

Driving into Trouble? Civil Liability and Privacy Issues with Autonomous Vehicles in New Zealand

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The advent of autonomous vehicle (AV) technology is fast approaching and will revolutionise travel. These changes bring substantial benefits to society. They will make transportation more accessible, convenient and safe by removing human error from the equation. However, novel technology inevitably raises new legal questions, which need to be solved to ensure the smooth and efficient deployment of AVs in New Zealand. AV technology combines a vehicle with a computer system that assumes control of driving to varying degrees. This raises the question of who should be held liable for personal injury or property damage resulting from an accident involving an AV. Further, to make driving decisions, the central computer system requires the generation of an unprecedented amount of data from inside and outside the vehicle. Privacy becomes a real concern as the vehicle is essentially a moving databank — rich with personal data about the AV user. This raises the question of whether the personal data of AV users is sufficiently protected from misuse by unauthorised third parties. If members of society do not feel in control of their privacy rights in relation to AVs, there will be a struggle to adopt this new technology. This article investigates whether the New Zealand government needs to act to ensure AV technology is smoothly integrated into society.

I INTRODUCTION

You can't have a person driving a two-ton death machine when there are perfectly safe machines to do it.

—Elon Musk¹

* LLB(Hons). I would like to thank my supervisor, Nikki Chamberlain, for her guidance and support.
1 Josh Lowensohn “Elon Musk: cars you can drive will eventually be outlawed — Because humans can't have nice things” (17 March 2015) The Verge <www.theverge.com> as cited in Oliver Jeffcott and Rose Inglis “Driverless Cars: Ethical and Legal Dilemmas” (2017) 1 JPIL 19 at 24, n 28.

Technology is developing rapidly in this digital age. The degree of automation in vehicles is quickly advancing. Current automation features include cruise control and lane keeping assist, but developers are aiming to reduce further, and even remove, human intervention in vehicles.² The idea of a fully autonomous vehicle (AV) is quickly becoming reality. An AV prototype has already been successfully driven from San Francisco to Las Vegas without human intervention.³ South Korea has even built a small town called “K-City” to simulate a community environment where AV prototypes can be tested.⁴ New Zealand is also proving itself an active participant in the AV industry, with the testing of its first 5G-connected AV in Auckland by Kiwi companies Ohmio and Spark.⁵

These radical developments, while promising many societal and environmental benefits, raise issues pertaining to AV regulation. AVs may improve traffic flow and free up the time of commuters, but are consumers sufficiently protected against the misuse of personal data collected? AVs may also decrease road accidents by taking human error out of the equation, but who assumes legal liability for personal injury or property damage if an AV crashes?

The purpose of this article is to address the questions posed above and investigate how the law can best accommodate the introduction of AVs into society. Part II outlines the different levels of automation and how an AV works, illustrating the difficult legal questions that arise from this disruptive technology. Part III discusses civil liability⁶ for personal injury and property damage relating to AV crashes. Part IV discusses informational privacy concerns that arise in the AV context.

This article reaches the following conclusions. First, a community compensation scheme should be established to provide fair compensation for property damage caused by AV accidents. There should be a bar against bringing civil action where compensation is provided under the scheme. Secondly, the Accident Compensation Corporation (ACC) scheme should apply to personal injuries in the AV context. Lastly, while the Privacy Act 1993 and privacy torts sufficiently protect the personal data collected by AVs, the government should implement a *Privacy by Design* approach that requires a written privacy plan from AV manufacturers. The effect of this would be to strengthen existing privacy protections.

2 Michael Cameron *Realising the Potential of Driverless Vehicles: Recommendations for Law Reform* (New Zealand Law Foundation, Wellington, 2018) at 2 and 82.

3 Andreas Herrmann, Walter Brenner and Rupert Stadler *Autonomous Driving: How the Driverless Revolution Will Change the World* (Emerald Publishing, Bingley (UK), 2018) at 5.

4 Yang J Joo “South Korea creates tiny town for self-driving car tests” (30 December 2018) SBS <www.sbs.com.au>.

5 Melissa Chan-Green “NZ’s first driverless 5G car wows Aucklanders on test run” (13 March 2019) Newshub <www.newshub.co.nz>.

6 Criminal law issues are not discussed in this article.

II WHAT IS AN AUTONOMOUS VEHICLE?

Defining an AV and the Automation Continuum

“Automated driving” refers to situations where a vehicle’s computer system has varying levels of control.⁷ This starts with driver assistance features and can lead all the way to full automation, requiring zero human intervention.⁸ “Autonomous driving” refers to the final level of automation, where the vehicle’s computer system has full control over manoeuvres and decision-making.⁹

The extent of intervention required by the user varies. The Society of Automotive Engineers International describes six Automation Levels by which to classify AVs:¹⁰

- Level 0 (No Automation): the computer system has no control over the vehicle. It can only notify the user with warnings.
- Level 1 (Driver Assistance): automated features such as cruise control, parking and lane keeping assist may exist. However, the user must constantly monitor the system and be prepared to assume control at any time.
- Level 2 (Partial Automation): automated features include accelerating, braking and steering. However, the user must constantly monitor the system and take over where it fails to respond properly to objects and events.
- Level 3 (Conditional Automation): the user is not required to monitor the system within certain regions (such as motorways). However, the user must be prepared to assume control upon request.
- Level 4 (High Automation): the system can control the vehicle without user intervention except in some extreme environments.
- Level 5 (Full Automation): the system is capable of driving to any location without human assistance.

7 Herrmann, Brenner and Stadler, above n 3, at 8.

8 At 8.

9 At 8.

10 SAE International *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles* (J3016, June 2018) at 19.

How an AV Works

An AV is a hybrid between a computer system and a vehicle.¹¹ The computer system constantly collects and assesses data to create a virtual picture of the vehicle's surroundings. Data is collected from several sources: sensors, cameras and GPS systems, which are integrated into the vehicle; an external network; and communications with other AVs in the area.¹² The system receives the data and controls the vehicle's steering and speed.¹³ Decision-making occurs when the computer system generates possible situations using the collected data.¹⁴ The probability of the occurrence of each situation is assessed and a decision as to the vehicle's movements is made.¹⁵ The computer system may improve over time in terms of the volume of data it collects and analyses. This results in better decision-making that takes into account more variables. The volume of data, however, may affect the time it takes to analyse the data. So long as the system can analyse the data and make the best decision in real time, it will be considered to have improved.¹⁶ The computer system responds according to how it has been pre-emptively programmed or through machine-learning algorithms.¹⁷ Thus, the system is capable of learning how to respond to unpredictable and unfamiliar situations.

The Social and Economic Benefits of AVs

People are so bad at driving cars that computers don't have to be that good to be much better.

—Marc Andreessen¹⁸

The arrival of AV technology is likely to bring substantial benefits to society. That AVs (of Automation Levels 4 and 5 in particular) require little to no human intervention will reduce or remove the most accident-prone factor: the human driver.¹⁹ Unlike a human driver, an AV's computer system will never be intoxicated or distracted by its surroundings, it will never feel stressed or fatigued, and it will strictly follow traffic rules. This should significantly reduce road accidents and fatalities, especially as the software is refined over time. A decrease in traffic accidents will likely relieve the social and financial

11 Sophia H Duffy and Jamie Patrick Hopkins "Sit, Stay, Drive: The Future of Autonomous Car Liability" (2013) 16 *SMU Sci & Tech L Rev* 453 at 455.

12 Vilma Kiilunen "Autonomous Vehicles, Competence and Liability in the EU – Answering the Call of the European Parliament" (LLM Thesis, University of Turku, 2018) at 7.

13 At 7.

14 Herrmann, Brenner and Stadler, above n 3, at 11.

15 At 11.

16 At 12.

17 At 10.

18 Matt Rosoff "Marc Andreessen: Robots Will Replace Human Drivers" (8 July 2011) *Business Insider Australia* <www.businessinsider.com.au>.

