

A PROPOSED LIABILITY REGIME FOR AUTONOMOUS VEHICLES IN INSTANCES OF PERSONAL LIABILITY AND DEATH

<https://doi.org/10.29053/pslr.v16i1.4504>

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Abstract

This article aims to determine the most appropriate liability regime for accidents caused by Autonomous Vehicles (AVs) resulting in personal injury or death. The motivation for this research lies in the fact that AVs are currently not adequately regulated within South African legislation. Seeing as the regulation of AVs should begin sooner rather than later, it is essential to examine the capability of the Road Accident Fund (RAF) to provide for AVs and consider other possible liability regimes. The article will focus on the RAF Act and the possibility of including the definition of AVs under section 1 thereof. The RAF Act currently defines a motor car as a motor vehicle designed or adapted for the conveyance of not more than ten persons, including the driver. The article will analyse the Civil Aviation Act (Aviation Act) to propose a regime where the owners of AVs are required to have private insurance. Section 8(5) of the Aviation Act will form the basis for the proposed regime change as this section holds that a registered owner or operator of an aircraft must have insurance as prescribed for any damage or loss that is caused by an aircraft to any person or property on land or water.

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1 Introduction

Autonomous vehicles ('AVs'), also known as self-driving cars, are becoming more prevalent as we adopt new and advancing technologies within the world of transportation. Many automotive manufacturers, such as Daimler, believe autonomous driving will become 'a vital part of the mobility of the future'.¹

With the increasing use of AVs on South African roads, one would assume that policymakers and legislatures have adopted regulations to govern the use and liability of AVs in the event of personal injury and death. Unfortunately, the South African legislature as well as policymakers worldwide are currently overwhelmed by fast-changing and evolving technologies to such an extent that they respond reactively, as opposed to proactively.²

Currently, the Road Accident Fund Act ('RAF Act')³ and the Road Accident Fund Amendment Act ('RAF Amendment Act')⁴ provide for the Road Accident Fund ('RAF') to cover the loss or damage caused by negligent driving on South African roads. Loss or damage in this context is limited to patrimonial loss resulting from injuries and non-patrimonial loss.⁵ The latter is limited to accommodating claims from accident victims only in cases of serious injuries.⁶ These strict legislative measures fail to sufficiently limit the RAF's financial liabilities, and the increase in claims, coupled with rife fraud and incompetence, has led to the RAF's bankruptcy.⁷ The RAF is insolvent; the liabilities of the fund exceed its assets by around R 262 billion.⁸ The fund has sought to change its operational model to save litigation fees by handling claims in-house. However, the retaliation from the legal firms who served on the RAF's legal panel could cost the RAF further unnecessary expenditure as they seek to liquidate the fund and sell its movable property to enforce payments.⁹

1 'Automated and Autonomous driving. Legal framework' <https://www.daimler.com/innovation/case/autonomous/legal-framework.html> (accessed 24 September 2020).

2 G Mordue and others 'The looming challenges of regulating high level autonomous vehicles' (2020) 132 *Transportation Research Part A: Policy and Practice* at 174-175.

3 Road Accident Fund Act 56 of 1996 (the RAF Act).

4 Road Accident Fund Amendment Act 19 of 2005 (the RAF Amendment Act).

5 The RAF Act (n 3) secs 17(1) & 17(4).

6 The RAF Act (n 3) secs 17(1)(b) & 17(1A).

7 T Broughton *Daily Maverick* 'Damning judgment: Court calls for Road Accident Fund to be liquidated' 17 November 2020 <https://www.dailymaverick.co.za/article/2020-11-17-damning-judgment-court-calls-for-road-accident-fund-to-be-liquidated/> (accessed 3 April 2020).

8 L Claasen 'Move to shut down Road Accident Fund' 4 September 2020 <https://www.moneyweb.co.za/news/south-africa/move-to-shut-down-road-accident-fund/> (accessed 25 September 2020).

9 *Business Insider SA* 'Road Accident Fund says lawyers are refusing to hand over 183,000 cases' 21 July 2020 <https://www.businessinsider.co.za/claims-road-accident-fund-2020-7> (accessed 13 February 2021).

Because of the abovementioned concerns, it would be unwise to add AVs to the already struggling RAF scope. Thus, a new liability regime should be considered to regulate AVs, specifically. This article will focus on the capability of the RAF to include losses caused by AVs, and the possibility of a regime that explicitly regulates AVs.

2 Autonomous vehicles and their potential effect on South African roads

2.1 Defining ‘autonomous vehicles’

Undoubtedly, the latest innovations and technological developments have drastically transformed the automotive industry. One of these innovations is the development of ‘self-driving’ cars or AVs. According to the electronic design automation company Synopsys, an AV is a vehicle capable of sensing its surrounding environment and operating without human intervention.¹⁰ A human is not required to take control of the vehicle, and the AV can do what a qualified human driver could do.¹¹

The International Society of Automotive Engineers (‘SAE’) uses the ‘Levels of Driving Automation’ standard to describe the degree of automation of a vehicle.¹² There are currently six levels of automation ranging from Level 0 to Level 5. This article will focus on driving automation levels 3 to 5, where the automated system monitors the driving environment and requires little or no human interaction. These levels can be described as follows:¹³

Level 3 – Conditional Automation: The vehicle can drive autonomously and perform most driving tasks, but the driver would always be able to intervene and take control of the vehicle.

Level 4 – High Automation: The vehicle can perform all driving tasks under specific circumstances, but the driver has an option to override and take control of the vehicle.

