A national in-service safety law for automated vehicles

May 2021

Policy paper

National Transport Commission

Report outline

Title	A national in-service safety law for automated vehicles
Type of report	Policy paper
Purpose	For approval at the Infrastructure and Transport Ministers' Meeting in May 2021
Abstract	This policy paper follows infrastructure and transport ministers' endorsement of a national regulatory approach to the in-service safety of automated vehicles. Ministers agreed to a new national law that will establish a general safety duty on entities responsible for automated driving systems, due diligence obligations on their executive officers and a new national regulatory for the in-service safety of automated vehicles. This policy paper further develops the content of the national law, including recommendations for prescriptive duties on regulated parties, the management of market exit of regulated parties, modifications to automated vehicles and aftermarket installations, and the regulator's functions and powers. It also explains how the national law will work under two different legislative implementation models and recommends further work to develop these models incorporating the policy recommendations in this paper.
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Foreword

Automated vehicles have the potential to fundamentally change road transport and deliver safety, productivity, environmental and mobility benefits to Australians.

The National Transport Commission (NTC) is working with states, territories and the Commonwealth government on a program of reform to ensure Australians can gain these benefits. The NTC's aim is to develop a flexible and responsive regulatory environment for the commercial deployment of automated vehicles that supports safety and innovation.

Across 2018 to 2020, ministers have made decisions to adopt a national approach to the safety assurance of automated vehicles when they first enter the market and when they are on Australian roads (in-service). This policy paper delivers another key reform, further developing the content of a new national law to regulate in-service safety.

The NTC will continue its work in partnership with Australian governments to further develop the detail of the national approach to safety assurance, focusing on how the agreed frameworks for automated vehicles interact with each other and existing frameworks. Further work will also focus on operational and implementation issues.

The recommendations in this policy paper are based the NTC's analysis and consultation with a wide range of government and industry stakeholders. We would like to thank each organisation and individual for their contribution to this process and look forward to continuing this engagement as we continue our work on this important national reform.

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Executive summary

This policy paper outlines the proposed content of a national law for the in-service safety of automated vehicles in Australia. It builds on previous decisions of infrastructure and transport ministers on the key elements of a national approach. The paper details the role of regulated parties and a new in-service regulator, the compliance and enforcement framework that overlays this relationship and the implementation of a new national law.

The paper forms part of the National Transport Commission's (NTC) roadmap of reform to develop a nationally consistent regulatory framework to support the safe commercial deployment of automated vehicles in Australia.

Context – flexible and safety-focused regulation for automated vehicles

Automated vehicles are equipped with an automated driving system (ADS) that enables them to perform the driving task without human input. These vehicles have the potential to provide significant improvements to Australian society across road safety, mobility, accessibility, productivity, traffic flow, fuel efficiency and reduced carbon emissions. However, these vehicles may introduce new types of safety risks. And inconsistent regulatory approaches could delay their benefits.

Since 2016, the NTC has led reforms to develop a flexible and safety-focused regulatory framework to enable this technology when it is ready for deployment. Infrastructure and transport ministers have already agreed to the safety assurance framework for new automated vehicles entering the Australian market. However, we need to ensure automated vehicles continue to operate safely throughout their operational life on the road – that is, when they are 'in service'.

In June 2020, ministers agreed a regulatory approach to the in-service safety of automated vehicles in Australia. A new national in-service Automated Vehicle Safety Law (AVSL) will establish a general safety duty on the entities responsible for ADSs and place due diligence obligations on their executive officers. The AVSL will also establish an in-service regulator to oversee the safe operation of vehicles on the road and ensure compliance by regulated parties with their duties. These decisions aim to ensure automated vehicles have an appropriate safety framework that makes an entity accountable for in-service operation and maintenance, just as conventional vehicles have in-service safety frameworks centred on human drivers and vehicle owners. The AVSL will complement existing state and territory regulation of these human parties because these regimes do not cover ADSs.

Existing legislation does not provide for a general safety duty or a compliance and enforcement framework for the in-service safety of automated vehicles. There is also no framework for the relationships and information flows between an in-service regulator and other regulators and agencies. This policy paper outlines further detail about these elements to build the content of the AVSL.

The proposals in this paper aim to create a modern, fit-for-purpose regulator with powers to manage a flexible regulatory framework that focuses on safe outcomes. A risk-based approach to compliance and enforcement will see the new regulator work closely with regulated parties to resolve safety issues and achieve compliance with the new law. A safe industry benefits everyone.

Consultation

The NTC engaged extensively with industry, governments and other stakeholders around the country to seek input on the contents of the discussion paper. We have also undertaken further targeted consultation with government stakeholders. The NTC has considered the views gathered from submissions and consultation and incorporated these into our analysis to develop this policy paper.

Conclusions and recommendations

ADSE duties and enforcement framework

The central feature of the automated vehicle safety framework is the automated driving system entities' (ADSEs) general safety duty. Chapter 3 recommends a range of prescriptive duties that can support the general safety duty. These duties aim to support a general safety duty and will provide further clarity to the ADSEs, without limiting the scope of the general safety duty. We also recommend that the in-service regulator has a power to develop guidance material to assist ADSEs to comply with the general safety duty.

Executive officers will be subject to due diligence obligations but will have a defence of reasonable reliance on information given by another person if it can meet certain criteria. States and territories will establish and enforce an offence of third-party interference with an ADS. We also recommend that it is the in-service regulator, rather than the first-supply regulator, that should have responsibility for assessing an ADSE's corporate presence, minimum financial requirements and ongoing data recording and sharing capabilities at first supply.

Regulating the transfer of an ADS from an ADSE to a new entity

Chapter 4 recognises that ADSEs may sometimes need to exit the market for reasons such as insolvency. The NTC recommends an accreditation process for new parties seeking to take over responsibility for an in-service ADS. The in-service regulator will accredit a new entity against the same corporate obligations an ADSE would have to meet at first supply. We also recommend that the original ADSE must disengage the ADS where there is no ADSE to support it.

In-service modifications and aftermarket installations

Chapter 5 recommends that significant modifications made to an in-service ADS by an ADSE should be approved by the in-service regulator. This approval would come after an assessment of the ADSE's self-certification on the safety of the modification against the first-supply safety criteria. We also recommend that the in-service regulator should similarly approve modifications by non-ADSEs to existing in-service conventional vehicles that either activate automation or physically install an ADS. These entities would also be accredited as ADSEs against the corporate obligations.

Functions of the in-service safety regulator

The NTC's 2020 decision regulation impact statement (RIS) outlined the in-service regulator's required functions. Chapter 6 recommends four additional functions and powers. These include the accreditation and approval roles described above. As well, the in-service regulator should regularly report to its responsible minister(s) on the operation of the AVSL, and have a crash investigation function to assist state and territory police and to undertake its own systemic investigations.

Compliance and enforcement powers of the in-service safety regulator

Chapter 7 recommends a range of powers for the in-service regulator to facilitate a risk-based compliance and enforcement approach. Most of these powers were previously included in the decision RIS. Additional powers recommended are the power to suspend operation of an ADS until a safety issue is resolved by the ADSE and the power to suspend an ADSE's accreditation. These powers were considered necessary due to the potentially systemic nature of safety risks in automated vehicles – a safety issue in one ADS could potentially exist in a whole fleet of vehicles with the same ADS. These powers would only be used in circumstances where other enforcement action had not resulted in the ADSE addressing the safety risk. The power to recall an ADS is being further considered by the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications.

Roadside interaction and enforcement

Chapter 8 considers the interaction between roadside enforcement agencies and automated vehicles. Automated vehicles operating on our roads will create challenges for agencies that are responsible for enforcing the road rules. Automated vehicles will be required to interact with roadside enforcement in a safe and predictable manner. The NTC recommends that ADSEs provide the in-service regulator with a law enforcement interaction protocol that shows how their vehicles will safely interact with roadside enforcement and emergency services. The NTC also recommends further work by states and territories to identify changes required to enforcement practices and powers.

We also recommend that the current process of issuing infringement notices to the driver/registered owner of the vehicle should continue to be used during the early stages of automated vehicles rollout on Australian roads, with the addition of a process to nominate the ADSE as responsible. We also recommend that a breach or suspected breach of a road traffic law by the ADSE should be investigated by the in-service regulator as a potential breach of the general safety duty.

Relationship between the in-service regulator and other agencies

Chapter 9 notes that the in-service regulator will need to interact with other regulators and enforcement agencies at all levels of government to carry out its functions and to ensure a coordinated approach to safety assurance for automated vehicles. There may be informal and formal arrangements established to aid collaboration and avoid any potential overlap in roles. The project office to establish the in-service regulator will consider the potential arrangements required.

In-service regulator's power to access, use and share information

Chapter 10 recommends that the in-service regulator has the power to access information for the primary purpose of monitoring and enforcing compliance with the general safety duty. Key information flows will also be required between the in-service regulator, first-supply regulator, the ADSE and state and territory law enforcement agencies. It is anticipated that some information required by the in-service regulator will be personal information, and the NTC will undertake a privacy impact assessment to address this in 2021.

Legislative implementation

Ministers have agreed that the national approach for in-service safety will be implemented through either complementary Commonwealth and state and territory law, or state and territory applied law. Both of these approaches were analysed in the decision RIS and a

cost-benefit analysis undertaken by PwC; a complementary law approach was found to have the greatest net benefit. Chapter 11 sets out the key compliance and enforcement considerations under each of the approaches. The NTC considers that our further analysis and feedback from stakeholders confirms the analysis in the decision RIS and cost-benefit analysis conducted by PwC. The NTC has updated its decision RIS to recommend a complementary law approach. Ministers will decide the legislative implementation approach in November 2021.

Safety assurance framework and further work

Chapter 12 outlines the safety assurance framework for automated vehicles, showing how the in-service safety recommendations in this paper fit within the context of broader decisions made by ministers. Chapter 13 recommends further work to expand on this and demonstrate the operational practicalities of the automated vehicle regulatory framework and other relevant frameworks.

Next steps

This policy paper recommends the content of the new national law for the in-service safety of automated vehicles. Recommendations are summarised below. Based on these recommendations, we will develop end-to-end models for both the Commonwealth complementary law and state and territory applied law approaches to further explore their differences. We will work with government and industry to develop this work and report back to the Infrastructure and Transport Ministers' Meeting in November 2021.

The NTC will propose a legislative implementation approach for the in-service framework in November 2021. Based ministers' decisions, the NTC, Commonwealth and state and territory governments will move to the next stage of reform implementation, which will include drafting the AVSL, changes to state and territory legislation and agreement between governments on the operational aspects of the framework.

1 About this project

Key points

- Australia's infrastructure and transport ministers have agreed to the key elements of a national approach to the in-service safety of automated vehicles.
- This aim of this work is to further develop the content of a national law for in-service safety, focusing on proposals for an overall compliance and enforcement framework.
- The National Transport Commission has undertaken further analysis and incorporated stakeholder feedback to develop this policy paper.

1.1 Reform objectives

1.1.1 Reform mandate

Automated vehicles have the potential to provide a significant range of benefits to Australian society, including improvements in road safety, improved access/mobility options, more efficient traffic flow and potential reductions in congestion. However, they also have the potential to introduce new risks to the road network. In 2016, infrastructure and transport ministers asked the National Transport Commission (NTC) to develop a regulatory framework for automated vehicles so that Australia can be an early beneficiary of the potential benefits of this technology.

Since then, ministers have agreed to a series of reforms, including a safety assurance approach for the first supply of automated vehicles to the market. This framework will be governed by the *Road Vehicle Standards Act 2018* (Cwlth) (RVSA), administered by the Commonwealth.

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

- a general safety duty on the entity that is responsible for an automated driving system (ADS) over its life cycle (the automated driving system entity or 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 (teleoperators) of automated vehicles.

Ministers agreed that the NTC, in conjunction with state, territory and Commonwealth governments, would further develop this regulatory framework for in-service safety, focusing on the compliance and enforcement tools required to support the framework. Ministers also directed further work to assess the legislative implementation method for the AVSL and to develop options for regulating in-service modifications that change the level of automation of a vehicle.

1.1.2 What is the problem?

In 2019, the NTC consulted on the overarching regulatory framework for the in-service safety of automated vehicles. The NTC's policy proposals aimed to address the following problem:

In our current regulatory environment, when automated vehicles become ready for deployment:

- they may introduce new in-service safety risks that the market will not eliminate or mitigate
- nationally inconsistent approaches to in-service safety and multiple regulators without clearly defined roles could be a regulatory barrier to market entry.

These risks need to be addressed to support the uptake and safe operation of automated vehicles on Australian roads and to unlock their broader benefits.[1]

Ministers have now decided on the key elements of a regulatory framework to address this problem. However, existing legislation does not provide for a general safety duty on an ADSE or compliance and enforcement powers for the in-service safety of automated vehicles. There is also no framework for the relationships and data flows between an in-service safety regulator and other regulators.

Therefore, compliance and enforcement for the in-service safety of automated vehicles may be ineffective and/or inefficient for the following reasons:

- There are no agreed regulatory powers or tools to enforce a general safety duty or encourage compliance.
- The requirements of the general safety duty may be unclear to ADSEs.
- The relationships and data flows between various regulators (first supply, in-service, National Heavy Vehicle Regulator (NHVR), police and other traffic enforcement agencies) may be unclear.
- Existing arrangements for vehicle modifications may not adequately manage the safety risks of automated vehicles.

1.1.3 Project objectives

The overarching policy objective of this work is to support the in-service safety of automated vehicles through appropriate regulatory powers and tools that incentivise compliance and allow effective enforcement.

The specific objectives of this policy paper are to:

- identify the in-service obligations required to achieve intended safety outcomes
- identify the compliance and enforcement powers needed to support new in-service obligations
- develop an overall compliance and enforcement approach that prioritises safety risk management
- identify the in-service regulator's functions and powers, including those necessary for a minimum scalable regulator
- identify how the in-service regulator will interact with other regulators and agencies, including managing cross-border issues and data flows and clarifying the role of on-road enforcement
- identify data use and access powers and privacy protections to support the compliance and enforcement approach
- outline the legislative implementation approaches for the AVSL.

[1] NTC, *In-service safety for automated vehicles: consultation RIS*, July 2019, p. 26.

1.2 Background

This work is part of the NTC's broader national reform program to develop end-to-end regulation to support the safe, commercial deployment and operation of automated vehicles at all levels of automation. The NTC is collaborating closely with the Commonwealth, state and territory governments and Austroads to ensure an integrated regulatory system. Figure 1 shows the key initiatives undertaken by the NTC, alongside the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) and Austroads, to prepare Australia for automated vehicles.

Figure 1. End-to-end regulatory process for automated vehicles

Stage	Initiative	Owner	Status
Import and manufacture	UN harmonization of vehicle standards	Commonwealth	Ongoing
	Safety criteria for first supply of automated vehicles	Commonwealth	Ongoing
Registration and licensing	Framework for registration and licensing of automated vehicles	Austroads	Ongoing
	Integrating advanced driver assistance systems in driver education	Austroads	Complete
On the road	In-service safety for automated vehicles	NTC	Ongoing
	Operation of automated heavy vehicles in remote and regional areas	Austroads	Complete
	National enforcement guidelines for automated vehicles	NTC	Complete
	Government access to vehicle generated data	NTC	Ongoing
	Review of motor accident injury insurance and automated vehicles	NTC	Ongoing
Infrastructure	Infrastructure for automated vehicles: freeways and highways, traffic signs, line markings	Austroads	Complete
	Road authority data for connected and automated vehicles	Austroads	Ongoing

1.2.1 Previous decisions on automated vehicle regulation

This policy paper builds on previous policy decisions made by the Infrastructure and Transport Council (the council).

A national law and control of the driving task

In May 2018, the council agreed to a uniform approach to driving laws for automated vehicles under a purpose-built law. It also agreed that when an ADS is engaged, the ADSE is responsible for complying with dynamic driving task obligations rather than the human user.[2]

Safety assurance for automated vehicles

In November 2018, the council agreed to a safety assurance approach for the first supply of ADSs to the Australian market.[3] ADSEs must self-certify to show how their ADS meets 11 safety criteria and three obligations to gain entry into the market. These are set out in Appendix A. The safety criteria will be incorporated into the existing framework for the first supply of vehicles under the RVSA, which is administered by DITRDC. DITRDC is currently incorporating the safety criteria into the Australian Design Rules (ADR 90/01). Implementation of the three obligations is further discussed in chapter 3.

Following the council's decisions on first supply, the NTC began developing the safety assurance approach for the in-service safety of automated vehicles. The June 2020 *In-service safety for automated vehicles: Decision Regulation Impact Statement* (the decision RIS)[4] recommended a new national law that imposes a general safety duty on the ADSE, associated due diligence obligations on their executive officers and the establishment of a national regulator to regulate the ADSE, ADSE executive officers and remote drivers. Ministers agreed to these recommendations and directed the NTC to undertake further work to develop the compliance and enforcement approach, and also to assess the legislative implementation approach for the new national law. Ministers also agreed to recommendations for complementary 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)
- access to public roads, subject to the conditions of their supply to the market
- deeming the ADSE the driver of a vehicle when its ADS is engaged.

This policy paper further develops the detail of the national in-service safety framework. Further work to develop complementary state and territory law will be led by state and territory governments, with support from the NTC to ensure national consistency where required.

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[2] The *Changing driving laws to support automated vehicles: policy paper* (May 2018) is available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Policy%20Paper%20-%20Changing%20driving%20laws%20to%20support%20automated%20vehicles.pdf.

[3] The *Safety assurance for automated driving systems: Decision Regulations Impact Statement* (November 2018) is available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-decision-regulation-impact-statement-safety-assurance-for-automated-driving-systems.pdf.

[4] The *In-service safety for automated vehicles: Decision Regulation Impact Statement* (June 2020) is available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Decision-RIS-In-service-safety-for-AVs.pdf.

Government access to automated vehicle data

In August 2019, the council endorsed design principles for managing government access to, and addressing new privacy challenges of, cooperative intelligent transport systems (C-ITS) and automated vehicle data. The design principles recognise that government access to C-ITS and automated vehicle data will improve government decision making and deliver benefits to the public while acknowledging that this access needs to be balanced with sufficient privacy protections for C-ITS and automated vehicle users.

Ministers agreed that the design principles would guide further work by the NTC and Austroads.[5] The NTC's in-service safety work will develop policy positions consistent with the design principles for government uses of automated vehicle data. This is further discussed in chapter 10.

1.3 Project approach

1.3.1 Scope

The following areas are within the scope of this project:

- content of the AVSL
- content of a general safety duty, offences for breaches of the duty and potential prescriptive duties (chapter 3)
- managing the transfer of ADSE responsibilities in service (chapter 4)
- in-service modifications to an ADS and aftermarket installations of an ADS (chapter 5)
- the in-service regulator's functions and how these may be scaled-up (chapter 6)
- the in-service regulator's compliance and enforcement powers (chapter 7)
- a model for roadside enforcement (chapter 8)
- the relationship between the in-service regulator and other agencies (chapter 9)
- information access and use (powers and privacy protections) to support in-service safety compliance and enforcement (chapter 10)
- legislative implementation
- compliance and enforcement considerations for legislative implementation (chapter 11).

Ministers will be asked to decide whether the AVSL is to be implemented using Commonwealth law or state and territory applied law in November 2021. The policy issues addressed in this paper will inform this decision.

The following areas are outside the scope of this project:

- government access to automated vehicle data for other purposes, including network management and investment
- access to data (powers and privacy protections) by motor accident injury insurers to assess liability
- enforcement of current road transport laws applying to a human driver (beyond determining if an ADS was in control)

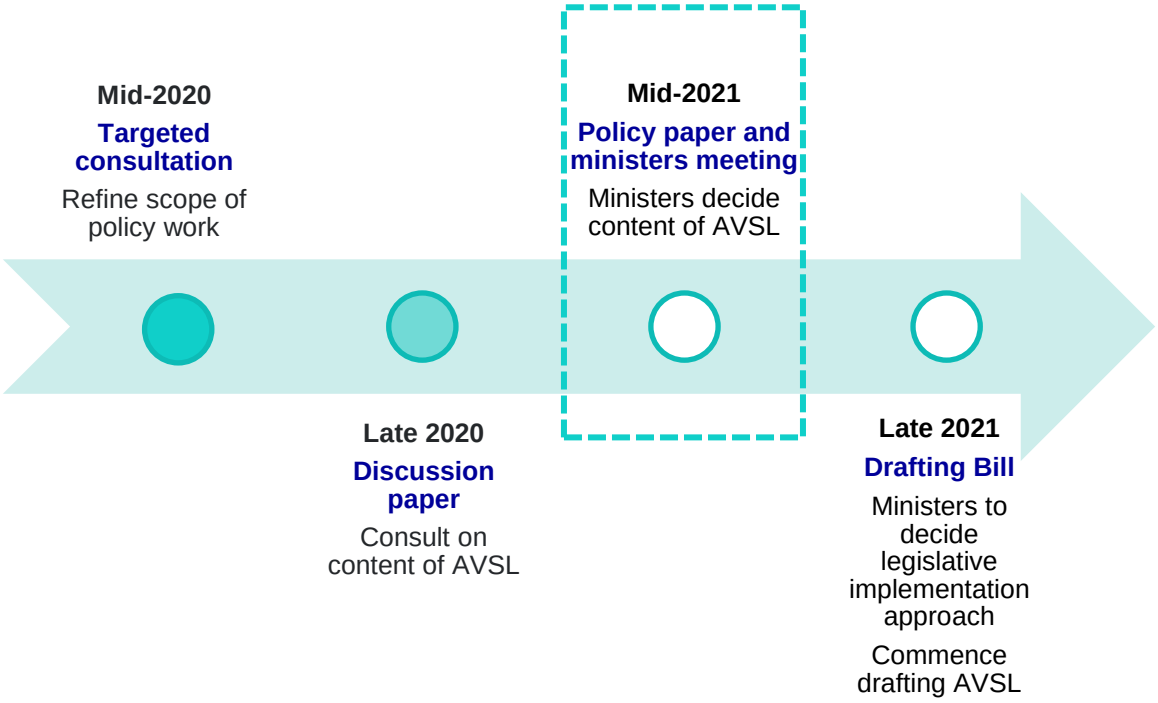
[5] The *Regulating government access to C-ITS and automated vehicle data: policy paper* (August 2019) is available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Policy%20Paper%20-%20Regulating%20government%20access%20to%20C-ITS%20and%20automated%20vehicle%20data.pdf.

- compliance and enforcement for non-transport laws
- rules for access to public roads, subject to the conditions of their supply to the market.

1.3.2 Consultation

In mid-2020, the NTC undertook targeted consultation with Commonwealth and state and territory road transport agencies, law enforcement agencies and Austroads to test and refine the scope of this project. In October 2020, the NTC released its discussion paper, *A national in-service safety law for automated vehicles* (the discussion paper). The NTC held 11 public consultation sessions with government and industry. The NTC also undertook targeted consultation with key stakeholders to discuss policy issues. The NTC received 33 submissions, 21 of which are public and are listed in Appendix B. The policy paper incorporates this feedback and the NTC's further analysis. The recommendations in this paper were delivered to the council in May 2021. The June 2020 decision RIS was also updated as required by the Office of Best Practice Regulation and delivered to ministers in May 2021 to reflect the outcomes of the work assessing the legislative implementation approach for the AVSL. Figure 2 shows the overall project timeline.

Figure 2. Project timeline



1.4 Related automated vehicle work and interdependencies

1.4.1 Safety assurance for automated vehicles at first supply

An ADSE must continue to operate in compliance with the safety criteria and obligations it self-certified against while its ADS (or ADSs) is in service.[6]

The first-supply regulator (DITRDC) can manage many in-service safety risks by using compliance and enforcement mechanisms under the RVSA to address noncompliance with the safety criteria. However, some criteria will have to be managed while in service. The roles of the first-supply regulator and in-service regulator will need to be clearly demarcated to avoid duplication of risk management and treatment. The final drafting of the safety criteria (as incorporated into instruments under the RVSA) could influence the in-service compliance obligations that may need to be imposed under the AVSL. The NTC will further consider the policy proposals in this paper as these instruments are finalised by DITRDC.

1.4.2 Prescriptive rules for in-service matters not related to the general safety duty

This policy paper considers the content of the general safety duty and prescriptive duties to support it and the in-service regulator's compliance and enforcement approach. Ministers have also agreed that there are other areas where more prescriptive rules could be warranted, and that the AVSL should provide a head of power for such regulation should it become necessary. These rules would operate in conjunction with the general safety duty. Examples of where prescriptive rules may be required include the following:

- *Regulating the **dynamic driving task** when performed by ADSs*. This is just as the Australian Road Rules prescribe how the driving task should be performed by human drivers and will ensure ADS behaviour is predictable for other road users.
- *Regulating **teleoperation/remote driving***. Some automated vehicles may allow for a remote driver (a driver who is not physically within the vehicle operating the vehicle manual controls). The remote driver's fitness-to-drive requirements and the likely use cases for teleoperation are not yet known with enough certainty to support a comprehensive regulatory framework. Some requirements would be the same as those for conventional vehicle drivers – for example, blood alcohol content and fatigue obligations. In future, a specific teleoperation licensing framework could be warranted. Once the precise competencies and internationally agreed regulatory requirements are known they will be implemented through the AVSL.
- *The obligations of **fallback-ready users***.[7] Like drivers of conventional vehicles, fallback-ready users will have relatively prescriptive rules for responding to the transition demand and being fit to drive.

[6] The safety assurance frameworks at first supply and in service will regulate ADSs; however, this paper refers to 'ADSs' and 'automated vehicles' interchangeably. For example, ministers have agreed an 'Automated Vehicle Safety Law', though it would be more accurate to describe this is as an 'Automated Driving System Safety Law'.

[7] Ministers agreed in their June 2020 decision that fallback-ready users will not be regulated under the AVSL but in complementary, model law in the Australian Road Rules (and incorporated into state and territory laws).

Given the infancy and novelty of the industry, it is impossible to predict all areas that may require prescriptive rules; however, it is likely that other areas will emerge. It is important that the AVSL provides sufficient authority for such rules to be made in a timely way. These prescriptive rules will be agreed in conjunction with state and territory governments.

1.4.3 Motor accident injury insurance and automated vehicles

The NTC consulted on the national approach to motor accident injury insurance for automated vehicles in 2019. The council has agreed that all jurisdictions' motor accident injury insurance schemes (compulsory third party and national injury insurance schemes) should provide access for injuries and deaths caused when ADSs are engaged. The Board of Treasurers (state and territory treasurers) is currently considering this approach. Access to data (powers and privacy protections) by motor accident injury insurers to assess liability will be considered at a later stage of the in-service safety work after state and territory jurisdictions have considered whether existing regulation supports their access to data to assess liability for crashes.

1.4.4 Vehicle-generated data

The NTC has consulted on a framework for government access to and use of data generated by vehicles, including automated vehicles. This data has the potential to help road transport agencies create public value by enhancing network operations, investment, maintenance, planning and improving road safety. Government access to automated vehicle data for these purposes is being considered as part of separate NTC work on government access to vehicle-generated data, with a working group to be established in 2021.[8] This policy paper is only examining the use of data for the purpose of compliance and enforcement for automated vehicle safety.

1.4.5 Austroads – licensing and registration

Austroads' 'Data requirements to support the registration of automated and electric vehicles' working group (SRL6254) is considering the registration system data points required to meet the needs of road regulators and service providers (e.g. motor accident injury insurers). An in-service safety regulator will require access to registration system data on automated vehicles.

1.4.6 Heavy Vehicle National Law review

The NTC is reviewing the Heavy Vehicle National Law (HVNL) and consulted on reforms throughout 2020. The review is considering the entirety of the law and its regulations. It aims to deliver performance-based and outcome-focused regulation that effectively manages risk. This will support the use of new technology in heavy vehicles, including increased levels of automation.[9] This policy paper considers compliance and enforcement matters for both light and heavy vehicles to ensure consistency. There may be a future need to amend the HVNL to support the operation of automated vehicles, but specific changes to that law are not considered in this project.

[8] For more information on the project, refer to https://www.ntc.gov.au/transport-reform/ntc-projects/government-access-vehicle-generated-data.

[9] For more information on the review, refer to https://hvnlreview.ntc.gov.au/.

1.4.7 National Road Safety Strategy

In February 2021, the Commonwealth Office of Road Safety released its draft *National road safety strategy* for consultation.[10] The draft strategy contains nine priorities, of which one is to pursue technological improvements and uptake of safer vehicles. The report recognises that over the longer-term automated vehicles have the potential to substantially improve road safety outcomes by reducing the number of crashes caused by human error. The strategy lists implementing new regulatory requirements for vehicles with ADSs and to facilitate the safe deployment of these vehicles as actions to support this priority.

1.5 Key concepts

Automated driving technology has created many new terms and concepts that are not always used consistently. Some of the key concepts used in this policy paper are defined in 0. More definitions are available in the glossary.

Box 1. Key concepts

Automated driving system (ADS) means the hardware and software collectively capable of performing the entire dynamic driving task on a sustained basis without human input. It is a type of system used in vehicles with Society of Automotive Engineers International (SAE) levels 3, 4 or 5 of automation (refer to definitions of SAE levels below).[11]

Automated driving system entity (ADSE) means the self-nominated party that will certify that the ADS can safely perform the driving task in place of a human driver. The ADSE will self-nominate at first supply when applying to DITRDC for type approval of the ADS (or when taking responsibility for an ADS in service, as discussed in chapters 4 and 5).

Automated vehicle means a vehicle that has an ADS, which can perform the entire dynamic driving task on a sustained basis without human input. It is distinct from vehicles with automated features to assist a driver but still require a human driver to perform part of the dynamic driving task (e.g. automated lane-keep assist) and to maintain overall responsibility for control of the vehicle.

Dynamic driving task means 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 dynamic driving task excludes strategic functions such as trip planning.

Fallback-ready user means a human in a vehicle with SAE level 3 automation who can operate the vehicle, and who is receptive to requests from the ADS to intervene

[10] More information on the draft *National road safety strategy* can be found here: https://www.officeofroadsafety.gov.au/nrss.

[11] SAE levels refer to the levels of vehicle automation as defined in the SAE J3016 standard, *Taxonomy and definitions for terms related to driving automation systems for on-road motor vehicles*, published by SAE International.

and to evident dynamic driving task performance-relevant system failures. The fallback-ready user is expected to respond by taking control of the vehicle.

In-service safety means the safety of automated vehicles once they are on the road or 'in service'.

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

Remote driver (or teleoperator) means 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.[12] A remote driver may operate the vehicle from outside or inside the vehicle.

SAE level 3 means the ADS undertakes the entire dynamic driving task in situations within its ODD. The human driver does not have to monitor the driving environment or the ADS but must be receptive to ADS requests to intervene and any system failures. SAE level 3 is also referred to as 'conditional automation'.

SAE level 4 means the ADS undertakes the entire dynamic driving task in situations within its ODD. When the ADS is driving the vehicle, a human driver 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. SAE level 4 is also referred to as 'high automation'.

SAE level 5 means the ADS undertakes all aspects of the dynamic driving task and monitoring of the driving environment. The ADS can operate on all roads at all times. No human driver is required. SAE level 5 is also referred to as 'full automation'.

[12] SAE International, *Taxonomy and definitions for terms related to driving automation systems for on-road motor vehicles*, 2018, p. 16.

2 Context for compliance and enforcement framework for in-service safety

Key points

- Ministers have made a range of policy decisions on automated vehicle safety reform including establishing a single national AVSL.
- The AVSL will regulate the ADSE, ADSE executive officers and teleoperators and establish a national regulator for in-service safety.
- A range of parties and their activities will need to be regulated to ensure the safe design and operation of automated vehicles at all stages of the automated vehicle's life.
- Ministers have not yet decided the implementation approach for the AVSL. This policy paper outlines the operation of the in-service framework under the different legislative implementation approaches.

2.1 Purpose of this chapter

The purpose of this chapter is to describe the context for the compliance and enforcement framework for the in-service safety of automated vehicles. It includes relevant findings from previous consultation on:

- regulated parties over the life of an automated vehicle, the relevant regulatory framework and the relevant regulator
- the role and scope of the in-service regulator
- the legislative implementation approach.

2.2 Scope of in-service regulation

2.2.1 Parties regulated by the in-service regulator

In 2019, the NTC consulted on the broad range of parties with a potential influence on the in-service safety of automated vehicles and assessed how they should be regulated. The following new parties were identified as requiring additional regulation to ensure in-service safety:

- ADSEs
- ADSE executive officers
- remote drivers
- fallback-ready users.

In June 2020, ministers decided that the first three parties would be regulated by a national in-service regulator established 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 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. The AVSL will also provide a head of power to allow for the regulation of remote drivers.

2.2.2 Multiple regulators will regulate a range of parties over the life of an automated vehicle

Ministers agreed that fallback-ready users will be regulated by state and territory road transport and enforcement agencies, who regulate human drivers today. Fallback-ready users will have duties to ensure they are fit to drive including having to:

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

It is anticipated that these duties will be implemented through model provisions in the Australian Road Rules, developed by the NTC in conjunction with states and territories. States and territories will then implement these provisions into their road traffic laws.

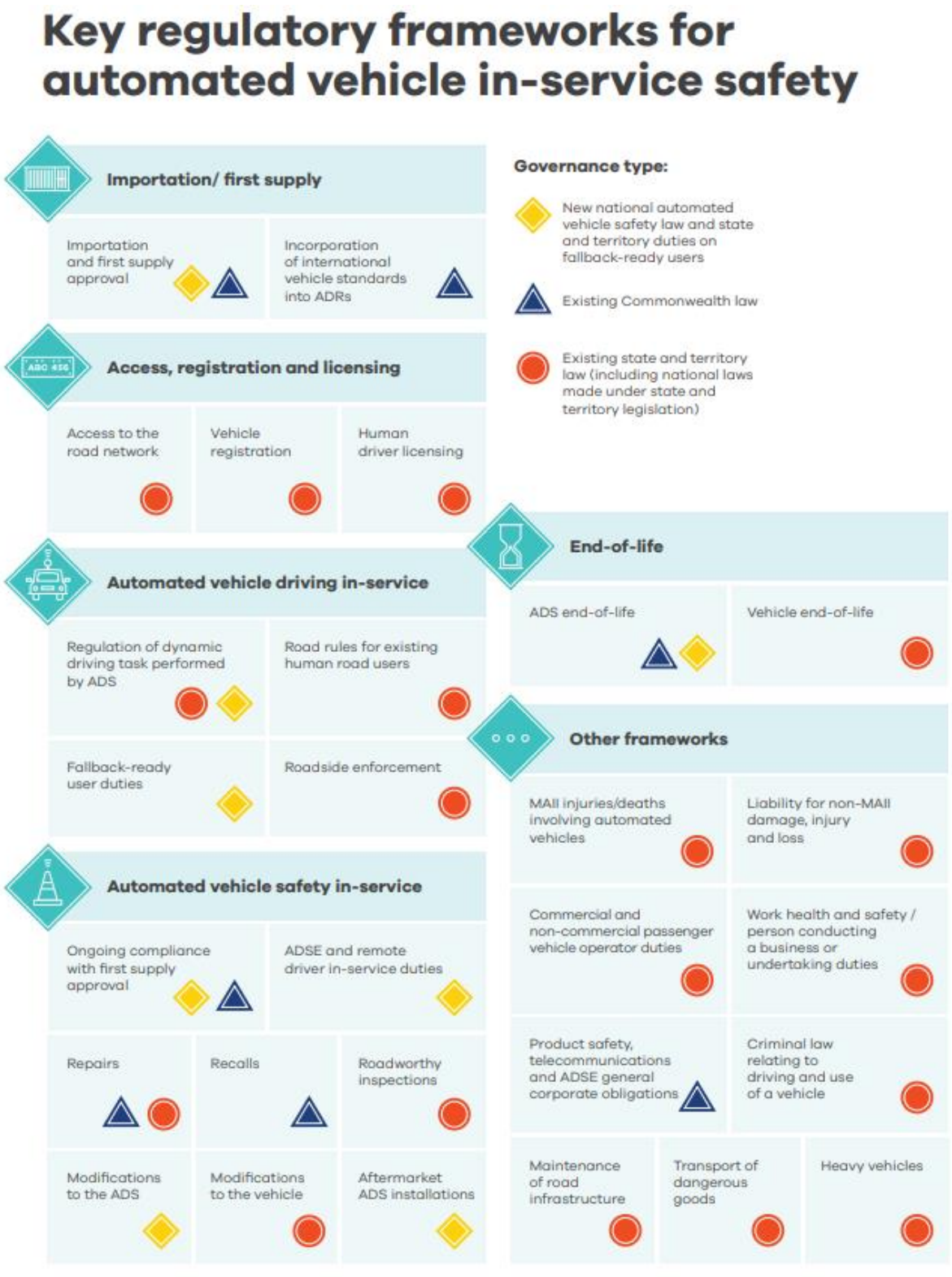
The NTC's 2019 consultation showed that many existing parties with an influence on in-service safety were already appropriately regulated and did not require additional regulation. In particular, the NTC considered the AVSL should not regulate repairers and modifiers, at least in the first version.[13] Substantive regulation of repairers should remain the responsibility of state and territory governments.

A range of parties and their activities will be regulated to ensure the safe design and operation of automated vehicles at all stages of the automated vehicle's life. Other regulators besides the in-service regulator will have a role in regulating these parties and activities. Figure 3 shows some of the key activities relevant to in-service safety, the level of government that regulates them, and where the AVSL fits into this framework. A more detailed overview of all activities, regulatory frameworks, regulators and regulated parties involved in the in-service safety of automated vehicles can be found in Appendix C of the decision RIS.

This phase of the in-service safety work aims to ensure the responsibilities of various regulators and agencies are clear. This includes demarcation of roles, and how the agencies interact with each other and share information.

[13] It is likely that a general safety duty on an ADSE would oblige it to take certain steps to ensure the ADS does not operate if improper repair work has occurred. This would mitigate risks associated with repairs.

Figure 3. Key regulatory frameworks for automated vehicle in-service safety



ADRs = Australian Design Rules; MAII = motor accident injury insurance

2.2.3 Role and scope of the 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 addressed. It will use these tools to take a proactive and risk-based approach to compliance and enforcement to ensure safety risks are managed efficiently.

The role and scope of the in-service regulator is explored in more detail throughout the policy paper. The paper considers the duties the regulator will enforce, its functions and powers, and how it will interact and exchange data with other agencies.

2.3 Legislative implementation approach for in-service safety

In June 2020, ministers agreed that the AVSL will be implemented using either Commonwealth law[14] or state and territory applied law. Either implementation approach will include complementary amendments to state and territory laws.

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 (notably those of Australian governments).

The decision RIS, supported by PwC's cost-benefit analysis, found Commonwealth law (option 3 of the decision RIS) preferable to state and territory applied law (option 4 of the decision RIS). Commonwealth law is more likely to achieve national consistency, is more efficient to maintain, better aligns with the regulation of automated vehicles at first supply and allows for national enforcement through a single federal court system. PwC's cost-benefit analysis assessed Commonwealth law as having the highest net benefit. This was based on its assessment of the likelihood that the options would either delay or bring forward take-up of automated vehicles, which in turn would delay or bring forward realisation of the anticipated benefits of automated vehicles.

The obligations of regulated parties should be the same regardless of whether Commonwealth law or state and territory applied law is chosen; for example, the detail of the general safety duty would not change. However, compliance and enforcement arrangements will differ. Chapter 11 shows the differences in the operation of the in-service framework between the two legislative implementation approaches. The decision RIS has been updated to reflect the findings in Chapter 11.[15] This policy paper and the updated decision RIS will help inform ministers' decisions on the legislative implementation approach for the national law in November 2021.

[14] Chapter 11 explains this approach will be called 'the complementary law approach' going forward.

[15] The update to the RIS also presents the regulatory impacts of policy recommendations in this paper.

3 ADSE duties and enforcement framework

Key points

- The central feature of the automated vehicle safety framework is the ADSE's general safety duty. There will also be prescriptive duties to support the general safety duty.
- The AVSL will contain a head of power enabling the in-service regulator to issue guidance material.
- ADSEs must meet corporate obligations to be able to enter the market. These will be assessed by the in-service regulator rather than the first-supply regulator as previously agreed by ministers.
- The risks of third-party interference with an ADSE will be addressed through a specific offence in state and territory legislation and enforced by states and territories.
- Executive officers will be subject to due diligence obligations but only to the extent of their own influence, and a defence of reasonable reliance will be available if they can meet certain criteria.
- Penalties imposed on an ADSE will be categorised to reflect the seriousness of the offence.

3.1 Purpose of this chapter

The purpose of this chapter is to:

- discuss the ADSE's obligations under the general safety duty including recommended prescriptive duties to support the duty
- propose guidance material that could be issued by the regulator to support the ADSE's compliance with the general safety duty
- recommend a process for assessing an ADSE's corporate obligations
- discuss the expectations of executive officers under their due diligence obligations and the limits of this obligation
- recommend an approach to penalties associated with ADSE duties.

3.2 Context

Automated vehicles have the potential to greatly improve road safety by reducing human error. However, they also have the potential to introduce new safety risks if there is overreliance on this complex technology or an expectation that the market will manage the risks. Some of this risk will be mitigated by the safety assurance process at first supply, but this safety assurance will not extend to managing safety across the full life cycle of an automated vehicle.[16]

[16] This is discussed further in chapter 2 of the decision RIS, which can be viewed at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Decision-RIS-In-service-safety-for-AVs.pdf.

It is appropriate for an ADSE's safety obligations to extend beyond the first supply of vehicles. Unlike most conventional vehicles, automated vehicles will continue to evolve over time through system upgrades, which can significantly affect the operation of the vehicle. An ADS will need to be updated to take into account changes in the environment in which it operates. This will include new safety risks that may have emerged, changes to infrastructure, changes to road rules, and changes in cybersecurity threats. When the ADS is engaged, it is the system rather than the human driver that is in control of the driving task; the ADSE will have ongoing responsibility for this control. These features distinguish an automated vehicle from a conventional vehicle, and the imposition of in-service duties on the entity responsible for an ADS recognises this.

In June 2020, Australia's infrastructure and transport ministers agreed that ADSEs should be subject to a general safety duty that places an overarching and positive obligation on the ADSE to ensure the safe operation of the ADS. Ministers also agreed that ADSE executive officers should have a duty to exercise due diligence in relation to the ADSE's compliance with the safety duty. These decisions were informed by the NTC's decision RIS, which assessed the application of existing frameworks to these parties.

3.3 The general safety duty

The principles-based general safety duty approach agreed by ministers has proven effective in managing safety in transport industries including domestic commercial marine vessels,[17] rail,[18] commercial passenger vehicles[19] and heavy vehicles.[20]

The focus of principles-based regulation is whether a party has achieved the regulation's purpose (i.e. safety), as opposed to whether prescriptive rules or performance-based outcomes or objectives have been met.

The approach captures a wide range of risks that more prescriptive standards may not, including new and emerging risks. General safety duties place the onus of identifying and mitigating risks onto the regulated party, who is likely to have the expertise to identify and solve problems. They provide flexibility to cover different parties, business models and technologies. Finally, general safety duties enable innovation and allow parties to adapt to changing circumstances.

In the case of a general safety duty for automated vehicles, the duty will place an overarching and positive obligation on ADSEs to ensure the safe operation of the ADS.

If the general safety duty is not qualified in some way, the duty holder would be guilty of an offence every time the outcome – elimination of risk to health or safety – was not achieved, regardless of the efforts of the duty holder (Stewart-Crompton, et al., 2008). Therefore, the general safety duty requires ADSEs to ensure safety 'so far as reasonably practicable'. This standard is used for comparable general safety duties in Australia, including in work health and safety (WHS) law. What is reasonably practicable varies between industries and over time as technologies and practices evolve (Hopkins, 2012). Legislation could provide a list of factors that could inform an assessment of what is reasonably practicable.

[17] *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (Cwlth).

[18] *Rail Safety National Law Act 2012* (SA) Sch ('Rail Safety National Law') ss 52–54.

[19] Such as the *Point to Point Transport (Taxis and Hire Vehicles) Act 2016* (NSW) Pt 2.

[20] *Heavy Vehicle National Law* s 26C.

3.4 Interaction with the first-supply framework

An ADSE must provide evidence against a set of safety criteria before it can receive type approval to supply an ADS to the Australian market for the first time, essentially making the 'safety case' for its ADS. The safety case is submitted to the first-supply regulator (DITRDC) in the form of a 'statement of compliance' under ADR 90/01. The full requirements of the safety criteria as agreed by ministers are at Appendix A. As noted in chapter 1, DITRDC is currently incorporating these safety criteria into ADR 90/01.