19 Melinda Florina Lohmann "Liability Issues Concerning Self-Driving Vehicles" (2016) 7 *EJRR* 335 at 335.

impact of transportation. Public funds can be spent elsewhere, since there will be less need for police monitoring and intervention on the roads.²⁰

AVs will also offer greater mobility and autonomy to those who are currently excluded from driving, such as the elderly, disabled and underage.²¹ It will provide environmental benefits with the regulation of fuel or energy use to encourage efficiency and the organisation of traffic flow in an environmentally friendly manner.²²

Possible Disadvantages and Issues

Despite the purported benefits of AVs, their development has not been without opposition. Ethan Elkind argues that AVs will damage the environment to an even greater extent than conventional vehicles.²³ AVs may drive more efficiently but the total kilometres travelled by vehicles may increase with the advent of AVs. This is because AVs will allow a greater range of people to travel.²⁴ They will also make travelling much more convenient and cheaper. Consequently, the use of AVs to individuals' convenience may result in a greater number of overall trips, resulting in environmental harm.

The development of AVs also raises ethical issues such as whose safety should be prioritised when the vehicle is confronted with a situation that will inevitably result in personal injury.²⁵ Despite these disadvantages, the development of AV technology is occurring at a rapid pace and future widespread proliferation of AVs on the market is likely.

The Legality of AVs in New Zealand

New Zealand law does not expressly deal with the legality of AVs. However, the law also does not expressly require a driver's presence in a vehicle.²⁶ According to the Ministry of Transport, this would make AVs legal under New Zealand law as it currently stands.²⁷

20 Lynden Griggs "A radical solution for solving the liability conundrum of autonomous vehicles" (2017) 25 CCLJ 151 at 153.

21 At 153.

22 Lohmann, above n 19, at 335.

23 Ethan Elkind "Could self-driving cars help the environment?" (11 April 2012) Berkeley Blog <<https://blogs.berkeley.edu>>.

24 Elkind, above n 23.

25 Jeffcott and Inglis, above n 1, at 22.

26 Cameron, above n 2, at 45.

27 Ministry of Transport "Autonomous including driverless vehicles" (7 October 2016) <www.transport.govt.nz>.

III CIVIL LIABILITY: PERSONAL INJURY AND PROPERTY DAMAGE

AVs are likely to increase road safety as well as traffic efficiency, but the use of artificial intelligence technology will inevitably bring new risks. An AV will still be vulnerable to defects and may cause accidents. In 2016, one of Tesla's AVs failed to distinguish between the clear sky and the colour of a truck, resulting in a crash that killed the AV's occupant.²⁸ In another incident, one of Google's AVs swerved to avoid sandbags on the road and crashed into an incoming bus.²⁹

This section suggests that the current liability framework of negligence and legislative consumer guarantees is unsuitable to address property damage caused by AVs. It concludes that a scheme analogous to the ACC model would be a more appropriate regulator of both personal injury and property damage in the AV context.

Personal Injury Liability: The Current Framework in New Zealand

1 Accident Compensation Scheme in New Zealand

The ACC scheme in New Zealand is a no-fault scheme that provides compensation to victims of personal injury caused by an accident.³⁰ An accident includes the application of force to the human body.³¹ A motor vehicle injury is defined as personal injury suffered due to a vehicle's movement or the striking of a stationary vehicle by another vehicle.³² The ACC scheme would apply to personal injury arising from crashes involving both AVs and conventional vehicles.³³

A person who suffers a motor vehicle injury may claim compensation under the ACC scheme, but they are barred from bringing civil action.³⁴ This means that victims of AV crashes have no recourse against the AV manufacturer for any personal injury caused. However, they may still bring an action for exemplary damages where the conduct is sufficiently egregious.³⁵

Compensation for motor vehicle injuries is paid out of the Motor Vehicle Account, whose funds derive from petrol taxes and motor vehicle

28 Danny Yadron and Dan Tynan "Tesla driver dies in first fatal crash while using autopilot mode" *The Guardian* (online ed, United Kingdom, 1 July 2016).

29 Chris Ziegler "A Google self-driving car caused a crash for the first time" (29 February 2016) *The Verge* <www.theverge.com>.

30 Cameron, above n 2, at 97.

31 Accident Compensation Act 2001, s 25(1)(a)(i).

32 Section 35(1)(a).

33 Cameron, above n 2, at 97.

34 Accident Compensation Act, s 317.

35 Section 319.

licence fees.³⁶ Vehicle manufacturers do not contribute to the Account or incur any compensatory liability due to the bar on civil liability claims.³⁷

2 Potential Issues with the Current Framework in the AV Context

Currently, most road accidents and resultant injuries are caused by human error.³⁸ Removing human control means crashes will be caused by technology instead. AV manufacturers assume a role where they have greater control over the safety of the vehicle than traditional car manufacturers. Therefore, it may be fairer for AV manufacturers to shoulder liability for personal injuries caused by their products. This may make the current ACC scheme problematic when applied in the AV context. Further, manufacturers do not contribute to the motor vehicle fund under the ACC scheme. Because they do not sustain any financial impact from personal injuries associated with their products, manufacturers may lack sufficient incentive to ensure their products are as safe as possible.

Property Damage Liability: The Current Framework in New Zealand

1 Conventional Vehicles

Conventional vehicles are vehicles controlled solely by a human driver. Liability for property damage caused by conventional vehicles is governed by the tort of negligence, statutory land transport rules, the Consumer Guarantees Act 1993 (CGA) and the Fair Trading Act 1986. There are several parties who may shoulder liability: other road users, the vehicle owner, inspectors and repairers of the vehicle, the vehicle manufacturer and insurers.³⁹

The tort of negligence imposes a duty to take reasonable care to avoid foreseeable damage.⁴⁰ There must be sufficient proximity between the duty holder and victim: the damage must be reasonably foreseeable, the breach of the duty must be causative and the damage must not be too remote.⁴¹ In the road context, it is well established that a driver owes a duty to fellow road users to take reasonable care when driving.⁴² This means a vehicle user may be exposed to liability for negligence where a breach of their duty of reasonable care causes an accident. The court may also apportion liability between parties under the Contributory Negligence Act 1947.⁴³

36 Section 213(2).

37 Section 317.

38 Griggs, above n 20, at 153.

39 Cameron, above n 2, at 74.

40 See Stephen Todd "Negligence: The Duty of Care" in Stephen Todd (ed) *Todd on Torts* (8th ed, Thomson Reuters, Wellington, 2019) 149.

41 At [5.1].

42 At [5.2.05].

43 Section 3(1).

Statutory land transport rules impose duties on various parties in relation to vehicles. They impose a duty on the owner or operator of a vehicle properly to maintain the vehicle.⁴⁴ There is also a duty on vehicle inspectors to refrain from passing a vehicle they believe fails to comply with applicable requirements.⁴⁵ A vehicle inspector may be liable for property damage where their breach of this duty causes an accident.⁴⁶ Further, vehicle repairers have a duty to utilise a suitable repair method that takes into account the approved vehicle standards with which the vehicle must comply.⁴⁷ Work that is non-compliant and results in an accident may cause liability to fall on the repairer.⁴⁸ However, a court is unlikely to take a strict liability approach under these rules;⁴⁹ rather, failure to take reasonable care is likely to be the applicable standard.⁵⁰

The CGA provides consumers with a legislative right of redress against manufacturers and suppliers of vehicles.⁵¹ Manufacturers and suppliers owe certain guarantees in circumstances where they supply a good or service to a consumer in New Zealand.⁵² A manufacturer is defined as a person in the business of assembling, producing or processing goods.⁵³ This includes a person that imports or distributes goods made by manufacturers outside of New Zealand.⁵⁴ Guarantees for which the CGA provides in respect of supply of goods include the following: that the goods are of acceptable quality,⁵⁵ that the goods are fit for purpose,⁵⁶ that the goods comply with their description,⁵⁷ and that facilities for repair and supply of spare parts are reasonably available.⁵⁸ Where a guarantee is breached, the consumer has a right of redress against the supplier or manufacturer for reasonably foreseeable consequential loss.⁵⁹ This means a vehicle owner may claim against the supplier or manufacturer for any reasonably foreseeable property damage that results from a crash. However, third parties who are not the owner of the vehicle and suffer loss cannot claim against the supplier or manufacturer under the CGA. Instead, they would have to rely on insurance or the tort of negligence.⁶⁰

44 Land Transport (Road User) Rule 2004, cl 8.9.

45 Land Transport Rule: Vehicle Standards Compliance 2002, cl 7.4(1).

46 Cameron, above n 2, at 78.

47 Land Transport Rule: Vehicle Repair 1998, cl 2.2(1)(c).

48 Cameron, above n 2, at 78.

49 At 78.

50 At 78.

51 Sections 16 and 25.

52 Sections 5–12.

53 Section 2(1) definition of “manufacturer”.

54 Section 2(1) definition of “manufacturer”, para (c).

55 Section 6(1).

56 Section 8(1).

57 Section 9(1).

58 Section 12(1).

59 Sections 18(4) and 27(1)(b).

60 Cameron, above n 2, at 78.

Finally, the Fair Trading Act 1986 provides that a dealer or manufacturer must not engage in misleading conduct in trade.⁶¹ This means an AV manufacturer may be held to be in breach of the Fair Trading Act if it misleads purchasers as to the safety of its AVs.