Level 5 – Full Automation: The vehicle will perform all the driving tasks under all conditions, and zero human attention or interaction is

10 Synopsys ‘What is an autonomous car?’ <https://www.synopsys.com/automotive/what-is-autonomous-car.html#:~:text=An%20autonomous%20car%20is%20a%20vehicle%20capable%20of,to%20be%20present%20in%20the%20vehicle%20at%20all> (accessed 6 March 2021).

11 As above.

12 SAE International ‘SAE International releases updated visual chart for its “levels of driving automation” standard for self-driving vehicles’ 11 December 2018 <https://www.sae.org/news/press-room/2018/12/sae-international-releases-updated-visual-chart-for-its-%E2%80%9Clevels-of-driving-automation%E2%80%9D-standard-for-self-driving-vehicles> (accessed 6 March 2021).

13 P Coppola & F Silvestri ‘Autonomous vehicles and future mobility solutions’ in P Coppola & D Esztergár-Kiss (eds) *Autonomous vehicles and future mobility* (2019) at 4.

required. However, the driver may have an option to take control of the vehicle.

An AV will only be termed ‘autonomous’ if the vehicle’s automated system can do all driving tasks in all driving environments – thus level 5 and above.¹⁴ Most AVs will be equipped with advanced communication technologies, enabling them to communicate and exchange information with other AVs, allowing for autonomous functioning.¹⁵ Thus, if a vehicle is equipped with driving functions such as localisation, planning, control, management, and perception, the vehicle may be referred to as an AV.¹⁶

2.2 The possible effect of AVs on South African roads

The development of AVs is happening fast, and the commercial use of AVs is to be expected in the near future. Car manufacturers such as Volvo are running ongoing tests on their software for AVs on Swedish highways. The first phase for introducing AVs to the international market commenced in 2021.¹⁷ As of 2022, Volvo introduced their Level 3 autonomous driving system called ‘Ride Pilot’ which allows the vehicle to drive without input from the owner.¹⁸ Similarly, Google started their development of AVs in 2009, and as of 2020, the Google AV fleet, Waymo, has driven 20 million miles (32186880 kilometres) autonomously on public roads in 25 cities.¹⁹ These developments show that the AV is becoming a reality. According to the marketing firm Allied Business Intelligence (‘ABI’), there could be around 8 million AVs on the roads by 2025.²⁰

14 A Faisal et al ‘Understanding autonomous vehicles: a systematic literature review on capability, impact, planning and policy’ (2019) 12 *The Journal of Transport and Land Use* at 49.

15 Faisal et al (n 14) 49.

16 Faisal et al (n 14) 55.

17 E Vaish Automotive news Europe ‘Volvo’s self-driving car venture gets approval to test on Swedish roads’ 28 January 2019 <https://europe.autonews.com/automakers/volvos-self-driving-car-venture-gets-approval-test-swedish-roads> (accessed 10 March 2021).

18 Tina Pavlik ‘When Volvo will have its first autonomous vehicle might surprise you’ 12 February 2022 <https://www.motorbiscuit.com/volvo-first-autonomous-vehicle-might-surprise/> (accessed 13 October 2022).

19 K Wiggers *VentureBeat* ‘Waymo’s autonomous cars have driven 20 million miles on public roads’ 6 January 2020 <https://venturebeat.com/2020/01/06/waymos-autonomous-cars-have-driven-20-million-miles-on-public-roads/> (accessed 10 March 2021).

20 ABI Research ‘ABI Research forecasts 8 million vehicles to ship with SAE Level 3, 4 and 5 Autonomous Technology in 2025’ 17 April 2018 <https://www.abiresearch.com/press/abi-research-forecasts-8-million-vehicles-ship-sae-level-3-4-and-5-autonomous-technology-2025/> (accessed 10 March 2021).

The question then is, what are the possible effect of having AVs on our roads? The anticipated benefits of AVs include less traffic congestion, reduced travel times, lower carbon dioxide emissions and possibly lower insurance rates.²¹ However, these benefits will only occur if proper planning interventions exist to introduce AVs on South African roads.

We must accept that there will still be a mix of traditional vehicles and AVs on the roads – especially as AVs are gradually introduced. A study that tested the effect of AVs in real-life traffic situations showed that the overall traffic flow did not become more effective in the transition period where both AVs and traditional vehicles used the road simultaneously.²² However, it is bound to improve as the share of ordinary human drivers decreases.²³ Still, there is a concern about how AVs will behave and respond in unexpected situations on South African roads, i.e. safely navigating around potholes without putting the public or passengers at risk.

The South African road infrastructure might also require new design criteria. For instance, the lateral and longitudinal capacity and lane width might need to be changed by the South African National Roads Agency (SANRAL). Factors to take into account are lane keeping, platooning, and more accuracy in maintaining lateral alignment.²⁴ The implementation of AVs might also significantly impact the minibus taxi and transport industry in South Africa. Traditional car ownership might be discouraged because it could be much more cost-effective and easier to use a driverless taxi or car-sharing program, such as Uber or Bolt. This reduction in travel costs will be achieved at the expense of individuals employed in the transport sector, like taxi or bus drivers.²⁵

When looking at the future of AVs on South African roads, one must also assess the possibility of mandatory third-party vehicle insurance, which this article aims to do. Using a car with a totally new type of technology poses an inherent risk for the owner and others. This risk extends to the use of AVs. It is suggested that the owner of an AV bears the responsibility of any consequences that may flow from using the vehicle equipped with a new type of driving technology. The AV owner takes the risk to use a new type of vehicle on the same road used by other conventional motor vehicles. As such, the owner should share this responsibility with other people in the country who take the

21 T Verster & E Fourie 'The good, the bad and the ugly of South African fatal road accidents' (2018) 114 *South African Journal of Science* at 67.