Although future-focused (the ADSE is saying how it will behave in relation to the ADS, and how the ADS will perform in the future), the statement of compliance is inherently a statement made at a particular point in time. It is static, in contrast to the dynamic general safety duty under which specific actions expected will shift as technology improves, road infrastructure changes, and more is learned about ADS safety. Despite its static nature, the statement of compliance provided at first supply will assist both the regulator and ADSE to understand the obligations under the general safety duty.

Although enforcement of the general safety duty would have regard to the statement of compliance, it is important that the statement of compliance is not seen as the default standard under the duty, and that the regulatory framework does not support this interpretation. The framework will encourage and enable ADSEs to continue to develop innovative and more efficient solutions to ensure ADS safety once they are in service.

The ADSE will be subject to three ongoing obligations:

- data recording and sharing capability
- having a corporate presence in Australia
- minimum financial requirements.

The applicant will need to demonstrate how it will continue to meet these obligations over the life of the vehicle. Assessment of these three obligations is discussed further in sections 3.8.3 and 3.9.4.

3.5 Complying with the general safety duty

To satisfy a general safety duty, an ADSE would need to have systems in place to enable it to identify and respond to reasonably foreseeable safety risks and use these systems to address these risks. It would also need ways of ensuring accountability (e.g. through reporting structures or external audits) to monitor compliance. The ADSE's statement of compliance at first supply will provide the evidence of many of these systems.

Translating the general safety duty into actions ultimately requires good judgement and diligence from ADSEs. Different ADSEs may respond to the same risks in different and no less legitimate or compliant ways. The ADS is the ADSE's product, and the ADSE is best placed to identify the steps necessary to ensure its safety.

3.5.1 Prescriptive duties under the general safety duty

General safety duties are expressed in general terms. This allows for flexible implementation by regulated parties. However, this must be balanced with sufficient certainty for regulated parties and enforcement agencies. Some minimum prescriptive requirements to support a general safety duty will provide further clarity to the ADSEs without limiting the scope of the general safety duty. Requirements to support general duties are used in other safety frameworks such as WHS law.

The NTC proposes that the AVSL include certain prescriptive duties to support the general duty, either in the law itself or under subordinate legislation.[21] The aim is to provide further guidance to the ADSE on how to carry out its obligations under the general safety duty without undermining the principles-based regulatory approach. Such requirements would not limit the scope of the general safety duty. Table 2 of the discussion paper proposed a list of potential prescriptive duties to support the general safety duty. These centred on safety management, preventing unsafe operation, notification of safety risks, data recording, providing education and training, and compliance with road traffic laws. A final list of recommended prescriptive duties incorporating stakeholder feedback is below in section 3.9.1.

Given the infancy and novelty of the industry, it is impossible to predict all areas where prescriptive duties may be beneficial. Additional duties may be required over time in supporting regulations, subject to standard processes for assessing regulation impact.

There will also be a need for other prescriptive requirements outside those supporting the general safety duty. These types of requirements are further discussed throughout this paper and summarised in chapter 7.

3.5.2 Guidance to support the general safety duty

General safety duties are often supplemented by explanatory guidance, regulations, codes of practice and other policy statements that assist regulated parties to comply with their duties (Baldwin, et al., 2012). These can either have legislative power or be non-legislative in nature.

The in-service regulator, in collaboration with industry, could develop industry codes of practice to establish standards and procedures for the ADSE to identify, analyse, evaluate and mitigate risks associated with meeting its obligations under the general safety duty. The in-service regulator would need a legislative power to develop and draft guidelines for industry codes of practice.

The in-service regulator could also develop guidance for ADSEs. The purpose of any such guidance would not be to create new obligations for the ADSE beyond the general safety duty but instead to provide further information to assist the ADSE to meet its duties. Legislative powers are not required for the in-service regulator to develop and publish guidance materials.

In addition, over time a body of jurisprudence (case law) will develop in which courts will provide additional guidance on what is expected under the general safety duty in its application to particular facts.

3.5.3 Addressing the risks presented by third parties

Parties could interfere with the vehicle or the ADS in a manner that creates an in-service safety risk, interfering with an ADSE's ability to discharge its safety duties. Parties may also negligently use the ADS in a manner that creates an in-service safety risk such as failing to maintain the vehicle or update the software as required. In the discussion paper we asked

[21] For example, the *Rail Safety National Law (South Australia) Act 2012* provides a power to make national regulations including rules for accreditation of rail transport operations and the records and documents that regulated parties must keep.

whether third-party interference with the safe operation of an ADS should be a specific offence.

At first supply, the ADSE will need to demonstrate safe system design including that its design and verification processes cover safety-critical issues such as unsafe maintenance, repairs, physical modifications and other system failure. ADSEs need to account for cybersecurity risks posed by malicious hacking and the human–machine interface when seeking approval under the first-supply framework.

The only party obliged to take positive steps under the general safety duty is the ADSE. However, the duty will require the ADSE to take positive steps to mitigate or address risks arising from third parties. The ADSE must consider the potential risks to an ADS's safe operation, including risks from foreseeable misuse or malicious interference. This obligation does not make the ADSE responsible for all actions of third parties. For example, an ADSE could take reasonable steps to communicate to owners to update and maintain their vehicles. It could also take reasonable steps to prevent the vehicle from being used if it is not being maintained correctly or not running the most recent software version.

3.6 Executive officers and their role in influencing compliance

For regulation to be effective it needs to incentivise those people in a position to influence safety. As ADSEs are corporations, their actions and omissions, including those involving compliance with regulatory requirements, will be influenced by senior officers.

Large pecuniary penalties incurred by the ADSE for breaching the general safety duty would penalise an ADSE's shareholders rather than individuals who may be responsible for the breach. For this reason, it is common in Australia for some form of executive officer liability to feature in regulatory frameworks where the corporation's breach of the law puts people at risk of serious injury or death. Comparable transport safety frameworks (e.g. heavy vehicles, WHS and point-to-point transport, rail and vehicle standards) include obligations on executive officers.

To adequately ensure ADSE compliance with the general safety duty, and accountability in event of a breach, Australia's infrastructure and transport ministers decided in June 2020 that executive officers should be subject to a due diligence obligation to ensure ADSEs meet their general safety duty.

The NTC considers the term 'executive officer' denotes an individual with decision-making authority. They are senior officers that are in a position to influence safety. Existing safety frameworks in transport and other sectors have slightly varying definitions of 'executive officers' or 'officers', but the common feature is that they must make, or participate in making, decisions about the management of the corporation. They do not need to be directors of the corporation.[22]

3.6.1 Due diligence obligations arising from the general safety duty

The due diligence obligations will be developed by reference to the underlying general safety duty. A due diligence obligation would apply only to executive officers who are in a position to influence the ADSE's offending, and only to the extent of their own personal influence.

[22] For example, s 5 of the RVSA and s 9 of the Corporations Act 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'.

What is expected of a particular executive officer necessarily depends on that person's role in the ADSE's compliance with the safety duty. The executive must do what a reasonable person in that person's position would have done.

Some legislation determines whether an executive officer failed to exercise due diligence, with a court having regard to, for example:

- what the officer knew, or ought reasonably to have known, about the commission of the offence by the body corporate
- whether or not the officer was in a position to influence the body corporate in relation to the commission of the offence by the body corporate
- what steps the officer took, or could reasonably have taken, to prevent the commission of the offence by the body corporate
- any other relevant matter.[23]

In order to put systems in place to ensure compliance with a due diligence obligation, the ADSE should be able to identify who within its organisation is responsible for functions relevant to the ADSE's safety duty. These people and their responsibilities should be identifiable by reference to organisational charts, position descriptions and other corporate documents.

Exercising due diligence to ensure the ADSE complies with the general safety may include executive officers taking reasonable steps to:[24]

- 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.

What steps are reasonable for an officer to take will depend on the circumstances, including the role and influence of the officer and the nature and structure of the **ADSE.** Performance of these actions should be no greater a burden than what good governance already requires (Hayne, 2019). The imposition of due diligence obligations clarify what is expected of the relevant senior executives and provides important standards against which the regulator may examine the conduct of the affairs of the ADSE by both its board and by its senior management, where they affect public safety. Perhaps most importantly, it would allocate incentives in a way that aligns with the public interest.

Failure to comply with due diligence requirements may result in either a civil penalty or a criminal sanction. Penalties are discussed further in chapter 7 and set out in Appendix C.

3.6.2 Relying on information provided by others, where reasonable

It is expected that many ADSEs in the Australian market will be the local arm or entity of a global corporation or parent company. They will be companies that have approval to supply

[23] Refer, for example, to the *Work Injury Rehabilitation and Compensation Act 2013* (Vic) s 601(3).

[24] The examples in the bullet points are common due diligence obligations set out in other regulatory frameworks; refer, for example, to 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*.

a particular vehicle or vehicle component to the Australian market. It is in the ADSE's interest to comprehensively appraise the product before they attest to its safety under the RVSA and accept liability under other Australian laws (e.g. negligence or the Australian Consumer Law).

In some cases, these local corporations will not have been involved in the design or manufacture of the ADS hardware or software. It may be likely that in these circumstances Australian executive officers will have little or no ability to influence the design or manufacture of an ADS. Given this, a defence of 'reasonable reliance' on what the related entity such as the manufacturer has performed for, or provided to, the ADSE could be warranted. A defence of 'reasonable reliance' recognises that executive officers may not possess the technical knowledge themselves and will rely on this information from others within the organisation.

Such a defence is only explicitly found within the Corporations Act.[25] A director can rely on information or expert advice:

- prepared by an employee of the corporation whom the director believes on reasonable grounds to be reliable and competent in relation to the matters concerned
- a professional adviser or expert that the director believes on reasonable grounds to be within the person's professional or expert competence
- another director or committee of directors of the corporation.

The reliance will need to be made in good faith. Other factors to determine the reasonability of the reliance are the director's knowledge of the corporation, the complexity of the structure and the operations of the corporation.[26]

A reasonable reliance defence in the AVSL will not abdicate due diligence obligations. The ADSE executive officer must still act reasonably, in good faith and without negligence before relying on information provided by another party.

3.7 Breaching ADSE duties

3.7.1 Penalties associated with ADSE duties

Penalties for breaching a general safety duty can be imposed on the duty holder. Penalties are generally included in compliance and enforcement frameworks to deter potential breaches and to ensure liability for any breaches.

Both the HVNL and WHS law provide for three categories of penalties for breaches or noncompliance with duties. These categories are based on the seriousness of the offence. The first category includes reckless conduct as part of the breach and has the largest penalty to reflect the seriousness of the breach. Reckless conduct does not need to be established in the other categories.

Including categories of penalties in the AVSL, as in other frameworks, can provide for prosecution of breaches of the general safety duty in proportion to the degree of the breach. Different categories of offences can reflect the culpability and level of risk.

[25] Refer to s 189.

[26] Ibid.

3.7.2 A cause of action

Some regulatory frameworks that involve a public regulator enforcing standards also provide a cause of action for injured persons where a standard is breached. If the general safety duty provided a cause of action, those injured by an ADSE's lack of care could pursue the ADSE for breach of the general safety duty themselves. If a group of people suffered loss or injury due to the same breach of the safety duty, the action could be brought by one person on behalf of the larger group via a class action. This could potentially provide a more direct avenue for injured parties to access compensation compared with litigation in negligence.

Allowing injured people to litigate safety duty breaches (essentially private enforcement of a public duty) would mean the duties owed by regulated parties to the public could be upheld without first requiring a regulator to take action, which could increase the likelihood of compliance by ADSEs.

The Corporations Act and Australian Consumer Law include a private cause of action. It is not the approach taken in WHS law or transport safety regulatory frameworks, and the NTC is not aware of any proposals to include a private cause of action in these laws.

The Board of Treasurers is also considering a national approach that requires Australia's motor accident injury insurance schemes to provide cover for injuries and deaths that result from automated vehicle crashes.[27] If this reform is implemented it would create a compensation pathway for injured parties.

3.8 Stakeholder feedback

3.8.1 Prescriptive duties to support the Automated Vehicle Safety Law

The NTC sought feedback on the prescriptive duties under the general safety duty that should be included in the AVSL. Overall stakeholders supported the inclusion of prescriptive duties in the AVSL. AMC, IAG, LIV, Maurice Blackburn, RACQ, SAFC, TMR QLD and three government agencies specifically supported the duties listed in Table 3 of the discussion paper.[28] Maurice Blackburn noted that prescriptive duties may assist injured parties to claim damages for litigation.

FCAI noted that some of the prescriptive duties in the discussion paper seemed to err on the side of being too general. A government agency considered there was some overlap between the proposed prescriptive duties and ADR 90/01, and AAA noted that any prescriptive duties included in the AVSL should not add to ADS design or performance requirements at first supply. A government agency noted that the ADSE must understand that the prescriptive duties do not limit the general safety duty.

TMR QLD submitted that a criminal burden rather than a civil burden of proof is appropriate for a breach of a prescriptive requirement.

RACQ provided comments specifically on the proposed prescriptive duties in Table 1 of the discussion paper:

[27] The national approach was endorsed by infrastructure and transport ministers in August 2019.

[28] For brevity, abbreviations are used for many of the organisations that made submissions. For a full list of public submissions and abbreviations, refer to Appendix B.

- *The ADSE must notify the in-service regulator and users of any systemic safety issues affecting the ADS.* RACQ considered it best practice to include maximum notification timeframes or thresholds such as those found in APRA prudential standards.
- *The ADSE must record and store data relevant to compliance with the general safety duty.* RACQ suggested that timeframes may be required.
- *The ADSE must ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users.* RACQ suggested that the definition of 'user' may need clarification, and that it should cover road users external to the vehicle.

Two government agencies and SAFC considered that a regulation-making power be included in the AVSL to allow the in-service regulator to prescribe duties to address new in-service safety risks as technology emerges.

Stakeholders suggested additional prescriptive duties on ADSEs. These included duties to:

Modifications

- notify the in-service regulator of any modifications that will substantially change the ADS function, including modifications to the level of automation, the ODD and the operation of the dynamic driving task (a government agency)
- not carry out in-service modifications to the ADS that change its performance or functionality beyond what was declared at first supply (noting that clarity on what constitutes a change is required) (a government agency)

Data recording and sharing

- record and share relevant data (including recording ADS control data and providing it to authorised officers within reasonable timeframes) (SAFC and a government agency)
- notify the in-service regulator when an ADS is found to have faults (DITRDC) or infringed traffic rules, as this may indicate a systemic issue (a government agency)
- notify the in-service regulator of attempts by third parties to interfere with the ADS (whether or not they were successful) (a government agency)
- comply with requests for information (a government agency)

On the road

- ensure that the ADS can safely interact with emergency services when it is engaged, including on-road and at the roadside (a government agency)
- ensure automated vehicles follow road rules (a government agency)
- ensure the safety of all passengers (a not-for profit organisation) and others on the road (Hi IOT)

Safety management

- have policies, procedures and systems in place to ensure they can identify when relevant laws are updated and update the ADS as soon as reasonably practicable (a government agency)
- have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks (a government agency)
- design and maintain an ADS to detect if it can function safely and limit its operation if safety cannot be achieved or is uncertain (a government agency)

- remedy ADS safety defects and adapt to changes in regulation over time (a government agency)
- develop safety standards not covered by ADR 90/01 (a government agency) (this is discussed further in section 3.9.2)
- ensure accountability (e.g. through reporting structures or external audits) to demonstrate that processes, policies and systems are being complied with (a government agency)
- have effective communication strategies to alert consumers to safety issues (a government agency)
- make reasonable efforts to ensure the ADS cannot be interfered with by third parties (a government agency)
- develop robust educational resources that clearly communicate the necessity of complying with child car restraint legislation when using an ADS, in consultation with industry (a not-for-profit organisation).

A government agency also provided an alternative set of duties framed around the first supply criteria.

The NTC has had further discussions with DITRDC about the incorporation of the safety criteria and obligations into ADR 90/01. These discussions identified that ongoing aspects of the education and training and data recording and sharing criteria may be best placed in prescriptive duties to support the general safety duty rather than ADR 90/01. Continued compliance with these obligations goes towards supporting the general safety duty and should be enforced by the in-service regulator.

3.8.2 Safety reporting requirements

In response to questions in other chapters about regulator reporting and data sharing, some stakeholders discussed the need for safety incidents to be reported to the regulator. TMR QLD proposed a voluntary ADSE reporting scheme for minor safety issues modelled on the Aviation Self-Reporting Scheme. FCAI noted that any ADSE reporting requirements should be proportionate and not overly onerous. A government agency submitted that disclosure logs and reports from crash investigations, noncompliance and breach of accreditation should be made public to ensure consumer safety. SYSTRA suggested the inclusion of near misses in reporting.

3.8.3 First supply corporate obligations

Since consulting, the NTC has had further discussions within government about implementing the corporate obligations an ADSE must meet before entering the market. Specifically, these are that an ADSE must have a corporate presence in Australia, minimum financial requirements and data recording and sharing capabilities. The NTC did not consult on these obligations specifically because these were already agreed by ministers in 2018. However, government stakeholders considered whether the in-service regulator should be responsible for assessing these criteria at first supply rather than the first-supply regulator.

Government stakeholders considered that DITRDC has a stronger capacity to assess the design safety of an ADS rather than the organisational capacity of an ADSE – based on its core expertise with vehicle type assessment. Government stakeholders considered that the corporate obligations represent ongoing obligations for an ADSE and are not directly relevant to vehicle standards and ensuring conformity of production, which is the primary aim of an ADR. For example, the financial position of an ADSE does not necessarily affect an ADSE's ability to achieve consistent adherence to vehicle standards. Placing the responsibility of assessing corporate obligations on the in-service safety regulator will also

give it oversight of the market it is regulating. It will become aware of new ADSEs and their business models as soon as they enter the market. As discussed in chapters 4 and 5, having the in-service regulator responsible for assessing these obligations may also facilitate in-service market entry in certain scenarios, and having one regulator responsible for the obligations will reduce duplication.

3.8.4 Potential guidance material issued by the in-service regulator

The NTC sought feedback on what matters relating to compliance with the general safety duty were better suited to guidance material than being a prescriptive duty in the AVSL.

Stakeholders submitting on this issue agreed that the in-service regulator should develop guidance material.

IAG, LIV, Maurice Blackburn, RACQ, a government agency and a not-for-profit organisation supported guidance having legislative force. AMC and two government agencies submitted that this was not necessary, with one government agency reasoning that specifications were subject to change as automated vehicle technology becomes more advanced.

Some stakeholders supported a head of power in the AVSL enabling the regulator to create guidance material. TMR QLD and a government agency submitted that compliance with guidance material should be considered when determining a breach of the general safety duty, with a government agency also noting that compliance with guidance material should not in itself be deemed to indicate compliance with the general safety duty. A government agency also supported the in-service regulator having a legislative power to develop codes of practice but suggested that the guidance should not be prescribed in legislation to avoid creating barriers for market entry. FCAI supported the regulator developing codes of practice in collaboration with industry. FCAI noted that if the codes of practice were to have force of law they would need to be drafted as if they were pieces of legislation so that those bound by the code are sure of their obligations.

Stakeholders also provided views on the content of guidance material. An industry body noted that guidance material cannot be generalised, and Paul Lucey submitted that guidelines are suited for describing activities. A not-for-profit proposed guidance on ADSE obligations to provide consumers with safety warnings, information on safety features and clear instructions for safe use. A government agency suggested guidance could include technology specifications, again noting that such specifications are subject to change as automated vehicle technology becomes more advanced. The same government agency noted that the in-service regulator would have the expertise to determine what guidance material it should publish. Another government agency submitted that guidance material might include safety management plans to address risks including cybersecurity threats.

3.8.5 Offence of third-party interference

The NTC sought feedback on whether existing and proposed regulatory frameworks were sufficient to address the risks of third-party interference with an ADS.

The majority of stakeholders submitting on this issue agreed that there was a need to create an offence of third-party interference with an ADS, with some noting the high safety risk associated with this type of interference.

A government agency submitted that first-supply requirements are unlikely to prevent third parties from interfering with an ADS. Maurice Blackburn, RACQ and SAFC considered that while there may be some relevant existing legislation it was unclear clear how applicable these laws were to third-party interference.

AMC, TMR QLD, and three government agencies submitted that the offence could come under state and territory law, with some noting that existing state and territory criminal offences would need to be further considered if this was the case. Toll and two government agencies submitted that the offence could be within the AVSL, with TMR QLD noting this particularly if the AVSL was a state and territory applied law. Two government agencies submitted that it could be enforced by police, one submitted it could be enforced by the transport department, and another submitted that it could be enforced by the in-service regulator.

3.8.6 Executive officer due diligence obligations and a defence of reasonable reliance

A government agency agreed that due diligence obligations should apply to executive officers only to the extent of their own personal influence. TMR QLD further specified that the obligation should only apply to the extent the officer has influence, control and professional responsibility over the ADSE's actions. Stakeholders provided limited feedback on the content of the due diligence obligation itself.

The NTC sought feedback on whether the AVSL should provide a defence for Australian ADSE executive officers who reasonably rely on information provided by others when discharging their due diligence obligations.

AMC, FCAI, RACQ, SAFC, two government agencies and an industry organisation supported the inclusion of such a defence. AAA, FCAI, RACQ SAFC and an industry organisation noted that local executive officers will need to rely on information from a parent company overseas, with FCAI also noting that these local officers will have little or no ability to influence the design or manufacture of an ADS. However, an industry organisation also considered that the due diligence undertaken before a product was endorsed and utilised should be considered, and RACQ and SAFC noted that if an executive director did not reasonably rely on the information, such as through wilful ignorance or knowing that the original information was false, then the due diligence obligation would not have been discharged.

Toll supported the inclusion of the defence if the parent entity could also be prosecuted in Australia. RACQ questioned who would ultimately be held responsible for noncompliance if the defence was allowed. A government agency noted that a defence should not allow executive officers to defer all fault to parent companies. Another government agency submitted that strategies need to be developed to ensure foreign companies maintain Australian officers capable of being held to account.

TMR QLD and two government agencies did not support the inclusion of a reasonable reliance defence. TMR QLD considered this defence may not add significant value and could serve as a disincentive for executive officers to exercise influence where they may be able to do so. A government agency submitted that the defence could be exploited by the parent company to negate responsibility. A government agency noted that having an option for a specific defence may inadvertently create a loophole for executive offers to rely on.

3.8.7 A statutory cause of action

ACCC and Maurice Blackburn submitted that a statutory cause of action should be included in the AVSL for injured parties. ACCC submitted that relying on the Australian Consumer Law to compensate those injured in an accident involving an automated vehicle would be impractical, inefficient and enormously costly, and would result in unjust and inconsistent outcomes for injured people and the wider community. It considered that a statutory cause of action in the AVSL would allow a more direct avenue for an injured party (or a group of

people through a class action) to pursue the ADSE for a breach of the general safety duty. Maurice Blackburn noted that there would be difficulties with injured people relying on existing frameworks such as the Australian Consumer Law.

3.9 NTC conclusions: ADSE duties and enforcement framework

3.9.1 Prescriptive duties to support the general safety duty

The NTC welcomes stakeholder support to include prescriptive duties to support the general safety duty in the AVSL. The NTC agrees that there may be a need for further prescriptive duties to be included over time and implemented through supporting legislation. This will allow the in-service regulator to further develop and refine the prescriptive duties as new technology emerges and more is understood about the market. The initial prescriptive duties will be included in the primary legislation.

With respect to RACQ's specific comments on the prescriptive duties, the NTC accepts these suggestions but considers they are better addressed through other mechanisms. Timeframes and thresholds may need to be developed over time by the in-service regulator so may be better prescribed within supporting regulations. The definition of a 'user' will be included within the AVSL or subordinate legislation.

The NTC welcomes stakeholders' suggestions for additional prescriptive duties, and has included some within the final list of recommended duties below. The NTC considers, however, that a number of the duties suggested in submissions are covered by those already proposed within the discussion paper (e.g. modifications and roadside enforcement proposals), the overarching general safety duty, or first-supply criteria and obligations. For example, with respect to a not-for-profit organisation's suggestion of including educational resources, including compliance with child car restraint legislation, the NTC is of the view this is sufficiently covered by our suggested prescriptive duty of providing relevant education and training.[29] For the prescriptive duty to ensure the safety of all passengers and road users, the NTC considers this is already evident in the general safety duty. Regarding a government agency's suggested inclusions on notifying the in-service regulator for modifications and infringement of traffic rules, the NTC agrees with including these requirements; however, they are best placed not as prescriptive duties supporting the general safety duty but as separate prescriptive requirements within the AVSL, which are further discussed in chapter 8. For the suggestion of a prescriptive duty to make rules, the NTC recognises that the in-service regulator may need the function to develop standards, which is discussed further in chapter 6.

The NTC includes a prescriptive duty requiring an ADSE to prevent interference with an ADS in response to a government agency, as we agree such interference presents a risk to the safe operation of an ADS. A specific duty will highlight the importance of this risk and help the ADS comply with the general safety duty. The NTC also agrees that the in-service regulator should be notified of third-party interreference attempts, as it could lead the regulator to identify a risk to automated vehicles in the market generally. However, we are of the view that this should be a prescriptive requirement rather than a prescriptive duty to support the general safety duty. This requirement is discussed further in chapter 7.

The NTC agrees with government stakeholders on including education and training as well as data recording and sharing requirements from the safety criteria into prescriptive duties

[29] The first-supply safety criteria and obligations are set out in Appendix A.

supporting the general safety duty. The NTC agrees that these are ongoing obligations on the ADSE that should be enforced by the in-service regulator. Providing relevant education and training supports the general safety duty by informing users of the safe operation of an ADS and may change over the lifetime of the ADS. An ADSE will also need to store and share data to meet its obligations under the general safety duty such as providing data to the regulator in the event of a safety incident.

For the reasons mentioned the NTC recommends the AVSL includes the prescriptive duties listed in Box 2 to support the general safety duty.

Box 2. Prescriptive duties supporting the general safety duty

- The ADSE must ensure, so far as is reasonably practicable, that systems are developed, used and maintained to carry out the general safety duty.
- The ADSE 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 ADSE must notify the in-service regulator and users of any systemic safety issues affecting the ADS.
- The ADSE must ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users.
- The ADSE must record and store data relevant to compliance with the general safety duty.
- The ADSE must, so far as is reasonably practicable, provide education and training to relevant parties such as users of its ADSs.
- The ADSE must, so far as is reasonably practicable, prevent the operation of an ADS when the ADSE is aware the ADS is unsafe.
- The ADSE must, so far as is reasonably practicable, ensure the ADS can comply with relevant road traffic laws.
- The ADSE must have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks.
- The ADSE must ensure accountability (e.g. through reporting structures or external audits) to demonstrate that those processes, policies and systems are being complied with.
- The ADSE must, so far as is reasonably practicable, make efforts to ensure the ADS cannot be interfered with by third parties.
- The ADSE must, so far as is reasonably practicable, review, maintain and update its safety standards as declared in its first-supply application.

3.9.2 Prescriptive duty supporting the general safety duty on ongoing compliance with the ADR

The NTC notes a government agency's feedback that safety risks may evolve over time as new technology emerges. A government agency suggested that the AVSL provides for the in-service regulator to create new safety standards not covered by ADR 90/01 to address these risks. The NTC considers that a prescriptive duty requiring the ADSE to continue to evolve its safety standards best addresses this risk, reflecting the need for an ADSE to continue to address safety risks. It will place the onus on the ADSE, which is best equipped to deal with new and emerging safety risks and develop new safety standards. An ADS will change over time, as will the underlying safety standards and requirements that were declared at first supply. Such a prescriptive duty will mean that as the ADS changes and

safety standards evolve, the ADSE will need to review and update its safety standards as appropriate to reflect these changes. It reflects the dynamic nature of the general safety duty and provides clarification to ADSEs that they need to continue to update safety standards to ensure ongoing compliance with the general safety duty. The last prescriptive duty in Box 2 addresses this feedback.

3.9.3 Prescriptive requirement for incident reporting

Separate to duties supporting the general safety duty that are more high-level in nature, the NTC considers that the ADSE should be subject to a prescriptive requirement to report significant safety incidents and road traffic law breaches to the in-service regulator. It is important that the regulator has oversight of these serious incidents so it can effectively discharge its key function of regulating in-service safety.

The NTC does not consider voluntary reporting appropriate for significant safety incidents that could indicate broader systemic problems. As well, the NTC previously consulted on the inclusion of near misses in reporting, concluding after consultation that this is a subjective metric and potentially unclear. We note, however, that an ADSE would likely still need to examine minor safety issues or near misses as part of its general risk management under the general safety duties.

The NTC also does not consider it necessary to publish all safety issues to be prescribed in the AVSL; however, we note the prescriptive duty supporting the general safety duty that obliges the ADSE to notify users of any systemic safety issues. We also note that the regulator will have the discretion to publish reports in accordance with relevant privacy legislation.

3.9.4 Corporate obligations an ADSE must meet at first supply and assessment by the in-service regulator

The NTC agrees with government stakeholders that the in-service regulator should be responsible for regulating and assessing an ADSE's corporate presence, minimum financial requirements and data recording and sharing capabilities. The corporate obligations are:[30]

- **Corporate presence in Australia**: The applicant must provide evidence of its corporate presence in Australia.
- **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.
- **Ongoing data recording and sharing capability**: 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
  - individuals receive data to dispute liability (e.g. data showing which party was in control to defend road traffic infringements and dispute liability for crashes) when the individual makes a reasonable request

[30] When the corporate obligations are referenced throughout this paper, this a reference to these three obligations.

- 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 for may depend on the purpose(s) the information could be used for – e.g. 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.

These obligations are consistent with those agreed by ministers in 2018. It is expected that there will still be one application made to the first-supply regulator.

The NTC notes that certain aspects of the data recording and sharing obligation agreed by ministers will be covered in ADR 90/01, and those aspects are not replicated here. This obligation will be given effect in-service through a prescriptive requirement (described in chapter 7).

The applicant would provide a self-certified statement of compliance to the first-supply regulator against the safety criteria and the corporate obligations. The first-supply regulator would assess the evidence provided against the safety criteria and provide the part of the application dealing with the corporate obligations to the in-service regulator for a decision.[31] The in-service regulator will assess the ADSE's certification with respect to its corporate presence in Australia, its minimum financial requirements and its ongoing data recording and sharing capabilities. Provided both agencies accepted the respective sections of the statement of compliance, first-supply type approval would be granted by the first-supply regulator. The in-service regulator will work closely with the first-supply regulator to provide one assessment.

3.9.5 Potential guidance material issued by the regulator

The NTC agrees that the regulator should have a specific legislative power to create guidance material. This will remove any doubt as to whether the in-service regulator is able to do so.

The NTC notes FCAI's feedback that any such material should be developed in collaboration with industry and agrees that the in-service regulator should collaborate in this way. The NTC also notes some stakeholders' concerns with guidance material holding legislative force. The NTC notes that the HVNL requires an industry code of practice to be registered under the Act for it to be admissible in legal proceedings.[32] The NTC proposes a similar registration requirement for the AVSL, which will require the regulator to register any guidance material under the act for it to have legislative force. This requirement will enable the regulator to determine whether any material created should hold legislative force. The power will not mean that any guidance material will automatically have legislative force. The NTC expects that the in-service regulator will closely consult with industry in developing any guidance material.

The NTC notes stakeholder suggestions for what the guidance material may contain, noting that the in-service regulator will be best placed to determine the contents of guidance material. Guidance material may include providing additional information and guidance on prescriptive duties supporting the general safety duty. It could also include guidance on:

[31] The exact process is still to be determined.

[32] Refer to ss 705 and 632A of the *Heavy Vehicle National Law Act 2012* (Qld).

- developing safety management plans
- developing and distributing education and training materials
- relevant reporting requirements.

3.9.6 Offence of third-party interference with an ADS

The NTC agrees with stakeholders that there is a need to create a specific offence of third-party interference with an ADS. As highlighted by stakeholders, there is a high risk to an ADS and road users from third-party interference, and the application of existing frameworks is unclear.

The NTC recommends that any person not authorised by the ADSE or the in-service regulator that deliberately interferes with an ADS is guilty of a criminal offence. Interference can include, but is not limited to, modifications, repairs or the installation of an ADS to a vehicle.

The NTC agrees with the majority of stakeholders submitting that the offence should sit within state and territory law and be enforced by the states and territories. The NTC also notes feedback that the offence could sit within the AVSL if it is a state and territory applied law; however, given enforcement would still be undertaken by states and territories, it may still be more appropriate to sit within state and territory legislation.

Each state and territory should decide the relevant enforcement agency for the offence and the appropriate penalty. State and territories may also need to further consider existing criminal offences when a third-party interference offence is created.

3.9.7 Due diligence obligations on executive officers and the defence of reasonable reliance

The NTC confirms that due diligence obligations should only apply to the extent of an ADSE executive officer's influence, control and professional responsibility. The NTC is of the view that with the obligation limited in this way, the executive officer may still make decisions that are influential but reliant on information from other parties.

The NTC recommends a defence of reasonable reliance for executive officers. The NTC recognises strong industry support for this defence but also notes submissions highlighting the risk of it acting as a disincentive for executive officers to appropriately discharge their obligations. To address this risk the NTC recommends that the AVSL place the burden of proof on executive officers to prove that any contravention by an executive officer was a result of reasonable reliance on information given by another person.[33] Based on further discussions with government agencies, the NTC recommends tightly scoping the defence in the AVSL by including the following elements that must be considered by the court to determine if the defence is satisfied:

- 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.

[33] Refer, for example, to the *Anti-Money Laundering and Counter-Terrorism Financing Act 2006* (Cwlth) s 68(2)(a).

- 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.
- The reliance was in good faith.

The inclusion of these elements addresses the risk of executive officers negating or abdicating their responsibilities in exercising their influence over the safety of an ADSE.

The NTC notes stakeholder concern of such a defence resulting in no entity becoming responsible for a breach of the general safety duty. An executive officer that satisfies the elements of this defence will not abdicate the ADSE's responsibilities for a breach. The ADSE will always be liable for prosecution for a breach of the general safety duty.

3.9.8 A statutory cause of action

The NTC notes ACCC's and Maurice Blackburn's recommendation for including a statutory cause of action in the AVSL. The NTC recognises this a complex area of law that will require further consideration and targeted consultation. The NTC also notes that decisions relating to third-party motor accident injury insurance and compensation closely relate to a statutory cause of action. The NTC does not consider there is currently a case for a statutory cause of action, but we propose to reconsider the inclusion of a statutory cause of action, including undertaking targeted consultation after the conclusion of its work on motor accident injury insurance.

Recommendation 1:	The AVSL will include prescriptive duties to support the ADSE's compliance with the general safety duty as outlined in Box 2.
Recommendation 2:	The in-service regulator will assess new entities supplying new ADSs to the market for the first time against corporate obligations, in parallel to assessment of the ADS by the first-supply regulator, before type approval of the ADS.
Recommendation 3:	The AVSL will include a power for the regulator to develop and publish guidance material.
Recommendation 4:	The AVSL will include a defence of reasonable reliance for executive officers of the ADSE under their due diligence obligations. The defence will require the court to consider a number of qualifying elements as outlined in section 3.9.7.
Recommendation 5:	States and territories will establish 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 a disengaged ADS, to be enforced by states and territories.

4 Transfer of ADSE responsibilities

Key points

- ADSEs and the markets in which they operate will inevitably change over time.
- During the life of the ADS, some ADSEs may want or need to transfer their responsibilities for the ADS to another entity.
- The in-service regulator will manage the transfer of responsibilities for an in-service ADS by accrediting a new ADSE under the AVSL.
- The original ADSE will be required to prevent its in-service ADS from being engaged if there is no new ADSE to support it.

4.1 Purpose of this chapter

The purpose of this chapter is to:

- discuss the reasons why an ADSE may need to transfer its responsibility for an in-service ADS to another entity
- discuss the existing frameworks that are relevant to an ADSE transferring its responsibilities
- propose a regulatory framework for an ADSE to transfer its responsibilities for an in-service ADS to another entity.

4.2 Reasons for considering ADSE transferability

Previous NTC consultations indicated that an ADS would only be able to have one ADSE over its life. However, stakeholders raised questions about how an ADSE may transfer its responsibilities for an ADS to another entity if it became necessary. This issue was considered further in the discussion paper.

The first-supply framework will impose obligations on ADSEs to demonstrate their corporate presence in Australia, minimum financial requirements and their data recording and sharing capability. These obligations are intended to provide some assurance that an ADSE can support an ADS over its life and can be held liable in the case of an incident.

However, in a dynamic and competitive market it is common for corporations to experience changes such as market exit, significant changes in corporate structure, ownership changes, insolvency and the transfer of assets and liabilities between corporations. Transferring assets, liabilities, rights and responsibilities is common in many legal frameworks and supports flexible markets.

The AVSL will need to allocate liabilities so responsibility for the various duties under the law is clear and enforceable at all times (and cannot be avoided by corporate restructure). At the same time, to remain flexible the law should be able to accommodate foreseeable corporate practices such as those noted above.

As noted in chapter 3, it is important that there is always an entity responsible for an ADS to ensure that safety risks can be managed and that consumers are protected. In

circumstances where an ADSE is no longer able or no longer wants to fulfill its obligations with respect to an ADS, it would be necessary for these obligations to transfer to a new entity for the ADS to continue to operate safely.

Allowing the transfer of responsibility for an ADS that is already in service could:

- facilitate the entry of new types of potential ADSEs (e.g. fleet operators that are not manufacturers) by allowing companies to enter the market by assuming responsibility for ADSs already in service
- result in the continued operation of an ADS that would otherwise need to cease operation due to not having a responsible ADSE, providing more consumer certainty for products
- lower the barrier to entry by giving ADSEs a clear signal that there is a process to transfer their operations should they no longer want to, or are unable to, operate an ADS.

4.3 Existing legal frameworks that are relevant to an ADSE transferring its responsibilities for an ADS

There are existing frameworks that may cover some circumstances of transferring corporate legal responsibilities.

ASIC and the ACCC have regulatory responsibility for different elements of mergers, acquisitions, liquidations and voluntary administration. A new entity would be able to acquire or merge with the ADSE if it can undertake the necessary steps in the Corporations Act regulated by ASIC.[34] The ACCC may 'authorise' a merger when it is satisfied that the acquisition will not have the effect of substantially lessening competition in any market.[35] A merger does not depend on an authorisation from the ACCC, and parties are not legally required to notify it of a merger; however, the ACCC can investigate the merger and seek an injunction in the Federal Court (Australian Competition and Consumer Commission, 2017). 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 (Foreign Investment Review Board, 2020).

The Corporations Act provides the framework for voluntary administration and liquidation. The Act imposes a positive duty on directors to prevent insolvent trading by a company.[36] Consequences for insolvent trading include civil and criminal penalties (Australian Securities and Investment Commission, 2020a). A voluntary administrator will be appointed to take control of the company and hold all its powers, including the power to sell or close the company's business or sell individual assets (Australian Securities and Investment Commission, 2020b). If the company is subsequently liquidated, the voluntary administrator will become the liquidator and sell the assets of the company to pay the debts of creditors.[37] This could include selling the ADS to another entity.

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

[34] The process for mergers and acquisitions in Chapters 5 and 6 of the Corporations Act has many steps and can be undertaken several ways. An overview of the most common process, an off-market bid, can be found in s 632. Further detailed steps for an off-market bid are found in s 633.

[35] *Competition and Consumer Act 2010* (Cwlth) s 50.

[36] *Corporations Act 2001* (Cwlth) s 588G.

[37] The voluntary administrator could also sell the ADS to another entity during the voluntary administration process under a deed of company arrangement.

companies in situations not covered by the Corporations Act.[38] An ADSE selling its ADS and related intellectual property to a new entity would result in the ownership and control of the ADS by the new entity. Unless the sale is to a foreign entity or affects market competition, it is unlikely to fall under the remit of the mentioned regulators. It is likely that any contract of sale of the ADS would explicitly note any legal obligations related to the ADS such as compliance with a general safety duty.

Finally, under the first-supply framework, managing a change of type-approval holder is an administrative issue not requiring a reassessment of the new entity's ability to continue to support an in-service ADS. Instead, the first-supply regulator is seeking assurance of the new type-approval holder's ability to show conformity of production and the ability to meet type-approval conditions for new vehicles/components of the same type entering the market.

4.4 Proposed framework for an ADSE transferring its in-service ADS to another entity

The Corporations Act and the *Competition and Consumer Act 2010* (Cth) already allow the mechanics of mergers, acquisitions and change in control of ownership of a corporation. This legislation provides for the continued operation of an ADSE. The RVSA allows a change of type-approval holder. However, if a new entity purchases the ADS from an existing ADSE, it may not be subject to any regulatory approvals. This applies if the ADSE will continue to operate (e.g. if it continues to operate other ADSs it owns) or if it exits the market entirely.

The NTC considers that a new entity should be allowed to take on the responsibilities of an ADSE for an ADS. The NTC also considers that the importance of having ongoing responsibility for ADSs that affect the safety of road users, and the need for consumers to be protected, warrants a clear process under the AVSL for approving a new ADSE to take responsibility for an in-service ADS.

4.4.1 Transfer to a new entity

In the discussion paper, the NTC proposed three options for regulating the transfer of responsibilities for an in-service ADS from one ADSE to another.

Option 1: The in-service regulator accredits new entities against the first-supply corporate obligations

The NTC's preferred option in the discussion paper was that where a new entity wanted to take on a previous ADSE's responsibilities for an in-service ADS, it must first be accredited as an ADSE. The accreditation would consist of an assessment of the entity against the first-supply corporate obligations. These obligations are intended to provide some assurance that an ADSE can support an ADS over its life. They are also intended to assist relevant parties to appropriately assign criminal and civil liability for incidents. The obligations are the same as those for any new ADSE:

- corporate presence
- minimum financial requirements

[38] 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.

- ongoing data recording and sharing capability.[39]

As recommended in chapter 3, the in-service regulator will make this assessment for all new ADSEs entering the market.

Once accredited as the new ADSE, the entity would become subject to all relevant duties in the AVSL including the general safety duty. The in-service regulator should work with the new entity as it enters the market to ensure it can comply with its duties. This will most likely involve an audit of the new ADSE's safety management systems. Any issues with these would be dealt with through accountability against in-service duties rather than affecting the new ADSE's accreditation.

In circumstances where a notification requirement has been triggered (e.g. due to a merger or acquisition), it could be an offence for the original ADSE to allow the ADS to engage until supported by an entity that has been accredited by the in-service regulator. This is discussed further in section 4.6.3.

Option 2: The in-service regulator accredits new entities against the first-supply safety criteria and corporate obligations

This option would operate in the same way as the previous option, but the in-service regulator would only accredit the new entity if it could meet all the first-supply criteria about the safety of the ADS, as well as the corporate obligations.

As with option 1, in circumstances where a notification requirement has been triggered it could be an offence for the original ADSE to allow the ADS to engage until the ADS is supported by an entity that has been accredited by the in-service regulator.

Option 3: The risks of transferring responsibilities to new entities are managed through the general safety duty

Where an ADSE exits the market and a new entity takes on its responsibilities, the in-service regulator would work with the new entity as it enters the market to ensure it is able to comply with its duties, including the general safety duty. This could involve an audit of the new ADSE's safety management systems. The new entity would not undergo an assessment process but would automatically be accredited as the ADSE on the in-service regulator being notified of the transfer of the ADS.

4.4.2 Trigger for notification

The above options would need to be supported by an obligation on either the original ADSE or the new entity to notify the regulator of a proposal for ADSE transfer so it can continue to properly regulate in-service safety of automated vehicles. In the discussion paper, the NTC suggested that the AVSL could require that the ADSE notifies the in-service regulator of completed transfers or processes found in other relevant legislation. For example, during an off-market bid the ADSE would need to notify ASIC at certain times and could be required to notify the in-service regulator at the same time. Requiring ADSEs to notify the in-service safety regulator will avoid requiring the regulator to actively monitor corporate movements in the market itself, and instead focus on its key role of ensuring safety.

[39] A full description of data sharing obligations can be found in Appendix A.2.

4.4.3 Preventing an ADS from operating where there is no new entity to take on the responsibilities of an ADSE

The safety assurance framework for ADSs is premised on there always being an ADSE that is responsible for an ADS. The first-supply framework approves the ADSE's statements in respect of an ADS at first supply, and the general safety duty holds the ADSE responsible in service.