2 *Semi-Autonomous Vehicles*

Semi-autonomous vehicles are vehicles that are equipped with autonomous features but require constant human supervision.⁶² These are the vehicles contemplated by Automation Levels 1 (Driver Assistance) and 2 (Partial Automation).⁶³ The autonomous features can range from basic cruise control to auto control over steering and speed.⁶⁴

Semi-autonomous vehicles do not present a novel situation that significantly departs from the regulation of conventional vehicles.⁶⁵ The core role of the human driver remains and the computer system merely assists.⁶⁶ This means the current legal framework governing conventional vehicles is easily applicable to semi-autonomous vehicles. Liability will depend on fault and may be apportioned if an accident is the fault of both the user and the vehicle's computer system.⁶⁷

A semi-autonomous vehicle manufacturer may be liable in negligence where an accident is caused by the user's use of autonomous features in breach of the manufacturer's instructions, if the misuse and resultant damage were reasonably foreseeable.⁶⁸ It may be reasonably foreseeable that a user becomes lax with instructions or distracted.⁶⁹ Thus, to reduce liability, manufacturers of semi-autonomous vehicles must design the vehicle's system in a way that accounts for the possible occurrence of foreseeable human errors.⁷⁰

The current law in New Zealand as applied to semi-autonomous vehicles may give rise to evidential difficulties. It may be unclear whether the cause of an accident was driver error or software malfunction.⁷¹ This is made more difficult because the allocation of control in the vehicle-driver relationship may vary among different vehicle makes and models, and according to environmental conditions.⁷² However, this is likely to be resolved by the use of the substantial volume of data collected by the vehicle. This data

61 Section 9.

62 Cameron, above n 2, at 82.

63 SAE International, above n 10, at 19.

64 Cameron, above n 2, at 82.

65 Mark A Geistfeld "A Roadmap for Autonomous Vehicles: State Tort Liability, Automobile Insurance, and Federal Safety Regulation" (2017) 105 CLR 1611 at 1625.

66 At 1625.

67 Contributory Negligence Act 1947, s 3(1).

68 Cameron, above n 2, at 82.

69 At 82.

70 Geistfeld, above n 65, at 1629.

71 Nayeem Syed "Regulating Autonomous Vehicles" (2017) 23 CTLR 11 at 13.

72 At 13.

may be used to determine the cause of the accident and whether the user or computer system was in control of the vehicle at the relevant time.⁷³

3 Fully Autonomous Vehicles

A fully autonomous vehicle can operate without human intervention or supervision in some or all circumstances.⁷⁴ Fully autonomous vehicles are those described by Automation Levels 3 (Conditional Automation), 4 (High Automation) and 5 (Full Automation).⁷⁵ The nature of legal liability changes as the user is no longer operating the vehicle, so driver error is removed from the equation. The focus turns to the manner in which the vehicle's computer system executes the driving task. As the vehicle is not a legal entity, it cannot be held responsible for its decisions. Therefore, the question of who should be responsible for accidents becomes important.⁷⁶

In respect of the tort of negligence, an AV manufacturer has a duty to take reasonable care in relation to other road users. It is foreseeable that an AV may malfunction while operating and cause property damage.⁷⁷ Thus, a manufacturer would clearly be liable for property damage caused by manufacturing or design defects. However, the manufacturer may still be liable if the accident and resultant damage are caused by the user's non-compliance with the manufacturer's instructions.⁷⁸ The user may choose to operate the vehicle autonomously outside the environments specified by the manufacturer, and this misuse may be reasonably foreseeable.⁷⁹ This then raises issues of how liability is to be allocated or shared between the AV manufacturer and user.

Under the CGA, an AV owner may claim against the AV manufacturer if the vehicle crashes and is not of acceptable quality.⁸⁰ The owner could also claim for consequential loss,⁸¹ which may include property damage suffered by other road users. However, if the vehicle is used in an unreasonable manner, and it would otherwise have complied with the guarantee of acceptable quality, it will not be deemed to fail to comply with the guarantee.⁸² This means where an AV user uses the vehicle in an unreasonable manner, the manufacturer will not be liable for any property damage insofar as acceptable quality is concerned. Further exceptions to manufacturers' liability where acceptable quality is concerned include where

73 At 13.

74 Cameron, above n 2, at 83.

75 SAE International, above n 10, at 19.

76 Geistfeld, above n 65, at 1629.

77 Cameron, above n 2, at 83–84.

78 At 84.

79 At 84.

80 Section 6.

81 Section 27(1)(b).

82 Section 7(4).

breach of the guarantee is due to the act or omission of another person,⁸³ and where it is due to a cause independent of human control and the product has left the manufacturer's control.⁸⁴

4 *Potential Issues with the Current Framework in the AV Context*

[E]ven imperfect autonomous vehicles will be safer than vehicles on the road today.

—Gary E Marchant and Rachel A Lindor⁸⁵

Under the current framework, a manufacturer may be liable for property damage resulting from breach of the acceptable quality guarantee or general negligence. While these concepts work well for conventional and semi-autonomous vehicles, the complex technological advancements associated with fully autonomous vehicles mean these concepts are unsuitable in the AV context.

First, the complex nature of AV technology and its potentially groundbreaking safety benefits make it undesirable to apply negligence and the CGA's acceptable quality standards to AV manufacturers. Michael Cameron states that under the current negligence framework the manufacturer will be liable where an AV acts in a manner that would be considered negligent if a human driver had been in control.⁸⁶ This is undesirable as it assumes the manufacturer to have been negligent in manufacturing and designing the vehicle. In reality, the manufacturer might have constructed a vehicle significantly safer than one driven by the best human driver.⁸⁷ This is a convincing argument. It is unreasonable to hold decisions made by the vehicle's computer system to the same standard as decisions made by a human driver. Doing so would find the manufacturer negligent merely because the vehicle is not infallible. This would stifle technological innovation.⁸⁸

The same line of reasoning applies to the CGA's acceptable quality requirements. It sits uncomfortably to assert a product is not of "acceptable quality" simply because it is not entirely infallible, especially if the product provides revolutionary safety benefits to society. This current model does not take into account the unique nature of artificial intelligence, nor does it acknowledge the contributions of safety and efficiency it makes to society.

Secondly, the application of negligence and the CGA to AVs would make it difficult for crash victims to obtain remedy. This is because the

83 Section 26(a)(i).

84 Section 26(a)(ii).

85 Gary E Marchant and Rachel A Lindor "The Coming Collision Between Autonomous Vehicles and the Liability System" (2012) 52 Santa Clara L Rev 1321 at 1340.

86 Cameron, above n 2, at 85–86.

87 At 86.

88 Roeland de Bruin "Autonomous Intelligent Cars on the European Intersection of Liability and Privacy: Regulatory Challenges and the Road Ahead" (2016) 7 EJRR 485 at 488.

complexity of AV technology makes it difficult to prove a manufacturer's negligence or breach of the acceptable quality guarantee.⁸⁹ A defect may not have existed when the product was put into the market or been reasonably discoverable with the universal industry knowledge at the time of manufacture.⁹⁰ Where there is no evidence of an actual defect, the victim may have to prove the decision made by the computer system was wrong.⁹¹ This would be problematic because, when responding to a given scenario, there is a range of possible actions from which a driver can choose, and not necessarily a single correct choice.⁹² As AV technology becomes more complex, it becomes more uncertain what is regarded as being of acceptable quality and what amounts to negligence.⁹³

Thirdly, there are various parties involved in the AV context so it would be difficult and costly to establish a causal connection between the loss suffered and an identifiable party.⁹⁴ Potentially liable parties could attribute fault to others and deny responsibility, which would make it costly and time-consuming for the plaintiff to identify the wrongdoer.

