RAIL EDUCATION AND TRAINING
DISCLAIMER

Austrade does not endorse or guarantee the performance or suitability of any introduced party or accept liability for the accuracy or usefulness of any information contained in this Report. Please use commercial discretion to assess the suitability of any business introduction or goods and services offered when assessing your business needs. Austrade does not accept liability for any loss associated with the use of any information and any reliance is entirely at the user’s discretion.

©Commonwealth of Australia 2016

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth, available through the Australian Trade and Investment Commission. Requests and enquiries concerning reproduction and rights should be addressed to the Marketing Manager, Austrade, GPO Box 5301, Sydney NSW 2001 or by email to marketing-commshelpline@austrade.gov.au

Publication date: August 2016
LEARN FROM THE LEADERS IN INNOVATION, PRODUCTIVITY AND SAFETY
The Australian Rail industry employs almost 200,000 people and is the sixth-largest network in the world.

Rail in Australia underpins the national economy and is at the forefront of innovation, productivity and world’s best practice.

Australia’s capabilities in education and training are essential to the success of Australia’s rail industry.

The industry operates a sophisticated passenger network, and is a global leader in heavy haul rail freight, moving the longest and heaviest freight trains in the world.

Australia exports vast quantities of minerals, and partnerships between Australian resources and rail companies support national resources projects. Aurizon alone hauls over 250 million tonnes of commodities annually, consisting of coal, iron ore and bulk.

More than two thirds of agricultural commodities are also exported each year, and rail plays a key role in transporting these products to ports around Australia.

Australia currently has approximately $12.6 billion worth of government rail infrastructure either being built, or to be built in the next three years, to meet resource and passenger demands.

This industry capability report provides an overview of Australian capability in the rail education and training sector, including examples of some of the many Australian companies with specialist expertise.

Talk to your local Austrade representative for more tailored advice and information about connecting and partnering with this industry.
The Australian rail industry has built both vocational and academic qualifications designed specifically for the rail industry which can be taught and recognised anywhere in the world.
RAIL EDUCATION AND TRAINING

HIGHER EDUCATION

Operating under a national safety regulation, Australia enjoys one of the world’s best safety records for any rail industry. This is partly due to a highly skilled, highly trained and qualified workforce.

Some 70 per cent of all rail in Australia is now owned and/or operated by private companies. This has influenced the design and delivery of rail industry skills and qualifications. As workers move from company to company, operators demand benchmarking of training outcomes so they can better understand the base skill set of individual workers. This has led to a stronger, more robust and transparent training sector specialising in rail, at both the public and private end of the training spectrum and in both academic and vocational fields.

The development of rail-specific training packages has allowed industry stakeholders to contribute to the content of these training packages. Registered Training Organisations (RTOs) with rail expertise now deliver training in a variety of methodologies, developed to suit the market and workers alike.

The Australian vocational education and training (VET) and academic sectors have developed such strong expertise in these areas that they are now sought after internationally to deliver training in the rail sector, both in Australia and offshore. The Centre for Railway Engineering at CQUniversity, Queensland, for example, has developed train dynamics and rail vehicle simulation software. This is currently being used in a project with Indian Railways to reduce passenger impact when a train stops and starts (see case study on p.25).

Many rail companies are now sending their workers to Australia to be trained to Australian standards and qualifications, as well as bringing Australian training organisations to their regions to train their workers onsite. This was the case when Etihad Rail faced a shortage of skilled workers. They turned to the Centre for Excellence in Rail Training (CERT) to develop a short course to induct Etihad Rail employees into the rail industry (see case study on p.23).

Domestic experience has equipped Australian training providers to be flexible, professional and capable of delivering courses to a large audience.

TRAINING DELIVERY METHODS

While traditional face-to-face delivery is still widely used in the industry, other methods used in stand-alone or blended programs include onsite, online, and 4 and 5D and oculus rift (virtual reality). Leaders in this field include Real Serious Games, known for its cutting-edge training solutions involving virtual reality and gamification (see case study on p.24) and Sydac, global providers of train driver simulators (see case study on p.27).

