

About Industry Skills Australia

Industry Skills Australia has been established as the Jobs and Skills Council for the nation's Transport and Logistics industry sectors, which includes Aviation, Maritime, Rail, Transport and Logistics, and the emerging sectors of Omnichannel Logistics and Distribution, and Air and Space Transport and Logistics.

Owned and led by industry, our Jobs and Skills Council is committed to building a world-class supply chain workforce to increase productivity, create better jobs and build opportunities for individuals.

We will do this through:

- leveraging our more than 30-year history with the transport and logistics industry,
- undertaking research and data analysis to inform workforce planning,
- advocating for a workforce development approach in tackling industry skills issues, and
- developing priority training package products.

Copyright

Citation Use of all or part of this report must include the following attribution: © Industry Skills Australia Limited, Rail Industry, 2023 Initial Workforce Plan.

Disclaimer

Whilst all care and diligence has been exercised in the preparation of this report, Industry Skills Australia Limited does not warrant the accuracy of the information contained within and accepts no liability for any loss or damage that may be suffered as a result of any reliance on this information.

Acknowledgements

Industry Skills Australia Limited acknowledges and thanks representatives of the industry that provided their assistance in developing the Rail Industry, 2023 Initial Workforce Plan with funding from the Department of Employment and Workplace Relations under the Jobs and Skills Council Program.

Table of Contents

About the Initial Workforce Plan	4
Executive Summary	5
Megatrends Across Industries	8
Digital Technology and Automation	8
Decarbonisation	9
Workforce Supply Challenges	10
Industry Skills Development	11
Rail Industry Data	12
Key Challenges and Drivers Affecting the Rail Workforce	17
A. Rail infrastructure investment will exacerbate workforce shortages	17
B. Digital skills are now essential for all workers	19
C. Interoperability challenges are impacting labour mobility	20
D. The training system is struggling to meet industry's skilling needs	22
E. Data gaps	24
Existing Workforce Strategies and Initiatives	
Appendix A Rail Occupational Areas	
Appendix B Training System Data	29
Appendix C Glossary of Terms	33
Appendix D Explanatory Notes to Data	34

About the Initial Workforce Plan

Workforce Planning is the strategic centrepiece for Jobs and Skills Councils to inform and establish each of their other functions. This Initial Workforce Plan represents a stock take of existing information and sets a path for prioritising and diagnosing workforce challenges. The Plan will inform initial strategies and actions of Industry Skills Australia. As this is an Initial Workforce Plan, it has been developed using data and information collected through the transition from previous industry engagement arrangements, desktop analysis, preliminary stakeholder engagement and industry insights gathered through Jobs and Skills Council governance arrangements. In developing the Initial Workforce Plan, we leveraged our deep understanding of 'the state of play' across each of the four industries to produce four Skills Priorities Papers. These papers outlined common megatrends impacting on industries and specific workforce challenges and opportunities. Following targeted consultation with 'critical friends' including State and Territory Training Authorities, these Skills Priorities Papers formed the backbone of our workforce plans.

Informed by this consultation and a quantitative and qualitative evidence base, Industry Skills Australia's 2023 Initial Workforce Plans provide an important baseline for our Strategic Workforce Planning Committees as they embark on developing the 2024 workforce plans for their sectors.

The Initial Workforce Plan is not intended to include all jobs and skills-related challenges, but indicate the many areas in which Industry Skills Australia will develop collaborative relationships, conduct further research and evidence collection, and build workforce planning capability and expertise.

The Plan will be used to further engage with stakeholders, with the feedback received incorporated into future iterations of the Plan. As Jobs and Skills Councils mature and as the Plan is updated each year, the Plan will seek to better understand current, emerging and future workforce challenges and opportunities, including skills gaps and shortages for all industries within Industry Skills Australia's remit, including small, niche and regional sectors and to develop appropriate strategies and advice for addressing diagnosed challenges. This also includes working with Jobs and Skills Australia to better understand the outlook for employment for each industry sector.

The 2023 Initial Workforce plan builds the themes to work towards a 2024 Workforce Plan which will start to put forward strategies to address industry drivers/challenges.

Critical Industry Stakeholders are provided multiple opportunities to engage in the development and implementation of the Workforce Plan¹. Industry Skills Australia subscribers will receive notification of public consultation on the 2024 Workforce Plan. Industry Skills Australia welcomes stakeholder input for future Workforce Plans.

¹ Critical Industry Stakeholders are those organisations whose support for the Workforce Plan is considered critical to its broad acceptance by industry and governments.

Executive Summary

The Rail industry comprises the operation, coordination and transportation of passengers and freight by rail. It includes operation, coordination and maintenance of rail vehicles, track and infrastructure. The activities of the industry can be categorised into four (4) occupational areas (further details provided in **Appendix A Rail Occupational Areas**):

- Rail Operations
- Rail Infrastructure
- Safety
- Rolling Stock Maintenance

The industry employs over 40,000² people and comprises private and public operators, passenger and freight operators (including resource companies that build and operate dedicated rail infrastructure), track owners and managers, manufacturers and suppliers that operate in urban, regional and rural areas of Australia. It also employs or contracts people from peripheral industries when required, including but not limited to, civil construction, engineering and labour hire companies. The average age of workers in the rail industry is 44.9 years ³, with women making up 22% of the workforce⁴.

Four megatrends have been identified that are impacting the Australian economy, businesses, and people. The megatrends identified in the workforce plan duplicate many of the industry drivers/challenges and are explored in the specific industry context in that section of the Workforce Plan. The megatrends include:

- Digital technology and automation
- Decarbonisation
- Workforce supply challenges
- Industry skills development

Challenges impacting the supply and demand of workers in the rail industry at a regional and remote level include:

- Labour and skills shortages are impacting industry's ability to operate existing rail networks, and currently committed infrastructure projects will exacerbate this challenge
- Lack of digital capability across the rail workforce is impacting the industry's ability to effectively implement digital transformation initiatives
- **Skills portability** is impacted by interoperability problems across different networks/jurisdictions
- **Training system constraints** impact industry's skilling needs being fully met. These include lack of appropriate resources, facilities, trainers/assessors and thin Registered Training Organisation (RTO) markets.

² Australian Bureau of Statistics (2023, quarterly average) Labour Force Survey, EQ06 - Employed persons by Industry group of main job 3 Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

⁴ Australian Bureau of Statistics (2023, quarterly average) Labour Force Survey, EO06 - Employed persons by Industry group of main job

Developing evidence-based responses to all four of the challenges is impacted by limitations in the data available. Outside of Census years, the resolution of labour force data is not high due to ANZSCO limitations. The 2023 Initial Workforce Plan will be used as the basis to further engage with stakeholders and gather real-time workforce intelligence to inform evidence based and industry supported responses in the 2024 Rail Workforce Plan.

