



1 November 2019

Committee Secretary
Senate Standing Committees on Rural and Regional Affairs and Transport
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Sir/Madam

RE: Inquiry into the importance of a viable, safe, sustainable and efficient road transport industry

The Australian Academy of Technology and Engineering welcomes the opportunity to contribute to this inquiry by the Senate Rural and Regional Affairs and Transport References Committee into the importance of a viable, safe, sustainable and efficient road transport industry. The Academy has recently completed significant research on Australia's technology readiness in the transport industry, which we are pleased to share with you to assist with the Committee's work.

The Academy brings together Australia's leading experts in applied science, technology and engineering to provide impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity. We operate across national technology challenges and policy areas that represent the expertise of our Fellowship, including transport and infrastructure.

A key priority area for the Academy is to help foster industry technology readiness: the preparedness of Australian industry to adapt, adopt and develop emerging technologies such as artificial intelligence, machine learning and the internet of things. The Academy recently released the first report of a three-year research project on this topic, looking at emerging technologies in the transport sector. We identified sustainability and climate change, productivity and health as the three key challenges that will need to be addressed within the transport sector over the next decade. Specifically, the transport sector will need to lower emissions, improve the efficient movement of people and freight, and reduce transport-related deaths and serious injuries. The deployment of connected and autonomous vehicles, low and zero emissions vehicles using alternative fuels, high frequency mass transit and intelligent transport systems are potential solutions to these challenges.

The Academy analysed each of these potential solutions against five readiness parameters:

- Infrastructure readiness
- Skills availability
- Social readiness
- Economic and commercial feasibility
- Policy and regulatory readiness

Our analysis found that Australia is performing well on a number of readiness indicators and is well placed to capitalise on the coming transport technology revolution, but we need to make smart, strategic decisions to keep pace with the technological frontier. The Academy makes four policy recommendations to achieve this and highlights associated research priorities in our report:

1. Implement mechanisms to drive a widespread shift towards low emission transport options

The Academy recommends that the Commonwealth Government implement policies to reduce vehicle emissions and to encourage the rapid and widespread uptake of LEVs. This should be driven by the following mechanisms:

- A national target and associated regulatory mechanism to drive the uptake of LEVs in Australia
- Public and private corporations should be incentivised to use LEVs as fleet vehicles
- Industry should lead ambitious uptake of LEVs by ensuring that vehicles imported into Australia meet stringent standards for emissions, supported by government vehicle emission standards

These mechanisms will need to be accompanied by efforts in the energy sector to ensure that LEVs are powered by low emission energy sources, in the context of our national emissions reduction target.

2. Provide a framework to regulate new transport technologies

The Academy recommends that an adaptive regulatory framework be established to provide guidance to the transport sector to help shape future transport systems.

- Australian governments should introduce flexible and adaptable legislative and regulatory frameworks that can keep pace with the global technology frontier to ensure that Australia becomes, and remains, a key competitive player in the global market of advanced transport technologies
- COAG should set nationally consistent standards and regulations to facilitate the uptake of productivity-enhancing technology. For example:
 - The development of a consistent regulatory approach for transport technologies and infrastructure, such as the development of standards for charging infrastructure and connections for LEVs, the development of standards for data sharing and data privacy, and the selection of standards for V2X communications based on global standards
 - Data aggregation and availability, where this would offer an avenue to insight for the market and consumers. Which data should be collected, the situations in which it needs to be shared in real-time and post real-time, and what can be shared for forensic purposes needs to be specified for key platforms (for example, from CAVs and ITS)

3. Develop and adapt transport technologies to an Australian setting

It is essential that Australia does not miss out on the benefits of technology because it does not yet meet the needs of our unique geography and climatic conditions. Transport technologies that are developed or adapted to an Australian setting have the potential to create the greatest impact.

- The Commonwealth and state governments should establish competitive grants programs that encourage the trial of transport technologies that can be adapted to the geographical or climatic conditions that are unique to Australia
- State, territory and local governments should plan for and adapt to future changes to Australia's vehicle fleet by undertaking integrated land use and transportation planning through coherent and consistent policies that take into account likely network use changes from new technologies

4. Prepare the workforce for the transition to future transport models

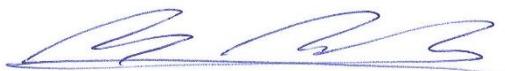
To prepare the workforce for the disruption of new transport technologies, workers must be supported to develop STEM skills and obtain the qualifications, skills and training to adapt to changing roles and tasks.

- State and territory departments of education should strengthen the content and teaching of science, technology, engineering and mathematics (including digital and data technologies, design, and engineering principles) during upper primary and compulsory secondary schooling to encourage students to pursue university and VET courses in these areas
- Universities and VET institutions, in collaboration with industry, should provide and promote course options that will assist Australia's current and future workforce to develop the skills required to meet the demands of the future transport sector. These may include, but not be limited to, skills in data analysis and modelling, city planning, software development, geospatial technologies, network and data security, logistics, skilled trades, transport data administration and project management

The Academy's transport industry technology readiness report directly addresses many of the inquiry's terms of reference, including road transport infrastructure, the regulatory and legislative framework, skills, training and career pathways, safety and the impact of new technologies. I hope the Committee will be greatly assisted by our research and the results of our consultations with industry, academia and government, and enclose a copy of the report, which can also be downloaded from our website: <https://www.atse.org.au/news-and-events/article/shifting-gears-preparing-for-a-transport-revolution/>

I would be pleased to arrange a briefing on the report's findings and recommendations at your convenience.

Yours sincerely



Dr Matt Wenham

Executive Director, Policy

Encl. Shifting Gears – Preparing for a Transport Revolution