# Submission Automated Vehicle Safety Reforms

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## Overview

Automated transport systems have undeniable benefits for Australia in terms of safety, productivity, and decarbonisation. There is a need for an appropriate national framework to provide certainty for industry and consumers and appropriately balance risks while facilitating adoption. The recent United Kingdom *Automated Vehicles Act 2024* (UK) (UK AV Act) is an example of national-level reform in this area. There are clear similarities between the scheme legislated under UK AV Act and the proposed national AV law.

Overall, we support the establishing of a national AV law, a national AV safety regulator, and setting up corporate responsibility through designating and regulating automated driving systems (ADS) though automated driving system entities (ADSE), as an appropriate framework for Australia.

In this submission we focus on responding to specific questions relevant to our expertise, especially in relation to interactions between ADSE/AVs and roadside enforcement, consumer protection and transport justice.

## About us

We research how law and policy should respond to automation and have completed projects focusing on legal, regulatory and policy responses to automation in the land and sea domain.

Dr Mark Brady (mark.brady@cdu.edu.au) is a law and technology expert researching into autonomous systems and the law with a focus on transport, and policy and regulatory adaptation to disruptive technologies, in particular, autonomous vehicles. He is Vice Chair of the IEEE Society on the Social Implications of Technology (SSIT) and works with the Charles Darwin University Law School and the North Australian Centre for Autonomous Systems (NACAS).

Professor Kieran Tranter (k.tranter@qut.edu.au) is director of the Human Technology Law Centre (https://research.qut.edu.au/htlc/) at the School of Law, QUT and extensive experience on legal responses to emerging technology and a long history of research into land transport in Australia.

## 4. Are there are other matters that the law enforcement and emergency services interaction protocol should account for?

*Establishing a National Set of Law Enforcement-ADS Protocols.*

It is proposed that interaction between roadside enforcement and ADS will be governed by a Law Enforcement and Emergency Services Interaction Protocol (LEESIP), that will be required when an ADS is certified by the national regulator, and must be implemented, reviewed and updated as a proscriptive duty of an ADSE. At this stage, there is little further detail as to the content of an LEESIP. The LEESIP is anticipated to cover a range of interactions, from requirements to keep and release data to law enforcement to ensuring ADSs respond appropriately to direction from roadside enforcement. There is a body of research literature on ADS and responding to traditional roadside interception signalling (sirens, flashing lights, hand signals).[1] There are concerns, particularly around ADSs reading false positives resulting in an ADS stopping in a manner that could be dangerous to passengers and other road users. It is suggested that a safer option would be for law enforcement to have some form direct capacity to communicate with an ADS.

There are obvious concerns with security of such transmissions and work is being done around cybersecurity of transmission for ADS and law enforcement.[2] The LEESIP is the obvious place whereby an ADSE can indicate broadcast protocols. There are several specifics to be considered. First, it is anticipated that could be many ADSEs with potentially different protocols; indeed, potentially different protocols for different ADSs brought to market by the same ADSE. Second there are many state, territory and Commonwealth law enforcement and emergency services that would need to have ready access to a broadcast protocol at a roadside level. It would not be effective for there to be a plethora different protocols, with each needed to be deployed by enforcement at a roadside level and dependent on the roadside officers identifying from a vehicle, possibly at a distance, which protocol to use for the type of ADS in that vehicle. To minimise complexity, the national regulator should encourage the formation of a limited number of Australian standard protocols - that all ADSE must adopted in their LEESIP, that state, territory and Commonwealth roadside enforcement officers can then have training and experience in deploying.

## 8. Are there measures we should consider to manage the consumer impacts of an ADS being disabled due to suspension, cancellation or surrender of certification?

*Impact of disabling ADS on final users.*

We believe that there needs to be more thought give to the impact on final users where an ADS is disabling due to de-certification. An effect of the increasingly sophisticated safety measures incorporated into highly automated motor vehicles is that they are becoming much more expensive. Increased expense in motor vehicles, while being an acceptable trade-off for safety, nevertheless has an asymmetrical impact across society. This is particularly problematic in rural, regional and remote, and especially First Nation communities, where private vehicles are the only transport option, but members of communities cannot purchase the latest vehicle. With colleagues, and through our joint research, we have identified how increased safety requirements, with respect to licensure, already

[1] Goodison, S. E., Barnum, J. D., Vermeer, M. J., Woods, D., Lloyd-Dotta, T., & Jackson, B. A. (2020). *Autonomous Road Vehicles and Law Enforcement*. RAND Corporation.