The plan also identifies a number of related existing workforce strategies and initiatives and maps the challenges and drivers to them. Where relevant, the 2024 Workforce Plan will seek to align with, or contribute to, these strategies and initiatives, or collaborate with those responsible for implementing them.

Note: The Transport and Logistics Jobs and Skills Council (Industry Skills Australia) does NOT cover electrical rail signalling, rail manufacturing, infrastructure construction. These areas fall under the coverage of other Jobs and Skills Councils. The content of this workforce plan, including data, analysis and responses, only reflect what falls under Industry Skills Australia's coverage.

RAIL BUSINESS NO.

12 with 200+ employees

16 with 20-199 employees

238 with 0-19 employees

29 RAIL NETWORKS

kilometres of track



ABOVE-RAIL OPERATORS

INCL. FREIGHT & PASSENGER

RAIL PASSENGER JOURNEYS IN 2020/2021

518.7m

BUSINESS DISTRIBUTION BY STATE %



RAILWAY INFRASTRUCTURE \$12.3B

BUILT IN 2022-2023

ESTIMATED ANNUAL REVENUE

\$23B

2022-2023

GDP CONTRIBUTION \$9.94B

Sources ABS Counts of Australian Businesses Business No Distribution of businesses

National Transport Commission Rail network count Above rail operators

BITRE Trainline 10 Kilometres of track Infrastructure manage Passenger journeys

DITRDCA Railway infrastructure spend

IBISWorld Annual revenue GDP contribution

Megatrends Across Industries

Four megatrends have been identified that are impacting the Australian economy, businesses, and people. A megatrend is a pattern or trend that has a massive impact on the way businesses operate and how people live in society. The identified megatrends create both challenges and opportunities which can be addressed through forward planning and workforce development.

Digital Technology and Automation

Automation and digital technologies are revolutionising industries and reshaping business operations. Automation is being driven by growing e-commerce and consumer demands, as well as the recent pandemic, which accelerated the adoption of digital transformation by several years.⁵

The Transport and Logistics industry has been an early adopter of automation and digital technologies.⁶ The use of robotics, ⁷ drones and big data analytics⁸ to optimise operations and improve productivity is well underway, while the data produced by telematics and sensors can offer opportunities such as fuel efficiency and dynamic routing, and better fleet maintenance.

Several Australian ports, such as the Victoria International Container Terminal, have been automated with advanced technologies,⁹ creating more efficiency and a safer working environment. Autonomous trucks have been recently trialled ¹⁰ in Australia. The Maritime industry is also trialling the use of autonomous vessels,¹¹ which will increase safety, security and efficiency of vessels. There are also remotely operated vessels that can have seafarers on board, but with processes and operations either automated or remotely operated.

The aviation industry is similarly utilising cutting-edge technologies such as Uncrewed Aircraft Systems (UAS), remote digital tower technology, ¹² OneSky (a harmonised civil and military air traffic management system), ¹³ and Satellite-Based Augmentation System (SBAS).¹⁴ The Rail industry is operating autonomous trains, smart devices and automated asset inspections using LiDAR (Light Detection and Ranging) in asset management.

The role of humans in operating and maintaining autonomous and digital technology enhanced systems remains highly significant and workers will need to have the technical skills to work safely with new technologies.¹⁵

8 MHD Supply Chain News. (2023). 2023: A pivotal year for technology in supply chain. March

10 Big Rigs. (2022). Self-driving trucks hit the road for Australia's first live-traffic trial. November

13 Airservices. (NA). What is OneSKY?

14 Australian Flying. (2018). Airservices launches SBAS Project. April

⁵ McKinsey. (2020). How COVID-19 has pushed companies over the technology tipping point—and transformed business forever 6 Poloitic Incidents. (2021). The journey toward a touchloss potwark through intelligent automation. The future of movement of appr

⁶ Deloitte Insights. (2021), The journey toward a touchless network through intelligent automation: The future of movement of goods 7 DHL Insights. (2022). Australia's e-commerce companies are getting a boost with warehouse automation

⁹ Productivity Commission. (2022). Lifting productivity at Australia's container ports: between water, wharf and warehouse. Inquiry Report. Australian Government

¹¹ Australian Maritime Safety Authority. (2022). Autonomous vessels in Australia

¹² Australian Aviation. (2019). Airservices to trial remote digital tower prototype at Sydney. November

¹⁵ iMove. (2023). Creating our future transport and mobility workforce Understanding the workforce implications of transport digitalisation and automation in Australia

Decarbonisation

The adoption of sustainable practices and technologies to reduce Australia's carbon emissions has been gaining pace. The Australian Government is investing \$24.9 billion in the next seven years to support the development of new clean energy industries and the decarbonisation of existing ones.¹⁶ Businesses and industries are adopting sustainable practices and technologies, which will not only benefit the environment but also contribute to their economic growth and competitiveness.

Transport accounts for $\frac{1}{4}$ of Australia's Energy use

The supply chain is relying on autonomous technology and alternative fuels such as hydrogen to reduce its carbon footprint. Trials for zero-emissions hydrogen fuel-cell battery trucks are already underway in Australia.¹⁷ The use of hydrogen and fuels such as ammonia is also gaining traction in the maritime industry with trials already underway.¹⁸

The aviation industry is transitioning towards alternative fuels such as hydrogen, but the implementation may take some time. In the shorter term, ground equipment powered by hydrogen powered fuel cells is being introduced.¹⁹ The rail industry is similarly focusing on technologies such as hydrogen or battery electric to phase out diesel trains.

These developments are aligned with a global move towards a green economy. A recent KMPG survey of more than 1300 CEOs <u>identified</u> that 62% of respondents were considering investment in sustainability.²⁰ The most recent Future of Jobs Report from the World Economic Forum also identified that roles related to sustainability are among the fastest growing.²¹ In Australia, about a quarter of businesses have reported an increasing need for emerging skills related to green economy.²²

Supply chain and affiliated industries are well positioned to be a key enabler of environmental sustainability.²³ Introduction of these carbon reduction measures will require the workforce to have the skills and knowledge to safely work with new technologies and comply with regulations.

¹⁶ Climate Council. (2022). The federal budget: three highlights and lowlights for climate. October 17 Power Torque. (2023). First Aussie Hydrogen Truck. July

¹⁸ Offshore Energy. (2023). Carisbrooke Shipping to trial hydrogen engine on board one of its vessels. February

¹⁹ CSIRO. (2023). Opportunities for hydrogen in commercial aviation 20 KMPG. (2022). KMPG 2022 CEO Outlook: Growth strategies in turbulent times

²¹ World Economic Forum. (2023). The future of job reports 2023.

²² AiGroup. (2022). 2022 Skills Survey: Listening to Australian businesses on skills and workforce needs 23 Australia Post. (2021). Supply Chain Leaders' Sentiment Report.

