

Andrew Bills submission

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Hi,

I am sending this mail in relation to the opportunity for feedback in relation to the proposed Automated Driving System proposals that have been made available for public feedback. I am glad to have this opportunity as it is something that I in fact have been attempting over the course of the last 12 months to provide feedback through the Queensland Transport Authority and have been met with disappointing levels of quality in the response from them on this matter which suggest it is not a priority.

For your reference my formal qualifications is that as someone who specialises in the practical application of emerging technologies, I have done this through building of products through to technology strategic consulting and advice for organisations ranging from startups to Fortune 500 and ASK organisations operating on global levels including covering OT technologies across multiple industries. So in short I have a background in this sort of thing as it is an area that I have been queried on quite sometime prior including in some consulting engagements for government agencies in relation to strategic advice for technology.

While the framework I have just read through is good and covers some areas that I would expect there are some fundamentals that I had in my notes that I wish to go through with you. I am including these in this email but from the above you would gather I had time to work this through prior so I am able to provide deeper details in any information conversation. These notes are not in any set order to drive a narrative but as a futurist who looks at technology in terms how it will work in decades these points are in-connected. Some of these I understand to be fairly specific but I did note the papers for consultation do go into selected details so I feel this level of detail is appropriate.

1. **The Scope needs to be expanded to Autonomous and Assisted Vehicles** - While the framework is quite clear on the definition of autonomous vehicles this definition should be expanded to include features which exist in vehicles that can provide assisted or limited functions. While I understand the intent of scope of the paper vehicles such as those that provide self-parking features, in-lane guidance assistance, automated lane changes, and self-breaking should not be granted a loophole in terms of usage given at a technical level that I will not go into here the car operating system relies on many of the same software and hardware features to provide. From a technical perspective assisted and autonomous have many identical features.
2. **Telemetry and data** - Vehicles that operate in a autonomous or assisted mode must be required to provide active telemetry data as to their operation that should be provided as

real time within allowable limits. This means that data such as location, speed, should be at minimum provided or made accessible to authorised parties who are able to monitor safe operation of autonomous vehicles. This point can continue with more specific data points.

- a. **Trusted Data** - There is also an element here as to where the vehicle is using data for operation that is adjacent to the cybersecurity points but the key element is the use of validated data and not just secure data, this may include approved maps for operating that state speed or limit speed for autonomous vehicles (and potentially black spots where autonomous vehicles are prohibited).
3. **Emergency Services Override** – This is touched on in terms of enforcement however there are elements that are not included which we can derive from the lessons learnt of other countries where autonomous vehicles operate. Autonomous vehicles MUST include external override functionality that is limited to either defining no enter areas OR disabling to reduce to a safe speed and stop. While there is a law enforcement aspect the actual concern here is autonomous vehicles entering into locations where fire and rescue is operating preventing access and without a way to override externally. There is a hardware element to this that should be taken into consideration with the next point.
4. **Hardware Requirements** – At present I do not see any hardware specific requirements for operation of autonomous or assisted vehicles in the paper provided, this is consistent with other approaches internationally. There are two minimum requirements that will require changes at a manufacturing level, the first being related to the above point of emergency override with the second being a requirement for vehicles operating in an assisted or completely autonomous mode to have an external notification to other road users and pedestrians. Much like the reasons we have indicators and brake lights vehicles operating in an autonomous or assisted mode should be communicated to others to exercise caution. With each hardware requirement I expect by the time this is enacted into a law it will apply to vehicles manufactured after a certain point in time so this is absolutely critical that this be made a priority point as soon as possible even to a level of being made into law separate from the remainder of pending points. While I do not want to explicitly make a suggestion for the operating mode, the use of hazard lights that do not flash would likely be a possibly option, this should be considered in conjunction with other on road notification lights such as emergency services, breaking, etc.
5. **Vehicle Definition** – This again may be an issue of scope with the existing paper but it does represent a significant concern in relation to the definitions and potential use of autonomous vehicles. At present there is a common understanding as to what is considered a vehicle however there is a smaller class of autonomous vehicles that does also need to be considered as an exception to this paper so that it may be dealt with in deeper within it's own scope, this is smaller robotic delivery services that may operate within shared zones. While a vehicle can do some damage a robotic delivery within a shared zone may cause significant harm to a motor or heavy vehicle. There is a much later area of scope and issue here that I do have notes on here that I am happy to go through but the short version is – GUAV and UAV vehicles are a class of vehicle that is currently not being handled in a particular robust or considered matter. The class of autonomous vehicles should be considered as a vertical issue with bands of operation and usage classes. The issue now is that if I operate a vehicle with wheels that is 2m tall it operates under a transport authority but if I operate a drone that flies at a height of 1m it is considered part of the aviation authority. There is a commonality of navigation paths to reduce liability that is common here and other reasons why this is actually part of the same conversation. I understand that this single point is extremely dense and would be much preferred to discuss my notes on this subject as there are shared components with this legislation.
6. **Insurance and Liability** – Again a point that is touched on within this paper but I do believe that vehicles that are operating in classes of operation of either autonomous or assisted

require a dedicated and clearly defined coverage for liability for both the vehicle owner and those who may be impacted. The 3rd party insurance requirement that is mandatory likely should not be adjusted to result in a change of premiums to operators of non-automated or assisted vehicles but a new supplemental and mandatory insurance cover should be added for vehicles of this type to fit in with the existing legislative and insurance framework across Australia. This should be a class of insurance that is mandatory and required based on the class not if enabled or not to avoid issues whereby it is enabled in post. Alternatively, the frameworks can be reworked to support this same end.

Thank you for your time as I said my expertise in emerging technologies and strategy has meant these are areas of concern that I have had substantial amounts to work over and keep abreast of not only the current state but the future states and how those need to be considered. While I am deeply disappointed in the response I got from my own state transport groups in raising these concerns, I am more than happy to discuss all of the above points in an informal capacity to share any additional details or considerations that I had previously worked through.

The point about hardware requirements I do believe to be the most pressing as the longer that is not addressed the longer the window of exception for manufacturers may be as there are already multiple fully autonomous and assisted vehicles in the field including those operating heavy machinery on private land that is another parallel area.

I am available for contact at the below details or of course in response to this email. I hope to receive a meaningful response.

Apologies there was one additional point that I did not touch on which was the certification and testing component. Would like to talk about that areas from the perspective of CI/CD which would apply to this class of OT. I understand if initial certification is outside the scope which would be paramount to licensing for a the driving (computer) model however there is the ongoing lifecycle which is a concern also, specifically where subscription services are used.

Sorry to add this as a follow up point. I also am more than happy to discuss and go into this point further as well to provide clarification as of the risk and mitigation from a OT perspective.