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 accredited, there is a risk that an ADS could operate on roads without an ADSE to support it. If this situation were allowed, it could result in serious risks for road users because the ADS will operate without any duty holder ensuring its safe operation.

The discussion paper suggested that in these circumstances DITRDC may issue a recall of the ADS under the RVSA. This could be dealt with by:

- the original ADSE ensuring its ADSs cannot engage where there is no responsible ADSE (it could be re-engaged once a new ADSE was found and accredited; this could be enforced under the first-supply framework or the in-service framework)
- a recall of the ADS by the first-supply regulator (a 'recall' could be a disengagement of the ADS as above).

This proposal is aimed at protecting the safety of road users; however, it also has a major impact on consumers. Preventing an ADS from engaging either temporarily or permanently would be a significant measure and would result in consumers not being able to use the functionality of automated vehicles they had purchased. Recourse under the Australian Consumer Law may prove difficult to obtain. This is discussed further in section 4.6.4.

4.5 Stakeholder feedback

The NTC asked stakeholders if an ADSE should be able to transfer responsibility of an ADS and, if so, their preferred option for regulating this process as outlined in section 4.4. We also sought views on whether the RVSA and Australian Consumer Law provide appropriate recourse when an ADSE exits the market and there is no entity to take responsibility for an ADS. Feedback is discussed below.

4.5.1 ADSE transferring responsibility for an in-service ADS to a new entity

Most stakeholders agreed that an ADSE should be able to transfer responsibility for an in-service ADS to a new entity. Reasons included:

- continued safety of road users
- consumer confidence
- not preventing or limiting innovation
- supporting emerging business models and market flexibility.

Only Toll did not support the transfer of ADSE responsibilities because it may dilute ownership of safety responsibilities. Toll considered the operation of the ADS may not be comprehensively understood by the new entity and accreditation was unlikely to provide sufficient safety assurance.

Some stakeholders raised concerns about an ADSE becoming insolvent. AAA considered the ongoing financial requirements for an ADSE were unclear. FCAI also noted that if an

ADSE was placed into liquidation, ongoing liabilities associated with the general safety duty owed by the ADSE might prevent it from being sold. ACCC submitted that the first-supply regulator should only approve entities with a very low risk of insolvency that are likely to be long-term participants in the Australian market.

4.5.2 In-service regulator's role in approving a transfer

While most stakeholders agreed an ADSE should be able to transfer its responsibilities, stakeholders provided differing views on the appropriate role of the in-service regulator. The majority of stakeholders submitting on this issue supported the NTC's preferred option (option 1) that the in-service regulator accredits new entities against the three first-supply corporate obligations (AMC, FCAI, LIV, Maurice Blackburn, a government agency). RACQ supported option 1 at a minimum, with the in-service regulator having the discretion to evaluate the new entity against all the first-supply criteria (option 2). Stakeholders submitted that option 1 provides clarity in responsibility (Maurice Blackburn), transparency in accountability (LIV) and ensures the new entity is aware of its obligations to the safety criteria and its compliance requirements (a government agency).

AAA and two government agencies proposed that the first-supply regulator should accredit new entities rather than the in-service regulator, with the two government agencies further specifying that the accreditation should cover all the safety criteria. Stakeholders considered it a duplication in roles for the in-service regulator to assess new entities when the first-supply regulator already has this role for ADSEs entering the market at first supply. Having the first-supply regulator accredit all entities responsible for an ADS (whether or not in-service) would help the first-supply regulator to maintain oversight and establish clear accountabilities between the regulators. AAA and a government agency considered the first-supply regulator accreditation would ensure consistent decision making, and a government agency further considered this would prioritise safety outcomes. A government agency also noted that the first-supply regulator should have the power to refuse the transfer.

4.5.3 Trigger for notification

A government agency supported a requirement for an ADSE to notify the in-service regulator of its intention to leave the market. Another government agency that considered the first-supply regulator should approve ADSE transfers suggested that the first-supply regulator should notify the in-service regulator of any approved transfers.

AAA submitted that the in-service regulator should actively monitor the market. A government agency suggested that the NTC consider appropriate mechanisms for maintaining ongoing oversight and monitoring of the financial stability of the ADSE in Australia.

4.5.4 Preventing an ADS from operating where there is no new entity to take on the responsibilities of an ADS

Submissions recognised DITRDC recalling an ADS under the RVSA may be an appropriate measure where there is no new entity to take on responsibility for an ADS, given the safety risk involved (AAA, ACCC, LIV, Maurice Blackburn, RACQ, TMR QLD and four government agencies). DITRDC noted that compulsory and voluntary recalls may be suitable tools as part of a risk-based approach to address significant, fleet-wide or systemic safety issues in ADSs. ACCC submitted that the in-service regulator is best placed to undertake recalls due to its specialist knowledge and expertise (rather than the ACCC). DITRDC, RACQ and TMR QLD noted that a recall should be the last resort option to manage safety.

Toll submitted that if an ADS is left without an ADSE, the ADS features should be disengaged. ACCC submitted that the AVSL could require that automated vehicles operate manually or return to a safe baseline level of automation if an ADS is disabled or becomes unsafe.

A number of stakeholders noted that consumers may seek compensation under the Australian Consumer Law in the case of a recall; however, ACCC did not consider the consumer law to be appropriate for providing recourse. This was because:

- consumers could seek a remedy such as a repair, replacement or refund if the automated vehicle was not of acceptable quality or fit for purpose, but it may be impossible to obtain if the ADSE is insolvent
- ACCC does not have a role in enforcing consumer guarantees and consumers would be required to enforce their rights individually against a trader in a court for financially significant claims and the onus would be on consumers to seek compensation
- barriers limiting access to justice means that in many cases consumers do not seek to enforce their rights due to associated costs and the need for legal representation.

FCAI submitted that consumers should be compensated by the in-service regulator.

An industry body noted there must be specific consumer protection for automated vehicle owners, and AAA suggested a detailed review of consumer protections to ensure consumers have confidence to purchase an ADS. RACQ suggested a review be conducted to assess whether access to service and repair information could be used by third parties to develop solutions to support abandoned ADSs and become the ADSE. ACCC suggested market solutions such as ADSE insurance or third-party intermediary service providers for continued support of an ADS in the event of insolvency.

Stakeholders also noted that state and territory road transport authorities should be able to suspend the registration of an ADS that is not supported by an ADSE. A government agency suggested widening the third-party interference offence to deal with liability in situations where the human user (deliberately or otherwise) manages to engage the ADS, regardless of it having been switched off. Another government agency considered it should be an offence for the original ADSE to allow the ADS to be engaged until supported by an accredited entity.

4.6 NTC conclusions

4.6.1 Accreditation of a new entity taking responsibility for an in-service ADS under the AVSL

Based on the stakeholder feedback and further analysis, the NTC recommends a process for allowing the transfer of responsibilities for an in-service ADS consisting of accreditation of new ADSEs against the first-supply corporate obligations by the in-service regulator (option 1).

While most stakeholders supported option 1, the NTC notes some stakeholders' proposal for the first-supply regulator to take on this role instead. The NTC believes it is best placed with the in-service regulator. As outlined in chapter 3, the in-service safety regulator will be responsible for assessing the first-supply corporate obligations for new ADSEs. By requiring the in-service safety regulator to approve ADSE transfers, it will mean assessment of these obligations for new ADSEs always sits with one regulator and removes any duplication of roles.

We consider the accreditation should consist of an assessment of the three corporate obligations and not the safety criteria as well. The ADSs the new entity will become responsible for will have already satisfied the first-supply criteria through the type-approval process. Only the entity is new and being assessed for the first time.

The NTC therefore recommends that the in-service regulator accredit any new entities taking on the responsibilities for in-service ADS from an existing ADSE. The in-service regulator will accredit the new entity against the first-supply corporate obligations, which are:

- corporate presence
- minimum financial requirements
- data recording and sharing.

Once accredited as the new ADSE, the entity would become subject to all relevant duties in the AVSL including the general safety duty. The in-service regulator should work with the new entity as it enters the market to ensure it can comply with its duties. The in-service regulator will have the power to refuse the application if the new entity cannot meet the accreditation requirements.

The in-service regulator will liaise with DITCRD on any accreditation decision, noting as well that DITCRD will need to be aware of a new ADSE associated with an existing type approval and transfer the type approval through its administrative process to the new entity if that entity is intending to supply new vehicles of the same type.

The NTC considers market solutions such as ADSE insurance or a third-party intermediary service providing continued support to an insolvent ADSE only appropriate if the entities are accredited. Any entity taking on the role of an ADSE must be able to demonstrate it can assure safety through meeting all its duties under the AVSL. An insurance firm or another third-party service taking over the responsibilities of an ADSE would effectively be an ADSE transfer. This is because a new entity will become the ADSE for an ADS and will be required to support the general safety duty. The new entity would need to be accredited by the in-service regulator to demonstrate to the regulator that it can satisfy the first supply corporate obligations.

4.6.2 Obligation on an ADSE to notify the in-service regulator of its intention to stop supporting an in-service ADS

The NTC recommends that the AVSL place a prescriptive requirement on the ADSE to notify the in-service regulator of its intention to stop supporting an in-service ADS. Placing a notification requirement on the ADSE will mean the in-service regulator will not need to use its resources to monitor the market for market changes such as the sale of an ADS or a merger, which would be outside its key role to oversee safety. A market notification requirement would also reduce the risk that a change of ownership is not observed by the in-service regulator. It is worth noting that market notification requirements can be found in other regulatory frameworks, providing visibility to regulators of relevant market events and actions by notifiers.[40]

Once the regulator receives the notification from the ADSE, it will then determine if it will need to accredit a new entity. If so, it will accredit the new entity as discussed in section 4.6.1.

[40] Refer, for example, to ASX Listing Rule 11.1 and 11.2 and ss 80–82 of the *Foreign Acquisitions and Takeovers Act 1975* (Cwlth).

The notification obligation in the AVSL will place a prescriptive requirement on the ADSE such as the below:

- The ADSE must notify the regulator in any circumstance where it will no longer be the responsible entity for 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
  - 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 accredited 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.

The prescriptive requirement could be supported by further regulations in subordinate legislation or within guidance material to assist the ADSE in complying with its notification requirements.

4.6.3 Disengagement of in-service ADS where there is no responsible ADSE

The NTC recommends including a prescriptive requirement in the AVSL that the ADSE must not allow for an ADS to be engaged without an ADSE to support it. This recognises the high risks to road safety of an ADS continuing to operate where there is no responsible ADSE to maintain safety of the ADS and meet the duties under the AVSL. Such a requirement may result in an ADS, or the automated functions that cannot operate without an ADS, being switched off before a recall is issued. For vehicles that can still operate manually, this may result in less market disruption compared with a physical recall. For example, if an ADS is switched off rather than recalled the owner may still use the vehicle in a manually operated mode without any or limited automated functions. In the event of a recall, states and territories may seek to cancel the registration of a vehicle with an ADS operating without an ADSE. The in-service regulator can work closely with states and territories by providing states and territories with information on unsupported ADSs and the in-service regulator's response.

DITRDC has advised that the relevant minister under the RVSA will be able to recall an ADS where no ADSE supports it (as a last resort enforcement option), as these ADSs will generally have entered the market through the first-supply type-approval process.[41] If the in-service regulator is notified by an ADSE that an ADS will cease to operate, the in-service regulator will need to notify DITRDC and work closely with the first-supply regulator on a recall of an ADS (recalls are further discussed in chapter 7). As highlighted by stakeholders and given limited consumer recourse, recalling an ADS should be a 'last resort' regulatory response.

The NTC acknowledges the risk caused by a human driver using an ADS even if it has been switched off by an ADSE. Such a risk is similar to risks identified in chapter 3 if the user makes a deliberate attempt to interfere with a switched-off ADS. The NTC agrees that the offence for third-party interference should be expanded to accommodate this action. The

[41] Refer to chapters 5 and 7 a discussion about recalls where the ADS has entered the market through the in-service framework.

NTC recommends that third-party interference includes human users who deliberately engage an ADS that has been disabled by an ADSE.

4.6.4 Consumer recourse for a disengaged ADS

Where an ADS is switched off due to there being no supporting ADSE, consumers may only be able to operate their automated vehicles in manual mode. For consumers whose automated vehicles have no manual controls, their vehicle may become unusable.

The NTC recognises that in instances where an ADS is disengaged due to no ADSE supporting the ADS, consumers may have limited recourse options. While consumers may still be able to seek recourse under the Australian Consumer Law, the NTC notes that the ACCC considers the Australian Consumer Law unsuitable in these circumstances.

To mitigate the risk of this scenario happening, the first-supply corporate obligations, including minimum financial requirements, require ADSEs to hold higher financial standards than conventional vehicle companies. These requirements aim to ensure ADSEs have the necessary resources to support an ADS over its entire life cycle.

However, despite higher financial standards, there remains a residual risk of an ADSE ceasing to operate, leaving consumers with an unusable ADS. The NTC considers the likelihood of this scenario occurring in the initial rollout of automated vehicles low. Historically, vehicle manufacturers are large global businesses with sustained and ongoing business models. In the rare instance of market exit, these businesses continued to provide ongoing support and services to consumers. However, it is unclear if the automated vehicle market will look like the conventional vehicle market and new business models may emerge.

The NTC considers the potential for further consumer protections for the scenario where there is no ADSE to support an ADS should be examined when there is a better understanding of the automated vehicle market. The NTC therefore recommends that this be considered in the first review of the AVSL.

Recommendation 6: The in-service regulator will have a power to accredit entities as ADSEs to take responsibility for existing in-service ADSs against the corporate obligations.

Recommendation 7: The AVSL will establish prescriptive requirements on the ADSE to: notify the regulator when it intends to significantly change corporate structure, transfer responsibilities for the ADS or is at risk of insolvency; and disengage an ADS it can no longer support, where there is no new ADSE.

5 In-service modifications and aftermarket installations

Key points

- In-service modifications may involve altering the driving system of a vehicle that is already automated or adding automation to a conventional vehicle.
- Modifications may introduce safety risks that the market will not eliminate or mitigate and that existing regulatory mechanisms may not adequately manage.
- Any regulation should minimise duplication and be consistent both within and between first-supply and in-service decision making. It should draw on international standards and also be responsive to local factors.
- A key issue to resolve is the respective roles of the first-supply and in-service regulators and which is best placed to be an effective regulator of in-service modifications.

5.1 Purpose of this chapter

The purpose of this chapter is to:

- discuss the reasons for considering modifications
- outline the types of modifications that could be made in service and the parties that would make them
- recommend a regulatory framework to support safe in-service modifications.

This chapter concerns in-service modifications to an ADS and aftermarket installations of ADSs to conventional vehicles. For brevity, the term ‘modification’ is used to refer to both where appropriate.

5.2 Reasons for considering modifications

The vehicle market is already experiencing business models that use in-service modifications as a way to increase automation in a vehicle. Examples include Tesla periodically updating its driving systems ‘over the air’ and the automated driver assistance systems sold by Comma.ai that consumers can install in vehicles themselves. With these services being available already despite limited take-up of low-level automated vehicles, and no mass-market deployment of high-level automation, it is likely that once the automated vehicle market matures, modifications will be a significant feature.

As with all ADSs, in-service modifications may also introduce safety risks that the market will not eliminate or mitigate and that existing regulatory mechanisms may not adequately manage. However, given the premise that automated vehicles offer safety benefits through minimising human error, the growth of modifications should not be seen only as a risk. Modifications and aftermarket installations also offer the opportunity to extend the safety (and productivity) benefits of automation by improving the effectiveness of ADSs or allowing them to be accessed without the necessity of buying a new vehicle.

The appropriate regulatory framework will strike the right balance between maintaining safety standards and providing access to the benefits of the technology.

In the discussion paper, we put forward a regulatory framework to address four categories of modifications:

- **modifications by an ADSE to an in-service ADSs** – modifications that increase the level of automation, expand the ODD significantly or in any other way significantly alter the functionality of an ADS that is already in-service
- **original equipment manufacturers (OEMs) installing an ADS** into their in-service conventional vehicles
- **ADS businesses installing an ADS** into an in-service conventional vehicle
- individuals installing or modifying an ADS.

It should be noted that physical or hardware modifications to automated vehicles are not considered. In the NTC's previous in-service safety consultation, stakeholders considered that the safety risks associated with physical or hardware modifications were better managed under existing frameworks that regulate registered owners of vehicles at the state and territory level.

5.3 Modifications by an ADSE to an in-service ADS

5.3.1 Activating a pre-approved ADS not considered a modification

An ADSE whose ADS has been approved by the first-supply regulator may have indicated that they intend the vehicles to be operated conventionally (or with limited automation) at first, and to switch on or increase the ADS functionality later when the vehicles are in service. The NTC does not regard this kind of activation as a modification because it would have already been approved by the first-supply regulator. The NTC considers safe activation should be managed by the ADSE under its general safety duty. The key point here is that the ADS has already been through the approval process, with the ADSE demonstrating safety of the ADS against the safety criteria.

5.3.2 Minor modifications

Modifications to an already approved in-service ADS will be undertaken by the ADSE. We expect that ADSEs will regularly update their ADSs – for example, through scheduled and ad hoc upgrades to fix bugs, make minor improvements and update cybersecurity settings. The NTC considers these types of modifications 'minor'.

The first-supply and in-service requirements already agreed by ministers envisage ADSEs managing certain modifications themselves, using the processes they have put in place to ensure any modifications maintain the safe operation of an ADS. For example, at first supply, the ADSE must demonstrate how they will manage system upgrade risks, including ensuring safety-critical upgrades are installed by users and do not result in an unsafe ADS. They must also declare their protections against third-party interference, including unsafe maintenance, repairs, physical modifications and other system failure. As well, they must demonstrate the ADS's ability to detect and minimise the consequences of cyber intrusions

and data security breaches, and the ADSE's processes for maintaining this ability over the life of the ADS.[42]

Under the general safety duty, the ADSE must ensure the safe operation of the ADS so far as is reasonably practicable. Specifically, the ADSE will have to take reasonable steps to ensure any modifications it makes are safe and prevent the ADS from functioning where unsafe modifications have been made by others. There is also an education and training obligation on the ADSE to provide information to relevant parties about the ADS. While this does not cite modifications specifically, the NTC considers (and many stakeholders have noted) that educating users and industry about the modification risks will be an important element of the ADSEs' responsibilities under the general safety duty.

In the discussion paper, the NTC proposed that minor modifications would not require a separate regulatory approval. Instead, the ADSE would be responsible for these modifications under the general safety duty. This would be reinforced by prescriptive duties to ensure as far as reasonably practicable that system upgrades are installed safely.

To assist the in-service regulator in supervising the conduct of the ADSE, there would also be a prescriptive duty to maintain records of all modifications, including minor ones.

The ADSE could also take responsibility for other parties undertaking modifications to its automated vehicle – for example, by approving authorised repairers and suppliers. However, the ADSE itself would remain the responsible party under the general safety duty.

5.3.3 Significant modifications

In the discussion paper, the NTC distinguished significant modifications from minor ones because of the greater safety risks that could be associated with the former. We defined significant modifications as those that expand the level of automation or change the ODD. The discussion paper proposed two options to manage significant in-service modifications made by an ADSE to their ADS, as outlined below.

Option 1: The in-service regulator has a regulatory approval function for in-service modifications (preferred option)

Under this option, the ADSE would need to seek approval from the in-service regulator for significant modifications. The in-service regulator would consider the modification against the first-supply safety criteria (i.e. the requirements that focus on the ADS, rather than the ADSE's corporate obligations).

If the ADSE was also modifying new vehicles of the same type, the in-service regulator's role would be to liaise with the first-supply regulator to obtain the details of its decision to vary or issue a new type approval, and take this into account when granting the approval for these modifications to be rolled out to the in-service ADSs of that type.

Option 2: The risks of in-service modifications to an ADS are managed through the general safety duty

Under this option, the ADSE would manage the safe rollout of significant modifications under its general safety duty. This would entail self-regulation by the ADSE but would be supported by a requirement on ADSEs to keep a record of all modifications. Due to the significant

[42] The safety criteria and obligations are set out in Appendix A. These are being incorporated into ADR 90/01 by the Commonwealth and as such may be subject to change.

safety implications of significant modifications, the NTC considered this option did not provide sufficient safety assurance for significant modifications but was appropriate for minor modifications.

5.4 OEM activating an ADS in a conventional in-service vehicle

The NTC considered the possibility that OEMs that already had type-approved conventional vehicles might want to activate an ADS in their vehicles while they are in service. This scenario differs from that described in section 5.3.1 where the OEM seeks to do the same but has already declared the ADS functionality at first supply.

The NTC proposed three options for regulation. We did not indicate a preferred option.

Option 1: Approval of the ADS by the first-supply regulator

This would prohibit activation of an ADS unless the OEM had gone through the first-supply approval process to become an ADSE for that vehicle type. This would involve the ADSE self-certifying against the safety criteria and corporate obligations,[43] and would result in all ADSEs going through the same regulatory framework to enter the market. On being approved, the accredited ADSE would become subject to the duties in the AVSL including the general safety duty.

Option 2: Approval of the ADS by the in-service regulator

This option would also require the entity to self-certify against the safety criteria and corporate obligations to become an ADSE; however, the approval would be given by the in-service regulator. The accredited ADSE would then become subject to the duties in the AVSL. The NTC suggested this option could support businesses that were not structured to manage the requirements of the first-supply RVSA framework, and could provide a more efficient approval pathway for parties such as vehicle manufacturers whose conventional vehicles had already been through the type-approval process; in other words, the in-service regulator would be more accessible while still applying the first-supply standards.

Option 3: Accreditation-only of the ADSE by the in-service regulator

This would focus only on the capacity and fitness of the entity – they would need to meet the corporate obligations only, and the ADS itself would not be assessed against the safety criteria. This would be a 'light touch' regulatory option, placing responsibility on industry and avoiding the need for the regulator to consider modifications case-by-case. The accredited ADSE would become subject to the duties in the AVSL.

5.5 ADS business installing an ADS to a conventional in-service vehicle

This scenario involves an ADS business other than the OEM seeking to automate conventional vehicles by installing an aftermarket ADS device. The discussion paper outlined the same three regulatory options as for OEMs installing an ADS, as outlined above.

[43] Noting the discussion in chapter 3 about assessment of the corporate obligations now sitting with the in-service regulator's functions.

5.6 Individuals installing or modifying an ADS

The discussion paper canvassed the possibility of private individuals seeking to install or modify an ADS and recommended that this not be permitted due to the unacceptable safety risks posed by unqualified installers.

5.7 Stakeholder feedback

5.7.1 Modifications by an ADSE to an in-service ADS

Approval by first-supply regulator

AAA considered that all modifications should be regulated by the first-supply regulator, whether in service or at first supply. They argued that this model would promote consistency in decision making, minimise regulatory complexity and overlap, be more cost-effective, and flexible in keeping up to date with international standards as they evolve. AAA indicated that it may be best to treat significant modifications as a new system, which would be the appropriate responsibility of the first-supply regulator.

Toll and two government agencies concurred that for consistency, cost-effectiveness and responsiveness, the first-supply regulator should approve modifications to in-service ADSs by the ADSE. These stakeholders considered the first-supply regulator the expert on the first-supply safety criteria. In addition, the Commonwealth as the first-supply regulator would be the most familiar with the development of international standards, which would increasingly form part of the regulatory system. The in-service regulator should concentrate on oversight of the ADSE rather than the actual ADS.

Approval by in-service regulator (option 1)

In contrast several stakeholders who commented on this issue favoured in-service modifications by the ADSE being the responsibility of the in-service regulator (option 1) (ACCC, FCAI, DITRDC, LIV, Maurice Blackburn, RACQ, SAFC, a government agency). Stakeholders noted the need for the regulator of modifications to be responsive to industry and considered that the in-service regulator would be more likely to be engaged closely with industry. It would be important to make the best use of industry expertise and to draw on knowledge of the compliance history of operators to take a risk-based approach to regulation.

ACCC noted the importance of the in-service regulator having a full range of powers in respect to in-service safety, including modifications, consistent with its general position that the in-service regulator should have oversight of all regulatory issues relating to the in-service safety of automated vehicles.

General safety duty (option 2)

In justifying their positions on modification approvals, stakeholders highlighted the risks involved. According to AAA, risks associated with modifying an ADS may be much higher than for conventional modifications because of the ‘potential for mass application’ (i.e. unlike with conventional modifications, a change to the ADS affects all the vehicles equipped with that system). ACCC saw aftermarket modification of automated vehicles as a potentially serious safety risk.

TMR QLD considered that to minimise red tape, in-service modifications by an ADSE should be decided by the ADSE itself and not subject to case-by-case approval by either regulator

(option 2). It would not be complete self-regulation; they would be accountable to the in-service regulator for these modifications under the general safety duty. TMR QLD suggested that to manage these risks the in-service regulator could implement an accreditation framework for ADSEs in which those with a stronger compliance history could be given greater autonomy with decision making on modifications. Further, TMR QLD suggested there could be requirements for reporting to the in-service regulator and providing regular updates on modifications.

Definition of significant modifications

One government agency urged that more work was needed to define 'significant modifications'. TMR QLD also commented that further work was needed on the definition of an ODD, and that there could be some ambiguity about the boundaries between automation levels.

Other stakeholders appreciated that the modifications in question were those that altered levels of automation or changed the ODD. Stakeholders also commented that it would be challenging for industry and regulators to identify the threshold between minor and major modifications given the infancy and novelty of the automated vehicle industry. It was noted that further work was required on the practical interpretation of ODD. For the levels of automation, there could be some ambiguity around SAE level 3, both in respect to the transition from level 2 and upgrades to level 4.

Interaction with first supply

One government agency queried the reference in the discussion paper to the in-service regulator 'taking into account' decisions by the first-supply regulator where both new and in-service ADSs of the same type were being modified, and asked in what circumstances the regulators' decisions might differ. The issue of consistent decision making is addressed in section 5.8.7.

AAA noted that DITRDC was also consulting on draft ADR 90/01 (which incorporates the first-supply safety criteria). AAA sought clarity on whether the first supply and in-service frameworks would align with respect to allowing modifications that expand the ODD of an in-service ADS.

5.7.2 OEMs activating an ADS

Several stakeholders recommended that the first-supply regulator be responsible for regulating the modification or installation of an ADS by parties that are not ADSEs. The rationale was that unlike modifications by ADSEs, these parties would not have gone through the first-supply process to enter the market (AAA, FCAI, LIV, Maurice Blackburn, a government agency).

RACQ suggested that responsibility for managing these modifications could sit initially with the first-supply regulator then transition to the in-service regulator as the system matures; and one government agency was open to considering this 'transition' option.

Toll considered that ADSs were so complex that no party should be permitted to install an ADS in service but only through the approval of a new vehicle.

5.7.3 ADS businesses installing an ADS

As noted above, stakeholders mostly supported these installations being subject to approval by the first-supply regulator.

FCAI was sceptical about whether any party other than the OEM would choose to take on the risk and liability of becoming an ADSE. For the OEM, the risk would be mitigated by its corporate knowledge of the ADS and the vehicle as a whole. Other parties, however, would have to manage a much greater level of uncertainty in becoming the responsible entity for a vehicle manufactured by someone else. Toll commented that, currently, the main sensor-based safety systems like airbags and electronic stability control are not available as aftermarket installations and are not upgraded in service. TMR QLD predicted that manufacturers would seek to establish vertically-integrated control of the modifications business so it was carried out only by themselves or those they accredit. Gas Energy Australia expressed concern that OEMs might restrict competition with aftermarket installation of ADSs in this way.

RACQ commented that it was impossible to know at this time if any parties other than OEMs would to seek to carry out modifications and that the issue should be monitored.

IAG argued that ADS businesses wishing to install aftermarket ADSs should apply to the in-service regulator and, if approved, would become ADSEs for aftermarket systems, and be accountable for the same safety criteria that apply at first supply.

FCAI emphasised that the modifier of the ADS would become the new ADSE, and that this was appropriate – to provide clear accountability under the general safety duty, there should only be one ADSE at a time for any given ADS. FCAI, however, favoured the in-service regulator as the approver for these modifications.

5.7.4 Individuals installing or modifying an ADS

There was agreement that individuals should not be permitted to install or modify ADSs, and that this should be restricted to ADSEs due to unacceptable safety risks from unqualified installers. Some stakeholders also considered that ADSEs could accredit third parties to undertake modifications. IAG indicated that individuals ‘should only be able to install aftermarket kits through a licensed supplier’ and that it should be an offence for anyone other than an ADSE to make such modifications.

Some stakeholders emphasised the difficulty of preventing individuals from modifying the software-based elements of vehicles (just as unlicensed ‘backyard’ modifications of conventional vehicles are difficult to regulate). RACQ noted that some consumers were bypassing the speed limitations on e-scooters by changing the designated country of use. Project 412 commented that Tesla currently update its driving systems in a way that completely avoids government regulation. Maurice Blackburn recommended that in addition to the general safety duty applying to ADSEs there should be a prescriptive offence for other parties such as owners who fail to install or interfere with upgrades.

5.7.5 Other issues

The market is still developing

Some industry and government stakeholders noted the difficulty of developing policy for the regulation of automated vehicles (including modifications) given that the industry is so new, technology is changing, and there are no mature automated vehicle markets in other jurisdictions that can provide models and precedents.

Consistency between in-service and first-supply regulation of modifications

Stakeholders considered that in-service modifications should be subject to the same standards that apply to type approval by the first-supply regulator. While stakeholders had

different views on the best way of achieving this goal, all supported the objective and identified it as one of the main regulatory challenges.

Stakeholders also noted that modifying an existing ADS or installing a new one effectively introduced a new vehicle into the road system by creating a new driving system. Consequently, the modifier would become the ADSE responsible for the 'first supply' of the vehicle's driving system, even though the ADS or vehicle itself was already in the country.

The NTC notes that a consistent approach does not mean that decisions would always be exactly the same without exception. In particular, with older in-service automated vehicles, the in-service regulator may have to consider if the risk profile for the vehicles has altered significantly since first supply – for example, due to the age of the fleet. DITRDC also noted the in-service regulator's greater oversight of 'wear and tear' of vehicles. We agree that consistency would be the general rule but anticipate there may need to be exceptions from time to time.

Oversight of manufacturers

IAG expressed concern that self-certification by manufacturers was not sufficient and should be supported by regulatory oversight through random audits and spot checks by the in-service regulator. IAG indicated that as insurers they had observed manufacturers leaving out safety features, breaching self-certification criteria (triggering recalls) and supplying technology designed for overseas markets that does not perform adequately in Australia. IAG argued that self-certification at first supply was unlikely to provide sufficient assurance and therefore the in-service regulator would need to be highly vigilant. For example, there may be a need for frequent retesting of technology. DITRDC suggested that the NTC considers mandatory reporting of modifications.

Consumer protections

AAA commented that in addition to transport-specific regulation, general consumer protections applying to goods and services would also be an important part of the regulatory system for modifications, and these needed to be clarified. AAA indicated that consumer protections should be at the more exacting standard that applies to high-value goods. As noted in the previous chapter, consumer protections will be considered further in a subsequent phase of the NTC's work.

Impact of physical modifications

SYSTRA commented that many common physical modifications to conventional vehicles, such as adding more storage space, could affect the operation of the vehicle and consequently the operation of its ADS.

5.8 NTC conclusions

5.8.1 Modifications by an ADSE to an in-service ADS

Definition of 'significant modification'

The NTC acknowledges the challenges of regulating sectors in which standards and practices are less mature than with established technologies. The more automation levels and ODD concepts are refined internationally, the less challenging it will be to determine whether a modification is significant enough to warrant additional regulatory oversight. Over time, it will be essential to make use of all the relevant international standards that are

available (e.g. standards on diagnostic equipment and software traceability). In the meantime, there are broadly used definitions incorporated into standards like SAE International J3016, from which the condensed definitions of ODD and the levels of automation are derived in chapter 1.

The NTC has broadened the definition of significant modification since the discussion paper. The NTC recommends that a significant modification will be defined in the AVSL as those one that:

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

5.8.2 Prescriptive requirement to keep a record of all modifications to an ADS

In addition, regardless of whether a modification is significant or not, the NTC is recommending a prescriptive requirement on the ADSE to keep a record of all modifications it makes to its in-service ADS. This will give the regulator oversight of all modifications, regardless of whether the ADSE has notified the regulator or not, as it enforces the continuing general safety duty. This will also place less regulatory burden on ADSEs than a requirement for mandatory reporting of all modifications.

Significant modifications require regulatory approval

In the NTC's view, significant modifications to an ADS create a substantial change in the automated vehicle's risk profile, and therefore self-management under the general safety duty is insufficient. The NTC is therefore recommending ADSEs wanting to undertake a significant modification to their in-service ADS must show how their modification meets the first-supply ADSE safety criteria (option 1 of the discussion paper) before introducing the modification. We note that approval of significant modifications would still be through the self-certification method, which is intended to minimise the administrative burden of compliance. The NTC considers that it should be the in-service regulator that manages this framework – reasons for this are discussed further at section 5.8.6.

5.8.3 OEM installing an ADS to a conventional in-service vehicle

The NTC considers that aftermarket installation scenarios are not identical in terms of risk. A vehicle manufacturer is likely to have the expertise and resources, and specific knowledge of the vehicle. This greater degree of knowledge and other kinds of corporate capacity (e.g. risk management practices) would be expected to mitigate the risks to the greatest degree.

Nevertheless, the ADS activated by an OEM in service would be a new ADS in the market that has not already been approved by the first-supply regulator. The NTC considers that these kind of modifications are too high risk to be managed under a general safety duty alone (option 3 of the discussion paper) but require approval from a regulator (options 1 or 2) against the first-supply safety criteria, just as would be required of any new ADS to the market.

As the vehicles in question are already in service rather than going through a first-supply type-approval process, the NTC considers that the in-service regulator is best placed to assess such modification proposals. Further detail is given in section 5.8.6. In addition, the OEM would also need to meet the first-supply corporate obligations and be accredited by the in-service regulator as the ADSE.

5.8.4 ADS business installing an ADS to a conventional in-service vehicle

ADS businesses wanting to install an ADS to a conventional in-service vehicle would be expected to have a high level of technical expertise and organisational capacity. Similar to OEMs in the above scenario, the NTC considers they must be willing to take on the risk of becoming an ADSE and fulfilling an ADSE's responsibilities under the general safety duty. The NTC also considers that they should be subject to the same approval process as OEMs: demonstrating that the installation of their ADS into specified conventional vehicle types can meet the first-supply safety criteria, and that they can meet the ADSE corporate obligations.

5.8.5 Individuals installing or modifying an ADS

The NTC considered that the greatest risk would come from private individuals installing aftermarket ADS kits themselves, who would be unlikely to have the knowledge to identify and adequately address safety risks such as managing cybersecurity risks or failure of the ADS to function properly by regularly updating software. The NTC proposed that due to this risk, individuals should not be allowed to install aftermarket kits to vehicles. This will be addressed through the offence of third-party interference and the requirement for installers to be accredited, which will include meeting corporate obligations like a corporate presence in Australia.

5.8.6 Significant modifications to in-service ADSs and installations of ADSs to conventional vehicles by other parties: which regulator?

The main question in our view is whether these modifications should be subject to approval by the first-supply or the in-service regulator. As noted above, the NTC recommends the in-service regulator has the approval function for the types of modifications discussed in this chapter.

We acknowledge there would be some advantages to these approvals being managed by the first-supply regulator:

- Consistency of decision making against the ADS safety criteria may be easier to ensure if one agency has this responsibility.
- It provides a 'one-stop shop' approach for ADSEs and OEMs wanting regulatory approval for modifications to both new and in-service vehicles.
- DITRDC has oversight of international standards development and is therefore better placed to keep Australian modifications standards up to date.
- According to one view, significant modifications entail the first supply of a new ADS (even though the vehicle was already in the country) and are therefore the appropriate responsibility of the first-supply regulator. As for aftermarket installations by both OEMs and ADS businesses, these also essentially supply an ADS to the market for the first time.

The NTC recognises that in the submissions to the discussion paper most stakeholders who expressed a view on this issue considered that the first-supply regulator should manage in-service modifications mainly for the reasons summarised above. Further targeted consultation with government stakeholders, however, has seen a shift in stakeholder views towards giving the in-service regulator a greater range of powers and oversight of these modifications as recommended in the discussion paper.

On balance the NTC concludes that the responsibility for managing in-service modifications should sit with the in-service regulator. Our rationale is:

- Modification and installation of ADSs are expected to be a significant part of the conduct of ADSEs as they manage the in-service deployment of ADSs. We expect modifications and installations of ADS software to occur quite frequently.
- The agency regulating modifications will need to be actively engaged with and responsive to industry, consumers and other stakeholders on a day-to-day basis.
- These stakeholders will deal with the in-service regulator (rather than first-supply regulator) about ongoing issues with automated vehicles and will expect it to have an adequate range of powers to deal with matters as they arise, including modifications. The more gaps there are in the in-service regulator's powers, the more confusing and burdensome for stakeholders.
- ADS businesses seeking to provide aftermarket installation may not be familiar with the process of applying for type approval at importation and may find the in-service framework, which is targeted to automated vehicles, more accessible.
- DITRDC's expertise is with point-in-time assessment of vehicle standards, whereas modification approvals are more about the ongoing supervision of conduct by a corporation.
- While it is true that currently DITRDC is the source of expertise on vehicle standards, the in-service regulator is going to have to be an expert on these matters too if it is to supervise ASDEs, regardless of how responsibility for modifications is allocated.
- Consistency of decision making between first-supply and in-service approvals is essential, but this can be managed by the two regulators working closely together.

5.8.7 Other issues

Impact of physical vehicle modifications

In response to SYSTRA's comments on the potential impact of physical vehicle modifications on automated vehicle sensors, the NTC considers that this issue highlights the need for the in-service regulator to work closely with industry consumers and states and territories to raise awareness of the interaction between ADSs and conventional repairs. Under the general safety duty, ADSEs will also have responsibility for educating stakeholders about modification risks.

Need for collaboration between the two regulators and a consistent policy

Given there will be two regulators responsible for the system, regulating modifications (as with other regulatory issues outlined in this paper) will require the first-supply and in-service regulators to work together closely.

The NTC expects that it would be unusual for modification decisions of the in-service regulator to differ from those of the first-supply regulator (where ADSs under an existing type approval are modified prior to the new vehicles entering Australia). We envision that this would only occur as a result of safety standards evolving over time (subsequent to first-supply approval). Or, in certain instances, the age of the in-service vehicle fleet may create different safety considerations. This is why the discussion and policy papers refer to the two regulators taking a consistent approach, rather than strictly deciding each point in the same way all the time. The policy setting is for consistency, recognising that standards evolve and that decisions have to be justifiable in current circumstances.

Collaboration can achieve consistency in decision making and minimise double-handling from an industry perspective. Unless there is to be a single regulator, which no stakeholder is proposing, regulatory responsibilities are best allocated according to agency capacity and

fit with the agency's other responsibilities. The NTC believes the model indicated in this chapter is, on balance, the best solution from this perspective.

In order to further clarify the roles of the two regulators for the types of modifications discussed in this chapter, we have provided process flowcharts illustrating the recommended roles, interactions and approval pathways for modifications (Figures 4 to 6).

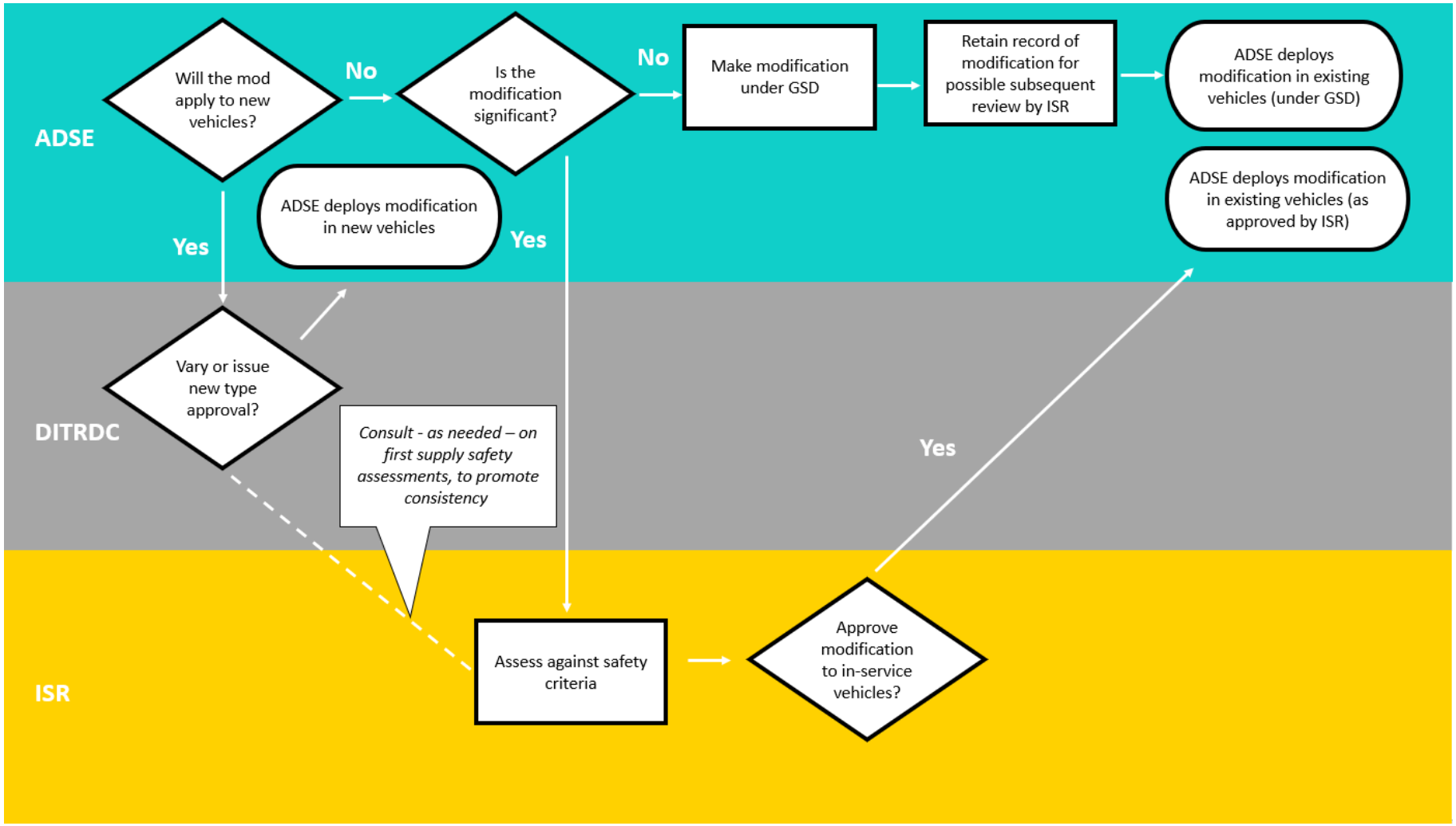
Recommendation 8: The in-service regulator will have a power to approve significant modifications by ADSEs (that increase the automation level, significantly increase the ODD or otherwise significantly alter the functionality of an in-service ADS), based on self-certification against safety criteria.

Recommendation 9: The AVSL will establish a prescriptive requirement on ADSEs to maintain records of all in-service modifications that it implements in relation to its ADSs.

Recommendation 10: The in-service regulator will have a power to accredit entities as ADSEs against corporate obligations and approve their aftermarket ADSs for activation or installation to in-service conventional vehicles, based on self-certification against safety criteria.

