



Automated vehicles and Australian personal injury compensation schemes

Mark Brady*, Kylie Burnst†, Tania Leiman‡ and Kieran Tranter§

This article argues that the existing regimes in Australia dealing with rehabilitation and compensation for injury and death arising from road trauma — the compulsory third party motor accident schemes and the national injury insurance schemes — will require reform to accommodate the adoption of automated vehicles on public roads. It suggests that victims injured by automated vehicles should not suffer differential entitlement to compensation or be arbitrarily excluded from the various schemes as a result of outmoded and narrow definitions or by the inability to establish ‘fault’ where a vehicle is highly automated. It argues that to ensure continuous coverage of the schemes there will need to be reforms to the threshold definitions of accident/personal injury. It further contends that the current fault-based systems may no longer remain a viable pathway for attributing liability in an accident involving highly automated vehicles and require reform.

I Introduction

Australia’s State-based statutory, compulsory third party motor vehicle insurance schemes, (‘CTP schemes’) and National Injury Insurance Schemes (‘NIIS’) are ill-prepared to deal with increasingly automated road vehicles. This article is written in response to some of the recommendations made by the National Transport Commission (‘NTC’),¹ made in its recent discussion and policy papers: *Regulatory Options for Automated Vehicles* and the later *Regulatory Reforms for Automated Road Vehicles* (‘the NTC reports’).² In the discussion paper, *Regulatory Options for Automated Vehicles* (‘the May

* BA, LLB (Hons) GDLP, PhD Candidate, Law Futures Centre, Griffith Law School, Gold Coast Campus, Griffith University.

† BA, LLB (Hons) LLM, PhD; Senior Lecturer, Law Futures Centre, Griffith Law School, Nathan Campus, Griffith University.

‡ LLB (Adel), GDLP, GCert (Higher Education); Senior Lecturer, Flinders Law School, Flinders University.

§ BSc, LLB (Hon), PhD; Associate Professor, Law Futures Centre, Cities Research Centre, Griffith Law School, Gold Coast Campus, Griffith University.

1 The NTC is an independent statutory body established under a *Commonwealth Act* that contributes to the achievement of national transport policy objectives ‘with an ongoing responsibility to develop, monitor and maintain uniform or nationally consistent regulatory and operational reforms relating to road transport, rail transport and intermodal transport’: *National Transport Commission Act 2003* (Cth) s 3.

2 National Transport Commission, *Regulatory barriers to more automated road and rail vehicles*, Issues Paper (February 2016) <[https://www.ntc.gov.au/Media/Reports/\(66E42530-B078-4B69-A5E3-53C22759F26E\).pdf](https://www.ntc.gov.au/Media/Reports/(66E42530-B078-4B69-A5E3-53C22759F26E).pdf)>; National Transport Commission, *Regulatory options for Automated Vehicles*, Discussion Paper (May 2016) <[https://www.ntc.gov.au/Media/Reports/\(049B1ED1-5761-44D5-9E3C-814A9195285D\).pdf](https://www.ntc.gov.au/Media/Reports/(049B1ED1-5761-44D5-9E3C-814A9195285D).pdf)>; National Transport Commission, *Regulatory reforms for automated road vehicles*, Policy Paper (November 2016) <[https://www.ntc.gov.au/Media/Reports/\(32685218-7895-0E7C-ECF6-551177684E](https://www.ntc.gov.au/Media/Reports/(32685218-7895-0E7C-ECF6-551177684E)

discussion paper’) the NTC received over 50 submissions from various government and non-government bodies, industry stakeholders and academic researchers making recommendations in relation to automated vehicles.³

The result of this was the release of the paper, *Regulatory Reforms for Automated Road Vehicles* (‘the November policy paper’) in November 2016. In the November policy paper, the NTC recommended clarifying the definitions of ‘driver’ and ‘driving’ in relation to highly and fully automated vehicles.⁴ They further stated:

Priority should be given to ensuring eligibility to compulsory third-party and national injury insurance schemes is not unintentionally restricted by current definitions of driver and driving in those schemes.⁵

In relation to liability though, the NTC recommended the following:

However, unless evidence emerges of a market failure that impedes the efficient and reliable assignment of fault, no changes are recommended at this time to current laws and approaches around liability for drivers, manufacturers, technology providers and road managers in regard to automated vehicles.⁶

This article concurs with the position adopted by Ministers at the 4 November 2016 Transport and Infrastructure Council meeting,⁷ endorsing the NTC November policy paper finding that reform around the core threshold definitions of ‘accident’/‘personal injury’ is required.⁸ These legislative definitions are essential in identifying claims that fall within relevant compensation legislation. However, this article disagrees with the NTC’s position on retaining existing liability regimes,⁹ and argues that for the fault-based schemes, the complexity likely to arise regarding assignment of fault when an automated vehicle is involved in an accident will necessitate reform. It suggests that victims of injury in automated cars should not suffer differential entitlement to compensation¹⁰ or be arbitrarily excluded from the various schemes, as a result of outmoded and narrow definitions or by the inability to establish ‘fault’ (in states having fault-based CTP schemes) where a vehicle is highly automated. It argues that uncertainty on how CTP schemes and NIIS will deal with automated vehicles and lack of clarity regarding liability in fault-based schemes need to be addressed to facilitate the introduction of automated vehicles on Australian roads.

27).pdf>; National Transport Commission, *National guidelines for automated vehicle trials*, Discussion Paper (November, 2016) <[https://www.ntc.gov.au/Media/Reports/\(FEAAC3B0-8F38-2C35-5FBC-4968034E6565\).pdf](https://www.ntc.gov.au/Media/Reports/(FEAAC3B0-8F38-2C35-5FBC-4968034E6565).pdf)>.

3 National Transport Commission, *Regulatory options*, above n 2.

4 National Transport Commission, *Regulatory reforms*, above n 2, 14.

5 Ibid.

6 Ibid 16.

7 Transport and Infrastructure Council, ‘*Communiqué*’ Perth, (Friday, 4 November 2016) 4 <<https://www.ntc.gov.au/about-ntc/news/media-releases/a-roadmap-of-reform-for-automated-vehicle-regulation/>>.

8 National Transport Commission, *Regulatory reforms*, above n 2, 43–8, 59–62.

9 Ibid 62.

10 The Griffith University and Flinders Law School submission clearly sets out the equity principle — that an individual sustaining an injury in an automated vehicle should not be worse off ‘than if the vehicle had been driven by a human driver’ (National Transport Commission, *Regulatory reforms*, above n 2, 46).

This article is structured in four parts. Part II outlines the Australian CTP schemes and NIIS. Part III briefly discusses automated vehicles, and sets out the NTC's recommendations regarding liability for automated vehicles in Australia. Part IV considers existing threshold definitions in the current CTP schemes and NIIS and whether they are likely to be interpreted to encompass automated vehicles. Part V focuses on the fault-based schemes, argues that identification of the 'at fault' party regarding automated vehicles becomes increasingly difficult as automation rises.

This article builds on previous analysis¹¹ of the disruptive implications for law of automated vehicles in Australia, focusing in more detail on the CTP schemes and NIIS in relation to automated vehicles, and responds to the NTC's position regarding the CTP schemes and identification of fault. Given the mobility of the Australian population and interstate nature of road transport in Australia, crossing state and territory jurisdictional boundaries, failure to proactively work towards agreement on a uniform national legislative approach will result in inconsistency and lack of clarity for injured persons and those who might be held liable to pay compensation for those injuries.

II A brief overview of Australian schemes for compensating MVA injury

This section outlines the Australian CTP schemes and NIIS as they apply to persons injured in motor vehicle accidents. The frameworks for compensation have undergone gradual reform in Australia.¹² By 2016, all Australian jurisdictions had a range of statutes that supplement or supplant liability based on the general principles of negligence in the aftermath of road trauma:¹³ CTP insurance schemes for personal injury¹⁴ and NIIS legislation to provide

11 Kieran Tranter and Mark Brady, Submission to National Transport Commission, 8 March 2016 <<https://www.ntc.gov.au/media/1368/regulatory-barriers-to-automated-vehicles-issues-paper-kieran-tranter-griffith-law-school-mar-2016.pdf>>; Mark Brady et al, Submission to National Transport Commission, *Submission in response to the Regulatory Options of Automated Vehicles Discussion Paper*, 4 July 2016 <<https://www.ntc.gov.au/media/1426/ntc-discussion-paper-regulatory-options-for-automated-vehicles-may-2016-kieran-tranter-griffith-law-school-jul-2016.pdf>>; Kieran Tranter, 'The Challenges of Autonomous Motor Vehicles for Queensland Road and Criminal Laws' (2016) 16 *Queensland University of Technology Law Review* 59.

12 Harold Luntz et al, *Torts Cases and Commentary* (LexisNexis Butterworths, 7th ed, 2012); Rowen Craigie, Richard Cumpston and Dennis Sams, 'Accident Compensation Reform' (2008) 19(3) *Australian Economic Review* 9, 9–10; Douglas Brown, *Traffic Offences and Accidents* (Butterworths, 1996) 225–32; See generally Peter Cane, 'Reforming Tort Law in Australia: A Personal Perspective' (2003) 27 *Melbourne University Law Review* 649, 649–76.

13 *Civil Law (Wrongs) Act 2002* (ACT); *Civil Liability Act 2002* (NSW); *Civil Liability Act 2003* (Qld); *Civil Liability Act 1936* (SA); *Wrongs and Other Acts (Public Liability Insurance Reform) Act 2002* (Vic); *Civil Liability Act 2002* (WA). On the complexities and differences of the state acts, see Andrew Field, "'There must be a Better Way': Personal Injuries Compensation since the 'Crisis in Insurance'" (2008) 13 *Deakin Law Review* 67.

14 *Road Transport (Third-Party Insurance) Act 2008* (ACT); *Motor Accidents Compensation Act 1999* (NSW); *Motor Accidents (Compensation) Act 1979* (NT); *Motor Accident Insurance Act 1995* (Qld); *Motor Vehicles Act 1959* (SA); *Civil Liability Act 2002* (Tas); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas); *Transport Accident Act*

lifetime care for catastrophic motor vehicle accident ('MVA') personal injuries.¹⁵ This approach to MVA personal injury contrasts with claims for MVA property damage and other loss, where it has generally been left to the law of negligence to determine driver liability for claims brought in negligence.

Eligibility for MVA personal injury compensation is determined differently across Australian jurisdictions.¹⁶ The critical difference is the role of fault, particularly within the CTP schemes. In fault-based CTP schemes, such as those in the New South Wales, the Australian Capital Territory, Queensland, South Australia and Western Australia, in addition to the other elements of a tort, the fault of another driver must be proved.¹⁷ A purely no-fault scheme exists in the Northern Territory.¹⁸ Victoria and Tasmania have a hybrid scheme that provides no-fault compensation to certain limits, with recourse to fault-based determination beyond those limits.¹⁹ For those with catastrophic injury, NIIS legislation in all states and territories provides, with some interaction between the CTP schemes,²⁰ lifetime care and support compensation without consideration of fault; although in Queensland and Western Australia similar arrangements are found in the hybrid CTP

1986 (Vic), *Accident Compensation Act 1985* (Vic); *Motor Vehicle (Third Party Insurance) Act 1943* (WA). On the CTP schemes, see Talina Drabsch, 'Accident Compensation: Personal or Community Responsibility?' (2005) 2 *Australian Civil Liability* 65; Andrew Freer, 'Compulsory Third Party Compensation Schemes: A State-by-State Round Up A.C.T.' (2006) 75 *Precedent* 27.

