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## Rail Industry

Jobs and Skills

Councils

2024 Workforce Plan



## About ISA

Industry Skills Australia (ISA) has been established as the Jobs and Skills Council (JSC) for the Transport and Logistics industry sectors, which includes Aviation, Maritime, Rail, Transport and Logistics, the emerging Omnichannel Logistics and Distribution, and Air and Space Transport and Logistics.

Owned and led by industry, our JSC 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.

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#### Acknowledgements

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## About the Workforce Plan

### Purpose

Workforce Planning is the strategic centrepiece for Jobs and Skills Councils to inform and establish each of their other functions. The Workforce Plan serves as a guide to identifying the contemporary drivers and challenges within Australia's Rail industry and developing forward-thinking actions to address those challenges. Drawing upon a rich blend of data sources, including industry reports, stakeholder consultation and the direction from Strategic Workforce Planning Committee, it outlines the current obstacles impeding the industry's progress and proposes practical actions to overcome these hurdles.

The Workforce Plan begins the groundwork for ongoing evaluation and strategy refinement. It aims not only to diagnose current challenges but also to anticipate future trends and opportunities. This proactive approach ensures that the Australian Rail industry remains agile and responsive to changing conditions.

A crucial aspect of this document is its collaborative nature, emphasising the value of stakeholder input. By incorporating diverse perspectives from industry experts, policy makers, and practitioners, the strategies presented are both robust and attuned to the real-world dynamics of the Rail sector. The Workforce 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 Workforce Plan is updated each year, it 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 Workforce Plan 2024 is not just a snapshot of the present but a roadmap for the future, guiding stakeholders in collectively navigating and shaping the evolving landscape of Australia's Rail industry.



### **JSC Obligations**

In 2023, the Australian Government established ten (10) Jobs and Skills Councils to address the many workforce planning and skills development challenges facing Australia, and to ensure that our national skills system meets the rapidly evolving needs of industry, individual employers, and the workforce.

Jobs and Skills Councils have four formal roles:



Workforce Planning which enables industry to identify its workforce development issues and design high-impact solutions, which are then captured in the national Workforce Plan for the industry;

Training Product Development which focusses on improving the quality, speed to market and responsiveness of training products to employer and workforce needs;



Implementation, promotion and monitoring which is a broad role that involves supporting training providers, promoting careers, and monitoring how well the system is meeting the needs of industry and learners.

Jobs and Skills Councils are funded by the Australian Government (Department of Employment and Workplace Relations) but work collaboratively with a wide range of bodies.





## Foreword

The Rail Strategic Workforce Planning Committee (SWPC) is a dedicated group of senior industry leaders established by Industry Skills Australia (ISA), the Jobs and Skills Council (JSC) for the Transport and Logistics (T&L) Industries. The Committee works on behalf of industry to shape and oversee the development of the Transport and Logistics National Workforce Plan based on research, analysis, and engagement with key stakeholders from across Australia.

The Committee held its inaugural meeting in November 2023. During this and subsequent meetings, we have delved into the challenges, drivers and key priorities for our industry and proposed workforce development solutions.

The Rail sector is currently facing workforce challenges that require urgent attention. Existing workforce shortages in key occupations are being compounded by an aging workforce, and competition for skilled workers across all Australian industries. Promoting Rail as a career of choice for talented people has never been more important. The adoption of new technologies, and decarbonisation initiatives present both a challenge and opportunity for the sector to attract and retain the future Rail workforce.

Moving forward, our committee will continue to monitor the industry landscape to identify and prioritise areas requiring support, ensuring the development of a resilient and agile Rail workforce.

Thank you for your ongoing support as we work together to shape the future of our industry.

Brian Appleby Chair, Rail Strategic Workforce Planning Committee

## **Executive Summary**

The Rail industry comprises private and public operators, passenger, and freight operators, rail infrastructure owners and managers, manufacturers, and suppliers that operate in urban, regional, and rural areas of Australia.<sup>1</sup>

The Australian Rail industry workforce is expected to increase by 7.2% in the five years to 2028 and 11.6% to 2033. Understanding the key factors impacting the supply and demand of workers in the rail industry assists in the identification of workforce issues and potential solutions.

Four megatrends have been identified that are impacting the Australian economy, businesses, and people. They are:

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

These megatrends duplicate many of the specific rail industry drivers/challenges that are explored further in that section of the Workforce Plan. The most significant workforce challenges influencing the supply and demand of workers in the Rail industry at the urban, regional, and remote level include:

- Occupational and skills shortages
- Workforce diversity
- Digital capability
- · Interoperability's impact on labour mobility
- Skills system blockages.