ENGINEERING AND RAIL DEGREES

The rail industry is one of the most diverse sectors of the Australian economy, with many different academic qualifications required to ensure the safe, efficient and professional running of the sixth-largest rail network in the world. While not an exhaustive list by any means, the main engineering and rail degrees required are:

- rail engineering (mainly with a civil or mechanical engineering background)
- rail signalling engineering
- systems analyst
- environmental engineering
- asset management
- telecommunications
- traction engineering
- Master of Rail
- network and train control.
Australia is a world leader in the development and delivery of vocational education and training. This is mainly due to the national framework that all Registered Training Organisations (RTOs), both private and public, must follow – The Australian Quality Training Framework (AQTF).

The AQTF is the national set of standards which ensures consistent, high-quality training and assessment services for the clients of Australia’s vocational education and training system. The AQTF has operated since 2002.

The AQTF format has built-in quality indicators which are designed to help training organisations conduct evidence-based and outcomes-focused continuous quality improvement, and assist in operational risk assessment.

Using the AQTF as the backbone for all training conducted in Australia means that the qualifications received are flexible enough to be transferred from one industry to another. For example, a Certificate III in Diesel Fitting or Electrotechnology can be utilised in rail just as easily as it can in mining, road transport or manufacturing.

Australia’s AQTF framework, through its skills benchmarking, gives an employer confidence that existing or prospective employees have attained a particular skill level appropriate to the qualification (e.g. Certificate I, II or III). In many other countries, employee skill levels depend more on which institution a person is trained in, rather than the qualification.

This combination of compliance and flexibility means Australian education and training companies can provide standard training or tailor-made solutions for international rail organisations.

RTOs operate to strict compliance and regulatory codes and are capable of training to the same exacting standards anywhere in the world.

Throughout Australia there are two main types of providers of vocational education and training - TAFE and private training providers.

**TAFE**

TAFE (Technical and Further Education) facilities are owned and operated by state governments in every state across Australia and provide a complete suite of training in qualifications from Certificate I to Associate Diploma. TAFE focuses mainly on core trades (carpentry, plumbing, electrical), and is the main provider of training in rail across Australia.

Areas of learning with formalised accredited courses include:

- rail infrastructure and rolling stock design
- rail infrastructure construction
- rail infrastructure maintenance
- rolling stock maintenance
- operations employee training including drivers, train controllers and freight handlers
- signalling design and maintenance
- rail communications and networks
- rail operations management including business continuity and RAMS (Reliability, Availability, Maintainability, Safety)
- track maintenance
- rail logistics and supply chain management
- rail safety management.
PRIVATE TRAINING PROVIDERS

Private providers are private companies that have been accredited as a Registered Training Organisation (RTO) and deliver training in courses and training packages that they have been assessed as capable of delivering to the AQTF standard. Private providers tend to deliver courses from a more specialised perspective (such as train driver, rail infrastructure) and are usually flexible in terms of delivery methodology and location.

The Metro Academy is one example of an RTO delivering both nationally recognised units of competence and tailored non-accredited training programs for railway workers and contractors. The Metro Academy has access to Melbourne’s metropolitan railway and is backed by Hong Kong’s MTR.

Rail related VET Qualifications:
• Certificate I, II, III and IV in Transport and Logistics (Rail Operations)
• Certificate II, III in Rail Infrastructure
• Certificate II, III in Track Protection
• Certificate III in Mechanical Rail Signalling
• Certificate III in Rail Track Surfacing
• Certificate III in Rail Structures
• Certificate III in Electric Passenger Train Guard
• Certificate III in Rail Driving
• Certificate III in Rail Signalling
• Certificate IV in Rail Network Control
• Certificate IV in Rail Infrastructure
• Diploma in Frontline Management.
In addition to training, Australian organisations and universities can also assist rail companies directly.

CONSULTING AND MANAGEMENT STRATEGIES

The rail industry must be consistently safe and reliable so when issues arise Australian expertise can help identify the causes and develop appropriate solutions.

This was the case when V/Line, the regional train operator in the Australian state of Victoria, commissioned the Institute of Railway Technology to investigate the causes of accelerated wheel wear on their passenger fleet (see case study on p.26).