[2] Khan, S. K., Shiwakoti, N., Stasinopoulos, P., & Warren, M. (2023). Modelling cybersecurity regulations for automated vehicles. *Accident Analysis & Prevention*, *186*, 107054.

acts as a barrier to mobility for First Nations people.[3] Further, it has been well recognised that the another barrier for First Nations peoples' mobility is access to safe, reliable vehicles.[4] Rather, First Nations communities often resort to cheap, second-hand vehicles that are reaching the end of their service life.

We are particularly concerned that these are the communities that will be directly affected by the cancelling of certification. If the practise of other digital providers is followed by ADSEs in only providing support for products for a specific lifespan – such as 10 years - then there is a possibility that ADS equipped vehicles will also only become available to First Nations communities at the end of their service life. Further, if an ADS does not have capacity to function once the ADS is disabled, this could mean a further restriction on mobility options for First Nations peoples.

We urge consideration be given to a certification and support safety-net for users who will be left with legacy ADS equipped vehicles when the ADSE decertifies. While there are strong safety reasons to keep the turn-over of the national vehicle fleet, the costs of this will be borne disproportionately on First Nations people and other lower socioeconomic communities. This is further exacerbated by regional and remote factors where private vehicle travel is the only transport option.

This safety-net should consider a range of measures. First mandating an ADSE maintain certification for a 20+ year period should be considered, although this fails if the ADSE quits the Australian market (as discussed below). Second, mandating that all ADS vehicles (regardless of level) have capacity to be operated as a traditional human driven vehicle with the ADS decommissioned will provide end-of-life usability to vehicles. Third, investigation of a 'ADSE of last resort' (possibly funded though the licencing of ADSs or ADS equipped vehicles) that maintains and supports legacy ADS where an ADSE has decommissioned the ADSs or for ADSs whose ADSE has exited Australia.

## 9. For how long should ADSEs be required to retain data? Should there be different periods for different types of information?

It could be anticipated that ADSE might be receiving a broad bandwidth of data from ADSs. It is also possibly that ADSE would not receive this data in real-time but select data be stored on the ADS and broadcast to the ADSE in a condensed form at times. This data generally could be complied into metadata about an ADS vehicle's journey and what happened on that journey and transmitted in discreet data packets.

There are several public policy reasons why ADSEs should retain this data, especially in meta-form.

First, a log of vehicle movements over a period would be a strong dataset for traffic planners and infrastructure authorities in understanding infrastructure use and forecasting future demands. Data for this use would be more valuable if made available to traffic planners and authorities on near-term

[3] Masterson, G., Brady, M., Watson, N., Senserrick, T., & Tranter, K. (2023). Driver's Licences, Diversionary Programs and Transport Justice for First Nations Peoples in Australia. *International Journal for Crime, Justice and Social Democracy*. https://doi.org/10.5204/ijcjsd.2641

[4] Anthony, T., Sherwood, J., Blagg, H., & Tranter, K. (2023). *Unsettling Colonial Automobilities: Criminalisation and Contested Sovereignties*. Emerald.

basis. It could be suggested data in this form be kept for 12 months to allow for access by planners and authorities.

Second, a log of a vehicle's movement and details of an ADS's equipped vehicles input and output could be highly probative in civil litigation. This could especially be useful in vehicle related litigation in relation to personal injury, and possibly of valuable in contract or family law disputes. The retention dates should reflect limitation of actions rules. In Australia, for personal injury these are 3 years personal injury, 6 years for contract,[5] and 2 years for family matters.

Third, a log of a vehicle's movement and details of an ADS's equipped vehicles input and output could be highly relevant to law enforcement. There are no official limitations on organisations regarding the retention of information that could be used by law enforcement. Rather there are offences regarding the destruction of evidence. To avoid these, a reasonable period should have elapsed. Often a seven-year period is identified as a reasonable period.

A seven-year period for retention of data accumulated by an ADSE is appropriate to cover obligations to disclose data in various proceedings.