22 E Olausson Ryeng et al 'Traffic flow with autonomous vehicles in real-life traffic situations' in Coppola & Esztergár-Kiss (n 13) 40.

23 Olausson Ryeng et al (n 22) 40.

24 B Walker Smith 'Managing autonomous transportation demand' (2012) 52 *Santa Clara Law Review* at 1412.

25 Faisal et al (n 14) 56.

same risk.²⁶ This does not mean that the owners of AVs did something wrong or blameworthy but that it is their responsibility to bear the burden and not rely on the Road Accident Fund. This responsibility should take the form of mandatory insurance for AV users or owners.²⁷

3 The Road Accident Fund Act and autonomous vehicles

3.1 The scope and intent of the Road Accident Fund Act 56 of 1996

The RAF Act repealed the Multilateral Motor Vehicle Accident Fund Act of 1989²⁸ ('MMF Act'), save for the sections provided for by section 28 of the RAF Act.²⁹ In this section, all claims before 1 May 1997 must be dealt with as if the MMF Act had not been repealed.³⁰ Thus, the MMF Act applied to the claims that arose before 1 May 1997.³¹ The RAF Act contains 29 sections. Section 1 deals with the definitions, while sections 2 to 16 contain objectives and operational aspects. Sections 2-16 also deal with the succession of the MMF Act. Sections 16 to 29 contain the material provisions related to liability, exclusion of liability and other related matters.³²

The RAF Act provides for the creation of a statutory fund, namely, the Road Accident Fund ('RAF'). Claims against the RAF are financed by fuel levies, as prescribed by the Act.³³ Section 3 of the RAF Act states that the object of the fund is the payment of compensation per the provisions of the RAF Act for the loss or damage that was wrongfully caused by the driving of motor vehicles.³⁴ The RAF does not cover material damages claims, such as the repair of the vehicle, but covers claims for injury and death as a result of such a vehicle crash.³⁵ Kempen argues that the RAF thus provides the country and its economy with a social security safety net in the sense that the RAF compensates drivers of motor vehicles, passengers and other

26 A Hevelke & J Nida-Rümelin 'Responsibility for crashes of autonomous vehicles: An ethical analysis' (2015) 21 *Science and Engineering Ethics* at 626.

27 As above.

28 Multilateral Motor Vehicle Accident Fund Act 93 of 1989.

29 HB Klopper *The law of third-party compensation: In terms of the Road Accident Fund Act 56 of 1996* (2012) para 5.1.

30 Klopper (n 29) para 5.2.

31 As above.

32 Klopper (n 29) para 5.2.2.

33 Klopper (n 29) para 5.3.

34 Klopper (n 29) para 6.2.

35 A Kempen 'The story of the Road Accident Fund – it's about more than money ... it's about making a difference' (2020) 113 *Servamus Community-Based Safety and Security Magazine* at 10.

members of society, including the poor, children and foreigners visiting the Republic, for loss or damage.³⁶ This is essential because most of the South African population would not be in a position to pay for damages caused by negligent driving.³⁷ This would have left the injured parties and the wrongdoer in a position where no money could be paid to help with the consequences of the incident, such as an inability to work or expensive medical bills.

The RAF Act exists for the benefit and protection of the victims of motor vehicle accidents, and not to protect motor vehicle drivers or owners who have acted unlawfully or with negligence.³⁸ Claiming in terms of the RAF Act is limited to a driver, passenger, pedestrian, motorcyclist, cyclist or a dependent of a deceased person who was involved in an accident – except when the injured or deceased person is fully to blame for the accident.³⁹ It should also be noted that the RAF only considers a claim for general damages if a road accident is the direct cause of a severe injury.⁴⁰

3.2 Defining ‘motor vehicle’ under the RAF Act

3.2.1 Interpretation of section 1 of the RAF Act

When interpreting the provisions of the RAF Act, the interpretation is usually extensive so as to afford the third party the broadest possible protection, that is, in favour of the liability of the RAF.⁴¹ One of the primary considerations to consider when ambiguity or doubt exists is the object of the Act.⁴²

The South African courts adopted this view when they interpreted the predecessor of the RAF Act, namely the ‘MMF Act’, and the RAF Act, respectively.⁴³ Klopper believes that in order to interpret the provisions of the RAF Act, you would have to also determine to what degree the said provisions are *in pari materia* with its predecessors, that is, to what extent does the provision in the RAF Act relate to provisions on the same subject matter in the MMF Act.⁴⁴ This interpretative method should then be followed when interpreting

36 As above.

37 *BusinessTech* ‘Drunk and negligent drivers could be paid out along with victims under new accident claims laws’ <https://businesstech.co.za/news/motoring/199424/drunk-and-negligent-drivers-could-be-paid-out-along-with-victims-under-new-accident-claims-laws/> (accessed 12 October 2022).

38 Klopper (n 29) para 6.3.

39 Claims ‘Road Accident Fund FAQ’ <https://claims.co.za/road-accident-fund/raf-faq/> (accessed 22 August 2021).

40 Claims ‘Road Accident Fund: How to claim’ <https://claims.co.za/road-accident-fund/how-to-claim/> (accessed 22 August 2021).