The Simulation, Modelling, Analysis, Research and Teaching (SMART) Infrastructure Facility at the University of Wollongong is another leader in this field, building models for rail service providers that enhance understanding and appreciation of customer behaviour (see case study on p.22).

RECRUITMENT AND RETENTION

Attracting skilled workers and staff turnover are potentially high-cost areas for any organisation.

Australian training organisations and universities, in collaboration with industry associations, are adept at assisting rail companies develop and implement their recruitment and retention strategies through:

• creating ‘Employer of Choice’ programs
• graduate and intern programs
• leadership and career advancement programs
• ‘Come and Try’ days
• school and university expos
• rail experience programs
• community collaboration
• mentoring.
AUSTRALIAN TRAINING ORGANISATIONS AND UNIVERSITIES, ALONG WITH INDUSTRY ASSOCIATIONS AND WORKFORCE DEVELOPMENT CONSULTANTS, PROVIDE THE EXPERTISE AND ADVICE TO RAIL COMPANIES DEVELOPING AND UPSKILLING THEIR WORKFORCE. THIS HELPS PROVIDE CAREER DEVELOPMENT FOR WORKERS, AS WELL AS A PRODUCTIVE AND PROFITABLE WORKFORCE.

A framework of education pathways has been pioneered by the Australasian Railway Association so that employees can progress their careers through continuous learning.

The rail career pathways website is designed to assist practitioners in recruitment, performance management, remuneration, career planning, professional development and workforce planning. It also serves as an attraction, retention and engagement tool.

Visit the rail career pathways guide at railcareerpathways.net.au
The rail industry is one of the most technical and innovation-driven industries, and to keep up with developments takes commitment and expertise from universities and research organisations. Australian rail industry bodies and research centres are actively involved in developing products and technologies to enhance all aspects of rail transport, such as CQU’s software that simulates and explores gear unit designs (see case study on p.25).

**RAIL MANUFACTURING COOPERATIVE RESEARCH CENTRE**

The Rail Manufacturing Cooperative Research Centre (CRC) links participants from major rail companies throughout Australia with leading Australian universities. Established in 2015, the Rail Manufacturing CRC has an important but limited mandate to co-fund research projects to help develop new technology needed by rail businesses. It supports the development of innovative technologies by fostering, sponsoring and directing collaborative research and commercialisation partnerships. Areas of research include:

- power and propulsion
- materials and manufacturing
- design, simulation and software.

rmcrc.com.au

**THE INSTITUTE OF RAILWAY TECHNOLOGY**

Specialising in capacity building through technology and knowledge transfer, the Institute of Railway Technology (IRT) at Monash University, Melbourne, has over 40 years’ experience in track and vehicle railway research. IRT provides technology services to heavy haul railway operations, mass transit railway systems and has an enviable international track record in solving railway-related technical issues.

Current projects include:

- material behaviour in wheel-rail contact
- rail welding
- steel sleeper development
- instrumentation
- heavy haul and mass transit
- testing of track substructure
- wheel impact monitor
- technical and economic tools.

irt.monash.edu

**CENTRE FOR RAILWAY ENGINEERING**

The Centre for Railway Engineering (CRE), based at CQU is an industry-focused research centre and is well known for research expertise in train dynamics, wagon and bogie dynamics, wagon and track system dynamics, erosion control within railway corridors, simulation, instrumentation and field testing.

Current projects include:

- curve lubrication
- heavy haul draw gear
- rail grinding
- locomotive adhesion
- longitudinal passenger comfort.

cqu.edu.au/research/organisations/centre-for-railway-engineering

**UNIVERSITY OF WOLLONGONG**

The University of Wollongong has long been a participant in the rail industry both in Australia and overseas. Establishing a campus in Dubai in 1993, it is one of the United Arab Emirates’ oldest and most prestigious universities.

uowdubai.ac.ae
info@uowdubai.ac.ae
Image courtesy of Sydac
The global rail industry requires a highly skilled, flexible and robust workforce. Australia is a world leader at providing training and education for this sector, from capacity building for government officials through to management, operational, technical and trade-related requirements.
MTR being SMART

Hong Kong’s MTR Corporation has commissioned the SMART Infrastructure Facility at the University of Wollongong (UoW) to investigate how social media chatter can be captured and used to boost innovation and customer service.