## 10. Are there risks associated with information management that are not covered in these proposals?

Not all information generated by an automated vehicle is necessary to be retained for long periods of time. For example if an automated system and ADS is using a 'rolling road' form of identification, where it shares information with nearby autonomous vehicles to verify, in a rolling chain, the information that it is receiving from its sensors with those vehicles around it, for verification purposes, it may not be necessary to retain that data beyond a few 100 metres, or a certain number of seconds, consistent with the in vehicle Event Data Recorder (EDR) [i.e. vehicle black box]. This information will necessarily overload conventional information pathways. Removing such data from storage requirements will minimise the bandwidth issues associated with the deployment of automated vehicles. Whereas sending all information across the Internet with respect to an automated vehicle, or an ADS, will likely overload the system with unnecessary data. More important information with respect to the occupants, destinations, certifications, and so on would necessarily be retained for a significant amount of time in line with the Australian Privacy Rules.[6] However, the rolling road information used to verify a vehicle's place within space as it moves through the environment could be deleted after a few minutes and would not need to be sent across the Internet - as it would massively impact the carrying capacity of the Internet when all vehicles are using it. Accordingly, the protocols need to be designed in such a way that information used primarily to verify the vehicle position, and delta, as it navigates the environment and communicates with other vehicles, to verify their sensor inputs, could be deleted after 30 seconds or so and only retained in the EDR when a collision or other significant event occurs.

[5] 12 years for a deed.

[6] And our obligations under the GDPR, and other European legislation, required for trade with the EU.

## 11. What are your views on the proposed additional AVSL measures to manage the safety risks of remote operation of a vehicle with an ADS? In your response, please consider:

### *a. How are companies using or planning to use remote operations as part of ADS deployment, and what business models are likely to be used? Which parties will have an influence on the safety of remote operation?*

One party that may affect safety of the remote operation of an autonomous vehicle would be the Internet service provider. The carrying capacity of the Internet service providers will ultimately have a very important and significant effect on the ability for autonomous vehicles to be remotely operated. It may be necessary to consider a broader spectrum allocation for the operation of automated vehicles, and in a frequency that would be effective over long distances. V2V operation would necessarily require a different frequency that wouldn't travel as far, as it would not be necessary in operation.

### *e. Should remote operators be subject to a safety duty, or any other requirements, under the AVSL?*

Remote operation of an ADS would have a similar risk profile to that of remote piloting aircraft. While this would not pose the same risk of aircraft falling out of the sky or mid-air collision over a populated area, a similar level of training is advisable for remote vehicle operators. This would include training around risk assessment, reporting obligations, applications for path planning, and knowledge of maintenance and upkeep procedures, with each vehicle being remotely operated. An untrained person would be a very high risk in operating a motor vehicle remotely, and would necessarily need to be proficient, to a very high degree, in order to maintain appropriate safety standards.

### *f. What specific skills or proficiencies should be required of remote operators?*

*The skill sets* required of remote operators should mirror those of remote pilots, as people's lives are at stake, vehicles are very heavy, and very dangerous when operated incorrectly or carelessly. The primary reason Australia is seeking to introduce automated vehicles on our roads is to eliminate human error and remote operation of automated vehicles introduces the potential for human error once again.

### *g. Should the AVSL require that remote operations centres be located in Australia? What are the advantages and disadvantages of this?*

It is recommended that the VSL require remote operators to be situated in Australia for a number of reasons. The first of these is that a remote operator located within Australia is in closer proximity to the receiver in the vehicle and provides a clear a pathway for electronic communications and transmissions. The second is that there is less likely to be third party interference with the transmission, which could occur if the operator is located in another jurisdiction, less subject to Australia's rigour, and this would promote greater safety and continuity of transmissions. The third reason is that with a reasonable amount of certainty, and enough assets in jurisdiction, remote operators could be held liable and that liability is more likely to be able to be enforced if they are located in Australia.

## 12. Should an ADSE be required to ensure certain technical information is provided to consumers to inform purchasing decisions?

Disclosure of technical information is problematic due to market knowledge. It would be better to place a positive obligation to disclose, in plain language, the operational parameters of the AV.