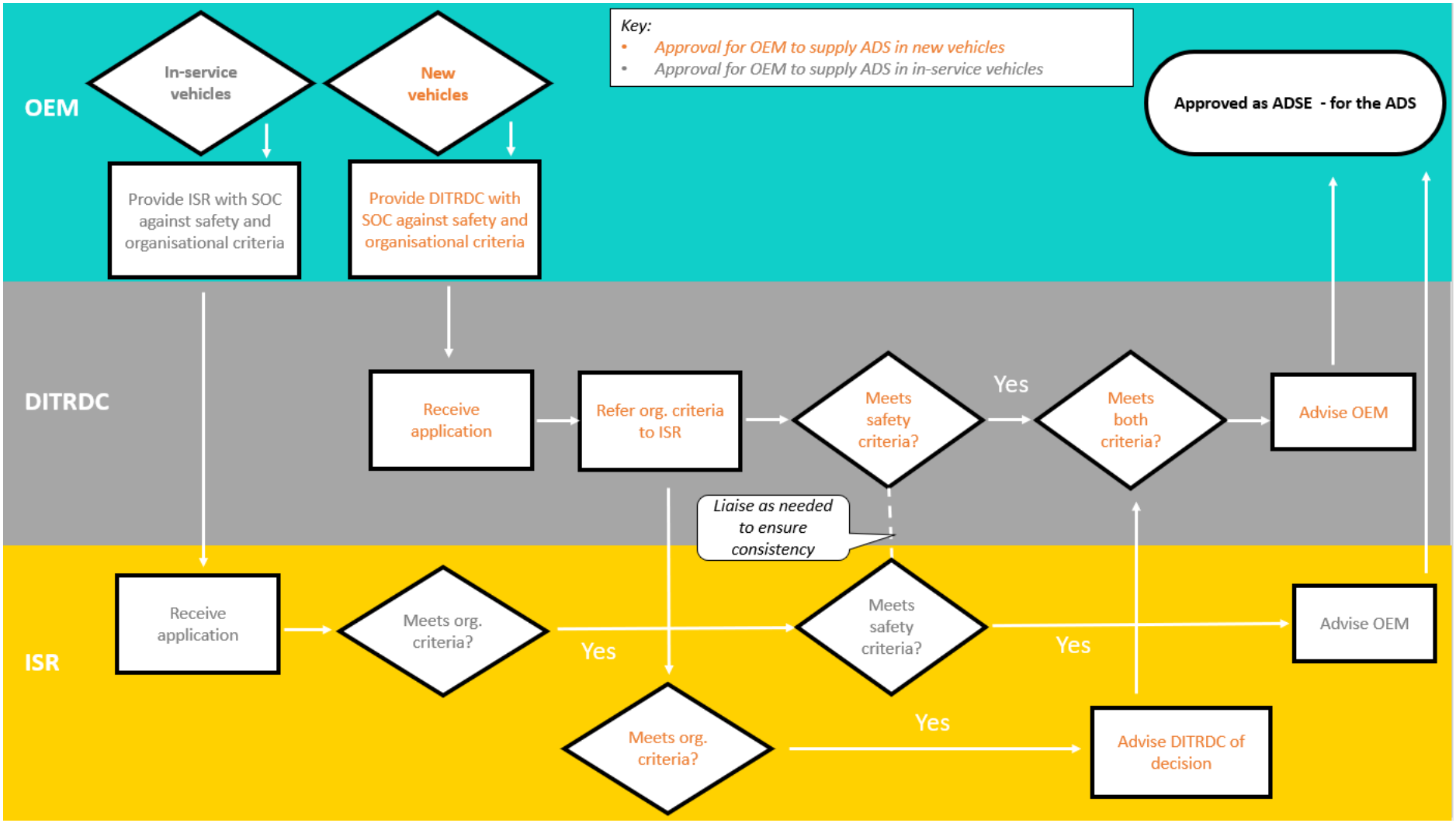
Recommendation 11: The in-service regulator and first-supply regulator will liaise on approval decisions regarding modifications to promote consistency.

Figure 4. Modification by an ADSE to an in-service ADS



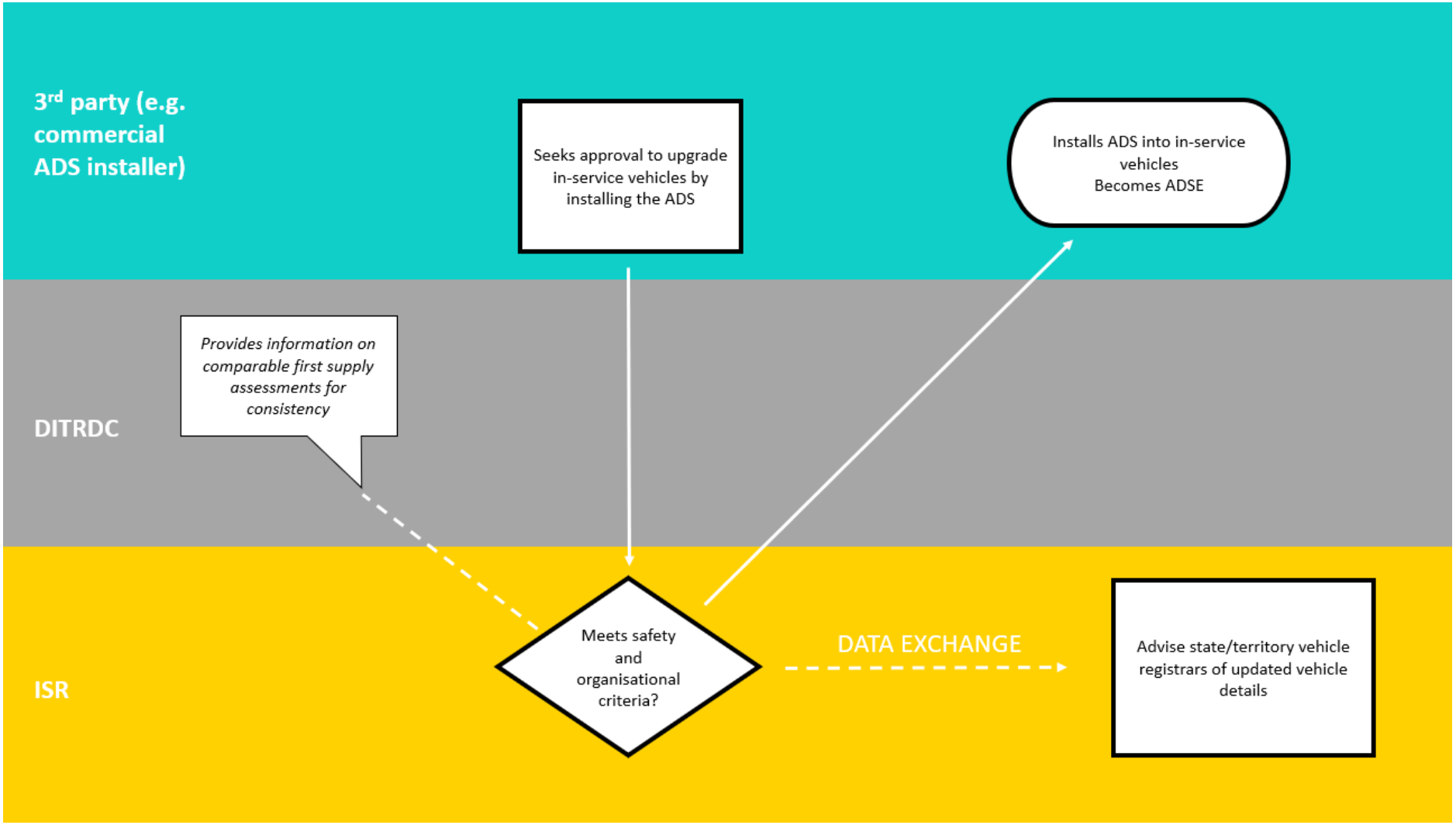
GSD = general safety duty; ISR = in-service regulator

Figure 5. OEM activating an ADS in a conventional vehicle



ISR = in-service regulator; SOC = Statement of Compliance

Figure 6. ADS business installing an ADS in a conventional vehicle



6 Functions of the in-service regulator

Key points

- The in-service regulator will need to perform a range of functions to effectively regulate in-service safety.
- Uncertainty around the size, nature and growth of the automated vehicle market supports establishing a regulator that can scale up over time.
- The regulator's functions include monitoring, education/guidance, enforcement, engagement with states and territories, research, creating standards, customer service, reporting, crash investigation, accreditation and regulatory approvals.
- Some of these functions will be phased in over time as the automated vehicle market grows and the scope of the regulatory task increases.

6.1 Purpose of this chapter

The purpose of this chapter is to:

- identify the in-service regulator's functions
- identify the functions that will be required when the regulator is first set up and those that can be phased in over time
- identify key matters relevant to setting up the regulator.

6.2 Functions

In 2019, the NTC consulted on governance arrangements for the in-service safety of automated vehicles, including the functions and powers that a regulator would need.[44] Based on stakeholder feedback and analysis, a broad range of functions and powers were identified as necessary for the in-service regulator to effectively regulate the in-service safety risks of automated vehicles.[45]

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 full life cycles. The functions discussed in this chapter will need to be supported by a range of obligations on ADSEs and other entities.

[44] Refer to the NTC's *In-service safety for automated vehicles: Consultation Regulation Impact Statement:* (July 2019) available from https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Consultation%20RIS%20-%20In-service%20safety%20for%20automated%20vehicles.pdf.

[45] Refer to the NTC's *In-service safety for automated vehicles: Decision Regulation Impact Statement:* (June 2020) available from https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Decision-RIS-In-service-safety-for-AVs.pdf.

When the AVSL is drafted, these functions may be specified individually or outlined as high-level objectives. Some functions could be mandatory, while others could be permitted but left to the discretion of the regulator.

The functions identified in the decision RIS are outlined below.[46]

- **Monitoring**. Where a general safety duty applies, the obligation is on the ADSE to identify, manage, mitigate and, where possible, eliminate safety risks. A key function that the regulator performs is to ensure the regulated party has systems in place to address safety risks. The monitoring function would need to be supported by prescriptive duties on regulated parties (e.g. to maintain certain information) and appropriate powers (e.g. to request and compel information). These are discussed in chapter 7.
- **Education and guidance**. Automated vehicle technology is new, and the in-service safety duties to be imposed on regulated parties are unfamiliar. A key function of the regulator will be to disseminate information that assists regulated parties to comply with their duties.
- **Enforcement**. A key function of the in-service regulator is to enforce compliance with the AVSL and any regulations made under that law. This will include the exercise of a range of investigation and enforcement powers. These are discussed in chapter 7. The AVSL should also provide for the regulator to do all things incidental to or conducive to the performance of any of its functions,[47] and a specific power to collect, access, use and disclose information. This would enable the regulator to enter into memorandums of understanding (MOUs) with other agencies.
- **Engagement with states and territories**. The in-service regulator will need to work collaboratively with states and territories to achieve a nationally consistent approach to in-service safety, ensure clarity of roles, and understand local and emerging issues impacting on the effectiveness of the in-service regime.
- **Research**. The in-service regulator's research function could include monitoring trends in automated vehicle safety and use, researching the causes and incidence of automated vehicle crashes, analysing information it receives from ADSEs regarding notifiable safety events or safety systems, and monitoring overseas regulatory developments.
- **Creating standards**. The in-service regulator may need to create standards to clarify requirements for regulated parties.
- **Customer service**. The in-service regulator will need to perform any necessary customer-facing administrative services (responsibility for these services may be shared with other entities).

Four further potential functions were identified in the discussion paper:

- **Reporting**. The in-service regulator should report to its responsible minister(s) on the operation of the AVSL including, for example, the extent to which the object of the law is being achieved and the extent and nature of noncompliance with the law.
- **Crash investigation**. State and territory police investigate road crashes, and this role would continue. However, there may also be a role for the in-service regulator to assist given its expertise regarding automated vehicles, particularly in the early stages of deployment. In addition, the in-service regulator could investigate systemic issues relevant

[46] Further detail on these functions can be found in the discussion paper.

[47] This type of power is standard in legislation establishing a regulator – refer, for example, to paragraph 658(1)(c) of the National Heavy Vehicle Law (Queensland) 2012.

to automated vehicles, which go beyond examining proximal causes. There is also the potential for a broader systemic no-fault investigation function undertaken by an independent investigator. This could be undertaken by an existing specialist agency such as the Australian Transport Safety Bureau (ATSB), with cooperation between the ATSB, the in-service regulator and police.

- **Accreditation**. Chapters 4 and 5 describe the NTC's recommended approach to managing the transfer of ADSE responsibilities and aftermarket installation of ADSs by entities other than ADSEs. Under the recommended frameworks, the in-service regulator would accredit these new entities as ADSEs before they entered the market (against the three corporate obligations).
- **Regulatory approvals**. Chapter 5 sets out the NTC's recommended approach to different types of in-service modifications and aftermarket installations. Under the recommended framework, the in-service regulator would assess an ADSE or other entity's self-certification about the modification against the first-supply criteria and provide a regulatory approval before the modification or installation takes place.

6.3 A scalable regulator

The nature and projected growth of the automated vehicle market in Australia is uncertain; however, it is reasonable to assume that initially the commercial deployment of automated vehicles in Australia will be limited. If the market comprises a small number of ADSEs initially, the size of the regulatory task to be performed by the in-service regulator will be smaller and it would be efficient to have a smaller regulator. The size of the regulator will need to be scalable as the regulatory task grows and evolves.

Following commencement of the AVSL, the NTC anticipates that the focus of the in-service regulator would be on working collaboratively with regulated entities to identify and resolve safety issues as they arise. The AVSL would provide the in-service regulator with the ability to take punitive action against regulated entities if required. But we expect that, particularly in the period immediately following the commencement of the AVSL, the in-service regulator's focus would be on achieving safer outcomes in collaboration with ADSEs.

6.3.1 Functions that the regulator is likely to undertake immediately

The NTC expects that the in-service regulator will perform some functions immediately following commencement of the AVSL – for example, monitoring, enforcement, education/guidance, research, engagement with states and territories and serious crash investigation (in cooperation with state and territory police). The regulator will work collaboratively with regulated entities to achieve safety outcomes on commencement of the AVSL, and be able to take enforcement action if necessary. The AVSL would also provide the in-service regulator with the ability to delegate functions and to enter into agreements with other agencies for the performance of critical functions in the early stages of commencement. The regulator would also develop a strategy and timetable for phasing in other elements of its functions. This will include consideration of the resource implications of the timetable.

6.3.2 Functions of the regulator that are likely to be introduced over time

As the regulatory task to be performed by the in-service regulator increases, either through an increase in functions or in the size of the community to be regulated, the regulator will scale up its monitoring, enforcement, education/guidance and research activities. Other functions that the in-service regulator will begin to perform over time include developing

standards and rules, reporting, accrediting ADSEs and regulatory approvals for modifications.

6.4 Setting up a new regulator

Preliminary consultation with agencies involved in setting up a regulator indicates that many operational and legal matters must be worked through before the regulator can begin performing even a limited range of functions. This would include, for example:

- intergovernmental agreements, MoUs and other related requirements
- funding of the regulator
- mapping and formulating business requirements for specifying IT systems
- developing IT systems and establishing databases with the necessary interfaces with other databases
- developing service-level agreements for corporate support functions
- processes to hire staff with the right mix of skills and capabilities to support the functions to be performed by the regulator
- legislative and operational processes to appoint the head of the regulator (e.g. managing the recruitment process for the role of the head, obtaining relevant ministerial approval to the appointment and managing the proclamation process and gazettal for appointment).

This is not an exhaustive list. Establishing the in-service regulator will require a dedicated project team or a project office to manage these issues in the period before commencement. The structure of the project and funding arrangements for the team will need to be considered further once the functions and powers of the in-service regulator have been determined. It is proposed that the project team be set up ahead of the commencement of the AVSL so that the physical, operational and legal infrastructure for the new regulator is in place from the date of commencement. Accountable officials for the in-service regulator may need to be appointed ahead of the commencement of the regulatory scheme to develop regulations and operational policies that form part of the framework in parallel with setting up the regulator.

6.5 Stakeholder feedback

The NTC sought stakeholder feedback on the additional functions identified for the in-service regulator:

- reporting
- crash investigation (for enforcement, with a specialist agency like the ATSB to undertake no-blame investigations)
- accreditation
- regulatory approvals.

The NTC also sought feedback on whether there were other purposes for which accreditation should be used in the in-service framework. The NTC also asked whether stakeholders agreed with the functions the regulator is likely to perform initially.

6.5.1 Additional functions the regulator may need to undertake

Reporting

All stakeholders that submitted on this issue agreed with the regulator having a reporting function. RACQ recommended that reporting requirements be legislated to mitigate the risk of reports becoming politicised. A government agency noted that mandatory reporting will either be to the relevant Commonwealth minister or to the Infrastructure and Transport Ministers' Meeting, depending on the legislative implementation approach for the AVSL. A government agency submitted that disclosure logs and reports from crash investigations, noncompliance and breach of accreditation should be made public to ensure consumer safety (this is also noted in chapter 3).

Crash investigation

Most stakeholders supported the in-service regulator undertaking a crash investigation function for enforcement purposes, with the ATSB undertaking no-blame investigations (AAA, AMC, FCAI, HI IoT, IAG, LIV, Maurice Blackburn, RACQ, SAFC, SYSTRA, Toll, TMR QLD, an industry body, two government agencies, a government body). SYSTRA suggested including near misses in reporting. A law enforcement agency noted it is important to clearly distinguish that police remain the primary collision investigator, with assistance to be provided by the in-service regulator. DITRDC considers 'no fault' investigations of automated vehicle safety incidents should be explored. A government agency submitted it would not be appropriate for the in-service regulator to investigate all crashes involving automated vehicles, particularly as the vehicle fleet remains mixed and the national regulator will take some time to upskill. A government agency also noted the importance of cooperation and collaboration between the ATSB, the in-service regulator and state and territory police for crash investigators. TMR QLD noted the importance of leveraging the technical skills and experience of third parties such as the ATSB. A government agency submitted interest in understanding if the in-service safety regulator will be able to supply expertise to states and territories for high-priority investigations similar to how the ATSB and Civil Aviation Safety Authority provide expertise for crash investigations.

Accreditation

Most stakeholders supported an accreditation function for the in-service regulator, agreeing that this will be needed to approve ADSE transfers. A government agency did not support an accreditation function given its disagreement with the in-service regulator managing ADSE transfers (further discussed in chapter 4). FCAI noted that an in-service accreditation should not differ from a first-supply accreditation.

The NTC also asked stakeholders whether there were other purposes accreditation might be used for. Stakeholders provided limited feedback on this. TMR QLD submitted that the regulator should be responsible for managing a holistic accreditation framework. This framework would ensure ADSEs are fit and proper and would include an element of organisational approval (the NTC notes the recommendation in chapter 3 that the in-service regulator now assesses the corporate obligations at first supply). TMR QLD noted a range of benefits associated with accreditation including flexibility in deployment and business models, administrative enforcement action and a mechanism to charge fees.

Other purposes for the accreditation function suggested by stakeholders were:

- servicing, maintenance and education (RACQ)
- managing compliance, ownership and responsibility for in-service vehicles (a government agency)

- repairers and remote operators (a government agency).

Regulatory approvals

Most stakeholders supported a regulatory approvals function for the in-service regulator so it can approve significant modifications.

AAA, TMR QLD and a government agency did not support the regulator having a regulatory approval function. TMR QLD did not support this (in line with its view that significant modifications are dealt with under the general safety duty) because it exposes the regulator to unnecessary liability. It considered the regulator will not have the necessary technical ability to undertake this function, and issuing an approval may constrain the regulator from undertaking subsequent enforcement action. AAA submitted that approvals for an ADS issued by the in-service regulator would add duplication to regulatory roles and increase the cost of regulation. A government agency did not support a regulatory approval function for in-service modifications, which is further discussed in chapter 5.

Other functions

A government body recommended the regulator also be able to delegate responsibility for certain functions and activities. Some stakeholders also noted data access arrangements. These are further discussed in chapter 10.

6.5.2 Initial functions of the scalable regulator

AAA, AMC, IAG, LIV, Maurice Blackburn, RACQ, SAFC, and an industry body agreed with the initial functions the NTC considered the regulator was likely to perform. RACQ noted that monitoring fleet penetration and the growth trends of current automated features in the market and considering advice from insights in trial guidelines may help inform the resourcing availability and functional planning. A government agency noted that police should remain the primary crash investigation agency. Paul Lucey submitted that there needs to be an automated vehicle industry first before a regulator is built. TMR QLD noted that the in-service regulator will require the capability to undertake all regulatory functions from the outset, but it is likely that the size of the task will be small initially. It also noted a key lesson learned from existing transport regulators that insufficient investment and powers in the early phases of establishment can constrain the regulator's effectiveness. A government body suggested that other established regulators may assist with certain functions.

Stakeholders considered the following functions would be immediately necessary following commencement of the AVSL:

- monitoring the general safety duty (a government agency)
- monitoring international developments (AAA)
- active market monitoring (AAA)
- enforcement (AAA, a government agency, a government body)
- education and guidance (AAA, a government agency, a government body)
- research (AAA, a government agency, a government body)
- rulemaking and creating standards (a government agency)
- customer service (a government agency)
- engagement with states and territories and other regulators (AAA, a government agency, a government body).

6.6 NTC conclusions

6.6.1 The in-service regulator's functions

The NTC recommends that the in-service regulator has the range of functions proposed in the discussion paper, acknowledging the broad support from stakeholders:

- monitoring
- education and guidance
- enforcement
- engagement with states and territories
- research
- rulemaking and creating standards
- customer service
- reporting
- crash investigation (to assist police agencies and to undertake its own systemic investigations)
- accreditation
- regulatory approvals.

With respect to the additional functions the NTC sought feedback on, the NTC makes the following conclusions.

6.6.2 The in-service regulator will have mandatory reporting requirements

The NTC acknowledges stakeholder support for mandatory reporting requirements for the regulator to report to the responsible ministers(s) and recommends the AVSL includes this function.

The NTC also notes stakeholder suggestions for ADSE reporting requirements, which are further discussed in chapter 3. With respect to making certain reports public, the NTC notes the in-service regulator will have the discretion to do so in accordance with relevant privacy legislation.

6.6.3 The in-service regulator will assist state and territory police with crash investigations and undertake its own investigations into systemic issues

The NTC agrees with stakeholder support for the in-service regulator having a crash investigation function. The NTC confirms stakeholder submissions highlighting the importance of the role of police crash investigators and emphasise that the regulator's role in investigation for individual crashes will be to leverage its expertise to assist state and territory police in their existing role rather than replace this role. The NTC also recommends that the in-service regulator has a role in undertaking its own investigations into crashes that may indicate systemic safety issues.

The NTC also notes there would be benefit in the ATSB's role being expanded to include no-blame investigations of safety incidents involving automated vehicles. We consider this kind of investigator beneficial to better understanding this emerging technology and the efficiency of the regulatory frameworks surrounding it.

The in-service regulator will need to work closely with the police crash investigators and the ATSB (if the ATSB has this role) to leverage the skills and expertise of each organisation. In

establishing its role, the in-service regulator may develop MoUs or other similar agreements to clearly distinguish the roles for crash investigations.

6.6.4 The in-service regulator will have an accreditation function

In line with recommendations in chapters 4 and 5, the NTC agrees with stakeholder support for the in-service regulator to have an accreditation function. The regulator will accredit new entities taking responsibility for existing in-service ADSs or installing ADSs by assessing their corporate presence in Australia, minimum financial requirements and ongoing data recording and sharing capability.

The NTC notes limited feedback on other purposes for accreditation. With respect to servicing, maintenance and education the NTC is of the view that this is already covered by prescriptive requirements. Managing compliance, ownership and responsibility is covered by prescriptive duties, the offence of third-party interference as well as state and territory requirements with respect to vehicle registration and licensing. With respect to repairers, the NTC notes that ministers have previously agreed that existing state and territory frameworks will regulate such parties. Regarding remote operators, the NTC notes accreditation may be useful; however, further work on remote drivers will be undertaken when international standards further develop.

6.6.5 The in-service regulator will have a regulatory approval function

The NTC recommends that the in-service regulator has a regulatory approval function in line with its recommendations in chapter 5 on modifications. The regulatory approval will consist of an assessment of an entity's self-certification that its significant modification or aftermarket installation meets the 11 safety criteria.

6.6.6 The in-service regulator's functions will scale up as the market grows

In the initial phases, the in-service regulator is likely to undertake the following functions (this list incorporates initial functions suggested by stakeholders):

- monitoring the general safety duty
- monitoring international developments
- active market monitoring
- enforcement
- education and guidance
- research
- creating standards
- customer service
- engagement with states and territories and other regulators.

The regulator's functions will likely scale up over time as the size of the automated vehicle market in Australia grows.

Recommendation 12: The AVSL will establish a scalable, national in-service safety regulator with the following functions: monitoring; education and guidance; enforcement; engagement with states and territories; research; rulemaking and creating standards; customer service; reporting; crash investigation (to assist police agencies and to

	undertake its own systemic investigations); accreditation; and regulatory approvals.

7 Compliance and enforcement powers of the in-service regulator

Key points

- The in-service regulator will require appropriate powers to carry out its compliance and enforcement functions. It will need powers to:
  - monitor, investigate and evaluate the conduct of the parties regulated by the AVSL, and to gather information and evidence about any contraventions
  - take enforcement action once a potential breach has been identified.
- These powers will complement the first-supply regulator's powers under the RVSA and create a comprehensive framework that ensures the safe operation of automated vehicles at all stages of the vehicle life cycle.
- The AVSL will impose additional prescriptive requirements on ADSEs to support the regulator to efficiently discharge its enforcement function.
- A breach of these prescriptive requirements could result in a civil penalty offence breach or a criminal offence (or both). Appendix C identifies whether a breach of any of the duties and requirements discussed in this paper will result in a civil penalty breach or be a criminal offence.

7.1 Purpose of this chapter

The purpose of this chapter is to:

- recommend the compliance and enforcement powers required by the in-service safety regulator
- recommend prescriptive requirements on the ADSE to support compliance and enforcement under the AVSL
- identify the civil and criminal penalties for breaches of the duties in the AVSL
- identify the relevant powers within the *Regulatory Powers (Standard Provisions) Act 2014* (Cwlth) (Regulatory Powers Act) and those that will be needed in the AVSL if the AVSL is a Commonwealth law.

7.2 Context

The in-service regulator will require appropriate powers to carry out its compliance and enforcement functions. It will need powers to:

- monitor, investigate and evaluate the conduct of the parties regulated by the AVSL, and to gather information and evidence about any contraventions
- take enforcement action once a potential breach has been identified – for example, issuing infringement notices or applying for civil penalty orders or injunctions.

The overall objective of the in-service compliance framework is to prioritise human safety while enabling the safe operation of automated vehicles and not creating unnecessary costs and barriers to deployment. The general safety duty is a central element of this objective,

enabling a flexible approach to ensuring safety for each ADS. The regulator's primary role is to make sure that regulated parties have systems in place to ensure safety and to work with them to resolve safety issues as they arise.

The in-service regulator will adopt a risk-based compliance and enforcement strategy. This approach will allow the regulator to allocate its resources and tailor its enforcement responses depending on the level of risk posed by noncompliance. It ensures the regulatory response is commensurate with the seriousness of the breach and the level of harm. In order to take this approach, the in-service regulator will need the powers to take credible action and apply proportionate and appropriate sanctions for effective deterrence.

The NTC considers that some prescriptive requirements on the ADSE may be needed to support this collaborative approach – for example, reporting safety incidents. Some of these prescriptive requirements have been described in previous chapters.

7.3 Powers

The monitoring, investigation and enforcement powers outlined below incorporate the NTC's analysis and stakeholder feedback to the discussion paper. Some of these powers were initially publicly consulted on and recommended in the NTC's 2020 decision RIS.

Reasons for recommending the powers below, including the additional powers proposed in the discussion paper, are discussed in section 7.7.

7.3.1 Monitoring and investigation powers

An important part of the regulator's role is to ensure that regulated parties have proper systems in place for safeguarding safety and to identify and work with them to resolve safety issues as they arise.

The monitoring and investigation powers that the in-service regulator will require include the following:

- **Audit powers**. The in-service regulator will need the power to periodically audit the ADSE's safety management systems to determine whether the ADSE's policies and procedures will enable it to identify, assess and mitigate in-service safety risks. The ADSE's safety management system will need to be set up to enable audits.
- **Inspection powers**. The in-service regulator will need the power to access records and relevant data to assess an ADSE's compliance with the general safety duty, a remote driver's compliance with obligations imposed under the AVSL or to investigate any other suspected contravention of that law. This may include powers to:
  - make enquiries with and interview relevant people
  - require the production of data and information
  - direct that the ADSE secures electronic records and data that may be used as evidence.
- **Entry and seizure powers**. The in-service regulator would need the ability to enter premises and seize documents and other evidence. These powers may include:
  - rights to enter business premises to access records relevant to an investigation
  - the ability to examine, copy and remove relevant documents from premises
  - powers to seize or embargo evidence relevant to an investigation.

- **Information access, collection and sharing powers**. The in-service regulator will need the power to access, collect, use and disclose information that it receives from a range of sources including from/to ADSEs,[48] other regulators, registration and licensing authorities, law enforcement agencies and road management agencies.

Chapter 10 considers the information exchange arrangements that will need to be put in place with relevant agencies.

7.3.2 Enforcement powers

The in-service regulator will also need a full suite of enforcement powers so it can tailor its enforcement response to the nature and seriousness of a breach and take effective enforcement action where required. Enforcement action may be taken by administrative, civil or criminal action.

- **Improvement notices**. The in-service regulator may seek to require a person to take action to stop a contravention from occurring or to remedy matters that give rise to the contravention. Improvement notices are a less formal compliance option.
- **Directions to act**. The in-service regulator may need the power to issue directions to act.
- **Infringement notices**. An infringement notice is a notice that sets out the particulars of an alleged contravention and a penalty for that alleged contravention. An infringement notice can be given by an 'authorised person'[49] if the officer believes on reasonable grounds that the contravention has occurred. Infringement notices may be used as part of a strategic and graduated compliance response to lower risk breaches of the AVSL by ADSEs. The infringement penalties will need to be set at a sufficiently high level to serve as an effective compliance incentive for a corporation.
- **Formal warnings**. In certain instances, the in-service regulator may want to issue a formal warning to an ADSE to provide the ADSE with an opportunity to rectify the issues of concern that are identified in the formal warning.
- **Enforceable undertakings**. Enforceable undertakings are binding agreements that can be enforced by a court. Enforceable undertakings can enable a tailored and flexible resolution to issues of concern that are developed in consultation with regulated entities. They can provide a cost-effective and timely outcome compared with litigation. Enforceable undertakings under the AVSL could be required to be published on a website to ensure greater transparency and deterrence.
- **Injunctions**. An injunction is a court order that a person stops doing a particular thing or compelling the performance of a thing a person is already obliged to do under the law. The provisions that could be enforced by an injunction would need to be specified in legislation. The general safety duty or the prescriptive obligations in the AVSL may be specified as provisions in respect of which a court could grant an injunction.
- **Power to suspend the operation of an ADS until a safety issue is resolved by the ADSE**. The in-service regulator may need the power to suspend the operation of an ADS in a vehicle until a safety risk is resolved by the ADSE. Due to the systemic risks posed by

[48] This requirement comes from the 'data sharing and recording' safety criteria, which ADSEs must self-certify against at first supply.

[49] For example, in s 55(2) of the RVSA, an authorised person includes the Secretary or a Senior Executive Service (SES) (or acting SES) employee of the relevant department (DITRDC).

ADSs, the exercise of this power could potentially extend to an entire fleet of automated vehicles. The effect would be that the ADSE would need to disengage the ADS that it supports and prevent it from operating. This could have significant consumer impacts for users of automated vehicles, both for private vehicle owners and more broadly.

- **Power to suspend or cancel an ADSE's accreditation**. The in-service regulator may need the power to suspend an ADSE's accreditation in the most serious of cases where the ADSE demonstrates it is not exercising its obligations under the general safety duty (or repeatedly breaching the general safety duty) and there is a serious and imminent danger to people. Again, this could have significant impacts on automated vehicle users as well as the ADSE.

7.4 Prescriptive requirements and sanctions

7.4.1 Prescriptive requirements on the ADSE

The following prescriptive requirements that the AVSL may impose on ADSEs incorporate the NTC's further analysis and stakeholder feedback to the discussion paper:

- support the transfer of an ADSE's responsibility for an ADS to a new entity (these are discussed in chapter 4) by:
  - notifying the in-service regulator when it intends to significantly change corporate structure, transfers responsibilities for the ADS or is at risk of insolvency
  - disengaging the ADS where there is no ADSE to support it
- supporting roadside enforcement officers in performance of their functions by:
  - developing and maintaining a law enforcement interaction protocol, to be shared with the regulator
- supporting safe in-service modifications (these are discussed in chapter 5) by:
  - maintaining a log of all in-service modifications that it implements in relation to its ADSs
  - not implementing significant modifications to in-service ADSs without approval from the in-service regulator
- supporting the in-service regulator's auditing powers by:
  - providing accurate and reliable information to the in-service regulator
  - maintaining records of safety incidents
  - reporting significant safety incidents and road traffic law breaches to the regulator, including those where it received an infringement notice from a state or territory agency
  - notifying the in-service regulator of any third-party interference attempts that the ADSE becomes aware of
- supporting access to vehicle data requested by the in-service regulator, police and other parties (listed in Appendix C) by:
  - ensuring automated vehicles record data relevant to enforcement of road traffic laws and the general safe operation of the ADS (including data relating to crashes)
  - providing this data in a standardised, readable and accessible format.

7.4.2 Civil penalty provisions

Civil penalty provisions punish the offender by imposing a penalty without the stigma of a criminal conviction. Civil procedure rules apply to civil penalty proceedings.[50] The common law privilege against self-incrimination and the privilege against exposure to a penalty extend to natural person defendants. While the standard of proof is lower than the criminal burden of 'beyond reasonable doubt', the regulator would still need to satisfy the court 'on the balance of probabilities' that a breach of the law has occurred.[51]

7.4.3 Criminal prosecution

Where an ADSE breaches the general safety duty and the in-service regulator finds that the senior executives of the ADSE did not meet their due diligence obligations in relation to that breach, criminal sanctions may apply against the responsible senior executives. The NTC also considers that criminal sanctions are appropriate for certain more serious breaches of the AVSL by the ADSE. These could include the following:

- *A breach of the general safety duty by the ADSE (including the prescriptive duties which support the general safety duty).* This reflects a broad community interest in ensuring that those who have a duty of care but do not observe that duty should be liable to a criminal sanction for placing another person's safety at risk.
- *Falsification by an ADSE of information that it provides to the in-service regulator.* The NTC considers that falsification of information would indicate a deliberate intention to prevent or hinder the in-service regulator in the performance of its functions.
- *A breach of the prohibition on operation of an ADS where there is no responsible ADSE.* A key objective of the in-service regulatory framework is to ensure there is a legal entity responsible for the ADS while it is in operation. A breach of this requirement has the potential to undermine the entire framework. The threat of criminal prosecution should provide a significant deterrence against a breach.

Appendix C provides further detail about the obligations of regulated parties discussed in this paper and identifies whether a breach of the obligation is a civil penalty offence or a criminal offence.

7.5 Regulatory Powers Act and the AVSL

The enforcement framework for the national law would differ depending on whether it is implemented using complementary (Commonwealth and state/territory) law, or state and territory applied law.

If Commonwealth law is used to establish the national regulator (as would be the case under the complementary law approach), the legislation could be drafted to trigger necessary parts of the Regulatory Powers Act (with any modification and additions as required).

The Regulatory Powers Act provides for a standard suite of provisions in relation to monitoring and investigation powers, and enforcement powers. The standard provisions of the Regulatory Powers Act are considered to represent best practice in relation to regulatory

[50] Refer, for example, to the *Corporations Act* s 1317L; *Rich v ASIC* (2004) 220 CLR 129, 143–4 [27].

[51] *Briginshaw v Briginshaw* (1938) 60 CLR 336, 362.

powers, providing a baseline of regulatory powers for civil regulatory regimes.[52] Many of the powers identified in this chapter as being required by the in-service regulator are included in the Regulatory Powers Act.

If a state and territory applied law approach is used to establish the national regulator, the monitoring, investigation and enforcement powers included in the AVSL could be based on the standard suite of monitoring, investigation and enforcement powers from the Regulatory Powers Act, but the national law would need to be drafted to include those provisions (or similar provisions).

7.5.1 Powers not within the Regulatory Powers Act

The Regulatory Powers Act includes baseline monitoring,[53] investigation[54] and enforcement[55] powers. It does not include the full suite of powers identified as required by the in-service regulator in section 7.3. The additional powers that may need to be included in the AVSL over and above the baseline powers in the Regulatory Powers Act include powers to:

- audit (including a framework to manage the integrity, confidentiality and privacy of the information that is collected through auditing)
- request information in relation to 'reportable contraventions' or 'safety incidents' (the AVSL will need to define these terms to provide certainty to ADSEs and make noncompliance an offence)
- conduct operational checks that examine and test systems and sample products in addition to gathering evidence, data and information
- issue improvement notices and directions to act
- suspend the operation of an ADS until a safety issue is resolved by the ADSE
- suspend or cancel an ADSE's accreditation
- support the crash investigation function of the in-service regulator
- access, collect, use and share (disclose) information to support the compliance and enforcement functions (as well as other functions of the in-service regulator)
- compel an ADSE to provide information/data and in a certain form or with sufficient explanation as to aid interpretation.

7.6 Stakeholder feedback

7.6.1 The proposed compliance and enforcement powers are proportional

There is broad agreement among stakeholders about the need to grant the in-service regulator a broad range of powers to meet the objective of safely operating automated vehicles in Australia. However, stakeholders also noted the need for a transparent compliance and enforcement policy (FCAI) and a risk-based compliance and enforcement

[52] The federal Attorney-General's website advises 'New or amending Acts that require monitoring, investigation or enforcement powers of the kind available under the Regulatory Powers Act should be drafted to trigger the relevant provisions of that Act, unless there are compelling policy reasons to the contrary'. Refer to *The Regulatory Powers Act – fact sheet* (August 2018) available at https://www.ag.gov.au/sites/default/files/2020-03/regulatory-powers-act-factsheet.pdf.

[53] Regulatory Powers Act, Pt 2

[54] Ibid., Pt 3

[55] Ibid., Pt 4

framework to support the use of these powers (TMR QLD). TMR QLD recommended providing further clarity about how they would be used within a risk-based approach.

RACQ also highlighted the challenges of regulating vehicles internationally operated by global entities, such as accessing information or documentation held by international parent organisations.

7.6.2 Powers to recall ADS, suspend ADS operations and suspend or cancel ADSE accreditation

Recall powers

The RVSA outlines a broad recall framework that DITRDC has advised should apply to automated vehicles as part of the risk-based toolkit to address some in-service safety issues. This includes voluntary recalls that manufacturers self-report to DITRDC and are used regularly to address safety issues, as well as the minister being able to issue compulsory recall notices as a last-resort enforcement mechanism where other options are exhausted. However, the recall powers in the RVSA may not apply to all potential in-service scenarios; in particular, aftermarket devices approved for installation by the in-service regulator would not fall under the RVSA.

Several stakeholders (including two government agencies) considered that the in-service regulator does not need recall powers in addition to the existing powers available to the first-supply regulator under the RVSA. They argued that that recall powers will not be necessary if all ADSs and their modified versions are regulated under the RVSA.

For cases where ADSs may not be able to be recalled under the RVSA, most stakeholders considered that the in-service regulator should have recall powers. To avoid duplication with the recall powers under the RVSA, the in-service regulator's recall powers should only apply to ADSs that cannot be recalled by the first-supply regulator under the RVSA (RACQ). One government agency supported the in-service regulator having recall powers in principle because it was unclear whether or not the RVSA recall provisions would extend to an ADS in service.

ACCC strongly supported the in-service regulator having a recall power to address safety issues. It also noted the ACCC was not the appropriate agency to manage recalls of automated vehicles due to its lack of specialist knowledge and expertise.

Suspend operation of a specific ADS

Two government stakeholders agreed that the in-service regulator should have the power to temporarily suspend the operation of either a single ADS or a fleet of ADSs, subject to a critical safety issue being resolved. TMR QLD considered this power could be operationalised within an ADSE accreditation framework, and suspensions could apply by downgrading the automated capability of a vehicle (e.g. a level 4 or 5 vehicle would only be driven in a level 3 mode, if possible).

Other stakeholders argued that this power should only be available to the first-supply regulator when there is imminent danger to people (AAA, FCAI). In contrast, RACQ noted that this power may need to operate through or with treasury, which is ultimately responsible for product safety enforcement.

Suspend or cancel ADSE accreditation

Two government stakeholders considered that the in-service regulator should have the power to suspend (temporary) or cancel (permanent) an ADSE's accreditation. However, one of them noted that use of these administrative actions would need to be carefully considered and based on risk to public safety and sustained or wilful noncompliance by an ADSE, and they expected that these actions would be rarely used (TMR QLD).

Circumstances that would warrant this action could include:

- evidence available to the in-service regulator that demonstrates the ADSE is not exercising its obligations under the general safety duty or repeated breaches of the general safety duty
- serious and imminent danger to people, presumably following an existing suspension of the ADS and after a full judicial process (FCAI)
- the ADSE's accreditation had been granted on false information (RACQ)
- the ADS cannot be relied upon to perform its intended function where the ADSE no longer exists (RACQ).

However, two government stakeholders noted:

- that there may be circumstances where compensation is payable by the ADSE for consumer losses (TMR QLD)
- the need to delineate how the power to permanently suspend an ADSE interacts with existing state and territory powers to suspend registrations, the right of people to drive certain vehicles in their jurisdiction and states and territories' public transport legislation.

7.6.3 Additional prescriptive requirements are needed to support a risk-based approach to compliance and enforcement under the AVSL

There is broad agreement among stakeholders that the proposed compliance and enforcement powers, functions and mechanisms proposed appear comprehensive and fit for purpose.

However, government stakeholders suggested additional prescriptive requirements to support a risk-based compliance approach, including:

- prescriptive rules to regulate the dynamic driving task performed by an ADS as well as teleoperation/remote driving to ensure they have the necessary competencies and meet fitness-to-drive requirements (the NTC notes discussion in chapter 12)
- a set of provisions that prescribe how the data recording/sharing equipment can be used by other parties
- not permitting in-service modifications that change ADS performance or functionality beyond what was declared at first supply
- additional safety standards not covered by ADR 90/01
- alerting consumers regarding safety issues (the NTC notes the relevant prescriptive duty to support the general safety duty in chapter 3)
- having policies, procedures and systems in place to ensure ADSEs can identify when relevant laws are reviewed and update the ADS as soon as reasonably practicable.

A few stakeholders shared their views on the illustrative obligations and offence provisions in relation to the general safety duty and due diligence obligations as set out at Appendix A of the discussion paper. Two government stakeholders considered that the illustrative penalties

appeared reasonable and were consistent with comparable regulatory frameworks (TMR QLD). Nonetheless, TMR QLD considered that a criminal burden rather than a civil burden of proof was appropriate for a breach of a prescriptive requirement.

AAA noted that some of the obligations and penalties in the AVSL may need to change as technology and international standards evolve over time. Similarly, requirements at first supply will likely evolve as well.

One government agency and AAA also noted the need to ensure clear definition of roles, complementarity and consistent interpretation of obligations for in-service and first-supply regulators. This issue is further discussed in chapter 9 of this paper.

TMR QLD also raised the following concerns:

- It is not clear when an individual would ever be liable for an ADSE general safety duty penalty, given an ADSE must be a corporation.
- Specific penalty amounts will need to be determined based on the consequences and risks of offending, a comparison with other similar regulatory frameworks and an understanding of the industry being regulated (what value of penalty would be a sufficient disincentive).
- Additional penalties may be required for additional prohibitions and offences not currently considered in the discussion paper (though these were not specified).
- There appears to be a confusion between criminal and civil penalties.
- It is necessary to consider the resourcing implications that imposing such penalties could have on the judicial system and enforcement agencies.

7.6.4 Powers required in addition to the baseline powers provided in the Regulatory Powers Act

RACQ and TMR QLD agreed that the NTC had accurately identified the regulatory powers required by the in-service regulator in addition to the baseline powers provided in the Regulatory Powers Act.

7.7 NTC conclusions

7.7.1 The regulator's use of its powers should be proportionate to the safety objectives addressed in each case

Throughout this and previous papers the NTC has discussed how automated vehicle safety is likely to be determined by several integrated systems, which will rely on methodical design and planning of a number of organisations operating in a global market. This will make it difficult to attribute use of judgement to an automated vehicle safety breach in the same manner and with the same level of confidence as a human driver.

A collaborative approach with industry will be required to help create and maintain industry incentives for continual safety improvement. Therefore, the early identification and resolution of a safety incidents or risks through collaboration is preferred to identifying and punishing safety incidents or risks that may reoccur.

A purely punitive approach risks creating an uncooperative regulatory environment. This could create incentives for coercion and deceit and any penalties may be accepted by industry as the cost of doing business.