Finally, if the law of negligence and the CGA's acceptable quality requirements remain the governing frameworks for liability in the AV context, the courts will be required to determine the standard of safety to which AV technology is held. This is undesirable as AV technology is extremely complex and courts are likely to lack sufficient technical expertise.⁹⁵ It is arguable that developing the law around AVs on a case-by-case basis is desirable as no legislative framework could possibly capture every scenario that eventuates in the AV context. However, lack of any legislative direction whatsoever will lead to legal uncertainty, particularly in the early stages of AV development.⁹⁶ Such uncertainty will slow the deployment of AVs, and AV manufacturers will be unable to calculate accurately the extent of any liability they might face.⁹⁷ This may lead to increased costs for the user to use AVs.⁹⁸ Legal uncertainty may also be detrimental to consumer confidence in embracing the technology. Even if victims rely on insurance, it will be difficult for insurers to pursue manufacturers and retrieve costs.

89 De Bruin, above n 88, at 490.

90 At 490.

91 Kevin Funkhouser "Paving the Road Ahead: Autonomous Vehicles, Products Liability, and the Need for a New Approach" [2013] Utah L Rev 437 at 455.

92 At 455.

93 At 456.

94 Griggs, above n 20, at 165.

95 Tatjana Evas *A common EU approach to liability rules and insurance for connected and autonomous vehicles: European Added Value Assessment — Accompanying the European Parliament's legislative own-initiative report (Rapporteur: Mady Delvaux)* (European Parliamentary Research Service, PE 615.635, February 2018) at 33 and 60.

96 At 33.

97 At 5–6.

98 Geistfeld, above n 65, at 1618.

International Frameworks for Civil Liability

1 *United Kingdom*

The United Kingdom is the only country with legislation specifically related to liability for AVs.⁹⁹ The Automated and Electric Vehicles Act 2018 clarifies liability for insurers in accidents caused by AVs, providing that if an AV is insured the insurer can be held liable for damage caused by it in circumstances where it was not under the control of a human driver.¹⁰⁰ However, the insurer will not be liable if the accident and resultant damage were caused by the person in charge of the AV.¹⁰¹ Further, the insurer has a right to claim against the person responsible for causing the AV accident.¹⁰² This scheme reflects the common law position and clarifies how liability is to be apportioned between the insurer and insured victims.¹⁰³

According to the Consumer Protection Act 1987, manufacturers can avoid liability by proving the vehicle was not deemed defective at the time of supply and identification of the defect only came about due to subsequent scientific advancements.¹⁰⁴

2 *United States*

In the United States, California, Nevada, Michigan, Florida and Washington, DC have passed legislation to authorise and regulate the testing of AVs on public roads.¹⁰⁵ In California, AVs must record the data collected in the 30 seconds preceding an accident and this data must be retained for three years.¹⁰⁶ In Nevada, regulations require an AV operator to hold a special driver's licence, display special licence plates and have insurance of at least \$5,000,000 before testing the vehicle on public roads.¹⁰⁷ At the federal level, the National Highway Traffic Safety Administration issued a policy in 2016 on the safe development of AV technology.¹⁰⁸ The policy sets out best practice recommendations relating to the design, development and testing of AVs.

99 Araz Taeihagh and Hazel Si Min Lim "Governing autonomous vehicles: emerging responses for safety, liability, privacy, cybersecurity, and industry risks" (2019) 39 *Transport Reviews* 103 at 110.

100 Automated and Electric Vehicles Act 2018 (UK), s 2.

101 Section 3(2).

102 Section 5.

103 Taeihagh and Lim, above n 99, at 111.

104 Consumer Protection Act 1987 (UK), s 4(1)(e).

105 Steven Wittenberg "Automated Vehicles: Strict Products Liability, Negligence Liability and Proliferation" (7 January 2016) *Illinois Business Law Journal* <<http://publish.illinois.edu/illinoisblj>>.

106 Cal Veh Code § 38750(c)(1)(G).

107 Nevada Department of Motor Vehicles "Autonomous Vehicles" <<https://dmvnev.com>>; and Nev Rev Stat § 482A.060.

108 United States Department of Transportation *Automated Driving Systems 2.0: A Vision for Safety* (National Highway Traffic Safety Administration, 12 September 2017).

3 Other Jurisdictions

The Singaporean government has passed legislation exempting AV owners or operators from certain statutory provisions that impose liability on human drivers.¹⁰⁹ This means the vehicle's computer system is perceived to be in control of the vehicle. The government has also acknowledged the need to update liability laws to account for AV technology.¹¹⁰

In the European Union, research was carried out to solve liability issues with AVs. The resultant report found that the current European Union framework was insufficient to address new risks created by AVs, such as software failures, network failures and hacking.¹¹¹ In 2016, Members of the European Parliament recommended that a no-fault mandatory insurance scheme be instituted to ensure victims of AV accidents receive adequate compensation.¹¹² Under the scheme, the insurance policy would be taken out by the AV owner or operator or the AV manufacturer, and the premium would be paid partly by the AV owner or operator and partly by the industry.¹¹³ Thus, compensation to an injured party in an AV accident would occur irrespective of civil liability.¹¹⁴

Civil Liability Reform in New Zealand for Personal Injury Liability and Property Damage Liability

This section will explore the desirability of other models to regulate civil liability for personal injury and property damage associated with AVs.

1 Strict Liability of Manufacturers for Personal Injury and Property Damage

One method of regulation is imposing strict liability on the AV manufacturer for personal injury and property damage caused by its vehicles.

For property damage caused by an AV operating autonomously, Cameron argues the manufacturer should be held strictly liable under a product liability scheme.¹¹⁵ Under a strict liability framework, it would need to be proved only that the AV caused the crash while in autonomous mode, and not that the manufacturer had been negligent. But Cameron states the manufacturer would be held strictly liable only if the accident occurred while the AV's autonomous mode was being used in accordance with the

109 Road Traffic (Autonomous Motor Vehicles) Rules 2017 (Singapore), s 21.

110 Danson Cheong "New rules for autonomous vehicles" *The Straits Times* (online ed, Singapore, 8 February 2017).

111 Evas, above n 95, at 5.

112 European Parliament "Robots and artificial intelligence: MEPs call for EU-wide liability rules" (press release, 16 February 2017).

113 Evas, above n 95, at 112.

114 At 112.

115 Cameron, above n 2, at 89.

manufacturer's instructions.¹¹⁶ Otherwise, the normal negligence framework would apply.¹¹⁷ The nature of strict liability means the manufacturer would only be liable where there was a causal link between its vehicle's autonomous operation and the accident.

This proposed scheme has several advantages. First, a lowered burden of proof means obtaining compensation would be administratively easier — it would be less costly and time-consuming. The victim would not need to prove the manufacturer was negligent or breached acceptable quality standards. Instead, the victim would merely need to prove the AV caused the crash while in autonomous mode. This would increase consumer confidence in embracing AV technology as the path to compensation would not be unduly difficult.

Secondly, as Cameron points out, under current law, damage caused in an AV crash would in most cases result in the AV manufacturer's being branded "negligent" or in breach of the acceptable quality guarantee by the courts. Cameron argues that holding AV manufacturers liable under a strict product liability scheme would allow liability to remain with AV manufacturers while avoiding the use of such stigmatising labels.¹¹⁸ It would recognise that AV manufacturers have developed a technology far safer than conventional vehicles, but that it is in the public interest for manufacturers to bear the cost of risks.¹¹⁹

Thirdly, manufacturers have introduced the risks associated with AVs onto the roads while reaping commercial benefits, so it is proper that they should bear responsibility for those risks.¹²⁰ Liability costs are merely a business risk that comes with participating in the industry.¹²¹ The user relinquishes control when the vehicle is operating in fully autonomous mode, and it is the manufacturer that is best placed to safeguard against defects.¹²² The cost of liability would incentivise manufacturers to minimise risks as much as possible.¹²³ Further, there is a higher degree of trust placed in the manufacturer by the user: the user trusts that the manufacturer has exercised the appropriate skill and care in designing the AV. This justifies holding the manufacturer strictly liable without needing to prove the existence of a defect or lack of reasonable care.