41 Klopper (n 29) para 6.3.

42 As above.

43 Multilateral Motor Vehicle Accident Fund Act 93 of 1989; Klopper (n 29) para 6.4.

44 Klopper (n 29) para 6.4.

current provisions of the MMF Act and the RAF Act, while also adhering to the principle that the interpretation ought to be extensive to afford the broadest protection possible.⁴⁵

Although the South African courts usually follow a comprehensive approach, they have, from time to time, deviated from this approach and followed a more restrictive interpretation. An example of the latter is to be found in the matter of *Road Accident Fund v Vogel*.⁴⁶ In this case, the court had to decide on whether a mobile Hobart ground power unit supplying electricity to a jumbo jet aircraft while on the ground qualified as a ‘motor vehicle’, as defined in section 1 of the RAF Act.⁴⁷

One of the essential elements of a third-party claim is that a specific instrument must cause bodily injury or death.⁴⁸ The claim in respect of the RAF is restricted to driving a motor vehicle, and if another object causes bodily injury or death, there will be no third-party claim.⁴⁹ However, in the latter situation, the option of a claim in terms of the common law principles of delict would be available to the injured party.

The RAF Act defines a ‘motor vehicle’ in section 1 of the Act. This statutory definition provides us with two possible elements to assess when determining whether something would qualify as a ‘motor vehicle’ for the purposes of the Act.⁵⁰ The first element is that the vehicle has to be propelled using fuel, gas or electricity.⁵¹ The second element is that the motor vehicle is designed or adapted for propulsion or haulage on the road and includes objects such as trailers, caravans or any other implement designed to be drawn by a motor vehicle.⁵² The second element, design, will only be realised if the instrument is objectively examined and if the ‘instrument’ was adapted for general use on the roads while also meeting the requirements for features that would sufficiently qualify it as a motor vehicle.⁵³

The court in the *Vogel* case had to decide whether the item in question, the mobile Hobart ground power unit, would comply with the design element in section 1 of the RAF Act.⁵⁴ The court decided to apply the test formulated in the case of *Chauke v Santam Ltd*.⁵⁵

45 As above.

46 2004 (5) SA 1 (SCA) (*Vogel* case).

47 M Mokotong ‘Third Party Compensation Law: Definition of a “motor vehicle” in terms of section 1 of the Road Accident Fund Act 56 of 1996’ (2006) 47 *Codicillus* at 82.

48 Mokotong (n 47) 81.

49 As above.

50 As above.

51 The RAF Act (n 3) sec 1(xi).

52 As above.

53 Mokotong (n 47) 81.

54 Mokotong (n 47) 82.

This test proposes that the word ‘designed’ in the definition of a ‘motor vehicle’ entails both an objective and a subjective test.⁵⁶ These tests can assist in determining whether an AV will fall under the definition of a ‘motor vehicle’ as contemplated by section 1 of the RAF Act. The subjective test holds that one should examine ‘the purpose for which the vehicle was conceived and constructed’.⁵⁷ The objective test is when ‘a reasonable person would see its ordinary, and not some fanciful, use on a road’.⁵⁸

The court in *Vogel* applied the above tests. It concluded that the item’s objective suitability for use is the ultimate yardstick for determining whether an item in question qualifies as a ‘motor vehicle’ as defined in section 1 of the Act.⁵⁹ Based on the above criteria, the court in *Vogel* concluded that a mobile Hobart ground power unit was not a motor vehicle as defined by section 1 of the RAF Act.⁶⁰

3.2.2 *Would an AV fall under the definition of ‘motor vehicle’ as per section 1 of the RAF Act?*

One issue with the implementation of AVs on South African roads is that there is no clear and specific set of rules that deal with the unique challenges for establishing liability in an AV accident.⁶¹ The former Minister of Transport, Blade Nzimande, stated that although there are currently no self-driving cars on the country’s roads, there are plans for their introduction.⁶² However, it would not be immediate, as policy and legislative amendments are needed.⁶³

One possible solution is that AVs can fall under the definition of a ‘motor vehicle’ as per section 1 of the RAF Act. This would mean that the victim may claim from the RAF in an AV accident if all other requirements are met. When considering whether or not an AV will fall under the definition of a ‘motor vehicle’ as per the RAF Act, we can use the subjective and objective test set out in the *Chauke* case.⁶⁴

55 1997 (1) SA 178 (A) (*Chauke* case).

56 Mokotong (n 47) 82.

57 *Road Accident Fund v Mbendera and Others* [2004] 4 All SA 25 (SCA) para 10.

58 *Chauke* case (n 55) para 183.

59 *Vogel* (n 46) para 12.

60 *Vogel* (n 46) para 26.

61 C Chengalroyen ‘Navigating the legal regulatory issues with self-driving cars in South Africa’ (2021) 616 *De Rebus* at 19.

62 *Businessstech* ‘South Africa has plans for self-driving cars – but the law needs to change first’ 7 April 2019 <https://businessstech.co.za/news/motoring/309052/south-africa-has-plans-for-self-driving-cars-but-the-law-needs-to-change-first/> (accessed 4 July 2021).

63 As above.

64 Chengalroyen (n 61) 19.

As already stated, the RAF Act defines a ‘motor vehicle’ as ‘any vehicle designed or adapted for propulsion or haulage on the road using fuel, gas or electricity’.⁶⁵ When applying the subjective test, it appears as though an AV would fall under this definition as commercial AV manufacturers build these vehicles for daily use on public roads.⁶⁶ Thus, the ‘design’ element of this definition is fulfilled.

