructure Council agreed to a safety assurance approach for the first supply of ADSs to the Australian market.[8] ADSEs must self-certify to show how their ADS meets 11 safety criteria and three obligations to enter the market. The safety criteria will be incorporated into the existing framework for the first supply of vehicles under the RVSA. DITRDC is currently incorporating the safety criteria into the ADRs.

In June 2020, infrastructure and transport ministers endorsed key features of a national regulatory approach to the in-service safety of automated vehicles.[9] Features include a national law (the AVSL) to establish:

- a general safety duty on the entity that is responsible for an ADS over its life cycle (the ADSE)
- due diligence obligations on executive officers of the ADSE to support the ADSE's compliance with its general safety duty
- a national regulator for in-service safety to regulate ADSEs, their executive officers and remote drivers of automated vehicles.

Ministers also agreed to recommendations for corresponding state and territory law to provide for:

- rules for the human user of an automated vehicle who can take back control from an ADS (the fallback-ready user) (which ministers previously agreed in May 2018 would focus on the need to remain sufficiently vigilant and fit to drive)
- access to public roads, subject to the conditions of their supply to the market
- deeming the ADSE as the driver of a vehicle when its ADS is engaged.[10]

In February 2022, ministers agreed the NTC's recommendations for the further detail of the in-service framework contained in the AVSL,[11] including:

- prescriptive duties on the ADSE (outlined in sections 5.1.2–5.1.4 of this paper)
- the process for transferring an in-service ADS to a new ADSE (chapter 7)
- the process for managing in-service modifications and aftermarket activations and installations, with further work on safety risks (chapter 8)
- the in-service regulator's functions (section 10.2)

[8] The full list of decisions can be found in *Safety assurance for automated driving systems: Decision Regulation Impact Statement* (November 2018) available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-decision-regulation-impact-statement-safety-assurance-for-automated-driving-systems.pdf.

[9] The full list of recommendations can be found in *In-service safety for automated vehicles: Decision Regulation Impact Statement* (June 2020) available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Decision-RIS-In-service-safety-for-AVs.pdf.

[10] The NTC notes this is more accurately expressed as deeming the ADSE responsible for the driving of a vehicle when its ADS is engaged.

[11] A full list of the NTC's proposals, including analysis that incorporates stakeholder feedback, can be found in the NTC's policy paper *A national in-service safety law for automated vehicles* (May 2021), available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-policy-paper-national-in-service-safety-law-for-AVs.pdf.

- the in-service safety regulator's compliance and enforcement powers, including the power to access, use and share information (section 9.2)

As well, ministers agreed that the AVSL would be implemented through Commonwealth law.

There are also existing frameworks that will interact with the AVSL, in particular, state and territory frameworks for road transport. These include laws on registration, roadworthiness and roadside enforcement. States and territories will need to review existing frameworks to determine if changes are required. This review will form part of the next stage of developing automated vehicle regulations in Australia, with harmonisation being a goal of any reforms in state and territory law. The NTC will play a facilitation role in this work.

The existing automated vehicle trial framework will accommodate the use of automated vehicles in Australia until the commercial deployment framework is finalised. This framework currently consists of Commonwealth first-supply approval and state and territory approval through each jurisdiction's trial framework. This framework is supported by the NTC and Austroads' *Guidelines for trials of automated vehicles in Australia*.[12]

In May 2021, ministers agreed the end-to-end regulatory framework for the commercial deployment of automated vehicles should commence in 2026.

2.6 Legislative implementation for the in-service framework

As noted above, in February 2022, ministers agreed that the AVSL will be implemented through Commonwealth law. Prior to this, there were two remaining implementation options that were considered in a range of NTC consultations, including the discussion paper that preceded this policy paper.

The two remaining options were that the in-service framework is implemented using either (i) a complementary law approach or (ii) state and territory applied law. These approaches are defined in section 1.4 of this paper. Under a complementary law approach, the AVSL would be enacted by the Commonwealth Parliament in Australia under a single Act. Under a state and territory applied law approach, the AVSL would be enacted by a 'host' jurisdiction, with other states and territories enacting application Acts in their jurisdictions. Either implementation approach would include complementary amendments to state and territory laws.

Both of these approaches were considered in the decision regulation impact statement (RIS) on in-service safety for automated vehicles released in June 2020. The decision RIS found both these implementation approaches could enable efficient administration of in-service safety duties within a single national market. Both would include a general safety duty on ADSEs and a single national regulator and could form the basis of the end-state regulatory framework. PwC's cost-benefit analysis for the decision RIS supported this proposition, as did most stakeholder submissions. Further consultation on the discussion paper 'A national in-service safety law for automated vehicles' and the discussion paper that preceded this current paper reaffirmed stakeholder support for a complementary law approach.

Large parts of the end-to-end framework are common to both approaches, and both can establish a national framework for in-service safety. The obligations of regulated parties

[12] The guidelines are available on the NTC website at https://www.ntc.gov.au/sites/default/files/assets/files/AV-trial-guidelines-2020.pdf.

would be the same; for example, the detail of the general safety duty would not change. However, compliance and enforcement arrangements and how the law is established and maintained would differ. For context, given the importance of this issue in the lead up to ministers' decisions on the legislative implementation approach in February 2022, the practical differences between the approaches are summarised in Appendix B.

3 How automated vehicles will enter the market

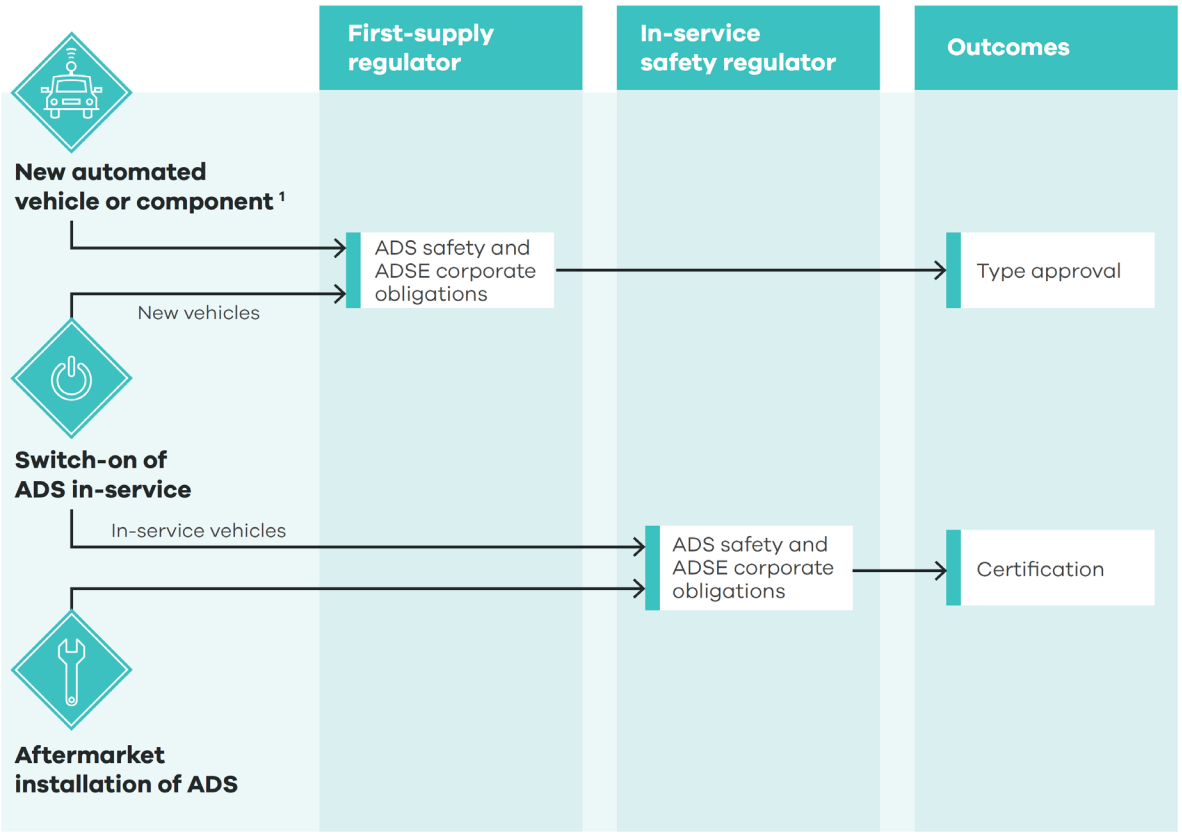
The purpose of this chapter is to show the different ways that automated vehicles can enter the market. There are three main ways that ADSs could enter the Australian market for the first time to be deployed:

1. as a new ADS in a vehicle approved for use at first supply
2. by being 'switched on' in an in-service vehicle
3. by being installed as an aftermarket device in service.

All pathways require an assessment of an applicant's self-certification about the safety of their ADS at the national level before they are deemed an ADSE and become subject to the national in-service framework.

Figure 3 provides an overview of the framework for entering the market.

Figure 3. Overview of the framework for entering the market



[1] New automated vehicles or components that can meet all or the majority of ADRs and use the type approval pathway. Those that cannot will use another pathway under the RVSA.

3.1 New automated vehicles

New automated vehicles will enter the market using the existing first-supply framework. New safety requirements and corporate obligations have been incorporated into the existing type-approval framework.

3.1.1 First-supply framework for new automated vehicles

Type-approval pathway for new automated vehicles

All new vehicles need to receive approval through an entry pathway in the RVSA before being supplied to the Australian market for the first time. Automated vehicles that can meet all (standard) or the majority (non-standard)[13] of ADRs will be able to use the type-approval pathway. This is the commercial deployment framework for automated vehicles.

In applying for type approval for an automated vehicle, an applicant is also self-selecting to be the responsible ADSE for the automated vehicle over its life (which will make it subject to in-service duties under the AVSL as well). Applicants can be any party that is able to meet the requirements described in this section to ensure the safe operation of the ADS. The ADSE does not need to be the original equipment manufacturer for the vehicle. If this is the case, it is likely that the original equipment manufacturer and the potential ADSE will have their own contractual agreements to formalise their relationship.

Applicants for type approval must submit an application to DITRDC that demonstrates how their vehicle meets all applicable ADRs. ADR 90/01 will include requirements relevant to ADSs (in Appendix B of the ADR).[14] Applicants seeking type approval for a vehicle with an ADS must provide a self-certification showing how the vehicle meets these requirements. The requirements incorporate the 11 outcomes-based safety criteria below[15] as well as relevant standards from United Nations regulations (for example, from UN Regulation 157 on automated lane-keeping systems):[16]

1. Safe system design and validation process
2. Operational design domain
3. Human-machine interface
4. Compliance with relevant road traffic laws
5. Interaction with enforcement and other emergency services
6. Minimal risk condition
7. On-road behavioural competency
8. Installation of system upgrades

[13] For example, automated vehicles that do not have an operator would not meet all ADRs but could still be type-approved if the applicant could demonstrate the vehicles are suitable for use on a public road in Australia and do not pose an unacceptable risk to public safety. Over time, it is intended that more types of automated vehicles will be covered by ADRs as international standards develop and continue to be incorporated into ADRs. As this happens, automated vehicles will increasingly fall within the type-approval pathway as a standard vehicle.

[14] Appendix B of ADR 90/01 will contain requirements for automated driver assistance systems.

[15] These safety criteria are described in full the NTC's 2018 *Safety Assurance for automated driving systems: Decision Regulation Impact Statement*, available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-decision-regulation-impact-statement-safety-assurance-for-automated-driving-systems.pdf.

[16] UN Regulation No. 157 is available at https://unece.org/sites/default/files/2021-03/R157e.pdf.

9. Verifying for the Australian road environment
10. Cybersecurity
11. Education and training.

The consultation draft of ADR 90/01[17] incorporates the safety criteria and structures them around the following themes:

- processes and obligations that an ADSE must fulfil in establishing safe design and accountability processes in developing and supporting an ADS
- performance requirements that an ADS must meet at the time of supply to market
- driving competencies that the ADS must perform instead of a driver when engaged in service.

DITRDC will incorporate further international standards relevant to ADSs into ADRs as they are developed, as part of its program of harmonisation. It is expected these will gradually replace most, if not all, of the above safety criteria.

As part of the type-approval application, draft ADR 90/01 requires applicants to declare how long they intend to support the ADS (the ADS' 'design life'), which must be at least equal to the period of the type approval[18] (new vehicle type approvals are valid for seven years). They must also show how they will communicate this to relevant stakeholders including vehicle owners. Type-approval holders can re-apply to extend the type approval beyond seven years.

As well as meeting the safety requirements in ADR 90/01, applicants must also show how they meet three corporate obligations. These obligations are ongoing obligations over the life of the ADS.[19]

1. Corporate presence – the applicant must provide evidence of its corporate presence in Australia.
2. Minimum financial requirements – the applicant must provide evidence of its current financial position, its grounds for claiming it will have a strong financial position in the future, and the level of insurance held. The level of insurance should be appropriate to cover personal injury, death and property damage caused by the ADS when it is engaged.
3. Ongoing data recording and sharing capability[20] – the applicant must outline the ADS data it will record and how it will provide the data to relevant parties. Without limiting the data to be recorded and shared, the applicant must explain how it will ensure:
   - the vehicle can provide road agencies and insurers with crash data
   - relevant parties (including police) receive information about the level of automation engaged at a point in time if required

[17] Draft ADR 90/01 was consulted on in 2021 and is currently being further developed by DITRDC. The consultation draft is available at https://www.infrastructure.gov.au/vehicles/design/files/adr-90-01-consultation-draft.pdf.

[18] These requirements are in draft ADR 90/01.

[19] DITRDC is currently considering how to implement these obligations into the type-approval process.

[20] There are data requirements in draft ADR 90/01 as well. This data obligation incorporates the ongoing elements of the data recording and sharing obligation agreed by ministers in 2018.

- individuals receive data to dispute liability (for example, data showing which party was in control to defend road traffic infringements and dispute liability for crashes) when the individual makes a reasonable request
- data is provided in a standardised, readable and accessible format when relevant
- data is retained to the extent necessary to provide it to relevant parties (the amount of time data is retained may depend on the purpose(s) the information could be used for – for example, law enforcement and insurance)
- data relevant to the enforcement of road traffic laws and the general safe operation of the ADS (including data relevant to crashes) is stored in Australia.

In responding to this obligation, the applicant should note that the *Privacy Act 1988* (Cwlth) places limits on the collection, use and disclosure of personal information, which may limit the data the applicant can record and share.

If the first-supply regulator considers the applicant has met the safety requirements and corporate obligations, a type approval is granted and the type-approval holder is certified as the ADSE. Type approval will allow the ADSE to supply its vehicles to the market in unlimited numbers.

Type-approval pathway for ADS components

An applicant could also seek a component type approval for an ADS and become the ADSE by meeting the same requirements as above. The applicant would need to demonstrate the safety of the ADS for use in a specified vehicle (which could subsequently be used across multiple vehicle types) to have the ADS type-approved. The ADS would need to be supplied to the market already installed in the vehicles. This pathway would not permit the supply of 'standalone' ADSs.

Other RVSA entry approval pathways for new automated vehicles

Though the type-approval pathway is the appropriate method of supply for commercially deployed automated vehicles, this pathway may not be available to all types of automated vehicles. For example:

- automated vehicles that cannot meet the majority of ADRs (i.e. emerging technologies)
- personal automated vehicles (that are new or used, but are new to Australia).

Non-type-approval pathways are generally meant for approvals on a vehicle-by-vehicle basis and not intended as an approval pathway to facilitate large-scale deployments. However, regardless of the entry pathway, if the automated vehicle is to be deployed in service (rather than trialled) and cannot be type-approved, the principle remains that there should be a mechanism for a responsible entity to be recognised as the ADSE after assessment by the first supply regulator. These entities should be required to meet the corporate obligations and as many of the safety criteria in ADR 90/01 as are relevant, and then be regulated by the national in-service regulator and subject to the duties in the AVSL. For example, where individuals wish to import a personal automated vehicle into Australia, they will not be able to use the vehicle in automated mode unless there is a responsible ADSE assessed at first supply and regulated by the national in-service regulator.

If the vehicles are to be trialled, applicants will need to apply for a concessional approval. Applicants will be required to provide the first-supply regulator with a letter of preliminary support from the road transport agency of the state or territory where it is intended to trial the vehicles. Once the applicant has been approved at first supply, they (or another trial partner) must apply to the relevant state or territory government to run the trial on public roads. States and territories have their own requirements covering safety and traffic management,

insurance and reporting. The NTC and Austroads *Guidelines for trials of automated vehicles* also guide this process. The in-service regulator may also have a role in overseeing trials – this is being further considered by governments.

Governments will undertake further to work to determine whether any changes to current mechanisms are required to ensure vehicles approved under non-type-approval pathways fall within the in-service regulator's oversight in service if they are to be commercially deployed.

3.1.2 Importation

Once an import approval (such as a type approval) has been received from DITRDC and transport of the vehicle(s) has started, an import declaration or self-assessed clearance declaration must be lodged with the Australian Border Force. On arrival in Australia, to be cleared from customs control, importers may need to pay customs duty, goods and services tax, luxury car tax and other charges. They may also need to show that the vehicle is free from asbestos. The Department of Agriculture, Water and the Environment must also be contacted to undertake a vehicle inspection to ensure the vehicle is free of biosecurity-related contamination.[21]

3.2 Switching on an automated driving system in in-service conventional vehicles

Type-approval holders for conventional vehicles could switch on ADS capability in service once they become an ADSE (for example, through a software or configuration change). To do so, they must for the following:

- For new vehicles, they must submit a self-certification against safety criteria and corporate obligations to the first-supply regulator for a type-approval variation or a new type approval.
  - As mentioned in section 3.1, the first-supply regulator will consider ADS safety and the corporate obligations.
- For in-service vehicles, they must submit a self-certification against safety criteria and corporate obligations to the in-service regulator to be certified as an ADSE for those vehicles.
  - The in-service regulator will consider ADS safety and the corporate obligations. Safety requirements will be equivalent to those in ADR 90/01.

