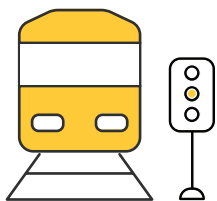


# INNOVATION AND THE AUSTRALIAN RAIL INDUSTRY

There are many cases of innovation driving efficiency, reducing costs and improving customer outcomes in Australian rail. But more needs to be done to realise the industry's full potential.



## AUTOMATION DRIVING BETTER RETURNS

The new Sydney Metro project has used automation to deliver greater efficiencies and return on investment. The project already recovers 28 cents of every dollar in operational spending, compared to 20 cents recovered by Sydney Trains. By 2021, Sydney Metro is expected to recover 60 cents in every dollar - a 300% improvement on the traditional network.

The results speak for themselves. Investment in innovation drives costs savings and efficiency - even as operators continue their work to enhance the customer offering.

## LEADING THE WORLD IN HEAVY HAUL

Rio Tinto and Fortescue Metals Group own private rail networks to get their commodities from pit to port. They invest in their own R&D to drive innovation and realise cost and safety efficiencies. And their work is delivering results, with their heavy haul rail networks among the best in the world.

**RioTinto**



Developed the world's first autonomous heavy haul long distance rail network in the Pilbara region of WA with Hitachi Rail STS. The innovation delivered a 6% speed improvement and enables predictive analysis to improve maintenance.

Owns the fastest heavy haul network in the world. Its 40 tonne axle loads make it the heaviest haul railway globally.

## EXPORTING AUSTRALIAN INNOVATION

The Monash Institute of Rail Technology has established a global reputation for its work. They developed a new condition monitoring technology that monitors railways in real time, while they are in use. The technology improves the efficiency, safety and comfort of busy passenger rail lines while extending the life of rail infrastructure.

The technology was implemented by Hong Kong Metro in 2017 to support the delivery of services for 5.4 million people every week.

Technology used by:



**MTR**

**RioTinto**

**BHP**



## WHY WE NEED TO DO MORE TO CREATE A RAIL INNOVATION CULTURE

Australia has the capability to lead a vibrant rail innovation culture. But our rail related patent applications have fallen 5% in the last five years alone.

Without a national focus, and a long term commitment that brings both government and industry together, Australia will continue to lag behind the rest of the world.

There is \$155 billion to be spent on rail projects in Australia in the next 15 years. A clear innovation and technology focus will maximise the benefits of our investment and help realise the efficiencies being achieved through the use of innovation on projects globally.



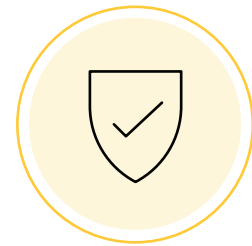
### Reduce costs

A complex rail construction project in Germany saved 10% using Building Information Modelling to reduce energy use and maintenance



### Improve reliability

VicTrack's sensor arrays and artificial intelligence predict adverse car and track conditions to improve safety and reduce maintenance costs



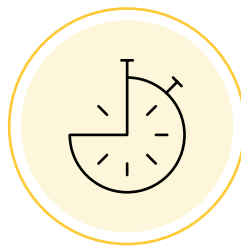
### Improve safety

Wayside detectors, smart sensors and condition monitoring tools have reduced mainline accidents caused by equipment by 36% in 10 years



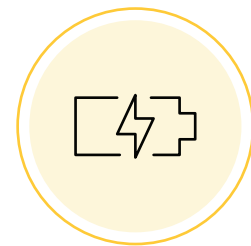
### Increase capacity

The UK's Rail Sector Deal led to investments in data, digitisation and sustainability to deliver up to £31 billion in benefits



### Save time

ICT tools have halved wait times on Berlin's U'Bahn network



### Save energy

Energy storage systems on the Tehran Metro achieved daily energy savings of 25%

## WANT TO KNOW MORE?

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