Some difficulties arise when applying the objective test, such as examining whether an AV is objectively suitable for use in the manner contemplated in section 1 of the RAF Act.⁶⁷ The RAF Act defines ‘driving’ as ‘a motor vehicle [...] propelled by any mechanical, animal or human power or by gravity or momentum shall be deemed to be driven by the person in control of the vehicle’.⁶⁸ What is disputatious here is whether a person in an AV would be in ‘control’ of the AV, and what would qualify as negligent or wrongful conduct by the driver.⁶⁹ Usually, level 3-5 AVs would have a safety feature that would allow for human intervention and control when needed. For example, a human taking control of the steering wheel, which causes the autonomous mode to be turned off.⁷⁰ It can thus be argued that the failure of the driver or passenger to take control of the AV in an emergency would amount to a wrongful or unlawful act as held by the RAF Act.⁷¹ It is submitted that, under these circumstances, a reasonable person would foresee the AV’s ordinary use on the road by a driver.

Huneberg and Millard share the same outlook and thus believe that the definition of a ‘motor vehicle’ in section 1 of the RAF Act will include an AV unless there is a statutory regime change to expressly exclude AVs from the definition.⁷² However, although an option, the inclusion of AVs under the RAF Act might not be the proper course of action if one considers the RAF’s dire financial situation. A better option might be to have AVs privately insured to cover material damage and personal injury and death caused to passengers and victims.⁷³

65 The RAF Act (n 3) sec 1(xi).

66 Chengalroyen (n 61) 19.

67 Mokotong (n 47) 82.

68 The RAF Act (n 3) sec 20(1).

69 Chengalroyen (n 61) 19.

70 Robson Forensic ‘Human factors behind autonomous vehicles – expert article’ 25 April 2018 <https://www.robsonforensic.com/articles/autonomous-vehicle-human-factors-expert> (accessed 7 July 2021).

71 Chengalroyen (n 61) 19.

72 D Millard & S Huneberg ‘South African Report – new technologies’ (2020) 4.

73 Millard & Huneberg (n 72) 5.

4 Regulating autonomous vehicles under a new proposed liability regime

4.1 Reasoning for a new liability regime for AVs

As previously mentioned, the Road Accident Fund ('RAF') is financially troubled, despite having a regular source of income in the form of the RAF fuel levy of R 2.07 per litre.⁷⁴ In 2019 the Auditor-General noted with concern that the RAF had accumulated a deficit of R 262 billion.⁷⁵ The RAF's maladministration and problematic legal management has resulted in these severe liquidity constraints.⁷⁶ They have led to the point where some of the fund's bank accounts and movable assets have been attached through writs of execution.⁷⁷

Efforts were made to replace the current 'unsustainable and corrupt' system with a no-fault-based scheme, the Road Accident Benefit Scheme ('RABS'), which would cater for monthly disbursements paid to road accident victims. However, the Bill that was meant to introduce this scheme was rejected by the National Assembly on 3 September 2020 and criticised for not being in touch with reality.⁷⁸ Innocent parties could not claim against the responsible parties, and blameworthy motorists would get the same benefits as innocent victims. As such, it incentivised accidents, especially by the poor.⁷⁹

It is clear that something is fundamentally wrong with the administration of the RAF and that the system needs to change. The government cannot continue to increase the fuel price to alleviate financial pressure on the RAF, as such increases have a devastating effect on road users – especially the poor – and results in overall higher transport and food costs.⁸⁰ It is submitted that the RAF is not

74 LG Mpedi *Daily Maverick* 'Fundamental reform of the Road Accident Fund is urgently needed' 12 April 2021 <https://www.dailymaverick.co.za/opinionista/2021-04-12-fundamental-reform-of-the-road-accident-fund-is-urgently-needed/#:~:text=Despite%20its%20regular%20source%20of%20funding%2C%20the%20Road,tweaked%20to%20E2%80%9Ca%20meme%20is%20worth%201%2C000%20words%E2%80%9D> (accessed 2 October 2021).

75 *South African Finance News* 'The Road Accident Fund is hopelessly insolvent' 24 October 2019 <https://www.safinancenews.com/news/the-road-accident-fund-is-hopelessly-insolvent/> (accessed 2 October 2021).

76 X Phillip *Daily Maverick* 'Greed and maladministration collide: How the Road Accident Fund was bled dry' 19 August 2021 <https://www.dailymaverick.co.za/opinionista/2021-08-19-greed-and-maladministration-collide-how-the-road-accident-fund-was-bled-dry/> (accessed 2 October 2021).

77 As above.

78 Mpedi (n 74).

79 A desperate beggar on the street corner might intentionally get someone to run him over in order to qualify for an annual national income as held in the RABS.

80 SABC 'Higher fuel prices to impact households: economists' 4 August 2021 <https://www.sabcnews.com/sabcnews/higher-fuel-prices-to-impact-households-economists/> (accessed 2 October 2021).

in a position to include AVs under its scope, and that the best course of action would be mandatory insurance for AV owners.