15 *Lifetime Care and Support (Catastrophic Injuries) Act 2014* (ACT); *Motor Accidents (Lifetime Care and Support) Act 2006* (NSW); *Motor Accidents (Compensation) Act 1979* (NT); *National Injury Insurance Scheme (Queensland) Act 2016* (Qld); *Motor Vehicle Accidents (Lifetime Support Scheme) Act 2013* (SA); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas); *Transport Accident Act 1986* (Vic); *Motor Vehicle (Catastrophic Injuries) Act 2016* (WA). On the NIIS promulgation and operation. See Productivity Commission, *Disability Care and Support*, Inquiry Report No 54 (31 July 2011) <<http://www.pc.gov.au/inquiries/completed/disability-support/report/disability-support-volume2.pdf>>; Mark Harrison, 'Evidence-free Policy: The Case of the National Injury Insurance Scheme' (2013) 20(1) *Agenda* 55; Christine Plevy, 'Lifetime Care and support for the catastrophically injured — ACT update' (2016) 13 *Australian Civil Liability* 34, 34–5; Emily Mitchell, 'The National Injury Insurance Scheme: The details revealed' (2014) 125 *Precedent* 18, 20; Emma Reilly et al, 'Damages claimable' (2016) 133 *Precedent* 24, 28–30.

16 Martin Davies and Ian Malkin, *Focus Torts* (LexisNexis Butterworths, 7th ed, 2015) 9–22.

17 *Motor Accidents Compensation Act 1999* (NSW) ss 3, 3A; *Road Transport (Third-Party Insurance) Act 2008* (ACT) ch 4; *Motor Accident Insurance Act 1995* (Qld) s 5(1)(b); *Motor Vehicles Act 1959* (SA) pt 4; *Motor Vehicle (Third Party Insurance) Act 1943* (WA) s 4(1). Note that in fault states, some categories of injured persons are dealt with as no-fault in fault schemes, eg, in New South Wales this includes injuries that occur in 'blameless accidents' and for child victims under 16 years of age (*Motor Accidents Compensation Act 1999* (NSW) pt 1.2).

18 *Motor Accidents (Compensation) Act 1979* (NT) s 5. In March 2017 the New South Wales Government announced amendments to that state's CTP scheme, that if adopted would see a no fault scheme similar to the Victorian scheme <<http://www.legislation.nsw.gov.au/bills/d584d4ce-58f5-4311-9a3e-7df14832da24>>.

19 *Transport Accident Act 1986* (Vic) pts 4, 6; *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) pts 3–4.

20 The CTP and NIIS schemes work together. For example, in New South Wales the NIIS legislation excludes persons who have been awarded damages for future economic loss for relevant injuries *Motor Accidents (Lifetime Care and Support Act 2006* (NSW) s 7.

schemes, where seeking damages through the courts is permissible in specific circumstances.²¹

Access to most of these schemes depends on showing that personal injury was sustained as a result of a MVA, where the motor vehicle involved is driven by a negligent human driver. However, where injury is sustained in connection with the operation of an automated vehicle, it may be that no human driver is at fault, and instead some fault in the operation of either a vehicle's automated systems, or the infrastructure supporting those systems, is responsible. The complexities of proving fault in such situations, and the potential for alternative strict liability defective product claims against manufacturers using the *Australian Consumer Law* ('ACL'), suggests reform will be required.²² Where a person is injured in a MVA involving a highly automated vehicle, the situation may become even more difficult.

III Responses to automated vehicles

This section canvasses some of the current Australian responses to automated vehicles, defines the differing levels of automation, and sets out the NTC's recommendations regarding liability for automated vehicles in Australia. There has been significant recent media and policy attention regarding vehicles with increasing levels of automation.²³ South Australia has legislated to allow public trials of automated vehicles and the ACT Government has

21 See, eg, *National Injury Insurance Scheme (Queensland) Act 2016* (Qld) s 42, 44 and *Civil Liability Act 2003* (Qld) ss 52A–52C.

22 Product liability and the *Australian Consumer Law* will not be covered in detail in this article.

23 National Transport Commission, *Regulatory options*, above n 2; Clayton Utz, *Driving into the Future: Regulating Driverless Vehicles in Australia* (2016) <<https://www.claytonutz.com/knowledge/2016/august/new-legal-road-needed-to-steer-the-transition-to-driverless-vehicles>>; John Bradburn et al, *Connected and Autonomous Vehicles: Introducing the Future of Mobility* (Atkins Global, 2015); Bureau of Infrastructure, Transport and Regional Economics, Department of Infrastructure and Regional Development, *Impact of Road Trauma and Measures to Improve Outcomes*, Research Report No 140 (2014); National Transport Commission, *Cooperative Intelligent Transport Systems: Final Policy Paper* (December 2013); Standing Council on Transport and Infrastructure, *Policy Framework for Intelligent Transport Systems in Australia* (2012); Sophie Vorrath, *All Cars on Australian Roads will be Driverless by 2030: Telstra Exec* (1 August 2016) *RenewEconomy* <<http://reneweconomy.com.au/2016/all-cars-on-australian-roads-will-be-driverless-by-2030-telstra-exec-33821>>; Adam Carey, 'No Bumps in the Road in Australia's First Public Demonstration of Driverless Cars', *The Sydney Morning Herald*, 8 November 2015 <<http://www.smh.com.au/national/no-bumps-in-the-road-in-australias-first-public-demonstration-of-driverless-cars-20151107-gkt9pb.html>>; David McCowen, *Should Self-Driving Cars Take Over the Road* (18 April 2016) <<http://www.drive.com.au/motor-news/should-selfdriving-cars-take-over-the-road-20160418-go9jzv.html>>; Charis Chang, 'How Driverless Cars will Change Our Lives', *News.com.au* (Sydney), 22 July 2015 <<http://www.news.com.au/technology/innovation/motoring/how-driverless-cars-will-change-our-lives/news-story/455f2ee22aa699d083c1e14544d99a9f>>; ABC News, 'Legal Issues Keep Automated Vehicles off the Road but Australia Needs to Consider the New Technology, University of Michigan's Diana Bowman says', *ABC Radio Melbourne*, 5 March 2015 (Simon Leo Brown) <<http://www.abc.net.au/news/2015-03-05/legal-issues-keep-automated-vehicles-off-the-road-says-academic/6282606>>.

introduced an automated vehicle Bill.²⁴ In South Australia, these trials are authorised by granting exemptions for existing application of Acts, laws or standards,²⁵ and trials cannot commence unless the Minister is satisfied that appropriate public liability insurance arrangements are in place.²⁶ The Royal Automobile Club, with the support of the Western Australian Government, commenced trials of a driverless bus along a route in South Perth in 2016.²⁷ The Northern Territory Government's 6-month trial of a driverless shuttle bus commenced on 15 February 2017 in Darwin's Waterfront precinct.²⁸

In April 2016, the European Union Transport Ministers signed the Declaration of Amsterdam, committing to wholesale changes to member states laws to accommodate automated vehicles.²⁹ In the United States, the Department of Transport and the National Highway Traffic Safety Administration had recently released comprehensive guidelines on automated vehicle standards and expectations,³⁰ while eight states have to date, amended road laws to legalise automated vehicles under certain conditions.³¹ In the United Kingdom, a review of legislation found existing legal and regulatory frameworks were not a barrier to the testing of automated vehicles on public roads.³²

The United Kingdom Department of Transport published a *Code of Practice* to facilitate a more flexible introduction of automated vehicle technologies.³³ Early in 2017 the Vehicle Technology and Aviation Bill 2017 (UK) was introduced into the House of Commons. The Bill authorises the establishment of a registry of automated vehicles in the United Kingdom³⁴ and deems insurers, or owners if the vehicle is not insured, liable for damage

24 *Motor Vehicles (Trials of Automotive Technologies) Amendment Act 2016* (SA); Road Transport (Safety and Traffic Management) (Automated Vehicle Trials) Amendment Bill 2016 (ACT).

25 *Motor Vehicles Act 2016* (SA) s 134E.

26 *Ibid* ss 134D(2)(a), 134H.

27 RAC Intellibus <<http://intellibus.rac.com.au/>>.

28 'EZ10 Self-Driving Shuttle Starts Operations at Darwin Waterfront', *Motion Digest, Urban Mobility the latest news, developments and insights*, 27 February 2017 <<https://motiondigest.com/2017/02/27/ez10-self-driving-shuttle-starts-operations-at-darwin-waterfront/>>.

29 European Union, *Parliamentary Debates*, Declaration of Amsterdam on Cooperation in the Field of Connected and Automated Driving, 14 April 2016, 8 <<https://english.eu2016.nl/documents/publications/2016/04/14/declaration-of-amsterdam>>.

30 United States Department of Transport and National Highway Traffic Safety Association, *Federal Automated Vehicles Policy: Accelerating the Next Revolution in Roadway Safety* (2016).

31 See Bryant Walker Smith, 'Automated Vehicles are Probably Legal in the United States' (2014) 1 *Texas A&M Law Review* 411. In 2011, Nevada passed into law a comprehensive set of rules governing the use of automated vehicles. Chapter 482A of the *Nevada Administrative Code* contains 29 provisions regulating the licensing, sale, testing, certification, and operation of automated vehicles.

32 Department for Transport (UK), *The Pathway to Driverless Cars: Summary Report and Action Plan* (February 2015).

33 Department for Transport (UK), *The Pathway to Driverless Cars: Code of Practice for Testing* (2015) <<https://www.gov.uk/government/publications/automated-vehicle-technologies-testing-code-of-practice>>.

34 Vehicle Technology and Aviation Bill 2017 (UK) cls 1.

caused by vehicles when in automated mode.³⁵ In the context of international interest and reform trajectory, there has emerged a consensus regarding conceptualising the different levels of autonomy in automated vehicles as developed by the Society of Automotive Engineers ('SAE') Standard J-3016.³⁶ The European Union, Australia and most recently the United States have recommended adoption of the SAE standard.³⁷ The levels in the SAE standard are differentiated by the roles and responsibilities assumed by the human driver and the automated driving system (See Figure 1). In Level 2 (Partial Autonomy) vehicles, the human driver retains supervisory control over the automated driving system, monitoring both the functioning of the system and the driving environment. Many vehicles already in use on Australian roads employ 'safety assist technologies'³⁸ or 'driver's aids' such as 'navigational or intelligent highway and vehicle system equipment' and 'rear-view screens'.³⁹

In Level 3 (Conditional Automation) vehicles, the human is no longer responsible for monitoring the driving environment, but must monitor the automated system and take over if requested by the system to do so. While in both Level 4 (High Automation) and 5 (Full Automation) the system performs all aspects of the driving task, in Level 4 vehicles the capacity exists for humans to resume control, whereas in Level 5 vehicles there is no capacity for humans to undertake the dynamic driving task. The SAE released an updated version of the J3016 standard in September 2016.⁴⁰ According to the SAE, 'these revisions, while substantial, preserve the original SAE J3016:JAN2014 level names, numbers, and functional distinctions, as well as the supporting terms'.⁴¹

35 Ibid cls 2; United Kingdom, *Vehicle Technology and Aviation Bill Explanatory Notes*, House of Commons (2017) 5 [19–21].

36 SAE Standard J3016_201401 in Bryant Walker Smith, 'SAE Levels of Driving Automation' on *The Center for Internet and Society* (18 December 2013) <cyberlaw.stanford.edu/blog/2013/12/sae-levels-driving-automation>.

37 The European Union has already recommended adoption of the SAE categorisation. The *Declaration of Amsterdam on cooperation in the field of connected and automated driving*, Part II(g) states 'Common definitions of connected and automated driving should be developed and updated, based on the Society of Automotive Engineering levels (SAE levels) as a starting point'; National Transport Commission, *Regulatory options*, above n 2; United States Department of Transport and National Highway Traffic Safety Association, above n 30, 9–10.

38 ANCAP, *Understanding Safety Features* <<https://www.ancap.com.au/understanding-safety-features>>.

39 See *Australian Road Rules* reg 299.

40 SAE Standard International, *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles*, J3016_201609 <http://standards.sae.org/j3016_201609/>.