Workforce Supply Challenges

Australia is grappling with significant labour shortages across many industries, including those supported by Industry Skills Australia. There is a general shortage of skills partly due to the border closures and slowing down of the migration in 2020 and 2021 because of the pandemic.²⁴ The Australian Bureau of Statistics reported that in November 2022, there were about 444,000 vacancies, which is deemed to be an indication of labour shortage.²⁵ The Australian Industry Group similarly indicated that 71% of businesses encountered difficulty in recruiting technicians and trade workers.²⁶

The aviation industry has faced significant challenges and operational issues such as cancellation or long delays of flights due to a shortage of ground crew, pilots,²⁷ or air traffic control staff.²⁸ The pilot shortage has impacted regional airlines even more severely.²⁹ The rail industry has also reported workforce shortages in key roles such as train drivers, controllers, or signalling technicians.³⁰ These shortages may slow down the completion of infrastructure projects over the next three years.³¹ Rail workforce shortages are being further exacerbated by growing skills gaps caused by the advent of new technologies and the need for upskilling for the existing workforce.

A shortage of truck drivers is reported across every state and territory in Australia according to the latest Skills Priority List.³² The addition of truck drivers to the national Skills Priority List is a strong indication of the current and future demand for this occupation.³³ The maritime industry has also highlighted skills shortages as a key risk.³⁴

Workforce shortages are even more severe in Regional, Rural and Remote Australia where attracting skilled workers and filling available job roles is even more challenging. A series of interconnected issues contribute to these challenges, including lack of availability of housing and childcare, shortage of training facilities, trainers, and assessors, and lack of good quality digital connectivity.³⁵

Occupations with a strong gender imbalance are more likely to be in shortage

Globally, organisations have started to prioritise the attraction and retention of new talent.³⁶ Similarly, Australian businesses are investing in staff training, developing skills, and attracting young people and more women into traditionally male-dominated industries and occupations.³⁷ The Australian Government is also focusing efforts on removing barriers and providing the right incentives and conditions to attract more workers to regional Australia.

34Parliament of Australia: Senate Inquiry (2020). Policy, regulatory, taxation, administrative and funding priorities for Australian shipping 35 Houghton, K., Barwick, A, and Pregellio, S. (2023) Regional Jobs 2022: The Big Skills Challenge, Regional Australia Institute, Canberra. 36 KMPG. (2022). KMPG 2022 CEO Outlook: Growth strategies in turbulent times 37 AiGroup. (2020). An Apprenticeship Model for the modern economy

²⁴ Financial Review. (2022). Why we don't have enough workers to fill jobs (in four graphs). June

²⁵ Australian Bureau of Statistics. (2023). Job vacancies fall but remain high at end of 2022. Media Release January

²⁶ AiGroup. (2022). 2022 Skills Survey: Listening to Australian businesses on skills and workforce needs

²⁷ Financial Review. (2023). The 'alarming' workforce trend causing flight delays. February.

²⁸The Sydney Morning Herald. (2023). Airlines call for action on air traffic controller shortage as flight delays continue. August

²⁹Simple Flying. (2023). Rex flying solo to fix Australian pilot shortage. May

³⁰ Australasian Railway Association. (2022). Building Australian Rail Skills for the Future

³¹ Infrastructure Magazine. (2022). Preparing for the infrastructure boom during a labour shortage. September

³² National Skills Commission. (2022). 2022 Skills Priority List

³³ National Skills Commission. (2022). 2022 Skills Priority List Key Findings Report

Industry Skills Development

The Vocational Education and Training (VET) system in Australia is well positioned to supply the skills and knowledge required for the future of work. However, barriers such as perceptions of the VET sector³⁸ and shortages of qualified trainers are impacting on the attractiveness of the sector to prospective learners and on learner outcomes.³⁹

The challenges are even greater in regional and remote areas, where there is:

- lack of high-quality training facilities and up-to-date equipment
- lack of RTOs and appropriately qualified Trainers/Assessors
- increased costs of training delivery
- mismatches between funding and training needs
- issues with language, literacy, numeracy and digital literacy
- the need for cultural competency in working with First Nations communities, further compound the situation.⁴⁰

The Australian Government has committed to providing increased funding for improving the quality of TAFE facilities, fee-free TAFE and community-based vocational education places, as well as funding for improving quality teaching.⁴¹ Creating greater flexibility with the VET system can yield better results by attracting more learners and leading to improved learner outcomes.⁴²

Establishment of clearer career pathways and articulation arrangements that enable learners to seamlessly transition from the schools sector into VET and onwards to Higher Education are needed to build opportunities for individuals and support the shift to higher skilled job roles.

42 The Regional Australia Institute (2023). 2023-2024 Federal Government Pre-Budget Submission.

³⁸Parliament of Australia. (2023). Inquiry into the Perceptions and Status of Vocational Education and Training. Terms of Reference. 39Ibid.

⁴⁰ Tabatha, G. & Andrahannadi, U. (2023). VET delivery in regional, rural and remote Australia: barriers and facilitators, NCVER 41 Australian Government. Budget October 2022-23 Skills and training: Giving Australians the skills they need for higher-wage jobs

Rail Industry Data

Employment and distribution



Part-time 6% Full-time 94% Source: ABS Labour Force Survey

Figure 2: Employment status 2023

The rail workforce,[†] employs

over 42,000 people in 2023

74.6% of rail workers live in only 36% of the Australian landmass, specifically in Queensland, New South Wales, or Victoria.



Figure 3: Distribution of Rail Workers, 2023

Source: JSA, NERO 2023

Geography	% of workers	Growth (since 2015)
Major City	29.74%	7.76%
Regional	45.95%	-5.85%
Remote	24.31%	1.86%

Table 1: Distribution and Growth of Rail Workers by GeographySource: JSA, NERO 2023

Demographics



The percentage of the rail workforce aged 60 or more increased from 5% 2006 to 13% in 2021. Over the same period, the percentage of 40–49 year olds fell from 34.1% to 25.4%.

Figure 4: Rail Industry Age Profile, 2006 - 2021

At 2.4%, the rail industry employs a larger percentage of First Nations people than the other transport sectors while the percentage of the workforce with disability increased by 63.6% between 2011 and 2021#





Figure 5: Female participation 2000 - 2023



Female participation in the rail industry has increased by about 64% in the last 20 years to now **represent over a fifth of the rail workforce**.

Occupations





Source: ABS Labour Force/Internet Vacancy Index

According to the Census, annual yearly growth for rail workers is mostly positive and has **outpaced population growth** (1.52%) since 2006 for the most common occupations, except for Railway Signal Operators.