The disadvantages of strict liability, however, make it an undesirable model by which to regulate AV civil liability. A strict liability model is more pro-plaintiff due to the lowered burden of proof. However, this is arguably outweighed by the consideration that strict liability may discourage

116 At 92.

117 At 92.

118 At 89.

119 At 88–89.

120 Carrie Schroll "Splitting the Bill: Creating a National Car Insurance Fund to Pay for Accidents in Autonomous Vehicles" (2015) 109 NW U L Rev 803 at 818.

121 Evas, above n 95, at 107.

122 At 106.

123 At 107.

manufacturers from engaging in the industry. Companies will not want to be involved with AV technology if expenses and risks are too high.¹²⁴ Costs associated with a strict liability framework would include high insurance premiums, administrative costs in sorting out claims with insurance companies and potential litigation costs.¹²⁵ Manufacturers may try to distribute the cost of liability by incorporating it into the purchase price of AVs. However, the risks of liability cannot be accurately predicted. Therefore, manufacturers may increase the price of an AV to account for this uncertainty, but this may not accurately account for the liability costs in fact incurred.¹²⁶ An estimate too high would artificially increase the price of AVs and reduce consumer demand, and an estimate too low would fail to cover liability costs and reduce profitability.¹²⁷ This is an added risk with which the manufacturer would have to deal. The manufacturer could insure against tort liability, but the uncertainty of liability would then be passed onto the insurer, who would increase the premium to be paid in turn. The manufacturer would incorporate the cost of the premium into the purchase price, thus passing the risk onto the consumer.¹²⁸

Overall, the expenses associated with a strict liability framework are fraught with uncertainty and may deter companies from participating in the industry. Uncertainty of liability may unnecessarily increase the price of AVs and high prices may decrease consumer demand. AVs are socially desirable and manufacturers should not be burdened with strict liability when they are making the roads safer.

2 Strict Liability of AV Owners or Operators Coupled with Mandatory Insurance

Another method of regulating civil liability associated with AVs is to impose strict liability on the AV owner or operator.

Melinda Lohmann argues that the owner or operator of an AV should be held strictly liable for damage caused by their vehicle.¹²⁹ However, insurance should be mandatory and the victim should have a direct claim against the insurer.¹³⁰ This means it would be compulsory for the AV owner or operator to take out product liability insurance.¹³¹ This model differs from Cameron's strict liability scheme as it places the burden of strict liability on the AV owner and relieves the pressure on manufacturers. It also places strict liability on the owner or operator in *all* accidents, whereas Cameron's scheme

124 Schroll, above n 120, at 821.

125 At 821.

126 Geistfeld, above n 65, at 1617.

127 At 1618.

128 At 1618.

129 Lohmann, above n 19, at 338.

130 At 338.

131 Syed, above n 71, at 14.

limits manufacturers' strict liability to accidents where the vehicle's autonomous mode was properly being used.¹³²

Sophia Duffy and Jamie Hopkins rationalise holding an AV user strictly liable by analogising it with canine liability.¹³³ They argue that dogs and AVs are similar in that they act independently of their human owners and are capable of causing personal injury and property damage.¹³⁴ Dog owners may be held responsible for harm caused as the dog itself is not a legal person.¹³⁵ In New Zealand, under the Dog Control Act 1996, a dog owner has a legal obligation to take reasonable steps to ensure the dog does not injure any person or damage any property.¹³⁶ Duffy and Hopkins argue that dogs and AVs are of similar social value to humans.¹³⁷ Dogs provide companionship and protection while AVs provide a convenient method of transportation.¹³⁸ They also both pose risks: dogs regularly attack humans and other animals while motor vehicle accidents are the cause of property damage and a significant number of fatalities each year.¹³⁹ Similar to dog owners, AV owners or operators introduce a risk, so they should assume liability for any damage or harm caused by the AV.¹⁴⁰

Lohmann's approach has several advantages. It would ensure that victims of property damage are properly compensated in a cost-efficient manner, while manufacturers are sufficiently deterred from deploying unsafe vehicles.¹⁴¹ Victims would receive compensation from the owner or operator in the form of damages or from their insurers. In the latter case, the insurer may in turn have recourse against the manufacturer to recover the losses. The manufacturer has ultimate control to ensure its product is safe through careful design. This means even if the accident was caused by software malfunction, the manufacturer may be held accountable by the insurer's pursuing a subsequent claim against it.¹⁴² The manufacturer may transfer some of these liability costs back to the consumer by incorporating them into its vehicle prices.¹⁴³ Further, the cost of liability insurance to the owner or operator would not be excessive due to the enhanced safety of AVs as compared to conventional vehicles.¹⁴⁴

Again, however, the disadvantages of imposing strict liability on the AV user make it an undesirable approach. First, the prospect of strict liability on the AV owner or operator may decrease consumer demand. The shift of

132 At 89.

133 Duffy and Hopkins, above n 11, at 467.

134 At 467.

135 At 468.

136 Section 5(1).

137 Duffy and Hopkins, above n 11, at 472.

138 At 472.

139 At 472.

140 Schroll, above n 120, at 815–816.

141 Lohmann, above n 19, at 338.

142 Syed, above n 71, at 14.

143 Evas, above n 95, at 107.

144 At 109.

liability away from manufacturers to AV owners means insurance premiums for owners would increase.¹⁴⁵ This may slow the deployment of AV technology onto the roads.

Secondly, AV owners should not shoulder the burden of risk when manufacturers are in a better position to ensure the safety of the vehicle. Victims of property damage would be paid out by the AV owner's insurer, and the insurer may subsequently pursue the manufacturer.¹⁴⁶ However, the ability of the insurer to pursue the manufacturer depends on whether it has a contractual or statutory right to do so. The manufacturer will face no financial consequence if the insurer does not or cannot pursue it following a payout. Further, recovery against the manufacturer by the insurer may be difficult.¹⁴⁷

For the insurer to bring a subsequent claim against the manufacturer to recover costs, the insurer would need to prove the manufacturer's fault.¹⁴⁸ If manufacturers could avoid blame, insurers would have to increase premiums to account for loss. Further, the manufacturer would still be subject to uncertain liability if the owner's rights to sue were subrogated to the insurer. Subrogation merely changes the party suing the manufacturer, and the manufacturer's liability would remain uncertain. This uncertain liability may disincentivise manufacturers from participating in the development of AV technology.

Lastly, users are not best placed to prevent software malfunctions as they have no knowledge of AVs' complex technology.¹⁴⁹ In contrast, manufacturers, who design and build AVs, *are* best placed to ensure the vehicles' safety.¹⁵⁰ Therefore, it does not make sense to place liability with the user.¹⁵¹ With regard to Duffy and Hopkins's argument, AVs should not be treated in the same way as dogs. Dogs are not created by a third party, whereas AVs are created by manufacturers who have the ability to affect and ensure their safety.

3 *No-Fault Scheme*

The most desirable method of regulating civil liability for personal injury and property damage in the AV context is a no-fault scheme. Thus, the current ACC scheme should apply to AV-related personal injury and a similar scheme should be enacted for AV-related property damage.

145 Duffy and Hopkins, above n 11, at 473.

146 Maurice Schellekens "No-fault compensation schemes for self-driving vehicles" (2018) 10 LIT 314 at 319.

147 At 319.

148 At 319.

149 Schroll, above n 120, at 816.

150 At 817.

151 At 817.

(a) What Sort of Model?