41 Ibid. According to the SAE, this version of J3016 clarifies and rationalises taxonomical differentiator(s) for lower levels (levels 0–2); clarifies the scope of the J3016 driving automation taxonomy (ie, explains to what it does and does not apply); modifies existing, and adds new, supporting terms and definitions; adds more rationale, examples, and explanatory text throughout. For example, the revised standard states: 'Active safety systems, such as electronic stability control and automated emergency braking, and certain types of driver assistance systems, such as lane keeping assistance, are excluded from the

Figure 1: Standard J3016_201609

Level	Name	Narrative definition	Execution of steering and acceleration/ deceleration	Monitoring of driving environment	Fallback performance of dynamic driving	System capability (driving modes)
Human Driver Monitors the driving environment						
0	No Automation	the full-time performance by the human driver of all aspects of the dynamic driving task even when enhanced by warning of intervention systems	Human driver	Human driver	Human driver	n/a
1	Driver Assistance	the driving mode-specific execution by the a driver assistance system of either steering or accelerator/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of dynamic driving task	Human driver and system	Human driver	Human driver	Some driving modes
2	Partial Assistance	the driving mode-specific execution by one or more driver assistance systems of both steering and accelerator/deceleration using information about driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task	System	Human driver	Human driver	Some driving modes
Automated driving system ("system") monitors the driving environment						
3	Conditional Automated	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately o requests to intervene	System	System	Human driver	Some driving modes
4	High Automated	the driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene	System	System	System	Some driving modes
5	Full Automated	the full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions than can be managed by a human driver	System	System	System	All driving modes

Using the SAE standard as the basis for its discussions, the NTC reports canvassed issues that have been identified as some of the immediate barriers to adoption of automated vehicles in Australia. The May discussion paper identified four areas of concern in relation to liability for harm: (1) access to vehicle data by insurers and others; (2) limitations on liability of road authorities and road infrastructure managers; (3) assignment of fault; and (4) the possibility of changes to CTP insurance schemes.⁴² The NTC November policy paper advised that these issues did not require an immediate legislative and policy response, recommending rather a watching brief,⁴³ and suggested that a national safety assurance system can also clarify who is in control of an automated vehicle.⁴⁴ The NTC November policy paper found that 'consumers would benefit from industry guidance about how automated vehicles will affect liability',⁴⁵ but stated 'no changes are recommended to current laws and approaches around liability for drivers, manufacturers,

scope of this driving automation taxonomy because they do not perform part or all of the DDT on a sustained basis and, rather, merely provide momentary intervention during potentially hazardous situations.'

⁴² National Transport Commission, *Regulatory options*, above n 2, 95.

⁴³ Ibid 16.

⁴⁴ Ibid.

⁴⁵ Ibid 62.

technology providers and road managers in regard to automated vehicles'.⁴⁶ However, a closer inspection of the CTP and NIIS schemes in relation to how they might be impacted by automated vehicles raises some questions regarding the validity of the NTC's recommendations.

IV Threshold issues for CTP and NIIS

This section considers existing threshold definitions in the current CTP schemes and NIIS and whether they are likely to be interpreted to encompass automated vehicles. It identifies anomalies likely to be created by automated vehicles for the existing CTP schemes and NIIS. These anomalies mean that there is a real prospect that, without legislative reform, the availability of compensation for road trauma from MVAs involving Levels 3, 4, and 5 vehicles may not be the same as that currently available for MVAs involving Level 0, level 1, or level 2 vehicles.

Entry to the CTP schemes and NIIS depends on satisfying basic statutory threshold definitions; there needs to be a 'motor vehicle', and an 'accident' or 'personal injury'. Regardless of level of automation, automated vehicles are likely to satisfy the definition of 'motor vehicle'. However, meeting the requirement for an 'accident/personal injury', particularly where this term is defined in relation to a 'driving/driver', becomes increasingly problematic where Levels 3, 4 and 5 vehicles are involved.⁴⁷

A Overview of CTP and NIIS

Notwithstanding differences in the role of fault, Australian CTP schemes are similar in that each aims to provide for compensation for road trauma. For example, in the ACT the scheme ensures that 'a person who uses a motor vehicle',⁴⁸ is 'insure[d] against the risk of liability for personal injury caused by a motor accident'.⁴⁹ Where such injury is caused by an unidentified or uninsured vehicle, jurisdictions have also established a Nominal Defendant to ensure compensation is still available.⁵⁰ In fault-based schemes and hybrid schemes, CTP Insurers exercise the right of subrogation and run those claims for compensation for personal injury on behalf of the insured driver.⁵¹

Importantly, in all fault-based jurisdictions, unless injured persons (apart from participants in that jurisdiction's NIIS)⁵² have a recognisable cause of action in tort (where all elements of the cause of action must be proved, not

⁴⁶ Ibid.

⁴⁷ Note also that the National Transport Commission, *Regulatory reforms*, above n 2, 48 states that 'the legislative concepts of driver and driving should not be amended to allow for highly and fully automated vehicles until a safety assurance process is designed, agreed and implemented by Australian governments'.

⁴⁸ *Road Transport (Third Party Insurance) Act 2008* (ACT) s 20.

⁴⁹ Ibid s 21.

⁵⁰ Ibid pt 2.7; *Motor Accidents Compensation Act 1999* (NSW) s 33; *Motor Accident Insurance Act 1994* (Qld) s 33; *Motor Accidents Compensation Act 1999* (WA) s 33; *Transport Accident Act 1986* (Vic) s 158; *Motor Vehicles Act 1959* (SA) s 115; *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 59.

⁵¹ See, eg, *Road Transport (Third Party Insurance) Act 2008* (ACT) s 25.

⁵² See, eg, *Civil Liability Act 1936* (SA) s 58A.

just fault),⁵³ and can prove on the balance of probabilities that their injuries occurred as the result of the fault of a driver, they cannot recover.⁵⁴ Eligibility requirements for the CTP schemes in each jurisdiction are set out in Appendix 1. As can be seen in Appendix 1, notwithstanding some variations in terminology, two common statutory threshold definitions must be satisfied for an injured person to access the scheme. The first is that there must have been a 'motor vehicle'. The second is that there has been 'personal injury' or a vehicle 'accident'. Meeting these second threshold definitions often turns on identifying a 'driver' or that there had been 'driving'.

Unlike CTP schemes which have been a long established feature of the Australian response to compensation for road trauma, the NIIS is relatively recent. Following the 2011 Productivity Commission Report into Disability Care and Support in Australia,⁵⁵ the Commonwealth and all States and Territories entered into an intergovernmental agreement,⁵⁶ providing for the introduction of a National Disability Insurance Scheme ('NDIS'), and NIIS model for catastrophic motor vehicle injuries.⁵⁷ Since then, NIIS legislation has now been introduced in all Australian jurisdictions for catastrophic motor vehicle injuries,⁵⁸ compliant with minimum benchmarks.⁵⁹ The aim of the NIIS is to provide reasonable and necessary care, treatment and support for all those who are catastrophically injured in an accident regardless of fault.⁶⁰ Principles underlying the NIIS include no-fault entitlement; early rehabilitation; maximising the injured person's health outcomes; maximising their autonomy, independence and employment prospects; and enabling participation in the community.⁶¹

53 For example, in New South Wales 'fault' is defined in s 3 of the *Motor Accidents Compensation Act 1999* (NSW) as 'negligence or any other tort'.

54 *Motor Accidents Compensation Act 1999* (NSW) ss 3, 3A; *Road Transport (Third-Party Insurance) Act 2008* (ACT) ch 4; *Motor Accident Insurance Act 1995* (Qld) s 5(1)(b); *Motor Vehicles Act 1959* (SA) pt 4; *Motor Vehicle (Third Party Insurance) Act 1943* (WA) s 4(1).

55 Productivity Commission, above n 15.

56 National Disability Insurance Agency, *Intergovernmental Agreement for the National Disability Insurance Scheme (NDIS) Launch* <<http://www.ndis.gov.au/document/intergovernmental-agreement-nat>>. This was supported by Commonwealth agreements with each State. See National Disability Insurance Agency, *Intergovernmental Agreements* <<http://www.ndis.gov.au/about-us/governance/intergovernmental-agreements>>.

57 This includes spinal cord injury, traumatic brain injury, multiple amputations, burns and traumatic blindness.

58 *Motor Accidents (Lifetime Care and Support) Act 2006* (NSW); *Lifetime Care and Support (Catastrophic Injuries) Act 2014* (ACT); *Motor Vehicles Accidents (Lifetime Support Scheme) Act 2013* (SA); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas); *Motor Accidents (Compensation) Act 1979* (NT); *Motor Vehicle (Catastrophic Injuries) Act 2016* (WA); *Transport Accident Act 1986* (Vic); *National Injury Insurance Scheme (Queensland) Act 2016* (Qld). For a discussion of each of the relevant NIIS LCTS schemes see Education, Tourism, Innovation and Small Business Committee, Parliament of Queensland, *Inquiry into a Suitable Model for the Implementation of the National Injury Insurance Scheme* (March 2016) <<http://www.parliament.qld.gov.au/documents/committees/ETISBC/2015/09NIIS2015/09-rpt-011-21March2016.pdf>>.

59 Treasury, Australian Government, *Agreed Minimum Benchmarks for Motor Vehicle Accidents* <<http://www.treasury.gov.au/Policy-Topics/PeopleAndSociety/National-Injury-Insurance-Scheme/Benchmarks-for-motor-vehicle-accidents>>.

60 Ibid.

61 Ibid.

Eligibility requirements for each NIIS are set out in Appendix 2. Like the CTP schemes the entry depends on satisfying thresholds of a ‘motor vehicle’ and an ‘accident’ or ‘injury’, and also like the CTP schemes the definition of accident/injury is often entwined with the concept of ‘driving’.

B Defining ‘Motor Vehicle’ and ‘Accident/Injury’

1 ‘Motor Vehicle’

The relevant legislation which establishes each CTP or NIIS scheme either defines ‘motor vehicle’, or adopts a definition of ‘motor vehicle’ from that jurisdiction’s motor vehicle or traffic laws.⁶² The most common phrasing is ‘a vehicle that is built to be propelled by a motor that forms part of the vehicle’.⁶³ Western Australia’s definition is more specific: ‘any vehicle propelled by gas, oil, electricity or any other motive power’.⁶⁴ These definitions of a motor vehicle are likely to capture Levels 3, 4 and 5 automated vehicles, as regardless of the level of autonomy those vehicles are expected to be propelled by an incorporated motor drawing energy from hydrocarbons, electricity or another source.⁶⁵

However, Queensland’s CTP and NIIS define ‘motor vehicle’ as ‘a vehicle that is registered under the *Transport Operations (Road Use Management — Vehicle Registration) Regulation 2010* (Qld)’.⁶⁶ This Regulation specifies that a ‘vehicle’ is one that is required to be registered under the ‘vehicle law’.⁶⁷ Vehicle law is further defined as ‘the National and State vehicle technical standard’.⁶⁸ This leaves open the possibility that any vehicle brought into Queensland that did not comply with the relevant vehicle standards would potentially not be covered by either that state’s CTP or NIIS.⁶⁹

⁶² See Appendices 1 and 2.

⁶³ *Motor Vehicles Act 1959* (SA) s 5(1); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) s 2(1) adopting the definition from the *Vehicle and Traffic Act 1999* (Tas) s 3; *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Road Safety Act 1986* (Vic) s 3(1); *Motor Accidents Compensation Act 1999* (NSW) s 3 adopting the definition from the *Road Transport Act 2013* (NSW) s 4; *Road Transport (General) Act 1999* (ACT) dictionary. The Northern Territory uses the slightly different term ‘self-propelled’: see *Motor Accidents (Compensation) Act 1979* (NT) s 4.

⁶⁴ *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(1). Victoria also adopts this definition for motor car: *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Motor Car Act 1958* (Vic) s 3(1).

⁶⁵ On broader motor vehicle futures, see Katherine G Rees, ‘Accelerate, Reverse, or Find the Off Ramp? Future Automobility in the Fragmented American Imagination’ (2016) 11 *Mobilities* 152.

⁶⁶ *Motor Accident Insurance Act 1994* (Qld) s 4. The Queensland NIIS requires a ‘prescribed vehicle’ which is then defined as an insured motor vehicle under the *Motor Accident Insurance Act 1994* (Qld), *National Injury Insurance Scheme (Queensland) Act 2016* (Qld) s 7.

⁶⁷ *Transport Operations (Road Use Management — Vehicle Registration) Regulation 2010* (Qld) r 9(1).

⁶⁸ *Ibid* r 5A.