	I	1	I	1	1	1
Occupation	2006	2011	2016	2021	Ave. Growth	Future demand*
Train Driver	8429	9980	9979	11198	1.91%	Moderate
Railway Track Worker	3215	4064	4132	4757	2.65%	Moderate
Tram Driver	1069	1222	1294	1591	2.69%	Moderate
Train Controller	876	1083	1241	1263	2.47%	Moderate
Railway Signal Operator	1544	1318	1107	1203	-1.65%	Moderate

Table 2: Top Rail Occupations, Growth and DemandSources: ABS Census, Skills Priority List (6 October, 2022)

Figure 7: Rail Workers and Online Job Ads, 2006 - 2023

Training

The decline in Rail qualification enrolments during 2020 was dramatic and only Victoria has surpassed pre-COVID enrolment figures, with enrolments 27.5% higher in 2022 than 2019.



Figure 8: Commencing Rail Qualification Enrolments, 2017 - 2022

The number of VETiS students **declined substantially in 2021** but has since returned to the pre-COVID trend.



Figure 9: Rail VETiS Students, 2022

Key Challenges and Drivers Affecting the Rail Workforce

A. Rail infrastructure investment will exacerbate workforce shortages

With an estimated \$155 billion due to be invested in Australia's rail networks over the next 15 years, ⁴³ the Rail industry will need new workers to fill a range of critical job roles. These additional worker requirements will compound existing challenges with attraction, retention, disruptions to skilled migration due to the pandemic, and an aging workforce.

Online advertisements for rail workers have grown around 26% per year from 2020 to 2023⁴⁴, with numbers doubling over the four years (see **Figure 7**). The Australasian Railway Association's (ARA) Building Australian Rail Skills for the Future reports: *"Occupations that will experience shortages*"

," and further notes that *"there is an emerging shortage of specialised skills in emerging areas including automation, data analytics and digital skills*^{*45}.

Consultation during the development of this Workforce Plan also identified shortages of track protection officers amongst other critical rail safety roles, as well as terminal operators, telecommunications tradespeople and a range of occupations in relevant engineering disciplines. A number of the listed occupations in shortage occur across the same career pathways, meaning the pipeline of workers for higher level and more technically demanding roles is significantly compromised.

As illustrated in **Table 2**, occupational data suggests that future demand will be 'moderate' across the most common rail occupations. However, this is at odds with consistent industry feedback that these occupations are all in shortage, and that without intervention the shortages will continue to increase.

Rail construction projects consistently report difficulty in the attraction and retention of skilled workers which is supported by the increase in job advertisements noted above. As the rail system expands, workforce capacity will be further hampered by shortages of workers required to design, build and subsequently run the rail system.

The average age of the rail workforce is 44.9 years old, with approximately 18.5% between 56 and 66 years old becoming eligible to retire in the next 10 years (see **Figure 4**). Females account for 22% of the current workforce, ⁴⁶ and Indigenous Australians 2.4%.⁴⁷ Hence there is a strong need to draw upon these under-represented labour pools.

⁴³ Finding the fast track for innovation in the Australasian rail industry – Australasian Railways Association – October 2020 44 Jobs and Skills Australia (2023). Internet Vacancy Index

⁴⁵ Building Australian Rail Skills for the Future – Australasian Railways Association – March 2022

⁴⁶ Australian Bureau of Statistics (2023, quarterly average) Labour Force Survey, EQ06 - Employed persons by Industry group of main job 47 Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

INVESTMENT IN RAIL NETWORKS

\$155b over the next 15 years

GROWTH OF ONLINE ADVERTISEMENTS FOR RAIL WORKERS

103% 2020 - 2023



On 28 July 2023, the National Transport Commission (NTC) and Australasian Railway Association jointly convened the Future Rail Skills Forum. The Forum brought together senior industry leaders, government, unions and education and training providers from across the rail industry to consider responses to the sector's current challenges. A consistent theme of presentations and subsequent discussion was the need to improve workforce culture and support accelerated diversity in the rail industry. Presenters also recommended targeting young people early, highlighting the rail industry's contribution to sustainability and decarbonisation, and emphasising career pathways and both VET and higher education opportunities.

The Australasian Railway Association recently launched a <u>Work in Rail website</u> to promote professional opportunities and career pathways available in rail, and to link employers with job seekers. Similarly, the National Transport Commission launched the <u>National Rail Skills Hub</u> in December 2022, which provides career pathways information and a suite of training resources. The resources were developed by Australian Industry Standards as part of the Seamless Future Rail Skills project in 2022 to support skilling and upskilling the future rail workforce. Industry Skills Australia will work with stakeholders to support these and other initiatives that assist in attracting under-represented groups to the sector (for example, school leavers, women, Culturally and Linguistically Diverse communities and First Nations people), and to address any barriers to entry for these groups. Programs (including incentives) also need to be in place for older workers to assist with the promotion of rail careers, and with training and mentoring of the future rail workforce.

Skill Sets are often viewed by industry as being a more valuable way to gain specialist skills, than a full qualification. Approximately 75% of enrolments in rail qualifications are at AQF level 2, with much lower enrolments in more technically focussed AQF 3-5 qualifications (see **Appendix B Training System** Data).

Training products and pathways (including school-based training and entry level and technical Skill Sets) need to better support industry's ability to respond to workforce capacity challenges and skills shortages across construction, operation and maintenance of rail infrastructure. In accordance with Skills Ministers' priorities, Industry Skills Australia will ensure all TLI Training Package development projects include the identification of transferable skills from other industry sectors and create more accessible pathways into rail for skilled workers.

Leadership is required from Commonwealth and State Governments, through skills system funding and infrastructure project procurement processes, to respond to this critical challenge. Collaboration across Jobs and Skills Councils will also be required to ensure complementary approaches are taken to rail manufacturing, construction, maintenance and operations because these functions span four Jobs and Skills Councils.

DIGITAL TRANSFORMATION SET TO IMPACT **40%** OF THE WORKFORCE

NATIONAL TRANSPORT COMMISSION

DIGITAL SKILLS IN RAIL

REPORT TO BE APPROVED BY TRANSPORT MINISTERS IN DECEMBER 2023



B. Digital skills are now essential for all workers

Skills shortages are impacting industry's ability to operate and maintain a range of digital, automated and other new technologies related to rail signalling, critical communications, asset management, track maintenance, high speed, autonomous and remotely operated rail.

The Digital Skills in Rail report⁴⁸ commissioned by the National Transport Commission suggests that "as the pace of adoption of digital technology accelerates, the workforce will be required to pivot from traditional, mechanised techniques to embrace digital skills". It further notes that approximately 40% of rail industry workers are in roles that will be impacted by digital transformation, and that the following key digital skills and occupations will be critical for the future of rail:

- Systems Development: covering occupations such as Systems Analyst, Computer Network & Systems Engineer, Software Engineer, Developer Programmer
- Data Analytics: covering Information and communications technology (ICT) Business Analyst
- Data Communication: covering ICT Support Engineer, Customer Service Manager
- Data Security: covering ICT Security Specialist, Network Administrator, Systems Administrator.