Lynden Griggs suggests AVs should be treated as a legal entity and there should be a presumption that the vehicle is at fault in the event of a crash.¹⁵² This presumption may be rebutted if the crash was caused by another factor such as the user's taking control of the vehicle. This would remove the need for a claimant to prove causation. There is scope for this idea in New Zealand as the definition of a legal entity has been expanded — for example, legislation has afforded Whanganui River a legal status of its own, Te Awa Tupua.¹⁵³ Griggs argues further that compensation should be paid out of a community-funded body to which money is contributed by industry stakeholders, AV users and the government.¹⁵⁴

Carrie Schroll discusses the possibility of a fund to which AV users and manufacturers contribute taxes proportionate to the benefit they receive from AVs.¹⁵⁵ Manufacturers' contributions to the fund would correlate with annual AV production rates, as the more AVs manufacturers put on the roads, the greater the risk becomes of an accident occurring. However, tax rates for a given manufacturer would increase based on the accident rate of the AVs it produced.¹⁵⁶ This would encourage manufacturers to ensure the safety of AVs to the highest degree possible. Users, on the other hand, would contribute through motor vehicle ownership taxes.¹⁵⁷

Another variation of a no-fault compensation scheme is the no-fault insurance model suggested by the Members of the European Parliament.¹⁵⁸ Under this model, it would be mandatory for the AV owner or operator or manufacturer to take out no-fault insurance for an AV.¹⁵⁹ Premiums would be paid jointly by the AV owner or operator and the manufacturer, ensuring that any personal injury or property damage caused by an AV would be properly compensated.¹⁶⁰ A fixed part would be paid by the manufacturer and a variable part by the AV owner or operator based on the car type, how safe it is and the mileage.¹⁶¹ The mandatory insurance would likely cover risk of harm to persons both inside and outside the AV.¹⁶² Further, the scope of the insurance cover could be either limited, covering only risks specifically associated with AV technology, or broad, covering other risks with the vehicle. The scope would be for the legislature to determine.¹⁶³

152 Griggs, above n 20, at 168.

153 Te Awa Tupua (Whanganui River Claims Settlement) Act 2017.

154 Griggs, above n 20, at 169.

155 Schroll, above n 120, at 823.

156 At 823.

157 At 823.

158 European Parliament, above n 112.

159 Evas, above n 95, at 112.

160 At 112.

161 At 115.

162 At 113.

163 At 113.

This article argues that a no-fault scheme involving a community fund — much like the ACC scheme — is the most desirable model to deal with liability for property damage caused by AVs. As Griggs suggests, there should be a rebuttable presumption that property damage arising from an AV accident is caused by the AV technology itself. Where the presumption is not rebutted, the victim of property damage should receive compensation from a community fund to which all concerned parties (AV users, the AV industry and the government) contribute. This model should follow the ACC scheme and require claimants to relinquish their entitlement to bring tortious proceedings in exchange for recovery under the scheme.¹⁶⁴ However, like the ACC scheme, exemplary damages should remain available to protect against outrageous misconduct within the AV industry.¹⁶⁵

Further, this article argues the current ACC scheme should cover personal injuries caused by AVs. The scheme is well-established and wide enough in scope to extend to the AV context. The current system pays victims of accident-related personal injury out of the Motor Vehicle Account, to which vehicle manufacturers do not currently contribute.¹⁶⁶ To ensure manufacturers bear some risk for AVs, the ACC scheme should be amended to impose taxes on manufacturers that contribute to the Account.

(b) The Advantages and Disadvantages of a No-Fault Community Scheme in Relation to Property Damage Caused by AVs

A no-fault scheme is advantageous for several reasons. First, it would foster innovation as manufacturers would be able to predict liability costs more accurately.¹⁶⁷ Further, consumers would benefit as compensation for property damage would be more accessible; they would not have to take costlier and more difficult routes such as litigation in negligence and product liability law.¹⁶⁸ Arguably, the scheme would be fair, as all parties who benefit from the technology would fairly and collectively assume the risk. Overall, the scheme would benefit both manufacturers and consumers, and facilitate the smooth deployment of AV technology. It removes the need to place blame on manufacturers and would ensure innocent victims are properly compensated.

In the alternative, it is arguable that liability should be borne by the manufacturer rather than the community as the prospect of liability can incentivise the manufacturer to take preventative safety measures.¹⁶⁹ However, the prospect of reputational damage in the event of an accident should be sufficient to encourage manufacturers to produce safe products, and government agencies will always monitor the fitness and safety of vehicles.

164 See Accident Compensation Act, s 317.

165 See s 319.

166 Section 213.

167 Schellekens, above n 146, at 329.

168 At 329–332.

169 Schroll, above n 120, at 817.

Maurice Schellekens argues reputational damage and government safeguards are not always a sufficient deterrent, citing the “Dieselgate” scandal as an example.¹⁷⁰ In 2015, German automotive company Volkswagen installed software in 11 million diesel vehicles to dupe regulatory pollution tests.¹⁷¹ The vehicles were programmed to activate emission controls during lab tests, but they emitted pollutants at a volume up to 40 times above acceptable levels in the United States once on the road.¹⁷² As a result of the scandal, the motor vehicle industry is now under significant scrutiny to comply with government standards.¹⁷³ However, this scrutiny, combined with the novel nature of AVs, makes it unlikely that AV manufacturers would risk their reputation by taking shortcuts. Further, as mentioned above, the community compensation scheme for property damage this article proposes would not exclude actions for exemplary damages. Thus, where a manufacturer’s conduct is particularly egregious, the manufacturer would not be able to avoid tortious liability.

Another potential issue with a no-fault compensation for AV-related property damage is whether there would be sufficient funds available. There is no method of accurately predicting the magnitude of property damage AVs will cause. However, such uncertainty does not make the scheme unworkable, nor does it outweigh the scheme’s benefits. Contributions to the compensatory fund could be reviewed and adjusted regularly to ensure the scheme can deal with anticipated payouts.

Overall, that victims would receive fair compensation and that manufacturers could still be held liable through actions for exemplary damages outweigh any negative factors. We cannot afford to slow down the deployment of this life-saving technology. Manufacturers will be incentivised to participate in the AV industry if their liability is predetermined and clear. Knowing the cost of liability for property damage will allow them to incorporate these costs into their prices. Further, AVs are a social good: they are a valuable and convenient form of transportation for society, so risk should be spread among the community.

IV PRIVACY

Privacy-infringing technology is already in widespread use in society. AV technology, however, amplifies privacy concerns as it presents a novel situation in which a vehicle is combined with a computer. The vehicle becomes a moving repository of private information about the user that is

170 Schellekens, above n 146, at 316.

171 “Mass ‘Dieselgate’ Suit Against Volkswagen Over Emission Cheating Scandal” (1 November 2018) NDTV <www.ndtv.com>.

172 Russell Hotten “Volkswagen: The scandal explained” (10 December 2015) BBC <www.bbc.com>.

173 Jim Saker *On the Road to Sustainable Growth: Boosting Electric Vehicles in the UK* (Institute of the Motor Industry, 2016) at 5.

constantly exchanging data with various networks and other vehicles.¹⁷⁴ Sufficient protection of privacy is needed in the AV context to ensure consumers have confidence embracing this new technology.¹⁷⁵ This section will discuss the protection of consumer informational privacy in the AV context.

Informational Privacy from Third Parties

The vehicle's computer system collects a range of information including the vehicle's location, past travel patterns and video and audio recordings of conversations. This information can indicate a user's activities and personality.¹⁷⁶ Personal data collected by the system is susceptible to commercial exploitation by third parties in several ways.

First, an AV provides a wealth of detail on its user's travel patterns, which may indicate their habits and preferences. The data could be used to develop a user profile and sold to marketers for targeted advertising based on driving or purchasing habits.¹⁷⁷ Secondly, AV data may be used by insurance companies to make inferences about a person and discriminate against them. For example, a medical insurer could track insured persons who make regular visits to a clinic, make inferences about their health and update their premium accordingly.¹⁷⁸ Thirdly, hackers may break into an AV to obtain personal data for malicious purposes,¹⁷⁹ or gain control over the vehicle's behaviour. This may lead to potentially serious consequences.¹⁸⁰ Potential privacy breaches are problematic as they may discourage people from embracing AV technology.

New Zealand's Framework

1 Legislation

The New Zealand government has not enacted any AV-specific privacy laws. However, the Privacy Act 1993 includes 12 information privacy principles governing the handling of personal data by private and public agencies.¹⁸¹ These principles concern information that is personal — that is, information

174 Dorothy J Glancy "Privacy in Autonomous Vehicles" (2012) 52 Santa Clara L Rev 1171 at 1180.

175 Hazel Si Min Lim and Araz Taeihagh "Autonomous Vehicles for Smart and Sustainable Cities: An In-Depth Exploration of Privacy and Cybersecurity Implications" (2018) 11 Energies 1062 at 1068.

176 Joshua Schoonmaker "Proactive privacy for a driverless age" (2016) 25 Info & Comm Tech L 96 at 119.

177 William J Kohler and Alex Colbert-Taylor "Current Law and Potential Legal Issues Pertaining to Automated, Autonomous and Connected Vehicles" (2015) 31 Santa Clara High Tech LJ 99 at 122.