To ensure safety as well as regulatory consistency and fairness, the in-service regulator should identify the most appropriate compliance and enforcement action for each case based on risk frameworks tied to the general safety duty. Such frameworks must consider the nature of ADSs, the complexities of the environments in which they operate, the responsibilities and capabilities of relevant parties, as well as the degree and impacts on or danger to people.

7.7.2 Monitoring, investigation and enforcement powers

As discussed in section 7.6, most of our stakeholders agreed that it is essential that the in-service regulator has a wide and clearly defined range of powers that will enable it to:

- monitor, investigate and evaluate the conduct of regulated parties, and to gather the necessary information and evidence
- take enforcement action to address breaches of the AVSL.

Following the almost unanimous agreement during public and targeted consultation, the NTC proposes that the monitoring and investigation powers discussed in section 7.3.1 be granted to the in-service regulator. These are the powers to:

- audit
- inspect, including powers to:
  - make enquiries with and interview relevant people
  - require the production of data and information
  - direct that the ADSE secures electronic records and data that may be used as evidence
- enter and seize, including:
  - rights to enter business premises to access records relevant to an investigation
  - the ability to examine, copy and remove relevant documents from premises
  - powers to seize or embargo evidence relevant to an investigation
- access, collect and share information.

Public and targeted consultation also revealed broad stakeholder agreement regarding most of the proposed enforcement powers that will enable the in-service regulator to take effective enforcement action where required.

After considering the varying views regarding a minor number of the powers proposed, the NTC recommends that the in-service regulator is granted the powers as proposed in section 7.3.2. These are:

- improvement notices
- directions to act
- infringement notices
- formal warnings
- enforceable undertakings
- injunctions
- power to suspend the operation of an ADS
- power to suspend and/or cancel the accreditation of an ADSE.

Power to suspend the operation of an ADS

The NTC considers that the in-service regulator would be in the best position to assess whether to suspend the operation of either a single automated vehicle or a fleet. The in-service regulator would likely be the body with the specialist knowledge and technical expertise required to determine in a reliable and timely manner if suspending ADS operation would be the best option to address a critical safety issue.

Previous consultation has indicated that the power to suspend the operation of an ADS in a vehicle would be necessary to protect road users from serious and imminent danger to people until a safety risk is resolved by the ADSE. This power could potentially extend to an entire fleet in response to evidence of systemic risks.

As explained in section 7.3.2, the in-service regulator could exercise this power to direct an ADSE to suspend operations until it satisfies the in-service regulator that it has robust policies and procedures in place to identify and mitigate or eliminate safety risks as they arise. This power could apply differently depending on the level of risk to the public, from downgrading the automated capability of a vehicle if possible (from level 4 or 5 to level 3), to full disengagement of the ADS or even removing the vehicle (or fleet of vehicles) from the road.

Power to suspend and/or cancel the accreditation of an ADSE

In the discussion paper, the NTC stated that it did not propose that the in-service regulator have the power to permanently suspend an ADSE. This was due to consumer impacts for users of automated vehicles, both for private vehicle owners and operators of transport fleets.

However, two government stakeholders recommended that the in-service regulator should have the power to suspend (temporary) or cancel (permanent) an ADSE's accreditation (TMR QLD). They argued that placing ADSE approval and accreditation on the first-supply regulator while the in-service regulator is responsible from overseeing ADS operation from day one could create a risk of duplication and confusion between the entities.

In addition, targeted consultation revealed the benefits from expanding the role of the in-service regulator to include ADSE accreditation. As highlighted in chapter 3, government stakeholders have indicated that the in-service regulator might be better suited than the first-supply regulator to assess ADSEs supplying new ADSs to the market for the first time against corporate obligations (minimum financial requirements, corporate presence in Australia, data recording and sharing capability).

Due to these considerations, the NTC concludes that concentrating ADSE approval and the associated technical information within the in-service regulator would address the risks raised by stakeholders. Therefore, the NTC proposes that the AVSL includes a power for the in-service regulator to suspend and cancel ADSE accreditation.

Nevertheless, the NTC proposes that the use of this power would need to be carefully and transparently considered. It would be used only based on significant risk to public safety and sustained or wilful noncompliance by an ADSE. The NTC expects that such power would be exercised only in exceptional cases.

It is expected that the regulator would only consider exercising this power after determining that a single or fleet of vehicles experiences a significant safety defect that results in the ADS operating unsafely, and the ADSE has not taken the necessary steps to address the risk.

As proposed by stakeholders in section 7.6.2, the circumstances that would warrant the use of this power would include:

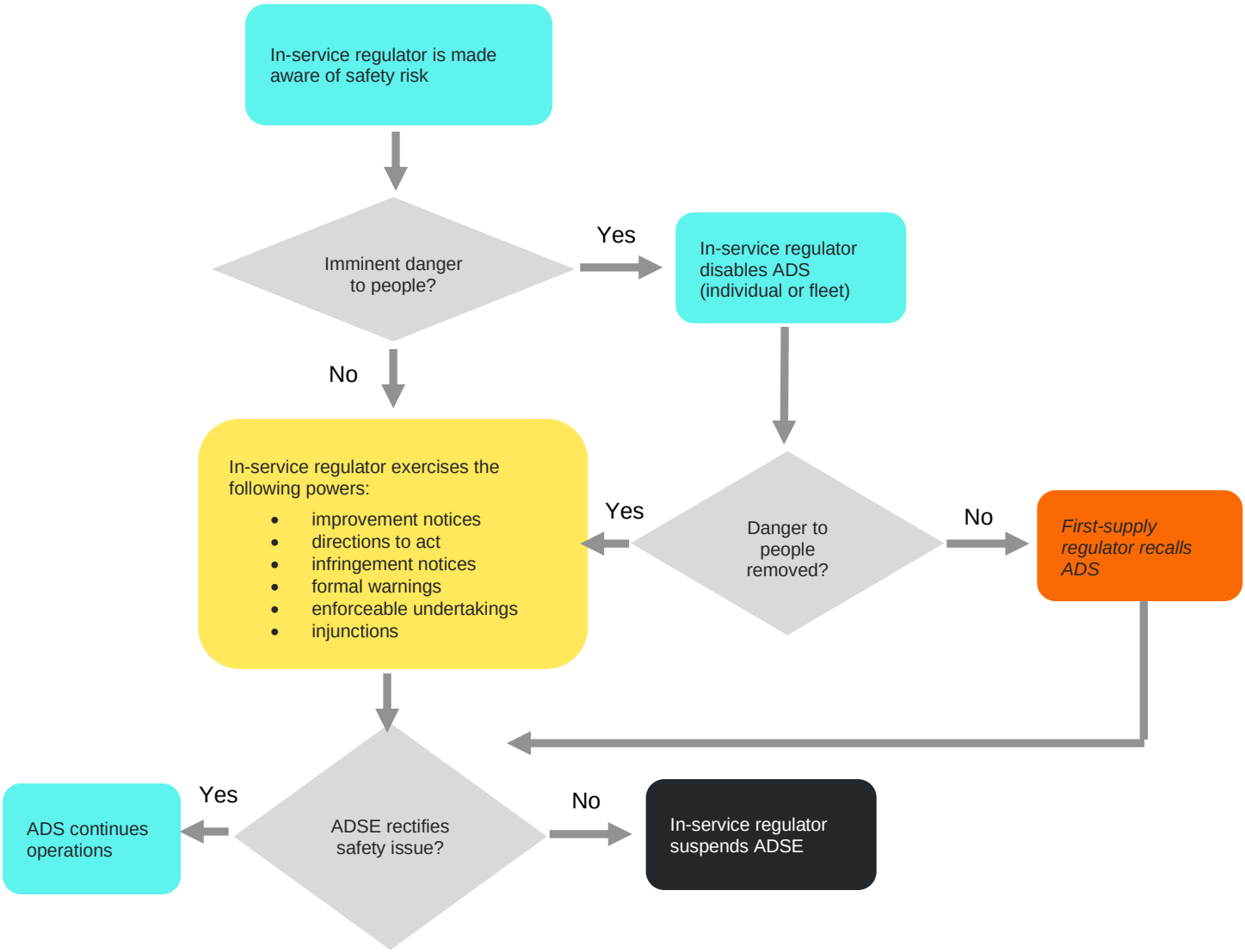
- clear evidence that the ADSE is not exercising its obligations under the general safety duty or repeated breaches of the general safety duty
- existing suspension of the ADS due to serious and imminent danger to people
- accreditation granted on false information.

The NTC recommends that further work is undertaken to determine whether consumers will need protection mechanisms from the consequences of the regulator's use of this power. This is in line with the NTC recommendation in chapter 4.

The NTC assessed a government agency's suggestion to delineate how the power to permanently suspend an ADSE interacts with existing state and territory powers to suspend registrations, the right of people to drive certain vehicles in their jurisdiction and state and territory public transport legislation. The NTC concluded that this issue is unlikely to result in an overlap of powers between the in-service regulator and the states and territories. States and territories suspend vehicle registrations on the basis of vehicle roadworthiness (tyres, suspension, etc.), which is a separate issue from the ADS and the general safety duty. In addition, given the in-service regulator would likely be the body with the specialist knowledge and technical expertise required to suspend an ADSE, the NTC does not envision circumstances in which a state or territory agency would be suited to exercise this power.

This power would be only one in a suite of powers seeking to ensure the safety of users of automated vehicles as well as the broader public. Figure 7 illustrates the process the in-service regulator could go through to decide which power is required to address a safety risk.

Figure 7. In-service regulator's use of powers to suspend an ADS and suspend or cancel ADSE accreditation[56]



Recall powers

The NTC considers that all types of automated vehicles and ADSs should be subject to a compulsory physical recall in the case of a serious safety issue as a last resort, after the use of other compliance and enforcement tools. We consider there could be circumstances in which other powers such as suspending an ADS or cancelling an ADSE's accreditation does not completely remove the risk of harm to the public – for example, when there is evidence of a systemic issue as the result of combined malfunctioning between the ADS and one or more vehicle components (e.g. sensors) that the ADSE cannot rectify. In such cases, and due to imminent risk to people, there should be an ability to physically recall all ADSs rather than having these potentially still usable on the road.

Subsequent to submitting to the discussion paper, DITRDC has undertaken to further investigate the scope of the recall power in the RVSA and its ability to be used in all

[56] Note that the potential for the first-supply regulator to take recall action (orange box) is discussed in the next section.

scenarios outlined in this paper, including where an aftermarket device has been approved for installation in a vehicle by the in-service regulator rather than the first-supply regulator.

At this stage, the NTC therefore is not recommending a power for the in-service regulator to issue recalls. We consider this matter requires further investigation by both DITRDC and the ACCC to establish the coverage of existing recall powers under the RVSA and Australian Consumer Law, and the potential for these powers to be extended before introducing a recall power to another regulator operating in this space. This issue will be resolved in the course of the next phase of work (described in chapter 13).

7.7.3 Regulatory Powers Act and the AVSL

As previously discussed (in section 7.5), the enforcement framework for the national law would differ depending on the way it is implemented:

- using complementary law, or
- using state and territory applied law.

If Commonwealth law is used to establish the national regulator (as would be the case under the complementary law approach), the legislation could be drafted to trigger necessary parts of the Regulatory Powers Act, which does not include the full suite of powers identified as required by the in-service regulator in section 7.3.

In this case, additional powers may need to be included in the AVSL apart from the standard suite of provisions in relation to monitoring and investigation powers, and enforcement powers (provided by the Regulatory Powers Act). These powers include to:

- audit
- request information in relation to 'reportable contraventions' or 'safety incidents'
- conduct operational checks that examine and test systems and sample products in addition to gathering evidence, data and information
- issue improvement notices and directions to act
- suspend the operation of an ADS until a safety issue is resolved by the ADSE
- suspend or cancel the ADSE's accreditation
- support the in-service regulator's serious accident investigation function
- access, collect, use and share (disclose) information to support the compliance and enforcement functions (as well as other functions of the in-service regulator)
- compel an ADSE to provide information/data and in a certain form or with sufficient explanation as to aid interpretation.

If a state and territory applied law approach is used to establish the national regulator, the AVSL would need to be drafted to include all the monitoring, investigation and enforcement powers proposed in section 7.7.2.

7.7.4 Prescriptive requirements and sanctions

As discussed in section 7.4, the NTC proposes that the AVSL imposes the following prescriptive requirements on the ADSE to support the general safety duty:

- To support the transfer of an ADSE's responsibility for an ADS to a new entity, the ADSE must:
  - notify the in-service regulator when it intends to significantly change corporate structure, transfers responsibilities for the ADS or is at risk of insolvency
  - disengage the ADS where there is no ADSE to support it.

- To support safe in-service modifications, the ADSE must:
  - maintain a log of all in-service modifications that it implements in relation to its ADSs
  - not implement significant modifications to in-service ADSs without approval from the in-service regulator.

- To support the in-service regulator's auditing powers, the ADSE must:
  - provide accurate and reliable information to the in-service regulator
  - maintain records of safety incidents
  - report significant safety incidents and road traffic law breaches to the regulator, including those 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.

- To support roadside enforcement officers in the performance of their functions, the ADSE must:
  - develop and maintain a law enforcement interaction protocol, to be shared with the in-service regulator.

- To support access to vehicle data requested by the in-service regulator, police and other parties (listed in Appendix C), the ADSE must:
  - 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)
  - provide vehicle data in a standardised, readable and accessible format.

Appendix C outlines the obligations that are recommended in this paper and identifies whether a breach of the requirement attracts a civil penalty or is a criminal offence or both.

A breach of the prescriptive requirements discussed in this chapter would result in criminal prosecution. Breaches of the prescriptive duties supporting the general safety duty (chapter 3) would also result in criminal prosecution for a breach of the general safety duty itself based on an assessment of the risk posed by the breach.

As TMR QLD noted in its submission, the enforcement of the prescriptive requirements proposed will require consideration of the resourcing implications on the judicial system and enforcement agencies. The NTC agrees with this statement, noting that potential resourcing impacts on the judicial system and enforcement agencies would be an expected consequence of adopting a new regulatory framework.

The NTC also notes that estimating future impacts on the judicial system and enforcement agencies will likely require a number of assumptions regarding levels of noncompliance by ADSEs that have not yet entered the market and future safety issues on vehicles that do not yet exist.

7.7.5 In-service regulator's compliance and enforcement policy

The NTC recommends that the in-service regulator should, once established, develop and publish a compliance and enforcement policy. This policy's purpose would be to ensure:

- the in-service regulator's transparent and clear use of the enforcement powers proposed in this chapter

- ADSEs' understanding about the regulator's and public expectations regarding compliance with the proposed prescriptive duties and requirements.

The NTC considers that this policy should meet the following objectives:

- **Consistent and fair enforcement**. The policy should seek to provide assurance to ADSEs and the public that the regulator's use of its enforcement powers and any penalties imposed will be the result of a consistent and fair process.
- **Proportionate action**. The policy should seek to ensure that all enforcement actions are proportionate with the level of safety risk being addressed.
- **Adaptive implementation**. The compliance and enforcement policy should be reviewed regularly to ensure that it keeps pace with technological developments and international standards.

The in-service regulator's compliance and enforcement policy should provide guidance to ADSEs and users regarding compliance and enforcement processes, including (but not limited to):

- conditions or thresholds required to decide on the appropriate enforcement action
- compliance and enforcement roles and responsibilities of the in-service regulator, ADSEs and potentially other agencies
- inter-agency interactions
- in-service regulator and ADSE interactions and communication pathways
- detail about the required steps and stages (from start to finish) for all processes.

Recommendation 13: The regulator will have the following compliance and enforcement powers: audit; inspection; entry and seizure; information access, collection and sharing powers; improvement notices; directions to act; infringement notices; formal warnings; enforceable undertakings; power to seek injunctions; suspend operation of an ADS until a safety issue is resolved; and cancel the accreditation of an ADSE.

Recommendation 14: The AVSL will establish prescriptive requirements on the ADSE to support the in-service regulator's enforcement role as outlined in section 7.7.4.

Recommendation 15: ADSEs and their executive officers will be subject to the penalties for breaches of duties in the AVSL as set out in Appendix C, in line with WHS laws.

Recommendation 16: The regulator should, once established, publish a compliance and enforcement policy.

8 Roadside interaction and enforcement

Key points

- Automated vehicles operating on our roads will create challenges for agencies responsible for enforcing the road rules.
- Automated vehicles will be required to interact with roadside enforcement in a safe and predictable manner. Developing nationally consistent roadside enforcement protocols will assist.
- ADSEs should develop law enforcement interaction protocols detailing how enforcement officers can interact safely with their ADSs.
- The NTC will work with state and territory governments to develop enforcement practices for automated vehicles and establish data requirements and data access protocols.
- The current process of issuing infringement notices to the driver/registered owner of the vehicle should continue to be used during the early stages of automated vehicle rollout on Australian roads.
- A breach of the road rules when an ADS is engaged should also be taken as potential evidence of a breach of the general safety duty by the ADSE.

8.1 Purpose of this chapter

The purpose of this chapter is to:

- identify issues that roadside enforcement agencies may have when they interact with automated vehicles
- discuss operational issues of road traffic law breaches and the role of infringement notices
- explain the rationale for recommending:
  - next steps towards ensuring a safe interaction between automated vehicles and police and other first responders
  - that the current process of issuing infringement notices to the driver/registered owner of the vehicle should continue to be used during the early stages of automated vehicle rollout
  - that road traffic law breaches by an engaged ADS can be treated as evidence of a potential breach of the general safety duty and are managed by the in-service regulator.

8.2 Role of roadside enforcement

Roadside enforcement will play a key role in addressing road safety issues through monitoring automated vehicles' compliance with road traffic laws and their safe interaction with other road users. They will interact with automated vehicles on the road, at the roadside and after a crash, and intervene in cases of road traffic law breaches.

Roadside enforcement's operational role will focus on interactions with automated vehicles on the road. As part of their responsibilities, they will have an important role as the 'eyes and

ears' that identify, report and/or action observable ADS safety issues. These responsibilities include:

- observing road rule breaches by automated vehicles or fallback-ready users (e.g. speeding or travelling through a red light)
- crash and incident reporting
- first response at a crash site
- enforcement of permit and licence conditions (AAMVA, 2018).

As a result of the responsibilities above, roadside enforcement will likely be required to intervene in a number of operational interactions with automated vehicles, such as:

- enforcing the road rules for offences detected by cameras
- enforcing the road rules for offences detected by roadside officers (e.g. issue infringements, immediate intervention to prevent harm to other road users)
- responding to crashes in which an automated vehicle was involved
- roadside vehicle inspection and driver checks, including drug and alcohol testing (preventative policing)
- providing directions to vehicles at crash or roadworks sites
- verifying automated vehicle safety issues in support of investigations initiated by other bodies
- roadside heavy vehicle inspection and driver checks to support enforcement of the HVNL
- accessing ADS data required for investigations.

To manage these kinds of circumstances, roadside enforcement agencies will need to be prepared and trained to safely interact with automated vehicles.

Roadside enforcement agencies will also need to interact with and support other regulators and agencies that have a role in ensuring the in-service safety of automated vehicles. The other key regulators responsible for safety – the in-service regulator and the first-supply regulator – will not have a roadside enforcement role; instead, their roles will focus on monitoring an ADSE's compliance with its duties under the first-supply type approval and in-service frameworks. This will include examining 'unobservable' safety risks that roadside enforcement will have no oversight of – for example, instances when an ADS disengages abruptly but the human driver or fallback-ready user is able to take back control.

The roles of roadside enforcement agencies and other regulators and agencies will need to be complementary, with clear delineation of responsibilities (discussed further in chapter 9). Regulator interactions are discussed further in this chapter in the context of road traffic law breaches in section 8.5.

8.3 Key issues for effective roadside enforcement involving automated vehicles

The on-road operation of automated vehicles will create unique challenges for enforcement agencies. Some challenges may be addressed at first supply, while others may be managed by the ADSE's general safety duty and other laws that will apply to fallback-ready users. Existing roadside enforcement powers may suit some of these challenges. However, additional powers and changes to current policies and procedures that govern roadside enforcement may be required.

Key issues for effective roadside enforcement of automated vehicles are outlined below.

8.3.1 Identifying and communicating with automated vehicles

Roadside enforcement agencies are likely to require clarity on:

- how automated vehicles will recognise and respond to or interact with emergency vehicles and directions of police officers
- how to interact with vehicles controlled by a remote driver
- their ability to remedy or neutralise an unsafe situation by accessing an automated vehicle, disabling the ADS and taking control of the vehicle.

DITRDC is currently developing the detail of a requirement for ADSEs to enable automated vehicles to communicate with law enforcement agencies as part of the first-supply safety criteria in ADR 90/01. This would ensure safe interaction with emergency services (including but not limited to police, fire and ambulance services) when the ADS is engaged.

It may be appropriate to require the ADSE to provide a law enforcement interaction protocol to relevant enforcement agencies and regulators – this is further discussed in section 8.7. The ADSE will need to review and update this protocol periodically. The ADSE could also contribute to resources used by first responders, like ANCAP's rescue application.[57]

Ongoing engagement between enforcement agencies and industry should enhance mutual understanding of the key challenges automated technology will present to police officers at the roadside. Agencies maintaining their awareness of overseas and international regulatory developments will also assist.

The NTC considers legislative review of the powers currently available to roadside enforcement will be required to ensure they have capacity to fully exercise their roles when automated vehicles are involved. This is discussed in sections 8.4 and 8.7.

8.3.2 Role of fallback-ready users or occupants of an automated vehicle

There may be circumstances where roadside enforcement action is required against fallback-ready users and occupants of an automated vehicle. Roadside enforcement agencies will require clarity on the obligations that these parties have.

For example, Australian Road Rule 304 requires a person to obey any reasonable direction from a police officer or authorised person. In vehicles with conditional automation, the fallback-ready user could be required to comply with such a direction. In a level 5 automated vehicle with no licensed occupant, an ADS design solution may be required.

Infrastructure and transport ministers have agreed that state and territory laws should provide rules for the fallback-ready user.

8.3.3 Identifying who is in control of an automated vehicle – human or ADS

Infrastructure and transport ministers agreed in May 2018 that when the ADS is engaged, the ADSE is legally in control of the vehicle and so is responsible for complying with dynamic driving task obligations. This presents the practical challenge on how to determine who or what is in control of level 3 and 4 vehicles, as human drivers will be responsible when the ADS is not engaged.

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[57] More information on the rescue application can be found at https://www.ancap.com.au/apps.

Enforcement agencies will need to quickly identify if a vehicle on the road is an automated vehicle and who or what is in control at any point in time. For example:

- when a speed camera–detected offence occurs
- when an officer observes a breach of a road traffic law
- when investigating the circumstances of a crash.

Industry and international developments do not currently envision the use of external signals or indications when an ADS is engaged. This leaves data access as the only means for enforcement agencies to identify the party who was in control of the vehicle to determine the appropriate enforcement action to take. This is discussed further in section 8.3.5.

8.3.4 How to manage breaches of road traffic laws when the ADS is engaged

As discussed above, enforcement agencies will need to identify whether an automated vehicle is under ADS or driver control after a traffic stop or a crash. This will establish the appropriate party on which to place liability. However, the existing infringements regime may not be suitable to address risks caused by ADSs. This is discussed in detail in section **Error! Reference source not found.**.

8.3.5 Access to automated vehicle–generated data

Roadside enforcement agencies will require vehicle-generated data for:

- roadside enforcement – who was in control at the time of a road rule breach (the ADS or human), the level of automation engaged, any transition requests to the driver or fallback-ready user and information on factors that caused or contributed to the breach
- crash investigations – 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.

Agencies could require this data at the time of an observed incident, at the time of assessing responsibility for an incident and when they are conducting a post-crash investigation.

The ADSE will have to demonstrate how it will record data about the driving performance of the vehicle under the first-supply process and ongoing in-service duties. The information recorded will relate to the general safe operation of the ADS (including data relating to crashes) and enforcing road traffic laws. Recorded data must be provided to relevant parties (including police and road agencies) as necessary and be standardised, readable and accessible. The ADSE may also be able to adequately demonstrate it can facilitate real-time access by roadside enforcement agencies at the roadside.[58]

Methods of real-time recording of event data are being developed; however, the processes that will enable access to real-time data (e.g. via an intercept) remain unclear. If roadside enforcement agencies cannot access real-time data at the roadside, this may impact on their enforcement approach to automated vehicles. This could include making decisions on whether to issue an infringement notice for a road traffic law breach against the driver (or registered owner) or the ADSE, or to not issue an infringement to any party and instead

[58] The first-supply safety criteria do not prescribe how the ADS will record and share data with roadside enforcement agencies; however, over time this will be influenced by industry and international developments such as the data storage system for automated driving systems.

report the matter to the in-service regulator. This issue is further discussed in section **Error! Reference source not found.**.

Government agencies historically have had difficulties accessing data from manufacturers, but roadside enforcement agencies are likely to have improved access to data from automated vehicles. This is due to the implementation of ADSEs' first-supply data obligations, including the requirement that data is stored in Australia, the explicit extension of first-supply data obligations to the in-service operation of the ADS and the international development of the data storage system for automated driving systems.

8.3.6 Nationally consistent practices and procedures

Automated technology is nascent technology, and many operational aspects of the technology are still under development. A broad range of stakeholders have suggested that Australia's roadside enforcement agencies should develop a nationally consistent approach to enforcement through collaborative development of policy, operating procedures and training for police, first responders and other officials about:

- interacting with automated vehicles
- determining road traffic law breaches
- responding to and investigating automated vehicle crashes.

There have been similar proposals in overseas jurisdictions.[59]

A lack of national consistency could create an unnecessary burden on ADSEs, human drivers and fallback-ready users. There would also be risks that automated vehicle safety issues are not detected and managed consistently across jurisdictions.

8.4 Appropriate powers to address roadside safety risks of automated vehicles

A range of legal instruments define the powers enforcement officers have when interacting with vehicles on the road. Some of these powers may be sufficient to manage the safety risks of automated vehicles. For example, Queensland Police have powers under existing legislation to:

- stop a vehicle[60]
- require a vehicle be moved[61]
- stop and/or seize vehicles (singular vehicle)[62]
- prohibit use of an unsafe or defective vehicle[63]

[59] The Governors Highway Safety Association in the United States has advocated for a coordinated approach to traffic safety issues of automated vehicles. GHSA's white paper *Automated Vehicle Safety Expert Panel: engaging drivers and law enforcement* (August 2019) is available at https://www.ghsa.org/sites/default/files/2019-08/AV%20Safety%20White%20Paper_FINAL.pdf.

[60] *Transport Operations (Road Use Management) Act 1995* (Qld) ss 31 and 32.

[61] *Police Powers and Responsibilities Act 2000* (Qld) s 61.

[62] *Police Powers and Responsibilities Act 2000* (Qld) s 31.

[63] *Transport Operations (Road Use Management) Act 1995* (Qld) s 66.

- require a fleet or class of heavy vehicles to be presented for inspection where there is a reasonable belief that the vehicle(s) are defective (without the need for an authorised officer to physically sight each vehicle)[64]
- conduct a crash investigation.[65]

However, existing powers may not be sufficient to address all the safety risks from automated vehicles. For example, agencies may require the power to intercept an automated vehicle and disable the ADS, or fleets of ADSs. An audit of existing state and territory roadside enforcement powers will be required to assess their adequacy to manage all road safety risks of automated vehicles. This is discussed further in section 8.7.

8.5 Road traffic law breaches when an ADS is engaged

Breaches of road traffic laws (e.g. not stopping at a stop sign) when an ADS is engaged could be taken as evidence of a contravention of different regulatory regimes. This could be a breach of the:

- road traffic and road safety laws applying in a state or territory
- first-supply statement of compliance (ADR 90/01) under the RVSA
- general safety duty in the AVSL.

Each regime has a unique compliance and enforcement framework attached.

An important issue for roadside enforcement agencies and the in-service regulator will be how instances of observable breaches of road traffic laws could also trigger an investigation into a potential breach of the ADSE's general safety duty under the AVSL. This recognises that individual breaches of road traffic laws could be symptomatic of systemic technical failure, rather than human error or one-off ADS errors. Road traffic law breaches could also be an early warning for the first-supply regulator to investigate potentially wider issues.

8.5.1 Road traffic law breaches and the penalties applying to an ADS

State and territory road traffic laws place dynamic driving task obligations on human drivers. However, many of these obligations could apply to an ADS because the ADS will perform the dynamic driving task – for example, driving to the speed limit[66] and obeying traffic lights.[67]

Current offence and penalty provisions for breaches of road traffic laws focus on ensuring that human drivers have sufficient motivation to drive safely.[68] Incentives to comply with road traffic laws are based on individual penalties given to the human driver, with penalties including fines, demerit point losses, licence suspensions, vehicle impounding and imprisonment.

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[64] *Heavy Vehicle National Law 2012* (Qld) s 522.

[65] *Police Powers and Responsibilities Act 2000* (Qld) s 56.

[66] *Australian Road Rules 2019* r 20.

[67] Ibid., Pt 6.

[68] For previous discussions on the Australian Road Rules, refer to the *Changing driving laws: discussion paper* (October 2017), p. 73, and the *In-service safety for automated vehicles: Consultation Regulation Impact Statement* (July 2019).

This individual penalty-based approach for specific offences is unlikely to affect ADS compliance with road traffic laws. Some penalties will also not be relevant for an ADSE, the entity legally responsible for the ADS when it is engaged. For example, demerit points on a driver's licence are applicable to a 'natural person', and sanctions to suspend a driver's licence will not apply to an ADSE because it is a corporation. Other penalties, such as vehicle impounding, would penalise the registered operator rather than the ADSE.

An appropriate roadside enforcement approach for ADS breaches of road traffic laws should be developed. This could involve establishing policies and procedures to determine which incidents should be recorded in enforcement agency systems without triggering the individual penalties that usually attach to the offence and apply to a human driver. These may include incidents where control of the vehicle (human or ADS or remote driver) is unclear during an observed safety incident, there is certainty that the ADS was engaged when the incident occurred, or where road safety cameras (speed, point-to-point, red light) detect a road traffic breach. In the discussion paper, the NTC sought feedback on whether these incidents should be managed either by:

- issuing infringement notices to the human driver or registered owner/operator in the first instance, with existing processes to nominate another party responsible (the ADSE or remote driver), or
- reporting to the in-service regulator and/or the first-supply regulator to investigate whether the incident is evidence of a systemic safety issue that is more appropriately considered under those regulator's frameworks.

8.5.2 Road traffic law breach as a potential breach of the first-supply obligations

An ADSE must demonstrate that their ADS can comply with road traffic laws under the first-supply safety criteria.[69] However, the first-supply regulator will not be able to monitor an ADS's ongoing compliance with road traffic laws. If the first-supply regulator is notified of breaches, it is possible they would amount to a breach of the ADS's first-supply obligations. However, this is only likely to be the case if the incidents are indicative of a systemic issue. In that case, the first-supply regulator could use the compliance and enforcement tools available to it under the RVSA.

8.5.3 Road traffic law breach as a potential breach of the general safety duty

Similarly, in the discussion paper the NTC suggested that a breach of a road traffic law by an automated vehicle may indicate a breach of the ADSE's general safety duty under the AVSL. This recognises that an individual breach could be evidence of a systemic issue across that type of ADS.

A breach of a road traffic law will not, in all circumstances, constitute a breach of the general safety duty. For example, the breach could have been caused by factors outside the ADSE's control to the extent that it was not reasonably practicable to ensure the ADS's safety, or the breach could have been the result of the ADS trying to ensure the safety of occupants or other road users (e.g. crossing double yellow lines to avoid an object).

In the discussion paper the NTC proposed that when a breach of a traffic law occurs and

- the ADS was engaged at the time of the breach, or

[69] It should be noted that the criteria provide for circumstances when the ADS may breach road traffic laws in its response to foreseeable and unusual conditions such as object and crash detection and avoidance.

- a roadside enforcement agency forms a reasonable belief that the ADS was engaged at the time of the breach,

it should be taken as evidence of a breach of the general safety duty, with responsibility for investigating compliance with the duty resting with the in-service regulator.

Where it was found that the breach was caused by factors within the ADSE's control, the in-service regulator could choose to take action from its range of compliance and enforcement powers.

Mechanisms that would ensure the appropriate agency investigates possible system safety issues include:

- statutory requirements on agencies to share information, and interagency information-sharing agreements
- placing obligations on the ADSE to report ADS-engaged road rule breaches to the in-service safety regulator.

8.6 Stakeholder feedback

8.6.1 Key issues for effective roadside enforcement

Most stakeholders agreed with the NTC's assessment of the new risks and challenges automated vehicles will create for roadside enforcement and the need for a nationally consistent approach to enforcement through collaboration. However, stakeholders recognised the challenges from our current ability to determine how roadside enforcement would best intervene to ensure ADS safety without yet knowing the technological specifications and capabilities of automated vehicles (TMR QLD).

One government stakeholder suggested that the NTC undertakes further consultation with the Australia New Zealand Policing Advisory Agency during the development of the AVSL to ensure all issues are identified. Another stakeholder recommended holding a series of workshops in Australia and consulting with affected workers within police and emergency services (RTS Zero).

While stakeholders agreed with the key issues for effective roadside enforcement identified by the NTC, some stakeholders also noted the following issues:

- A new legislative definition of driver is pivotal to enable roadside enforcement.
- Immediate roadside access to data could determine, among other things, details about the entity responsible for the ADS and the level of automation of the vehicle as well the class of licence held by the fallback-ready user.
- Timelines in access the required information when dealing with vehicles and drivers at the side of the road to avoid unnecessary costs to both the driver/owner and for police (due to police being required to conduct further investigations).
- Roadside enforcement will likely require four key powers or capabilities:
  - intercept and safely stop an automated vehicle
  - investigate to determine the automated status of the vehicle
  - refer safety incidents (where an ADS was engaged) to the in-service regulator for further investigation and action
  - disable an ADS pending further investigation by the in-service regulator.

- The AVSL should include a head of power that would enable police to impound an automated vehicle at the roadside for a breach of road rules, as this would indicate a systemic failure of the ADS.
- Police must the able to ensure that automated vehicles are capable of pulling over (to allow emergency vehicles to pass and stop for police, for criminal offences, terrorist attacks where a vehicle is used either as a weapon or to escape), slowing down, stopping or changing lanes (e.g. due to the presence of a stationary emergency vehicle or lane closure) or altering course (e.g. take an emergency detour) (RTS Zero).
- There should be clarity about whether enforcement agencies' ability to remedy or neutralise an unsafe situation by accessing a vehicle, disabling the ADS and taking control of the vehicle includes consideration of the load that is being carried (Gas Energy Australia). This issue is particularly relevant in cases of freight vehicles carrying dangerous goods.
- There must be a clear definition of the role and responsibilities of third parties when witnessing an incident that involves an automated vehicle (AMC).
- There must be the ability to conclusively determine the party responsible for a vehicle at any point in time (Toll).
- There must be clearly defined reporting functions for ADSEs for information that is not available during roadside stops (Toll).
- ADSs should be optimised, or enforcement officers suitably trained and equipped, such that the responsible party can be determined during a roadside stop.
- Police and the coroner should retain investigative primacy and independence while also allowing the in-service regulator to identify issues with the ADS that fall outside of the police investigation (a law enforcement agency). (The NTC notes this is acknowledged in chapter 6 in section 6.5.1.)

8.6.2 ADS' roadside enforcement interaction capability

All stakeholders concurred that automated vehicles will need to recognise and respond appropriately to direction from roadside enforcement, temporary traffic controls and unusual roadway and traffic situations.

Stakeholders unanimously agreed to a requirement for ADSEs to provide a nationally consistent law enforcement interaction protocol to a regulator. A number of stakeholders considered that the law enforcement interaction protocol should be submitted at first supply to meet the safety criteria (AAA, TMR QLD, a government agency). Two government agencies also considered that the in-service regulator should have a level of involvement as modifications or updates occur.

The law enforcement interaction protocol should set out how roadside enforcement could safely and effectively interact with the automated vehicles for traffic, emergency and criminal-related matters (AAA, AMC, TMR QLD, SAFC). Stakeholders also supported the protocol including policy and other aspects such as operating procedures and training for police, first responders and other officials.

TMR QLD expected that law enforcement interaction protocols would be standardised internationally. However, TMR QLD argues that Australia will need to develop its own coordinated approach to ensure national consistency until that happens.

Government stakeholders considered further work was required to develop a law enforcement interaction protocol and identify any legislative gaps that could diminish the effectiveness of police interactions with automated vehicles. One state law enforcement

agency indicated a preference for the protocol to be developed through engagement between industry and roadside enforcement agencies as they would require the development of additional operational policing protocols that would only be accessed by these agencies. AAA also noted that work to develop the protocol should be in line with the development of international standards.

RACQ recommended a phased approach on requirements for the ADSE to advise on roadside enforcement interaction, and in the first instance the most critical aspect to identify is how law enforcement will gain access to data/information. Given that different responses will be likely depending on the vehicle's automation levels, requirements for protocols should be increased over time once vehicle technology matures and further evidence of capabilities or need is established.

FCAI noted that any information required at first supply should be clearly specified, including the circumstances in which the information must be provided, and in what capacity the ADSE would provide the information.

8.6.3 Breaches of road traffic laws as potential breaches of the general safety duty

There was consensus that it was not appropriate for breaches of road traffic laws by ADSs to be dealt with through the current infringements system given the potential safety ramifications of a systemic fleet-wide issue. Stakeholders from a broad range of sectors unanimously agreed that a breach of road traffic laws when the ADS is engaged should be treated as a potential breach of the general safety duty (AAA, AMC, FCAI, HI IoT, IAG, RACQ, SAFC, TMR QLD, Toll).

A government agency noted that a proportionate response to safety incidents involving vehicles when the ADS is engaged will depend on the AVSL going beyond the general safety duty to include standards that the ADS must meet. They argued that the ability to assess the performance of an ADS against such standards would be essential for a regulator to feasibly determine an ADSE's compliance with a general safety duty. Standards would also facilitate industry's understanding of what is expected of them and to design their ADS accordingly.

RACQ recommended a potential option to provide a flexible approach in the early stages of technology maturity and enforcement. They suggested that if the ADSE foresees the potential for its ADSs to breach any road rules, it should declare this to the in-service regulator and identify how it will continue to comply with the general safety duty and ensure safe outcomes are maintained. This approach could enable proactive consideration of potential issues and alternative solutions, avoiding future breaches of the general safety duty.

Toll also recommended further consideration of regulating such breaches via a separate new law, if it is determined that it cannot be reasonably handled through any other existing punitive legislative mechanism. The NTC notes that it is proposed that these breaches would be regulated through the AVSL, which will be a new law.

IAG suggested that traffic law breaches could be managed by setting up a phoneline or website where individuals, insurers or police could log any safety breaches they identify or witness. This information would then be provided to ADSEs to ensure they are not breaching their safety requirements.

8.6.4 Breaches by remote drivers

We also asked stakeholders how potential breaches of road traffic laws by remote drivers should be managed. Several stakeholders considered that incidents where a remote driver was in control a vehicle at the time of the breach should be referred to the in-service regulator (AAA, AMC, FCAI, SAFC). However, submissions indicated a diversity of views on this issue.

Other stakeholder perspectives include the following:

- Confirmed or suspected remote driver infringement should be referred to the body responsible for licensing the remote driver, and this may or may not be the in-service regulator (RACQ).
- A road traffic law breach that occurs when a remote driver was in control of a vehicle should be managed via a regular infringement under existing road traffic laws (Toll).
- The infringement should be the responsibility of the entity providing remote driving services, but if remote driving was part of the ADS then liability would fall on the ADSE (Hi IoT).
- It is too soon to try to resolve this issue because there is still uncertainty about the role of a remote driver (TMR).

AAA noted that the remote driver may be a human and there are issues around their behaviour and obligations that will need to be resolved.

8.6.5 Issuing an infringement where control of the automated vehicle is unclear or a breach is detected by a road safety camera

The NTC asked whether, in instances where control is unclear or the breach was detected by a road safety camera, infringement notices should be issued to the human driver or the registered owner/operator in the first instance, with a process to nominate an ADSE or remote driver if required.

Several stakeholders from a broad range of sectors indicated their preference for the human driver/owner receiving the infringement in the first instance by default (AAA, AMC, FCAI, Hi IoT, RACQ). However, clarity will be needed regarding the burden of proof requirements and the process for a consumer or vehicle owner to nominate an ADSE as being the party responsible for an infringement (AAA, Hi IoT).

SAFC disagreed with this position as it considered it simpler to issue infringement notices to ADS operators. SAFC expected that operators would likely have the best access to data that would determine if the ADS was in control of the vehicle at the time of the breach. If it is determined that the ADS was not in control, the operator could electronically nominate the fallback-ready user supported by engagement data. Such a process could be automated, saving time and effort. A government agency also noted that it could be a road safety risk to not issue the infringement notice to the ADSE in the first instance, as this could indicate a wider safety issue.

In contrast, and as with breaches to traffic laws by remote drivers, TMR QLD considered that these operational issues do not need to be resolved at this time. In this stakeholder's view, further consideration will be required as to whether to front-end the investigation and referral phase or first rely on current processes of issuing infringements to the registered operator and only investigating and referring issues if they are subsequently challenged. These processes should be customer-centric as much as possible, and it is likely that efficiencies will be found over time as the technology and regulatory landscape matures.

One government agency noted its view that he fallback-ready user (if there is one) should always be deemed to be in control of the vehicle, regardless of whether the ADS was engaged. They argue this view on the basis that the fallback-ready user will be expected to be monitoring the driving task and to take corrective action to prevent a breach of the road rules, and thus should be liable for breaches. We note ministers' previous decisions on control in automated vehicles.[70]

8.6.6 Other comments

There were other comments on issues related to roadside enforcement that were not covered in the discussion paper:

- RTS Zero recommended the concept of a fallback-ready user should be further considered, noting safety issues associated with their passive monitoring role.
- A government agency noted that licensing and drug and alcohol road transport laws are different in each state and territory, and as such, if fallback-ready users are subject to these laws they will not be regulated consistently across states.
- A government agency recommended further work on the concept of a remote driver, also noting that the laws of the jurisdiction in which the remote driver is operating could be different from the laws of the jurisdiction in which the vehicle is operating.

8.7 NTC conclusions

In this chapter, the NTC has highlighted the challenges roadside enforcement will face when interacting with automated vehicles on Australian roads. It is essential that a nationally consistent approach is developed to address those challenges. This would clarify the role of roadside enforcement agencies when automated vehicles are introduced on Australian roads.

8.7.1 Key issues for roadside enforcement

Following feedback from public and targeted consultation, the NTC has identified key areas that would need to be addressed to ensure police (as well as other first responders) are able to undertake their safety and enforcement roles when automated vehicles start operating on our roads. These areas include (but are not limited to):

- clear powers and procedures that can be implemented under all scenarios
- communicating with automated vehicles
- applying road rules to automated vehicles
- data access for crash investigation and reporting.

The NTC expects that further discussions and work on roadside interaction and enforcement could highlight additional areas.

Clear powers and procedures that can be implemented under all scenarios

Officers must be able to safely intervene and interact with any automated vehicle on the road when required. This is necessary when an automated vehicle is stopped for a possible traffic

[70] The NTC's May 2018 policy paper *Changing driving laws to support automated vehicles* can be accessed at https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Policy%20Paper%20-%20Changing%20driving%20laws%20to%20support%20automated%20vehicles.pdf.

violation or is involved in a crash, or when it is in motion, so officers can anticipate how the vehicle will operate.

It also would be useful to identify an automated vehicle's level of automation and to identify in real time whether it is under ADS or driver control. As discussed previously, automated vehicles and drivers operate differently in some situations. Conflicts may arise if officers or other road users assume that a vehicle is under control of the ADS when it is not, or vice versa.

Communicating with automated vehicles

Officers must be able to direct automated vehicles in traffic and to require them to pull over to the side of the road. Automated vehicles must also respond appropriately to temporary traffic controls and unusual roadway hazards and situations. This means that the communication capacity would need to be built into automated vehicles.

Applying road rules to automated vehicles

Officers will need to have a clear understanding of which and how road rules apply to automated vehicles. It is likely that some of the current rules will be changed to accommodate the operation of level 4 and level 5 automated vehicles – for example, road rules regarding distracted or impaired driving and tailgating.

Data access for crash investigation and reporting

As with conventional vehicles, law enforcement officers will be required to prepare their usual crash reports when an automated vehicle is involved in a crash. These reports will be essential to identify instances in which an ADS was engaged during or a period before the crash. ADSEs will be required to demonstrate how they will record and share information with relevant parties about the driving performance of the vehicle at first supply. The information recorded will relate to the general safe operation of the ADS (including data relating to crashes) and enforcing road traffic laws. This will continue to be enforced by the in-service regulator.