For the second of these scenarios, governments are further considering the potential safety risks of switching on ADS capability in in-service vehicles, and whether additional requirements are needed.

[21] Step-by-step information on importing a vehicle can be found on the Australian Border Force website at https://www.abf.gov.au/importing-exporting-and-manufacturing/importing/how-to-import/types-of-imports/importing-a-motor-vehicle and the DITRDC website at https://www.infrastructure.gov.au/vehicles/imports/process_overview.aspx.

Where the type-approval holder is switching on ADS capability in both its in-service and new vehicles of the same type, it must go through the respective processes described above. The two regulators will closely liaise to ensure consistency where warranted.[22]

If the applicant declared the ADS capability when it first brought its vehicles to market through the process in section 3.1 and as such is already an ADSE, there is no further action that needs to be taken when switching on this capability in service.

If a type-approval holder switches on ADS capability in service without in-service regulator approval, they will be in breach of a third-party interference offence under state and territory law (described further in chapter 5).

3.3 Automated driving systems installed in in-service vehicles (aftermarket installations)

Companies could install ADSs in in-service vehicles once they become an ADSE. To do so, they must submit a self-certification against safety requirements and corporate obligations to the in-service regulator. The safety requirements will be at least equivalent to those in ADR 90/01; however, governments are further considering the potential safety risks of aftermarket installations and whether additional safety requirements are needed.

The self-certification must indicate the types of vehicles in which the aftermarket ADS can be installed. There will not be any new obligations on the type-approval holder for the vehicle.

This differs from the process described in section 3.1, which can capture ADSs developed by companies and installed in another manufacturer's new conventional vehicles before being supplied to the Australian market. As noted above, these companies would likely agree who the ADSE is through their own contractual arrangements.

Individuals will not be able to install ADSs in in-service vehicles (unless they are the approved ADSE or authorised by the ADSE). An offence of third-party interference in state and territory law (described further in chapter 5) would make unauthorised installations illegal.

3.4 Key data flows

On receiving type approval and once the automated vehicle enters Australia, the ADSE can enter the automated vehicle type on the Register of Approved Vehicles (RAV), an online publicly searchable database of vehicles approved for supply to the market. Austroads operates elements of the RAV and it is maintained by DITRDC.[23] The in-service regulator will need relevant information from the RAV, such as who the type-approval holder/ADSE is, in order to enforce compliance with the general safety duty. This is likely to be system-to-system exchange between the National Exchange of Vehicle and Driver Information System (NEVDIS) and the in-service regulator.

[22] There may be instances where decisions may differ – for example, if additional safety issues must be considered due to the age of the in-service fleet. Ultimately, the first-supply regulator has responsibility for decisions about new vehicles, and the in-service regulator has responsibility for decisions about in-service vehicles.

[23] DITRDC has recently introduced the RAV, which replaces the need to fit road vehicles with identification plates containing compliance information and a certification statement from the vehicle manufacturer. NEVDIS is owned by Austroads on behalf of all states and territories.

The first-supply regulator will need to share the ADSE's self-certification under ADR 90/01 and declarations under the corporate obligations with the in-service regulator directly. This will allow the in-service regulator to enforce compliance with ongoing elements of the ADSE's first-supply safety case as relevant.

The first-supply and in-service regulators will also liaise when type-approval holders are seeking to switch on ADS capability in their in-service vehicles where that capability has not been declared at first supply. In particular, where the type-approval holder is seeking to switch on ADS capability in both in-service and new vehicles, it will be desirable for the first-supply and in-service regulators to come to the same outcome when considering the switch-on (where warranted, noting that there may additional safety considerations for in-service vehicles given they may have been on the road for some time).

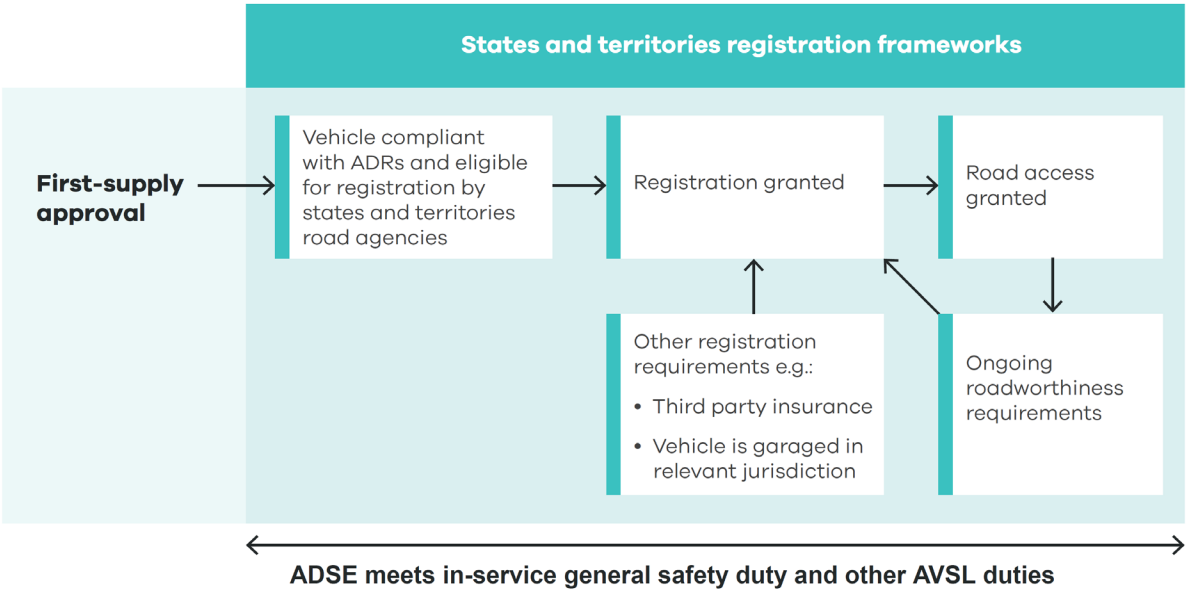
The in-service regulator may need to share information about new ADSEs with states and territories when certifying aftermarket installers as ADSEs. This is likely to be a system-to-system exchange between the in-service regulator's database and NEVDIS.

4 How automated vehicles will access the road network

The purpose of this chapter is to outline the process for legally operating an automated vehicle on public roads.

Figure 4 provides an overview of the framework for accessing the road network.

Figure 4. Overview of the framework for accessing the road network



4.1 Registration

As noted in chapter 3, once an automated vehicle receives type approval, the ADSE will enter information on the RAV (such as the vehicle identification number, type-approval holder and vehicle model), which is maintained by DITRDC.

State and territory road transport authorities will retain responsibility for automated vehicle registration. Once NEVDIS receives the information described above, an automated vehicle can be registered by a person just like a conventional vehicle.[24] The registration process for new vehicles is broadly similar in each state and territory. States and territories are responsible for the registration of both light and heavy vehicles.

An automated vehicle will also be subject to requirements that apply to all vehicles depending on the state or territory. These requirements could include:

- that the vehicle is garaged in the state or territory it is registered in[25]

[24] However, NEVIDS will not block registration of a vehicle if the data is not available.

[25] See, for example, s 6A of the *Road Safety Act 1986* (Vic) and s 7 of the Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010.

- that any plates issued are properly displayed on the vehicle[26]
- ongoing roadworthiness requirements (discussed further in chapter 5)
- conditions of operation.

It should be noted that these requirements are not intended to create differing conditions for the use of the same ADS across jurisdictions.

States and territories may consider whether any changes to registration laws or systems are required to accommodate automated vehicles.

4.1.1 Insurance

Registered owners of vehicles will also be required to hold compulsory third-party insurance in order for their vehicles to be registered.[27] Further work on the place of automated vehicles under MAII schemes is underway and discussed in chapter 9.

4.2 Access to the public road network

Access to the public road network is regulated through registration.[28] It is an offence to drive an unregistered vehicle on public roads in a state or territory.[29] States and territories will retain responsibility for road access through their registration processes. After an ADS is approved at first supply, the automated vehicle would generally have access to the entire road network within its ODD declared at first supply.

States and territories do have discretion to place registration conditions on a vehicle's use (which, for automated vehicles, could potentially include limiting the ODD); however, it is not general practice to place conditions on standard vehicles – as type-approved automated vehicles would be. Heavy vehicles posing high levels of risk (for example, longer or heavier vehicles) will continue to be provided restricted access via authorisations and exemptions approved by road mangers and the National Heavy Vehicle Regulator.

It is possible that states and territories could amend their laws to give a specific power to a state authority such as the state transport minister to withhold or limit road access in certain circumstances.[30] This could include cancelling the registration of an automated vehicle for road safety reasons. A state minister may wish to act against ADSEs, but under the proposed framework it is expected that the in-service safety regulator would take action on safety issues given the potential fleet implications.

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[26] *Road Safety Act 1986* (Vic), s 9A.

[27] See, for example, s 13(a)(f) of the Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010 (Qld).

[28] Human road users derive their right to access public roads from the common law and state and territory legislation. See, for example, *Corporation of the City of Adelaide v Attorney General for South Australia* (1931) 45 CLR 517; *Anderson v City of Stonnington* (2017) VSCA 229; *Roads Management Act 2004* (Vic) s 8; *Roads Act 1993* (NSW) s 5.

[29] See, for example, s 7 of the *Road Safety Act 1986* (Vic), which makes it an offence to use an unregistered motor vehicle on public roads.

[30] States and territories may need to review existing policy and legislation to further consider their ability to limit an ADS' ODD through registration conditions. As noted in the section, they can also amend their laws to have a specific power to limit the road access of automated vehicles, if they do not already have this power. However, the intent of the national framework for automated vehicles is that there is no secondary approval decision on an ADS's ODD at the state level.

4.3 Data flows

The key form of data exchange will be through NEVDIS, subject to further agreement and development. ADSEs will provide the relevant RAV data to NEVDIS. State and territory road transport agencies will record and provide relevant registration data on automated vehicles to NEVDIS. States and territories may consider updating their registration systems to include data relevant to automated vehicles such as who the ADSE is, whether a registered vehicle is an automated vehicle and, potentially, the ODD (though this would likely be recorded by the in-service regulator). State and territory agencies may need to consider what data is required in order to grant road access. The in-service safety regulator and state and territory agencies would need to share information on changes to the ADS ODD and ADSE safety data. Registered owners will provide relevant registration data to state and territory transport agencies in line with existing requirements.

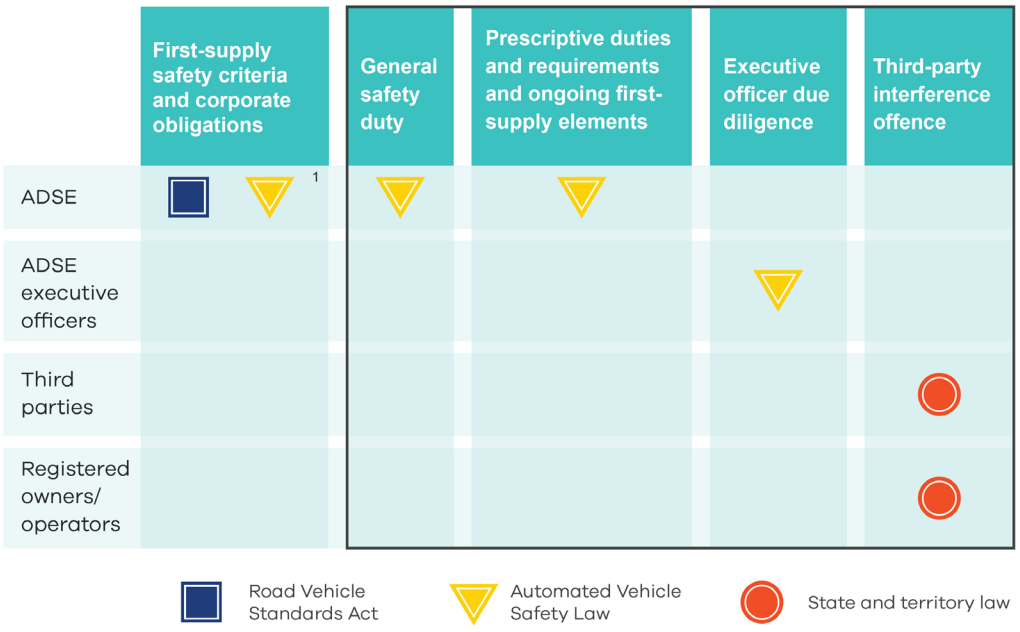
Austroads, the entity that owns NEVDIS on behalf of states and territories, is considering work to design and implement a common data pathway for acquiring and sharing automated vehicle data stored in registration systems. This work will also consider what additional data points are necessary for state and territory road transport agencies (as described above) in order to manage road access and safety issues. This work will also need to consider what data needs to be shared in real time versus historical sharing. The in-service regulator will need this type of information from NEVDIS to enforce compliance with the general safety duty. This is likely to be a system-to-system exchange either between the in-service regulator and state and territory agencies or through NEVDIS.

5 Maintaining the in-service safety of automated vehicles

The purpose of this chapter is to outline the safety requirements that regulated parties will need to meet in service and the role of relevant regulators.

Figure 5 provides an overview of the framework for maintaining in-service safety.

Figure 5. Overview of the framework for maintaining in-service safety



[1] Framework depends on market entry pathway.

5.1 Automated driving system entities

Automated vehicles will continue to evolve over time through system upgrades that can affect operation of the vehicle. They also need to take into account changes in the environment in which they operate. ADSEs' safety obligations therefore extend beyond first supply.

5.1.1 The general safety duty

The ADSE will be subject to a general safety duty to ensure the safe operation of its automated vehicles, so far as is reasonably practicable.[31] This duty rests with the ADSE for the design life of the ADS. The duty sits within the AVSL.

The general safety duty places the onus of identifying risks onto the ADSE and allows the ADSE to mitigate risks as it sees fit. Whether the duty has been met depends on whether safe outcomes have been achieved. The in-service regulator will develop guidance on

[31] 'Reasonably practicable' will be defined in the AVSL. See, for example, *Rail Safety National Law (South Australia) Act 2012*, s 47.

meeting all AVSL duties (including guidance on safety management processes) and meeting executive officer due diligence obligations.

5.1.2 Prescriptive duties to support the general safety duty

To meet its general safety duty, as well as generally ensuring safe operation, the ADSE must also meet the following prescriptive duties in the AVSL that support the general safety duty. These prescriptive duties aim to support ADSEs to meet the general safety duty by providing some clarity about minimum safety requirements, without limiting the scope of the general safety duty itself.

The ADSE must:

- ensure, so far as is reasonably practicable, that systems are developed, used and maintained to carry out the general safety duty
- ensure, so far as is reasonably practicable, that system upgrades to the ADS are installed safely and do not result in the operation of an unsafe ADS
- ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users
- provide education and training to all relevant parties, including users of its ADSs, that will minimise the safety risks of operating the ADS, so far as is reasonably practicable
- prevent the operation of an ADS when the ADSE is aware the ADS is unsafe, so far as is reasonably practicable
- make efforts to ensure the ADS cannot be interfered with by third parties, so far as is reasonably practicable
- review, maintain and update its safety standards as declared in its first-supply application, so far as is reasonably practicable
- ensure that, when engaged, the ADS operates in compliance with all applicable road traffic laws, unless strict compliance is not possible due to a road-environment related hazard or DDT-related emergency
- record and store data relevant to compliance with the general safety duty
- have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks
- ensure accountability (such as through reporting structures or external audits) to demonstrate that those processes, policies and systems are being complied with.

The AVSL will also include a rule-making power for prescriptive duties to be included in regulations over time if required.

Breaches of these prescriptive duties carry their own penalties (penalties are discussed further in chapter 9). The conduct associated with a breach of a prescriptive duty will be considered by the in-service regulator when assessing whether there has been a breach of the general safety duty.

An ADSE would be prosecuted either under the general safety duty or a prescriptive duty for a particular breach.[32]

[32] Under double jeopardy the accused cannot be found guilty of two or more offences arising out of the same circumstances.

5.1.3 Ongoing compliance with first-supply safety criteria and obligations

The above prescriptive duty, for an ADSE to 'review, maintain and update its safety standards as declared in its first-supply application, so far as is reasonably practicable,' ensures the ADSE maintains compliance with its first-supply self-certification in service. Further, it also makes clear that the ADSE should ensure its safety standards are reviewed and evolve over time, so far as is reasonably practicable. This duty will be enforced by the in-service regulator under the AVSL (in place of state and territory road transport regulators, who enforce other ADRs in service through the Australian Light Vehicle Standards Rules).

Some specific elements of the ADR 90/01 requirements have ongoing elements that will be enforced under the AVLS. For example, the prescriptive duty to 'provide education and training to all relevant parties, including users of its ADSs, that will minimise the safety risks of operating the ADS, so far as is reasonably practicable' provides the ongoing obligation to provide education that follows from the requirement in ADR 90/01 that the ADSE has a process to deliver education and training to relevant parties. The intention of these particular prescriptive duties is to give in-service effect to the corresponding first supply requirements where the first supply regulator would otherwise not have in-service reach.

The corporate obligations an ADSE is assessed against at first supply are assessed at a point in time but must also be maintained in service. The need to maintain compliance with the ongoing data recording and sharing capability is reflected in the prescriptive duty to record and store data relevant to compliance with the general safety duty (as well as in prescriptive requirements on data outlined in section 5.1.4). The in-service regulator will also have oversight of the ADSE's compliance with its corporate presence and minimum financial requirements obligations over the life of an ADS.

The in-service regulator may periodically audit or request information from an ADSE to ensure ongoing compliance.

5.1.4 Prescriptive requirements to support enforcement

The ADSE will also be subject to prescriptive requirements in the AVSL. These are more administrative in nature but are critical to support the in-service regulator's compliance and enforcement role. Some of these requirements may be in primary legislation and others in subordinate legislation. Under a state and territory applied law approach, there would be a further risk of introducing national inconsistencies through derogations because states and territories could be responsible for amending their subordinate legislation.