Analysis of relevant Training Package units of competency, conducted as part of the Digital Skills in Rail report, has identified 114 units of competency appearing in rail qualifications that may need to be updated to better reflect the digital skills required by rail workers. Of those, 65 are TLI Transport and Logistics Training Package units, and 49 are imported units. The analysis suggests that 23 TLI units will need significant change, and a further 42 are expected to change slightly as a result of digitisation. Further analysis conducted by Industry Skills Australia has identified that 253 qualifications on the national register of VET would be impacted by changes to one or more of the 114 units suggested for update. Forty-two of those are TLI qualifications, with the other 211 appearing in other Industry Training Packages. So, amending the identified units would have a broad reaching impact on RTOs and their students.

Industry Skills Australia will conduct further analysis on the identified units and schedule their review in consultation with industry. In scheduling the review, we will attempt to maximise benefit to industry, whilst minimising churn of impacted training products and impact on RTOs. Review of the impacted units may include determining broad principles for how digital skills may be better reflected in units of competency to ensure they can accommodate future advances in technology, without the need for constant changes to units. This should involve collaboration across Job and Skills Councils to build a model for describing digital skills that is replicable and transferrable across industry.

⁴⁸ Digital Skills in Rail – Deloitte Financial Advisory Pty Ltd.

NATONAL RAIL INTEROPERATBILITY



INCONSISTENT APPROACHES TO TRAINING & ASSESSMENT

LACK OF MUTUAL RECOGNITION



C. Interoperability challenges are impacting labour mobility

Australia's rail networks have developed independently across different jurisdictions, resulting in a lack of national interoperability (**Figure 10**). This is reflected across 29 different networks using three different rail gauges and 11 separate signalling systems. The standards for rolling stock and components, and the operating rules for rail infrastructure and communications and control systems, also vary across jurisdictions. Improving national rail interoperability is a National Cabinet priority, and current investment in infrastructure is providing an opportunity to move toward a harmonised network across Australia.

In addition to the operational challenges these network differences create, they also present significant challenges for labour mobility. The interoperability challenge is compounded by inconsistent approaches to training and assessment, and lack of mutual recognition of skills/competency across the rail networks to support transferability of skills between different networks and/or jurisdictions.

To reduce training time and costs for Australia's rail transport operators, the National Transport Commission has commissioned development of a blueprint for nationally recognised entry level rail skills training. The report to Ministers on this blueprint project is due to be delivered in December 2023 and may provide recommendations that Industry Skills Australia can take forward in the 2024 Rail Workforce Plan.

Industry Skills Australia has been part of the project reference group and participated in the consultation workshops conducted with a range of stakeholder groups, including Rail Infrastructure Managers (RIM) and Rail Operators, Contractors, RTOs and Training Regulators, and Government Agencies and Industry Regulators.

Key messages arising from consultation included:

- Training and competency requirements are driven by jurisdiction/network compliance requirements for RIMs and operators.
- Contractors who operate across multiple jurisdictions/networks are the most impacted by differing requirements, needing to retrain for new projects when RIM/operator requirements are different.
- The cost of continual retraining of workers is significant in terms of training delivery, as well as worker downtime to attend training.
- Entry level skill requirements are largely the same across different jurisdictions/networks, with slight changes to a small proportion of content based on local 'Rule Book' requirements.
- Different RIMs/operators may not recognise training delivered by some RTOs based on lack of confidence in consistent quality of training provision).
- The need for different training and assessment resources for each jurisdiction/network, as well as Trainer/Assessor shortages, are hampering the efficient delivery of training and assessment.

Stakeholder consultation has pointed to the need for:

- Development of an assessment framework that prescribes common standards for RTOs.
- Development and endorsement of industry prescribed Skills Sets starting at entry level skills, such as safety critical communications and safety accessing the rail corridor.
- Development and sharing of nationally consistent learning, assessment and recognition of prior learning (RPL) resources that meet industry's minimum requirements.
- Capacity building for RTOs and their trainers and assessors, and development of good practice guides for industry subject matter experts, to support quality training and assessment outcomes.
- Development of a National Code of Practice and quality assurance measures for Rail RTOs.

The final report for this project will be provided to Transport Ministers by the National Transport Commission in December 2023. Responses and strategies will be included in the 2024 Rail Workforce Plan after the report is considered by Transport Ministers and Industry Skills Australia completes further consultation with skills system and industry stakeholders. Some of this work will build upon work undertaken by Australian Industry Standards in the Seamless Future Rail Skills Project conducted in 2022.



Figure 10: Australia's Rail Network

ENROLMENTS IN RAIL QUALIFICATIONS



D. The training system is struggling to meet industry's skilling needs

Industry stakeholders report that inadequate training facilities, technology and learning and assessment resources are limiting industry's ability to respond to the prevailing skilling challenges.

There are 21 specific rail qualifications in the TLI Transport and Logistics Training Package. Of these, only five qualifications have more than 10 RTOs with scope to deliver the qualification, whilst 13 qualifications have fewer than 5 RTOs with the qualification on scope. Hence there are very thin markets for many rail qualifications, with stakeholders reporting limited capacity for delivery in regional areas (See **Appendix B Training System** Data for details on RTO scope for all rail qualifications).

Enrolments in TLI Rail qualifications across 2018-22 are provided in **Table 3** (See **Appendix B Training System** Data for detailed enrolment data):

AQF Level	2	3	4	5
% of enrolments	76.8%	10.7%	12.5%	0.04%

Table 3 : Enrolments in Rail Qualifications at each AQF level (2022)Sources: NCVER

The Certificate II in Rail Infrastructure represented nearly 72% of all TLI rail qualification enrolments in 2022. Further research is required to determine the reason for low enrolments at levels other than AQF 2. It was noted in consultations that the entry requirements for some Certificate III rail qualifications may be a disincentive to potential learners and may explain why Skill Sets are preferred at AQF level 3 and above.

As can be seen at **Appendix B Training System Data**, completion rates of rail qualifications are extremely poor. Stakeholder feedback suggests that this may be partly due to contractual obligations to engage a defined number of trainees in a project, but the project does not continue for the period of time required to complete a traineeship. The reasons for low completion rates need further analysis.

There is a critical shortage of appropriately qualified rail industry trainers and assessors. More flexibility in training delivery models, and stronger partnerships between industry and RTOs to provide current technical subject matter expertise, will assist the VET system to meet industry's needs. A project to improve trainer/assessor capacity/capability and develop models for the use of industry subject matter experts to support delivery, will be scoped for inclusion in the 2024 Rail Workforce Plan.



The National Transport Commission Rail Skills Hub has launched a suite of online training and assessment resources (developed by the previous Skills Service Organisation) free for rail RTOs. Industry Skills Australia will monitor the uptake and impact of these resources and determine if development of additional resources might support industry's response to current challenges.