⁶⁹ The Queensland Nominal Defender provisions still depend on a motor vehicle as defined under the Act: *Motor Accident Insurance Act 1994* (Qld) s 31(1)(d).

2 ‘Accident’/‘Injury’ and ‘Driver’ and ‘Driving’

To qualify for compensation under the CTP schemes a person must have been injured or killed in a ‘transport’⁷⁰ or ‘motor accident’⁷¹ or ‘caused by, through or in connection with a motor vehicle’.⁷² Similar wording is also in the various NIIS acts.⁷³ Some schemes require that there must have been an ‘accident’ and then further define this term.⁷⁴ Appendices 1 and 2 set out the relevant sections from each jurisdiction. Section 3(1) of the *Transport Accident Act 1986* (Vic) defines ‘transport accident’ as ‘an incident directly caused by the driving of a motor car or motor vehicle’⁷⁵ and s 3(1A) expands this to include ‘an incident involving a motor vehicle ... which is out of control’. Insertion of a key into the vehicle ignition has been held to be sufficient to enliven the Victorian Act.⁷⁶

In New South Wales ‘motor accident’ is defined as:

an incident or accident involving the use or operation of a motor vehicle that causes the death of or injury to a person where the death or injury is a result of and is caused (whether or not as a result of a defect in the vehicle) during:

(a) the driving of the vehicle, or

⁷⁰ *Transport Accident Act 1986* (Vic) ss 1, 35(1).

⁷¹ *Motor Accidents (Compensation) Act 1979* (NT) s 7B; *Motor Accidents Compensation Act 1999* (NSW) s 67(1); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) ss 14(1), 23(1), (2B).

⁷² *Motor Accident Insurance Act 1994* (Qld) ss 5(1), 31(1). See also the similar formulation in Western Australian: *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 4(1).

⁷³ *Motor Accidents (Lifetime Care and Support) Act 2006* (NSW) s 3; *Lifetime Care and Support (Catastrophic Injuries) Act 2014* (ACT) s 3; *Motor Vehicles Accidents (Lifetime Support Scheme) Act 2013* (SA) s 3; *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas); *Motor Accidents (Compensation) Act 1979* (NT) s 4A(1); *Motor Vehicle (Catastrophic Injuries) Act 2016* (WA) s 4(1); *Transport Accident Act 1986* (Vic) s 3(1); For a discussion of each of the relevant NIIS LCTS schemes see Education, Tourism, Innovation and Small Business Committee, above n 58.

⁷⁴ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 7; *Motor Accidents Compensation Act 1999* (NSW) s 3; *Motor Accidents (Compensation) Act 1979* (NT) s 4A(1); *Motor Vehicles Act 1959* (SA) s 99(3); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) s 2(1); *Transport Accident Act 1986* (Vic) s 3(1); *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(7).

⁷⁵ *Transport Accident Act 1986* (Vic) s 3(1).

⁷⁶ *Aquilina v Transport Accident Commission* (2015) 70 MVR 208. However, compare the following cases. In *Damasoliotis v Transport Accident Commission* [1998] VCAT 289 (1 October 1998), where turning the key while half seated in the driver’s seat with both legs outside the vehicle and one hand on the steering wheel was not regarded as ‘driving the vehicle’ — because there was no capacity to control the braking or the propulsion of the vehicle. In *Billett v Transport Accident Commission* [2004] VCAT 153 (5 February 2004), Senior Member J Preuss noted: ‘In my view the incident would not have occurred but for the applicant driving the truck from the shed, parking the truck at an angle immediately behind the station wagon, inadvertently leaving the truck in gear, failing to apply or sufficiently apply the hand brake, and turning on the ignition. All but the last of these events were part of the driving and the predominant cause of the incident. Even if the last (the turning of the key in the ignition) is not to be regarded as part of the driving of the vehicle, all the other matters played a direct role in the causation of the injury.’: at [25] In *Transport Accident Commission v Jewell* [1995] 1 VR 300, Tadgell J noted ‘The inadvertent operation of or failure to operate the controls of a motor vehicle in the course of driving it, either during its motion or after it has stopped, is part and parcel of the driving of it; and is no less so because inadvertent.’: at 304.

- (b) a collision, or action taken to avoid a collision, with the vehicle, or
- (c) the vehicle's running out of control, or
- (d) a dangerous situation caused by the driving of the vehicle, a collision or action taken to avoid a collision with the vehicle, or the vehicle's running out of control.⁷⁷

This expansive definition is similar to the definitions used in the ACT,⁷⁸ and Northern Territory.⁷⁹ For other schemes, the key determinant is 'injury'. The Queensland CTP scheme applies to:

personal injury caused by, through or in connection with a motor vehicle if, and only if, the injury—

- (a) is a result of—
 - (i) the driving of the motor vehicle; or
 - (ii) a collision, or action taken to avoid a collision, with the motor vehicle; or
 - (iii) the motor vehicle running out of control; or
 - (iv) a defect in the motor vehicle causing loss of control of the vehicle while it is being driven.⁸⁰

This is very similar to the definition of personal injury used in the South Australian and Tasmanian CTP schemes.⁸¹ In Western Australia 'death or bodily injury to any person shall not be taken to have been caused by a vehicle if it is not a consequence of the driving of that vehicle or of the vehicle running out of control'.⁸² Victoria and Queensland include the term 'drive' or 'driving' in their NIIS.⁸³

Each of these sections links the injury to the motor vehicle through either 'driving' or the vehicle 'running out of control'. This is not problematic for accidents involving Level 0, Level 1 or Level 2 vehicles. However, as observed in detail in the NTC reports, it is the very concept of 'driving' that is disrupted in Levels 3, 4 and 5 vehicles.⁸⁴ The NTC November policy paper recommended that the NTC develops legislative reform options to clarify the application of current *driver* and *driving* laws to automated vehicles, and to establish legal obligations for automated driving system entities.⁸⁵ The November policy paper further recommended:

That state and territory governments undertake a review of compulsory third party and national injury insurance schemes to identify any eligibility barriers to accessing these schemes by occupants of an automated vehicle or those involved in a crash with an automated vehicle.⁸⁶

⁷⁷ *Motor Accidents Compensation Act 1999* (NSW) s 3.

⁷⁸ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 7.

⁷⁹ *Motor Accidents (Compensation) Act 1979* (NT) s 4A.

⁸⁰ *Motor Accident Insurance Act 1994* (Qld) s 5(1)(a).

⁸¹ *Motor Vehicles Act 1959* (SA) s 99(3); *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) s 2(4).

⁸² *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(7).

⁸³ *Transport Accident Act 1986* (Vic) s 3(1); *National Injury Insurance Scheme (Queensland) Act 2016* (Qld) s 4(1).

⁸⁴ National Transport Commission, *Regulatory options*, above n 2, 64–73; National Transport Commission, *Regulatory reforms*, above n 2, 43–8.

⁸⁵ National Transport Commission, *Regulatory reforms*, above n 2, 48 (emphasis in original).

⁸⁶ *Ibid.*

While current CTP schemes and NIIS legislation do not define ‘driving’, some jurisdictions define ‘driver’ as a ‘person in charge’⁸⁷ of a vehicle, and others limit ‘driver’ to the ‘person driving a vehicle’.⁸⁸ Only the ACT’s CTP and NIIS legislation explicitly defines drive as to ‘be in control of the steering, movement or propulsion of the vehicle’.⁸⁹ Other jurisdictions provide no explicit definitions in their CTP or NIIS legislation, although definitions of ‘drive’ existing in other road statutes include ‘in control of’ a vehicle.⁹⁰ The Australian Road Rules define ‘driver’ as ‘the person who is driving a vehicle’ and ‘drive’ as including ‘be in control of’.⁹¹ This reference to ‘driver’ includes ‘rider’.⁹²

For Levels 3 and 4 vehicles it becomes progressively more difficult to maintain that a human occupant is ‘driving’ in the sense of being ‘in control of’ a vehicle.⁹³ The more expansive term ‘in charge of’ (used in some motor vehicle intoxication offences) has been held to cover occupants in vehicles not directly engaged with the dynamic controls,⁹⁴ and to include a notion of ‘put in motion’.⁹⁵ Arguably, this interpretation could cover an occupant of a Level 3 or Level 4 vehicle who engages the automated driving system. However, where ‘driver’ is defined as ‘a person in control of a vehicle’ but ‘driver’ is not further defined as ‘person in charge of a vehicle’, potential exists for inequity in coverage between those injured by vehicles driven or operated by humans and those injured by Level 3 or Level 4 vehicles. This is exacerbated even further for Level 5 vehicles where a human occupant may have no interface for input in controlling the motion of the vehicle other than entering data such as destination or route information.

C Possible reforms of threshold definitions

The concern that the terms ‘driver’ or ‘driving’ in the schemes’ definitions of accident/injury may create obstacles to persons injured by a Level 3–5 automated vehicles may be mitigated by inclusion of phrases that focus on the

87 *Transport Accident Act 1986* (Vic) s 3(1); *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(1); *Motor Accidents Compensation Act 1999* (NSW) s 3.

88 *Motor Vehicle Act* (NT) s 5; *Road Transport (Third-Party Insurance) Act 2008* (ACT) dictionary adopts definition of ‘driver’ from *Road Transport (General) Act 2008* (ACT) Dictionary; *Transport Operations (Road Use Management — Road Rules) Regulation 2009* (Qld) reg 16; *Australian Road Rules Regulations 2014* (SA) r 16.

89 *Road Transport (Third-Party Insurance) Act 1999* (ACT) Dictionary.

90 *Road Safety Act 1986* (Vic) s 3(1); *Motor Vehicle Act* (NT) s 5; *Road Transport Act 2013* (NSW) s 4; *Transport Operations (Road Use Management — Road Rules) Regulation 2009* (Qld) sch 5; *Australian Road Rules Regulations 2014* (SA) sch 5. Note also that the NTC examined ‘control’ and ‘proper control’ in its policy paper and recommended that governments develop national enforcement guidelines to clarify a policy position on the meaning of control and proper control for automated vehicles: National Transport Commission, *Regulatory reforms*, above n 2, 34.

91 *Australian Road Rules* reg 16.

92 *Ibid* reg 19.

93 National Transport Commission, *Regulatory options*, above n 2, 64–71.

94 See the principles and cases discussed in Tranter, above n 11, 69–71. It is not clear whether Tadgell J’s approach at 304 in *Transport Accident Commission v Jewell* [1995] 1 VR 300, discussed above n 76, and the phrase ‘failure to operate the controls of a motor vehicle in the course of driving it’ could cover being present in a vehicle while the automated driving system is in operation.

95 *Hayes v Wilson; Ex parte Hayes* [1984] 2 Qd R 114, 128 (Campbell CJ).

movement of the vehicle without recourse to the human activity of ‘driving’, such as ‘collision’, ‘running out of control’ or ‘defect’. This suggests that use of ‘driving’ in definitions that establish eligibility criteria to access CTP or NIIS presents an unnecessary complication which should be removed. The New South Wales CTP legislation currently includes ‘use or operation’ in its definition of ‘motor vehicle accident’⁹⁶ and further defines ‘use or operation’ as including ‘maintenance or parking of the vehicle’.⁹⁷ This automated vehicle friendly definition is to be preferred and should replace ‘driving’, wherever it appears in CTP schemes and in the NIIS in Queensland and Victoria.⁹⁸

Having established the ability of no-fault schemes to cope with automated vehicles, pending a few amendments, an examination of fault based CTP schemes shows that the situation in those states may become even more problematic when automated vehicles are involved.

V Fault and CTP schemes

This section considers the fault-based motor accident schemes in Australia and argues that identification of the ‘at fault’ party where automated vehicles are involved in an accident becomes increasingly difficult as automation rises. It focuses on both the fault-based and hybrid CTP schemes where, in addition to satisfying the basic thresholds of ‘motor vehicle’ and ‘accident/injury’, an injured person must also prove a driver or owner was at fault.⁹⁹ After setting out the basic principles regarding determination of fault, this part then examines how these might apply for SAE Level 2–5 automated vehicles. It will show that as automation increases, clarity as to who, or what, is liable decreases.