The ADSE must:

- notify the in-service regulator when it intends to significantly change corporate structure, transfer responsibilities for the ADS, or is at risk of insolvency, or otherwise no longer intends to support an in-service ADS
- disengage the ADS where there is no ADSE to support it
- maintain a log of all in-service modifications that it implements in relation to its in-service ADSs
- not implement significant modifications to in-service ADSs without having a self-certification accepted by the in-service regulator
- ensure automated vehicles record data relevant to enforcement of road traffic laws and the general safe operation of the ADS (including data relating to crashes)
- maintain records of safety incidents
- provide vehicle data in a standardised, readable and accessible format

- provide accurate and reliable information to the in-service regulator
- notify the in-service regulator and ADS users of any systemic safety issues affecting the ADS
- report to the in-service regulator significant safety incidents and road traffic law breaches when the ADS is engaged or during transition of control with the operator, and instances where it received an infringement notice from a state or territory agency
- notify the in-service regulator of any third-party interference attempts that the ADSE becomes aware of
- develop and maintain a law enforcement interaction protocol to be shared with the in-service regulator.

5.2 End-of-life for automated driving systems

An ADSE is not expected to maintain an ADS for an unlimited period of time. An ADS that is no longer supported by an ADSE should not be used on public roads because there is no longer assurance of its safe operation. The AVSL and state and territory road safety laws apply to regulating the end of life for ADSs. The AVSL will require an ADSE to switch off an ADS if it no longer can or will support it, effectively discontinuing the operation of an ADS.[33]

State and territory law will create an offence of third-party interference for users who attempt to use an unsupported ADS (discussed further in section 5.4). Existing motor vehicle registration and roadworthiness laws will also apply. For example, it would be an offence for a driver to use an unregistered and uninsured vehicle. It may be possible that state and territory road agencies issue a defect notice to vehicles with an unsupported ADS. State and territory road agencies may further consider using defect notices to manage the safety of an individual ADS where a safety issue has been observed.

Where the ADSE notifies the in-service regulator of an ADS being switched off, the in-service regulator will inform state and territory road agencies. Vehicles could potentially still be driven manually after an ADS has been switched off, if the vehicle has manual functionality. It is also possible that state and territory road agencies may deem a vehicle no longer roadworthy if it cannot be operated safely without the ADS functionality, and cancel the registration of that vehicle.

5.3 Automated driving system entity executive officers

Under the proposed AVSL, the ADSE's executive officers will have a due diligence obligation to ensure the ADSE meets its general safety duty. This is to ensure safety duties are a priority at the highest levels of the organisation. The AVSL will include a definition of who is considered an executive officer, likely focusing on individuals involved in decisions about the management of the ADSE.[34] Only executive officers in a position to influence the ADSE's offending will be subject to this obligation, and only to the extent of their own personal

[33] ADR 90/01 also requires that an ADS not be engaged where an ADSE does not support it. The requirement will also be in the AVSL to support to the in-service regulator in its functions including enforcement and overseeing transfer of responsibilities for an in-service ADS to a new entity.

[34] For example, s 5 of the RVSA defines an executive officer of a body corporate as 'a person (whether or not a director of the body) who is concerned in, or takes part in, the management of the body.'

influence. Exercising due diligence to ensure the ADSE complies with the general safety duty may include executive officers taking reasonable steps to:[35]

- acquire knowledge and keep up to date about automated vehicle safety matters
- ensure the ADSE has the right resources and processes in place and uses those resources and processes to eliminate or minimise automated vehicle safety risks
- ensure the ADSE has the right processes to receive and respond to reports of safety-related incidents, hazards or issues, and processes to comply with the general safety duty
- verify that the processes and resources set out above are being used.

The in-service regulator may also develop further guidance material to assist executive officers to meet their due diligence obligations.

Executive officers will have a defence of 'reasonable reliance' available to them if prosecuted. The defence will be met if a court is satisfied that:

- the officer relied on a person whom the officer believed to be reliable, relevantly and fully informed and competent in relation to the matters concerned
- where the matters concerned required expertise, the person demonstrated such expertise through relevant qualifications and experience
- any information or advice relied upon was as up to date as reasonably necessary in the circumstances
- the officer relied on the information or advice after the officer made an independent assessment of the information or advice, including making any of their own enquiries as may be reasonably necessary, to ensure the officer reasonably understood any material assumptions or limitations underlying the information or advice
- the officer had regard to their own relevant experience or expertise, and the reliance was in good faith.

As the ADSE is likely to be a corporation under the Corporations Act, the executive officer may also be subject to directors' duties and other fiduciary duties relevant to the corporation. Executive officers under the RVSA must also take reasonable steps to prevent the commission of certain offences.[36]

5.4 Third parties

The general safety duty will require the ADSE to consider potential risks to an ADS's safe operation, including risks from foreseeable misuse or malicious interference. However, this obligation does not make the ADSE responsible for the actions of third parties.

Parties could interfere with the vehicle or the ADS in a way that creates a safety risk, hindering an ADSE's ability to discharge its in-service duties. Parties may also negligently use the ADS in a way that creates a safety risk.

[35] The examples in the bullet points are common due diligence obligations set out in other regulatory frameworks; see, for example, s 55(3) of the *Rail Safety National Law (South Australia) Act 2012* and s 27(5) of the *Model Work Health and Safety Act 2011*.

[36] *Road Vehicle Standards Act 2018*, s 33.

There will be an offence of third-party interference with an ADS, including modifications to, repairs or installations of an ADS that have not been authorised by the responsible ADSE or the regulator, or deliberate engagement of an ADS that has been disengaged by an ADSE,[37] to be enforced by states and territories. This offence will sit in state and territory law and be enforced by states and territories.[38] It should be broad enough to cover attempts to interfere with the safe operation of the ADS from outside and inside the vehicle.

States and territories will need to consider how best to monitor and detect such offences, and each state and territory will decide the relevant enforcement agency and the appropriate penalty.[39] However, it is expected that there will be work to develop a consistent approach to the formulation and enforcement of the offence across states and territories. States and territories may also need to further consider interactions with existing criminal offences.[40] This includes interaction with existing offences in Commonwealth legislation such as interference with telecommunications devices.[41]

As noted in section 5.1.4, ADSEs will need to notify the in-service regulator of third-party interference attempts that it becomes aware of. The in-service regulator will notify states and territories of such occurrences to assist the relevant enforcement agencies to enforce the third-party interference offence. States and territories will also inform the in-service regulator of breaches, which will help the in-service regulator to determine if there are any ADS safety issues.

5.5 Registered owners and operators

5.5.1 Obligations on registered owners and operators

The registered owners and operators[42] of automated vehicles will have in-service safety obligations under state and territory laws for registration and roadworthiness of their vehicles. All states and territories also include an offence for driving an unregistered vehicle. States and territories may consider cancelling the registration of an automated vehicle in some circumstances, though it is expected that the in-service regulator would take action on safety issues where there are issues that may affect a whole fleet.

Roadworthiness requirements differ in each jurisdiction and will have different application. Some jurisdictions directly tie the registration of a vehicle to roadworthiness. For example:

[37] This is intended to cover situations where an ADSE has taken deliberate action to disengage the ADS so it cannot be operated (for example, because of a safety issue or because it no longer supports the ADS).

[38] Rather than the AVSL, given it will be more appropriately enforced by officers on the ground. Under a state and territory applied law approach it could sit within the AVSL; however, it would still need to be enforced by states and territories because it will be officers on the ground who detect these offences.

[39] Consistency will be encouraged in the drafting of these offences.

[40] For example, the Queensland Criminal Code already contains offences relating to computer hacking and misuse (s 408E) and dangerous operation of a motor vehicle, which can include interference (s 328A).

[41] See, for example ss 474.3, 474.5 and 474.14 of the *Criminal Code Act 1995* (Cwlth)

[42] The terms used to describe the person in whose name the vehicle is registered varies between states and territories. The key terms used are ‘registered owner’, ‘registered operator’ and ‘licence holder’. For simplicity, this paper uses the term ‘registered owner’ in some places to refer to the person who has primary responsibility for the vehicle.

- Vehicles in Victoria require a roadworthiness certificate whenever a vehicle is sold.[43]
- Vehicles in New South Wales require a roadworthiness certificate as a condition of registration renewal if the vehicle is more than five years old.[44]
- Light vehicles in South Australia do not require a roadworthiness certificate either at sale or for registration renewal.[45]

Registered owners will need to continue to comply with these requirements. Depending on which jurisdiction the vehicle is registered in, the vehicle may need to undergo roadworthiness inspections. Registered owners will need to ensure their vehicles remain roadworthy, regardless of age. Registered owners that do not meet roadworthiness requirements may be unable to register their vehicle, though as outlined below, ADSEs will have overarching responsibility for maintaining the ADS. Registered owners will also need to maintain their vehicles through repair, which is further discussed in chapter 8.

5.5.2 Roadworthiness frameworks

Assessing roadworthiness will remain a state and territory responsibility. Technical standards for roadworthiness are based on the ADRs, Australian Light Vehicle Standards Rules and heavy vehicle standards under the HVNL. Roadworthiness requirements and assessments differ among states and territories.

Existing roadworthiness assessments are unlikely to adequately assess the safety of a vehicle with an ADS; as such, states and territories may decide to amend roadworthiness requirements for automated vehicles. This could include changing what is inspected as part of any roadworthiness assessments (such as testing ADS functionality). The in-service regulator could also provide advice as needed to state and territories.

State and territory roadworthiness assessments and schemes for automated vehicles will be considered further in the next phase of work. States and territories may consider whether to take a harmonised approach to any amendments of roadworthiness requirements.

Regardless, ADSEs will have the main role in maintaining roadworthiness of the ADS, supported by various obligations it is subject to:

- the requirement for the ADSE to demonstrate that its ADS will not engage where a self-check indicates a safety-critical feature (first-supply requirement in draft ADR 90/01)
- the in-service general safety duty
- the third-party interference offence (discussed in section 5.4) which requires repairs or modifications to be made by the ADSE or a party authorised by the ADSE.

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[43] See Vehicle Standards Information 26 on Victoria roadworthiness requirements, available at https://www.vicroads.vic.gov.au/-/media/files/documents/safety-and-road-rules/vsi26.ashx?la=en&hash=E76EE64879F8C453D3D226443F3EC778.

[44] Further information on New South Wales' roadworthiness requirements is available at https://roads-waterways.transport.nsw.gov.au/geared/your_car/registration_and_insurance/is_your_car_worthy.html.

[45] Further information on South Australia's roadworthiness requirements is available at https://mylicence.sa.gov.au/safe-driving-tips/safer-vehicles/roadworthiness. Heavy vehicles in South Australia are subject to an 'at sale' inspection regime.

5.6 Obligations on parties under other laws

There are several other frameworks that will place obligations on ADSEs, where the ADSE is providing a commercial passenger service, operating heavy vehicles or performing other regulated roles. Some of the transport-related laws below may require consequential amendments to accommodate automated vehicles.

5.6.1 Heavy Vehicle National Law – chain of responsibility

A key purpose of the HVNL is regulating parties that can reasonably influence the safety of heavy vehicle operations. The HVNL imposes a primary duty on parties in the chain of responsibility – these parties include an employer of a driver and an operator of a vehicle. If the ADSE performs a role that brings it within the chain of responsibility under the HVNL (for example, if it is an employer of a driver of a heavy vehicle), it will have to comply with the HVNL primary duty.[46] This will require them to ensure, so far as is reasonably practicable, the safety of transport activities related to the heavy vehicle. This duty will apply concurrently with its duties under the AVSL but achieve a different purpose. The HVNL primary duty requires the duty holder to ensure safe operation of heavy vehicles and transport of goods and will apply to relevant activities and tasks rather than the safe operation of an ADS.

5.6.2 Commercial passenger transport legislation – general and prescriptive duties on operators and drivers

State and territory passenger transport legislation ensures the safety of commercial passenger transport services[47] such as taxis, hire cars, buses and rideshare services. While the detail of the obligations varies across states and territories, broadly owners and operators/drivers of vehicles that provide a commercial passenger service are responsible for ensuring the safety of the vehicle.

If an ADSE provides a fleet of automated vehicles for hire, they would likely be treated as a service provider under state and territory commercial passenger vehicle legislation. This would mean the ADSE would be subject to any general duties for the time it is providing the passenger service. For example, in some states, an ADSE providing commercial passenger services would need to ensure, so far as is reasonably practicable, the health and safety of any drivers and other persons while they are engaged in providing commercial passenger transport services.

5.6.3 Public transport legislation

If an ADSE operates a fleet as an operator for public transport, the ADSE will be subject to various safety duties as well as fitness, accreditation and application requirements under state and territory public transport legislation.[48] States and territories will need to review existing public transport legislation to clarify the application of various legislation.[49]

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[46] The primary duty is contained in s 26C of the *Heavy Vehicle National Law Act 2012* (Qld).

[47] Some states and territories use the terms ‘point-to-point transport’ or ‘ride share’ services.

[48] See, for example, s 133 of the *Passenger Transport Act 2014* (NSW).

[49] For example, s 29 of the Passenger Transport (General) Regulation 2017 lists the criteria for authorisation to drive public passenger vehicles. An ADS cannot meet these criteria because they include age requirements.

5.6.4 Work health and safety – duty of care by those conducting a business or undertaking

Where an ADSE operates a commercial fleet, the ADSE would also be a 'person conducting a business or undertaking' subject to duties of care under WHS legislation (in relation to its employees, including its drivers and passengers) as well the general safety duty under the AVSL. WHS legislation is likely to apply whenever a vehicle is used for work purposes (and hence is treated as a workplace).

WHS law in each jurisdiction creates a general safety duty similar to the one in the HVNL. It requires those conducting a business or undertaking to manage safety risks related to the conduct of their business.

The AVSL may need to clarify which law prevails in the event of any inconsistency between state and territory WHS legislation and the national law;[50] however the duties should complement each other.

5.6.5 Transport of dangerous goods

The *Australian Code for the Transport of Dangerous Goods by Road & Rail* sets out the requirements for transporting dangerous goods by road or rail. The code is given legal force in each Australian state and territory by each jurisdiction's dangerous goods transport laws. Generally, any person driving a vehicle transporting dangerous goods must comply with the requirements of the code. The licence holder using an ADS carrying such goods will be subject to these laws.

5.7 Infrastructure maintenance

5.7.1 Road infrastructure

State and territory road management laws create obligations for state, territory and local government road managers[51] and shape a road manager's duty of care to road users.[52] For example, this might include a statutory duty to inspect, maintain and repair a road to a particular standard,[53] and to give notice before closing a road.[54] Road managers have a duty to take reasonable care to not create a foreseeable risk of harm to road users when exercising their powers.[55]

[50] For example, s 18 of the *Heavy Vehicle National Law Act 2012* (Qld) establishes precedence of WHS law where there are any inconsistencies in the law.

[51] Most Australian roads are managed by state, territory and local government agencies. However, some publicly accessible roads are managed by private entities.

[52] The common law duty of care owed by road managers can be modified by state and territory road management legislation.

[53] *Road Management Act 2004* (Vic), s 40.

[54] *Roads Act 1993* (NSW), s 38B.

[55] *Brodie v Singleton Shire Council* (2001) 206 CLR 512.

Current road management frameworks will remain fit for purpose when automated vehicles enter the road network, and any amendments to regulation of road managers will continue to be managed at the state and territory level.[56]

Australia's road infrastructure will change over time and may be developed to better provide for increased automation in vehicles. However, ADSEs will always be subject to a general safety duty that will require them to ensure the safe operation of the ADS, and this will apply regardless of the state of the road infrastructure.

5.7.2 Telecommunications infrastructure

Telecommunications service providers will enable connectivity between the ADS and its external surrounds, or between an ADS and the ADSE or fleet operator. They will continue to be regulated under existing Commonwealth telecommunications laws. Regardless of any telecommunications failure, the ADSE will still have obligations under their general safety duty in the AVSL to ensure safe operation of an ADS.

5.8 Data flows

The ADSE will need to provide the first-supply and in-service safety regulators with its statement of compliance when first entering the market. During the life cycle of the ADS, the ADSE will also need to report to the in-service safety regulator:

- any significant safety incidents
- road traffic law breaches occurring when the ADS was engaged
- third-party interference attempts it becomes aware of
- other reporting described in later chapters (for example, intention to transfer an in-service ADS).

During the life cycle of an ADS the ADSE will also need to provide data to a range of parties to meet its prescriptive requirements to support enforcement in the AVSL. It will need to provide access to relevant data for law enforcement agencies, insurers and ADS users for insurance purposes. This can include data related to safety incidents or crashes.

The in-service safety regulator will undertake safety audits of the ADSE to ensure it is meeting its duties under the AVSL. The ADSE will need to provide information requested by the in-service regulator for the purposes of the audit. This would include, for example, records of safety incidents, system upgrades, modifications and evidence of the ADSE's compliance with and maintenance of its safety management plans.

The in-service regulator will need to report any significant breaches of the general safety duty to the relevant state or territory road agency and may also need to notify the first-supply regulator if there are potential issues that affect the ADSE's type approval. The in-service regulator will also need to notify state and territory agencies when an ADS will be switched off. State and territory road agencies and the in-service regulator should share information on third-party interference attempts they become aware of.