Specific areas for new Training Package content suggested during consultation were: high level specialist units covering infrastructure diagnostic vehicles; remote heavy haul to rail; autonomous trains and electronic signalling; rail specialisation unit for transition of qualified engineers from other fields.

Rail induction and construction Skill Sets were also mentioned. However, there is already a Skill Set for Rail infrastructure induction that is considered fit for purpose. Further industry consultation will be conducted to validate these suggested needs and to scope development projects if required.

To address these training system challenges, further investment from Government, industry and RTOs is needed to build capability to provide training in contemporary rail systems, technology and equipment. Thin markets for some rail units of competency and qualifications also means that the development of quality training and assessment resources is often not cost effective. Support for the development of industry prescribed resources would improve the supply of training.

FIRST MAJOR REVIEW OF ANZSCO SINCE **2006** IS CURRENTLY UNDERWAY



E. Data gaps

Outside of Census years, the resolution of labour force data is not high. Rail has only two occupational categories at the 4-digit ANZSCO level. As a practical example, reported shortages in Train Controllers and Signalling Engineers cannot be corroborated since they are only available at 6-digit resolution, or not available at all.

It was noted regularly by stakeholders throughout development of the Workforce Plan that ANZSCO classifications do not accurately reflect the diversity of occupations in the current rail industry, and need substantial review before an accurate picture of the modern rail industry workforce can be obtained. These ANZSCO limitations are a barrier to effective prioritisation of skills, training and migration policy to meet the projected growth in the rail workforce. Rail is included in the third tranche of the current ANZSCO review (Nov 2023 - Feb 2024). The rail industry has already consulted widely and is prepared to provide input to the ANZSCO review so that current limitations can be addressed.

Available rail industry workforce data does not provide sufficient detail related to current and future skills demand, and therefore the size of the expected gap over time is difficult to forecast. As shown in Figure 1, the largest single cohort in the Rail Industry workforce is 'Rail Industry, nfd' (not further defined), which is likely masking significant changes to passenger and freight transport. Without better quality real-time workforce data, it is difficult to match labour market responses and treatments to rail industry needs, and to articulate the business case for the national skills system to invest in rail skills and drive reform to benefit the rail industry. The National Transport Commission has developed an options paper for a Skills Intelligence Model (SIM) to capture better quality industry intelligence. The National Skills Academy for Rail in the UK has been utilising innovative techniques for data gathering for some time and Industry Skills Australia has held initial discussions with them. Industry Skills Australia will work with these organisations to determine how betterquality real-time workforce data might be gathered to inform the 2024 Rail Workforce Plan.

While qualification completions are provided in **Appendix B Training System Data** as is, observed actual completion rates (i.e., the proportion of qualifications commenced in a single year that are eventually completed) as calculated by NCVER⁴⁹ are not available at qualification or training package resolution.

49 NCVER 2023, VET qualification completion rates 2022, NCVER, Adelaide



WORKFORCE 40.2k

2.4% ABORIGINAL & TORRES STRAIT ISLANDER 0.6% WITH A DISABILITY

WORFORCE DISTRIBUTION



WORKFORCE WITH VOCATIONAL EDUCATION

ABS Census First Nations People Disability Vocational education Age and retirement Top 5 occupations

ABS Labour Force Workforce Gender Distribution

Other Residential distribution: JSA NERO Qualification enrolments: NOVER Training delivery: training gov.au 44%

Rail training delivered by 124 REGISTERED TRAINING ORGANISATIONS

AVERAGE AGE

workforce nearing retirement **18.5%** aged 56-66

TOP 5 OCCUPATIONS

Train Driver - 11,198 Rail Track Worker - 4,757 Tram Driver - 1,591 Train Controller - 1,263

> Railway Signal Operator - 1,203

RESIDENTIAL DISTRIBUTION

REGIONAL 46% MAJOR CITIES 29%

2022 QUALIFICATION ENROLMENTS 20,099 RAIL TRAINING PACKAGE

Existing Workforce Strategies and Initiatives

Industry Skills Australia will seek to align our work with, or contribute to, existing workforce strategies and initiatives, or collaborate with those responsible for implementing them in the 2024 Workforce Plan. Below is a mapping of the workforce strategies and initiatives identified as relevant to the Rail Industry and the key drivers and challenges outlined in this Workforce Plan. We will continue to add to this list as we consult further with industry.

Following is a key to the mapping shown in the second column of the table:

- A. Rail infrastructure investment will exacerbate workforce shortages
- **B.** Digital skills are now essential for all workers

C. Interoperability challenges are impacting labour mobility

E. Data gaps

 ${\rm D}.$ The training system is struggling to meet industry's skilling needs

Strategy/Initiative	Mapping to identified driver/ challenge	Jurisdiction	Owners	Purpose	Key Components/ Timing	Reference	Impact on Rail Workforce	How it will inform our work
National Rail Action Plan	A, B, C, D, E	National	National Transport Commission (NTC)	To draw together governments and industry to maximise the benefits from the record infrastructure investment	Includes sections covering Workforce and Harmonisation & Standardisation, as well as a schedule of 12 recommended actions	<u>National Rail Action</u> <u>Plan</u>	Workforce components of the plan are broad reaching to support building the capacity and capability of the rail workforce	Activity being undertaken under the Action Plan will provide input to strategies for all five rail specific challenges described in this Workforce Plan
Future Digital Skills in Rail	В	National	NTC (prepared by Deloitte)	A gap analysis to identify the future digital skills required to enable interoperable rail networks across the nation	Analysis and recommendations, including for review of National Training Package units of competency Report goes to Transport Ministers in December 2023	Yet to be published	Supports building rail industry digital capability.	Provides the basis for further consultation and analysis to prioritise review of existing training products There is potential for cross Jobs and Skills Council collaboration because the NTC report covers units in multiple training packages
National Rail Skills Hub	A, D, E	National	NTC	To promote careers in rail, and support development of entry level rail skills	Rail career and career path information Digital training and assessment resources available for rail RTOs This is intended as a permanent repository, but consideration of where it may need to move to in future when Skills Hub funding ends will need consideration at some stage	National Rail Skills Hub	Build rail workforce capacity and capability Support RTO capability	Industry Skills Australia will likely contribute more content for the site, based on engagement with the NTC
Options paper developed for a Skills Intelligence Model (SIM)	A, B, C, E	National	NTC	To fill gaps in availability of detailed real-time workforce data to support workforce planning	Options for workforce data capture and analysis	Not available for public circulation yet	Better quality data to support improved workforce planning	Industry Skills Australia will work with the NTC to determine application in future workforce planning
Building Australian Rail Skills for the Future	A, B, C, D, E	National	Australasian Railway Association (ARA)	To provide strategies to alleviate the growing shortage of skills facing the rail industry	Determination of rail skills demand. Promotion and development of rail career pathways. Strategies for ongoing skills development to ensure an effective supply chain.	Building Australian Rail Skills for the Future	Build rail workforce capacity and capability	Provides detailed analysis conducted by the ARA that can be drawn upon in developing responses to identified challenges
Work in Rail	А	National	ARA	To promote careers in rail, and support development of entry level rail skills	Rail career and career path information Rail employer directory	Work in Rail	Build rail workforce capacity and capability	Industry Skills Australia will ensure our work supports and is complimentary to this ARA initiative