A Role of fault

Fault remains a central component of the schemes in New South Wales,¹⁰⁰ Queensland,¹⁰¹ Western Australia,¹⁰² South Australia,¹⁰³ and ACT.¹⁰⁴ If an injured person cannot prove fault of another insured driver on the balance of probabilities, they cannot access compensation from the CTP scheme.¹⁰⁵ Fault

⁹⁶ *Motor Accidents Compensation Act 1999* (NSW) s 3.

⁹⁷ *Ibid* s 3.

⁹⁸ Arguably this would also have the effect of linking each of the applicants in *Damasoliotis v Transport Accident Commission* [1998] VCAT 289 (1 October 1998), *Billett v Transport Accident Commission* [2004] VCAT 153 (5 February 2004), and *Transport Accident Commission v Jewell* [1995] 1 VR 300, to make them eligible for compensation for a transport accident.

⁹⁹ Note that in addition to the requirement of an at fault driver, injured persons do not come within the legislation unless they have a recognisable claim in tort, which includes a cause of action (where all elements of the cause of action must be proved, not fault alone).

¹⁰⁰ *Motor Accidents Compensation Act 1999* (NSW) s 3A. New South Wales has recently announced a move away from a fault-based system with ‘On the road to a better CTP scheme: Options for reforming Green Slip insurance in NSW’ <http://www.sira.nsw.gov.au/__data/assets/pdf_file/0018/95400/CTP-Reform-options-paper-final.pdf>.

¹⁰¹ *Motor Accident Insurance Act 1994* (Qld) s 5(1).

¹⁰² *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(7).

¹⁰³ *Motor Vehicles Act 1959* (SA) s 99(3).

¹⁰⁴ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 7.

¹⁰⁵ Some categories of injured persons are dealt with as no-fault in fault schemes, eg, in New

must be proved in ‘hybrid’ schemes operating in Tasmania¹⁰⁶ and Victoria¹⁰⁷ in order to obtain common law damages for pain, suffering and economic loss if the claimant’s impairment is above the statutory threshold and the claimant has a ‘serious injury’.¹⁰⁸ The Northern Territory scheme is entirely no-fault, with common law liability for ‘motor accidents’ abolished.¹⁰⁹

As identified in the international literature on automated vehicles and law, the complexity of assigning liability on the basis of fault increases proportionally with the level of vehicle automation.¹¹⁰ This has implications for injured persons navigating Australian fault-based schemes where, in the absence of party settlement, liability is determined according to the common law rules of negligence as supplemented or supplanted by each jurisdiction’s civil liability legislation,¹¹¹ and for hybrid schemes where claims are made beyond the prescribed no-fault limits.¹¹²

1 Negligence — Onus on plaintiffs

It is well established that road users owe a duty of care to other road users. This duty has been imposed on learner, inexperienced and unqualified drivers.¹¹³ Even where a plaintiff can prove a breach of duty, a defendant may raise positive defences arising from conduct by the plaintiff including

South Wales this includes injuries that occur in ‘blameless accidents’ and for child victims under 16 years of age (*Motor Accidents Compensation Act 1999* (NSW) pt 1.2).

106 *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) s 2(4).

107 *Transport Accident Act 1986* (Vic) s 3(1).

108 Ibid; Transport Accident Commission, *Common law damages* <<http://www.tac.vic.gov.au/clients/lump-sum-compensation/common-law-damages>>.

109 *Motor Accidents (Compensation) Act 1979* (NT) s 5.

110 Jack Boeglin, ‘The Costs of Self-Driving Cars: Reconciling Freedom and Privacy with Tort Liability in Autonomous Vehicle Regulation’ (2015) 17 *Yale Journal of Law and Technology* 171; James M Anderson et al, *Automated Vehicle Technology: A Guide for Policymakers* (Rand Corporation, 2014); Jeffrey K Gurney, ‘Sue My Car Not Me: Product Liability and Accidents Involving Autonomous Vehicles’ [2013] *Journal of Law, Technology and Policy* 247; Sophia H Duffy and Jamie Patrick Hopkins, ‘Sit, Stay, Drive: The Future of Autonomous Car Liability’ (2013) 16 *SMU Science and Technology Law Review* 453; Stephen P Wood et al, ‘The Potential Regulatory Challenges of Increasingly Autonomous Vehicles’ (2012) 52 *Santa Clara Law Review* 1423; Robert W Peterson, ‘New Technology — Old Law: Autonomous Vehicles and California’s Insurance Framework’ (2012) 52 *Santa Clara Law Review* 1341; Gary E Marchant and Rachel A Lindor, ‘The Coming Collision between Autonomous Vehicles and the Liability System’ (2012) 52 *Santa Clara Law Review* 1321; Kyle Graham, ‘Of Frightened Horses and Autonomous Vehicles: Tort Law and its Assimilation of Innovations’ (2012) 52 *Santa Clara Law Review* 1241; Andrew P Garza, ‘“Look Ma, No Hands!”: Wrinkles and Wrecks in the Age of Autonomous Vehicles’ (2012) 46 *New England Law Review* 581; Sven A Beiker, ‘Legal Aspects of Autonomous Driving’ (2012) 52 *Santa Clara Law Review* 1145.

111 As a response to David Ipp, *Review of the Law of Negligence Final Report*, Treasury (2002) each state and territory in Australia passed its own versions of civil liability legislation. Despite recommendations for uniform legislation, this had the effect of transforming an area largely governed by common law (and so reasonably consistent across Australia) to one in which the complexity of individual jurisdictional differences were magnified. It should also be noted that there are some restrictions on common law damages recoverable by plaintiffs under the CTP schemes. See Andrew Field, ‘There Must be a Better Way: Personal Injuries Compensation since the “Crisis in Insurance”’ (2008) 13 *Deakin Law Review* 67.

112 In some jurisdictions not all aspects of that legislation apply to motor vehicle accidents; in New South Wales for instance: see *Civil Liability Act 2002* (NSW) ss 3B(1)–(2).

113 *Imbree v McNeilly* (2008) 236 CLR 510.

contributory negligence and assumption of obvious risk,¹¹⁴ engaging in illegal activity,¹¹⁵ or providing emergency assistance.¹¹⁶ Other specific defences with fixed or minimum statutory deductions for contributory negligence may also exist in relation to issues such as the plaintiff's own intoxication, their reliance on an intoxicated person, failure to wear seatbelts, or failure to remain within the passenger compartment.¹¹⁷

The civil liability legislation sets out the test for determining breach of duty, largely codifying the previous common law test from *Wyong Shire Council v Shirt*.¹¹⁸ The relevant sections are similar across all Australian jurisdictions. Reasonable foreseeability of the risk of harm is a crucial element in establishing that a duty exists, that the duty was breached, and that it is appropriate for a defendant's liability to extend to all aspects of the injured person's harm. At common law (and still applicable at the duty and scope of liability stage), the test for reasonable foreseeability is undemanding — 'not far-fetched or fanciful'.¹¹⁹ Under the civil liability legislation, for reasonably foreseeable risks, there is a further requirement that that risk must be 'not insignificant'.¹²⁰

Reasonable foreseeability is assessed objectively and prospectively at the moment immediately prior to the harm occurring;¹²¹ and from the perspective of a 'reasonable person in the defendant's position who was in possession of all information that the defendant either had, or ought reasonably to have had, at the time of the incident out of which the harm arose'.¹²² Where defendants hold themselves out as possessing a particular skill, then the standard of care against which they will be compared will be that which 'could be reasonably expected of a person professing skills at the time the incident occurred'.¹²³

2 Defences to negligence — Onus on defendants

Where defendants seek to rely on a defence of contributory negligence, a court will also consider whether the plaintiff has taken reasonable care for their own safety, assessed using the same principles of negligence outlined above,¹²⁴ including whether the harm was foreseeable to a reasonable person in the plaintiff's position. Where defendants seek to rely on the plaintiff's assumption of risk, including an 'obvious' risk, they must show that the plaintiff was aware of the risk and its legal implications and voluntarily accepted it.¹²⁵

¹¹⁴ Davies, above n 16, 437–551.

¹¹⁵ See, eg, *Civil Liability Act 1936* (SA) s 43.

¹¹⁶ See, eg, *ibid* s 74.

¹¹⁷ See, eg, *Civil Liability Act 2003* (Qld) ss 45–9.

¹¹⁸ (1980) 146 CLR 40.

¹¹⁹ *Ibid* 48 (Mason J).

¹²⁰ See, eg, *Civil Liability Act 1936* (SA) s 32(1)(b).

¹²¹ *Vairy v Wyong Shire Council* (2005) 223 CLR 422; *Road Traffic Authority (NSW) v Dederer* (2007) 234 CLR 300.

¹²² See, eg, *Civil Liability Act 1936* (SA) s 31(1).

¹²³ See, eg, *ibid* s 40.

¹²⁴ See, eg, *ibid* s 45.

¹²⁵ See, eg, *Civil Liability Act 2003* (Qld) ss 13–15, 18–19. In New South Wales, eg, the defence of voluntary assumption of risk is not available in a motor accident claim except where the claimant was engaged in motor racing: *Motor Accidents Compensation Act 1999* (NSW) s 140.

Defendants may not be required to warn plaintiffs of ‘obvious’ risks.¹²⁶ How these principles of negligence, contributory negligence and voluntary assumption of risk might apply to allegations of fault involving Levels 2, 3, 4 and 5 vehicles is unclear and likely to raise highly complex issues.

B Fault and automated vehicles

1 SAE Level 2 (partially automated) vehicles

In Level 2 vehicles, many of which are operating on public roads already, the human operator remains responsible for the driving of the vehicle, with the vehicle’s overall progression and the automated system’s real-time navigation of the environment being directly supervised by the operator. At first instance this would seem to not challenge the working of the existing legal principles. An operator would be in the same position as existing drivers of entirely human driven vehicles, with their actions assessed against that of a reasonable, experienced qualified driver.¹²⁷ It is not yet clear that this reasonable, experienced qualified driver is one who knows or ought to know that the vehicle that they are driving incorporates those driver assistance systems, ‘safety assist technologies’¹²⁸ or ‘driver’s aids’¹²⁹ and who knows or ought to know how to operate them correctly. The possibility of retrofitting existing vehicles with aftermarket collision avoidance systems raises even further challenges.¹³⁰

Operators of existing Level 2 vehicles may not be either fully aware of how the driver’s aid operates nor fully trained in its correct use. Nevertheless, in the case of a collision, it is still likely to be hard for those operators to avoid allegations of breach of duty such as failure to keep a proper look out, failure to drive at a proper speed and appropriately for the conditions, or failure to maintain a safe distance. Any evidence as to the malfunction of any driver’s aid would be likely to result in the vehicle manufacturer or repairer being joined as a defendant or third party to any litigation.

2 SAE Level 3 (conditionally automated) vehicles

For Level 3 vehicles, assigning liability and proving breach may be more complex. When the Level 3 automated driving system is engaged, that system executes the dynamic driving task, with the driver expected to respond appropriately to system requests to intervene. Questions then arise as to when it is reasonably foreseeable for the human ‘driver’ to rely on the system, or to resume control of the vehicle despite no prompting from the system to do so. Reasonable responses to automated warnings are matters of fact about which opinions might easily differ, and which might change over time as the public becomes accustomed to interaction with those features.¹³¹ If the human occupant is an injured party, complex questions might also arise about

¹²⁶ *Civil Liability Act 2003* (Qld) s 15.

¹²⁷ *Imbree v McNeilly* (2008) 236 CLR 510.

¹²⁸ ANCAP, above n 38.

¹²⁹ See, eg, *Australian Road Rules* reg 299 for these and other examples of ‘driver’s aids’.

¹³⁰ See, eg, *Mobileye* <<http://www.mobileye.com/>>.

¹³¹ See generally Graham, above n 110.

whether that occupant contributed to their own harm either by failing to take timely preventative action, or by resuming control instead of relying on the automated driving system.

Assuming that the human occupant is not found to be at fault, but that any injury instead is alleged to have been caused by some malfunction of the automated driving system, then who should be regarded as liable? A number of possibilities may arise. It may be alleged that the owner of the vehicle is negligent in that they failed to maintain the vehicle properly, either by not installing all software updates in a timely way as required, or by failing to otherwise maintain the vehicle appropriately. If the defendant here is an owner of a vehicle registered and insured as part of a CTP scheme, any successful plaintiff would still have access to financial resources collected by CTP insurers and scheme managers as insurance premiums.