4.2 Private insurance required for the owners of AVs as part of a new liability regime

4.2.1 *The current situation pertaining to private insurance for owners of motor vehicles in South Africa*

Car insurance, including third-party insurance, is currently not a requirement in South Africa, and may only become necessary when a car is financed by a financial institution that requires insurance for the agreement.⁸¹ Most third-party motor vehicle insurance in South Africa only covers claims from the person (third-party) who has suffered a loss because of the actions of the driver of the motor vehicle (first-party).⁸² With third-party insurance, the first-party would usually be the person who caused the accident and/or the owner of the vehicle. Third-party insurance in South Africa does not cover liability when a third-party is injured, as the RAF deals with this. Third-party insurance only covers the other party's material damage (i.e. damage to property).⁸³

Prior to the inception of the RAF in 1997, compulsory motor insurance was a requirement in South Africa, subject to specific situations. It was governed by legislation, such as the Motor Vehicle Insurance Act⁸⁴ and the Compulsory Motor Vehicle Insurance Act,⁸⁵ amongst others.⁸⁶ The reason for the discontinuation of such legislation is uncertain. However, the unaffordability of this type of mandatory insurance by the broader public was probably one of the main issues.⁸⁷

As stated above, the RAF was promulgated on 1 May 1997 and acted as a compulsory social insurance cover that aims to rehabilitate and compensate persons or dependants who were injured or died due to negligent driving on South African roads.⁸⁸ The RAF consequently makes it unnecessary for the owners of motor vehicles to carry third-party liability insurance in South Africa.

81 Dialdirect <https://www.dialdirect.co.za/products/vehicle/car-insurance/car-insurance-calculator/> (accessed 8 October 2021).

82 Santam 'Third-party vehicle cover: what clients need to know' <https://www.santam.co.za/blog/intermediary-advice/third-party-vehicle-cover-what-clients-need-to-know> (accessed 8 October 2021).

83 As above.

84 Motor Vehicle Insurance Act 29 of 1942.

85 Compulsory Motor Vehicle Insurance Act 56 of 1972.

86 E Zingwevu & AB Sibindi 'Is compulsory third-party motor insurance the panacea for the south African insurance industry?' (2014) 11 *Corporate Ownership & Control* at 662.

87 As above.

88 As above.

4.2.2 Proposal for a new liability regime with consideration of the Civil Aviation Act 13 of 2009

The initial use and introduction of AVs on the roads should be considered high-risk and dangerous, seeing as the behaviour of the AVs on the road with other human drivers will still be relatively unknown. Consequently, the operators should be obliged to be appropriately insured. The long-term objective of introducing AVs on the roads is to reduce crashes with fewer injuries and deaths.⁸⁹ However, there are many uncertainties regarding the ways in which AVs will react on South African roads with obstacles such as potholes, pedestrians, and reckless drivers.

Hancock states that AVs are good at the usual tasks, such as staying in the car's lane and not following another car too closely, and AVs do not get tired, angry or drunk as regular drivers do.⁹⁰ Nevertheless, AVs cannot react to uncertain and ambiguous situations with the same skill and anticipation as an attentive human driver. AVs still require continuous development, and it will take some time before they will be able to cover as many kilometres and circumstances as human drivers presently do.⁹¹

This, in essence, is why there is an argument that using an AV will pose a risk. As such, it should be the responsibility of the owner of an AV to be adequately insured for the accidental causing of damage, injury or death to another person.⁹² This responsibility stems from the fact that the owner should shoulder the burden, to an extent, for opting to participate in using AVs, given that the technology is still in a developmental phase.⁹³ As already stated, this would require a scheme like a tax or mandatory insurance policy applicable to all who participate in the use of AVs.

A comparable situation can be seen in the aviation industry. Thus, an analogy can be drawn to the mandatory insurance required for airline companies to operate.⁹⁴ The flying of an aeroplane is viewed as an inherently dangerous activity, and as a result, it is heavily regulated by various lawmakers. This is evident from section 8(2) of the Aviation Act, which states that,

89 P Hancock 'The conversation' 3 February 2018 <https://www.scientificamerican.com/article/are-autonomous-cars-really-safer-than-human-drivers/> (accessed 9 October 2021).

90 As above.

91 As above.

92 Hevelke & Nida-Rümelin (n 26) 626.

93 Hevelke & Nida-Rümelin (n 26) 627.

94 Cover 'Aircraft insurance: How much liability insurance is enough?' 26 September 2012 <https://cover.co.za/aircraft-insurance-how-much-liability-insurance-is-enough/> (accessed 9 October 2021).

... where loss or damage is caused by an aircraft to any person or property on land or on water, damages may be recovered from the registered owner of the aircraft in respect of such damage or loss, without proof of negligence or intention or other cause of action as though such damage or loss had been caused by his or her wilful act, neglect or default.⁹⁵

Section 8(5) of the Aviation Act further holds that the owner and operator of a registered aircraft must have insurance as prescribed for any damage or loss caused by such aircraft to any person or property on land or water.⁹⁶ Moreover, according to section 19(e) of the Air Services Licensing Act ('ASL Act'),⁹⁷ an air service license will only be issued if the licensee is insured as prescribed.⁹⁸

The importance of aviation insurance is understood when looking at the Lockerbie aviation disaster. In this accident, Pan American World Airways Flight 103 exploded over the town of Lockerbie, Scotland, resulting in the death of 259 passengers and 11 people on the ground.⁹⁹ The disaster was attributed to a bomb on the aircraft and was regarded as one of the costliest insured aviation losses in history. The liability losses, in this case, added up to US\$527 million, where more than 150 lawsuits were filed, each seeking between US\$5 million and US\$25 million for compensatory and putative damages.¹⁰⁰ Pan American Airways was found guilty of wilful misconduct by a federal court jury in July 1992 for not adhering to the Federal Aviation Administration ('FAA') regulations relating to unaccompanied baggage.¹⁰¹

In that sense, if an AV was involved in a major collision resulting in millions of rands in liability damage on South African roads, it is doubtful whether the RAF can afford such claims or whether the RAF would be able to provide compensation in a reasonable period, having regard for the injured parties and the dependants of the deceased.¹⁰² Further litigation and compensation disputes against the RAF regarding the use of AVs and the determination of negligence would be foreseeable and only add to the growing costs of the RAF.