Collaborating with UoW’s Faculty of Business and using advanced geosocial techniques developed at SMART, researchers and MTR aim to develop a knowledge-sharing platform that will capture, organise and act on information harvested from social networks.

This research project will assist the world-renowned rail service provider to develop strategies for harnessing information published by commuters on social networks such as Twitter, Weibo, WeChat and Facebook, and utilise this information to boost innovation and customer service.

SMART, a respected partner and leader in the space of geosocial intelligence (GSI), will custom-build a platform to suit MTR’s needs.

The UoW has been supporting the MTR since 1996, developing and delivering courses to support their people development, in preparation for growth and service intensification. UoW has been a partner continuously during this time, as the company has transformed into a profit-generating railway with world-leading customer service levels.

The Asset Management Masters degree, along with its forerunner the Maintenance Management Masters, has seen some 60 in-house candidates qualify, enabling MTR to be a leader in the asset management field. Today the course is delivered entirely through e-based learning.

smart.uow.edu.au/research/UOW096303
Cert teaches a nation a new industry

The rail industry in the United Arab Emirates is still emerging, with the first heavy haul and freight rail company established in 2009. Etihad Rail’s network of 1,200 kilometres is to be built in stages, and when complete will connect all of the Gulf Cooperation Council countries.

Operational services in a testing capacity commenced in September 2013.

With an industry so new, the challenge for Etihad Rail was to recruit Emiratis that had both the technical and academic qualifications (for example civil engineers) and experience in the rail industry. With the latter proving difficult to find, Etihad Rail turned to the Centre for Excellence in Rail Training (CERT) to develop and deliver a five-day foundation course in rail.

Working closely with Etihad Rail on content and delivery methodology, CERT and industry partners developed the syllabus and delivery resources to induct Etihad Rail employees into the rail industry. The course provides an overview of the industry, terminology, infrastructure and operations knowledge, with a field trip to the stabling yards to put the theory into practice.

The course has proved to be very successful, with Etihad Rail conducting regular sessions of the foundation course for new employees.

CERT has the capacity to provide a holistic rail training service, including but not limited to train drivers, track construction, track maintenance, safeworking and rules, courseware development and skills audits.

certrain.com.au
Real Serious Games – a serious game changer in rail training

A leading Australian metropolitan rail operator was experiencing a sharp increase in the number of train operators and related workforce required to operate a rapidly growing, new rolling stock fleet. Added to this pressure was the construction of additional rail lines. The operator responded by fundamentally rethinking its training regime.

A consortium of Real Serious Games, Exner Group and SafetyJourney combined their expertise to provide cutting-edge educational training, incorporating gamification and virtual reality. Underpinned by the neuroscience of engagement and learning, this approach is more efficient and has higher impact than traditional training methods.

Modules and courses in rail operations and track protection are now providing a superior learning experience and outcome for its employees by:

- being an enjoyable training experience
- activating brain networks that search for an intrinsic reward in the material, thus more reliably directing participants’ attention and focus
- use of technology which:
  - facilitates a positive emotional reaction in participants, thus maximising engagement with the material
  - requires participants to solve problems themselves, rather than be given answers (shown to result in better retention and more sustainable results)
  - provides experience as well as information that
    - maximises likelihood of satisfactory “real environment” assessment result
    - reduces reliance on actual asset availability – providing a more predictable and manageable training schedule.

This program has improved outcomes for the employer by reducing the time to complete training, improving the post-training skill level of participants and increasing the first time pass rates of participants.

realseriousgames.com
exner.com.au
safetyjourney.com
The Centre for Railway Engineering (CRE) at CQUniversity has developed the most comprehensive numerical simulation tool available, combining longitudinal train dynamics software, proprietary rail vehicle simulation software and advanced fundamental modelling of locomotive adhesion.

Two large research projects currently being carried out at CRE are:

1. improvement of ride comfort on passenger trains in India
2. improvement of heavy haul draw gear systems.