Alternatively, it may be alleged that the manufacturer of the vehicle should be held responsible on the basis that the automated driving system did not perform as it was designed or expected to do. This raises the prospect of claims not only in negligence (where the plaintiff must prove on the balance of probabilities all elements of the cause of action, including breach of duty), but also under the Australian Consumer Law ('ACL') for defective products (a strict liability regime where proof of fault is not required, and existence of a safety defect is sufficient).¹³²

Manufacturers in turn may consider claims against suppliers of software supporting the automated driving system or, where that there is some suggestion that failure of the system occurred as a result of Connected Intelligent Transport Systems (C-ITS), claims may be brought against connectivity infrastructure providers or road authorities. Where claims are brought against manufacturers, or those deemed manufacturers under the ACL,¹³³ those defendants would not be insured against 'the risk of liability for personal injury caused by a motor accident'¹³⁴ as part of any CTP scheme, may or may not have other insurance or other assets, and may or may not be solvent.

For claims brought in negligence, establishing what risk of harm is reasonably foreseeable to manufacturers may be very difficult and costly to prove. Manufacturers are likely to argue that their actions in undertaking intensive trials and providing several levels of fail-safes and redundant systems are reasonable precautions in response to any foreseeable risk of harm. If this is accepted by a court, they will be held to have discharged their duty of care. Where manufacturers seek to rely on the voluntary assumption of risk defence then it will be very difficult for them to prove that any driver of a Level 3 vehicle fully understood the risk they were facing, understood its legal implications and accepted it voluntarily, especially where they have purchased a Level 3 vehicle believing its automated vehicle system made it a

132 *Competition and Consumer Act 2010* (Cth) sch 2, the *Australian Consumer Law* ss 138 (personal injuries to an individual), 139 (loss or damage to another person because of an individual's injuries), 140 (destruction or damage to other goods), 141 (destruction or damage to land, building or fixtures).

133 *Australian Consumer Law* s 7(1) defines 'manufacturer' broadly to include 'importers' (s 7(1)(e)) and those that hold themselves out to be manufacturers (s 7(1)(b)).

134 *Road Transport (Third Party Insurance) Act 2008* (ACT) s 21.

safer alternative to Level 0, Level 1 or Level 2 vehicles.

There are other complicating factors. The New South Wales CTP scheme is limited to personal injury accidents involving motor vehicles ‘caused by the fault of the owner or driver of a motor vehicle in the use or operation of the vehicle’.¹³⁵ Driver is defined as a ‘person’¹³⁶ and ‘owner’ is defined as ‘registered operator’,¹³⁷ which is further defined in the *Road Transport Act 2013* (NSW) s 8(1) as a ‘person’. The *Interpretation Act 1987* (NSW) s 8(d) indicates that person is to be taken to also mean a corporation. What this means is that the automated system cannot be regarded as at fault as it satisfies neither definition. It is at this point that the notion that a corporate entity, possibly the manufacturer of the automated system/vehicle, or one which supplied the software, and/or the corporate entity who serviced or maintained it, would be potentially at fault. For ease of analysis the term ‘manufacturer’ will be used to cover any corporate entity that might be regarded as ‘responsible’ for the vehicle.

Some of the schemes seem better adapted to this prospect. Even where a human ‘driver’ is found to be liable, a CTP insurer may nevertheless seek to recover any compensation paid from the vehicles’ manufacturer. In Queensland, the *Motor Accident Insurance Act 1994* (Qld) s 58(4) allows an insurer to recover from a manufacturer if:

- (a) personal injury arises out of a motor vehicle accident; and
- (b) the motor vehicle accident giving rise to the injury is attributable in whole or in part to a defect in the motor vehicle; and
- (c) the defect arose from the wrongful act or omission of the manufacturer or a person who carries on a business of repairing motor vehicles.¹³⁸

Neither ‘manufacturer’ nor ‘defect’ is defined in the *Motor Accident Insurance Act 1994* (Qld). It is not clear how this and similar provisions would interact with the provisions of the *ACL* generally, and in particular its tests for ‘manufacturer’¹³⁹ and ‘safety defect’.¹⁴⁰ To allow recovery from a manufacturer under s 58 of the *Motor Accident Insurance Act 1994* (Qld), any defect must arise ‘from the wrongful act or omission of the manufacturer or a person who carries on a business of repairing motor vehicles’.¹⁴¹ Section 58 appears also to have the effect of requiring some element of negligence before a defect can be found to exist. This is in stark contrast to the *ACL* which provides for strict liability for ‘safety defects’.¹⁴² It is also unclear how any of the defences¹⁴³ in the *ACL* might inform any response from the defendant to the CTP insurer. With such nascent technology, any ‘state of the art’ defence¹⁴⁴ is likely to be continually changing over time as the technology improves.

¹³⁵ *Motor Accidents Compensation Act 1999* (NSW) s 3A.

¹³⁶ *Ibid* s 3.

¹³⁷ *Ibid* s 4.

¹³⁸ *Motor Accident Insurance Act 1994* (Qld) s 58(4).

¹³⁹ *Australian Consumer Law* s 7(1).

¹⁴⁰ *Ibid* s 9.

¹⁴¹ *Motor Accident Insurance Act 1994* (Qld) s 58(4)(c).

¹⁴² *Australian Consumer Law* ss 9, 138.

¹⁴³ *Ibid* s 142.

¹⁴⁴ *Ibid* s 142(c).

If it is accepted that even Level 3 vehicles will substantially reduce road trauma through reduction of human error, a highly desirable social good, manufacturers may seek to rely upon social utility considerations to negate any finding of breach of duty.¹⁴⁵ There may be an analogy here with the pharmaceutical industry where arguments about innovation, greater public health good and maintaining confidence in public health are used to limit liability.¹⁴⁶ All of this suggests that persons injured by Level 3 vehicles operating using their automated driving systems are likely to face more hurdles to access the fault-based CTP schemes than if their injury was caused by a Level 0, Level 1 or Level 2 vehicle. This raises the prospect that persons injured as a result of MVA involving a Level 3 vehicle may be unable to access compensation funded by existing CTP schemes.

3 SAE Level 4 (highly automated) vehicles

For highly automated, Level 4 vehicles, human performance of the dynamic driving task is limited to circumstances where the human occupant is notified by the automated driving system that they are required to resume control. Even where the human driver does not respond appropriately to such requests, the automated driving system in a Level 4 vehicle should be responsible for back-up performance of the dynamic driving task. Where a human occupant reasonably relies on the automated system, even in the event of a malfunction by that system, then arguably they should be found to have discharged their obligations to take reasonable care by simply engaging the automated driving system appropriately and relying on it.

The question then becomes, what is reasonable reliance? What can reasonable drivers of Level 4 vehicles be expected to foresee? If the data collected by Level 4 vehicles generally, by the individual Level 4 vehicle in particular, and by road and C-ITS infrastructure providers, reveals that the risk of harm when travelling in Level 4 vehicle is less than that faced by persons in Levels 0, 1, 2 and 3 vehicles driven by humans, then arguably a reasonable person faced with the foreseeable risk of harm caused by a MVA would rely on the automated driving system.

What can manufacturers of Level 4 vehicles be expected to reasonably foresee? Rich data about the operation of these vehicles is collected in real time from a variety of sources, which the NTC policy paper contended might be used to establish liability in respect of highly automated vehicles.¹⁴⁷ It is likely to be extremely complex to prove that manufacturers could not only analyse this data in timely and effective ways to identify both a risk of harm, but also to prove what reasonable precautions should have been taken in response to that risk of harm. Again, persons injured as a result of a MVA involving a Level 4 vehicles face the very real challenge that they could not assign fault to any person insured by the CTP scheme and so be unable to access fault-based CTP compensation.

¹⁴⁵ See, eg, *Civil Liability Act 1936* (SA) s 32(2)(d).

¹⁴⁶ See *Peterson v Merck Sharpe & Dohme (Australia) Pty Ltd* (2010) 184 FCR 1; see also Luntz et al, above n 12, 206.

¹⁴⁷ National Transport Commission, *Regulatory reforms*, above n 2, 16.

4 SAE Level 5 (fully automated) vehicles

In fully automated Level 5 vehicles (where the automated driving system undertakes all aspects of the dynamic driving task full time), human occupants are unlikely to be held liable for any negligent operation of the automated driving system where those systems are integrated as part of the original design and manufacturing process, except if the occupant knowingly commenced the journey in a malfunctioning vehicle, tampered with or modified the vehicle, or impeded the operation of the automated system in any way. The position is less clear where it is alleged that the owner or operator of the vehicle failed to install software updates in a timely manner, or failed to otherwise maintain the vehicle appropriately. Unless fault can be assigned to the owner who has registered the vehicle and is thus insured under the CTP scheme, injured persons will not be able to access CTP compensation.

If a defendant argued that an injured person was contributorily negligent to commence a journey in a Level 5 vehicle if they had not satisfactorily ascertained that the automated driving system is working effectively, then how would an average vehicle user ascertain this? Presumably this assessment would require technical knowledge and expertise, something that most users of widely adopted Level 5 vehicles are unlikely to possess. This is particularly the case if predictions about how these vehicles can be used to assist the mobility of vulnerable users (the elderly, those with disability, children) eventuate.¹⁴⁸ Could any defence of voluntary assumption of risk be raised in relation to persons choosing to use a Level 5 vehicle? Is this the risk that a Level 5 vehicle is potentially less safe than a vehicle with lower levels of automation? If so, this may not be borne out by the data collected from use of fully automated vehicles in comparison to historic data regarding human error in MVAs. Is a malfunction of a Level 5 automated driving system an inherent risk, something that cannot be avoided by the exercise of reasonable care and skill, therefore excluding the manufacturer from any liability?¹⁴⁹

C Possible reform of fault in CTP schemes

As the discussion above demonstrates, significant challenges exist for persons injured in a MVA involving Level 3, Level 4 or Level 5 automated vehicles in accessing CTP compensation in fault-based and hybrid schemes. These challenges will not exist for injured persons covered by no-fault schemes, leading to inequity in outcomes. In its November policy paper, the NTC has indicated a preference for industry led development of 'industry guidance' on liability issues rather than immediate legislative reform.¹⁵⁰ This is likely to produce very complex, lengthy and expensive litigation for initial claimants, with no guarantee of access to CTP compensation by injured persons, who will face significant risks in relation to legal costs. It is also unclear how

¹⁴⁸ Edward Lowe, 'Driverless Cars Could Transform the Lives of Disabled People', *The Huffington Post* (UK), 8 January 2016 <http://www.huffingtonpost.co.uk/edward-lowe/driverless-cars-disabled-people_b_8925192.html>; Heather Bradshaw-Martin and Catherine Easton, 'Autonomous Or "Driverless" Cars and Disability: A Legal and Ethical Analysis' (2014) 20 *European Journal of Current Legal Issues* <<http://webjcli.org/article/view/344>>.

¹⁴⁹ *Civil Liability Act 1936* (SA) s 39.

¹⁵⁰ National Transport Commission, *Regulatory reforms*, above n 2, 62. Also see National Transport Commission, *National guidelines for automated vehicle trials*, above n 2.

industry guidelines would assist courts to determine liability or be determinative of the application of legal principles.