8.7.2 Law enforcement interaction protocol

The NTC recommends that law enforcement interaction protocols be developed by all ADSEs and provided to the in-service regulator. The in-service regulator would forward protocols to road transport/enforcement agencies. The ADSE should periodically maintain the protocol. Such protocols would ensure roadside enforcement officers have clarity about how they can interact with automated vehicles. For example, they 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
- 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.

8.7.3 Guidance on the areas to address in law enforcement interaction protocols

The NTC recommends that the in-service regulator, once established, should develop guidance on the areas to be covered in law enforcement interaction protocols, in conjunction

with state and territory enforcement agencies. This will ensure the protocols include all operational aspects relevant to police and other first responders. This will also provide a level of national consistency to these protocols.

As explained in section 8.6.2, a law enforcement agency highlighted the need for input from roadside enforcement agencies. They also noted that a law enforcement protocol would require the development of additional operational policing protocols in parallel.

The NTC considers that the proposed guidance would provide the opportunity for police engagement required to ensure that the law enforcement interaction protocols will be effectively implemented and meet the operational needs. This guidance could also support and inform the development of additional operational policing protocols.

8.7.4 Breach of road traffic laws should be evidence of a potential breach of the general safety duty

Breaches of road traffic laws when an ADS is engaged could be evidence of a specific vehicle's safety problem or even a systemic fleet-wide issue. The public consultation process confirms the NTC's view that it is not appropriate for ADS road traffic law breaches to be dealt with using the infringements system but treated as a potential breach of the general safety duty. As TMR noted in its submission, ADSEs, as large multinational corporations, are best regulated by the in-service regulator using fit-for-purpose tools.

In consequence, the NTC proposes that when a breach of a road traffic law occurs in circumstances where the ADS is engaged, or a roadside enforcement agency forms a reasonable belief that the ADS was engaged at the time of the breach, that it should be taken as evidence of a potential breach of the general safety duty in the AVSL.

Responsibility for investigating general safety duty compliance will rest with the in-service regulator rather than roadside enforcement agencies. The declarations made by the ADSE in its safety case to the first-supply regulator would be a relevant factor of the in-service regulator's investigations.

Where the road traffic law 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 chapter 7). However, if the investigation does not prove that ADS operation was a factor in the road traffic law breach and instead the human operator was responsible, the in-service regulator would refer the matter back to states and territories to manage through their infringements systems.

8.7.5 Issuing an infringement where control of the automated vehicle is unclear or a breach is detected by a road safety camera

NTC considers that the current process of issuing infringement notices to the driver or registered owner of the vehicle could continue to be used during the early stages of automated vehicle rollout on Australian roads. The existing procedure is expected to be suitable in early stages as:

- If level 3 automation is the first to be introduced in Australia, there will still be a fallback-ready user (human driver), with some obligations regarding safe operation of the vehicle. There may at least be a stronger argument to issue infringement notices to the driver in this instance, more so than the users of vehicles with higher levels of automation that may be deployed in Australia later.
- The number of automated vehicles operating on Australian roads is expected to be low. This will most likely result in a low risk of delay in the in-service regulator becoming aware

road rule breaches (in which the ADS was engaged) and will provide opportunities to test whether existing processes are adequate.

However, the differing views of stakeholders are an indication of the need for further work to map the processes and understand the impacts of infringement processing including issuing infringements at the roadside. The mechanisms to understand control of a vehicle at a point in time will likely be developed and improve as technology evolves and matures (TMR QLD). International approaches may also emerge that address this issue. As well, we note concerns about risks to road safety should the ADSE not be notified as soon as possible after a breach. We are therefore not recommending the process for issuing infringements at this time but will continue to develop the appropriate approach with states and territories.

8.7.6 Mechanisms for police and other parties to report to the in-service regulator

The proposed approach will create the need for clear and uniform communication channels to ensure that the in-service regulator is made aware of road rule breaches in which the ADS was in control of the vehicle.

Mechanisms that would ensure the timely information flows between the relevant parties to address possible system safety issues include:

- statutory requirements on agencies to share information, and interagency information-sharing agreements
- placing obligations on the ADSE to report ADS-engaged road rule breaches to the in-service safety regulator (this is covered in a prescriptive requirement described in chapter 3).

We have included three scenarios at the end of this chapter that outline the roles of roadside enforcement, ADSEs and the in-service regulator (camera detection, crash, serious safety issue).

8.7.7 Next steps

The complexity of the issues relevant to roadside interaction and enforcement has been highlighted across this chapter. It is possible that further issues will arise as our understanding of all the relevant aspects improves. At this stage, the impacts of potential solutions are not fully understood and/or known. The NTC considers that a collaborative process seeking to benefit from the expertise of all the relevant parties is required.

For this reason, the NTC proposes that further work be undertaken to incorporate the perspectives of state and territory governments (consulting with key stakeholders) to develop enforcement practices for automated vehicles and establish data requirements and data access protocols. The NTC considers that the first stage of this work should include a review of existing powers currently available to law enforcement agencies to identify any potential gaps regarding legal powers to safely and effectively address breaches to the road rules by automated vehicles.

This task will require identifying a range of scenarios to assess the application of provisions. A legislative analysis will identify gaps or provisions that require clarification to ensure they apply to automated vehicles. This task will inform further work by jurisdictions on whether additional powers are required to manage the roadside safety risks of automated vehicles within state and territory laws.

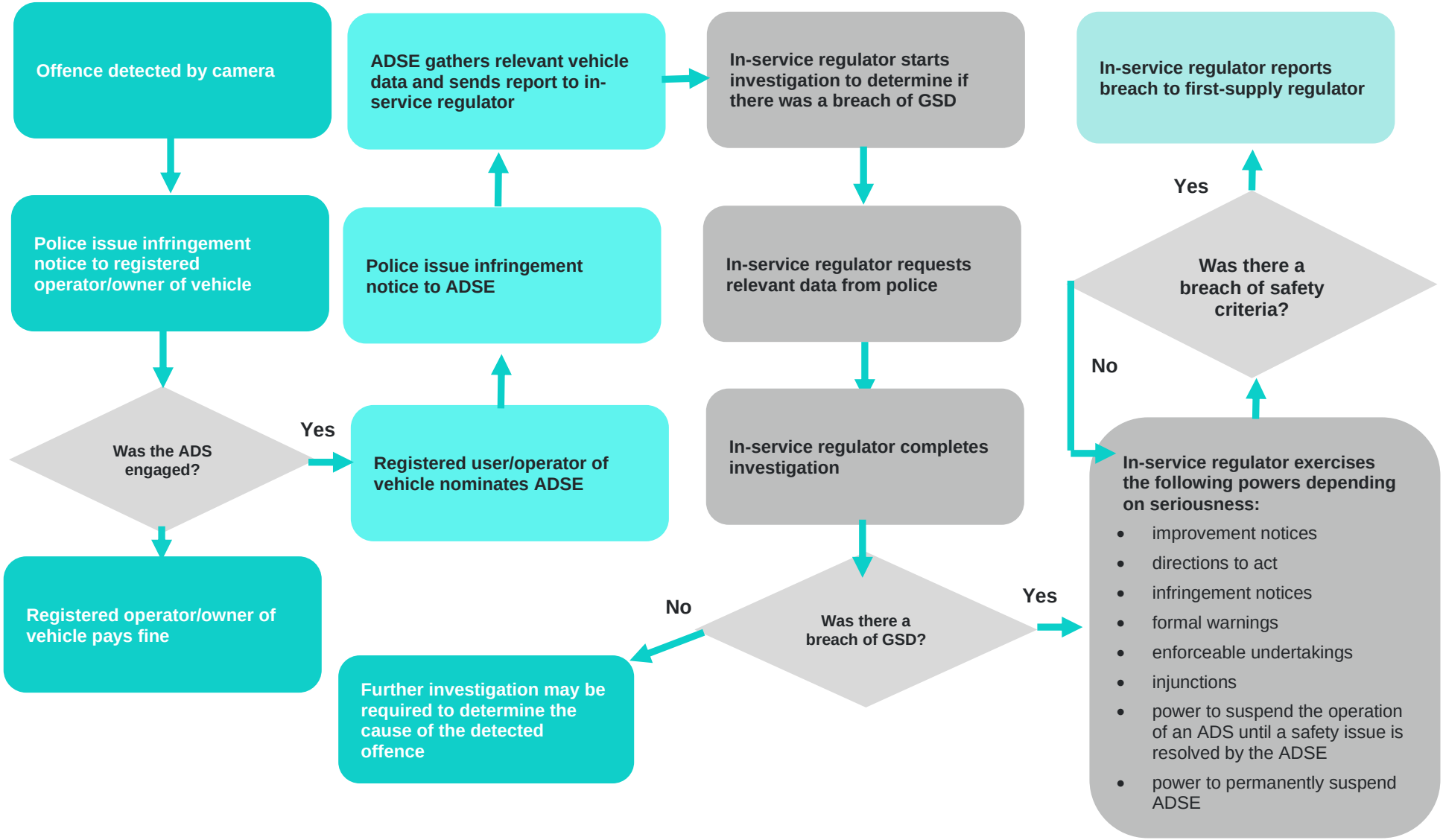
Recommendation 17: The AVSL will establish a prescriptive requirement on ADSEs to develop and maintain a law enforcement interaction protocol, to be shared with the regulator.

Recommendation 18: The regulator should, once established, develop guidance on the areas to be covered in law enforcement interaction protocols, in conjunction with state and territory enforcement agencies.

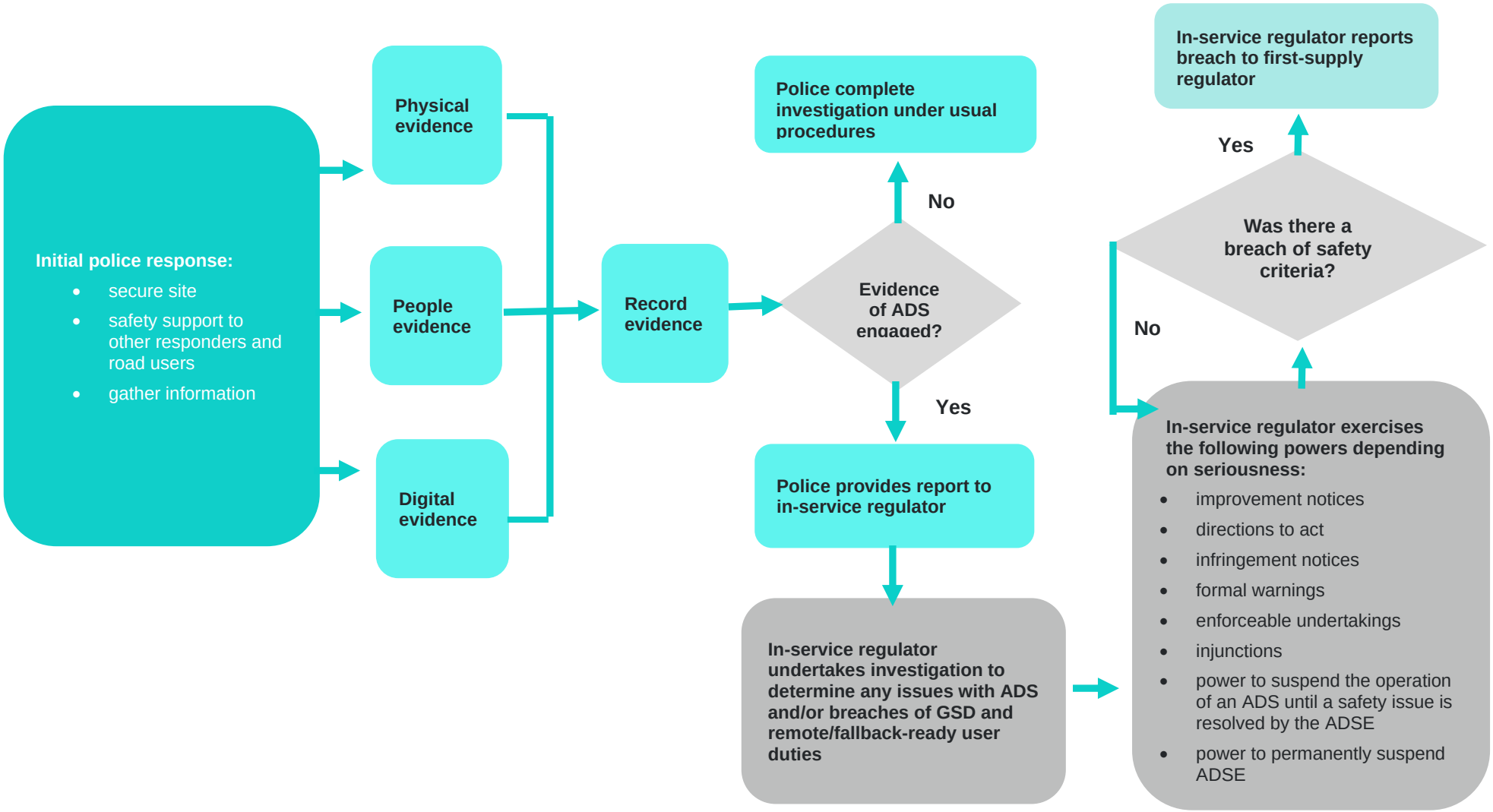
Recommendation 19: A breach, or suspected breach, of a road traffic law by the ADSE should be investigated by the in-service regulator as a potential breach of the general safety duty.

Recommendation 20: The NTC will work with state and territory governments to develop enforcement practices for automated vehicles and establish data requirements and data access protocols. This will require states and territories to undertake a review of existing enforcement powers. The NTC will report to ministers on this in November 2022.

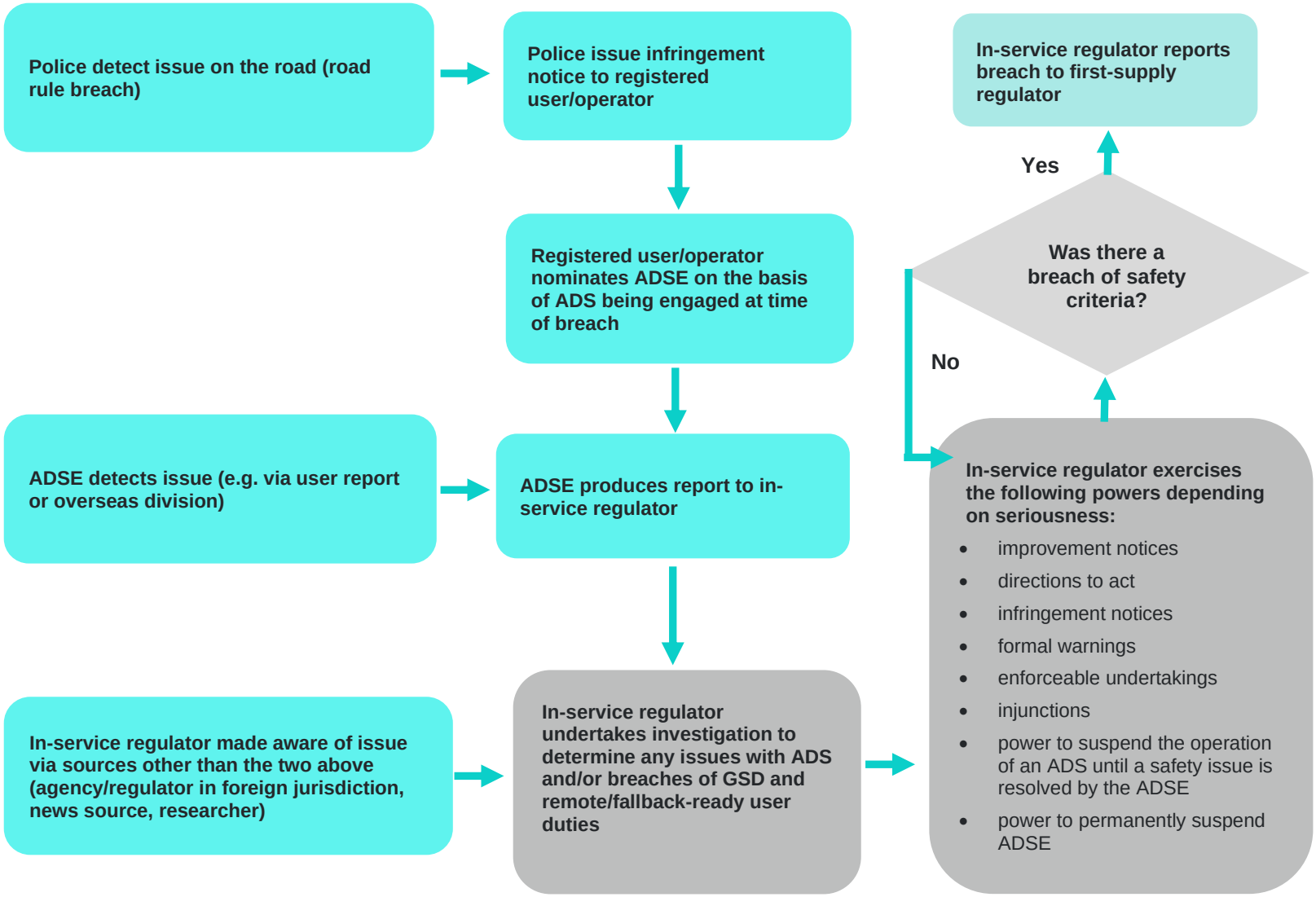
Scenario 1: Camera-detected offence



Scenario 2: Crash



Scenario 3: Serious safety issue



9 Relationship between the in-service regulator and other agencies

Key points

- The in-service regulator will need to interact with other regulators and enforcement agencies at the Commonwealth, state/territory and local government levels to carry out its functions and to ensure a coordinated approach to safety assurance for automated vehicles.
- There may be overlapping functions and shared duties between the in-service regulator and other agencies. These will need to be clearly identified, and arrangements will be needed to ensure there is no duplication of the regulatory task.
- Interactions between the in-service regulator and other agencies, and the way they are managed by the in-service regulator, will develop over time.

9.1 Purpose of this chapter

The purpose of this chapter is to:

- identify and describe the other regulators and enforcement agencies that the in-service regulator will need to interact with
- identify any potential overlapping functions to enable decisions to be made about the lead regulator where there are shared duties
- identify where data and information will need to be shared between the in-service regulator and other regulators or enforcement agencies (chapter 10 provides a proposal of how data and information sharing will work).

9.2 Relevant regulated parties

As discussed in chapter 2, the NTC previously consulted on the parties who will play a role in ensuring the in-service safety of automated vehicles and considered how these parties are regulated. The AVSL will regulate the ADSE, ADSE executive officers and remote drivers in relation to the in-service safety of automated vehicles. State and territory legislation will provide rules for the fallback-ready user and other relevant existing parties such as registered owners.

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

- where a regulator has overlapping functions in relation to the parties regulated by the in-service regulator
- to support the smooth functioning of the regulatory framework for in-service safety.

9.3 Interactions with other regulators and agencies

There are several regulators that play a role in road safety. Existing regulators will regulate certain aspects of automated vehicle in-service safety. These include DITRDC, state and territory vehicle and road transport agencies, road managers and police agencies. Although they have a more general jurisdiction, the various WHS authorities and product safety and consumer law regulators can investigate practices and products that affect road safety. State and territory commercial passenger transport legislation may impose safety obligations on providers of passenger services.

The in-service regulator will have to interact closely with some regulators and agencies, while there are others it may only interact with occasionally. The in-service regulator's relationship with regulators will need careful consideration, especially when it interacts with other regulators in circumstances where a regulated party performs multiple roles.

The regulators and agencies that the in-service regulator will need to interact with regularly are identified below.

9.3.1 First-supply regulator

DITRDC is the first-supply regulator and will regulate automated vehicles and automated vehicle components at their first supply to the Australian market under the RVSA.[71] The RVSA requires all road vehicles or road vehicle components imported as new or second hand to comply with the relevant ADRs at the time of manufacture and supply to the Australian market.

As noted in section 1.2.1, ADSEs will need to submit a statement of compliance to DITRDC showing how they meet a set of safety criteria in ADR 90/01 before they are granted a type approval. All vehicles entering the market under that type approval will need to conform to the declaration made at first supply. Some of the first-supply criteria will have an ongoing in-service element – for example, the criteria relating to compliance with the road rules, ODD, installation of system upgrades, education/training and data sharing and recording. These criteria are proposed to be given effect in the national law and enforced by the in-service regulator.

The first-supply regulator and the in-service regulator will have overlapping compliance and enforcement responsibilities in relation to ADSs in service. For example, in circumstances where an in-service ADS that had been type-approved at first supply was found to have a serious safety defect by the in-service regulator, it may be the first-supply regulator that administers a compulsory recall.

Arrangements for interaction between the first-supply regulator and the in-service regulator will need to address:

- effective operational liaison and timely information sharing on matters relating to automated vehicle safety
- cooperation in investigations that are of mutual interest to both regulators
- cooperation and information sharing in compliance and enforcement action, including agreement on 'who takes the lead on what' in areas of overlap

[71] The implementation of the first-supply safety criteria is being developed by DITRDC.

- providing clarity to regulated parties about the roles of the regulators and compliance obligations under the respective legislation that they administer.

9.3.2 Roadside enforcement agencies

Several agencies play a role in roadside enforcement, including police, road transport authorised officers, NHVR officers and local government parking officers. Traffic management officers manage traffic flows, respond to on-road incidents (crashes, breakdowns and debris on roads) that affect the flow of traffic and coordinate emergency responses – for example, road closures due to floods and bushfires. NHVR officers have broad powers relating to intercepting and examining heavy vehicles. Local government parking officers administer and enforce restrictions on stopping and parking. The police investigate traffic offences and monitor and enforce compliance with road rules. In this paper these officers are collectively referred to as roadside enforcement officers. The role of the police in criminal investigations and enforcement is considered separately in section 9.3.3.

The complementary roles and interactions between roadside enforcement agencies and the in-service safety regulator will require coordination and information sharing. For example, chapter 8 describes information flows required between roadside enforcement and the in-service regulator where a road traffic law breach has been observed. Arrangements for interaction between the in-service regulator and roadside enforcement agencies will need to address:

- procedures for efficient functioning of the roadside enforcement model
- procedures for information sharing.

This could be done through agreement or an MoU with the lead enforcement agencies in each jurisdiction on how roadside enforcement is to be managed and by setting up a forum for regular discussions and meetings to resolve issues as they emerge.

9.3.3 Law enforcement and emergency services

This section considers the role of the police in general law enforcement and criminal investigations. First responders to the scene of a crash include police, fire services and emergency medical services. The police are responsible for investigating fatal crashes. The NHVR also has a role in traffic enforcement.

The in-service regulator will have a role in influencing the adoption of best practices by the ADSE in relation to data recording, access to information and safe interaction with emergency services through ongoing monitoring and enforcement of the general safety duty. Arrangements for interaction between the in-service regulator and law enforcement and emergency services will need to address:

- procedures for information sharing
- procedures for serious crash investigations
- coordination of enforcement action in areas of overlap (e.g. where there is an offence under state or territory criminal law and as well as a breach of obligations under the AVSL)
- coordination of education activity including the development of any educational material targeted at fallback-ready users, other road users and law enforcement and emergency officers.

At the Commonwealth level, the Australian Federal Police and the Australian Cyber Security Centre are responsible for cyberattack prevention/investigation. The in-service regulator will need to work and share information with the Australian Federal Police and the Australian Cyber Security Centre to investigate the origins and effects of a cyberattack.

9.3.4 National Heavy Vehicle Regulator

The purpose of the HVNL is to regulate parties who can reasonably influence the safe and efficient heavy vehicle journey. Duties are placed 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 (e.g. if it is an employer of a driver of a heavy vehicle), it will have to comply with the primary duty under the HVNL.[72] The in-service regulator will enforce compliance by ADSEs with the general safety duty under the AVSL. There will therefore potentially be overlapping areas of responsibility between the NHVR and the in-service regulator.

The rules to be made for the fallback-ready user and remote drivers will need to consider heavy vehicle fatigue and other obligations that apply to a driver of a heavy vehicle, and these would need to be included in the HVNL.

Arrangements for interaction between the in-service regulator and the NHVR will need to address:

- effective operational liaison and timely information sharing on matters relating to heavy vehicle safety
- cooperation in investigations that are of mutual interest to both regulators
- cooperation and information sharing in compliance and enforcement action, including agreement on 'who takes the lead on what' in areas of overlap
- providing clarity to regulated parties regarding the roles of the regulators and compliance obligations under the respective legislation that they administer.

9.3.5 Work health and safety regulators

Where an ADSE operates a commercial fleet of rideshare/passenger transport vehicles, the ADSE would be 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.

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. The in-service regulator will need to interact closely with WHS regulators in all jurisdictions. The interactions between the in-service regulator would include the sharing of information and cooperation in investigations that are of mutual interest to both regulators.

9.3.6 Australian Competition and Consumer Commission

An ADSE may have obligations under the Australian Consumer Law.[73] Compliance obligations under the Australian Consumer Law apply to those who supply consumer goods in trade or commerce and include notification of voluntary and compulsory recalls. Vehicle recall notifications are currently issued under the Australian Consumer Law,[74] while DITRDC administers the recalls and investigates safety issues and ensures compliance with ADRs.

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

[73] 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 Australian Consumer Law.

[74] This function will sit with DITRDC when the RVSA fully commences.

The in-service regulator would need to liaise with the ACCC to identify and avoid duplication of supervisory responsibilities and to track any emerging issues in relation to automated vehicle safety.

9.3.7 Australian Securities and Investment Commission

Infrastructure and transport ministers have agreed that due diligence obligations be imposed in the AVSL on executive officers of the ADSE to ensure the ADSE complies with the general safety duty.

The Corporations Act requires directors and officers of a corporation to discharge their duties with reasonable care and diligence. It also obliges those persons to discharge their duties in good faith and in the best interests of the corporation. The in-service regulator would need to liaise with ASIC to identify and avoid a duplication of regulatory responsibilities and to ensure cooperation in investigations that are of mutual interest to both regulators.

As discussed in chapter 4, 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 in-service regulator will liaise with ASIC when considering the accreditation of new entities to take on the responsibilities of an ADSE.

9.3.8 Commercial passenger transport regulators

State and territory passenger transport legislation ensures the safety of commercial passenger transport services 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 used to provide a commercial passenger service are responsible for ensuring the safety of the vehicle.

Where an ADSE provides commercial passenger services, its compliance with the general safety duty under the AVSL will overlap with safety duties under state and territory commercial passenger transport legislation. The in-service regulator would need to liaise with state and territory commercial passenger transport regulators to ensure cooperation in investigations that are of mutual interest to regulators.

As ADSEs operating commercial fleets are likely to operate at the national level, the in-service regulator and state and territory regulators will need to share information about potential breaches of safety duties.

9.4 Managing interactions with regulators and agencies

The in-service regulator will need to work closely with the regulators and agencies described above to create a framework for cooperation. The framework will facilitate collaboration and the exchange of information. As described in chapter 6, engagement with jurisdictions will be one of the key functions of the in-service regulator. The in-service regulator will need to build a general level of cooperation and communication.

Informal interactions will need to be supported by more formal arrangements. This may require provisions in legislation supplemented by service-level agreements and MoUs between the in-service regulator and other regulators and agencies.

Legislation can specify how overlapping duties should be managed and how a conflict in legislation should be resolved. Legislation will also need to support information sharing and coordination by the in-service regulator. The in-service regulator's powers to access and share information with other regulators and agencies will need to be included in the AVSL (discussed further in chapter 10). Powers for state and territory traffic and law enforcement agencies and the NHVR to access information from, and share information with, the in-service regulator will need to be included in relevant legislation.

Overlapping responsibilities across jurisdictions and arrangements for information sharing and coordinated action will need to be implemented through MoUs and service-level agreements. MoUs are common where there is jurisdictional overlap and areas of mutual interest. An example is the MoU between the ACCC and ASIC.[75]

To facilitate engagement between agencies, especially in the early stages soon after the scheme commences, it is anticipated that the in-service regulator will set up consultative committees to:

- identify and resolve issues that affect the smooth functioning of the overall framework
- facilitate development of information-sharing frameworks
- coordinate development of educational and guidance material directed at a range of entities with a role in in-service safety.

9.5 Stakeholder feedback

The NTC sought feedback on whether the discussion paper accurately describes the interactions between the in-service regulator and other regulators and agencies, and whether there were any other agencies the in-service regulator will need to interact with.

9.5.1 Interactions between the regulator and other agencies

Several stakeholders considered that the interactions were adequately described. A government agency noted that there must be a clear delineation of responsibilities and identification of who is the lead agency in each identified potential scenario. A government agency noted that the regulator will need to build a level of cooperation and communication with all law enforcement agencies to ensure criminal and crash investigations can be undertaken unimpeded. AAA submitted that care must be taken when considering the interaction with other regulators. The ACCC submitted that the AVSL provides an opportunity to implement best practice regulatory design, including clearly defined roles and responsibilities for regulators and minimal overlap and duplication with existing regulatory regimes.

A government agency suggested that 'commercial passenger transport regulators' should also include regulators of bus services, not just taxis, hire cars and rideshare services. Regulators of commercial passenger transport may also have information about operators of mixed fleets (autonomous and traditional buses) that would be useful for the in-service regulator.

TMR QLD disagreed on two key areas – the split of responsibilities between the regulator and other agencies and how best to reduce the overlap between a range of regulators and

[75] MoU between the ASIC and the ACCC signed on 21 December 2004 available at https://download.asic.gov.au/media/2065149/mou-accc-asic.pdf.

the in-service safety regulator. TMR QLD noted that the in-service regulator will develop the necessary skills, experience and relationships to effectively manage ADS safety, and it is unlikely that other regulators will want to take duplicative action if the in-service safety regulator is seen as effective and efficient.

9.5.2 Interactions not identified in the discussion paper

Stakeholders identified the following additional interactions not identified in the discussion paper:

- interactions with insurers including motor accident injury insurers (IAG, TMR QLD, two government agencies)
- future bodies not yet established (AAA, RACQ)
- the National Office of Road Safety (RACQ)
- research bodies such as iMove partners, ARRB and industry groups (RACQ, an industry group)
- local governments (Paul Lucey, TMR QLD, a government agency)
- state and territory dangerous goods regulators (TMR QLD)
- Transport Certification Australia and Austroads (a government body)
- jurisdictional coroner's offices (a government agency)
- public prosecutors and courts when undertaking compliance and enforcement functions (a government agency)
- state and territory revenue protection agencies with respect to infringement management and processing (a government agency)
- state and territory bodies established for the purposes of investigating transport crashes (a government agency)
- peak industry bodies to support education/communication elements of compliance for the in-service regulator, including fleet operators whose fleet comprises a mix of automated vehicles and conventional vehicles (a government agency)
- Commonwealth and state and territory privacy and information management agencies when developing information exchange frameworks and related agreements (a government agency).

9.6 NTC conclusions

There will be a range of interactions with many other agencies. Agencies will need to work together and build close cooperation and communication to ensure roles and responsibilities are well understood. This includes working closely with crash investigation agencies, law enforcement agencies and the first-supply regulator. As identified by stakeholders, the in-service regulator will need to interact with a wide range of agencies such as motor accident injury insurance regulators, local governments, research bodies and other transport-related agencies and regulators. Working closely with other regulators will reduce the likelihood of duplication among regulators. The in-service regulator will need to identify these interactions and to determine how best the interactions, including information sharing arrangements, are managed.

As outlined in chapter 6, a project office will be established ahead of the commencement of the AVSL to set up the new in-service regulator. A key task for this office will be to develop the operating framework of the in-service regulator. This framework will need to identify how

the regulator will establish and manage relationships with other agencies, such as through MoUs.

10 Access to information by the in-service regulator and information exchange with other regulators and agencies

Key points

- The in-service regulator will require access to information about compliance with the general safety duty, the operation of automated vehicles and regulated parties to effectively perform its role of ensuring the in-service safety of automated vehicles.
- The in-service regulator and other agencies will need to exchange information on the safety of automated vehicles. This exchange will be facilitated by statutory powers, agency agreements and collaboration across entities.
- The in-service regulator will need clear legislative authority to collect, use and disclose personal information to other agencies that is reasonably necessary for its functions and activities under the national law.
- The in-service regulator's management of personal information will need to comply with Australia's privacy principles. A privacy impact assessment will be undertaken after the legislative implementation option for the in-service framework has been decided.

10.1 Purpose of this chapter

The purpose of this chapter is to:

- identify the types of information[76] required by the in-service regulator, the purposes the information will be used for and the sources of this information
- identify information flows and exchange arrangements between regulated parties, regulators and other agencies
- recommend powers required by the in-service regulator to access relevant information, including any privacy implications.

10.2 For what purposes will the in-service regulator use the information it accesses?

The in-service regulator's primary purpose for accessing information is to enable it to monitor and enforce compliance with the general safety duty. The key functions associated with the general safety duty are:

- monitoring, investigating and enforcement
- collaborating with other agencies and regulators
- accreditation and regulatory approvals

[76] The term 'information' in this chapter refers to data that is organised, collated, analysed and interpreted.

- developing standards
- crash investigation.

10.2.1 Monitoring, investigation and enforcement

Monitoring, investigation and enforcement of the general safety duty is a key function of the in-service regulator. To apply the AVSL, it is intended that a risk-based approach to compliance and enforcement is adopted. The information accessed will enable the in-service regulator to target the highest risks and adapt its approach accordingly.

Examples of the types of information used for this purpose are shown in Table 1.

Table 1. Example types of information used for monitoring, investigation and enforcement

Safety risk	Type of information required and use
Minor: An occupant reports an automated vehicle is braking harshly at give-way signs.	The in-service regulator may require the ADSE to examine the issue and assess its response.
Major: A fleet of ADSs disengage without warning to the fallback-ready users.	The in-service regulator would require information that relates to the ADS design and validation process and human–machine interface (including declarations made by the ADSE at first supply). The in-service regulator would need to assess whether the ADSE and its executive officers have failed to meet their duties under the AVSL.

10.2.2 Collaborating with other agencies and regulators

The in-service regulator will need to collaborate with a range of other agencies and regulators to deliver its functions and support other agencies to deliver their functions within the system. Information flows between key parties are discussed later in this chapter.

10.2.3 Accreditation and regulatory approvals

The in-service regulator will need information to support its accreditation and regulatory approval functions – such as transfer of responsibilities between ADSEs. The in-service regulator will need information from the current ADSE, the proposed ADSE and the first-supply regulator.

10.2.4 Developing standards

The in-service regulator will need information on the development of international standards and local performance of ADSEs to develop standards associated with the law in the Australian context. Standards will assist in providing clarity to stakeholders about the expectations regarding compliance with the general safety duty.

10.2.5 Crash investigation

The in-service regulator will need access to a broad range of information to assist state and territory police in crash investigations, and to undertake its own investigations of safety issues. This will enable it to determine the causes of incidents and take appropriate action. An example of the information used for this purpose is provided in Box 3.

Box 3. Crash investigation use case for access to information and data

Potential data and information sought by the in-service regulator

- Data storage system for automated driving to identify who was in control at the time of the incident, ADS level of automation engaged, transition demands to the fallback-ready user and responses
- Event data recorder on speed, acceleration, lane change, brake activation
- In-cabin camera and biological or health sensor information to assess the behaviour of the driver and/or occupants
- Audio data on voice commands and other inputs
- External camera and lidar images to identify factors outside the vehicle
- ADS version and system diagnostic check history
- ADSE's evidence in support of the statement of compliance at first supply
- First-supply regulator's decision on the ADSE's application to supply the ADS to the market
- Previous safety-related investigations into the ADSE or ADS

10.3 Types of information required by the in-service regulator

The in-service regulator will require three categories of information to support the key functions associated with the general safety duty:

- information about compliance with the general safety duty
- information regarding the parties involved in the automated vehicle's operation
- information about the operation of the automated vehicle.

10.3.1 Information about compliance with the general safety duty

The in-service regulator will require detailed information on the ADSE's approval process at first supply, including key elements of the safety case, to enforce ongoing compliance. In addition, further information regarding the ongoing management of ADS safety risks will be required – for example, information about the ADSE's safety management systems, or its records of modifications.

10.3.2 Information regarding the parties involved in the automated vehicle's operation

Information will be required about the ADSE's executive officers to assess compliance with due diligence obligations associated with the ADSE's general safety duty. To assist in crash investigations, more detailed information on the identities of the fallback-ready user, the driver, the registered owner, the remote driver and occupants of an automated vehicle may also be required.

10.3.3 Information about the operation of the automated vehicle

Under the first-supply safety criteria, the ADSE is required under the statement of compliance to ensure the vehicle has real-time monitoring of the vehicle's driving performance and incidents. Information required to identify specific vehicles includes the make, model and vehicle identification number (VIN), as well as information about the current ADS version and upgrade history.

Information that is primarily generated by the vehicle will also be required, including:

- information on who was in control at a point in time – the ADS or human driver, the level of automation engaged, any transition requests to the driver or fallback-ready user
- information on the vehicle's location, speed, brake activation and acceleration
- information on the circumstances that may have caused or contributed to the crash.

10.4 Who will the in-service regulator seek information from?

The in-service regulator will need to obtain information from a range of different entities in order to fulfill its functions. These include ADSEs, the first-supply regulator, registration and licensing authorities and law enforcement operators. Information provided from entities other than the ADSE will be an important source of verification.

10.4.1 ADSEs

ADSEs will need to provide all three types of information required by the in-service regulator, including information about compliance with the general safety duty, information regarding the parties involved in the automated vehicle's operation, and information about the operation of the automated vehicle.

One of the obligations the ADSE must self-certify against at first supply focuses on data recording and sharing. The ADSE must outline how it will record information about the driving performance of the vehicle. The information recorded will relate to the general safe operation of the ADS (including data about crashes) and enforcing road traffic laws.

ADSEs are required to provide information to relevant parties as necessary and in compliance with relevant privacy laws.

10.4.2 Remote drivers

The in-service regulator will have responsibility for regulating remote drivers.[77] It will require information from the remote driver on their commercial operations and details of their role in safety-related incidents.

10.4.3 First-supply regulator

The first-supply regulator will provide critical information regarding an ADSE's statements and evidence at first supply, which will be used to monitor and enforce compliance with the general safety duty. The in-service regulator will also require details of specific decisions including on applications for type-approval variations. The first-supply regulator will need to review its authority to share information with the in-service regulator.

[77] Agreed by infrastructure and transport ministers in June 2020.

10.4.4 Registration and licensing authorities, law enforcement agencies and the National Heavy Vehicle Regulator

Registration and licensing authorities are a source of information regarding the parties involved in the automated vehicle's operation. These authorities can provide access to information about the vehicle's registration and its registered owner/operator, which may be the ADSE, an individual (including their licence status) or another entity like a corporate fleet operator. The National Exchange of Vehicle and Driver Information System (NEVDIS) is a system managed by Austroads that exchanges this information across states and territories. It may be more efficient for the in-service regulator to source information from NEVDIS as opposed to each of the state/territory systems.

Law enforcement agencies may hold information about entities and circumstances of observed on-road incidents that relate to the in-service safety of automated vehicles. Law enforcement agencies may also be required to share infringement information with the in-service regulator. Agencies like the Australian Federal Police and the Australian Cyber Security Centre may also hold information relating to cyberattack prevention and investigation.

The NHVR holds information on its compliance and enforcement activities related to the operation of heavy vehicles, including data about heavy vehicles, their movements, drivers and operators.

10.4.5 Road managers – private and public

The in-service regulator may seek information from road managers given its role to approve significant in-service modifications that geographically expand the ADS's ODD (as described in chapter 5). The in-service regulator may also seek road manager information as part of its assessment of an appropriate road access arrangement if there are circumstances where the first-supply regulator consults the in-service regulator on an ADS's stated or requested ODD.

The in-service regulator may seek information held by public and private road managers about the operation of an automated vehicle – for example, the video or toll accounts of a vehicle's movement along a road. Information sharing arrangements with private sector entities delivering services typically provided by government, such as toll road operators, are likely to have similar requirements as those with public sector agencies.

10.4.6 Regulators outside transport systems

Regulators that are responsible for sectors such as WHS, consumer safety and competition, and corporations' governance may also have information that the in-service regulator will require. Information exchange with these regulators would most likely occur with much less frequency than with the other agencies listed earlier in this section.

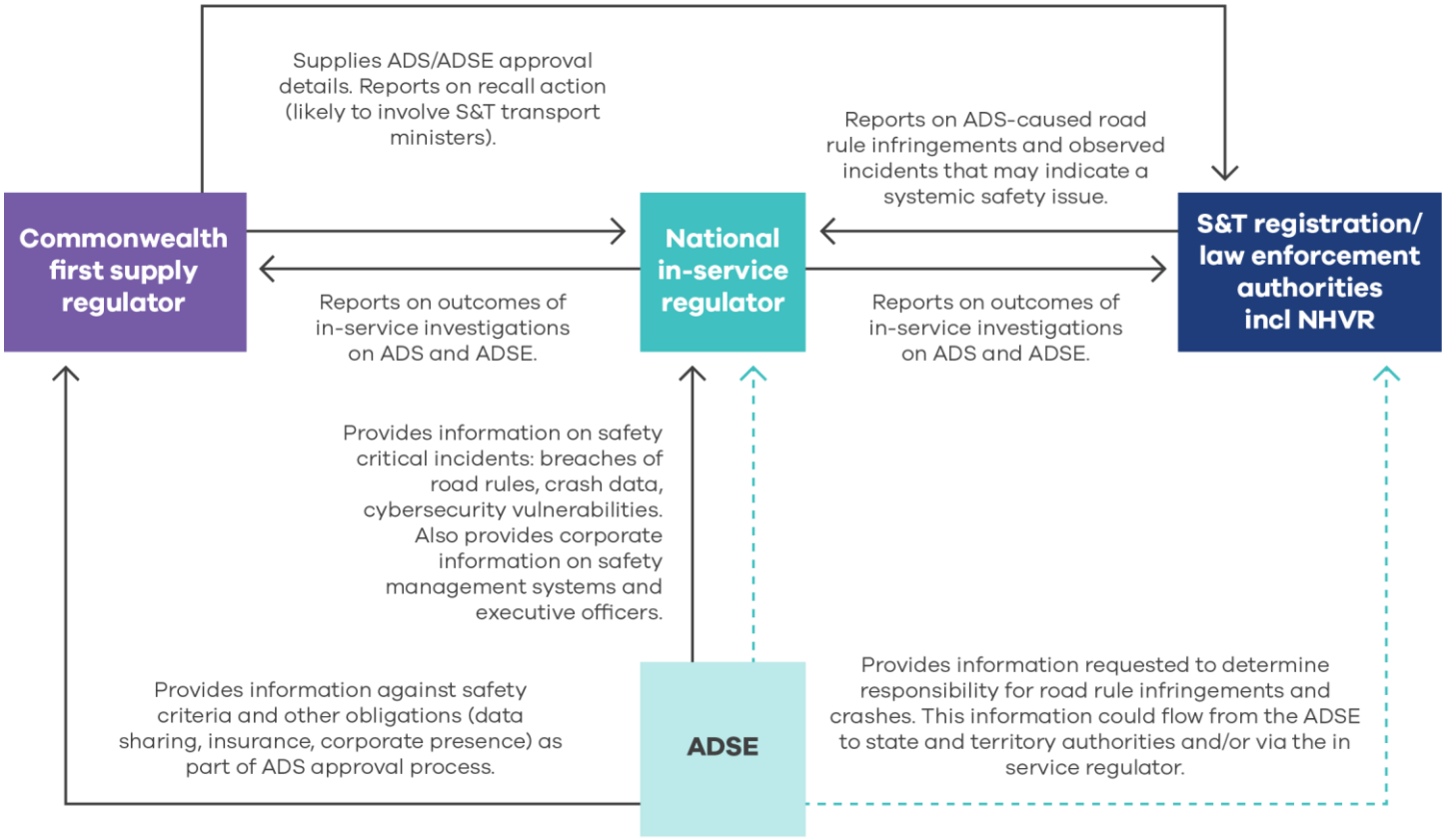
10.5 Key information flows for compliance and enforcement

Clear information flows will be needed for the in-service regulator to deliver its compliance and enforcement functions. This information exchange will need to be supported by collaborative relationships, statutory provisions and clear agreements articulating roles and responsibilities.