To improve passenger comfort on trains in India, CQUniversity rail researchers have been working with the Research Design and Standards Organisation (RDSO), which is part of Indian Railways.

To reduce the impacts felt by passengers when the train stops and starts, the project involves:

- research on the development of a suitable passenger comfort standard
- development of mathematical models and simulation software for RDSO use
- evaluation of existing coupling systems
- optimisation of design parameters based on simulation and field studies
- RDSO staff members attending the CQU campus for three weeks of training in the use of the software.

A second project focusses on developing and commercialising better draft gear units, the ‘shock absorbers’ that sit between wagons and help to keep long trains stable.

The Heavy-Haul Draft Gear test system allows the dynamic testing of high-strength railway couplers at forces of up to 450 tonnes. Dynamic testing will determine how the coupler behaves with fluctuating and rapidly changing loads as may be experienced in a real train. This directly tests the reliability and service life of the couplers.

The team has developed new software to simulate and explore various gear unit designs, with better gear units leading to safer and heavier long-haul coal trains.

[cqu.edu.au/research/organisations/centre-for-railway-engineering](cqu.edu.au/research/organisations/centre-for-railway-engineering)

Image courtesy of CRE
IRT provides wheel-rail interface solutions to existing rail systems

Monash University’s Institute of Railway Technology (IRT) is a world leader in providing wheel-rail interface solutions. IRT was commissioned by V/Line, the regional train operator in the state of Victoria, Australia, to investigate the root causes of accelerated wheel wear on their VLocity passenger DMU fleet.

This high-profile investigation followed widespread public controversy over severe service disruptions and cancellations.

IRT conducted inspections and analysis work and found primary causes of the fleet wheel wear to be a combination of tight curve radii, wheel-rail friction conditions and the low wear resistance of the wheel and rail materials.

IRT recommended various strategies to overcome the wheel-rail interface problems, including a lubrication regime, changing materials grades and characteristics of both wheels and rails, possible rolling stock design modifications and a review of overall management of the wheel-rail interface on the V/Line network.

In another area of research, IRT’s work to reduce wheel squeal noise of trains has delivered results for the Hong Kong MTR and Queensland’s Gold Coast Light Rail.

A study undertaken for Hong Kong MTR found wheel squeal to be directly related to friction characteristics between wheel and rail that exist at a slow speed when there are sharp curves.

In Queensland, another project experiencing similar wheel-rail interface noise was resolved by IRT researchers.

Project Engineering Manager Gold Coast Rapid Transit Alex Robinson said “the team from IRT recommended and tested the use of friction head modifiers at a couple of critical locations in Surfers Paradise, which had a significant impact on reducing the noise at those locations. The work directly supported the successful commencement of the (Gold Coast Light Rail) passenger service.”

irt.monash.edu

Image courtesy of IRT
Sydac provides Driver Training Simulators to Shanghai Metro

There has been a rapid expansion of railways in China, and the Shanghai Metro has become one of the largest metro systems in the world.

This rapid growth has meant training a large number of drivers, but on such a busy train network it is simply not possible to interrupt train schedules to train drivers.

Without disturbing the network, train simulators provide a safe and reliable method for training drivers in their full range of tasks, including complex technical tasks, and how to deal with train faults and emergency situations.

Sydac has now supplied two Train Driver’s Simulators with full coverage of two of Shanghai Metro’s busiest lines. The two full mission simulators are augmented by twenty part-task simulators, focused on the rapid identification and rectification of train faults.

Sydac invested time and resources a full four years before their first China project, to build insight and trust with China rail operators. They have developed relationships and a method of working together that meets both parties’ needs and expectations.

Sydac adapted its project management methodology to the cultural reality of working in China, allowing them to remain responsive in this dynamic market, without compromising quality or profit.

Adelaide founded and based, and well established as a supplier in the UK and Europe, Sydac recognised that in order to fund further growth into global markets such as China, it needed capital. Now part of the Knorr Bremse Group, Sydac has been able to leverage their existing presence in the Chinese market.