178 Peter J Pizzi "Connected Cars and Automated Driving: Privacy Challenges on Wheels" (2017) 84 DCJ 1 at 6.

179 Lim and Taeihagh, above n 175, at 1068.

180 Glancy, above n 174, at 1180.

181 Section 6.

relating to an identifiable individual.¹⁸² Much of the data collected by an AV may not be anonymised, making it potentially attributable to the user.¹⁸³ Some sensors may collect highly personal information such as facial or voice recognition data and even biometric information such as data regarding the user's health, emotions and behaviour.¹⁸⁴

The information privacy principles impose certain requirements and restrictions on AV manufacturers:¹⁸⁵

- Principle 3 requires AV manufacturers to be transparent with users about their intentions in collecting personal information.
- Principle 5 requires AV manufacturers to safeguard the central computer system sufficiently against unauthorised access by third parties.
- Principle 10 prevents AV manufacturers from marketing or target advertising to users using personal data collected unless prior authorisation from the user has been obtained.
- Principle 11 prevents AV manufacturers from transmitting personal data collected to third parties except where user consent has been obtained.

Where one of the principles has been breached, the individual can make a claim to the Privacy Commissioner, who determines whether the breach amounts to an interference with privacy.¹⁸⁶ There will be an interference with privacy where there is breach of an information privacy principle that results in loss, adversely affects the rights of the individual or causes significant humiliation or injury to feelings.¹⁸⁷

Under the current Privacy Act, the Privacy Commissioner's remedial powers are quite limited in respect of deterring wrongdoers. Fortunately, the Privacy Bill (at the time of publication making its way through Parliament) proposes to strengthen the Commissioner's powers.¹⁸⁸ The Bill, while retaining the privacy principles, will enable the Commissioner to respond more effectively and prevent privacy breaches in the AV context in several ways. First, the Bill will require an AV manufacturer to notify the user and the Commissioner in the event of a data breach.¹⁸⁹ This will put pressure on AV manufacturers to maximise privacy protections. Secondly, the Bill will

182 Section 2(1) definition of "personal information".

183 Ivan L Sucharski and Philip Fabinger "Privacy in the Age of Autonomous Vehicles" (2017) 73 Wash & Lee L Rev Online 724 at 732.

184 Anthony Jones "Autonomous Cars: Navigating the Patchwork of Data Privacy Laws That Could Impact the Industry" (2016) 25 Cath UJL & Tech 180 at 193.

185 Privacy Act, s 6.

186 Sections 67 and 69.

187 Section 66(1).

188 Privacy Bill 2018 (34-2).

189 Clause 119.

make it an offence for an AV manufacturer to fail to notify the Commissioner of a privacy breach without reasonable excuse.¹⁹⁰ This offence will carry fines of up to \$10,000.¹⁹¹ This will hold manufacturers accountable for privacy breaches. Thirdly, the Bill will permit the Commissioner to issue a compliance notice requiring an AV manufacturer to carry out or stop an action.¹⁹²

2 Common Law

The privacy torts in New Zealand exist alongside the Privacy Act and provide another avenue of relief.¹⁹³ This section will discuss their applicability in the AV context.

The tort of public disclosure of private facts requires, first, the existence of facts to which there is a reasonable expectation of privacy and, secondly, that publicity of those facts would be considered highly offensive to an objective, reasonable person.¹⁹⁴

This tort does not generally extend to activities occurring in public places as there is no reasonable expectation of privacy.¹⁹⁵ Given an AV travels on public roads and is visible to others in the area, it arguably lacks the privacy commonly associated with, for example, a home. However, it is arguable that the focus should be not only on the public or private nature of the location, but also on the circumstances and type of data. In *Andrews v Television New Zealand Ltd*, the High Court found that the communication between victims of a motor accident on a public road was of a personal and intimate nature and was therefore private.¹⁹⁶ This means some intimate and private conversations occurring in a public place may have a reasonable expectation of privacy.

Public disclosure of the private facts must be highly offensive to the reasonable person. In *Hosking v Runting*, Gault and Blanchard JJ noted that “[t]he concern is with publicity that is truly humiliating and distressful or otherwise harmful to the individual concerned.”¹⁹⁷ Thus, the tort has a high threshold. Some disclosures, while breaching a reasonable expectation of privacy, may not be protected under the tort due to lack of offensiveness. However, some situations relating to AVs may be covered; for example, where audio conversations and travel patterns are shared, enabling the public

190 Clause 122.

191 Clause 122(1).

192 Clause 124.

193 See Ursula Cheer and Stephen Todd “Invasion of Privacy” in Stephen Todd (ed) *Todd on Torts* (8th ed, Thomson Reuters, Wellington, 2019) 977 at [17.3].

194 *Hosking v Runting* [2005] 1 NZLR 1 (CA) at [117].

195 Rosemary Tobin “The Common Law Tort of Invasion of Privacy in New Zealand” in Stephen Penk and Rosemary Tobin (eds) *Privacy Law in New Zealand* (2nd ed, Thomson Reuters, Wellington, 2016) 89 at 100–101; and Stephen Penk “Future Directions and Issues” in Stephen Penk and Rosemary Tobin (eds) *Privacy Law in New Zealand* (2nd ed, Thomson Reuters, Wellington, 2016) 429 at 452–455.

196 *Andrews v Television New Zealand Ltd* [2009] 1 NZLR 220 (HC) at [65].

197 At [126].

to make inferences regarding a person's sexual relations or political associations.

Finally, the tort requires disclosure of the facts to the public. Case law has generally indicated that disclosure to the general public is not required; rather, the disclosure must be to a number of people.¹⁹⁸ This makes it likely that disclosure of personal AV data to advertisers would constitute publicity for the purposes of the tort.

A second privacy tort in New Zealand is the tort of intrusion into seclusion, as recognised by the High Court in *C v Holland*.¹⁹⁹ This tort requires there to be an intentional and unauthorised intrusion into seclusion where there is a reasonable expectation of privacy, and the intrusion to be highly offensive to a reasonable person.²⁰⁰ Seclusion refers to an individual's personal activity, space or affairs.²⁰¹ This tort may provide recourse in circumstances where information collected by or communications occurring in an AV are obtained by hackers but not necessarily published. It is questionable whether the inside of a vehicle constitutes a place of seclusion. However, it is arguable that autonomous control changes the nature of a vehicle and makes the privacy associated with it more akin to that of a home. Lisa Collingwood points out that the vehicle becomes a place of entertainment or relaxation as the driving task is no longer necessary.²⁰² Manufacturers may also design AVs in a way that increases seclusion by reducing or eliminating windows.²⁰³ Again, however, the requirement of high offensiveness limits the applicability of the tort and it may not extend to all data breaches associated with AVs.

Finally, there is the tort of breach of confidence, where information is disclosed to a person in confidence and that person fails to keep the information private and publishes or communicates it without authorisation.²⁰⁴ This tort may provide recourse to AV users where they have allowed the AV — and thus the AV manufacturer — to collect confidential information and the manufacturer has communicated that information to other third parties without authorisation.

International Frameworks and Developments

1 *United States*

The Security and Privacy in Your Car Act of 2019, or the SPY Car Act of 2019, is a Bill that aims to increase cybersecurity and privacy protections of

198 *L v G* [2002] NZAR 495 (DC) at 502; and *Brown v Attorney-General* [2006] DCR 630 at [77].

199 *C v Holland* [2012] NZHC 2155, [2012] 3 NZLR 672.

200 At [94].

201 At [94].

202 Lisa Collingwood "Privacy implications and liability issues of autonomous vehicles" (2017) 26 *Info & Comm Tech L* 32 at 39.