Table 4: Existing Workforce Strategies and Initiatives

People first, for a future-fit supply chain workforce

Strategy/Initiative	Mapping to identified driver/ challenge	Jurisdiction	Owners	Purpose	Key Components/ Timing	Reference	Impact on Rail Workforce	How it will inform our work
Rail Industry Worker (RIW)	A, D	National	ARA	Provides a National competency management program for Australian rail industry workers	Competency frameworks for vocations Approved RTO lists	Rail Industry Worker	Build rail workforce capacity and capability Build Industry confidence in the training system	RIW uses units of competency from the TLI Training Package. Industry Skills Australia will work with the ARA and Industry to ensure units used are fit for purpose
Women in Rail Strategy	А	National	ARA	Promotes rail as an inclusive and diverse industry without barriers that is recognised as an employer of choice for women	Industry knowledge Organisational impact Professional development Promotion of rail to women	<u>Women in Rail</u> <u>Strategy</u>	Assist industry to build a diverse and inclusive workforce Build rail workforce capacity and capability	Will support development of strategies to address recruitment and retention challenges
Review of ANZSCO	A, E	National	ABS	Better defined occupational classifications to generate improved workforce data	The review is being undertaken in several tranches of classification groups. Rail is in Tranche 3	ANZSCO Review	Support improved workforce planning	Better data will inform improved workforce planning
Rail Skills Strategy 2022 - 2026	A, B, E	State (VIC)	VIC Gov't	Partnership between government, unions, industry, and the education sector to grow the workforce and build skills and capabilities to meet current and future challenges	 Has four domains: Build strong evidence base Work based training pathways Adaptable, highly skilled and diverse workforce Promote the sector and attract new talent 	<u>Rail Skills Strategy</u> <u>(VIC)</u>	Build rail workforce capacity and capability	Challenges identified are similar to this workforce plan, so we will collaborate where possible in responses/strategies

Appendix A Rail Occupational Areas

Industry Skills Australia acknowledges that the ANZSCO codes used by the VET system to identify occupations in the Rail industry do not always align with the way in which the industry describes itself.

The table below describes job roles in terms that industry will recognise. Industry Skills Australia has developed this framework as a starting point to assist in conversations with industry stakeholders and will further refine it over time in collaboration with the Strategic Workforce Planning Committees.

Occupational Area	Job Role
Rail Operations	Passenger Services Manager, Rail Freight Manager, Rail Maintenance Manager, Rail Operations Manager; Area Controller, Signaller, Terminal Coordinator, Yard Controller, Yard Coordinator, Resource Scheduler, Conductor, Passenger Train Guard, Train Conductor
	Area Controller, Light Rail Controller, Network Control Officer, Network Controller, Train Controller, Tram Controller
	Customer Service Attendant/Assistant, Passenger Service Officer, Senior Customer Service Assistant/Officer, Station Assistant/Officer, Station Manager, Train Buffet Operator, Train Conductor, Station Masters
	Electric Passenger Train Driver, Freight Train Driver, Heavy Haul Train Driver, Locomotive Driver, Train Driver, Heritage Locomotive Assistant, Steam Locomotive Fireman, Shunter, Freight Terminal Operator, Light Rail Driver, Tram Driver, Passenger Terminal Operator, Terminal Train Driver, Yard Terminal Driver
Rail Infrastructure	Track Worker, Leading Hand, (Light) Rail Track Worker, Mobile Plant Operator, Plant Operator, Points And Crossings Builder, Rail Structures, Rail Tester, Rail Track Surfacer, Senior Track Maintainer, Specialist Track Installer, Structures Maintainer, Supervisor, Team Leader, Track Drainage Maintainer, , Track Installer, Track Maintainer, Track Protection Officer, Track Welder, Tram Infrastructure Track Worker Level 1–3, Tram Infrastructure Track Worker Level 4, Turnout Builder, Way Gang Driver, Work Group Leader, Rail Track Surfacer, Principal Protection Officer,
	Track Machine Driver, Track Vehicle Operator/Driver
	Mechanical Rail Signaller
Safety	Rail Safety Incident Investigator
	Rail Safety Manager
Rolling Stock Maintenance	Maintenance Worker, Assistant to a Tradesperson, Maintenance Worker, Trades Assistant, Track Examiner

Appendix B Training System Data

Qualification Enrolments

Qualification	2018	2019	2020	2021	2022
TLI21921 Certificate II in Track Protection	1577	5064	737	917	794
TLI22321 Certificate II in Rail Customer Service	18	77	157	112	41
TLI23221 Certificate II in Shunting	22	83	51	86	120
TLI27121 Certificate II in Rail Infrastructure	5753	10605	5403	11250	14504
TLI27221 Certificate II in Rail Track Vehicle Driving	13	144	0	36	60
TLI29921 Certificate II in Rolling Stock Maintenance	0	0	0	0	0
TLI30521 Certificate III in Passenger Train Guard	309	1526	218	227	184
TLI31421 Certificate III in Light Rail Driving	144	47	2	11	6
TLI31921 Certificate III in Mechanical Rail Signalling	5	210	21	19	30
TLI32121 Certificate III in Rail Structures	11	5	15	11	49
TLI32721 Certificate III in Track Protection	435	659	169	269	473
TLI32821 Certificate III in Rail Operations	27	65	0	0	0
TLI33021 Certificate III in Heritage Locomotive Assistant or Steam Locomotive Fireman	0	0	0	0	0
TLI33122 Certificate III in Rail Customer Service	296	271	268	204	396
TLI33221 Certificate III in Terminal Train Driving	8	42	7	34	59
TLI37122 Certificate III in Rail Infrastructure	613	384	401	688	966

Qualification	2018	2019	2020	2021	2022
TLI40822 Certificate IV in Rail Safety Investigation	4	38	0	0	0
TLI40921 Certificate IV in Rail Network Control	103	59	42	139	149
TLI42422 Certificate IV in Rail Safety Management	0	16	0	0	0
TLI42622 Certificate IV in Train Driving	1783	1895	1716	1993	2374
TLI47121 Certificate IV in Rail Infrastructure	0	0	0	0	0
TLI50621 Diploma of Rail Operations Management	4	3	6	11	9
Grand Total	11125	21193	9213	16007	20214

Note: enrolment numbers include all versions of the qualification across the years they were available (e.g. TLI21921 Certificate II in Track Protection includes enrolments for TLI21911, TLI21915, TLI21918, TLI21920 and TLI21921)

