

A safety assurance system for automated vehicles – addressing safety risks arising over the automated vehicle lifecycle

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Abstract

The presentation describes the National Transport Commission's (NTC) development of a safety assurance system for automated vehicles to ensure the road safety benefits of these vehicles are realised. The NTC is focusing on achieving policy reform to support the safe, commercial deployment and operation of automated vehicles in Australia. The presentation focuses on policy options to address safety risks associated with deploying automated vehicles, including an early indication of the optimal option based on cost benefit analysis. The presentation also considers how safety risks under illustrative scenarios arising over the automated vehicle's lifecycle may be addressed under each option.

Overview of the Safety Assurance System policy reform

The presentation will:

- explain that the safety assurance system is a process that incorporates technical, human performance and environmental elements to ensure automated driving systems operate safely on public roads
- briefly outline the three policy reform phases.

Phase 1 – High-level design (completed)

In November 2017, transport ministers agreed to a high-level direction for government regulation of automated vehicle safety. The development of a safety assurance system based on mandatory self-certification in a transitional period was approved subject to a Regulation Impact Statement (RIS).

The recommendation was made following extensive consultation with stakeholders on four regulatory models: continue current approach; self-certification; pre-market approval; accreditation.

Phase 2 – Detailed consideration of policy and implementation options (currently underway)

The RIS focuses on the cost benefit analysis of policy options to address safety risks associated with deploying automated vehicles. The presentation will provide an overview of the baseline counterfactual without a safety assurance system, and three reform options. All three reform options focus on mandatory self-certification, with different levels of regulatory oversight: administrative (option 2); legislative (option 3); legislative with a primary safety duty (option 4).

Phase 3 – Implementation (next steps)

It is not proposed that the presentation will discuss the reform implementation phase as detailed consideration of policy and implementation options will not have been completed.

Overview of the cost benefit analysis in the RIS

The presentation will outline the cost benefit analysis methodology and how the cost benefit analysis has been undertaken for each policy option in the consultation RIS. Analysis of the costs and benefits of automated vehicle regulation has not previously been conducted in Australia and little work in this area has been done internationally.

Stakeholder feedback on the consultation RIS will be described.

Assessing the RIS policy options against illustrative scenarios

The presentation will consider a number of illustrative scenarios to highlight a broad range of safety risks that could arise over the lifecycle of an automated vehicle. The presentation will focus on four key stages: importation/manufacturing, modification/roadworthiness, on-road operation and vehicle disposal/end of life. The ability of each policy option to address the risk raised by each scenario will be considered and explained.

The presentation does not propose to cover every scenario and safety risk that could arise following the deployment of automated vehicles. Rather, the presentation will illustrate the safety gaps that are filled (or that remain) depending on the particular policy option chosen. In doing so, the presentation will highlight the safety benefit element of the cost benefit analysis.

Conclusion

The presentation will conclude that each additional level of regulatory oversight (moving from the baseline counterfactual to a legislative approach with a primary safety duty) fills a particular safety gap that a previous option is unable to address. However, the cost benefit analysis highlights that an incremental increase in safety could be associated with an increase in cost. The presentation will provide an early indication of the optimal policy option that provides the greatest safety benefit commensurate to cost.

The final RIS will provide the settled view on which option most appropriately balances costs and benefits, and should be adopted moving into the reform implementation phase.

References

- National Transport Commission. (2017). Assuring the safety of automated vehicles: policy paper. Melbourne.
- National Transport Commission (2017). Regulatory options to assure automated vehicle safety in Australia: discussion paper. Melbourne.