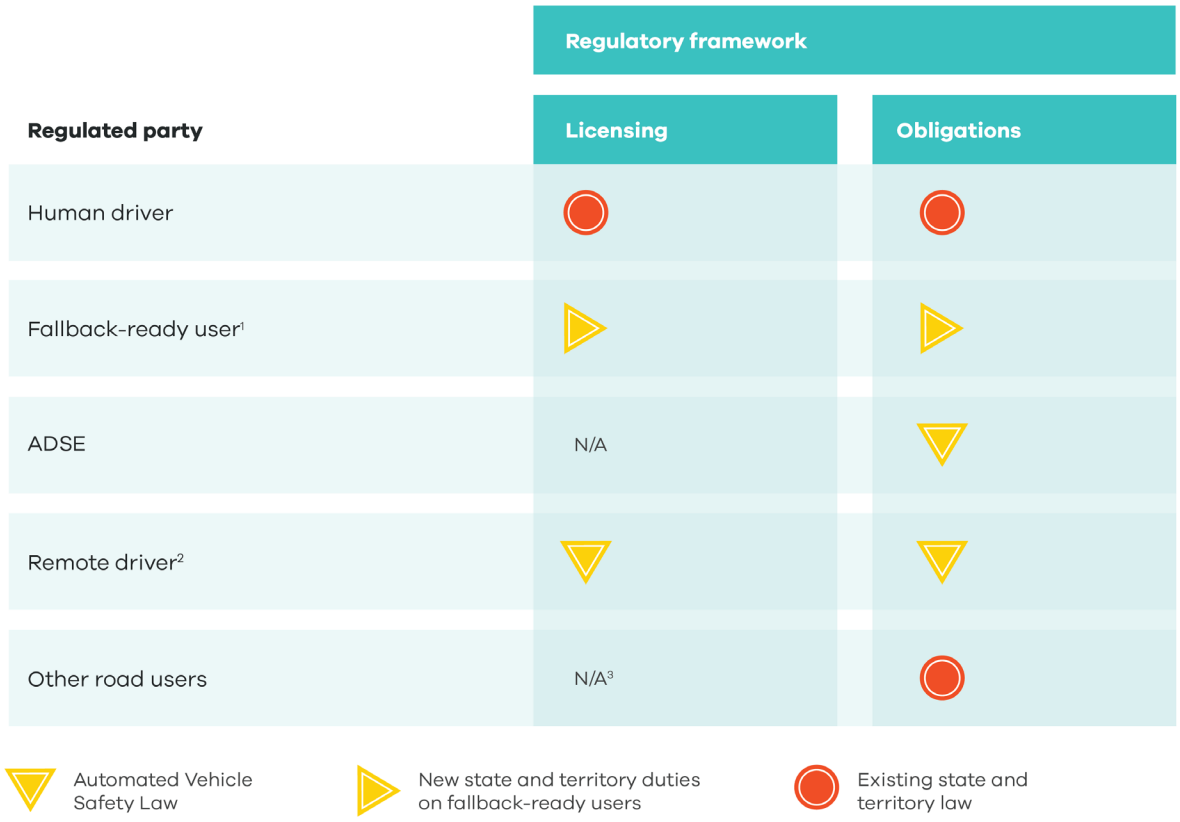
[56] Road management legislation can affect the right of road users to access the road network. It may require review to ensure new road users such as automated vehicles (particularly unoccupied automated vehicles) and remote drivers can access public roads within their ODD.

6 Driving and on-road interactions

The purpose of this chapter is to outline the obligations of human drivers, remote drivers and ADSEs relevant to the on-road operation of automated vehicles.

Figure 6 provides an overview of the framework for driving and on-road interactions.

Figure 6. Overview of the framework for driving and on-road interactions



[1] Under a state and territory applied law approach obligations on fallback-ready users could sit in the AVSL in the future.

[2] Further work ongoing to confirm whether remote drivers regulated under a head of power in the AVSL.

[3] However, other road users include motorcyclists, who require a licence to operate a motorcycle.

6.1 Licensing

6.1.1 Human drivers

Each Australian state and territory limits the right to drive on public roads to those who hold an appropriate driver licence. Driving without a licence is an offence.[57] While precise requirements vary across jurisdictions, obtaining and retaining a licence generally requires that individuals:

[57] See, for example, *Road Safety Act 1986* (Vic), s 18.

- complete supervised driving experience
- take written and practical tests to demonstrate their theoretical understanding of the road rules and ability to apply them in practice
- are of a specified minimum age and physical ability
- comply with drug, alcohol and fatigue requirements
- continue to comply with all road and traffic laws.

States and territories may decide to change driving training requirements to address any gaps in driver competency when operating automated vehicles (for example, if a human driver may also be the fallback-ready user for part of the journey). Recent Australian research suggests there is no current need to review or change driver licensing requirements to address competency gaps for human drivers operating vehicles at level 3 automation, but 'ongoing monitoring and review of the evidence base will help identify if future changes are justified'.[58]

Driver training requirements for advanced driver assistance systems are currently being considered by Austroads[59] and internationally.[60] In the future, such requirements may also be considered for automated vehicles.

6.1.2 Remote drivers

Remote drivers share many risks with conventional human drivers such as competency (sufficient driving skill) and ensuring they are not affected by fatigue or intoxication. While specific regulation for remote driver licensing will not be included in the AVSL, ministers have agreed that the AVSL will provide a head of power to make prescriptive rules to cover remote driving – though further work is ongoing to understand any constitutional limits impacting on the ability to regulate remote drivers under a Commonwealth AVSL.

Rules and licensing arrangements to cover remote drivers are currently under consideration internationally. This is discussed in section 6.4. This area will require further examination as international rules develop and industry practice matures.

6.2 Obligations of human drivers

Each Australian state and territory has road rules to ensure the safe and efficient movement of traffic. States and territories generally incorporate the Australian Road Rules (model law maintained by the NTC) into their own road traffic laws. However, there is some variation between jurisdictions. Existing state and territory road rules will continue to apply to human drivers.

[58] Regan MA, et al. 2020, *Education and training for drivers of assisted and automated vehicles* (report for Austroads), p. iii.

[59] Austroads is currently leading a project examining driver training and education requirements for advanced driver assistance technologies. The project is publicly announced on the Austroads website, at https://austroads.com.au/projects/project?id=SRL6287.

[60] Picardi M 2021, *EFA training matrix: a new and more effective training program*, available at www.unece.org/sites/default/files/2021-03/ECE-TRANS-WP1-2021-Presentation-9eEFFA_1.pdf.

For level 3 vehicles, the human driver will be the fallback-ready user for part of the journey. Fallback-ready users will have legal duties to:

- remain sufficiently vigilant to respond to ADS requests, mechanical failure or emergency vehicles and regain control of the vehicle without undue delay when required
- be appropriately licensed (see section 6.1.1)
- comply with drug, alcohol and fatigue driver obligations.

The fallback-ready user obligations will be in state and territory road transport laws. The NTC will work with states and territories as they further develop these obligations, including to facilitate a harmonised approach across jurisdictions.

6.3 Obligations of automated driving system entities

An ADSE must ensure the vehicle operates in compliance with relevant road rules when the ADS is engaged, including any jurisdictional differences and any amendments when they come into force. The ADSE is responsible for complying with DDT obligations when the ADS is engaged.[61]

The ADSE must also ensure the ADS responds in a safe way where strict compliance with the relevant road rules is not possible (for example, where the vehicle needs to cross a solid line to pass roadworks or a cyclist). This is closely linked to the first-supply on-road behavioural competency requirement.[62] Relevant competencies include an ADS' ability to:

- interact with other road users including vulnerable road users (such as pedestrians and cyclists)
- respond to unusual events
- recognise and manage accordingly temporary speed zones, construction zones, and variable speed signs.

The Australian Road Rules contain the essential behaviours that ADSs should be consistent with; however, they are not the appropriate instrument for regulating the driving task when it is performed by a machine. The ADS achieves safe driving through very different means, relying on vehicle components such as sensors and software. The ADS may not be able to replicate certain things that human drivers do very well, like judging the behaviour of other drivers based on eye contact. On the other hand, the ADS is immune to many inherently human risks such as fatigue, impatience, impairment or distraction.

The AVSL will provide a head of power to make prescriptive rules with national application to enable regulation of the DDT when it is performed by an ADS. As an interim approach for the initial deployment of automated vehicles, these rules would be a collation of relevant state and territory road rules relating to the DDT, including any jurisdictional differences. In the long term, the head of power could be used to create an in-service, performance-based vehicle standard with nationally harmonised ADS-specific rules relating to the DDT. The rules would be consistent with the Australian Road Rules but expressed in a way that the ADS can comply with. The rules should accommodate current and future salient jurisdictional differences if necessary, and particularly while automated vehicles operate as

[61] DDTs include the operational and tactical actions required to operate a vehicle, such as steering and speed.

[62] This requirement is being incorporated into ADR 90/01.

part of a mixed vehicle fleet. Further work will be undertaken to develop an appropriate mechanism to ensure the rules can operate, and can be efficiently maintained, in practice.

Where there are amendments to road rules affecting the DDT, the ADS must be able to follow the new rules (just like human drivers today are required to comply with amendments to road rules). This is consistent with an ADSE's obligations:

- at first supply, because ADSEs need to implement a process to ensure compliance with amendments to relevant road traffic laws[63]
- in service, because if an ADS cannot comply with new road rules it cannot operate safely and the ADSE may need to take mitigating steps, such as disengaging the ADS or reducing the ODD, to ensure it does not breach the general safety duty.

To ensure ADSEs can comply with this obligation, there may need to be processes for states and territories and/or the in-service regulator to clearly communicate relevant changes to the road rules. While the appropriate processes would need to be agreed, some matters for consideration include:

- the national application of the proposed rule change and the implication of a change that occurs in a single jurisdiction
- where reasonable and appropriate in the circumstances, consultation on the proposed rule change may be warranted
- timely notification of proposed changes (likely by the in-service regulator) to all ADSEs. This would mean ADSEs have sufficient lead time to make any required updates or upgrades.

To accommodate an ADS 'driver', states and territories will need to make changes to relevant state and territory legislation. Some key changes are including definitions of an ADS and an ADSE and ensuring that a human occupant is not the 'driver' of a vehicle when the ADS is engaged. States and territories will also need to clarify that their driving laws only apply to human drivers once a national driving code for ADSs is established.

6.4 Obligations of remote drivers

Specific remote driver obligations have not yet been decided. These are being considered internationally, including at the Global Forum for Road Traffic Safety (Working Party 1). Some proposals include that remote drivers:

- must have the physical and mental capabilities to exercise dynamic control as required
- hold the appropriate licence to use and operate the vehicle
- should minimise other activities that would impair their ability to resume dynamic control
- must be able to activate and de-activate an ADS remotely.[64]

[63] This requirement is being incorporated into ADR 90/01, a draft of which is currently being consulted on.

[64] Global Forum for Road Traffic Safety, *Proposed draft resolution on remote driving – submitted by the United Kingdom of Great Britain and Northern Ireland*, Geneva, 17–19 September 2019.

In addition, automated vehicle legislation in overseas jurisdictions is starting to account for remote drivers.[65]

Ministers have agreed the AVSL will provide a head of power to make prescriptive rules to cover remote drivers, though as noted above, this approach is being confirmed though further work on the constitutional limits of a Commonwealth AVSL. Should the approach be confirmed, this head of power will allow suitable rules to be made once more is known about the industry.

6.5 Obligations of other road users

Other road users include pedestrians, cyclists, motorcyclists and passengers. These other road users are not expected to change their behaviour around automated vehicles. Automated vehicles will need to be able to operate safely around these road users.

The Australian Road Rules provide a comprehensive framework for the regulation of other road users. These include rules for pedestrians to obey pedestrian lights and not cause a traffic hazard, rules for cyclists to wear bicycle helmets and rules for passengers to wear seatbelts and not interfere with the driver's control of the vehicle.

Existing state and territory road rules will continue to apply to these other road users. However, states and territories could consider whether additional regulation is required for other road users, such as passengers. This could include offences for behaving in a manner that may interfere with the proper operation of the ADS. It is possible that these scenarios would be sufficiently covered by the third-party interference offence discussed in chapter 5.

6.6 Data flows

States and territories, the in-service regulator and ADSEs may also need to exchange information relating to road rule changes and jurisdictional differences affecting the DDT.

Other key data flows relevant to driving and on-road interactions would arise when a breach of an obligation has taken place. The NTC considers data flows relevant to breaches of driving obligations in chapter 9 where enforcement and liability are discussed.

6.6.1 Law enforcement interaction protocols

One key data flow relevant to on-road obligations of ADSEs is the development of a law enforcement interaction protocol. This protocol will provide clarity to enforcement and emergency services on how to interact safely with a particular automated vehicle type. The first-supply requirements provide that ADSEs must describe the functionality of the ADS relating to its interaction with enforcement, to implement a process to provide enforcement with access to certain recorded data and a description about how information will be provided.[66] The first-supply requirements also cover ongoing data recording and sharing capability.[67] This flows through to requirements in service because the AVSL will contain a prescriptive requirement on ADSEs to develop and maintain a law enforcement interaction

[65] See, for example: Florida CS/HB 311 2019; Alabama 2019 AL S 47; Louisiana 2019 LA H 455; Singapore Road Traffic (Autonomous Motor Vehicles) Rules 2017.

[66] This requirement is being incorporated into ADR 90/01.

[67] This is one of the three corporate obligations that the in-service regulator will assess.

protocol, to be shared with the in-service regulator. The in-service regulator would forward protocols to road transport/enforcement agencies.

Once established, the in-service regulator will develop guidance on the areas to be covered in law enforcement interaction protocols, in conjunction with state and territory enforcement agencies. This guidance would assist in achieving standardisation across submitted protocols (as far as possible).

As the purpose of such protocols is to ensure that roadside enforcement officers have clarity about how they can safely interact with automated vehicles, the protocols could cover:

- how officers can intercept and safely stop an automated vehicle
- how officers can access ADS data (such as the level of automation engaged) at the roadside or during investigation
- how officers can disable an ADS (for example, after a crash)
- how the automated vehicle will recognise enforcement and emergency services on the road or at the roadside
- how first responders can safely interact with an automated vehicle at a crash scene.[68]

It is likely that the law enforcement interaction protocol could cover similar areas to those that ADSEs need to include as part of their first-supply requirements. However, the protocols could provide information in a more accessible and relevant format for enforcement officers and cover other areas that the in-service regulator may consider necessary.

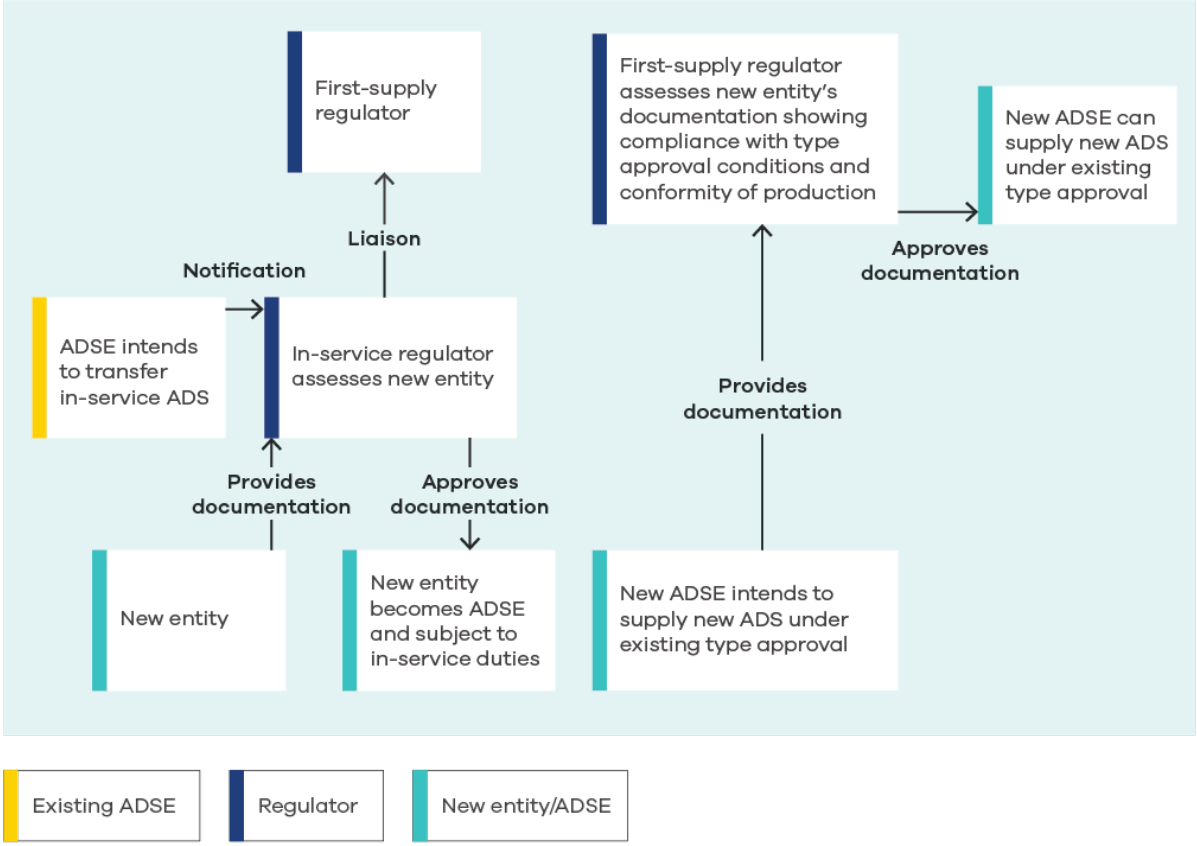
[68] An example of a law enforcement interaction protocol used in the United States is Waymo's *Emergency response guide and law enforcement interaction protocol*, available at https://storage.googleapis.com/sdc-prod/v1/safety-report/Waymo_Emergency_Response_Guide_and_Law_Enforcement_Interaction_Protocol_2021-01.pdf.

7 ADSEs leaving the market and transferring their responsibilities

The purpose of this chapter is to outline the process for transferring responsibility for an in-service ADS to a new ADSE. This could be due to changes in corporate structure, mergers, acquisitions or insolvency.

Figure 7 provides an overview of the framework for achieving this.

Figure 7. Overview of the framework for transferring responsibility for an ADS



7.1 Process for transferring responsibility for an automated driving system

Each ADS must always have an ADSE supporting it. The first-supply corporate obligations aim to ensure the original ADSE has the capacity to support an ADS over its entire life. However, market changes may occur, and where this is the case there is a process under the AVSL for transferring responsibility for an in-service ADS to a new entity. Existing frameworks under the RVSA and the Corporations Act also apply to certain aspects of a transfer.