The 2023 Initial Workforce Plan was used to engage with stakeholders and gather real-time workforce intelligence to inform the evidence based and industry supported Proposed Actions in this 2024 Rail Workforce Plan. The plan will be refreshed and developed further each year, with work on the 2025 version already underway.

## **Proposed Actions**

The **Proposed Actions** in the Workforce Plan have been developed and designed to address some of the key industry challenges as a priority. Each proposed action is a high-level description of a project and will be fully scoped, planned and implemented in consultation with relevant stakeholders. These include:

Industry Challenge/Driver	Proposed Action
Digital Capability	Conduct a pilot project to analyse <b>Rail digital</b> skills for select occupations against the <u>Australian</u> <u>Digital Capability Framework</u> . Based on the analysis, a model for describing digital skills in training products will be produced; and relevant training products identified and prioritised for review.
Interoperability's Impact on Labour Mobility	Complete the first phase of implementing the Mutual Recognition Blueprint developed by the National Transport Commission (NTC) in 2023. This will involve development of a TLI Training Package Companion Volume to support <b>Mutual</b> <b>Recognition of Entry Level Rail Skills</b> .

Note: The Transport and Logistics Jobs and Skills Council does NOT cover electrical rail signalling, rail manufacturing, infrastructure construction. These areas fall under the coverage of other Jobs and Skills Councils.

## **Future Research and Consultation**

The **Future Research and Consultation** activities identified in this Workforce Plan will be used to inform drivers and challenges in the 2025 Rail Workplace Plan and potential workforce actions. These include:

Industry Challenge/Driver	Proposed Further Research and Consultation
Occupational and Skills Shortages	<ul> <li>Collaboration between the ARA, NTC, RTBU and ISA to identify and prioritise responses for future rail skills requirements.</li> <li>Establish a regular dialogue to support collaboration between relevant Jobs and Skills Councils and key stakeholder groups to ensure there is a whole of sector examination of rail workforce needs, and coordinated responses implemented.</li> <li>Investigate the current temporary and permanent skilled migration, including how they are meeting the needs of the workforce and addressing shortages.</li> </ul>
Workforce Diversity	<ul> <li>Research to find examples of programs used in rail, and similar sectors, to attracting, training and retaining underrepresented groups.</li> </ul>
Digital Capability	<ul> <li>Consultation and analysis throughout Phase 1 of the Digital Capability project will identify Phase 2 outputs.</li> </ul>
Interoperability's Impact on Labour Mobility	<ul> <li>Consultation throughout Phase 1 of Mutual Recognition project will inform Phase 2 outputs.</li> </ul>
Skills System Blockages	<ul> <li>Consultation with industry stakeholders to scope a project to increase the pool of Rail Trainers and Assessors in the sector. Focus will initially be on driver trainers.</li> <li>Training Product development, validation and scoping. Stakeholders have suggested the need for some new training products. Further consultation is required to validate the suggested needs and prioritise any development work.</li> <li>A review of underutilised units and qualifications will be completed to determine why they aren't being used. Current poor completion rates will also be examined.</li> <li>Expand previous career and education pathways work to ensure pathways between/across secondary, VET and higher education sectors are mapped, and identify where Skill Sets and micro credentials might be best used.</li> </ul>

## **Existing Workforce Strategies and Initiatives**

This 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 in implementing them.



# Industry Overview

## About the Industry

Rail plays a significant role in Australia's economy, society, and environment providing mobility to millions of passengers, and vital freight services over 33,000km of track<sup>2</sup> across the country. It is supported by the full spectrum of skills in the Australian workforce and with activities across every major metropolitan and regional area. The industry had an estimated annual revenue of \$22.5billion in 2023-24,<sup>3</sup> employing nearly 47,000 people, a workforce that is projected to increase by 7.2% in the five years to 2028 and 11.6% to May 2033 (**Figure 1**)<sup>4</sup>. The median age of Rail operational workers was 46 years in Census 2021<sup>5</sup>, with women making up 15.2% of Rail workers in 2023<sup>6</sup>.



Figure 1: Rail Industry Workforce, 2000 - 2033



Source: ABS Labour Force/JSA Employment Projections

<sup>&</sup>lt;sup>2</sup> Bureau of Infrastructure and Transport Research Economics (BITRE), 2023, Yearbook 2023: Australian Infrastructure and Transport Statistics, Statistical Report

<sup>&</sup>lt;sup>3</sup> IBISWorld Industry Wizard (December 18 2023)

<sup>&</sup>lt;sup>4</sup> Employment projections produced by Victoria University for Jobs and Skills Australia, May 2023 to May 2033

<sup>&</sup>lt;sup>5</sup> Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

<sup>&</sup>lt;sup>6</sup> Australian Bureau of Statistics, Detailed Labour Force Survey, EQ08 - Employed persons by Occupation unit group of main job, November 2023 (annual average of original data)

The industry is comprised of private and public operators, passenger, and freight operators (including resource companies that build, own and operate dedicated rail infrastructure), rail infrastructure 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. Both worker and public safety are a primary focus for operators and industry regulators.