The types of information required and the parties involved in the exchange are illustrated at a high level in Figure 8. The key parties are the in-service regulator, the ADSE, the first-

supply regulator and state/territory agencies. Note that there will be other information flows not relevant to the in-service regulator's compliance and enforcement, such as from the ADSE to insurers, that have not been captured in this diagram.

Figure 8. Key information flows for in-service compliance and enforcement of automated vehicles



*Other regulators discussed in chapter 9 are omitted from this diagram (for example, occupational health and safety agencies where the automated vehicle is a workplace, and point-to-point transport commissioners where commercial fleets of on-demand automated vehicles are a business model).

10.6 Information exchange frameworks

There are three mechanisms that the in-service regulator could utilise to obtain and manage information:

- interagency and industry agreements
- expressly placing obligations on agencies in law to share information and maintain accurate records
- system-to-system design.

10.6.1 Interagency and industry agreements

The in-service regulator may want to enter into agreements with other agencies and also with ADSEs to articulate and clarify information sharing arrangements. These types of agreements are often in the form of MOUs. Information that is provided to the in-service regulator will need to adhere to the relevant privacy policies and legislation.

10.6.2 Obligations in law

Obligations to share information may need to be clarified in the law. An example of where this has been done is in the HVNL where the obligations between agencies and the regulator are articulated. This includes specific requirements regarding the accuracy and timeliness of the information provided.

The statutory power that the in-service regulator may require to exchange information with other agencies is discussed in the following section.

10.6.3 Information exchange between government information systems

As the in-service regulator evolves as a regulatory body, system-to-system information exchange between government systems may be required. As previously discussed, the first-supply regulator will hold details regarding the initial safety case and registration/licensing systems will hold details such as the number and identification of automated vehicles.

Further information and an illustration of a possible system-to-system data flow can be found in the discussion paper.[78]

10.7 Access to information powers required by the in-service regulator

The in-service regulator will require access to information powers in order to fulfill its functions and to meet its safety objectives. In addition, it will also need access to information for purposes beyond compliance and enforcement. The AVSL will need to outline these statutory powers and place obligations on the regulated parties to provide information. The in-service regulator will require clear legislative authority to collect, use and disclose

[78] Available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Discussion-Paper-national-in-service-safety-law-for-AVs.pdf.

personal information that is reasonably necessary for its functions. The management of personal information will need to comply with Australia's privacy principles.

Specific powers needed include:

- a power to expressly access information, enable information exchange and enter agreements for purposes relating to the AVSL and other purposes
- a power to exchange information for the purposes of interagency cooperation
- a power to enter into agreements with industry and other parties.

10.7.1 Power to expressly access information, enable information exchange and enter agreements for purposes relating to the AVSL and other purposes

The in-service regulator will require statutory authority to both request and disclose information in relation to fulfilling its functions. This will also be required for purposes beyond compliance and enforcement. The first-supply requirement on the ADSE to record and share data should be given effect in the AVSL.

Specifically, the AVSL will need to include a clear power to authorise the in-service regulator, state and territory roadside enforcement officers and other agencies that may have a role in automated vehicle safety to collect information, including personal information, for specific purposes. State and territory legislation may need to be changed to enable enforcement officers to have the power to collect, use and disclose vehicle data at the roadside as well as via the ADSE for these purposes.

10.7.2 Power to exchange information for the purposes of interagency cooperation

As outlined previously, the in-service regulator will need to exchange information with other agencies. Authority will be needed to enable the regulator to request and use information from other agencies as well as to provide information to other agencies. The provision could clarify that agencies are empowered to provide information to the regulator.[79]

10.7.3 Power to enter into agreements with industry and other parties

The in-service regulator may require the ability to enter into agreements with industry (including industry bodies) and other parties. This may serve the purpose of developing greater cooperation and increasing understanding of safety risks and general industry trends. The NTC recommends that the AVSL provides a clearly expressed power for the regulator to enter into information exchange agreements with regulated parties and industry bodies.

[79] For example, s 660 of the HVNL empowers the NHVR to exercise its functions in cooperation with participating jurisdictions or the Commonwealth. The NHVR may ask for information it requires to exercise its functions under the HVNL and use that information to exercise its functions. It may also give information to a government agency of a participating jurisdiction or the Commonwealth that they require to exercise their functions under their laws. A government agency that receives a request for information from the NHVR is authorised to give the information to the NHVR. A government agency that receives information from the NHVR is authorised to use the information only to exercise the intended functions.

10.7.4 Limits on powers

The limits on the powers to exchange information expressed above should include:

- purposes included in regulating automated vehicles
- between broadly defined parties, agencies and jurisdictions
- adherence to the design principles (Box 4)
- compliance with relevant privacy laws.

It is proposed that the design principles for government access to C-ITS and automated vehicle data developed by the NTC[80] be adhered to in the development of these powers.

Box 4. Principles for government access to C-ITS and automated vehicle data

The laws and aligned standards for C-ITS and automated vehicles should:

1. balance the benefits of government access to C-ITS and automated vehicle data with additional privacy protections to appropriately limit the collection, use and disclosure of C-ITS and automated vehicle data
2. be consistent with, and informed by, existing and emerging Australian and international privacy and data access frameworks
3. embed access powers and privacy protections for C-ITS and automated vehicle data in legislation
4. clearly define C-ITS and automated vehicle data in inclusive and technology-neutral terms
5. align government entities' approach to managing C-ITS and automated vehicle data with the objectives underlying existing concepts of personal information
6. specify the C-ITS and automated vehicle data covered, the purposes for which the data can be used and the parties to whom the purpose limitations apply while not impeding access to data with a warrant or court order authorising a different use
7. recognise the importance of notifying users in plain English about government collection, use, disclosure and storage of C-ITS and automated vehicle data
8. recognise that meaningful informed consent is important but provide avenues for government entities to balance individuals' expectations of privacy in alternative ways where obtaining such consent is not possible
9. recognise the difficulty of irreversibly de-identifying C-ITS and automated vehicle data in many circumstances
10. support data security
11. allow for regular review of privacy protections for C-ITS and automated vehicle data.

[80] Available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Policy-Paper-Vehicle-generated-data.pdf.

10.8 Privacy considerations

Several privacy considerations relate to the types of information required to regulate in-service safety. In particular, information collected from ADSEs by the in-service regulator and government agencies may include personal information.[81] Collection and use of personal information will need to comply with privacy laws.

10.8.1 Previous consultation and ministerial decisions

The 11 design principles referred to in Box 4 were developed by the NTC in response to our work on government access to C-ITS and automated vehicle data in 2018 and 2019. These design principles are intended to address the risks related to the likely personal nature of automated vehicle and C-ITS information and have been agreed by ministers to guide the development of laws relevant to automated vehicle safety.

This work found that some types of information generated by automated vehicles such as sensor inputs and event data recorders may not in and of themselves be able to identify individuals. However, the risk of re-identification could be high if this information was combined with other datasets including those held by law enforcement agencies.

In addition, some of the information captured by the vehicles such as biometric and internal cameras could be highly sensitive. Other information could also be held by the vehicles through synchronisation with other devices such as mobile phones.

10.8.2 ADSE obligation to record and share ADS information

The ADSE is required to record and share ADS information under its first-supply obligations. The purposes of the data recording and sharing requirements to be imposed on the ADSE are to:

- ensure the ADS is safe
- ensure ADSE compliance with the general safety duty
- ensure compliance by fallback-ready users with state and territory driving laws
- ensure compliance by remote drivers with the rules that apply to remote drivers.

However, this does not preclude the ADSE's obligations to users, owners or passengers of automated vehicles regarding privacy. ADSEs will continue to be regulated by applicable privacy legislation.

10.8.3 Implications of government agencies accessing information

As outlined in the previous section, the AVSL will outline specific powers for the in-service regulator and other government agencies to enable information to be accessed.

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[81] The concept of personal information adopted broadly in the *Privacy Act 1988* (Cwlth) and relevant state and territory legislation is whether an individual is reasonably identifiable directly from the collected data – for example, if it reveals an individual's name or address – or from the combination of the data with other relevant datasets the collecting entity has access to. 'Sensitive information' broadly refers to certain types of information about the individual – for example, their race or ethnic origin, sexual orientation, political opinions or health information. The collection, use or disclosure of sensitive information may need to meet higher standards than other types of information.

However, collection of this information will still need to comply with the *Privacy Act 1988* (Cwlth), or state and territory privacy legislation if the AVSL is implemented using state and territory applied law.

The AVSL will reflect the key elements of the Australian Privacy Principles (APP 3) on collection of personal information – that is:

> *... personal information (including sensitive information) may only be collected by the government agency where this information is reasonably necessary for, or directly related to, defined functions or activities.*

Use and disclosure of the personal information collected by government agencies could be for:

- direct or primary use – that is, the original purpose of collection and the use that was notified to the subject as the purpose for which the information was collected – for example, to establish who is legally responsible for the automated vehicle when a road incident occurs
- secondary use:
  - related to the original purpose of collection; for example, the data collected at the roadside by a law enforcement officer from an ADS following a crash may be used by the in-service regulator as evidence in an investigation regarding a breach of the general safety duty by the ADSE for that ADS
  - unrelated to the original purpose of collection; for example, a law enforcement agency or road agency may seek to the use data collected at the roadside from an ADS following a crash as evidence to establish an unrelated criminal offence (e.g. using the evidence to link the vehicle occupants to a robbery that occurred in the vicinity of the crash).

It is not intended that the AVSL authorises the use of personal information for purposes unrelated to the original purpose of collection.

The HVNL provides an example of privacy protections around collecting information that could be incorporated into legislation. For instance, s 401 of the HVNL provides that:

> (1) An intelligent access program service provider must ensure, so far as is reasonably practicable, the intelligent access program information the service provider collects—
>
> (a) is necessary for the purpose for which it is collected or a directly related purpose; and
>
> (b) is not excessive for that purpose; and
>
> (c) is accurate, complete and up to date.
>
> Maximum penalty—$6000.
>
> (2) An intelligent access program service provider must ensure, so far as is reasonably practicable, the collection of intelligent access program information by the service provider does not intrude to an unreasonable extent on the personal privacy of any individual to whom the information relates.
>
> Maximum penalty—$6000

10.8.4 Privacy impact assessment

A privacy impact assessment will be completed prior to the AVSL being finalised. The purpose of this assessment is to systematically assess the privacy risks created by the proposed powers and information sharing arrangements and determine appropriate ways to eliminate or mitigate these risks.

The privacy impact assessment will identify personal information that is proposed to be collected as well as other information that could potentially be used to identify individuals through re-identification with other datasets. Data that is sensitive and/or health information is considered to be of particularly high risk. Data security, information sharing between parties and individual expectations are all key considerations in the assessment.

The privacy impact assessment will be completed in 2021.

10.9 Stakeholder feedback

10.9.1 Information purposes, types or parties (including those not identified in the discussion paper)

Stakeholders almost unanimously emphasised the importance of sharing information for safety purposes. This support was caveated by most stakeholders, who emphasised that access to this information should be restricted due to privacy considerations.

TMR QLD suggested that ADSEs enter into a voluntary incident reporting scheme similar to the Aviation Self Reporting Scheme. This scheme enables anonymised reporting of minor safety incidents (this is discussed in chapter 3).

Though we did not consult on sharing information for insurance purposes, stakeholders did submit on this issue and had mixed views. Some stakeholder groups expressed the view that sharing of information could benefit third parties seeking to claim compensation for crashes and insurance organisations, while others including LIV and Maurice Blackburn expressed the view that this was not an appropriate sharing of information.

In addition, sharing of information between government departments received mixed feedback from stakeholders. Some suggested that the in-service regulator should only access and share information for safety purposes, while others suggested that the regulator should receive access to third-party information sources such as telecommunications information in order to fulfill its role. Further, there was a question from a government agency as to whether the in-service regulator would require access to registration and licensing information to perform its role.

Stakeholders identified three additional types of information not covered in the discussion paper:

- information from non-OEM/ADSE vehicle repairers regarding potential safety risks (IAME)
- information from third parties regarding safety and incident investigations (RACQ)
- information regarding the contribution that automated vehicles make to traffic congestion and information relevant to network planning (Project 412).

Many stakeholders raised the point that the current level of specificity regarding the types of data made it difficult to comment in detail – this is in part due to the current stage of industry

development. However, many also acknowledged that the detailed privacy impact assessment will assist in mitigating this risk.

Additional parties not mentioned in the discussion paper as highlighted above include third-party providers of information (e.g. telecommunications organisations), non-OEM/ADSE repairers, insurance organisations and third-party property damage claimants.

10.9.2 Information flows (including those not identified in the discussion paper)

Additional information flows suggested by stakeholders include those to the other parties identified in the previous section: third-party providers of information (e.g. telecommunications organisations), non-OEM/ADSE repairers, consumers and third-party property damage claimants. Revenue protection agencies were also suggested by a government agency. Potential linkages with the Sydney Coordinated Adaptive Traffic System were also mentioned (RACQ). A government agency submitted that it will maintain a register of approved vehicles (RAV) as part of the NEVDIS system from July 2021 and that this register could assist the in-service regulator in fulfilling its functions.

Several stakeholders raised the point that the detailed mechanisms and processes for information exchange are still to be worked through. In addition, the information available and required is likely to change over time. One point raised was a consideration of whether the in-service regulator would inadvertently impose additional information requirements to that of the first-supply regulator and the potential cost implications involved.

10.9.3 Information powers

Stakeholders almost unanimously provided feedback that the proposed information access powers meet the objectives of the in-service regulator and that a specific power authorising collection, use and disclosure of personal information would be required.

There were no specific suggestions regarding access to further powers beyond what had been outlined. There was feedback that although a specific power may not technically be required to access information, having it in place would enable clarity to be provided (OVIC). A number of stakeholders provided feedback regarding limiting the scope and range of these powers to ensure that privacy considerations are adequately addressed. Some suggested that the design principles for government access to C-ITS and automated vehicle data be applied.

Stakeholders also raised concerns regarding the use and sharing of information by ADSEs. The OAIC suggested that all ADSEs be subject to Commonwealth privacy laws, even where they do not meet monetary thresholds.

10.9.4 Privacy protections

Stakeholders were almost unanimous in their support for conducting a privacy impact assessment. There was also strong support for the design principles as outlined in the discussion paper. Having a clear purpose for the collection of information was emphasised as important. Some stakeholders suggested that the purpose of collecting information be prescriptive and narrowly defined. Sharing of information with other parties was highlighted as a risk and something to be examined in the privacy impact assessment.

10.10 NTC conclusions

The NTC considers that the primary purpose that the in-service regulator will have for accessing information is to enable it to monitor and enforce compliance by the ADSE with the general safety duty. The key types of information required will be about compliance with the general safety duty, parties involved in the operation of the ADSE and information about operation of the vehicle.

Some types of information are out of the scope of this project. The consumer-facing function of the in-service regulator is out of the scope of this paper. Data access for other purposes is included in the scope of the vehicle-generated data project. The Board of Treasurers is currently considering issues related to insurance for automated vehicle incidents, and access to data for insurers will be considered following that.

Key information flows will be between the in-service regulator, the first-supply regulator, the ADSE and state and territory law enforcement authorities. The in-service regulator will require additional information to the first-supply regulator in order to monitor compliance with the general safety duty. Some systems changes may be required to state/territory systems to facilitate this, with detailed information requirements to be determined. There are likely to be information flows with other bodies such as Austroads as well.

The NTC considers that the in-service regulator will need access to powers to collect, use and disclose personal information to enable it to fulfill its functions:

- a power to expressly access information, enable information exchange and enter agreements for purposes relating to the AVSL and other purposes
- a power to exchange information for the purposes of interagency cooperation
- a power to enter into agreements with industry and other parties.

A privacy impact assessment will be conducted in 2021.

Recommendation 21: The in-service regulator will have powers to access information, enable information exchange and enter agreements for purposes relating to the AVSL and other purposes.

11 Legislative implementation of the national approach to in-service safety

Key points

- Ministers have agreed that the national approach for in-service safety will be implemented through either complementary Commonwealth and state and territory law, or state and territory applied law.
- Each legislative implementation approach can achieve the key objectives of in-service safety for automated vehicles. Each has practical impacts on the implementation and operation of in-service safety.
- A complementary law approach will better ensure national consistency, avoid potential cross-border issues and allow better integration with the first-supply process. A Commonwealth law can also potentially be implemented and updated more quickly.
- A state and territory applied law will potentially allow broader coverage of parties and operational issues and allow greater control by state governments of ongoing amendments to the law.
- The NTC has updated its decision RIS to recommend a complementary law approach. Ministers will decide the legislative implementation approach in 2021.

11.1 Purpose of this chapter

The purpose of this chapter is to:

- provide an overview of how the national law for in-service safety will operate in practice under alternative legislative implementation models
- present key differences in implementing and administering the national law under the alternative implementation models
- assess the legislative implementation models against a range of policy objectives.

11.2 Previous consultation and ministers' decisions

The decision RIS assessed implementation of a national law establishing a single national regulator through either of two legislative implementation methods:

- complementary Commonwealth and state and territory law (complementary law) (option 3 in the decision RIS)[82]
- state and territory applied law (option 4 in the decision RIS).

[82] In the decision RIS the NTC often referred to this legislative implementation method as the Commonwealth law approach; however, this paper refers to it as the complementary law approach because this better reflects that the implementation method requires both Commonwealth and state and territory law.

The decision RIS assessed complementary law as preferable for the following reasons:

- It achieves a single market and more consistent application of enforcement mechanisms.
- It allows for more efficient implementation and maintenance of the primary law through one parliament.
- PwC's cost-benefit analysis showed this approach had the highest net benefit, primarily because it was assessed as less likely to lead to delay in the uptake of automated vehicles in Australia.
- The approach had the most stakeholder support.

The decision RIS noted that further work was needed to support ministers to decide on the legislative implementation approach. The further areas identified are topics covered in this paper: compliance and enforcement; modifications; and market exit and transfer of ADSEs.

11.3 Legislative implementation approaches

Australia's federal structure divides legislative power between the Commonwealth and state levels of government. Key features include the following:

- Commonwealth laws must be supported by a 'head of power' in the Constitution.[83] On some matters, the Constitution gives the Commonwealth exclusive powers. On other matters, the Commonwealth and the states have concurrent powers. The remaining matters are the exclusive jurisdiction of the states.
- Matters in relation to which the Commonwealth and the states have concurrent powers can be legislated on by the states, but the legislation will be ineffective if inconsistent with Commonwealth legislation to the extent of the inconsistency.[84] The states retain legislative powers over matters not specifically listed in the Constitution.

This division of legislative power is reflected in the current split in regulation of vehicles and driving between the Commonwealth and the states and territories. The Commonwealth regulates the first supply of vehicles to the Australian market. The states and territories regulate vehicles and driving in service (this includes vehicle registration, human driving, driver licensing, passenger transport and road management and vehicle standards). Regardless of the legislative implementation approach, states and territories will continue to regulate these aspects of in-service vehicle use. The two levels of government will need to continue to cooperate to achieve a national approach to in-service safety.

11.3.1 Complementary law

Under a complementary law approach, the Commonwealth would rely on its corporations and communications heads of power to enact the AVSL. At first supply, ADSEs will need to establish certain corporate credentials – that is, corporate presence in Australia and minimum financial requirements.[85] The national law would regulate ADSEs, their executive

[83] The express heads of power that the Commonwealth may rely on are found at s 51 of the Constitution. **The** constitutional limitations on the Commonwealth's legislative powers do not apply to the territories. Re**fer to Australian Constitution s 122.**

[84] *Australian Constitution* s 109.

[85] Refer to Appendices A.2.2 and A.2.3. Note that it is expected that DITRDC will implement these obligations under mechanisms in the RVSA.

officers and remote drivers. The national law would also establish the in-service regulator. The AVSL, as amended over time, would apply to all state and territory jurisdictions.

States and territories would legislate to regulate human users of automated vehicles (e.g. fallback-ready users and occupants) because the Commonwealth has no authorising head of power to do this. States and territories would need to clarify that their driving laws only apply to human drivers so the 'field is clear' for the Commonwealth's AVSL to regulate vehicles operating in automated mode.

The regulator would have national jurisdiction. It would be accountable to a Commonwealth minister and the Commonwealth Parliament. Breaches of the AVSL would be enforced by the national in-service regulator and prosecuted in a federal court (should jurisdiction be conferred) or otherwise in state and territory courts exercising federal jurisdiction.[86]

11.3.2 State and territory applied law

Under the state and territory applied law approach, laws to regulate the in-service safety of automated vehicles could be made entirely in state and territory legislation. Under this approach, the AVSL would be a state or territory law, enacted by a 'host jurisdiction'. This law would regulate ADSEs, their executive officers and remote drivers. It would establish a national in-service regulator. Each of the other states and territories (the 'participating jurisdictions') would pass an application Act applying the national law in their jurisdiction.[87] The laws enacted by state and territory jurisdictions could potentially include amendments to the national law (also known as derogations). Individual states and territories could also choose not to participate in the national scheme.[88]

Applied law could achieve a nationally consistent law, if all states and territories chose to participate and were each willing to adopt fully consistent legislation (i.e. without derogations). The ability of applied law to achieve true national consistency depends on how each state and territory applies the law in their jurisdiction.

Participating jurisdictions could choose to modify the national law as it applies in the participating jurisdiction at any time. This introduces the risk of introducing inconsistencies over time, even if initial national consistency is achieved (Edwards, 2014, pp. 92-96).

The national regulator would be based in the agreed host jurisdiction. It would have national jurisdiction (in effect) by having jurisdiction concurrently in all states and territories. It would likely be accountable to infrastructure and transport ministers acting collectively.

Breaches of the AVSL would be enforced by the national in-service regulator in state and territory courts. If an ADSE's act or omission simultaneously breached the general safety duty in more than one state or territory, the regulator would select one state or territory court for prosecution. This is discussed further in section 11.5.

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[86] Federal jurisdiction is the authority to exercise the judicial power of the Commonwealth. The Constitution authorises state and territory courts to be invested with federal jurisdiction.

[87] Alternatively, rather than 'applying' the national law as enacted by the host jurisdiction, states and territories could enact separate legislation that 'mirrors' the national law enacted in a host jurisdiction.[87] The mirror legislation will need to be amended each time the national law enacted by the host jurisdiction is changed.

[88] For example, the Northern Territory and Western Australia do not participate in the HVNL scheme and have their own regulatory frameworks for heavy vehicles.

As in the complementary law option, states and territories would need to legislate to regulate human users of automated vehicles such as fallback-ready users and occupants.

11.3.3 Key elements common to both approaches

A single national regulator would be created under either legislative implementation approach. The duties placed on all in-service parties would be the same.

Road rules applying to the dynamic driving task for the ADS would be in an ADS driving code. This code would be made under the AVSL. Initially the code could be a collation of the dynamic driving task road rules in each state and territory including relevant jurisdictional differences. The code could be maintained by the in-service regulator. Rules applying to remote driving would be made under the AVSL.

States and territories will continue to regulate all aspects of in-service vehicle use currently regulated at that level (e.g. vehicle registration and road management) under each legislative implementation approach. States and territories will also need to amend their legislation to accommodate automated vehicles, such as deeming the ADS the driver when it is engaged and developing obligations for fallback-ready users.

It is likely that an intergovernmental agreement or similar instrument would be required under each approach. Under the applied law approach, a more comprehensive intergovernmental agreement will likely be needed.

11.4 Key differences between the implementation approaches

11.4.1 Establishing and maintaining the law

The time to establish and amend legislation differs between the legislative implementation models.

A Commonwealth law would only need to pass through a single parliament. A state and territory applied law approach would require application Acts to be passed in all state and territory parliaments to establish the national framework. There is a risk that an applied law approach may introduce timing issues in enacting the various application Acts, which may cause a fragmented establishment of a national legislative framework and lead to delays in introducing automated vehicles.

Under the complementary law approach, amendments to the national law would pass through a single parliament. Under a state and territory applied law approach each time amendments are made to the national law these would need to be agreed by Ministerial Council and passed in the host jurisdiction, as well as any jurisdictions that do not automatically apply the law.

An intergovernmental agreement to give effect to an applied law scheme would most likely need to include governance arrangements to manage amendments to the AVSL. The agreement will probably require unanimous approvals to amend the law, and amendments will need to be developed, agreed among all states and territories and approved by the relevant Ministerial Council, then passed by the host jurisdiction. This may lead to delays.

11.4.2 Scope of the law

A limitation of the complementary law approach is that amendments to the national law would always be subject to the constitutional limits of the Commonwealth's legislative power.

The complementary law approach is particularly tailored to the central concern of regulating ADSEs but may not allow for the regulation of other parties, should it be required in the future. A national law under a state and territory applied law approach could more easily be given broader jurisdiction.

A complementary law approach could provide better integration with the RVSA and the Commonwealth first-supply regulatory framework.

11.4.3 National consistency

A limitation of the applied law approach is that jurisdictions can derogate from the national law by adding or modifying sections of the national law in their jurisdictions. Substantial derogations could have significant effects on the consistency of application of the national law. These derogations could grow over time as amendments to the national law are made and applied. In its report on National Transport Regulatory Reform, the Productivity Commission noted that there were at least 70 derogations from the HVNL and that enforcement provisions account for the most derogations, creating inconsistent application of enforcement powers (Productivity Commission, 2020).

11.4.4 Establishing a national regulator

Under the complementary law approach, Commonwealth law would establish a single national regulator with jurisdiction in all states and territories.

Under the applied law approach, each time a participating jurisdiction enacts an application Act, a separate regulator is, in effect, created for that participating jurisdiction. To achieve a single regulator, the AVSL will have to provide that legislation enacted by a jurisdiction, together with the legislation enacted by other participating jurisdictions, effectively establishing a regulator that is one single national entity.[89]

11.4.5 Managing subordinate legislation under a national law

Infrastructure and transport ministers have agreed that the AVSL should enable regulation of:

- the performance of the dynamic driving task by ADSs
- remote driving (teleoperation) in which an ADSE uses individuals located outside of the vehicle to monitor and/or operate the ADS
- rules to support the general safety duty.

The AVSL will need to allow for rules of general application to be made in relation to these matters and other matters discussed in this paper.

It is common for Commonwealth legislation to allow for subordinate legislation. In a complementary law approach, the Commonwealth law could enable the making of delegated legislation. Regulations made under the Commonwealth law would be tabled in the Commonwealth Parliament, which would have the option to disallow them. An intergovernmental agreement will most likely need to provide a mechanism for jurisdictional oversight over the making of delegated legislation.

[89] Refer, for example, to s 656(2) of the Heavy Vehicle National Law (NSW) No. 42a.

Under state and territory applied law, the Infrastructure and Transport Council and/or a newly created body could be delegated the ability to make rules. However, as with amendments, rules made under a state and territory applied law scheme could give rise to potential national inconsistency because participating jurisdictions could disallow or amend the application of the national regulations in their jurisdiction. This could be overcome if a higher standard was required, such as that found in the Health Practitioners Law (refer to section 11.3.2). Under that law, if the regulations are disallowed by one parliament, the disallowance does not have effect even in that jurisdiction unless and until a majority of jurisdictions also disallow the regulation. This approach may maintain consistency for regulations made under an applied law and allows the framework and regulator to be accountable to parliaments. However, it could have the effect of overriding decisions made by parliaments in certain circumstances. This approach is not typical in applied law schemes.

11.5 Enforcement considerations in implementing the national law

Under both the complementary and state and territory applied law approaches, the regulator will have the powers proposed in chapter 7 – for example, the ability to issue infringement notices, to enter into enforceable undertakings and to prosecute an ADSE for a breach of the general safety duty. If the complementary law approach is adopted, the AVSL could largely reference parts of the Regulatory Powers Act. If an applied law approach is adopted, the required powers would be included in the national law.

The regulator's powers and the duties of regulated parties will remain the same under each approach. However, there are key differences in the enforcement of the law that will affect the regulator's actions and the ADSE's expectations of the consequences of not meeting their duties.

11.5.1 Court jurisdiction

Enforcement through the courts will operate differently. Under the complementary law approach, breaches of the AVSL will most likely be prosecuted in state and territory courts exercising federal jurisdiction. A common interpretation Act and rules of evidence would apply.[90]

Under the state and territory applied law approach, enforcement must occur through separate state and territory courts or tribunals because the breaches will be under a state or territory law. Whenever there is an alleged breach of the law, the regulator will need to determine in which participating jurisdiction and court to bring proceedings against the ADSE.

The courts would interpret the national law as applied in each participating jurisdiction by reference to different interpretation Acts. While the national law itself would remain consistent, inconsistent interpretation and application of the law could over time result in inconsistent enforcement outcomes.[91] This could be avoided if the participating jurisdictions agreed to disapply their interpretation Acts and apply the interpretation Act of one jurisdiction

[90] The *Acts Interpretation Act 1901* (Cwlth) and the *Evidence Act 1995* (Cwlth).

[91] In addition, the ACT and Victoria require that legislation be interpreted in a manner compatible with human rights. Refer, for example, to the *Charter of Human Rights and Responsibilities Act 2006* (Vic).

(so far as the national law is concerned).[92] There might also be some variation in the rules of evidence that are applied by state and territory courts.[93]

Double jeopardy

An ADSE could simultaneously breach the law in multiple states and territories through a single act or omission such as a breach of the general safety duty through a defective software update. Under an applied law scheme, the regulator would be required to select a single jurisdiction's court for prosecution.

The state court hearing the matter would focus on the alleged breach of the law in that jurisdiction, and not the breach of the laws of other states and territories. However, if the ADSE is found guilty (either at the end of a trial or upon entering a plea) the court is able to take into account the harm caused by the ADSE's act in other jurisdictions in its sentencing, which may lead to a greater penalty.

As well, due to the doctrine of double jeopardy, once an ADSE has been prosecuted in one state for a breach of a software update, it most likely could not be prosecuted in another state for the same negligent act.[94] Other applied law frameworks such as the HVNL and the Health Practitioners National Law also have this limitation; however, in these frameworks there would be few breaches that could simultaneously and equally breach the law of every state and territory as could occur with an unsafe ADS software update.

Judicial review

Judicial review describes the application to a superior court for a review of a decision that the applicant alleges is unlawful. This type of review focuses on the legality of a decision and not its merits. The role of courts is to determine if the decision was made in accordance with the law.

Under a state and territory applied law approach, the regulator's actions would be open to judicial review in the Supreme Court of every state and territory. In the complementary law approach, judicial review would only be to the Federal Court. It is worth noting this may not be a significant problem in practice, as the HVNL has the same limitation and the NTC is not aware of an application for judicial review of the NHVR's actions.

Merits review

Some issues caused by using multiple state and territory courts to regulate firms operating nationally could be mitigated if the regulator is subject to a robust and accountable internal review mechanism so that, where appropriate, certain disputes or complaints could be resolved outside of court. Certain areas of regulation would be more suited to this than others; for example, a decision on an ADSE's accreditation could be appealed internally, and then subsequently appealed to the state or territory administrative tribunal.

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[92] Refer, for example, to s 10 and Sch 1 of the *National Heavy Vehicle Law No 42a 2013* (NSW).

[93] The NSW, Tasmanian and Victorian evidence Acts generally mirror the *Evidence Act 1995* (Cwlth). The Commonwealth Act applies in the ACT. In other jurisdictions, the laws of evidence may vary.

[94] This is particularly an issue for a risk-based general safety duty, which is currently the central feature of the law. As the offence focuses on risk (and not the resulting harm), prosecuting an ADSE in multiple jurisdictions would offend the doctrine of double jeopardy. More localised offences, such as an offence against operating outside an ODD in a particular state, would be less likely to encounter this problem.

11.5.2 Extraterritorial operation

Under both the complementary law and state and territory law approaches, there may be practical difficulties in enforcing obligations against ADSE executive officers based overseas. However, the Commonwealth's external affairs head of power and international personality could make the regulator's enforcement of due diligence obligations against executive officers based overseas easier.

The state and territory applied law approach may have more significant limitations for cross-border enforcement across states. It is likely that a state law (e.g. a Western Australian law) that attempts to regulate ADSEs or remote drivers based in another state, but operating in Western Australia, would be valid law. However, enforcement and questions around jurisdiction would present practical challenges. A general safety duty regime (which may need to account for multiple acts and omissions that, in aggregate, form an alleged breach) could be particularly vulnerable to confusion regarding jurisdiction.

11.5.3 Roadside enforcement

Roadside enforcement powers – for example, to pull over a vehicle or obtain information from a human driver – are located within state and territory legislation (and the HVNL). These powers will continue to sit within state and territory legislation under either legislative implementation approach.

Chapter 8 notes that existing powers may not be adequate to address roadside enforcement requirements to manage the safety risks of automated vehicles and interacting with them. State and territory legislation will need to be audited to assess this.

Additional powers may be needed by roadside enforcement officers. If a complementary law approach is adopted, these powers may need to be included in Commonwealth law (so authorised officers under the national law can exercise the power) as well as in state and territory law (so roadside enforcement officers, whether or not authorised under the national law, can exercise those powers).

11.6 Privacy laws

Data collected from ADSEs by the in-service regulator and government agencies may include personal information or may be combined with other datasets to create personal information. The collection, use and disclosure of personal (and sensitive) information by the in-service regulator and other relevant government agencies will need to comply with privacy laws.

The Commonwealth Privacy Act contains 13 privacy principles governing the collection, use and disclosure of personal information. It applies to federal government agencies and other types of organisations. States and territories have their own privacy laws that cover the handling of personal information by government agencies within their jurisdictions such as police and road transport agencies. There are some differences between state and territory privacy laws, including in the definitions of personal information and sensitive information.[95]

[95] These differences are summarised in the NTC's 2018 discussion paper *Regulating government access to C-ITS and automated vehicle data* and can be access here: https://www.ntc.gov.au/sites/default/files/assets/files/NTC%20Discussion%20Paper%20-%20Regulating%20government%20access%20to%20C-ITS%20and%20automated%20vehicle%20data.pdf.

A complementary law approach would mean that the Commonwealth Privacy Act would apply to the in-service safety regulator. It would result in a nationally consistent approach to privacy because the requirements would apply in all jurisdictions. An applied law approach would mean multiple privacy frameworks could potentially apply to the in-service safety regulator. This could depend on where the regulator is based, or it could depend on where the individuals about whom personal information is collected reside. One issue is the reach of state-based privacy legislation to collection of personal information about an individual living interstate. For example, if the regulator is based in New South Wales but was collecting personal information about people in Victoria, it is uncertain what privacy framework would apply. This may result in those affected being required to seek recourse from different privacy bodies and may result in inconsistent approaches to privacy protection for individuals.

Either approach will result in the Commonwealth Privacy Act applying to an ADSE if it has an annual turnover of more than $3 million. An ADSE with an annual turnover less than $3 million may opt into the Commonwealth Privacy Act requirements.

The privacy implications of the collection, use of disclosure of personal information may need to be managed differently depending on the legislative implementation model adopted.

11.7 State law interaction with inconsistent Commonwealth law

Where a valid Commonwealth law and state or territory law cover the same subject matter, s 109 of the Constitution deems the state or territory law invalid to the extent of any inconsistency. Commonwealth laws may express an intention to be taken as a complete statement of the law that will govern a particular area by employing ss 109 and 122 (the Commonwealth's power to make laws for territories) so that the states and territories are unable to make further laws concerning the matter. This is described as an intention to 'cover the field'.

Section 78 of the RVSA provides for new road vehicles to be used on public roads even if they do not comply with a road vehicle standard imposed by a law of the state or territory in certain circumstances, including if it was manufactured or provided by a constitutional corporation. Given that elements of the statement of compliance will be implemented under the RVSA, that ADSEs are constitutional corporations, and the Commonwealth's very broad power to make laws for the territories (s 122), there are risks that certain features of in-service automated vehicle regulation achieved through state and territory law could be invalid due to inconsistency with the RVSA. The NTC will further consider whether s 78 of the RVSA raises any consistency issues under s 109 of the Constitution.

11.8 Policy analysis of the implementation approach

11.8.1 National consistency

A national approach can be implemented through both a complementary law approach and a state and territory law approach.

Under a complementary law approach, the framework must enable jurisdictional input on:

- policy development and implementation by the national in-service regulator set up under Commonwealth law
- the development of subordinate legislation under Commonwealth law

- other matters like data sharing between the Commonwealth and state and territory jurisdictions.

Due to the limitations on the Commonwealth's legislative powers, state and territory jurisdictions will need to legislate to regulate parties other than ADSEs, ADSE executive officers and remote drivers. Complementary law leaves open the possibility of inconsistencies being introduced, given its use of state and territory law to 'fill the gaps'. However, those inconsistencies, when compared with the applied law approach, are less likely to depart significantly from the national consistency goal.

A number of factors present in an applied law approach that can more significantly reduce the consistency of a national law:

- the manner in which the national law is implemented in state and territory jurisdictions
- non-participation by jurisdictions in the scheme
- derogations from the national law
- disallowance of subordinate legislation by state parliaments
- inconsistency in enforcement outcomes due to prosecution in state and territory courts and application of different interpretation Acts and sentencing guidelines.

Applied law schemes can manage these factors to achieve greater consistency. However, this requires a high level of decision making by consensus. The governance arrangements are also likely to be complex and decision making will be slower.

The state and territory applied law approach could mean that both conventional and automated vehicles would be regulated under state and territory law, potentially providing efficiencies between those two frameworks. The AVSL could also potentially accommodate the regulation of other parties like repairers in the future. This could increase the potential for nationally consistent regulation of these expanded elements.

11.8.2 Parliamentary sovereignty and accountability considerations

Key aspects of road safety, including in-service vehicles and drivers, are regulated by states and territories. The arrival of automated vehicles disrupts the status quo because although the Commonwealth does not regulate human drivers, corporate drivers such as ADSEs do fall under the Commonwealth's legislative power. A complementary law approach may cause states and territories concern about their role in road safety.

Under the complementary law approach, the in-service regulator would be accountable to a single Commonwealth minister and single parliament. Under the state and territory applied law approach, the regulator would most likely be accountable to infrastructure and transport ministers collectively. Care would need to be taken to ensure the regulator is accountable through appropriate governance arrangements.

11.8.3 Cost and efficiencies

The complementary law approach could be more cost-effective in terms of the amendments to the law, and subordinate instruments could be made comparatively quickly. The cost-benefit analysis to the decision RIS found that the complementary law approach has a slightly higher net benefit than the state and territory applied law approach, given the higher level of consistency provided by Commonwealth law.

11.9 Stakeholder feedback

The NTC sought feedback on whether stakeholders agreed with the differences between the legislative implementation approaches and which approach they believed would best achieve the reform outcomes.

Stakeholders provided limited feedback on the differences. Two government agencies agreed with the differences between the legislative approaches.

Most stakeholders supported a complementary law approach (AAA, FCAI, Maurice Blackburn, TMR QLD, Toll and a government agency). These stakeholders noted that this approach best achieved a nationally consistent framework, with Toll also noting that an approach that allowed derogation by states and territories should be expressly avoided. Maurice Blackburn noted the approach could more efficiently manage amendments, which was important due to the evolving technology. OVIC noted that from a privacy perspective a complementary law would allow individuals to access avenues for recourse in the event of a privacy breach, regardless of where the individual lived or where the breach occurred. This is in part due to some states not having privacy schemes and some state-based schemes not applying if a person or entity is based outside that state.

AAA submitted that consistency, efficiency, reduced duplication between states and territories and integration with the first-supply regulator were key benefits of using the complementary law approach. TMR QLD supported the approach because it achieved core outcomes, specifically:

- consistency in core elements (universal application in all states and territories and no ability to derogate)
- speed of implementation/maintenance
- accountability of a regulator
- simplification of judicial process
- supports a single market for industry.

Two government agencies and RACQ supported a state and territory applied law approach, at least initially. A government agency considered an applied law approach would best achieve the identified reform outcomes in the short to medium term. They considered it would:

- maintain the current split of roles and responsibilities for first-supply and in-service safety between the Commonwealth and states and territories
- allow for states and territories to derogate from the national approach where there is a need to respond to an urgent local safety issue (while acknowledging a national approach to regulating the general safety duty on the ADSE and executive officers is needed). A government agency considered robust governance arrangements could be developed to mitigate the risks of a jurisdiction departing from the applied law.

A government agency similarly noted that road transport regulation has always been the responsibility of states and territories, who have the power to implement derogations to the model Australian Road Rules.

A government agency noted that the monitoring, investigation and enforcement powers included in the AVSL could be based on the Regulatory Powers Act but would need to be drafted to include these provisions.

A government agency also noted that in the future, where the market has matured resulting in higher penetration rates and more levels of automation, there could be a transition from an applied law approach to a complementary approach. RACQ similarly noted that in the early years an applied law approach works best because there would be a heavy reliance on the fallback-ready user for the majority of trips. Phasing into a complementary law approach would allow states time to resolve discrepancies in laws and infrastructure. DITRDC considered existing regulatory arrangements may need to adapt in the short to medium term to accommodate early deployments, and encouraged further work to be done on this.

A government agency questioned why the NTC had not considered implementing model legislation as an option but recognised national consistency could be achieved through either complementary or applied law. DITRDC submitted that both approaches can implement infrastructure and transport ministers' objective of a nationally consistent approach to managing the on-road safety of automated vehicles. A government agency sought further information on key aspects, first noting that any approach taken should not oust the ability for local enforcement action with respect to any offence. It also noted that either approach should not oust state local law enforcement with respect to any action and that state law should always operate concurrently.

11.10 NTC conclusions

We welcome stakeholder support for a complementary law approach. This support is in line with the decision RIS and cost-benefit analysis, which found the complementary law approach as having the greatest net benefit. We also note stakeholder feedback on the applied law approach and that it can also achieve reform outcomes in the short to medium term. We also note that previous consultation considered the model law approach, which was assessed as not providing a nationally consistent approach and causing higher costs for government and industry. Also, it did not receive stakeholder support, resulting in ministers agreeing to only consult further on a complementary law or applied law approach for legislative implementation.

The NTC notes the need for further work to identify interactions with existing regulatory arrangements and highlights that work is underway to develop this. Chapter 12 discusses existing and proposed in-service safety regulations and chapter 13 signals further work flowing from this. Chapters 9 and 10 provide information on institutional arrangements and information flows. Appendix C of the decision RIS also identifies existing regulatory arrangements. The NTC also has a separate program of work on managing trials and we note that the current trials framework can accommodate trials of any size. We have previously also analysed different potential deployment models[96] and note that the framework agreed by ministers intends to be able to accommodate all potential models. The in-service safety framework is intended to cover any deployment model, including large-scale trials and early deployments, which is based on analysis of different deployment models.

Both implementation approaches can achieve the key objectives of in-service safety for automated vehicles, but both approaches, as reflected in stakeholder feedback, will have different practical impacts on the implementation and operation of in-service safety. The

[96] Further information on analysis of deployment models can be found in Chapter 7 of *Safety assurance for automated driving systems: Decision Regulation Impact Statement* November 2018 (NTC) and is available at https://www.ntc.gov.au/sites/default/files/assets/files/NTC-decision-regulation-impact-statement-safety-assurance-for-automated-driving-systems.pdf.

NTC has updated the decision RIS with our further analysis including stakeholder feedback on both approaches. Our further analysis reinforces or does not materially change the options analysis in the decision RIS and cost-benefit analysis conducted by PwC in 2020, which found that the complementary law approach provided the highest net benefit. The NTC will further update the decision RIS as necessary following the further phase of work signalled in chapter 13 and provide this to ministers in November 2021 incorporating a recommendation on the option with the highest net benefit.

12 Recommended model for the safety assurance of automated vehicles

Key points

- The recommendations in the preceding chapters create a detailed model for the in-service safety of automated vehicles.
- This model is part of a broader safety assurance framework for automated vehicles.

12.1 Purpose of this chapter

The purpose of this chapter is to:

- recommend a detailed regulatory model to ensure the in-service safety of automated vehicles, bringing together the discussion from previous chapters
- demonstrate how the model sits within the broader safety assurance framework for automated vehicles.

12.2 Recommended model for the safety assurance of automated vehicles

The recommendations made in the preceding chapters create a detailed regulatory model for the in-service safety of automated vehicles. This model is part of a broader safety assurance framework summarised below. Some elements were previously agreed by ministers in 2018–2020. The broader regulatory frameworks relevant to automated vehicles across new and existing frameworks are shown in Figure 1 in chapter 2.

The model applies to vehicles with levels 3–5 automation.