7.1.1 Transferring responsibility for an in-service ADS under the AVSL

Notifying the in-service regulator

The original ADSE will be subject to a prescriptive requirement in the AVSL to notify the in-service regulator of any circumstance where it will no longer intends to support an in-service ADS. This can include, but is not limited to:

- the sale or transfer of an ADS or relevant intellectual property to a new entity
- any change in corporate structure such as a merger, acquisition, liquidation or voluntary administration as defined in the Corporations Act[69]
- the discontinuation of the operation of an ADS it is responsible for.

Upon notifying the regulator, the ADSE must inform the regulator whether:

- a new entity will become responsible for the ADS and how it intends to support the ADS until the new entity is certified as the ADSE, or
- if no new entity becomes responsible for the ADS, how the ADSE will manage the disengagement of an in-service ADS it is responsible for.

Certification of a new ADSE

Any new entity wanting to take on a previous ADSE's responsibility for an in-service ADSE must first be certified as an ADSE. The certification will be undertaken by the in-service safety regulator and consist of an assessment of the new entity's self-certification against the first-supply corporate obligations:

- corporate presence
- minimum financial requirements
- ongoing data recording and sharing capability, and

the new entity will also be required to show the in-service regulator the systems it has in place to meet the general safety duty.

The assessment will not require another self-certification of the ADS against the safety criteria because the safety of the ADS itself will already have been considered at first supply. Once certified, the new ADSE becomes subject to the duties in the AVSL including the general safety duty. The in-service regulator will oversee the new entity as it enters the market to ensure compliance with its in-service duties.

The in-service regulator will liaise with the first-supply regulator on any certification decision because it will be important for the first-supply regulator to be aware of a new ADSE associated with an existing type approval. The in-service regulator will, however, have responsibility for the certification decision.

Disengaging an in-service ADS where there is no responsible ADSE

Where no new entity is willing to take on the responsibilities of an ADSE exiting the market, or where there is a gap between an ADSE exiting the market and a new entity being certified as the ADSE, there is a risk that an ADS could operate on roads without an ADSE to support

[69] What a 'change in corporate structure' consists of will be defined fully in the AVSL.

it. The AVSL will include a prescriptive requirement that the ADSE must not allow an ADS to be engaged without an approved ADSE to support it.

If an ADSE breaches this requirement and does not voluntarily disengage or recall the ADS, the end-to-end framework provides two ways in which an ADS could be prevented from continuing to operate:

- The in-service regulator directs an ADSE to switch off an ADS under the AVSL.
- As a last resort enforcement action, the first-supply regulator (the relevant Commonwealth minister) issues a compulsory recall notice under the RVSA.[70] The minister will specify how the recall is to take place. The in-service regulator and first-supply regulator will liaise on whether this is an appropriate action.

The in-service regulator will work closely with states and territories by informing them of unsupported ADSs and the in-service regulator's response. States and territories also have existing powers to cancel registration of a vehicle and may choose to do so if an ADSE does not switch off its ADS[71]; however, only a national regulator can enforce the temporary suspension or recall of an entire fleet using that ADS across the country if deemed necessary.

7.1.2 Transferring responsibility for a new automated vehicle supplied under an existing type approval under the RVSA

The new ADSE will need to vary the type approval under the RVSA if it wants to supply any new automated vehicles under the existing type approval held by the original ADSE. The new ADSE would need to provide documentation to the first-supply regulator, who would be seeking assurance of their ability to maintain conformity of production and to maintain compliance with the type-approval conditions.

7.1.3 Other frameworks relevant to transferring an ADS

There are existing frameworks that may cover some circumstances of transferring corporate legal responsibilities. ASIC and the Australian Competition and Consumer Commission (ACCC) have regulatory responsibility for different elements of mergers, acquisitions, liquidations and voluntary administration. Proposals to acquire Australian businesses by foreign entities may also be subject to review by the Foreign Investment Review Board to ensure they are not contrary to the national interest. Contract law regulates the sale and transfer of assets, shares and responsibilities between corporate entities. Contract law will also cover the sale and change of ownership of companies in situations not covered by the Corporations Act.[72]

The in-service regulator will need to be aware of any corporate transfers of an ADSE under these Acts. This is because transfers under these frameworks may significantly change the corporate structure of an ADSE and may affect their ability to meet ongoing corporate

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[70] The RVSA's recalls power can be used to recall vehicles that have entered the market through the first-supply RSVA process. Where ADSs have entered the market under the AVSL (aftermarket installation), this power may not be available. Further work is ongoing on this issue, including whether having an unsupported ADS qualifies as a safety or noncompliance issue warranting a recall.

[71] As discussed in chapter 4, states and territories may review existing road access laws and provide the power to a minister to restrict road access to an ADS.

[72] For example, Chapter 6 of the Corporations Act applies to Australian public companies that are listed or have more than 50 members. It also applies to listed managed investment schemes. An ADSE that is a subsidiary of a holding company subject to Chapter 6 may not itself be subject Chapter 6.

obligations under the AVSL. As noted in section 7.1.1, the ADSE must therefore notify the in-service regulator of any such changes.

7.2 Data flows

Any transfer of ADSE will require the original ADSE to notify the in-service regulator of its intention to transfer responsibility for an in-service ADS. The in-service regulator will also notify the first-supply regulator of the ADSE's intention during the transfer process. The new entity will need to provide information on how it will meet its safety and corporate obligations to the in-service regulator. The new entity will also need to provide the relevant evidence to the first-supply regulator to vary the type approval if supplying new vehicles to the market. The in-service regulator will notify the first-supply regulator and relevant state and territory transport authorities of completed transfers (which could be through system-to-system exchange of information between the in-service regulator's database and NEVDIS). The first-supply regulator may also need to update the RAV database accordingly. The in-service regulator will also notify ASIC and the ACCC where necessary.

If no new entity is taking on the responsibilities of an ADS, the ADSE must first notify the in-service safety regulator. The in-service regulator will direct the ADSE to disengage the ADS in its vehicles when the ADSE no longer supports the ADS, and the ADSE must show that the disengagement has occurred. At this point the in-service safety regulator will notify the first-supply regulator and state and territory road agencies that the ADS will be disengaged. If a recall is required because of an ADSE's noncompliance with a direction to disengage its ADS, the in-service safety regulator will engage with the first-supply regulator on any recall of the vehicle, as a last resort. The first-supply regulator will notify ADS users, the in-service regulator and states and territories of any recalls that are initiated.

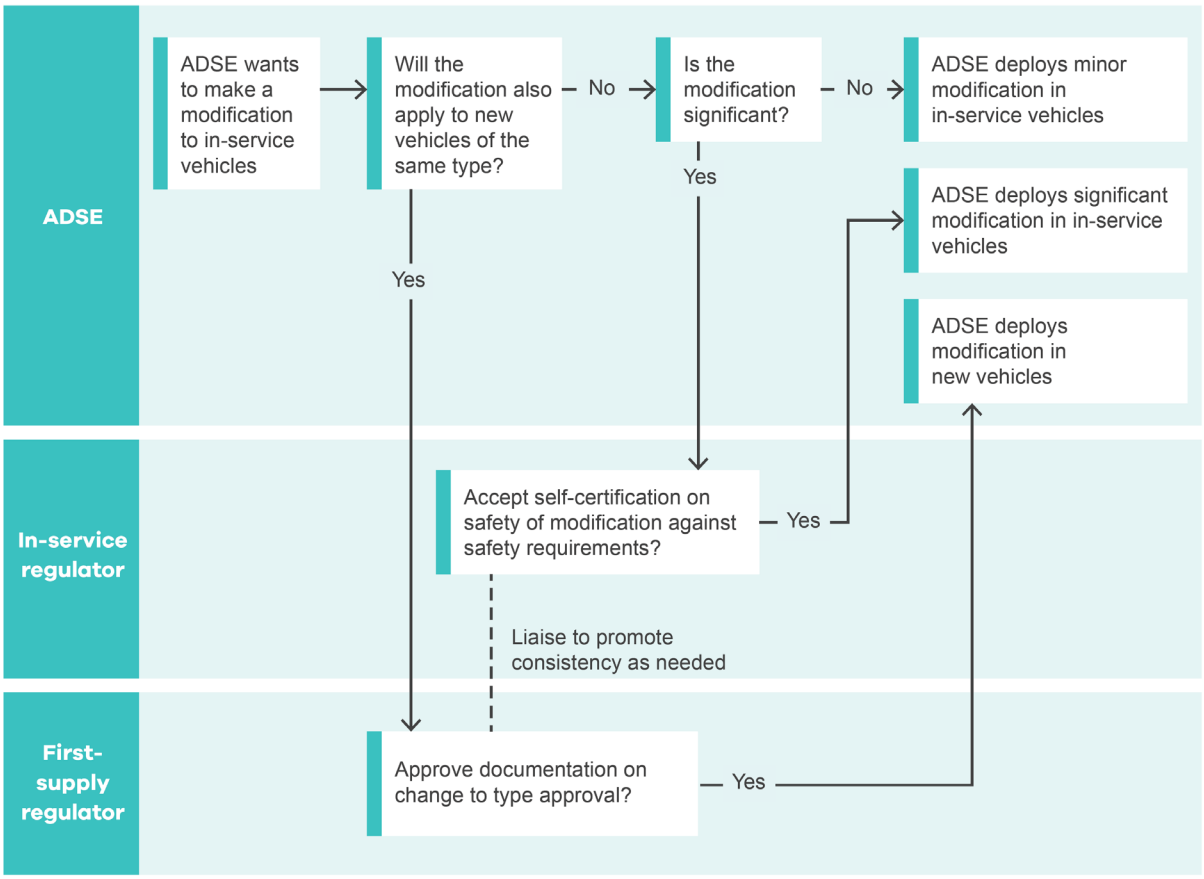
Data flow obligations for the ADSE and in-service regulator will be included in the AVSL. Memoranda of understanding (MoUs) may be established between other regulators and the in-service regulator for other data flows.

8 Modifying an automated vehicle

The purpose of this chapter is outline how in-service modifications to an automated vehicle will be managed to ensure the ongoing safe operation of the ADS.

Figure 8 provides an overview of the framework for modifying an in-service ADS.

Figure 8. Overview of the framework for modifying an in-service ADS



8.1 Modifications to an in-service automated driving system

An ADSE may make minor modifications to its in-service ADS without notifying the in-service regulator. It is anticipated that these types of modifications will be minor system updates or improvements (those that do not fit the criteria of significant modifications noted below). The ADSE will need to ensure the continued safe operation of the automated vehicle in order to meet its general safety duty under the AVSL. This will include ensuring safe installation of a safety-critical update by users if they are required to accept the update themselves.

Significant modifications will require further regulatory oversight in service. The below process has been developed in consultation with government and industry; however, governments are further considering the potential safety risks of significant modifications and whether additional safety requirements to those proposed below are necessary.

A significant modification is one that either:[73]

- increases the automation level of the ADS
- significantly increases the ODD, or
- otherwise significantly alters the functionality or safe operation of the in-service ADS.

Where the ADSE seeks to make significant modifications to its in-service ADSs, it will need to submit a self-certification to the in-service regulator that demonstrates how the modification continues to meet the safety standards it declared at first supply, which the in-service regulator must accept before the ADSE makes the modification. The assessment will not require the ADSE to satisfy the corporate obligations again because they will not be relevant to modification of the ADS. The in-service regulator will notify the first-supply regulator.

It will be for the ADSE to self-identify where an application to the in-service regulator is necessary, using the definition of a 'significant modification'. An ADSE could contract another business to modify one or more of its ADSs; however, the ADSE would remain responsible for the modifications under the AVSL.

There is a prescriptive requirement on ADSEs to keep records of all modifications it makes to its in-service ADS.

8.2 Modifications to a new automated driving system under an existing type approval

The ADSE may also choose to make the same modifications to new vehicles under the existing type approval. Where this is the case, the ADSE will need to notify the first-supply regulator and provide evidence showing how it continues to meet ADRs and provide conformity of production. The in-service regulator and first-supply regulator would liaise to ensure consistency of outcomes, where this is warranted.

8.3 Modifications to a new type-approved automated driving system before first entry to the market

In some circumstances an original equipment manufacturer may wish to modify vehicles that have already been approved by the first-supply regulator but not yet supplied to the market. In such cases the type-approval holder will have an obligation under the RVSA[74] to notify the first-supply regulator and provide evidence demonstrating how the vehicles meet applicable ADRs before being supplied to the market. This requirement would apply to ADS changes as well – the ADSE would need to demonstrate how the updated ADS continued to meet ADR 90/01.

[73] The term 'significant modification' will be defined in the AVSL. It is likely that the in-service regulator would issue guidance on the process for modifications as well.

[74] RVSA Part 2, Division 7.

8.4 Modifications and repairs made to the vehicle hardware in service

Modifications or repairs to the non-ADS elements of an automated vehicle ('vehicle hardware') may adversely affect the operation of the ADS – for example, by obstructing sensors. This obstruction could be caused deliberately or inadvertently, and by a private individual or a licensed vehicle repair/modification business.

State and territory law regulates the repair and modification of conventional vehicles. These laws would continue to apply. As such, the AVSL and state and territory frameworks will closely interact, with the AVSL governing modification of the ADS and state and territory laws governing modification of the vehicle containing the ADS.

The interaction of these frameworks and delineation of roles will be considered in the next phase of work on state and territory laws. As part of this work, states and territories may need to consider whether it is necessary to amend their laws to prohibit vehicle hardware repairs or modifications that have an adverse impact on the operation of an ADS (noting that there will be a third-party interference offence relating to the ADS as well, as described in section 8.5 and in chapter 5). States and territories should also consider whether any regulatory amendments and/or guidance is needed to ensure modifications and repairs to vehicle hardware do not adversely impact the safety of ADSs. Harmonisation across states and territories as far as possible should be prioritised.

The modification and repair of hardware that is a part of the ADS (for example, a LIDAR or other sensor) will be considered a modification to the ADS and managed through the processes described in sections 8.1 and 8.5).

The ADSE will not be liable for the safety of modifications and repairs of vehicle hardware in the event that they adversely affect the ADS. However, it will not be absolved of its duties to maintain the safe operation of the ADS under the AVSL – so far as reasonably practicable – and under ADR 90/01. For example, where a vehicle hardware repairer has inadvertently damaged a critical sensor, the ADS should still be able to identify that it is unable to operate safely through its self-check function and therefore not engage.

8.5 Individuals modifying, repairing or installing an automated driving system

Individuals would be incapable of meeting the ADSE organisational criteria and could not be accredited as ADSEs. Consequently, individuals could not be permitted under the AVSL to repair or modify an ADS or install an ADS aftermarket unless authorised by the ADSE. In this case the ADSE would still be responsible for meeting the safety duties under the AVSL.

An offence of third-party interference with an ADS will be included in state and territory law including modifications to, or repairs or installations of, an ADS that have not been authorised by the responsible ADSE or the regulator, or deliberate engagement of a disengaged ADS.

Further, under the prescriptive duties supporting the general safety duty, ADSEs must ensure, so far as is reasonably practicable, that:

- system upgrades to the ADS are installed safely and do not result in the operation of an unsafe ADS
- the ADS cannot be interfered with by third parties.

8.6 Data flows

ADSEs will be required to communicate with operators of ADSs to inform them about modifications the ADSE is making to the ADS, including over-the-air software updates. They will also be required to educate relevant parties (for example, authorised dealers and repairers) about safely repairing the ADS.

The first-supply and in-service regulators will need to share data. This will be necessary to allow timely decision making and consistency in considering the same modifications to in-service and new vehicles under the same type approval.

Examples of other data exchanges required include the following:

- State and territory registration databases and NEVDIS could be updated to reflect information relevant to ADS modifications – for example, by including fields to record the current ADS software version.
- State and territory road and police agencies would need to inform the in-service regulator of significant compliance issues with unauthorised modifications.

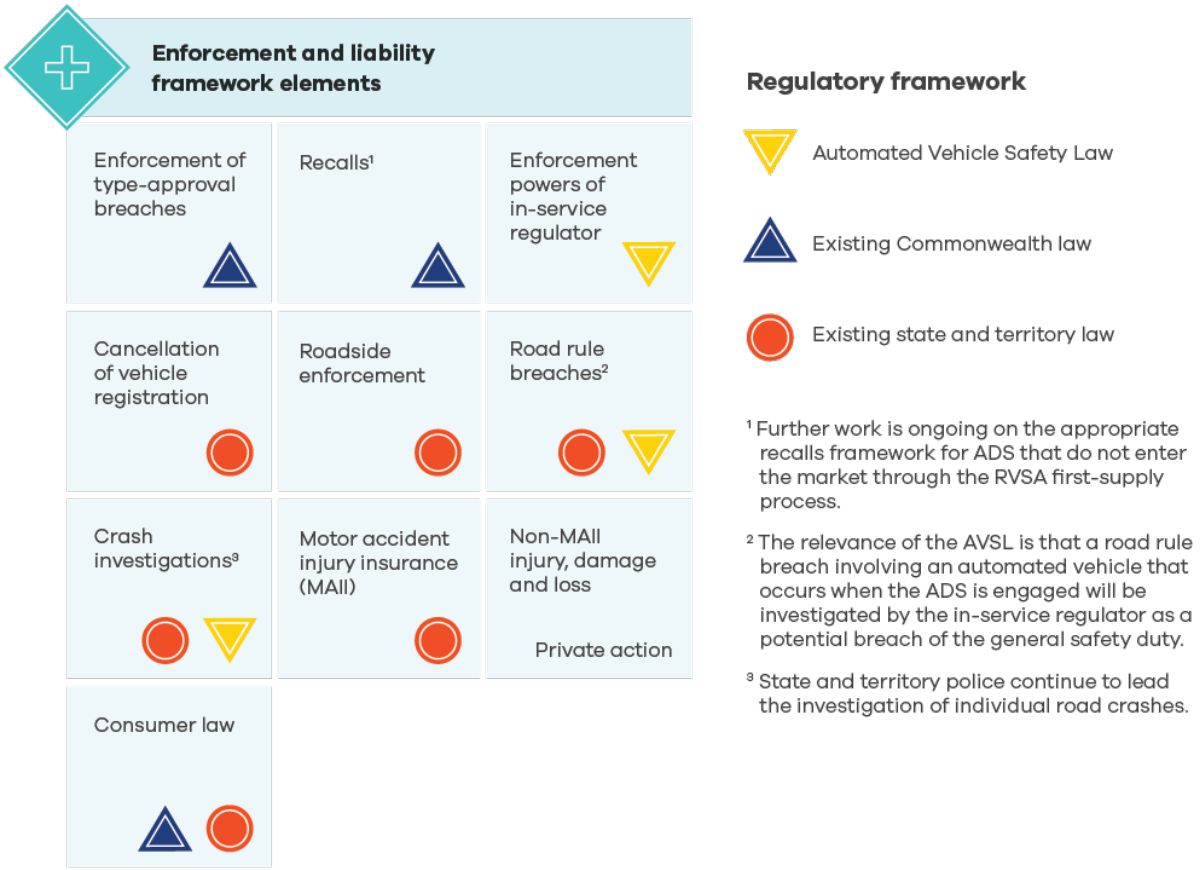
Modifications is also an area where the in-service regulator is expected to issue guidance – for example, detailing relevant processes and thresholds for regulatory oversight. The regulator will have the expertise to develop guidance that is informed by ongoing technology developments and data.