The activities of the industry can be categorised into four (4) occupational areas (with further details provided in **Appendix A**):

- **Rail Operations** managing, operating, co-ordinating and supporting services for rail vehicles.
- **Rail Infrastructure** managing and maintaining rail infrastructure, which includes tracks, signals, stations, yards, and other supporting facilities.
- **Safety** implementing safety protocols, conducting regular inspections and maintenance, and training personnel on emergency, human factors and fatigue procedures to ensure the safety of passengers, workers and rail infrastructure.
- Rolling Stock Maintenance conducting maintenance of any vehicle that operates on or uses rail. Rolling stock is a collective term for various types of rail vehicles including locomotives, freight wagons, passenger cars, track machines and road-rail vehicles.

Note: The Transport and Logistics Jobs and Skills Council (JSC) does NOT cover electrical rail signalling, rail manufacturing and infrastructure construction. These areas fall under the coverage of other JSCs. When workers in occupations covered by other JSCs are added, the broader rail industry workforce exceeds 88,000, and proportional representation of some groups of workers, such as females for example, may differ. But for the purposes of this Workforce Plan only workers listed in the Rail Occupational Areas table in **Appendix A** are considered.



### RAIL BUSINESS NO.

# 266

12 with 200+ employees16 with 20-199 employees238 with 0-19 employees

RAIL NETWORKS 29

**KILOMETERS OF TRACK** 

33,000





RAIL INFRASTRUCTURE MANAGERS

RAIL OPERATORS INCLUDING FREIGHT & PASSENGERS

>50

RAIL PASSENGER JOURNEYS IN 2020-2021





RAIL INFRASTRUCTURE BUILT \$B 2022-2023

12.3

GDP CONTRIBUTION \$B 2022-2023 **9.94** 

ESTIMATED ANNUAL REVENUE \$B 2023-2024





RAIL INDUSTRY 2024 WORKFORCE PLAN 12

## Megatrends

Megatrends are overarching, transformative shifts that are reshaping the workforce, economies, and the global environment, exerting profound impacts across all transport sectors. These trends, which include digital transformation, automation, decarbonisation, and workforce supply/demand issues, pose cross-sector challenges that demand innovative and adaptive responses, including skills development and improvements in diversity and inclusion in the workplace. Understanding these megatrends is crucial for addressing industry-specific challenges and leveraging the opportunities they present in shaping the future of transportation. The megatrends identified in this section represent cross-cutting issues that are evident across industry Skills Australia's four main industry sectors.



## **Digital Technology and Automation**

The adoption of high-performance computing, AI, machine learning, sensors, the Internet of Things (IoT), robotics and other Industry 4.0 technologies is growing globally. The next wave of digital innovation is expected to generate \$10–15 trillion globally, and currently available technologies could contribute \$140–250 billion to Australia's GDP by 2025.<sup>7</sup>

There is a drive to increase the technical capabilities of Transport and Logistics using IoT, data analytics and automation to boost efficiencies and productivity.<sup>8</sup> The increasing integration of smart technologies, driver assistance and other safety systems play a key role in improving the road transport sector's ability to enhance efficiency, safety and productivity. Unsurprisingly, logistics companies are turning to technology to reduce costs and improve productivity in transportation and warehousing.<sup>9</sup>

New technologies and increased levels of digitalisation and automation are continuously being introduced to the Maritime industry for reasons of safety, efficiency, and the environment.<sup>10</sup> However, the changes brought about by rapid technological development need to ensure that seafarers are required to reskill and upskill to new tasks and embrace emerging job opportunities.<sup>11</sup>

The Aviation industry is on the verge of new revolution, propelled by incorporating cutting-edge technologies such as Uncrewed Aircraft Systems (UAS), remote digital tower technology<sup>12</sup>, OneSky (a harmonised civil and military air traffic management system)<sup>13</sup> and Satellite-Based Augmentation System (SBAS).<sup>14</sup> Similarly, the Rail industry is operating autonomous trains, smart devices and automated asset inspections using various technologies. As a result, by 2027 nearly 40% of the existing rail workforce will need to learn new digital skills, with the number of specialised digital workers needed, projected to grow by 84%.<sup>15</sup>