These risks will also act as an incentive for plaintiffs to pursue parallel claims using negligence, the *ACL* or other causes of action against manufacturers or road and infrastructure providers, who in turn are not insured as part of CTP schemes, and may not be in a position to satisfy any award of damages. Any lack of certainty regarding the extent of liability faced by drivers, occupants, operators, owners, manufacturers, road authorities and C-ITS providers is likely to act as a disincentive to the introduction of vehicles with Level 3, Level 4 or Level 5 automation. It is also likely to have a discouraging effect on the purchase and use of those vehicles by the public, especially those who cannot currently drive motor vehicles, and mobility-as-a-service providers.¹⁵¹ It is exactly the disincentive effect due to uncertainty of liability on adoption and innovation that has motivated the recent UK Bill, that deems insurers or owners liable if an automated vehicle causes damage in automated mode.¹⁵²

This suggests that the need for reform of CTP is more urgent than recognised in the NTC reports.¹⁵³ As has been shown, as automation increases the number of potential defendants and the complexity of determining liability likewise increases in the jurisdictions that have a fault requirement within the CTP scheme. There is also the issue of national inconsistency. A person injured in a MVA involving a Level 3, Level 4 or Level 5 vehicle in a fault-based state, for example Queensland or South Australia, would have significantly more obstacles for accessing compensation than if the accident occurred in no-fault Northern Territory or hybrid Victoria.

The NTC did suggest that the emergence of automated vehicles could be the catalyst for wholesale, nationally consistent reform regarding compensation for personal injury from MVAs.¹⁵⁴ However, instead of ‘clarifying liability’,¹⁵⁵ particularly as it relates to personal injury, our discussion suggests that the most reasonable and clear reform would be the removal of liability based on proof of fault. This is not an impossible task. The NIIS show that for a catastrophic injury from a MVA, lifetime care and support funding is currently available nationwide in a no-fault context.¹⁵⁶ The NIIS also show that the Commonwealth, States and Territories can work together to introduce much more consistent rules and policies around compensation from MVAs.

151 See, eg, *MaaS Australia* <<http://maasaustralia.com/>>; *MaaS Global* <<http://maas.global/>>; *MaaS Alliance* <<http://maas-alliance.eu/>>; Marlen Schönig, ‘How close are we to mobility as a service?’ *SkedGo*, 5 October 2016 <<https://skedgo.com/close-mobility-service/>>.

152 United Kingdom, *Vehicle Technology and Aviation Bill Explanatory Notes*, House of Commons (2017) 5 [14].

153 National Transport Commission, *Regulatory reforms*, above n 2, 59–62; National Transport Commission, *Regulatory options*, above n 2, 95–106.

154 National Transport Commission, *Regulatory options*, above n 2, 104–5; National Transport Commission, *Regulatory reforms*, above n 2.

155 National Transport Commission, *Regulatory options*, above n 2, 105.

156 As noted, Queensland and Western Australia do have a hybrid model where claimants can opt to forgo NIIS based compensation and pursue litigation through the courts. While this does mean that claimants can choose to have their matter settled by the court applying negligence, claimants have a baseline opportunity to receive no-fault compensation from the NIIS.

V Conclusion

While automated vehicles promise to significantly reduce road trauma by minimising or excluding human driver error from the piloting of vehicles,¹⁵⁷ errors and accidents will still occur. Existing Australian regimes dealing with rehabilitation and compensation for injury and death arising from road trauma — the CTP and NIIS schemes — require reform to accommodate the adoption of automated vehicles. As argued in this paper, victims of injury as a result of the use of automated cars should not suffer differential entitlement to compensation or be arbitrarily excluded from the various schemes as a result of outmoded and narrow definitions or by the inability to establish ‘fault’ where a vehicle is highly automated.

When considering their potential application to automated vehicles, this paper has identified gaps and lack of clarity in the threshold definitions establishing eligibility in the CTP schemes and the NIIS, and in the centrality of proof of ‘fault’ in the majority of the CTP schemes. These deficiencies are not trivial, but instead could result in persons injured by an automated vehicle being left unable to access compensation under these schemes or facing greater obstacles to accessing compensation than if they were injured by a vehicle driven by a human. They may also delay the introduction of the operation of Level 3, 4 and 5 automated vehicles in Australia.

In relation to threshold definitions, this paper has argued that where entry into CTP and NIIS schemes depend on an ‘driver’ or a vehicle being ‘driven’, this threshold is likely to be difficult to satisfy when a Level 3, Level 4 or Level 5 vehicle is involved.

In relation to proof of fault, this paper has shown that identification of a party or parties at fault becomes more complex and uncertain as vehicle automation increases. Retention of fault as a requirement for accessing compensation in a future dominated by automated vehicles is likely to be disingenuous and harmful. Persons injured in MVAs involving highly automated vehicles will have less clear rights of recourse than is currently the situation with human driven vehicles. As a consequence, and in light of the national (mostly) no-fault NIIS, reform is required, and all Australian jurisdictions should consider the benefits of a nationally consistent, no-fault CTP scheme.

Postscript

Since this article was accepted and typeset New South Wales has passed the *Motor Accident Injuries Act 2017* (NSW) introducing a more no fault CTP scheme into that state. The Act does not come into force until December 2017. While the more no fault focus of the new Act does make it, as we have argued in this article, more adaptable to increasingly automated vehicles, there

¹⁵⁷ See, eg. Michele Bertoncello and Dominik Wee, ‘Ten ways autonomous driving could redefine the automotive world’, *McKinsey & Company*, June 2015 <<http://www.mckinsey.com/industries/automotive-and-assembly/our-insights/ten-ways-autonomous-driving-could-redefine-the-automotive-world>>; Todd Alexander Litman, *Autonomous Vehicle Implementation Predictions*, Victoria Transport Policy Institute (25 November 2016) <<http://www.vtpi.org/avip.pdf>>.

remains some concerns with the threshold definitions. Significantly, the key threshold terms such as 'driver', 'driving' and 'motor accident' remain similar to the previous expressions. These still conceive that injuries will arise from humans driving vehicles and as we have identified in this Article might create artificial barriers for persons injured by an automated vehicle accessing the CTP scheme.

Appendix 1 Threshold definitions in the CTP schemes

Jurisdiction	Liability	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
New South Wales	Fault-based ¹⁵⁸	<i>Motor accident</i> ¹⁵⁹ caused by the <i>fault</i> of the <i>owner</i> or <i>driver</i> of a <i>motor vehicle</i> in the use or operation of the vehicle. ¹⁶⁰	<i>Motor accident</i> : 'use or operation of a <i>motor vehicle</i> ' that causes the death of or injury to a person; ¹⁶¹ (a) <i>driving</i> (b) a collision, (c) running out of control, or (d) a dangerous situation. ¹⁶²	<i>Motor vehicle</i> : 'a vehicle propelled by a motor that forms part of the vehicle.' ¹⁶³	<i>Drive</i> Defined in the <i>Road Transport Act 2013</i> (NSW) as 'be in control of the steering, movement or propulsion of a vehicle.' ¹⁶⁴ <i>Driver</i> 'person driving a motor vehicle, includes 'the person for the time being in charge of a motor vehicle.' ¹⁶⁵ <i>Owner</i> ¹⁶⁶ registered operator ¹⁶⁶ of a vehicle or common law possessor. <i>Use or operation</i> includes maintenance or parking of the vehicle. ¹⁶⁷ <i>Driving</i> is not defined in Act.
Victoria	Hybrid	<i>Transport accident</i> ¹⁶⁸ incident directly caused by the <i>driving</i> of a <i>motor car</i> or <i>motor vehicle</i> . ¹⁶⁹	<i>Incident</i> includes a motor vehicle out of control. ¹⁷⁰	<i>Motor vehicle</i> used or intended to be used on a highway and that is built to be propelled	<i>Driver</i> includes a person who is in charge of the motor car or motor vehicle. ¹⁷¹

¹⁵⁸ Note that in New South Wales, as in other fault states, some categories of injured persons are dealt with as no-fault in fault schemes, eg, in New South Wales this includes injuries that occur in 'blameless accidents' and for child victims under 16 years of age (*Motor Accidents Compensation Act 1999* (NSW) pt 1.2).

¹⁵⁹ *Motor Accidents Compensation Act 1999* (NSW) s 67(1).

¹⁶⁰ *Ibid* s 3A.

¹⁶¹ *Ibid* s 3.

¹⁶² *Ibid*, adopting the definition from the *Road Transport Act 2013* (NSW) s 4.

¹⁶³ *Road Transport Act 2013* (NSW) s 4.

¹⁶⁴ *Motor Accidents Compensation Act 1999* (NSW) s 3.

¹⁶⁵ *Ibid* s 4.

¹⁶⁶ See *Road Transport Act 2013* (NSW) s 8.

¹⁶⁷ *Motor Accidents Compensation Act 1999* (NSW) s 3.

¹⁶⁸ *Transport Accident Act 1986* (Vic) ss 1, 35(1).

Jurisdiction	Liability	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
				by a motor that forms part of the vehicle ¹⁷¹ Motor car means any vehicle propelled by internal combustion steam gas oil electricity or any other power and used or intended for use on any highway ¹⁷²	Drive Defined by <i>Road Safety Act 1986</i> (Vic) as including 'in control of a vehicle.' ¹⁷³ Driving not defined.
Queensland	Fault-based	Personal injury caused by, through or in connection with a <i>motor vehicle</i> . ¹⁷⁴	caused, wholly or partly, by a wrongful act or omission in respect of the motor vehicle by a person other than the injured person as a result of: (i) driving, (ii) collision, (iii) the motor vehicle running out of control; or (iv) a defect causing loss of control. ¹⁷⁵	Motor vehicle Defined as under <i>Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010</i> (Qld) ¹⁷⁷ a vehicle propelled by a motor that forms part of the vehicle. ¹⁷⁸	Drive defined in the Queensland Road Rules as 'includes be in control of.' ¹⁷⁹ Driver person who drives the vehicle ¹⁸⁰ Driving is not defined in the Act.
South Australia	Fault-based	Injury will be regarded as being caused by or arising out of the use of a <i>motor vehicle</i> . ¹⁸¹	In direct consequence of (a) driving ; (b) running out of control; or (c) colliding with stationary vehicle. ¹⁸²	Motor vehicle a vehicle that is built to be propelled by a motor that forms part of the vehicle. ¹⁸³	Drive Defined by <i>Australian Road Rules</i> includes be in control of. ¹⁸⁴ Driver 'person who drives the vehicle.' ¹⁸⁵

¹⁶⁹ Ibid s 3(1).

¹⁷⁰ Ibid s 3(1A).

¹⁷¹ *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Road Safety Act 1986* (Vic) s 3(1).

¹⁷² Ibid s 3(1) adopting the definition from the *Road Safety Act 1986* (Vic) s 3(1).

¹⁷³ *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Motor Car Act 1958* (Vic) s 3(1).

¹⁷⁴ *Road Safety Act 1986* (Vic) s 3(1).

¹⁷⁵ *Motor Accident Insurance Act 1994* (Qld), ss 5(1), 31(1).

¹⁷⁶ Ibid s 5(1)(a).

¹⁷⁷ Ibid s 4.

¹⁷⁸ *Transport Operations (Road Use Management Act) 1995* (Qld) sch 4.

¹⁷⁹ *Transport Operations (Road Use Management—Road Rules) Regulation 2009* (Qld) sch 5.

¹⁸⁰ Ibid r 16.

¹⁸¹ *Motor Vehicles Act 1959* (SA) s 99(3).

¹⁸² *Motor Vehicles Act 1959* (SA) s 99(3).

¹⁸³ Ibid s 5(1).

¹⁸⁴ *Australian Road Rules Regulations 2014* (SA) sch 5.

¹⁸⁵ Ibid r 16.

