CASE STUDY

RAIL SUPPLY CHAIN REPORT

ARA **INSIGHTS**

DRIVING INNOVATION THROUGH RESEARCH

TTG Transportation Technology

A research project developed by TTG Transportation Technology (TTG) with the University of South Australia in 1996 led to the creation of new train driving and schedule optimisation tools that are helping global railways stay on time and delivering energy and emissions savings of up to 15 per cent.

It is a 'local innovation going global' success story, but the Australian rail market could well miss out on enjoying the benefits.

TTG Managing Director Dale Coleman says while the development and commercialisation of the ENERGYMISER real time journey optimisation system would not have occurred without strong local support, bringing good ideas to market has been a consistent challenge when compared to the overseas experience.

"Australia's rail industry are generally technology takers, not makers," Mr Coleman says, noting many organisations were implementing technologies that were created overseas.

"While there are many valid reasons why this is the case, Australian research leads the world in so many areas that often go unrecognised due to the lack of support and commercial success locally.

"The University of South Australia has led the world on the application of optimal control methods to energy efficient land transport including rail operations for more than 30 years

"If we are not using the products we develop in our own backyard, it is an added barrier to success globally."

It is a theme that was echoed in the ARA's Rail Supply Chain Report, which called for innovation to be recognised and rewarded, with a focus on promoting collaboration between industry, government and educational institutions.

More projects like the ENERGYMISER could get to market – and flourish – if we had a national approach to innovation and procurement reforms that made it easier to test and adopt new solutions.

Mr Coleman says the report's findings were welcome recognition of the issues faced by industry, particularly smaller organisations that are not backed by global supply chains within their own companies.

TTG first partnered with the University of South Australia in 1996 to work on developing a commercial energy optimisation system for long haul freight trains.

Their work was also supported by Australian research funding and the first Rail Cooperative Research Centre (which was in operation from 2001 to 2006), with successful trials completed within the Australian rail freight sector.

The trials delivered compelling results and led to the development of ENERGYMISER, which is now in use by a major rail operator in Australia, and in wide use in the UK, Europe and a heavy haul railway in Africa.

But despite the advantages of a strong research partnership, CRC funding and the support of trial participants in the freight sector, achieving scale in the wider Australian rail market has proven challenging.

As a result, the technology is being put to use in other parts of the world far more than it is here 'at home'.

Mr Coleman says that TTG was able to create a market for a product that has a compelling business case overseas, with customers who were prepared to partner with them to deliver the value proposition.

As a result, driving advisory systems have become the norm for many railways and are specified as a requirement in new operating contracts in the UK and Europe as part of the future digital railway.

TTG has been able to develop partnerships with Tier 1 manufacturers to provide fully integrated solutions that deliver cost reduction, performance and sustainability benefits.

"That has been really important for getting the ENERGYMISER to market in cases where a whole of systems approach is required, something TTG can't deliver on its own even with fantastic Australian technology," he says.

He says overseas markets' willingness to embrace collaborative models where operators take an outcomes based approach had increased as the technology underpinning rail networks becomes more crucial to its safe and efficient operation.

"Today's systems are real-time integrated digital systems that seek to optimise capacity and efficiency while maintaining safety," he says.

"So the challenge for Australian technology providers is to provide the pathway into the global supply chain.

"To achieve that requires investment in the clever researchers whose ideas create the innovation that leads to new technology."

Mr Coleman says current procurement models can inadvertently preclude smaller suppliers with innovative new product offerings before they begin.

He is a strong advocate for procurement processes that provide pathways for joint ventures that allow businesses of all sizes to compete on their merits, and for clients to be able to access leading expertise and best in class technology across the whole supply chain.

He says technology innovation in rail can play an important role in a post COVID-19 world where there are expectations for a cleaner sustainable future.

Supporting Australian research and innovation in this space is also critical if Australia is to play a role in driving energy efficiency and emissions reduction.