It is thus submitted that South Africa should institute a new liability regime in the form of compulsory motor insurance for the owners and users of AVs in South Africa, akin to how the aviation industry requires insurance for the use of aeroplanes. The concept of

95 Civil Aviation Act 13 of 2009 (Aviation Act) sec 8(2).

96 The Aviation Act (n 95) sec 8(5).

97 Air Services Licencing Act 115 of 1990 (ASL Act).

98 The ASL Act (n 97) sec 19(e).

99 S Goddard Business Insurance 20 December 1998 'Lessons from Lockerbie' <https://www.businessinsurance.com/article/19981220/STORY/10006716/LESSONS-FROM-LOCKERBIE> (accessed 9 October 2021).

100 As above.

101 As above.

102 Zingwevu & Sibindi (n 86) 658.

compulsory motor insurance is not novel, and most governments in developed and developing countries have legislated for compulsory motor insurance.¹⁰³ Usually, it is stipulated in legislation that all users of road vehicles must have liability insurance.¹⁰⁴

This can be achieved by amending the RAF Act, expressly stipulating that AVs fall outside the scope of 'motor vehicle' as described within the RAF Act and inserting a section detailing that the use of AVs should require private liability insurance.¹⁰⁵ Alternatively, and most appropriately, the government should adopt a new Act of Parliament detailing and specifying the use and ownership of AVs on South African roads with special consideration to the requirement of compulsory motor liability insurance for injury and death.

4.2.3 Implications of compulsory motor insurance

Compulsory motor insurance for AVs would mean that the parties involved in the accident would at least have some form of basic protection and will ensure a more equitable distribution of the financial burden resulting from motor accidents.¹⁰⁶ Compulsory motor insurance for AVs would prevent further financial strain on RAF, and help protect victims against the insolvency of a blameworthy party.¹⁰⁷

Other benefits of compulsory motor insurance for AVs include the incentive for the users to be more attentive and careful to avoid liability and an increase in premiums.¹⁰⁸ The competitive market would motivate users to take optimal care to ensure that AVs do not make mistakes. The idea is that the competitive market will encourage discipline and attentiveness in the owners of AVs through the pricing system.¹⁰⁹

It can also be said that when AVs become more common on the roads and start to outnumber regular motor vehicles, the implementation of this scheme would drive down the price of the insurance due to the economy of scale, and, therefore, be more affordable to the general public.¹¹⁰ This arrangement would also

103 Zingwevu & Sibindi (n 86) 657.

104 For example, in the UK the Road Traffic Act of 1930, in the Netherlands the Motor Vehicles Liability Act (WAM) and in Zimbabwe the Road Traffic Act [Chapter 13:11].

105 Huneberg & Millard (n 72) 4.

106 Debt Busters 'Compulsory third party motor insurance crucial for SA motorists' <https://www.debtbusters.co.za/compulsory-third-party-motor-insurance-crucial-for-sa-motorists/> (accessed 9 October 2021).

107 Zingwevu & Sibindi (n 86) 660.

108 As above.

109 As above.

110 Zingwevu & Sibindi (n 86) 668.

allow the RAF to continue in its current form, but pre-empt the liability regime as AVs become the norm.

5 The regulation of AVs in foreign law

5.1 Regulation of AVs in the United States of America

The testing and licensing standards of AVs in the United States of America ('USA') are continuously being developed on a state level, rather than federally, with instructions to their respective Department of Motor Vehicles ('DMV') for the fleshing out of details, which results in inconsistencies amongst the various states.¹¹¹ Although the states tend to formulate their own regulations regarding AVs, there are certain essential similarities in the various raft of legislation.¹¹² Most enacted policies and legislation similarly define AVs as motor vehicles that can drive themselves without having to be actively monitored or controlled by a human driver or operator and exclude the motor vehicles equipped with active safety measures such as driver-assist systems.¹¹³ Concerning the inconsistencies in the various states, Fagnant and Kockelman believe that the US Department of Transportation ('USDOT') should assist with developing a framework that sets national guidelines for AV certification at the state level.¹¹⁴

Owing to these inconsistencies across the various states, this article will only focus on the state of California, as it is at the forefront of the legal development of AVs in the USA.¹¹⁵ AV legislation in California was enacted in September 2012 (Cal. Veh. Code, Division 16.6) for the testing of AVs.¹¹⁶ This legislation detailed the definitions, requirements for insurance, the operator and the procedures for the failure of AVs. Further, it mandated a 'Manufacturer's Testing Permit' for testing AVs on public roads.¹¹⁷ California also extended the scope of AV testing when its Governor signed off on a Bill that would allow for the testing of AVs without

111 DJ Fagnant & K Kockelman 'Preparing a nation for autonomous vehicles: opportunities, barriers and policy recommendations' (2015) 77 *Transportation Research Part A* at 167.