203 At 39.

204 Cheer and Todd, above n 193, at [17.2.01(5)].

vehicles.²⁰⁵ The Bill proposes rules governing the collection and use of data from vehicles.²⁰⁶ It seeks to protect user privacy by allowing users to refuse data collection and retention — and ensuring their refusal does not limit their access to the vehicle’s features and services— and requiring user consent for manufacturers to use personal data for advertising or marketing purposes.²⁰⁷

The Safely Ensuring Lives Future Deployment and Research In Vehicle Evolution Act, or the SELF DRIVE Act,²⁰⁸ was a Bill introduced in 2017 that failed to pass Congress.²⁰⁹ The Bill addressed privacy concerns relating to AVs and would have required AV manufacturers to implement a privacy plan before putting an AV on the market.²¹⁰ The privacy plan would have needed to include written information about the collection, use and storage of non-anonymised or non-encrypted information from the AV, and a method for informing AV users about the privacy policy.²¹¹

Some states have passed regulations relating to information privacy in the AV context. California, for example, requires AV manufacturers to provide consumers with written disclosures as to what information they intend to collect.²¹² The California Consumer Privacy Act of 2018 requires data collectors to disclose to consumers what personal information they have collected and shared, and gives consumers the right to decline to have their data sold.²¹³

2 *European Union and United Kingdom*

In April 2016, the European Union ratified the General Data Protection Regulation (GDPR).²¹⁴ The GDPR applies to both public and private sector entities dealing with data from people within the European Union.²¹⁵ The GDPR aims to provide customers with stronger privacy protections by imposing stricter conditions on companies in obtaining customer consent and dealing with personal data.²¹⁶ It requires, for example, that all information held about a person be promptly provided to them upon request.²¹⁷

205 Security and Privacy in Your Car Act of 2019 S 2182 116th Cong (2019). The Bill is the revival of the Security and Privacy in Your Car Act of 2017 S 680 115th Cong (2017), which failed in the previous Congress.

206 Section 4.

207 Section 4; and see Lim and Taihagh, above n 175, at 1071.

208 Safely Ensuring Lives Future Deployment and Research In Vehicle Evolution Act HR 3388 115th Cong (2017).

209 Chris Teale “Federal AV legislation to go no further in Congress” (21 December 2018) Smart Cities Dive <www.smartcitiesdive.com>.

210 Section 12.

211 Section 12(a)(1)–(2).

212 Cal Veh Code § 38750.

213 California Consumer Privacy Act of 2018 Cal Civ Code, title 1.81.5 § 1798.100.

214 Danny Palmer “What is GDPR? Everything you need to know about the new general data protection regulations” (17 May 2019) ZDNet <www.zdnet.com>.

215 Lim and Taihagh, above n 175, at 1068.

216 At 1068.

217 Mothi Venkatesh “What does the GDPR really mean for Autonomous Vehicle Industry” (11 May 2018) Playment Blogs <<https://blog.playment.io>>.

In the United Kingdom, it is unclear whether there is a reasonable expectation of privacy in relation to an AV at common law. In *Campbell v MGN Ltd*, the House of Lords found that privacy can exist even in relation to activities in a public area.²¹⁸ The Court ruled that publication of photographs of the plaintiff while she was leaving a rehabilitation centre breached her privacy. This seems to indicate that a reasonable expectation of privacy may exist in relation to intimate facts about a person, even if those facts are obtained in a public area.

Reform Options

1 *Current Privacy Principles Are Suitable for AV Data Protection*

New Zealand's current data protection framework is sufficient to protect informational privacy in the AV context. The privacy principles in the Privacy Act are open-ended and broad and impose clear obligations on holders of personal information collected from AVs. The principles require user consent in the collection and dealing of information by the AV. They restrict the misuse of information by third parties unless individual authorisation is given. AVs are still at the introductory stage, and it may not be until their full implementation that the actual risks, and the magnitude of those risks, are realised. It would be unwise to legislate too early. Further, the Privacy Bill proposes to give the Privacy Commissioner greater power in responding to privacy breaches. This increased power will aid the Privacy Commissioner to protect user privacy better in the AV context and disincentivise manufacturers from engaging in poor data security practices.

2 *Privacy Plan*

New Zealand should consider implementing regulations similar to the privacy aspects of the SELF DRIVE Act. Though that Bill did not progress further than the United States House of Representatives, the privacy requirements it proposed would be valuable to New Zealand. Under those requirements, AV manufacturers would need to develop a privacy plan for their vehicles before putting them on the market. This would force manufacturers to consider proactively the protection of AV users' privacy and the course of action to be taken in the event of breach.

3 *Encouraging Proactivity*

The New Zealand government encourage a proactive approach to protecting privacy in the AV context. This may take the form of mandatory guidelines. *Privacy by Design* is a proactive approach where privacy is considered and

218 *Campbell v MGN Ltd* [2004] UKHL 22, [2004] 2 AC 457 at [75].

incorporated into the design process of technology.²¹⁹ The focus is on preventative measures rather than remedial measures.²²⁰

In the AV context, this would involve manufacturers' implementation of preventative and proactive measures to provide reasonable security against unauthorised breaches.²²¹ It would also involve data minimisation based on what is necessary for legitimate business purposes,²²² with clear communication of these purposes to the user.²²³ Transparency is essential for consumer trust as it allows data holders to be held accountable.²²⁴ A *Privacy by Design* approach puts privacy issues at the forefront of AV manufacturers' minds.

4 The Privacy Torts Provide Some Limited Recourse but Should Not Be Broadened

The privacy torts in New Zealand are not completely suitable for the AV context as they are quite narrow in application. The requirements of *public disclosure* and that disclosure be *highly offensive to a reasonable person* mean some information collected by AVs and disclosed to advertisers will not be covered by the torts. The torts may, however, provide relief in instances of hacking and malicious disclosure to the public. Overall, it would be undesirable for the courts to broaden these privacy torts to protect data in the AV context. Doing so would be unnecessary and have wide implications on other areas of privacy. The protection provided by the Privacy Act is sufficient when it comes to misuse of data by private companies. Further, complaining to the Privacy Commissioner under the Privacy Act for breach of data sharing rules is an easier and less costly route than litigating.

5 The Issue of Consent in the Digital Age

Perhaps the more pressing privacy-related issue is whether the nature of consent underlying privacy laws is *informed consent*. AVs will change the nature of travel and collect significant volumes of data. Although some data collected may be anonymised, a large amount will be reasonably attributable to an identifiable user.²²⁵ Today, information sharing is difficult to comprehend,²²⁶ and most people tend to focus on the prospect of gaining access to useful technology. This means they often agree to terms and

219 Ann Cavoukian *Privacy by Design: The 7 Foundational Principles — Implementation and Mapping of Fair Information Practices* (Office of the Information and Privacy Commissioner of Ontario, 2009) at 1.

220 At 2.

221 Schoonmaker, above n 176, at 121.

222 At 124.

223 Cavoukian, above n 219, at 2.

224 At 4.

225 Sucharski and Fabinger, above n 183, at 732.

226 At 728.

conditions without reading them. Even if consumers were to contemplate the contractual terms, the likely use of contracts of adhesion by AV manufacturers would leave consumers with little bargaining power.

These issues create a strong need for AV manufacturers to provide transparent and easily understood privacy policies so consumers can comprehend their privacy rights in a meaningful manner. The policies need to be clear about what data is being collected, what its use will be and with whom it will be shared, and that the consumer has the ability to opt out. This will enable consumers to feel empowered and in control of their personal privacy and, as a result, they will be more willing to embrace AV technology.

V CONCLUSION

AV technology is developing fast. It will revolutionise road safety and the way society travels. This article has argued that the current liability frameworks of negligence and acceptable quality standards are inadequate to allocate liability for property damage caused by AVs. The complex nature of AV technology and its contributions to road safety make it undesirable to use liability and the associated stigma as a deterrence for manufacturers. This article proposes that a scheme similar to the ACC scheme for personal injury should be developed for property damage caused by AVs. This scheme would be funded by AV manufacturers, users and the government. It would provide AV manufacturers with certainty as to liability costs and give consumers confidence through the granting of fair and efficient compensation. Because AVs will benefit the whole of society, it makes sense to spread risk throughout the community. Further, the prospect of damage to reputation would incentivise AV manufacturers to build safe vehicles. There would remain a right to bring action for exemplary damages in egregious cases, and standards would be imposed by the government.

This article has also argued that the current privacy framework adequately deals with the privacy implications of AV technology due to its broad nature. The government, however, should encourage AV manufacturers to adopt a *Privacy by Design* approach and pass regulations requiring manufacturers to implement a privacy plan before a vehicle is allowed on the market. The government should also stress the importance of transparency and the need for consent to be informed in the handling of personal data.

This article has demonstrated that the liability and privacy issues AVs create are unprecedented and in need of an effective legal response. New Zealand needs to decide how best to regulate this revolutionary technology, as its arrival on our roads is imminent.