9 Compliance, enforcement and liability

The purpose of this chapter is to outline how obligations placed on regulated parties will be enforced to ensure the safer operation of ADSs on Australian roads.

Figure 9 provides an overview of the framework for compliance and enforcement.

Figure 9. Overview of the framework for compliance and enforcement



9.1 Compliance and enforcement under the RVSA

9.1.1 Powers with respect to type-approval breaches

The RVSA and the Road Vehicle Standards Rules 2019 provide a range of compliance and enforcement powers that could apply to type-approval breaches depending on the circumstances. These include:

- monitoring (ss 50 and 51 of the RVSA)
- investigation (ss 52 and 53 of the RVSA)
- infringement notices (ss 55 and 56 of the RVSA)
- variation, suspension or revocation of an approval (Part 7 of the Road Vehicle Standards Rules) – this can be considered where:
  - a regulated entity has breached its obligations under the RVSA or has failed to comply with conditions of its approval

  - the use of a type-approved vehicle may be a risk to public safety
  - there are issues with compliance with road vehicle standards
- civil penalty orders (s 54 of the RVSA)
- enforceable undertakings (s 57 of the RVSA)
- injunctions (s 58 of the RVSA)
- criminal prosecution in response to some breaches of the RVSA and related legislation.

9.1.2 Recalls

The RVSA outlines a broad recall framework for vehicles and components that are unsafe or do not comply with applicable standards. This includes voluntary recalls, where manufacturers self-report to DITRDC and take action to rectify the issue. These are used regularly to address safety issues. As well, the relevant Commonwealth minister can issue compulsory recall notices as a last resort enforcement mechanism where satisfactory action to prevent injury or rectify noncompliance have not been taken.[75]

The ability to physically recall an ADS should apply, regardless of the type of device and the pathway used to enter the market. In their current form, recall powers in the RVSA may not apply to aftermarket devices approved for installation by the in-service regulator, given they did not enter the market through the first-supply process. Further work is being undertaken to determine how the recall of aftermarket devices will be regulated.

9.2 Compliance and enforcement under the AVSL

9.2.1 Compliance and enforcement powers of the in-service regulator

The in-service regulator will take a risk-based approach to compliance and enforcement, ensuring its regulatory responses are commensurate with the level of risk posed.[76] It will have the following graduated powers to deliver this approach:

Monitoring and investigation powers

- Audit
- Inspection
- Entry and seizure
- Information access, collection and sharing powers

Enforcement powers

- Improvement notices
- Directions to act
- Infringement notices

[75] *Road Vehicle Standards Act 2018* (Cwlth) s 37 and Road Vehicle Standards Rules 2019 (Cwlth) Pt 8.

[76] Compliance and enforcement powers of the in-service regulator are discussed in chapter 7 of the NTC's May 2021 policy paper, *A national in-service safety law for automated vehicles*, available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-policy-paper-national-in-service-safety-law-for-AVs.pdf.

- Formal warnings
- Enforceable undertakings
- Power to seek injunctions and prosecutions
- Suspend operation of an ADS until a safety issue is resolved
- Permanently suspend an ADSE

9.2.2 Interaction between the enforcement powers of the first-supply regulator and the in-service regulator

Certain actions that occur when an ADS is in service could indicate both a breach of the ADSE's obligations under the AVSL (such as a breach of the general safety duty) and a breach of the ADSE's first-supply obligations.

In such circumstances, it is proposed that the in-service regulator, as the specialist regulator overseeing in-service safety for automated vehicles, would take the lead on investigating whether the ADSE has breached any of its obligations under the AVSL and take compliance and enforcement action under its suite of powers.

Whether or not the ADSE has breached its obligations under the AVSL, where the in-service regulator becomes aware of an issue and considers there may be a breach of the ADSE's type approval, it would also report the potential breach to the first-supply regulator. Depending on the circumstances, the first-supply regulator could use the compliance and enforcement tools available to it under the RVSA. This could include the minister issuing a compulsory recall notice where the in-service regulator has exhausted its enforcement options and automated vehicle safety risks have not been addressed.

Notwithstanding the above proposal, the interaction between the compliance and enforcement responsibilities of the two regulators will need to be defined and formalised in an arrangement between the two regulators, such as in an MoU. The MoU would be finalised before the in-service framework commences, and will likely be kept under review.

9.2.3 Court action

The AVSL will be a Commonwealth law, and ADSE offences would sit at the Commonwealth level. Breaches of the AVSL will most likely be prosecuted in state and territory courts exercising federal jurisdiction. A common interpretation Act would apply.[77]

9.2.4 Review of the in-service regulator's decisions

The in-service regulator's decisions can be subject to merits review and judicial review. Judicial review of the in-service regulator's decisions would be to the Federal Court. Merits review of the in-service regulator's decisions would likely occur in the Administrative Appeals Tribunal (which reviews decisions made under Commonwealth laws).

[77] *Acts Interpretation Act 1901* (Cwlth).

9.2.5 Privacy laws

The NTC commissioned a privacy impact assessment on the proposed in-service framework that considers the privacy implications of the collection, use and disclosure of personal information under the framework.[78]

As the AVSL will be a Commonwealth law, the *Privacy Act 1988* (Cwlth) will apply to the in-service regulator. This will result in a nationally consistent approach to privacy because the requirements would apply in all jurisdictions.

In addition, specific privacy protection provisions to govern the actions of the in-service regulator could be included in the AVSL.

9.3 Enforcement under state and territory legislation

9.3.1 Cancellation of vehicle registration

As noted in chapter 5, registered owners and operators must ensure their vehicles meet minimum safety requirements to be considered roadworthy.[79] Usually, where a vehicle does not meet roadworthiness requirements, the road authority would apply a registration sanction that may include suspension or cancellation of registration, or the issue of a defect notice. Vehicle registration legislation can also be used to support vehicle recalls by giving states and territories grounds to refuse or cancel registration for vehicles that are subject to certain types of recall notice.[80]

9.3.2 Interaction of current road safety laws with the AVSL

Current state and territory road safety laws provide obligations and offences for human drivers and they will continue to do so. These laws do not provide obligations and offences for ADSEs. For example, current road safety laws will not cover a coding failure by the ADSE that results in a crash.

The AVSL will provide obligations and offences for ADSEs and not human drivers. As such, current road safety laws will operate concurrently with the AVSL because they provide obligations on different parties.

9.3.3 On-road interaction with automated vehicles

Like in their current role in ensuring the safe operation of conventional vehicles on the road, law enforcement officers will continue to play an integral role in addressing road safety issues related to automated vehicles. Officers will need to monitor automated vehicles' compliance with road traffic laws and their safe interaction with other road users. They will need to interact with automated vehicles on the road, at the roadside and after a crash, and intervene in cases of road traffic law breaches. Sections 9.4 and 9.5 provide more detail on two key on-road enforcement scenarios – road rule breaches and crash investigations.

[78] The privacy impact assessment is available on the NTC's website at https://www.ntc.gov.au/transport-reform/ntc-projects/in-service-safety-AVs.

[79] See, for example, *Motor Vehicles Act 1959* (SA), s 55A.

[80] See, for example, Road Transport (Vehicle Registration) Regulation 2017 (NSW), r 6(3).

Key areas that need to be addressed so enforcement officers can undertake their safety and enforcement roles when automated vehicles start operating on our roads include:

- safely intervening and interacting with automated vehicles on the road when required
- identifying an automated vehicle's level of automation and whether it is under ADS or driver control
- applying road rules to automated vehicles
- accessing data for crash investigations and reporting[81]
- communicating with automated vehicles.

Roadside enforcement issues are complex, and it is possible further issues will arise. The NTC is undertaking further work to develop enforcement practices for automated vehicles and to establish data requirements and data access protocols. The purpose of this work is to develop a nationally consistent approach that allows state and territory law enforcement officers[82] to interact with and respond to the road safety risks of automated vehicles. This work is described further in chapter 11.

9.4 Road rule breaches

Where a human driver breaches a road rule while driving an automated vehicle and the ADS was not engaged, they will continue to be subject to relevant state and territory infringements (or other relevant sanctions).

However, the matter should be referred to the in-service regulator and investigated as a potential breach of the general safety duty where either:

- the ADS was clearly engaged at the time of the breach
- the driver considers the ADS was engaged, or
- control is unclear.

In the early stages of automated vehicle rollout in Australia, the current infringements system could be used to issue an infringement notice to the registered owner or operator in the first instance, with the ability for them to subsequently nominate the ADSE as responsible. States and territories will need to further consider this process.

A road rule breach involving an automated vehicle that occurs when the ADS is engaged will be investigated by the in-service regulator as a potential breach of the general safety duty, rather than relying on the current system of infringements and other relevant sanctions. This would help to identify the root cause of the issue and provide the best safety outcome.

There may be instances where the in-service regulator will notify the first-supply regulator of breaches of road traffic laws – for example, where they could amount to a breach of the ADSE's first-supply obligations (ADR 90/01 requires the ADSE to comply with road traffic laws). Interaction between the enforcement powers of the two regulators is discussed in section 9.2.2.

[81] This includes event data recorder information on the vehicle's location, speed, brake activation and acceleration, and information on the circumstances that may have caused or contributed to a crash.

[82] 'State and territory law enforcement officers' for road safety purposes include police officers, relevant officers of state and territory road transport agencies and authorised officers under the HVNL.

Where the road rule breach is assessed as being caused by factors within the control of the ADSE, the in-service regulator may choose to act from the range of its compliance and enforcement powers (discussed in section 9.2.1). This will help to ensure safety issues are resolved not only for the vehicle that was involved in the road rule breach but also other vehicles that have the same ADS (both within the same jurisdiction and in other jurisdictions). However, if the investigation does not prove that ADS operation was a factor in the breach, further investigation may be required to determine the cause of the detected offence. The in-service regulator could refer the matter back to states and territories for further investigation.[83]

9.5 Crash investigations

9.5.1 State and territory police

State and territory police lead the investigation of individual road crashes, and this role will continue. As in their current role, state and territory police will not attend the scene of every crash.[84]

9.5.2 In-service regulator

The in-service regulator will also have a crash investigation function. This function will consist of two key components:

- assist state and territory police investigations into individual road crashes (when required and particularly in the early stages of deployment) given its expertise with automated vehicles (the regulator's role will be to leverage this expertise to assist state and territory police in their existing role rather than replace this role)
- investigate crashes that may indicate systemic safety issues that go beyond examining proximal causes. The in-service regulator would be made aware of potential systemic safety issues through reports from police about individual road crashes or, where police do not attend the crash scene, by the ADSE if the ADS was engaged or in transition with the human operator.[85]

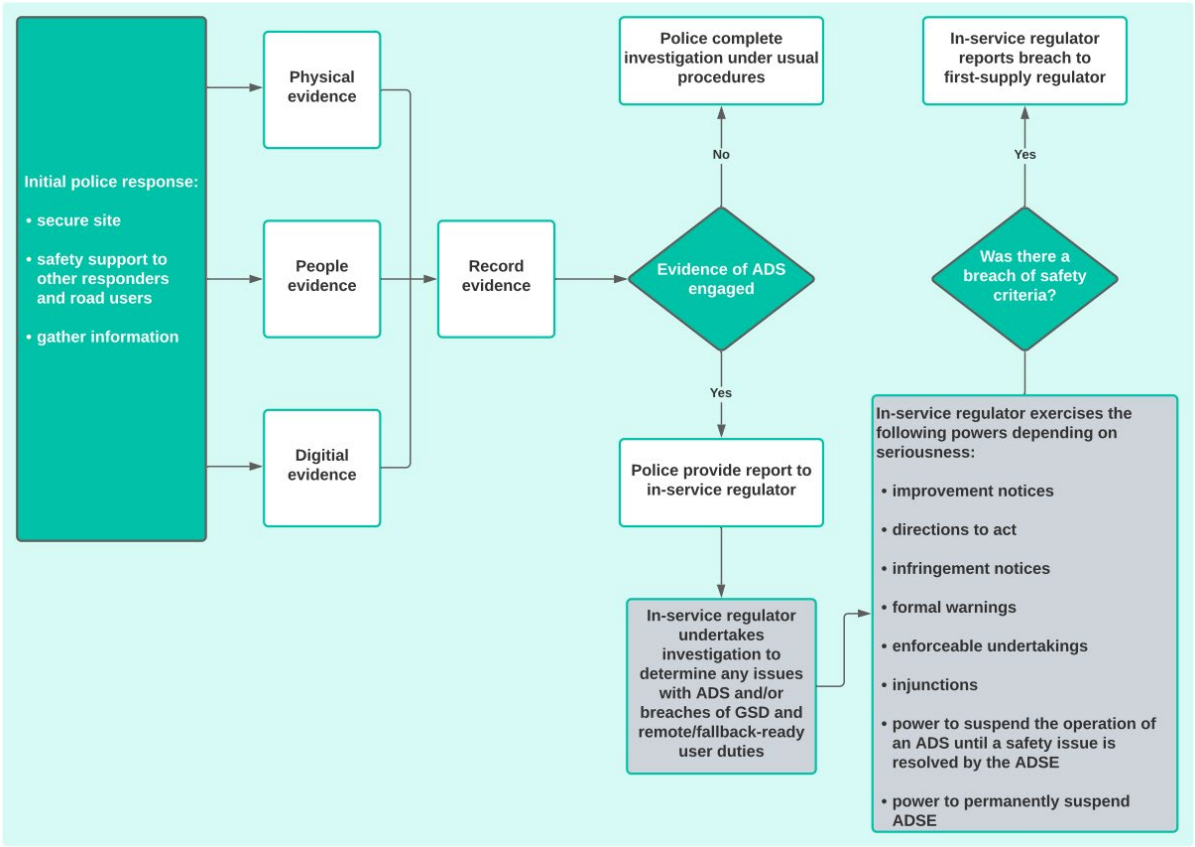
Figure 10 shows how police and the in-service regulator could interact following a crash where police do attend the crash scene. Crash investigations will be considered further as part of the on-road enforcement work discussed in section 9.3.3.

[83] A flow chart mapping out the process for a camera-detected road rule breach, including the roles of police, ADSEs and the in-service regulator, is included in chapter 8 of the NTC's May 2021 policy paper, *A national in-service safety law for automated vehicles* available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-policy-paper-national-in-service-safety-law-for-AVs.pdf.

[84] Circumstances when police would attend a crash scene include where: there is injury requiring immediate medical attention; alcohol or drugs may be a factor; there is significant and ongoing danger to public safety or property.

[85] As discussed in chapter 5, the ADSE will be subject to a prescriptive requirement to report significant safety incidents where the ADS was engaged or in transition with the operator to the in-service regulator. This would include crashes. As such, where police do not attend a crash scene, the in-service regulator should still receive the required data from the ADSE.

Figure 10. Crash investigation where police attend the scene



9.5.3 No-fault crash investigation

There is also the potential for a broader systemic no-fault crash investigation function undertaken by an independent investigator like the Australian Transport Safety Bureau (ATSB). This function would involve cooperation between the independent investigator, the in-service regulator and police.[86] A similar function could potentially be performed by state and territory-based independent regulators.

9.6 Insurance

9.6.1 Motor accident injury insurance and automated vehicles

All jurisdictional MAII schemes (compulsory third-party and national injury insurance schemes) should provide access for injuries and deaths caused when ADSs are engaged. The key principle guiding this work is to 'ensure no person is better or worse off, financially

[86] Recommendation 9.4 in the Productivity Commission's *National Transport Regulatory Reform* report (October 2020) provides that: 'The Australian Government should … amend the *Transport Safety Investigation Act 2003* to enable the ATSB to conduct research and investigate incidents involving heavy vehicles and autonomous vehicle technologies'. The Productivity Commission's report is available at https://www.pc.gov.au/inquiries/completed/transport/report. The Commonwealth Government is currently considering its response to the report.

or procedurally, in the relevant jurisdiction, if they are injured by a vehicle whose ADS was engaged than if they were injured by a vehicle controlled by a human driver'.[87]

The Board of Treasurers (which includes all state and territory treasurers) is currently considering the approach to MAII.[88] Further work is required by states and territories and heads of MAII schemes to review existing recovery mechanisms and develop detailed nationally consistent legislative policy recommendations for inclusion of ADS-caused injuries in MAII.

As part of its first-supply corporate obligations, ADSEs must outline their ongoing data recording and sharing capability, including the ADS data it will record and how it will provide the data to relevant parties. Operational aspects of data access by motor accident injury insurers to assess liability (including adequate legal frameworks) will be considered at a later stage of the in-service safety work after states and territories have considered whether existing systems' legal frameworks support their access to data to assess liability for crashes.

9.6.2 Non-MAII injury, damage and loss

As part of the first-supply minimum financial requirements, ADSEs must hold an appropriate level of insurance to cover personal injury, death and property damage caused by an ADS.

Affected individuals need to take private action for non-MAII injury, damage and loss. This could include action by individuals for negligence for injury, damage and loss not covered by the MAII scheme in the individual's jurisdiction, or action for property damage.