Contemporary research into the nature of clickwrap agreements shows that users generally do not read or comprehend either the technical descriptions nor the legal obligations.[7] Given the cost of an AV, and that an AV could physically injure occupiers/owners, including other road users and property, it would be not appropriate that clickwrap style disclosure agreements be used by any ADSE. Further it would not be appropriate that positive disclosures of capacity be lost in technical manuals or handbooks. Rather, plain English expression be mandated for these entities.

## 13. Should the AVSL include offences in relation to misrepresenting vehicle capabilities?

It is noted that the UK AV Act ss 78 and 79 impose criminal sanctions on persons in relation to misrepresentation in relation to automated vehicle capacity and obligations with a possible 12-month prison sentence. Section 78 allows the Secretary of State able to declare certain words related to automation of vehicles as 'restricted' and it is an offence to use those words in relation to a non-automated vehicle. The significant consequences for injury and damage from a user being misled by representations around automation, are compelling reasons for strong messaging around representations of vehicle autonomy and potentially warrant distinct criminal offences.

We note that in some manufacturers in Australia use words like 'autopilot' or 'pilot' to market automated driving features of their vehicles. These terms generally are used in relation to advanced driver aids allowing SAE level 2 automation. As such, it possible that these might not fall within commonly held understandings of 'autopilot' or 'pilot' that suggest more advanced self-driving capacity. It must be noted that further material provided by the manufacturers do indicate that these features do not allow self-driving. However, the use of these terms could confuse some users as to the scope of vehicle automation. As such, it is suggesting that a potentially a word-based offence like s 78 of the UK Act may be beneficial.

However, criminal offences while providing general deterrence have limits as regulatory mechanisms. The evidentiary burden on the prosecution, by the requirement for beyond reasonable doubt,[8] and proof of intent (if not a strict-liability offence) act as a counter to effective prosecutions.

In Australia, issues of misrepresentation in consumer matters are predominately dealt with under section 18 of the Australian Consumer Law. Section 18 allows individual consumers (or a class action of consumers) to seek redress where there has been 'conduct that is misleading or deceptive or is likely to mislead or deceive.' Recent litigation has confirmed that vehicles, and the representations of salespeople and manufacturers, are subject to the ACL.[9] The advantage of this civil approach towards regulating representations about vehicle autonomy, as distinct from criminalisation, is that it gives

[7] Mahapatra, P., & Sircar, A. Social networking sites' licensing terms: A cause of worry for users? *The Journal of World Intellectual Property*.
[8] On the preponderance of evidence – each individual piece is still admitted on the balance of probabilities.
[9] *Mitsubishi Motors Australia Ltd v Begovic* [2023] HCA 43.

redress directly to consumers and it reflects, and builds upon, many decades of legal authority that has interpretated and applied the provision to representations about motor vehicles.

## 14. Are there other measures needed to address consumer risks?

The proposed AV Law through a safety whole-of-life approach provides a structured and adaptable framework by which to protect consumer from risks of automated vehicles. The focus, as is the norm for law and regulation of motor vehicles, is with managing and reducing the risk of injury and death from vehicles. The impact on consumers as consumers, ie as purchasers and users of AV and AV services is less of a focus. As enacted in the UK AV law, AVs as complex and new consumer goods enter a market with potentially low knowledge of AV systems and of functional operational driver domains (ODD), and the potential for misrepresentation is high. While it would be expected that the ACL will apply to actors in the AV market, there might be benefit in a provision in the proposed national safety law that directly declares that persons (individuals or corporations) in AV trade or commerce are subject to the ACL and AV purchasers and users have the rights and actions as consumers under the ACL to ensure certainty.

**16. Do you support third-party interference offences being included in both the AVSL and state and territory law?**

Third party interferences with an AV represents a serious safety issue.[10] Clear offences should be proscribed and set out unequivocally with as strong a deterrent as possible. It is recommended that specific criminal provisions, in relation to third party interference, be enacted in the AV law. Further, the AV law should also declare an ADS as a 'restricted computer' for the purposes of the Commonwealth Criminal Code, and the state and territory criminal law, and include interference with communications and transmissions to and from these systems within the criminal law and the *Telecommunications Interception Acts 1979* (Cth) as discrete and proscribed offences.

**17. Do you support the proposed automated vehicle regulatory framework as a whole, and are there any barriers to its implementation?**

The proposed AV law presents a coherent safety-first regulatory approach to bringing to market, sale and in-service use of AVs. We strongly support this approach.