112 JM Anderson et al *Autonomous Vehicle Technology: A Guide for Policymakers* (2014) at 41.

113 Anderson et al (n 112) 41.

114 Fagnant & Kockelman (n 111) 179.

115 NE Vellinga 'From the testing to the deployment of self-driving cars: Legal challenges to policymakers on the road ahead' (2017) 33 *Computer Law & Security Review* at 852.

116 Anderson et al (n 112) 47.

117 Vellinga (n 115) 852.

safety equipment like a steering wheel, accelerator, or brake pedal.¹¹⁸

Vellinga holds that liability legislation in California for AVs post-testing will focus more on product liability.¹¹⁹ The Californian draft of Autonomous Vehicle Express Terms contains a provision stating that AV manufacturers will have to arrange for, and prove their ability to respond to, judgments for damages in relation to personal injury, death, or property damage that arise from AV collisions.¹²⁰ The manufacturers will be able to do this by presenting a form of an instrument of insurance, a surety bond, or proof of self-insurance.¹²¹ This holds especially true in the case of an SAE level 5 vehicle, where the manufacturer is held to be responsible for the safe operation of the vehicle at all times.¹²²

It is clear from the policies and test legislation that the state agencies are trying to ensure a safe introduction and operation of AVs on the roads in any situation where they might be driven. However, many regulatory issues still need to be dealt with.¹²³ The test legislation and policies also bring to the fore that manufacturers need to be insured and be able to deal with liability claims.¹²⁴ This shows that the use of private insurance for AV liability would be viable and a legislative option for South Africa, albeit for the owners of AVs.

5.2 Regulation of AVs in the United Kingdom

The United Kingdom ('UK') is in a unique position where the government aims to be at the forefront of the development, construction and use of AVs to spearhead a way forward that other countries and jurisdictions may follow.¹²⁵ The government has already established a Centre for Connected and Autonomous Vehicles ('CCAV') intending to support research, development, and fund driverless car projects in four cities, as well as publish a code of good practice for the on-road testing of AVs.¹²⁶ CCAV also highlighted the

118 P Alto Ford Media Center 'Ford targets fully autonomous vehicle for ride sharing in 2021; invests in new tech companies, doubles Silicon Valley team' 16 August 2016 <https://media.ford.com/content/fordmedia/fna/us/en/news/2016/08/16/ford-targets-fully-autonomous-vehicle-for-ride-sharing-in-2021.html> (accessed 10 October 2021).

119 Vellinga (n 115) 860.

120 As above.

121 As above.

122 As above.

123 Fagnant & Kockelman (n 111).

124 As above.

125 S Claus et al 'Potential impacts of autonomous vehicles on the UK Insurance Sector' (2017) *Bank of England Quarterly Bulletin 2017 Q1* at 41.

126 D Metz 'Developing policy for urban autonomous vehicles: Impact on congestion' (2018) 2 *Urban science* at 33.

gaps in the liability insurance for AVs and proposed regulatory changes to the Department for Transport ('DfT').¹²⁷

The UK already has compulsory liability insurance, which was introduced by the Road Traffic Act of 1930 and has undergone various amendments. However, with the development of AVs, there will be even further amendments.¹²⁸ The DfT has extended the compulsory motor insurance requirements to provide for the inclusion and use of AVs.¹²⁹ This was done by providing for AVs in the Vehicle Technology and Aviation Bill and extending the compulsory insurance requirements to AVs.¹³⁰

This approach provides the claimant with a natural right against the motor vehicle insurer, and allows the insurer the right to recover costs from the vehicle manufacturer where there is evidence that the incident was caused by a product error, and not human error.¹³¹ Thus, an innocent victim can claim directly from the insurer if, at the time of the incident, the self-driving technology was operative, regardless if he or she was inside or outside the vehicle.¹³²

The UK provides a great example for what could be introduced into South African legislation for the use and operation of AVs. The view that mandatory motor insurance for liability should be the norm when dealing with AVs is echoed in the policies and legislation of the UK.

6 Conclusion

This article first introduced the concept of an 'autonomous vehicle' and suggested that it would be appropriate to introduce a regime change in instances of personal liability and death. Secondly, this article defined AVs and elaborated on the possible effects of AVs on South African roads. Thirdly, this article explored the scope and intent of the RAF Act with special consideration of the definition of a 'motor vehicle' as described in the Act. The latter addressed the possibility of having AVs fall under this definition. Fourthly, this article considered the regulation of AVs under a new proposed liability regime, analogous to the mandatory insurance required for airline companies to operate in accordance with the Aviation Act. And finally, this article examined the regulation of AVs in the USA and UK, giving examples for how regulation could be implemented in South Africa.

127 Metz (n 126) 33.

128 Vellinga (n 115) 860.

129 Claus (n 125) 43.

130 Vellinga (n 115) 861.

131 Claus (n 125) 45.

132 Vellinga (n 115) 861.

The wide adoption and use of AVs seem to bring on inevitable and imminent changes to the transport industry. There is still much uncertainty and speculation about how it will be regulated in South Africa. However, if there is a regime change where mandatory motor insurance is required for using AVs on South African roads, it would ease the minds of prospective AV owners in South Africa. This could also encourage a much more widespread adoption of the technology and allow for continued development. This article submits that the inclusion of AVs under the RAF would not be the most suitable way forward and that compulsory motor insurance is the most appropriate option, keeping in mind the advancement of technology and the financial burdens on both the RAF and AV owners. South Africa will be able to consider the legislation of foreign jurisdictions, and more easily implement the necessary measures. Regulators should adopt the necessary legislative framework sooner rather than later.