Sydac have built a world-leading business supplying simulators globally. The core business is train driving simulation, and the company has over 160 employees working purely on rail simulation, and providing innovation through continuous research and development investment.

sydac.com
INTRODUCTION
HIGHER EDUCATION
VOCATIONAL EDUCATION AND TRAINING
IN THE WORKPLACE
RESEARCH AND INNOVATION

COMPANIES AND CAPABILITIES
FURTHER INFORMATION
<table>
<thead>
<tr>
<th>Company</th>
<th>Infrastructure Training</th>
<th>Safety Training</th>
<th>Operations Training</th>
<th>Logistics Training</th>
<th>Research</th>
<th>Vocational</th>
<th>Academic</th>
<th>Short Courses</th>
<th>Non-accredited Training and Other Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Training Specialist (ATS)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>AGB Human Resources</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Australasian Business Excellence Centre ABEX Group</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Australian Institute of Resources Training (AIRT)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Centre for Excellence in Rail Training (CERT)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Engineering Education Australia</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Exner Group</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>GoTrain Industry</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Industry Training Queensland</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Informa Corporate Learning</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Major Training Group</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Metro Academy</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Monash University (Institute of Railway Technology)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Martyr Training Services</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Open Universities Australia</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Professional Training Services Australia</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Queensland University of Technology (QUT)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>RailTrain</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Railway Technical Society of Australia (RTSA)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
This table provides some examples of organisations and their capabilities. Contact your local Austrade representative for assistance with connecting with the Australian businesses that best suit your requirements.

[austrade.gov.au](https://austrade.gov.au)
INDUSTRY ASSOCIATIONS AND LINKS

Australasian Railway Association. The peak body for rail in Australia ara.net.au

- Rail Industry Group represents the interests of rolling stock manufacturers and suppliers
- Rail Contractors Group represents the interests of infrastructure construction companies, including track construction, tunnels, stations, signalling and electrification

TrackSAFE Foundation. A registered harm prevention charity established by the Australian rail industry tracksafefoundation.com.au

Australian Transport Safety Bureau. The national rail safety investigator atsb.gov.au

Rail Knowledge Bank. Information on Australasian rail industry innovation, complemented by linkages to international resources railknowledgebank.com

The Institution of Railway Signal Engineers irse.org.au

The Chartered Institute of Transport and Logistics. Leadership in research, policy and professional development in the transport and logistics industry cilta.com.au

The Permanent Way Institution pwinsw.org.au

Railway Technical Society of Australasia. Promoting the co-operation of academic, industrial, commercial and governmental organisations in relation to the practice and advancement of railway technology and management in Australasia. rtsa.com.au

Australian Rail Track Corporation. A Federal Government-owned corporation that manages most of Australia’s interstate rail network artc.com.au

AusRail Annual Conference and Exhibition ausrail.com

Australian Rail Directory raildirectory.com.au

The Office of the National Rail Safety Regulator (ONRSR). An independent body to encourage and enforce safe railway operations and to promote and improve national rail safety and national oversight of rail safety law. onrsr.com.au

Transport and Logistics Industry Skills Council. Establishing skills standards and development of industry training packages tlisc.org.au
REFERENCES


7. Of the 22 main managers and/or operators of rail in Australia, 17 are either fully privately owned or are GoCs (Government owned corporations)

8. Vocational education and training (VET) is the part of tertiary education and training which provides accredited training in job related and technical skills. It covers a large number of careers and industries like trades and office work, retail, hospitality and technology. training.nsw.gov.au/vet

The Australian Trade and Investment Commission – Austrade – contributes to Australia’s economic prosperity by helping Australian businesses, education institutions, tourism operators, governments and citizens as they:

- develop international markets
- win productive foreign direct investment
- promote international education
- strengthen Australia’s tourism industry
- seek consular and passport services.

Austrade helps companies around the world to identify and take up investment opportunities in Australia as well as to source Australian goods and services.

Our assistance includes:

- providing insight on Australian capabilities
- identifying potential investment projects and strategic alliance partners
- helping you to identify and contact Australian suppliers.

W austrade.gov.au
E rail@austrade.gov.au