We do have some concerns around the impact on end-of-life users and this stems from an underlying assumption in the proposed national law around the durability of ADSEs. There is an assumption that ADSEs will endure for the lifetime of the vehicle. We have some concerns about this assumption. The vehicle market in Australia is highly dynamic. It is a pioneering export market for emerging Chinese manufacturers. Further, it has recently witnessed exit of a historical large market player in General Motors. The assumption that ADS will be disconnected if the ADSE relinquishes certification, which might result in the vehicle, if it does not have capacity for manual control, being junked; puts risk and cost onto end-of-life users. This has twofold dimensions. First, a dramatic exit from the market, like what happened with General Motors, could potentially leave AV owners of relatively new vehicles with a worthless product. Second, even if an ADSE discontinues support for an ADS after a 10-year support period (like technology corporations do with operating system and hardware) this would

[10] Brady, M., Rakotonirainy, A., & Tranter, K. (2021). Commonwealth Criminal Law and Interference with Automated Vehicles. *Criminal Law Journal*, *45*(5), 271-296.

have a significant impact on people from lower socio-economic communities, particularly in rural, regional and remote parts of Australia, and especially for First Nations peoples who rely on private vehicles as primary transport but often cannot afford newer vehicles. We note that at 31 January 2023 43% of all registered vehicles in Australia were older than 10 years.[11]

We suggest that the Department and the national safety regulator, once established, give thought to end-of-law grandfather strategies to ensure the impact of ADSEs no-longer supporting 'historical' ADS or in the situation that an ADSE decides to leave the Australian market.

## 20. Managing automated vehicle safety before the regulatory framework is in place

**What are the barriers to more complex and large-scale trials in Australia?** Broader trials of autonomous vehicles in Australia may be hindered by the vast distances across Australia. This is particularly important where there may be bandwidth issues or lack of access to Internet in remote areas, and which may impact the ability of an automated vehicle to communicate with the central control or with other vehicles.

**How could trial arrangements be improved?** It might be necessary in order to incentivize the deployment of automated vehicles in Australia to give some form of blanket indemnity in a similar manner as is provided to pharmaceutical companies within the pharmaceutical industry as a way to encourage investment.

**Should there be provision in the AVSL for interim certification to support trials?**
Interim certification would certainly make the process easier for undertaking automated vehicle trials in Australia and would likely be of benefit to Australia over the long term. By providing these interim certificates, it would encourage manufacturers to undertake trials in Australia, helping Australia to more rapidly implement the automated vehicle service, by making trials of these vehicles easier. This would provide advantages to Australia with respect to the world market and make us a destination for manufacturers to trial vehicles.

## References


Anthony, T., Sherwood, J., Blagg, H., & Tranter, K. (2023). *Unsettling Colonial Automobilities: Criminalisation and Contested Sovereignties*. Emerald.

Brady, M., Rakotonirainy, A., & Tranter, K. (2021). Commonwealth Criminal Law and Interference with Automated Vehicles. *Criminal Law Journal*, *45*(5), 271-296.

Bureau of Infrastructure and Transport Research Economics. (2023). *Road Vehicles, Australia January 2023*.

Goodison, S. E., Barnum, J. D., Vermeer, M. J., Woods, D., Lloyd-Dotta, T., & Jackson, B. A. (2020). *Autonomous Road Vehicles and Law Enforcement*. RAND Corporation.


[11] Bureau of Infrastructure and Transport Research Economics. (2023). *Road Vehicles, Australia January 2023*. 13.

Khan, S. K., Shiwakoti, N., Stasinopoulos, P., & Warren, M. (2023). Modelling cybersecurity regulations for automated vehicles. *Accident Analysis & Prevention*, *186*, 107054.

Mahapatra, P., & Sircar, A. Social networking sites' licensing terms: A cause of worry for users? *The Journal of World Intellectual Property*.

Masterson, G., Brady, M., Watson, N., Senserrick, T., & Tranter, K. (2023). Driver's Licences, Diversionary Programs and Transport Justice for First Nations Peoples in Australia. *International Journal for Crime, Justice and Social Democracy*. https://doi.org/10.5204/ijcjsd.2641