Jurisdiction	Liability	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
Western Australia	Fault-based	<i>Death or bodily injury and driving a motor vehicle</i> ¹⁸⁶	<i>Death or bodily injury</i> to any person shall not be taken to have been caused by a vehicle if it is not a consequence of the driving of that vehicle or of the vehicle running out of control. ¹⁸⁷	<i>Motor vehicle</i> any vehicle propelled by gas, oil, electricity or any other motive power. ¹⁸⁸	<i>Driving</i> : is not defined in the Act. <i>Driver</i> includes any person who is in charge of the motor vehicle. ¹⁸⁹ <i>Driving</i> : is not defined in the Act.
Tasmania	Hybrid	<i>Motor accident and personal injury</i> ¹⁹⁰	<i>Motor accident</i> means an accident directly involving a motor vehicle. ¹⁹¹ <i>Personal injury</i> if the injury results directly from: (a) a collision, (b) out of control, (c) the <i>driving</i> . ¹⁹²	<i>Motor vehicle</i> : a vehicle propelled by a motor that forms part of the vehicle. ¹⁹³	<i>Driving</i> is not defined in the Act.
Australian Capital Territory		<i>Motor accident</i> ¹⁹⁴	(a) involves the use or operation of a motor vehicle; and (b) causes <i>personal injury</i> ¹⁹⁵ to an individual; (c) happens when— (i) someone is driving the motor vehicle; or (ii) someone or something collides with the motor vehicle; (iii) someone takes action to avoid colliding with the motor vehicle; or (iv) the motor vehicle runs out of control. ¹⁹⁶	<i>Motor vehicle</i> Defined under <i>Road Transport (General) Act 1999</i> (ACT) as “vehicle that is to be propelled by a motor that forms part of the vehicle.” ¹⁹⁷	<i>Drive</i> Defined as including ‘be in control of the steering, movement or propulsion of the vehicle.’ ¹⁹⁸ <i>Driver</i> the person driving the vehicle. ¹⁹⁹ <i>Use</i> includes drive, park or stop the vehicle and maintain the vehicle. ²⁰⁰

¹⁸⁶ *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 4(1).

¹⁸⁷ *Ibid* s 3(7).

¹⁸⁸ *Ibid* s 3(1).

¹⁸⁹ *Ibid* s 3(1).

¹⁹⁰ *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) ss 14(1), 23(1), (2B).

¹⁹¹ *Ibid* s 2(1).

¹⁹² *Ibid* s 2(4).

¹⁹³ *Ibid* s 2(1) adopting the definition from the *Vehicle and Traffic Act 1999* (Tas) s 3.

¹⁹⁴ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 77.

¹⁹⁵ *Ibid* s 6.

¹⁹⁶ *Ibid* s 7.

Jurisdiction	Liability	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
Northern Territory	No-Fault	<i>Motor accident</i> ¹⁹⁷ (a) caused by or arising out of the <i>use</i> of a <i>motor vehicle</i> and (b) resulting in death, or injury; ²⁰⁰	results directly from: (a) <i>driving</i> (b) moving out of control; or (c) collision, or action to avoid a collision, (whether stationary or moving) ¹⁹⁹ .	<i>Motor vehicle</i> a vehicle designed to be self-propelled ²⁰¹	<i>Driving</i> is not defined in the Act. <i>Drive</i> Defined in <i>Motor Vehicle Act</i> to be in control of. ²⁰² <i>Driver</i> person driving a vehicle. ²⁰⁵ <i>Driving</i> is not defined in Act.

¹⁹⁷ *Road Transport (General) Act 1999* (ACT) dictionary.

¹⁹⁸ *Road Transport (Third-Party Insurance) Act 1999* (ACT) dictionary.

¹⁹⁹ *Ibid.* dictionary adopts definition of "driver" from *Road Transport (General) Act 2008* (ACT) dictionary.

²⁰⁰ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 8.

²⁰¹ *Motor Accidents (Compensation) Act 1979* (NT) s 7.

²⁰² *Ibid* s 4A(1).

²⁰³ *Ibid* s 4A(2).

²⁰⁴ *Ibid* s 4.

²⁰⁵ *Motor Vehicle Act* (NT) s 5.

Appendix 2 Threshold definitions in the NIIS

Jurisdiction	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
New South Wales	Motor accidents This Act applies only in respect of <i>motor accident injuries</i> resulting from motor accidents occurring in New South Wales. ²⁰⁶	Motor accident injury means injury caused by a motor accident. ²⁰⁷	Motor vehicle Words and expressed used same meaning as the <i>Motor Accident Compensation Act 1999</i> (NSW) ²⁰⁸ a vehicle propelled by a motor that forms part of the vehicle. ²⁰⁹	Not applicable to threshold.
Victoria	Transport accident incident directly caused by the <i>driving</i> of a <i>motor car</i> or <i>motor vehicle</i> . ²¹⁰	Incident includes a motor vehicle out of control. ²¹¹	Motor vehicle used or intended to be used on a highway and that is built to be propelled by a motor that forms part of the vehicle. ²¹² Motor car means any vehicle propelled by internal combustion steam gas oil electricity or any other power and used or intended for use on any highway. ²¹³	Driver includes a person who is in charge of the motor car or motor vehicle. ²¹⁴ Drive as including 'in control of a vehicle; ²¹⁵ Driving is not defined in the Act.
Queensland	Serious personal injury This Act applies in relation to a serious personal injury caused by, through or in connection with a <i>prescribed vehicle</i> . ²¹⁶	Injury is a result of (i) the <i>driving</i> of the <i>prescribed vehicle</i> , or (ii) a collision, or action taken to avoid a collision, with the prescribed vehicle, or (iii) the prescribed vehicle running out of control, or (iv) a defect in the prescribed vehicle causing loss of control of the vehicle while the vehicle is being driven. ²¹⁷	Prescribed vehicle a <i>motor vehicle</i> or a trailer for which a CTP insurance policy is in force. ²¹⁸ Motor vehicle defined as in <i>Transport Operations (Road Use Management) Act 1995, schedule 4</i> . ²¹⁹ a vehicle propelled by a motor that forms part of the vehicle. ²²⁰	Driving is not defined in the Act.

²⁰⁶ *Motor Accidents (Lifetime Care and Support) Act 2006* (NSW) s 4(2).²⁰⁷ *Ibid* s 3.²⁰⁸ *Ibid* s 5.²⁰⁹ *Motor Accidents Compensation Act 1999* (NSW) s 3 adopting the definition from the *Road Transport Act 2013* (NSW) s 4.²¹⁰ *Transport Accident Act 1986* (Vic) s 3(1).²¹¹ *Ibid* s 3(1A).²¹² *Ibid* s 3(1) adopting the definition from the *Road Safety Act 1986* (Vic) s 3(1).²¹³ *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Motor Car Act 1958* (Vic) s 3(1).²¹⁴ *Transport Accident Act 1986* (Vic) s 3(1) adopting the definition from the *Road Safety Act 1986* (Vic) s 3(1).²¹⁵ *Road Safety Act 1986* (Vic) s 3(1).²¹⁶ *National Injury Insurance Scheme (Queensland) Act 2016* (Qld) s 4(1).²¹⁷ *Ibid*.

Jurisdiction	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
<i>South Australia</i>	<i>Motor vehicle injuries</i> motor vehicle injuries that result from a motor vehicle accident ²¹⁸	<i>Motor vehicle injury</i> means a bodily injury to a person caused by or arising out of the use of a motor vehicle; ²¹⁹ <i>Motor vehicle accident</i> means the incident caused by or arising out of the use of a motor vehicle that results in a motor vehicle injury; ²²⁰	<i>Motor vehicle:</i> a vehicle that is built to be propelled by a motor that forms part of the vehicle; ²²¹	Not applicable to threshold.
<i>Western Australia</i>	<i>Motor vehicle injury</i> means a bodily injury to a person that results from a motor vehicle accident; ²²²	<i>Motor vehicle accident</i> (1) A motor vehicle accident is an incident caused by or arising out of the use of a motor vehicle. (2) For the purposes of subsection (1), an incident is caused by or arises out of the use of a motor vehicle if, and only if, it results directly from (a) the driving of the motor vehicle; or (b) the motor vehicle running out of control or coming to rest as a result of a collision with the motor vehicle (whether the motor vehicle is stationary or moving); ²²³ (3) a collision between two motor vehicles is a collision between two motor vehicles if, and only if, the motor vehicle is stationary or moving; ²²⁴ <i>Motor accident and personal injury</i> ²²⁵ means an accident directly involving a motor vehicle; ²²⁶	<i>Motor vehicle</i> has the meaning given in the <i>Motor Vehicle (Third Party Insurance) Act 1943</i> section 3(1) ²²⁷ any vehicle propelled by gas, oil, electricity or any other motive power; ²²⁸	<i>Driving</i> is not defined in the Act.
<i>Tasmania</i>	<i>Motor accident and personal injury</i> ²²⁹	<i>Motor accident:</i> means an accident directly involving a motor vehicle; ²³⁰ <i>Personal injury</i>	<i>Motor vehicle</i> a vehicle propelled by a motor that forms part of the vehicle; ²³²	<i>Driving</i> is not defined in the Act.

²¹⁸ *National Injury Insurance Scheme (Queensland) Act 2016* (Qld) s 7.

²¹⁹ *Ibid* sch 1.

²²⁰ *Transport Operations (Road Use Management Act) 1995* (Qld) sch 4.

²²¹ *Motor Vehicle Accidents (Lifetime Support Scheme) Act 2013* (SA) s 5(1)(a).

²²² *Ibid* s 3.

²²³ *Ibid*.

²²⁴ *Motor Vehicles Act 1959* (SA) s 5(1).

²²⁵ *Motor Vehicle (Catastrophic Injuries) Act 2016* (WA) s 3.

²²⁶ *Ibid*, sub-ss 4(1)–(2).

²²⁷ *Ibid* s 3(1).

²²⁸ *Motor Vehicles (Third Party Insurance) Act 1943* (WA) s 3(1).

²²⁹ *Motor Accidents (Liabilities and Compensation) Act 1973* (Tas) ss 14(1), 23(1), (2B).

²³⁰ *Ibid* s 2(1).

Jurisdiction	Threshold	Elements of Threshold	Definition of Motor Vehicle	Definition of Driver/Driving
Australian Capital Territory	<i>Catastrophic injury</i> Treatment and care if people who have suffered a catastrophic injury in a motor accident; ²³²	if the injury results directly from: (a) a collision; (b) out of control; (c) the driving; ²³³ <i>Motor accident</i> Defined under <i>Road Transport (Third Party Insurance) Act 2008</i> (a) involves the use or operation of a motor vehicle; and (b) causes <i>personal injury</i> ²³⁴ to an individual (c) happens when— (i) someone is driving the motor vehicle; or (ii) someone or something collides with the motor vehicle; (iii) someone takes action to avoid colliding with the motor vehicle; or (iv) the motor vehicle runs out of control.	<i>Motor vehicle</i> Defined under <i>Road Transport (General) Act 1999</i> (ACT) as vehicle built to be propelled by a motor that forms part of the vehicle; ²³⁵	<i>Drive</i> Defined as including 'be in control of the steering, movement or propulsion of the vehicle.' ²³⁶ <i>Driver</i> the person driving the vehicle; ²³⁷ <i>Use</i> includes drive, park or stop the vehicle and maintain the vehicle; ²³⁸ <i>Driving</i> is not defined.
Northern Territory	<i>Motor accident</i> ²³⁹ <i>motor accident</i> , (a) caused by or arising out of the use of a motor vehicle, and (b) resulting in death, or injury; ²⁴⁰	results directly from: (a) driving out of control; or (b) driving out of control, or (c) collision with a stationary or moving object; ²⁴¹ or (d) collision with a stationary or moving object; ²⁴¹	<i>Motor vehicle</i> 'a vehicle designed to be self-propelled' ²⁴²	<i>Drive</i> Defined in <i>Motor Vehicle Act</i> 'be in control of.' <i>Driver</i> person driving a vehicle; ²⁴³ <i>Driving</i> is not defined in Act.

²³² Ibid s 2(1) adopting the definition from the *Vehicle and Traffic Act 1999* (Tas) s 3.

²³³ Ibid s 2(4).

²³⁴ *Lifetime Care and Support (Catastrophic Injuries) Act 2014* (ACT) s 7.

²³⁵ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 6.

²³⁶ *Road Transport (General) Act 1999* (ACT) dictionary.

²³⁷ *Road Transport (Third-Party Insurance) Act 1999* (ACT) dictionary.

²³⁸ Ibid, dictionary adopts definition of 'driver' from *Road Transport (General) Act 2008* (ACT) dictionary.

²³⁹ *Road Transport (Third-Party Insurance) Act 2008* (ACT) s 8.

²⁴⁰ *Motor Accidents (Compensation) Act 1979* (NT) s 7.

²⁴¹ Ibid, s 4A(1).

²⁴² Ibid, s 4A(2).

²⁴³ *Motor Accidents (Compensation) Act 1979* (NT) s 4.

²⁴⁴ *Motor Vehicle Act* (NT) s 5.