Qualification Completions

Qualification	2018	2019	2020	2021	2022
TLI21921 Certificate II in Track Protection	290	67	37	36	40
TLI22321 Certificate II in Rail Customer Service	10	52	67	29	103
TLI23221 Certificate II in Shunting	19	54	38	31	74
TLI27121 Certificate II in Rail Infrastructure	957	1047	695	948	843
TLI27221 Certificate II in Rail Track Vehicle Driving	19	8	0	0	0
TLI29921 Certificate II in Rolling Stock Maintenance	0	0	0	0	0
TLI30521 Certificate III in Passenger Train Guard	349	218	151	138	59

Qualification	2018	2019	2020	2021	2022
TLI31421 Certificate III in Light Rail Driving	46	18	9	10	10
TLI31921 Certificate III in Mechanical Rail Signalling	17	6	24	5	19
TLI32121 Certificate III in Rail Structures	2	0	0	0	0
TLI32721 Certificate III in Track Protection	154	13	5	4	0
TLI32821 Certificate III in Rail Operations	22	0	0	0	0
TLI33021 Certificate III in Heritage Locomotive Assistant or Steam Locomotive Fireman	0	0	0	0	0
TLI33122 Certificate III in Rail Customer Service	284	0	110	113	76
TLI33221 Certificate III in Terminal Train Driving	9	4	0	0	0
TLI37122 Certificate III in Rail Infrastructure	127	70	77	126	91
TLI40822 Certificate IV in Rail Safety Investigation	1	5	3	2	0
TLI40921 Certificate IV in Rail Network Control	71	39	35	62	65
TLI42422 Certificate IV in Rail Safety Management	0	0	0	0	0
TLI42622 Certificate IV in Train Driving	1348	1194	1846	957	765
TLI47121 Certificate IV in Rail Infrastructure	0	0	0	0	0
TLI50621 Diploma of Rail Operations Management	7	6	3	23	6
Grand Total	3732	2801	3100	2484	2151

Number of RTOs scoped to deliver Rail Qualifications⁵⁰

Qualification	RTO count
TLI21921 Certificate II in Track Protection	10
TLI22321 Certificate II in Rail Customer Service	2
TLI23221 Certificate II in Shunting	7
TLI27121 Certificate II in Rail Infrastructure	33
TLI27221 Certificate II in Rail Track Vehicle Driving	5
TLI30521 Certificate III in Passenger Train Guard	1
TLI31421 Certificate III in Light Rail Driving	5
TLI31921 Certificate III in Mechanical Rail Signalling	8
TLI32121 Certificate III in Rail Structures	4
TLI32721 Certificate III in Track Protection	9
TLI32821 Certificate III in Rail Operations	3
TLI33021 Certificate III in Heritage Locomotive Assistant or Steam Locomotive Fireman	1
TLI33122 Certificate III in Rail Customer Service	2
TLI33221 Certificate III in Terminal Train Driving	3
TLI37122 Certificate III in Rail Infrastructure	26
TLI40822 Certificate IV in Rail Safety Investigation	0
TLI40921 Certificate IV in Rail Network Control	11
TLI42422 Certificate IV in Rail Safety Management	0
TLI42622 Certificate IV in Train Driving	18
TLI47121 Certificate IV in Rail Infrastructure	3
TLI50621 Diploma of Rail Operations Management	1

⁵⁰ Training.gov.au (as at 05 Sept 2023)

Appendix C Glossary of Terms

Gap analysis - The process of quantifying and identifying the difference between current workforce and skills needs and what will be required into the future.

Labour shortage - Where the demand for unskilled labour (entry level or otherwise) is greater than the supply of those available and willing to work under existing industry conditions

Registered Training Organisation - Organisations that are approved by ASQA, WA TAC or VRQA to deliver nationally recognised training in the VET sector

Reskilling - Involves learning new skills outside of workers' existing skillset which are often closely adjacent to their current function, but can be geared toward a different path entirely

Skill Set - A single unit of competency or a combination of units of competency from a training package that link to a licensing or regulatory requirement, or a defined industry need

Skill shortage – where the demand for specific skills (or knowledge) is greater than available within the current workforce

Skilled labour shortage - Where the demand for employees in specific occupations is greater than the supply of those who are qualified, available and willing to work under existing industry conditions

Training Provider - Any organisation or individual providing education or training services

Upskilling - Undertaking learning to expand one's existing skill set. Upskilling enhances workers' performance in their current role, potentially advancing them along their career path

Workers - The term refers to occupational data (ANZSCO)

Workforce development - Design or delivery of initiatives to build the skills and capability of the workforce. May include but is not limited to: skills audits and skills analyses; on or off-the-job training; skills recognition; recruitment, job design and career pathways; assessment and evaluation.

Workforce Plan - The repeated, systematic and cyclical identification, analysis and planning of workforce skill needs at the enterprise (micro) or sector/region (meso) or whole of industry/economy (macro) level

Workforce Planning - Analysis, research and strategies to identify, forecast and respond to the current, emerging and future workforce challenges and opportunities

Workforce - The term refers industrial data (ANZSIC).

Appendix D Explanatory Notes to Data

Occupational data (Workers) vs Industrial data (Workforce)

When analysing the workforce and industry data in Australia, two classifications are commonly used: ANZSCO and ANZSIC.

- ANZSCO (Australian and New Zealand Standard Classification of Occupations) categorises occupations based on skill level and specialisation.
- ANZSIC (Australian and New Zealand Standard Industrial Classification) classifies businesses into industry sectors. This groups companies based on the primary activities they are engaged in.

In simple terms, ANZSCO is about what people do in their jobs, and ANZSIC is about the industry or sector where businesses operate. They are used for different purposes and are not directly comparable.

In this document, we use the term 'Workers' when referring to occupational data (ANZSCO) and industry 'Workforce' when referring to industrial data (ANZSIC).

Business Count

In the Counts of Australian Businesses data, industries are classified by the main industry linked to a business ABN. This method has limitations. Firstly, businesses operating in several States/Territories are counted only once, making enterprise figures appear low in some areas. This does not mean that there are no enterprises in those regions; rather, that their headquarters are located elsewhere. Secondly, if an organisation operates in multiple industries, it is only counted in one, leading to potential inaccuracies in industry classification.

Training Data

Total VET Activity (TVA) data is collected from all types of RTOs and not only those in receipt of Commonwealth or State funding.

Endnotes/Special References

⁺ Scenic and Sightseeing Transport is an industrial category that covers all transport modes, and the workforce is split proportionately among the transport sectors.

* Future Demand was calculated by the National Skills Commission who was responsible for producing the Skills Priority List (SPL) 2022

[#] Disability data is not available in Census year 2006



WWW.INDUSTRYSKILLSAUSTRALIA.ORG.AU