



# VIRTUAL TRAIN DRIVING

**Full project name:** Advanced Interactive Rail Learning

**Lead organisation:** Metro Trains Australia

**Collaborators:** Exner Education, Real Serious Games, Chisholm Institute of TAFE, Swinburne University of Technology

**Completion date:** October 2019



## AN URGENT NEED – THE CONTEXT

Major government investment in the rail network has triggered a pressing demand for new, highly skilled and qualified train drivers. Metro Trains Melbourne must hire about 150 drivers a year for the next three years to address attrition, timetable changes, level crossing removals, new high-capacity trains and signalling, and the Metro Rail Tunnel project.

## WHY DON'T WE ... – THE INNOVATION

This project uses cutting-edge virtual reality to transform driver training. Designed with the input of Swinburne University and Safety Journey experts in fields such as neuroscience and sensory motor integration, the training promises to safely accelerate the student's skill acquisition, thus helping meet the demand for hundreds of new drivers.

The immersive, fully interactive modules are set over 6km of virtual track. The environment has a distinctive Melbourne "feel" despite not being based on any specific part of the city.

The attention to detail is impressive. Trainees sit in a full motion VR train driver simulator as they interact with console controls and the master controller. All console functions, including the cabin mirrors and radio, work as they would in real life.

Trainees must deal with important scenarios. For example, in one module they encounter a shopping trolley on the track and must take appropriate action. This is exactly the sort of situation that was extremely difficult to prepare drivers for before the advent of VR.

Real-time telemetry and diagnostics accurately assess the trainees' performance and help them to learn and improve in scenarios such as getting arrival, departure and signal procedures right.

## GETTING MELBOURNE MOVING – THE OUTCOMES

The project is on track to deliver the drivers that Melbourne needs, on time and on budget.

User testing has taken place with the support of Chisholm Institute of TAFE, which is completing the process of mapping the training to the Cert IV Driver Training qualification. Work has also commenced on a VET sector engagement plan.

One of the project's trump cards is that it will provide a compelling basis for similar initiatives in the future. Swinburne University is preparing a research project that will serve as an evidence base for the use of virtual reality training. The findings from this will be applicable to any industry sector that involves training complex skills to people who must use computer systems in their work.



## A BURGEONING TECHNOLOGY – LESSONS LEARNED

- It's important to remember that virtual reality training must be informed by people who understand the problems you're trying to address, according to Scott Reimers, head of innovation and business start-up at Metro Trains Australia. *"VR is all about real-world problems,"* he says. *"Accessing the people and documentation to tell these stories is critical. Having access to content experts who have real-world experiences increases the authenticity of the content – and its effectiveness."*
- VR is a developing technology, and therefore there are relatively limited published conclusions about its use in education. Because of this, having an extensive evaluation program to test the effectiveness of VR in training was particularly important for this project.
- VR has been extensively used in the entertainment industry but its potential to be incorporated into practical learning is yet to be realised.

Founded in 2017, the Workforce Training Innovation Fund (WTIF) is a targeted *Skills First* funding stream. WTIF creates opportunities for partnerships between industry and the TAFE and training system and encourages them to explore bold, innovative approaches that challenge existing practices in skills development and training methods.

Ultimately, these new ideas and solutions aim to enhance workplace productivity, particularly in Victorian Government priority sectors. More than \$90 million of funding has been committed to date.

The next round of WTIF funding is now open for applications.

To find out more visit [www.education.vic.gov.au/training/providers/funding/Pages/wtif.aspx](http://www.education.vic.gov.au/training/providers/funding/Pages/wtif.aspx) or email the WTIF team at [wtif@edumail.vic.gov.au](mailto:wtif@edumail.vic.gov.au)