As discussed in section 9.7, the ACL may have some applicability to automated vehicles in certain limited circumstances. It cannot replace existing MAII schemes, and a person covered by a state or territory's MAII scheme would likely not also be able to claim compensation from an ADSE through the ACL.

9.7 Consumer law

Using an ADS in-service may raise issues for consumers. These include injury from a faulty ADS, and issues that may prevent a consumer from continuing to use the ADS such as ADS failure or the ADSE exiting the market.

9.7.1 Consumer protection under the ACL

The ACL[89] and relevant state and territory fair trading legislation[90] contain product safety provisions. These provisions set out how Commonwealth, state and territory governments

[87] The principles guiding the MAII work are detailed in the NTC's 2019 policy paper *Motor accident injury insurance and automated vehicles*, which was agreed by infrastructure and transport ministers and is available at https://www.ntc.gov.au/sites/default/files/assets/files/Motor-accident-injury-insurance-and-automated-vehicles-August-2019.pdf.

[88] Ministerial responsibility for MAII schemes varies across Australia and there is no national decision-making body for MAII scheme reforms. Treasurers are responsible for MAII schemes in most states and territories, other than New South Wales and Victoria. The MAII scheme ministers in New South Wales and Victoria are not members of the board.

[89] The ACL is contained in schedule 2 to the *Competition and Consumer Act 2010* (Cwlth).

[90] State and territory fair trading legislation incorporates the ACL. See, for example, *Fair Trading Act 2010* (WA).

can address the safety hazards of consumer goods and product-related services. The ACL includes the following protections, which may have some applicability to automated vehicles:

- prohibitions against misleading and deceptive conduct and false or misleading representations in relation to goods and services
- guarantees that suppliers are required to meet in supplying goods and services to consumers
- in relation to consumer products, requirements to notify voluntary recalls and adhere to any relevant safety standards, bans or compulsory recalls made under the ACL.

Provisions in the ACL are generally limited to consumer goods and product-related services. This means they do not apply to goods that are acquired for more than $100,000 and are normally used for business purposes.[91] The applicability of the ACL to automated vehicles may be limited because they are unlikely to apply to automated vehicles purchased for commercial purposes such as commercial passenger services[92] or freight vehicles. In any case, the ACL focuses on the relationship between consumers and suppliers and is primarily concerned with consumer protection rather than the broader goal of public safety. Work is underway to understand the ACL's role (if any) in the context of ADS regulation. Therefore, beyond providing general consumer protections in certain limited circumstances, the ACL may not be the appropriate framework for managing in-service automated vehicle issues, including recalls of aftermarket devices.

9.7.2 Consumer protection where the ADS is no longer operational

There may be circumstances where consumers would have invested in an ADS that is no longer operational.[93] These include where the ADSE is required to suspend the operation of its ADS following one or more breaches of its obligations under the AVSL and where an ADSE exits the market without transferring its responsibility to another ADSE. While consumers may still seek recourse under the ACL, as discussed in section 9.7.1, the ACL may be unsuitable for managing in-service automated vehicle issues.

To mitigate the risk of an ADSE exiting the market without a new ADSE to support its ADS, the first-supply corporate obligations include minimum financial requirements, which aim to ensure ADSEs have the necessary resources to support an ADS over its entire life cycle. The residual risk of an ADSE ceasing to operate is low in the initial rollout of automated vehicles because vehicle manufacturers have sustained and ongoing business models.

However, it is unclear if the automated vehicle market will look like the conventional vehicle market, and new business models may emerge. Noting this, the potential for further consumer protections will be examined during the first review of the AVSL when there is a better understanding of the operation of the automated vehicle market in Australia.

9.7.3 Statutory cause of action under the AVSL

A statutory cause of action for injured persons against the ADSE for breaches of the general safety duty is closely linked to compensation under MAII schemes. The work on MAII for automated vehicles is ongoing, and the need for a statutory cause of action in the AVSL will

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[91] Australian Consumer Law, s 3.

[92] However, the ACCC took the view that taxis were consumer goods for the purpose of the Takata airbag recall.

[93] Where the ADS is no longer operational, consumers may still be able to operate the automated vehicle in manual mode.

be considered further once this work is complete. It will therefore be examined as part of the first review of the AVSL.

9.8 Penalties

9.8.1 Penalties under the RVSA

A breach of certain provisions of the RVSA could result in a civil penalty or criminal prosecution. These provisions include breaching a condition of approval, providing false or misleading information and non-compliance with recall requirements.

Civil penalties for many of the offences range from 60 to 300 penalty units, with penalties higher for a body corporate compared with an individual. Civil penalties relating to recalls (such as a failure to comply with a recall notice) are significantly higher, with the civil penalty for some offences being 5,250 penalty units for a body corporate and 1,050 penalty units for an individual.

9.8.2 Penalties under the AVSL

A breach of the general safety duty can result in a civil penalty or a criminal prosecution depending on, among other matters, an assessment of the evidence[94] and the public interest in pursuing civil or criminal action. Penalties will be categorised based on the seriousness of the breach (consistent with WHS law). Penalties will be a monetary fine, the amount of which depends on the category.[95]

Category 1 offences will relate to the most serious cases of noncompliance involving recklessness in exposing an individual to the risk of death, serious illness or injury. Category 2 offences will relate to an ADSE that fails to comply with the general safety duty (without the presence of recklessness) and in doing so exposes an individual to a risk of death or serious injury or illness. Category 3 offences will relate to failure to comply with the general safety duty by the ADSE without the aggravating factors present in the first two categories.

A breach of the due diligence obligation in relation to an ADSE's breach of the general safety duty can also result in a civil penalty or a criminal prosecution of responsible officers. Breaches focus on the culpability of the offender and the level of risk and not the actual consequences or outcomes of the breach; however, the court can take the impact of noncompliance into account during sentencing. The most serious offending may result in imprisonment. The executive officer may be guilty of an offence even if the ADSE is not.

Breaches of the ADSE's prescriptive duties to support the general safety duty and prescriptive requirements will be criminal offences.[96] The penalties associated with these offences would depend on the seriousness of the breach.

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[94] The standard of proof in criminal matters is 'beyond a reasonable doubt', whereas for civil matters it is 'on the balance of probabilities'. It may be reasonable to bring civil proceedings for a breach of the general safety duty where, based on the assessment of the evidence, it would be difficult to meet the criminal standard of proof.

[95] A more detailed discussion of penalties under the AVSL is included in Appendix C of the NTC's May 2021 policy paper, *A national in-service safety law for automated vehicles*, available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-policy-paper-national-in-service-safety-law-for-AVs.pdf.

[96] Unlike the general safety duty, the prescriptive duties and prescriptive requirements are specific offences that can be proven; that is, the offence was either committed or it was not. As such, they lend themselves better to criminal offences rather than to civil penalty provisions. While some of the prescriptive duties refer to 'so far as is reasonably practicable', this is well established in criminal law.

Penalty values for offences under the AVSL still need to be determined.

9.8.3 Penalties under state and territory legislation

Penalties in state and territory legislation cover a broad range of offences including road rule breaches and breaches of other road traffic laws. Therefore, the penalties that apply vary greatly. These penalties generally apply to human road users and registered owners/operators and will continue to apply with the introduction of the AVSL. As noted in chapter 2, there may be some relevant offences and penalties for ADSEs in current state and territory legislation, such as WHS legislation.

9.9 Data flows

There are many data flows relevant to enforcing obligations on regulated parties. The key data flows are outlined below. There will likely be other relevant data flows not specifically captured in this section.

9.9.1 Data flows to the in-service regulator to fulfil its functions

The in-service regulator will seek information from a range of parties to fulfil its compliance and enforcement functions. Data flows from other parties to the regulator include data from:

- ADSEs about compliance with the general safety duty, the operation of the automated vehicle and the parties involved in its operation
- remote drivers about their commercial operations and role in safety-related incidents
- the first-supply regulator about:
  - an ADSE's statements and evidence at first supply to monitor and enforce compliance with the general safety duty
  - issues that could indicate a breach of the general safety duty
- registration and licensing authorities regarding the parties involved in the vehicle's operation (the in-service regulator could source some information from NEVDIS rather than individual state and territory systems)
- law enforcement agencies about on-road incidents and infringement information
- the National Heavy Vehicle Regulator on compliance and enforcement activities related to the operation of heavy vehicles
- road managers (public and private) about the operation of an automated vehicle
- regulators outside road transport on an as-needed basis.

9.9.2 Data flows between the in-service regulator and other regulators and agencies

The in-service regulator will need to interact with other regulators and agencies including:

- the first-supply regulator about overlapping compliance and enforcement responsibilities in relation to ADSs in service
- roadside enforcement agencies – for example, where a road traffic law breach has been observed
- law enforcement and emergency services – for example, where there is a fatal crash or cyberattack

- the National Heavy Vehicle Regulator, where there may be overlap between an ADSE's general safety duty under the AVSL and its chain of responsibility obligations under the HVNL
- WHS regulators and commercial passenger transport regulators about potential breaches of safety duties where the ADSE operates a fleet of commercial passenger vehicles
- the ACCC to coordinate and align supervisory responsibilities
- ASIC in relation to obligations on ADSE executive officers and transfers of in-service ADSs.

These interactions will involve both informal and more formal arrangements such as legislative provisions, service-level agreements and MoUs.

9.9.3 Data flows for road rule breaches

The key data flows for a road rule breach include:[97]

- The ADSE provides relevant vehicle data and other evidence to the in-service regulator.
- The police provide relevant data to the in-service regulator upon request.
- The in-service regulator reports to the first-supply regulator (where there is a breach of the general safety duty and the first-supply criteria).
- The in-service regulator reports to states and territories (where there is no breach of the general safety duty).

There is also a prescriptive requirement for the ADSE to report ADS-engaged road rule breaches to the in-service regulator.

9.9.4 Data flows for crash investigations

The key data flows between police and the in-service regulator may include the following:

- The ADSE provides data to police (for individual crash investigations) and the in-service regulator (for systemic safety investigations) – this would include a broad range of in-vehicle data and evidence from the ADSE.
- The police report to the in-service regulator where there is evidence the ADS was engaged at the time of the crash.
- The in-service regulator provides relevant expertise (if needed) to assist police in investigating a crash.
- If the ATSB has a crash investigation role, police and the in-service regulator provide relevant data to the ATSB.

9.9.5 Data flows for recall notices

State and territory road agencies should receive notice of any recall notices issued under the RVSA. This could be a system-to-system exchange.

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[97] This would apply where the ADS is engaged and where the registered owner/operator nominates the ADSE (where it is unclear whether the ADS was engaged or for a camera-detected offence).

Where the in-service regulator has exhausted its enforcement options and automated vehicle safety risks have not been addressed, it could liaise with the first-supply regulator for the minister to issue a compulsory recall notice (for vehicles that can be recalled under the RVSA).

10 Establishing and maintaining the in-service framework

The national in-service framework, which is part of the end-to-end framework, will be implemented through a Commonwealth law and will establish a new national regulator. The purpose of this chapter is to show how the in-service framework will be established and maintained.

10.1 Process for establishing the regulator

10.1.1 Intergovernmental agreement

An intergovernmental agreement (IGA) will establish the high-level governance arrangements for the in-service safety framework. The IGA would stipulate, among other things:

- the legislative implementation method for the AVSL
- the interaction between the AVSL and state/territory laws
- the role of the Commonwealth and states and territories
- the process for establishing the in-service regulator
- the financial responsibilities for the in-service regulator – transitional and post-establishment
- the governance of amendments to the AVSL
- the functions of the in-service regulator
- the governance of the in-service regulator.

The IGA would most likely need to be approved by jurisdictional Cabinets. Cabinet processes would also require consultation across portfolios and Treasury consideration of financial impacts.

10.1.2 Establishing the in-service regulator

A project team (possibly a dedicated project office) would be set up ahead of the commencement of the AVSL so that the physical, operational and legal infrastructure for the new in-service regulator is in place from the date of commencement. Accountable officials for the regulator may need to be appointed ahead of commencement of the framework to develop regulations, operational policies and MoUs in parallel with setting up the regulator.

The project team would need resources that may be a combination of direct funding and in-kind support such as office accommodation and the release of staff on secondment. A discrete project office would have a finite term, with an agreed wind-up date or condition (for example, to be wound up after the regulator's chief executive is appointed).

The project team would be responsible for a number of tasks including:

- identifying business requirements for IT and developing systems including data exchange and database administration
- developing service-level agreements for corporate support functions

- operational and legislative[98] processes to appoint the head of the regulator
- establishing processes to hire staff with the right mix of skills and capabilities to support the functions to be performed by the regulator.

10.1.3 Staff capabilities required

The regulator would need staff with a range of general capabilities including general management, legal, IT, human resources, finance, compliance, investigation, analysis, communications and risk management.

In addition, its personnel would need specialised automated vehicle subject matter expertise and technological expertise as well as an understanding of safety and risk management. It would also need some capacity in operational policy such as continuous improvement of procedure.

10.1.4 Financial responsibilities

Financial responsibilities will have to be agreed for establishing the in-service framework in each of the following phases:

- establishing the in-service regulator and preparing for the AVSL to commence ('pre-commencement' phase)
- operating the regulator in the early stage of deployment when it is likely there will be few ADSEs and a small fleet, and limited revenue from any user charges ('emerging industry' phase)
- operating the regulator once the market has matured and there is mass-market deployment of automated vehicles with enough revenue from any user charges to fund the regulator ('established industry' phase).

Funding options for the regulator include:

- direct funding by jurisdictions
- cost recovery from industry and/or consumers, or
- a combination of both.

It is anticipated that at least some direct funding by governments will be needed until market volume of automated vehicles is sufficient to provide for cost recovery in the 'established industry' phase.

Funding arrangements would be stipulated in the IGA, likely including a breakdown of jurisdictional contributions.

10.2 The in-service regulator's functions

The in-service regulator will need to ensure that in-service automated vehicle safety risks are comprehensively addressed by relevant duty holders. Its key function will be to ensure regulated parties assure the safety of automated vehicles over their design life. The regulator will have the specific function of managing the in-service safety of automated vehicles and compliance of ADSEs with their in-service safety obligations, including ongoing

[98] Legislative processes for appointing the chief executive could include ministerial approval and gazettal.

compliance with relevant first-supply obligations. To carry out this function effectively it will work in collaboration with other parties including the first-supply regulator, state and territory road transport and enforcement agencies and relevant industry and consumer associations.

The regulator will have the following functions:

- monitoring
- education and guidance
- enforcement
- engagement with states and territories
- research
- rule-making and creating standards
- customer service
- reporting
- crash investigation[99]
- certification of new in-service ADSEs (where a new entity is being transferred responsibility for an in-service ADS, or where an entity is seeking to enter the market as the ADSE for an aftermarket ADS)
- administering the process for in-service modifications.

As part of the regulator's education and guidance function, it will produce a compliance and enforcement policy and guidance on the content of law enforcement interaction plans. It is also likely to produce guidance to assist regulated parties to meet their duties, including for ADSEs to meet the general safety duty, for executive officers to meet due diligence obligations, and on the process for managing in-service modifications.

In the early years of operation, it is anticipated that the regulator will only require limited staff (while the number of ADSEs and automated vehicles is small), but it will have the ability to scale up over time. All functions and powers will be available to the regulator on commencement of the AVSL; however, it is expected that the regulator will focus on particular functions at commencement (such as education and guidance), with the focus on other functions (such as managing modifications) scaling up as the size of the market expands.

The regulator will rely on state and territory roadside enforcement officers for key compliance and enforcement functions, and it is not anticipated that the regulator will need to establish enforcement officers around the country.

10.3 Establishing and maintaining the AVSL

The AVSL will establish the in-service regulator and the duties of ADSEs (and their executive officers) and provide a head of power for regulating remote drivers (though, as mentioned previously, this approach is still being confirmed). However, as noted in chapter 2, states and territories will retain their current responsibilities for road safety issues such as registration, licensing, road access, roadside enforcement and the regulation of human users including drivers who will become fallback-ready users. This will require states and territories

[99] Assisting state and territory police with road crash investigations and undertaking its own systemic investigations, as discussed in chapter 9.

to amend their own laws governing these activities to accommodate automated vehicles. The NTC will facilitate the development of harmonised policy positions.

10.3.1 Establishing the law

The IGA would most likely include governance arrangements to manage the establishment of the AVSL Act and subordinate legislation, and any subsequent amendments. The agreement could stipulate the degree of jurisdictional oversight to approve the introduction of the AVSL, such as through a ministerial council like ITMM.

The Commonwealth would use its corporations and communications heads of power to enact the AVSL (which would be a single Act of Parliament), make subordinate legislation, and establish the regulator. Subordinate legislation such as regulations and rules made under the Commonwealth law would be tabled in the Commonwealth Parliament, which would have the option to disallow them. The AVSL, as amended over time by the Commonwealth, would apply to all state and territory jurisdictions, creating a nationally consistent framework.

The in-service regulator would be established under the AVSL, which would be a Commonwealth law and it would have national jurisdiction. It would be accountable to a single Commonwealth minister. It is possible, however, that the in-service regulator would also be subject to oversight from all jurisdictional ministers, acting through a ministerial council. The Commonwealth minister would be accountable to the Commonwealth Parliament for the in-service regulator.

10.3.2 Maintaining the law

Amendments to the AVSL would be made by the Commonwealth, passing through a single parliament (Commonwealth Parliament). Amendments to subordinate legislation would also be tabled and subject to disallowance in the Commonwealth Parliament.

The legislative mechanism for making and amending the AVSL and governing the in-service regulator would be entirely under Commonwealth law. It is anticipated, however, that decision making on amendments to the AVSL would be collaborative with other jurisdictions. For example, the IGA could stipulate that amendments to the AVSL are subject to approval by a ministerial council such as ITMM.[100]

10.4 Review of the AVSL

10.4.1 Review provisions to be built in to the AVSL

Reviewing the AVSL will be important to ensure the regulation remains effective. This is particularly important in a field of emerging technology. Automated vehicles rely on new technology, and as such there is a high degree of uncertainty about benefits realisation, evolving technology and business models. The legislation will require timely monitoring, review and amendment to adapt the system to ensure it keeps up to date with changes in technology and practical experience.