12.3 Safety at first supply

12.3.1 First-supply requirements

A first supply, the applicant will submit a statement of compliance to the first-supply regulator in support of their type-approval application for an automated vehicle, self-certifying how they meet safety criteria implemented in ADR 90/01 (and demonstrating compliance with all other ADRs relevant to the vehicle). The safety criteria largely cover elements relevant to design of the ADS:

- safe system design and validation process
- ODD
- human–machine interface
- compliance with relevant road traffic laws
- interaction with enforcement and other emergency services
- minimal risk condition

- on-road behavioural competency
- installation of system upgrades
- verifying for the Australian road environment
- cybersecurity
- education and training.

They will also need to show how they meet corporate obligations in the AVSL, specifically the following:

- **Corporate presence**. The applicant must provide evidence of its corporate presence in Australia.
- **Minimum financial requirements**. The applicant must provide evidence of its current financial positions, its grounds for claiming it will have a strong financial position in the future, and the level of insurance held.
- **Ongoing data recording and sharing capability**. 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
  - individuals receive data to dispute liability (e.g. 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.

These obligations focus on the applicant's ability to support an ADS over its life and be assigned liability where necessary. The in-service regulator will assess this part of the application.

If the two regulators consider the applicant has met all necessary requirements, a vehicle import approval (e.g. a type approval) will be granted and the applicant will be accredited as the ADSE. The ADSE can supply its vehicles to the market.

At this point the automated vehicles can be registered by state and territory governments and will have access to the entire road network, although the vehicle will only be able to operate in automated mode within its ODD.

12.4 Registration and road access

Ministers have previously decided that states and territories will register automated vehicles to operate on the public road network subject to the conditions of their supply to the market.

It is likely that existing registration databases (e.g. NEVDIS) will be updated to accommodate information about automated vehicles, such as who the ADSE is for the vehicle.

12.5 In-service safety

12.5.1 In-service duties

ADSEs

The ADSE will become subject to a general safety duty to ensure the safe operation of its automated vehicles so far as is reasonably practicable. This duty rests with the ADSE for the entire life cycle of the vehicles. The duty sits within the AVSL.

To meet its general safety duty, as well as generally ensuring safe operation, the ADSE must also meet the following prescriptive duties that support the general safety duty:

- The ADSE must ensure, so far as is reasonably practicable, that systems are developed, used and maintained to carry out the general safety duty.
- The ADSE 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 ADSE must notify the in-service regulator and users of any systemic safety issues affecting the ADS.
- The ADSE must ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users.
- The ADSE must record and store data relevant to compliance with the general safety duty.
- The ADSE must, so far as is reasonably practicable, provide education and training to relevant parties such as users of its ADSs.
- The ADSE must, so far as is reasonably practicable, prevent the operation of an ADS when the ADSE is aware the ADS is unsafe.
- The ADSE must, so far as is reasonably practicable, ensure the ADS can comply with relevant road traffic laws.
- The ADSE must have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks.
- The ADSE must ensure accountability (e.g. through reporting structures or external audits) to demonstrate that those processes, policies and systems are being complied with.
- The ADSE must, so far as is reasonably practicable, make efforts to ensure the ADS cannot be interfered with by third parties.
- The ADSE must, so far as is reasonably practicable, review, maintain and update its safety standards as declared in its first-supply application.

Further, the ADSE must meet requirements that support the in-service regulator's enforcement role. The ADSE must:

- notify the in-service regulator when it intends to significantly change corporate structure, transfers responsibilities for the ADS or is at risk of insolvency
- disengage the ADS to engage where there is no ADSE to support it
- maintain a log of all in-service modifications that it implements in relation to its ADSs
- not implement significant modifications to in-service ADSs without approval from the in-service regulator
- provide accurate and reliable information to the in-service regulator
- maintain records of safety incidents

- report significant safety incidents and road traffic law breaches to the regulator, including those where it received an infringement notice from a state or territory agency
- establish a process for agencies issuing infringements is discussed in section 12.11
- notify the in-service regulator of any third-party interference attempts that the ADSE becomes aware of
- provide the in-service regulator with a law enforcement interaction protocol
- review and update its law enforcement interaction protocol(s) periodically
- 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)
- provide vehicle data in a standardised, readable and accessible format.

ADSE executive officers

- Executive officers of the ADSE will have a due diligence obligation to ensure the ADSE meets its general safety duty. Only executive officers who are in a position to influence the ADSE's offending will be subject to this obligation, and only to the extent of their own personal influence.
- 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
  - the reliance was in good faith.

Third parties

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 a disengaged ADS, to be enforced by states and territories.

12.5.2 In-service penalties

A breach of the general safety duty can result in a civil penalty or a criminal prosecution depending on the seriousness of the breach. Penalties will be categorised based on the seriousness of the breach (as in WHS law). Penalties will be a monetary fine, the amount of which depends on the category.

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, with breaches focusing on the culpability of the offender and the level of risk and not the actual consequences or outcomes of the breach. The most serious offending may result in imprisonment. The executive officer may be convicted 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.

12.6 Driving

12.6.1 Control

The ADSE is responsible for the dynamic driving task when the ADS is engaged, and the ADS is deemed to be in control. The human operator is responsible for the dynamic driving task when the ADS is not engaged.

12.6.2 Human users

Human drivers continue to be licensed under state and territory driver licensing schemes. State and territory road rules applying to drivers, cyclists and pedestrians continue to apply.

Fallback-ready users (human operators of level 3 vehicles) still have obligations when the ADS is engaged. They must be receptive to requests from the ADS to intervene and to evident dynamic driving task performance-relevant system failures. They are expected to respond by taking control of the vehicle. State and territory laws will set out their legal obligations 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
- comply with drug, alcohol and fatigue driver obligations.

Remote drivers must comply with the road rules of the state or territory that the automated vehicle is operating in. Further regulation of remote drivers will be considered as international standards develop. Any additional regulation would be included in the AVSL.

12.6.3 Regulating the dynamic driving task performed by the ADS

A national driving code established under the AVSL will regulate ADS driving. Initially, this code will be a collection of the dynamic driving task obligations in state and territory road rules, including any variations in the rules across states. The code will be updated if a state or territory amends its road rules in a way that alters the dynamic driving task. In the future, the driving code could consist of a single set of rules specifically targeted at ADSs.

12.6.4 Traffic law breaches

A breach of a road traffic law that occurs when the ADS is engaged will be investigated by the in-service regulator as a potential breach of the general safety duty.

The in-service regulator will not monitor compliance with road traffic laws; however, ADSEs will have a prescriptive requirement to notify the regulator of breaches. The process for issuing infringements will be considered further by states and territories. For a breach suspected to have occurred when the ADS was in control or detected by a road safety camera, an infringement notice could either be issued to the ADSE or registered owner of the vehicle in the first instance. If it were to be issued to the registered owner, they should be able to refer the infringement notice to the ADSE where they believe they were not in control of the vehicle at the time of the breach. On receiving the notice, either from the relevant state or territory agency or the registered owner, the ADSE must notify the in-service regulator and provide data from the ADS that shows who or what was in control of the vehicle at the time of the breach.

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 ADS's first supply obligations (one of the safety criteria is about compliance with road traffic laws). This will enable the first-supply regulator to identify any regulatory mechanisms under the RVSA that may be triggered in the circumstances. The in-service and first-supply regulators would be expected to engage to determine the appropriate response if enforcement action is deemed necessary. This engagement could be informal or formalised through an MoU to ensure any potential overlap in roles is reduced.

12.7 Transferring an ADSE's responsibilities for an in-service ADS

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 for transferring responsibility for an ADS to a new entity.

Where an ADSE intends to transfer responsibility for an in-service ADS, or where it significantly changes corporate structure or is a risk of insolvency, the ADSE has a prescriptive requirement to notify the in-service regulator. This notification must come prior to transfer of the ADS. The ADSE must also identify whether a new entity intends to become the responsible ADSE or, if not, how it will manage the disengagement of the ADS.

Where there is another entity willing to take responsibility for the ADS, that entity must be accredited as an ADSE by the in-service regulator before it has permission to operate the ADS on the road. The requirements of accreditation consist of an assessment of the first-supply corporate obligations:

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

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. The new ADSE will need to continue compliance with the first-supply criteria as part of meeting its continuing general safety duty. The new ADSE will, however, need to have the existing type approval transferred to its name through the first-supply regulator if wanting to supply any new vehicles of the same type. The first-supply regulator will assess the new entity's ability to maintain conformity of production and to maintain compliance with the type approval. This process sits within the Road Vehicle Standards Rules.

Where the original ADSE exits the market and there is no accredited ADSE, either because an applicant to be the new ADSE has not yet been accredited by the in-service regulator or because there is no applicant at all, the ADSE is subject to a prescriptive requirement to disengage its ADS. Where there is no applicant at all, the relevant minister under the RVSA may use their discretion to issue a compulsory recall as a last resort enforcement option (which could be an order to physically recall the vehicle or permanently disengage the ADS) of the automated vehicle.[97] Consumers may be able to seek recourse under the Australian Consumer Law; however, the NTC acknowledges that this may be difficult and will consider whether further consumer protections are necessary at the first review of the AVSL.

12.8 Modifying an in-service ADS

An ADSE has a prescriptive requirement under the AVSL to keep a record of all modifications it makes to its in-service ADS.

If the ADSE wants to bring in new vehicles under an existing type approval that incorporate a design change beyond that type approval, it should notify the first-supply regulator and provide evidence demonstrating how it meets applicable ADRs. This RVSA requirement applies to the ADS changes as well – the ADSE will demonstrate how the changed ADS will meet ADR 90/01. This process is not an approval process – the first-supply regulator is only checking the quality of the evidence provided. The obligation is on the ADSE to self-notify when it considers design changes go beyond their type approval.

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. The ADSE will need to ensure continued safe operation of the automated vehicle in order to meet its general safety duty. 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 while in service. A significant modification is one that either:

- increases the automation level of the ADS
- significantly increases the ODD
- otherwise significantly alters the functionality 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 meets the safety criteria (the 11 criteria in section 12.3.1), prior to making the modification. The assessment will not require the ADSE to satisfy the corporate obligations again because they will have already done so at first supply. The in-service regulator will notify the first-supply regulator.

Where the ADSE intends to make a modification to new automated vehicles under an existing type approval, it must notify the first-supply regulator and provide supporting evidence to demonstrate that the modified vehicle will meet applicable ADRs.[98]

[97] Noting that, as discussed in chapter 7, recalls power under the RVSA are being further investigated by DITRDC.

[98] RVSA s 195.

Modifications to an automated vehicle must be made by an ADSE or an entity authorised by the ADSE. Existing state and territory laws and the Australian Consumer Law regulating repairers continue to apply.

12.9 Switching on an ADS in a conventional in-service vehicle

OEMs will use the first-supply framework under the RVSA to supply conventional vehicles to the market. OEMs may choose to supply automated vehicles to the market with the ADS capability initially dormant but expected to be switched on while the vehicles are in service – for example, where the OEM can meet the requirements to obtain a type approval but decides to take a cautious approach to enabling these features for on-road use.

The OEM may declare this capability at first supply, demonstrating that this switch-on capability will be safe once it occurs. In this case, they would go through the safety assurance process, meeting the first-supply safety criteria and obligations and being accredited as an ADSE. There are no further safety requirements the ADSE must meet in order to switch on ADS capability in its vehicles once it is ready to do so; it must only continue to meet its general safety duty.

Where the OEM has not declared this capability at first supply (i.e. has not provided evidence of compliance against ADR 90/01) and, as such, is not an ADSE for an automated vehicle, they must submit a self-certification to the in-service regulator before switching on the ADS capability. The self-certification must demonstrate how the ADS meets the 11 safety criteria and how the OEM meets the three corporate obligations. The in-service regulator will approve the ADS and accredit the OEM as an ADSE once satisfied.

The process is slightly different where an OEM is supplying both in-service and new vehicles under the same type approval with the switched-on ADS capability. The OEM will then need to provide the evidence that would have been required through the first-supply process (described in section 12.3.1) for new vehicles (self-certification against safety criteria in ADR 90/01 and corporate obligations, assessed by the first-supply regulator (safety criteria) and in-service regulator (corporate obligations). The first-supply regulator would receive the new evidence against ADR 90/01 and vary the type approval or issue a new one, if the first-supply requirements are met. For the in-service vehicles of the same type (i.e. supplied under the original approval), the process described in the previous paragraph applies; however, given the first-supply regulator's assessment of the new vehicles of the same type, the in-service regulator will liaise closely with the first-supply regulator to ensure consistency where warranted.

Where the OEM is only supplying new vehicles with the switched-on ADS capability, and not turning on this capability in its in-service vehicles of the same type, the OEM must only go through the process in 12.3.1 for new vehicles.

12.10 Installing an aftermarket ADS in a conventional in-service vehicle

Business models may develop where Australian entities seek to supply aftermarket devices that automate conventional in-service vehicles that they do not hold type approval for.

These entities must submit a self-certification to the in-service regulator before the aftermarket ADS is installed and used. The self-certification must demonstrate how the ADS meets the 11 safety criteria and how the entity meets the three corporate obligations. The

self-certification must indicate the types of vehicles the aftermarket ADS can be installed in. The in-service regulator will approve the ADS and accredit the entity as an ADSE once satisfied.

The first-supply process would capture ADS devices developed by companies and installed in another manufacturer's new conventional vehicles not yet supplied to the market (e.g. through a component type approval). These companies would need to agree who the ADSE will be through their own contractual arrangements.

12.11 The in-service regulator

12.11.1 Functions

The in-service regulator's key function is to ensure regulated parties assure the safety of automated vehicles over their life cycle. It will have the following specific functions:

- monitoring
- education and guidance
- enforcement
- engagement with states and territories
- research
- creating standards
- reporting
- crash investigation (assisting state and territory police investigations and conducting its own systemic investigations)
- accreditation of new in-service ADSEs
- regulatory approval of in-service modifications.

The regulator will be small to begin with and will expand as the automated vehicle market grows. It is likely that it will not use all its functions in the early years of automated vehicle deployment.

12.11.2 Powers

The in-service regulator will take a risk-based approach to compliance and enforcement, ensuring that its regulatory responses are in line with the level of risk posed. 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
- Formal warnings

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

Some of these powers may sit within the Regulatory Powers Act rather than the AVSL if the AVSL is a Commonwealth law. The AVSL would refer to the Regulatory Powers Act in this case.

There will be different enforcement considerations depending on the legislative implementation approach for the in-service framework. These relate to the jurisdiction of the courts, extraterritorial operation and roadside enforcement.

12.11.3 Relationships with other agencies

The regulator will interact with other regulators and agencies that play a role in road safety. It will work with these agencies to take a coordinated approach to safety assurance for automated vehicles, including exchanging information where necessary and establishing processes to manage potential areas of overlap. These processes may be developed informally or through formal agreements such as memoranda of understanding. They may also be managed through legislative provisions.

12.11.4 Information sharing

The regulator will access information from regulated parties and other agencies for the primary purpose of monitoring and enforcing compliance with the general safety duty. The key types of information required will be about compliance with the general safety duty, parties involved in the operation of the ADSE and information about the operation of the ADS. The regulator will have the following information access, collection and sharing powers:

- a power to expressly access information, enable information exchange and enter into agreements for purposes relating to the AVSL and other purposes
- a power to exchange information for the purposes of interagency cooperation
- a power to enter into agreements with industry and other parties.

Some information accessed may be personal information. A privacy impact assessment conducted in 2021 will assess the impacts of these powers on individual privacy before the AVSL is drafted. The provisions in the AVSL will align with design principles limiting government collection, use and disclosure of automated vehicle data, agreed by ministers in 2019.[99]

The in-service regulator will develop an effective information exchange framework to guide how it manages the information it holds and to ensure good decision making. The key framework tools the regulator could use to manage information are:

- interagency and industry agreements
- expressly placing obligations in law to share information and maintain accurate records
- system-to-system design.

[99] Refer to https://www.ntc.gov.au/sites/default/files/assets/files/NTC-Policy-Paper-Regulating-government-access-to-C-ITS-and-AV-data.pdf.

Some of the information the regulator accesses may be from existing government information systems such as NEVDIS administered by Austroads or the Register of Approved Vehicles administered by the Commonwealth.[100] Some of these systems may need updating to accommodate automated vehicles. Over time the regulator may establish its own databases enabling system-to-system information exchange.

12.11.5 Establishing the regulator

Commonwealth, state and territory governments will need to agree a number of operational and legal matters before establishing the regulator. These matters will include how to fund the regulator, how amendments to the AVSL will be made, and which jurisdiction will house the regulator if the AVSL is a state and territory applied law.

A project team will be established to organise the physical, operational and legal infrastructure for the new regulator. Their role will include hiring staff, managing the development of IT systems and databases and developing service-level agreements for corporate support functions.

12.12 Roadside enforcement issues

The ADSE must show how it will safety interact with emergency services at first supply. Once approved as an ADSE, the ADSE must provide the in-service regulator with a law enforcement interaction protocol, which the in-service regulator will forward to the relevant state and territory agencies. The regulator will develop guidance about the areas that should be covered in the protocol. Areas likely to be covered include how the ADSE will ensure that police can access accurate information about whether the ADS is engaged at a given time, the level of automation engaged and any handover of control requests. It should also demonstrate how it may facilitate access by police to this information in real time at the roadside. The ADSE should also explain how it will ensure safe interaction with emergency services (including but not limited to police, fire and ambulance services) more broadly when the ADS is engaged. This includes on-road and roadside interactions. The protocol should be reviewed and updated periodically by the ADSE.

State and territory laws will be updated to ensure roadside enforcement have the necessary power to manage the roadside safety risks of automated vehicles, such as:

- the power to intercept an automated vehicle and disable the ADS
- the power to access data from an automated vehicle at the roadside and during investigations.

12.13 Insurance and liability

Ministers have agreed the principle that motor accident injury insurance for automated vehicles should ensure 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.

The Board of Treasurers is currently considering a national approach for motor accident injury insurers that requires motor accident injury insurance schemes to provide access for

[100] The Register of Approved Vehicles is in development.

injuries and deaths caused when ADSs are engaged while ensuring that schemes can efficiently claim from parties that are at fault.

At first supply the ADSE must show how it can record and share data crash data with relevant parties including insurers. Access to data by motor accident injury insurers to assess liability will be considered once the Board of Treasurers has completed its consideration of the national approach for motor accident injury insurance.

A cause of action to pursue an ADSE for breach of the general safety duty, for those suffering loss or injury due to an ADSE's lack of care, will also be considered once the Board of Treasurers has reported.

13 Summary and next steps

Key points

- Further work will be undertaken to demonstrate how the agreed in-service framework interacts with other frameworks and will incorporate operational and implementation matters.
- The NTC will present legislative implementation approaches for the in-service framework to ministers in November 2021, and the NTC and governments will move to a new phase of work.

13.1 Summary

Infrastructure and transport ministers have agreed the need for a regulatory framework to manage the in-service safety of automated vehicles, to assure their safety over their life cycle and to ensure nationally consistent regulation. Ministers previously agreed key elements of the approach: a new national law; a general safety duty on ADSEs and associated due diligence obligations on their executive officers; and a new national regulator.

The NTC has undertaken analysis and consultation to further develop the content of the new national law, the AVSL. This policy paper sets out the detailed content of the law. Recommendations cover:

- prescriptive duties and requirements on the ADSE
- a process for transferring responsibility for an ADS
- a process for managing modifications to ADSs and aftermarket installations of ADSs
- the in-service regulator's functions and compliance and enforcement powers
- roadside enforcement's role in interacting with automated vehicles and addressing roadside safety risks
- a process for managing road traffic law breaches
- information access and use powers for the in-service regulator
- the differences in compliance and enforcement under the different legislative implementation approaches.

Chapter 12 shows how these recommendations sit within the broader safety assurance framework for automated vehicles agreed by ministers.

13.2 Next steps

The NTC will present legislative implementation approaches for the in-service framework to ministers in November 2021. In the intervening months, the NTC will develop end-to-end models for both the complementary law approach and the state and territory law approach incorporating the policy framework in this paper. These models will further demonstrate how the in-service safety assurance framework will work in practice. The models will include the following elements:

- the agreed in-service framework
- the interaction between the in-service framework and the first-supply framework
- the interaction between the above safety frameworks and other relevant frameworks (e.g. state and territory registration, roadworthiness and road rule frameworks)
- operational issues requiring intergovernmental agreement (e.g. funding of the regulator and the process for changes to the law).

The NTC will report back to the Infrastructure and Transport Ministers' Meeting in November 2021 and seek a decision on the legislative implementation approach for the in-service framework.

Subject to the ministers' decisions on the legislative implementation approach, the NTC, Commonwealth and state and territory governments will move to the next stage of reform implementation, which will include:

- finalising first-supply arrangements, including the content of the ADR that incorporates the safety criteria
- drafting the AVSL
- state and territory amendments to their laws to accommodate automated vehicles
- a potential agreement (e.g. an intergovernmental agreement) to establish the practical arrangements between governments to implement and maintain the national framework
- deciding where the in-service regulatory function sits (whether a new or existing body) and creating a project office to establish it.

We propose that Australian governments work towards having a regulator in place and the AVSL commenced by the end of 2026.

Recommendation 22: The NTC will incorporate the policy framework in this paper into end-to-end models for both a Commonwealth law and a state and territory applied law approach, and report back to ministers in November 2021.

Recommendation 23: The NTC and the Commonwealth will work with states and territories on other policy requirements to establish the national regime, including the process for changes to the law, and funding of the regulator, and provide advice to ministers in November 2021.

Appendix A First-supply safety criteria and obligations

A.1 Safety criteria

A.1.1 Safe system design and validation process

The applicant must explain why it chose particular design, validation and verification processes, and how these ensure a safe technology is developed and maintained for the life of the automated driving system (ADS). The life of the ADS should be set by the applicant and represent the amount of time the applicant proposes to support the ADS, including by way of software upgrades. The applicant's design and verification processes should cover all safety-critical issues such as unsafe maintenance, repairs, physical modifications and other system failure, as well as the ADS reaching the end of its life and no longer being supported by the applicant. For example, the applicant could design the ADS to disengage (temporarily or permanently), or for back-up systems to take over where safety-critical issues arise or the system otherwise fails.

Where the ADS is supplied as an aftermarket device (rather than a device already fitted to the vehicle), compatibility (that is, the vehicle types the ADS can be fitted to) should be specified as an element of system design.

The applicant should document decisions relating to the choice of design, validation and verification processes and include empirical evidence or research to support the safety assertions made. Such documentation could explain why particular processes were chosen. Where applicable, the applicant should use guidance, industry best practices, design principles and standards developed by established standards organisations.

A.1.2 Operational design domain

The applicant must identify the operational design domain (ODD) of the ADS and demonstrate how it will ensure the ADS is:

- able to operate safely within its defined ODD
- incapable of operating in areas outside of its defined ODD
- able to transition to a minimal risk condition when outside its defined ODD.

This could include documentation outlining the process for assessing and verifying the ADS's functionality both within and outside the defined ODD.

The applicant should also outline how it will review and manage changes to the defined ODD. Major changes to the ODD are likely to be significant modifications requiring the applicant to submit a new Statement of Compliance for approval before introducing the change into the market.

A.1.3 Human–machine interface

The applicant must outline how the human–machine interface (HMI) will facilitate interaction between the ADS and relevant parties (both internal and external to the vehicle) that allows the vehicle to operate safely.

In relation to human drivers and occupants, elements of the HMI interaction link with the education and training criterion. The information communicated by the HMI should include, but is not limited to:

- communicating to the human driver when it is safe for the driver to engage the ADS
- informing the human driver if the ADS is engaged and the level of automation engaged
- requesting the human driver or fallback-ready user take back control of the vehicle with sufficient time for the human driver or fallback-ready user to respond, including in an emerging hazard situation. In addition, the applicant should outline the safeguards to ensure a fallback-ready user is actually ready to take back control. This could include monitoring by the ADS of human readiness to take back control and alert systems where such readiness is not apparent
- drawing attention to potential safety risks related to human monitoring and readiness to re-engage with the driving task
- informing vehicle occupants of the ADS's current and intended actions to allow occupants to predict vehicle behaviour
- indicating whether the ADS is functioning properly or experiencing a malfunction.

In relation to parties external to the vehicle, the HMI should communicate information such as the ADS's state of operation should be communicated by the HMI via an external communication interface. This could, for example, take the form of an external screen.

The applicant must also outline how it designed and verified the HMI and reference any appropriate international standards or agreed guidelines for HMIs.

A.1.4 Compliance with relevant road traffic laws

The applicant must demonstrate how it will ensure the vehicle operates in compliance with relevant road traffic laws when the ADS is engaged. In particular, how the ADS will comply with:

- relevant road traffic laws, including any variations in each state and territory
- amendments to the relevant road traffic laws when they come into force.

This could include documentation outlining the process for assessing and verifying the ADS's compliance with relevant road traffic laws and the process for updating the ADS to comply with amendments to those laws.

The applicant must also demonstrate how the ADS will respond in a safe way where strict compliance with relevant road traffic laws is not possible. This requirement closely links with the on-road behavioural competency criterion.

A.1.5 Interaction with enforcement and other emergency services

The applicant must demonstrate how it will ensure that police can access accurate information about whether the ADS is engaged at a given time, the level of automation engaged and any handover of control requests. The applicant should also demonstrate how it may facilitate police access to this information in real time at the roadside.

The applicant must demonstrate how it will ensure safe interaction with emergency services (including but not limited to police, fire and ambulance services) more broadly when the ADS is engaged. This includes interactions on-road and at the roadside.

A.1.6 Minimal risk condition

The applicant must demonstrate how the ADS will detect that it cannot operate safely and the steps the ADS will take to bring the vehicle to a minimal risk condition.

This could include documentation outlining the process for verifying the ability of the ADS to detect and respond to such circumstances. The steps the ADS must take to bring the vehicle to a minimal risk condition are likely to vary depending on the reason why the ADS cannot operate safely, other traffic and road users present, and on the level of automation engaged. Therefore, a range of approaches to bring the vehicle to a minimal risk condition may need to be considered.

A.1.7 On-road behavioural competency

The applicant must demonstrate how the ADS will appropriately respond to foreseeable and unusual conditions that may affect its safe operation and interact in a predictable and safe way with other road users. This could include documentation outlining the process for verifying the ADS's:

- object and event detection and response capabilities
- crash-avoidance capabilities
- ability to respond to unusual events within its ODD
- on-road interaction with other road users, including vulnerable road users.

A.1.8 Installation of system upgrades

The applicant must demonstrate how it will manage system upgrade risks. This includes ensuring safety-critical system upgrades to the ADS are installed and do not result in the operation of an unsafe ADS.

The applicant must explain how it will notify registered owners/operators that a safety-critical upgrade has been installed or is available and needs to be installed. For such safety-critical upgrades, the applicant must also demonstrate how it will:

- detect failures to install upgrades (including failures of automatic updates, failures by registered owners/operators to take action when an upgrade is available, or failures in receipt of over-the-air software updates)
- detect system failures once upgrades are installed
- ensure the ADS is safely disengaged if such failures occur.

This could include documentation outlining the process for verifying the ADS's ability to:

- update automatically and notify the registered owner/operator of the update
- notify the registered owner/operator of available system upgrades
- detect and respond to failures to install upgrades
- detect and respond to any system failures following the installation of upgrades.

A.1.9 Verifying for the Australian road environment

The applicant must demonstrate how it has considered the Australian road environment in designing, developing and verifying the ADS, including its forward planning processes to ensure compliance with changes to the road environment (such as changes to road infrastructure).

This could include documentation outlining the process for verifying the response of the ADS to the Australian road environment such as interaction with road signs in various states and territories, and interaction with Australian flora and fauna.

A.1.10 Cybersecurity

The applicant must demonstrate:

- the capacity and competency of the ADS to minimise cybersecurity threats and vulnerabilities, including risks of cyber intrusion and other data security breaches
- the ADS's ability to detect and minimise the consequences of cyber intrusions and data security breaches that occur. Relevant consequences include those on road user safety and consequences for individual privacy following a data breach. One way to minimise negative effects on safety could be to include a manual override mechanism
- the applicant's processes for maintaining the ADS's capacity and competency to minimise cybersecurity threats, vulnerabilities and consequences of intrusions and breaches over the life of the ADS.

The applicant should refer to relevant legislation, industry standards and guidance for vehicle cybersecurity (domestic and international) and explain how it has incorporated these into its processes for designing, developing and maintaining the ADS.

A.1.11 Education and training

The applicant must outline the education and training it will provide to relevant parties about its ADS and how this will minimise the safety risks of using and operating the ADS. Education and training should consider different types of vehicles (including light and heavy vehicles) and different types of vehicle users. Without limiting the education and training to be provided, such education and training should consider:

- training human drivers and fallback-ready users to safely disengage and re-engage the ADS and the driving task
- informing human drivers of their obligations and responsibilities, particularly any fallback-ready user obligations
- informing consumers of the ADS's capabilities by clearly describing its automated capability, its level of automation, use limitations, restrictions on modifications and any restrictions of the automated technology such as the operational design domain
- facilitating the maintenance and repair of the ADS, including post-crash before it is put back in service
- facilitating employee, dealer and distributor understanding of the technology and operation so relevant information can be accurately conveyed to consumers and purchasers
- ongoing education as required, including education and training to end users who are not the original vehicle owner and to communicate the impact of upgrades.

The development of education and training should be well documented. Such documentation could explain the reasons for the education and training chosen and how it will facilitate proper and safe use of the applicant's ADS. The automated driving system entity should also make use of best practice or standards.

A.2 Obligations

A.2.1 Data recording and sharing

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 has real-time monitoring of driving performance and incidents, including event data records in the lead-up to any crash that identifies which party was in control of the vehicle at the relevant time
- 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
- 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 for 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. This does not require the applicant to store the data exclusively in Australia.

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

A.2.2 Corporate presence in Australia

The applicant must provide evidence of its corporate presence in Australia.

A.2.3 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.

Appendix B List of public submissions

In October 2020, the NTC published the discussion paper *A national in-service safety law for automated vehicles* seeking feedback on the role of in-service regulation and regulation of different parties involved in the safe operation of automated vehicles on Australian roads.

We engaged in a thorough consultation program between 16 October and 16 December 2020. This involved hosting 11 consultation sessions and five information sessions with industry and government stakeholders around Australia.

The purpose of the information sessions was to inform stakeholders on proposed in-service safety for automated vehicles regulatory reform and encourage submissions to the discussion paper.

The NTC received 33 written submissions. These submissions came from transport agencies, manufacturers, automobile clubs, insurers, law firms, consultants, individuals and research bodies. A list of the public submissions is in the table below.

Name of organisation	Abbreviation	Description
AAA	AAA	National peak body representing automobile clubs
Australian Competition and Consumer Commission	ACCC	Australia's competition regulator and national consumer law champion
Commonwealth Department of Infrastructure, Transport, Regional Development and Communications	DITRDC	Commonwealth government department
Australian Motorcycle Council	AMC	The peak body for motorcycle road riders in Australia
Department of Transport and Main Roads Queensland	TMR QLD	Queensland government department
Dr Santosh Kumar Mishra		Individual
Federal Chamber of Automotive Industries	FCAI	National peak body for manufacturers and importers of light vehicles and motorcycles
Gas Energy Australia	–	Energy company

Name of organisation	Abbreviation	Description
Human Integrated Internet of Things	Hi IoT	Technology company
Insurance Australia Group	IAG	Insurance company
Law Institute of Victoria	LIV	Peak body for legal professionals in Victoria
Maurice Blackburn Lawyers	Maurice Blackburn	Law firm
Office of the Australian Information Commissioner	OAIC	Commonwealth regulator for privacy and freedom of information
Office of the Victorian Information Commissioner	OVIC	Primary regulator and source of independent advice to the community and the Victorian Government about how the public sector collects, uses and shares information
Paul Lucey	–	Individual
Peter Goudie	–	Individual
Royal Automobile Club of Queensland	RACQ	Insurance provider and automobile club
RTS Zero	–	Management consultancy
South Australian Freight Council	SAFC	Multimodal freight and logistics industry group and advocacy body
SYSTRA	–	Engineering and consultancy group
Tim Connors	–	Individual
Toll Group	Toll	Logistics company

Appendix C Obligations and offence provisions

This appendix summarises all obligations and offences described throughout the discussion paper and shows what penalties could look like under the Automated Vehicle Safety Law.

Illustrative obligations and offence provisions	**Illustrative penalties**
General safety duty An automated driving system entity (ADSE) must ensure so far as is reasonably practicable that its automated driving system (ADS) is safe when used for a purpose for which it was designed, manufactured, supplied or installed.	**A breach of the general safety duty can result in a civil penalty or a criminal prosecution depending on the category of offence.** **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. Maximum penalty—$x **Category 2 offences** will relate to an ADSE that fails to comply with the general safety duty (without the presence of recklessness) and in doing so exposes an individual to a risk of death or serious injury or illness. Maximum penalty—$x **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. Maximum penalty—$x

Illustrative obligations and offence provisions	Illustrative penalties
	The offences focus on the culpability of the offender and the level of risk and not the actual consequences or outcomes of the breach. A breach of the general safety can result in a civil penalty or a criminal prosecution (reflecting a broad community interest in ensuring that people who have a duty of care but do not observe that duty should be liable to a criminal sanction for placing another person's safety at risk). The in-service regulator will also be able to use a range of administrative tools such as formal warnings or enforceable undertakings to ensure ADSE compliance with the general safety duty.
Prescriptive duties to support the general safety duty ▪ The ADSE must ensure, so far as is reasonably practicable, that systems are developed, used and maintained to carry out the general safety duty. ▪ The ADSE 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 ADSE must notify the in-service regulator and users of any systemic safety issues affecting the ADS. ▪ The ADSE must ensure, so far as is reasonably practicable, that the ADS software is without risks to the health and safety of users. ▪ The ADSE must record and store data relevant to compliance with the general safety duty. ▪ The ADSE must, so far as is reasonably practicable, provide education and training to relevant parties such as users of its ADSs.	**Breaches of prescriptive duties to support the general safety duty will result in criminal prosecution** Breaches of individual prescriptive requirements under the general safety duty will result in criminal prosecution for a breach of the general safety duty itself based on an assessment of the risk posed by the breach. This will ensure the in-service regulator has a range of compliance and enforcement responses to encourage compliance with the general safety duty.

Illustrative obligations and offence provisions	Illustrative penalties
▪ The ADSE must, so far as is reasonably practicable, prevent the operation of an ADS when the ADSE is aware the ADS is unsafe. ▪ The ADSE must, so far as is reasonably practicable, ensure the ADS can comply with relevant road traffic laws. ▪ The ADSE must have appropriate resources, processes, policies and systems in place to identify, manage and minimise known and foreseeable safety risks. ▪ The ADSE must ensure accountability (e.g. through reporting structures or external audits) to demonstrate that those processes, policies and systems are being complied with. ▪ The ADSE must, so far as reasonably practicable, make efforts to ensure the ADS cannot be interfered with by third parties. ▪ The ADSE must, so far as is reasonably practicable, review, maintain and update its safety standards as declared in its first-supply application.	
ADSE senior executive due diligence Senior executives of the ADSE must exercise due diligence to ensure the ADSE complies with the general safety duty. Any duty of due diligence would, consistent with the Council of Australian Governments' principles,[101] be limited to those who are in a position to influence the ADSE's compliance with its general safety duty.	**A breach of the due diligence obligation in relation to a breach of the general safety duty can result in a civil penalty or a criminal prosecution.** Maximum penalty—$x The penalty for contravention of the general safety duty by an individual may include imprisonment for a category 1 offence.

[101] COAG Principles on Directors' Liability Provisions, adopted December 2009.

Illustrative obligations and offence provisions	Illustrative penalties
	The executive may be convicted of an offence even if the ADSE has not been proceeded against for, or convicted of, an offence relating to the safety duty.
ADSE transferability – reporting requirements ***Notification requirements*** ▪ An entity that merges with or acquires an ADSE in accordance with the requirements of the *Corporations Act 2001* must notify the in-service regulator within a reasonable period (to be defined in legislation). ▪ If the ADSE enters voluntary administration or liquidation as defined in the Corporations Act the ADSE must notify the regulator within a reasonable period (to be defined in legislation). ▪ If an ADSE has stopped trading, it must notify the in-service regulator within a reasonable period (to be defined in legislation). ***Prohibition on operation unless the new entity is accredited by the in-service regulator*** ▪ In circumstances where a notification requirement has been triggered (e.g. due to a merger or acquisition) it is an offence for the original ADSE to allow the ADS to engage until supported by an entity that has been accredited by the in-service regulator.	**Breach of the notification requirements:** Criminal penalty offence. **Breach of the prohibition on operation until a new entity is accredited:** Criminal penalty offence, continuing offence.[102] **Breach of the prohibition on operation where there is no responsible ADSE:** Criminal offence, penalty to be decided. An objective of the in-service framework is to ensure there is a legal entity responsible for the ADS while it is in operation. A breach of this requirement has the potential to undermine the entire framework. The threat of criminal prosecution should provide a significant deterrence against a breach.

[102] Where an offence is expressed as a continuing offence, a person is guilty of a separate offence for each day of noncompliance, where an act or thing must be done within a particular period or before a particular time. Continuing offences can create a strong incentive for compliance as quickly as possible following an initial contravention.

Illustrative obligations and offence provisions	Illustrative penalties
In-service modifications ***Documentation requirements*** ▪ The ADSE must maintain a log of all in-service modifications that it implements in relation to its ADSs. ▪ The ADSE must notify the in-service regulator of any third-party interference attempts it becomes aware of. ***Prohibition on certain modifications without approval from the in-service regulator*** ▪ The ADSE must not implement significant modifications to in-service ADSs without approval from the in-service regulator.	**Documentation requirements:** Criminal penalty offence. **Prohibition on certain modifications:** Criminal penalty offence. Continuing offence.
Prescriptive requirements to support audit by the in-service regulator ▪ The ADSE must provide accurate and reliable information to the in-service regulator. ▪ The ADSE must maintain records of safety incidents. ▪ The ADSE must report significant safety incidents and road traffic law breaches to the regulator, including those where it received an infringement notice from a state or territory agency. ▪ The ADSE must notify the in-service regulator of any third-party interference attempts that the ADSE becomes aware of.	**Breaches of prescriptive requirements:** Criminal penalty offences. Penalties will be set at a sufficiently high level to ensure compliance because the auditing powers are crucial for performing regulator functions. Some of the offences – for example, failure to report safety incidents – may be continuing offences. **Falsification of information:** Criminal offence.
Compliance with directions from in-service regulator The ADSE must comply with: ▪ improvement notices ▪ directions to act	Criminal penalty offences. Will be continuing offences.

Illustrative obligations and offence provisions	Illustrative penalties
▪ variation of permission to operate.	
Roadside enforcement ▪ The ADSE must develop and maintain a law enforcement interaction protocol, to be shared with the in-service regulator.	Criminal penalty offence.
Data recording and sharing An ADSE must ensure its automated vehicles record data relevant to enforcement of road traffic laws and the general safe operation of the ADS (including data relating to crashes). This will include real-time monitoring of driving performance and incidents, including event data records in the lead-up to any crash to identify which party was in control of the vehicle at the relevant time and the level of automation engaged. The ADSE must provide this data in a standardised, readable and accessible format in response to a reasonable request from: ▪ the in-service regulator ▪ the Australian Transport Safety Bureau ▪ police ▪ a road agency ▪ an insurer ▪ a consumer. The ADSE will need to retain the data for as long as required, to the extent necessary to provide it to relevant parties (the amount of time data is retained for may depend on the purpose(s) the information could be used for).	Criminal penalty offences – will be continuing offence.

Illustrative obligations and offence provisions	Illustrative penalties
Data relevant to the enforcement of road traffic laws and the general safe operation of the ADS (including data relevant to crashes) must be stored in Australia.	
Privacy protections – data access, use and disclosure *To be included after developing the privacy impact assessment.*	Criminal penalty offence.

Glossary

Term	Definition
Australian Design Rules (ADRs)	National standards for safety, anti-theft and emissions in vehicle design.
Australian Road Rules	National model law intended to provide the basis for nationally consistent road rules in each jurisdiction. These rules do not, by themselves, have any legal effect.
Austroads	The peak organisation of Australasian road transport and traffic agencies.
Automated driving system (ADS)	The hardware and software collectively capable of performing the entire dynamic driving task on a sustained basis. It is a type of driving automation system used in vehicles with SAE levels 3, 4 or 5 of automation as established in standard SAE J3016 by the Society of Automotive Engineers International (SAE).
Automated driving system entity (ADSE)	The legal entity that certifies that the automated driving system can safely perform the driving task in place of a human driver. The ADSE will self-nominate by seeking type approval for the automated driving system under the *Road Vehicle Standards Act 2018* (Cwlth).
Automated vehicles	A vehicle with SAE levels 3–5 automation. It is a vehicle that has an automated driving system, which means it is capable of performing the entire dynamic driving task on a sustained basis without human input. It is distinct from vehicles with automated features to assist a driver (SAE levels 1–2), which still require a human driver to perform part of the dynamic driving task.
Department of Infrastructure, Transport, Regional Development and Cities (DITRDC)	Department of the Commonwealth Government responsible for administering the *Road Vehicle Standards Act 2018* and housing the Office of Future Transport Technology.
Dynamic driving task	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 conspicuity through lighting signalling. The

Term	Definition
	dynamic driving task excludes strategic functions like trip planning, such as where and when to travel and route selections.
Driving automation features	Automation features that assist the driver such as lane-changing features. A vehicle with driver assistance features is not capable of performing the entire dynamic driving task and requires a human driver. It can cover SAE level 1 (either longitudinal or lateral vehicle control) and SAE level 2 (longitudinal and lateral control).
Fallback-ready user	A human in a vehicle with SAE level 3 automation who can operate the vehicle, who is receptive to requests from the automated driving system to intervene and is receptive to evident dynamic driving task performance-relevant system failures. The fallback-ready user is expected to respond by taking control of the vehicle.
First supply	The market entry of motor vehicles to Australia.
Heavy Vehicle National Law (HVNL)	National laws related to the regulation of heavy vehicles over 4.5 tonnes. Operational in all Australian states and territories except Western Australia and the Northern Territory.
Human–machine interface	Interface between a human operator and a machine. Includes functional and ergonomic design of the interface (human factors).
In service	Vehicles supplied to the Australian market and are now in use.
In-service safety	The safety of automated vehicles once the vehicles are on the road or 'in service'.
National Heavy Vehicle Regulator (NHVR)	Australia's independent regulator for all vehicles over 4.5 tonnes gross vehicle mass (heavy vehicles). It administers one set of laws for heavy vehicles under the Heavy Vehicle National Law, delivering a comprehensive range of services under a consistent regulatory framework.
Operational design domain (ODD)	The specific conditions under which a driving automation system or feature is designed to function (e.g. locations, weather conditions, driving modes).
Road Vehicle Standards Act 2018 (Cwlth)	Commonwealth legislation to control the safety, environmental and anti-theft performance of all new and used vehicles entering the Australian market for the first time, and to set national road vehicle standards. It replaces the *Motor Vehicle Standards Act 1989* (Cwlth) from 2019. The main provisions of the Act came into effect on 10 December 2019. There is a 12-month transitional period, allowing

Term	Definition
	some type-approval holders to continue operating under existing approvals until 10 December 2020.
Remote driver	The remote driver (sometimes described as a ‘remote operator’ or ‘teleoperator’) is 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 (SAE International, 2018, p. 16). A remote driver may operate the vehicle from outside it or inside it.
Society of Automotive Engineers (SAE)	A global professional association and standards-developing organisation for engineering professionals. It established the levels of vehicle automation in its technical document J3016.
SAE level 3	Where the automated driving system undertakes the entire dynamic driving task in situations within its ‘operational design domain’. The human driver does not have to monitor the driving environment or the automated driving system but must be receptive to automated driving system requests to intervene and any system failures. SAE level 3 is also referred to as ‘conditional automation’.
SAE level 4	Where the automated driving system undertakes the entire dynamic driving task for sustained periods in situations within its ‘operational design domain’. When the system is driving the vehicle, a human driver is not required to monitor the driving environment or the driving task. Nor are they required to intervene because the automated driving system can bring the vehicle to a safe stop unassisted. SAE level 4 is also referred to as ‘high automation’.
SAE level 5	Where all aspects of the dynamic driving task and monitoring of the driving environment are undertaken by the automated driving system. The automated driving system can operate on all roads at all times. No human driver is required. SAE level 5 is also referred to as ‘full automation’.
System failure	A malfunction in an automated driving system and/or other vehicle system that prevents the automated driving system from reliably sustaining dynamic driving task performance (partial or complete).

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List of boxes, tables and figures

Boxes and tables

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