[100] Such a requirement is found in the Intergovernmental Agreement on Commercial Vessel Safety Reform Pt. 3 s 6 https://www.coag.gov.au/about-coag/agreements/intergovernmental-agreement-commercial-vessel-safety-reform.

The NTC anticipates that the AVSL would have provisions explicitly requiring it be reviewed. These would include a scheduled review after a specified period – for example, to begin three years after the law was enacted to determine if the AVSL is working effectively. There could also be provisions for a review at any time – if directed by the relevant Commonwealth minister. The review report would be submitted to the ministerial council, which would consider and decide on any recommendations made for amending the AVSL.

10.4.2 Matters included in review

Legislative reviews normally focus on whether legislation has been effective in achieving its stated objectives. In the case of the AVSL these can be summarised as the creation of a flexible and responsive regulatory environment for the commercial deployment of automated vehicles that supports safety and innovation. In addition, the NTC considers that a first review of the AVSL would include the following specific matters, among others:

- whether the AVSL should provide injured persons with a statutory cause of action against an ADSE for breaches of the general safety duty
- whether additional consumer protections are necessary under the AVSL to cover scenarios where there is no longer an ADSE to support an ADS
- any duplication (or complementarity) with other laws including the RVSA and the ACL
- potential alignment with international developments in automated vehicle laws and regulations.

The regulatory environment for automated vehicles will also include legislation outside the AVSL such as the RVSA and state and territory legislation on registration and roadside enforcement and other areas. This other legislation will need to support the operation of the AVSL, and vice versa, if the AVSL is to achieve its stated objectives. Consequently, it is possible that a full review of the AVSL would consider the impact of related legislation. It could also make recommendations to the relevant Commonwealth minister and potentially a ministerial council about this legislation, provided these were within the council's infrastructure and transport remit. Relevant issues that were not within the direct responsibility of the council could be noted but without formal recommendations.

11 Next steps

The purpose of this chapter is to outline the most recent decisions made by infrastructure and transport ministers and to set out the next steps in the automated vehicle reform program.

11.1 Ministers' 2021 decisions

At the May 2021 ITMM, infrastructure and transport ministers agreed to a regulatory implementation roadmap with the goal of end-to-end regulation in place to support the safe commercial deployment and operation of automated vehicles at all levels of automation in force in 2026. This would include the commencement of ADR 90/01, the AVSL, the in-service regulator, complementary state and territory legislative amendments and insurance frameworks.

To progress on this roadmap, ministers made further decisions on the content of the national in-service framework including:

- that the AVSL will contain the following elements:
  - the in-service regulator's functions and powers
  - prescriptive requirements on the ADSE
  - a defence of reasonable reliance to ADSE executive officer due diligence obligations
  - a process for in-service modifications to an ADS and aftermarket ADS activations and installations (with further work described in section 7311.2.1)
  - a process for transferring responsibilities for an in-service ADS
  - corporate obligations on the ADSE
  - an approach to penalties
- that state and territory law will include an offence of third-party interference with an ADS.

The full framework agreed by ministers in February 2022 can be found in Appendix A.

11.2 Next steps in the regulatory implementation roadmap

11.2.1 AVSL

The NTC will work with the Commonwealth and states and territories to develop drafting instructions for the AVSL, based on the framework in Appendix A. Following further agreement by ministers, drafting of the AVSL will commence and, finally, the Bill will be presented to the Commonwealth Parliament for passage to become a law, to commence in 2026.

In preparing drafting instructions for the AVSL, further work will be done to fully understand the safety risks associated with significant modifications to an ADS (as described in chapter 8) and modifications to automate conventional vehicles (through an over-the-air switch-on of ADS functionality or fitment of an aftermarket ADS device) (as described in chapter 3). At a minimum, ADSEs will be required to meet first-supply safety requirements to demonstrate

safety before these types of modifications can be made. Governments have, however, undertaken to determine whether additional safety requirements are appropriate to address the risks associated with these modifications.

11.2.2 Intergovernmental agreement

Alongside this, the Commonwealth and the NTC will facilitate development of an IGA in consultation with states and territories, as outlined in chapter 10. The IGA will be developed in phases, with elements agreed as necessary along the roadmap to 2026.

11.2.3 Complementary state and territory legislative amendments

States and territories will regulate the humans that will use and interact with automated vehicles. Therefore, complementary and territory legislative amendments will be needed to support the national regulatory framework. Some of the key areas requiring legislative review include:

- roadworthiness
- vehicle repair
- third-party interference with an ADS
- obligations on fallback-ready users of an ADS
- roadside enforcement (described further in section 11.2.4)
- governance of automated vehicle trials.

The NTC will facilitate state and territory development of these reforms to ensure national consistency as far as possible.

11.2.4 Roadside enforcement

Work has already started to identify the complementary state and territory legislative amendments required to support on-road interaction with automated vehicles by roadside enforcement.

Law enforcement officers will continue to play an integral role in addressing road safety issues of automated vehicles. The NTC is leading work alongside states and territories to develop enforcement practices for automated vehicles and establish data requirements and data access protocols. The purpose of this work is to develop a nationally consistent approach that allows state and territory law enforcement officers[101] to interact with and respond to the road safety risks of automated vehicles. The objectives of this work are to:

- examine whether powers currently available to state and territory law enforcement officers (including authorised officers under the HVNL) are suitable for ensuring the safe operation of automated vehicles on the road and identify gaps (if they exist).
- establish what data is required by law enforcement officers to respond to the road safety risks of automated vehicles.
- develop a nationally consistent approach for law enforcement officers to ensure the safe operation of automated vehicles on the road, including legal powers to:

[101] 'State and territory law enforcement officers' for road safety purposes include police officers, relevant officers of state and territory road transport agencies and authorised officers under the HVNL.

  - interact with automated vehicles
  - access data to respond to automated vehicle road safety risks
  - share data with relevant parties, particularly the in-service safety regulator
- identify further legislative or operational changes required by states and territories.

The focus for this work is on the on-road interaction with automated vehicles, rather than on broader enforcement issues that may relate to automated vehicles.

11.2.5 Motor accident injury insurance

As noted in chapter 9, the Board of Treasurers is currently considering the approach to MAII. The key principle previously agreed by infrastructure and transport ministers is that 'no person is better or worse off, financially or procedurally, in the relevant jurisdiction, if they are injured by a vehicle whose ADS was engaged than if they were injured by a vehicle controlled by a human driver'.

If the Board of Treasurers confirms the approach that all jurisdictional MAII schemes should provide access for injuries and deaths caused when ADSs are engaged, further work will then be required by states and territories and heads of MAII schemes to review existing recovery mechanisms and develop detailed nationally consistent legislative policy recommendations for inclusion of ADS-caused injuries in MAII.

States and territories will also need to consider whether existing systems' legal frameworks support their access to data to assess liability for crashes. If required, the NTC will facilitate further work to analyse the data access requirements for motor accident injury insurers to assess liability.

Finally, any necessary state and territory legislative amendments will need to be drafted and passed by 2026.

Appendix A February 2022 ITMM decisions on the in-service framework

Infrastructure and transport ministers agreed key elements of the in-service framework for automated vehicles in June 2020:

- a national in-service Automated Vehicle Safety Law (AVSL)
- a general safety duty on Automated Driving System Entities (ADSEs) – the entities responsible for the automated driving system (ADS) over its life
- due diligence obligations on executive officers of ADSEs to ensure the ADSE's compliance with the general safety duty.

The Infrastructure and Transport Ministers' Meeting (ITMM) agreed the remaining elements of the in-service framework in February 2022. These elements of the framework are set out below, noting that they may be subject to further refinement as required. The context for these decisions can be found in this policy paper.

Prescriptive duties to support the ADSE's compliance with the general safety duty

The AVSL will provide that the ADSE must:

- ensure, so far as is reasonably practicable, that systems are developed, used and maintained to carry out the general safety duty
- ensure, so far as is reasonably practicable, that system upgrades to the ADS are installed safely and do not result in the operation of an unsafe ADS
- ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users
- provide education and training to all relevant parties, including users of its ADSs, that will minimise the safety risks of operating the ADSE, so far as is reasonably practicable
- prevent the operation of an ADS when the ADSE is aware the ADS is unsafe, so far as is reasonably practicable
- make efforts to ensure the ADS cannot be interfered with by third parties, so far as is reasonably practicable
- review, maintain and update its safety standards as declared in its first-supply application, so far as is reasonably practicable
- ensure that, when engaged, the ADS operates in compliance with all applicable road traffic laws, unless strict compliance is not possible due to a road environment related hazard or dynamic driving task-related emergency
- record and store data relevant to compliance with the general safety duty
- have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks
- ensure accountability (such as through reporting structures or external audits) to demonstrate that those processes, policies and systems are being complied with.

Prescriptive requirements on the ADSE to support the in-service regulator's enforcement role

The AVSL will provide that the ADSE must:

- notify the in-service regulator when it intends to significantly change corporate structure, transfer responsibilities for the ADS or is at risk of insolvency, or otherwise no longer intends to support an in-service ADS
- disengage the ADS where there is no ADSE to support it
- maintain a log of all in-service modifications that it implements in relation to its in-service ADSs
- not implement significant modifications to in-service ADSs without having a self-certification accepted by the in-service regulator
- ensure automated vehicles record data relevant to enforcement of road traffic laws and the general safe operation of the ADS (including data relating to crashes)
- maintain records of safety incidents
- provide vehicle data in a standardised, readable and accessible format
- provide accurate and reliable information to the in-service regulator
- notify the in-service regulator and users of any systemic safety issues affecting the ADS
- report to the in-service regulator significant safety incidents and road traffic law breaches when the ADS is engaged or during transition of control with the operator, and instances where it received an infringement notice from a state or territory agency
- notify the in-service regulator of any third-party interference attempts that the ADSE becomes aware of
- develop and maintain a law enforcement interaction protocol to be shared with the in-service regulator.

Penalties

The AVSL will provide that breaches of the general safety duty will be categorised based on the seriousness of the breach and be subject to either criminal or civil penalties. Breaches of the prescriptive duties and requirements will be subject to criminal penalties. The policy paper "*A national in-service safety law for automated vehicles*" sets out the full penalties framework (the June 2021 policy paper).

Defence of reasonable reliance

The AVSL will provide a defence of reasonable reliance for ADSE executive officers under their due diligence obligations. The June 2021 policy paper sets out the criteria that must be considered by the court to determine if the defence is satisfied.

Third-party interference offence

State and territory law will establish an offence of third-party interference with an ADS, including modifications to and repairs or installations of an ADS that have not been authorised by the responsible ADSE or the regulator, or deliberate engagement of an ADS that has been disengaged by an ADSE, to be enforced by states and territories.

In-service regulator

The AVSL will establish a scalable, national in-service safety regulator ('the regulator') and include:

a. A power to assess new entities supplying new ADSs to the market for the first time through an in-service entry pathway, against the following ongoing corporate obligations:

i. Ongoing data recording and sharing capability

ii. Corporate presence in Australia

iii. Minimum financial requirements.

b. A power to certify entities as ADSEs to take responsibility for existing in-service ADSs, against the corporate obligations in (a). New entities will also need to show the systems they have in place to meet the general safety duty.

c. A power to certify entities as ADSEs against the corporate obligations in (a) and approve their aftermarket ADSs for installation to in-service conventional vehicles, based on a self-certification against first-supply safety criteria at a minimum, with further work by governments to identify safety risks and include additional safety requirements as necessary.

d. A power to certify entities as ADSEs against the corporate obligations in (a) and approve their aftermarket ADSs for activation in in-service conventional vehicles, based on a self-certification against first-supply safety criteria at a minimum, with further work by governments to identify safety risks and include additional safety requirements as necessary.

e. A power to approve an ADSE's self-certification of a significant modification (one that increases the automation level, significantly increases the operational design domain, or otherwise significantly alters the functionality or safe operation of an in-service ADS), against-first supply safety criteria at a minimum, with further work by governments to identify safety risks and include additional safety requirements as necessary.

f. The regulator's functions:

i. Monitoring

ii. Education and guidance

iii. Enforcement

iv. Engagement with states and territories

v. Research

vi. Rule-making and creating standards

vii. Customer service

viii. Reporting

ix. Crash investigation (assisting state and territory police with road crash investigations and undertaking its own systemic investigations)

x. Certification of new in-service ADSEs (i.e. where a new entity is being transferred responsibility for an in-service ADS, or where an entity is seeking to enter the market as the ADSE for an aftermarket device). The in-service regulator should consult with the Commonwealth Vehicle Safety Standards Branch on decisions to ensure consistency

xi. Administering the process for in-service modifications and aftermarket installations.

The implementation of these functions should avoid inconsistency and duplication with functions of other regulators, i.e. via a memorandum of understanding.

g. A power for the regulator to develop and publish guidance material.

h. The regulator's compliance and enforcement powers, which will ensure a risk-based in-service approach to compliance and enforcement, and will include:
    i. Audit
    ii. Inspection
    iii. Entry and seizure
    iv. Information access, collection and sharing powers
    v. Improvement notices
    vi. Directions to act
    vii. Infringement notices
    viii. Formal warnings
    ix. Enforceable undertakings
    x. Power to seek injunctions and prosecutions
    xi. Power to suspend operation of an ADS until a safety issue is resolved
    xii. Power to permanently suspend an ADSE.
i. A power for the regulator to access information, enable information exchange and enter agreements for purposes relating to the AVSL and other purposes.
j. A power for the regulator to collect, use and, where appropriate, disclose information in relation to the safety of ADSs in Australia.
k. A provision clarifying that a breach of a road traffic law by an ADS can be investigated by the in-service regulator as a potential breach of the general safety duty.

Non-type-approved commercially deployed automated vehicles

In the event that automated vehicles are approved for commercial deployment under an approval pathway under the RVSA that is not type approval, these vehicles will still have a responsible ADSE and be regulated under the AVSL by the in-service regulator.

Other compliance and enforcement matters

The regulator should, once it is established, publish a compliance and enforcement policy.

The regulator should, once it is established, publish guidance on the areas to be covered in law enforcement interaction protocols, in conjunction with state and territory enforcement agencies. It should also develop guidance on modifications, meeting AVSL duties (including guidance on safety management processes) and meeting executive officer due diligence obligations.

Implementation of the AVSL

The AVSL will be a Commonwealth Law. Complementary amendments will be made to state and territory laws.

Appendix B Key differences between legislative implementation approaches for in-service safety

This policy paper shows the end-to-end framework in the context of an Automated Vehicle Safety Law (AVSL) implemented through Commonwealth law, as agreed by the Infrastructure and Transport Ministers' Meeting (ITMM) in February 2022.

Prior to this decision, the NTC had consulted on two remaining legislative implementation options for the in-service framework – a Commonwealth law approach and a state and territory applied law approach (both defined in section 1.4). Large parts of the end-to-end framework are common to both approaches, and both can establish a national framework for in-service safety. For completeness, the differences between the approaches are summarised below. A full analysis of the benefits and challenges of each approach can be found in the NTC's previous consultations.

	Complementary law	**State and territory applied law**
Efficiencies in regulation and oversight	Potential efficiencies from the regulation of both first-supply and in-service safety of automated vehicles in Commonwealth law (such as oversight of modifications and automated driving system (ADS) transfers to new and in-service vehicles, information sharing, enforcement). Potential for the first-supply and in-service safety regulators to be accountable to the same minister. Potential efficiencies for maintenance of the first-supply and in-service framework by the Commonwealth's involvement in international forums on vehicle standards.	Potential efficiencies gained from the regulation of first-supply and in-service safety of all vehicles in state and territory law (such as information sharing about on-road safety, vehicle roadworthiness and other in-service matters).
National consistency	A single national market for automated vehicles. All duties and requirements on Automated Driving System Entities (ADSEs) included in the AVSL creates greater national consistency in the regulation of these parties.	Risk of states or territories not signing up to the national in-service framework, significant derogations, differences in subordinate legislation or implementation timeframe differences for establishment Acts and amendments may mean ADSEs are subject to inconsistent duties and requirements across states and territories, including the general safety duty.

	Complementary law	State and territory applied law
Parties regulated in the AVSL	The AVSL can only regulate ADSEs, ADSE executive officers and remote driving (though further work is ongoing to confirm whether the AVSL can regulate remote drivers).	The AVSL could regulate individuals in the future (such as fallback-ready users) as well as including the offence of third-party interference, potentially leading to greater national consistency in the laws for these parties (though enforcement outcomes could still differ across states and territories).
Court jurisdictions	Breaches of the AVSL would be prosecuted in state and territory courts exercising federal jurisdiction, using a common interpretation Act.	Breaches of the AVSL would be prosecuted in separate state and territory courts, with potential for inconsistent interpretation of the law and enforcement outcomes over time.
	ADSEs would breach the law of one jurisdiction (the Commonwealth) through a single act or omission.	ADSEs could breach the laws of multiple states and territories through a single act or omission but are prosecuted in one state or territory.
Judicial review	Judicial review of the in-service regulator's actions to the Federal Court.	In-service regulator's actions open to judicial review in the Supreme Court of every state and territory.
Merits review	Merits review of the in-service regulator's decisions would likely occur in the Administrative Appeals Tribunal.	Merits review would occur in separate state and territory administrative tribunals, which could create inconsistent outcomes.
Extraterritorial enforcement	Potentially easier enforcement of ADSE executive officer due diligence obligations against overseas officers because of the Commonwealth's external affairs power and international personality.	Challenging to enforce ADSE executive officer due diligence obligations. More significant limitations for cross-border enforcement.
Privacy	Nationally consistent privacy protections for individuals because only one privacy framework applies.	Multiple privacy frameworks could potentially apply, which may result in inconsistent privacy protection for individuals (this could be avoided if relevant privacy frameworks are modified).
Ministerial accountability	The in-service regulator would be accountable to a single minister.	The in-service regulator would likely be accountable to ministers acting collectively through a national ministerial council.

List of figures

Figures

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