- <sup>7</sup> CSIRO. (2022). Global Megatrends impacting the way we live over coming decades
- <sup>8</sup> PwC. (2023). Shifting Patterns: The future of the logistics industry
- <sup>9</sup> McKinsey. (2023). Digital Logistics: Technology race gathers momentum
- <sup>10</sup> World Maritime University. (2023). Transport 2040: Impact of technology on seafarers the future of work
- <sup>11</sup> World Maritime University. (2023). Transport 2040: Impact of technology on seafarers the future of work
- <sup>12</sup> Australian Aviation. (2019). Airservices to trial remote digital tower prototype at Sydney. November
- <sup>13</sup> Airservices. (NA). What is OneSKY?
- <sup>14</sup> Australian Flying. (2018). Airservices launches SBAS Project.
- <sup>15</sup> Future Rail Skills Forum. (2022). Shaping the next generation workforce

Digital connectivity and advanced capabilities offer significant opportunities to diversify and strengthen regional and remote economies. These advancements can attract and retain a more skilled workforce, contributing to regional economic growth and sustainability.<sup>16</sup> However, this potential is hindered by underlying issues in these areas, including:

- A notable lack of local professionals with the necessary technical skills, which impedes the development and maintenance of digital infrastructure.
- Limited or unreliable internet access hampering the adoption of digital technologies and skilling opportunities.

This urban/rural divide is becoming increasingly critical as metropolitan areas surge ahead with rapid digital advancements.<sup>17</sup>

At the national scale, 2.7 million Australian jobs are at risk of being lost due to automation in almost all industry sectors by 2034.<sup>18</sup> However, almost twice as many jobs as those lost to automation (4.5 million) will be augmented by automation requiring upskilling, reskilling and digital skills to provide a pathway to a future-ready workforce.<sup>19</sup>

## Decarbonisation

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.<sup>20</sup> Around 7 in 10 business leaders recognise the need for Australia to achieve 'net zero' carbon emissions to keep up economically, while almost 8 in 10 believe that sustainable transformation is driving a competitive edge for companies.<sup>21</sup>

According to the DCCEEW,<sup>22</sup> the transport industry was responsible for nearly a quarter (24.6%) of energy consumption in 2020-21 (**Figure 2**) and will need to be a major focus of emissions targets. In the years to 2050, emissions from the Transport industry can be reduced due to electrification of the light vehicle fleet as adoption of electric vehicles (EVs) increases from less than 2% of Australian car sales to more than 55% by 2030.<sup>23</sup> Decarbonisation of long distance and heavy transport is expected to accelerate through 2030-2040<sup>24</sup> with trials for zero-emissions hydrogen fuel-cell battery trucks (FCEV)<sup>25</sup> and electric battery trucks

(BEV)<sup>26</sup> already under way for long range applications in Australia. The passenger transport sector's transition to zero emission vehicles is well underway with battery electric or hydrogen fuel cell buses already introduced into fleets across the country. The majority of states and territories have established policy commitments to transition their public transport fleets to zero emission vehicles with set target dates. The International Maritime Organization (IMO) has been working to steward the decarbonisation of the sector and has set targets to reduce shipping emissions intensity by at least 40% by 2030 and reduce greenhouse gas emissions to net zero by around 2050.<sup>27</sup> The use of hydrogen and fuels such as ammonia is also gaining traction in the maritime industry with trials already underway.<sup>28</sup> Additionally, in line with the Government's climate change agenda, the Maritime **Emissions Reduction National Action Plan (MERNAP)** developed by the Australian Government in collaboration with the Maritime industry will set strategic direction and recommend actions to achieve net zero emission.<sup>29</sup>



- <sup>16</sup> Rural Economies Centre of Excellence. (2021). Leveraging digital development in regional and rural Queensland
- <sup>17</sup> Good Things Foundation Australia. (2021). Digital Nation Australia
- <sup>18</sup> ACS. (2020). Technology impacts on the Australian workforce
- <sup>19</sup> ACS. (2020). Technology impacts on the Australian workforce
- <sup>20</sup> Climate Council. (2022). The federal budget: three highlights and lowlights for climate. October
- <sup>21</sup> Schneider Electric. (2023). Sustainability index 2023
- <sup>22</sup> Department of Climate Change, Energy, the Environment and Water, Australian Energy Statistics, Table E, September 2022
- <sup>23</sup> CSIRO. (2023). Pathways to Net Zero Emissions An Australian Perspective on Rapid Decarbonisation
- <sup>24</sup> CSIRO. (2023). Pathways to Net Zero Emissions An Australian Perspective on Rapid Decarbonisation
- <sup>25</sup> Power Torque. (2023). First Aussie Hydrogen Truck
- <sup>26</sup> CleanTechnica. (2023). Volvo makes longest ever all-electric truck journey in Australia.
- 27 International Maritime Organization. (2023). 2023 IMO Strategy on Reduction of GHG Emissions from Ships Annex 15, Resolution MEPC.337(80)
- <sup>28</sup> Offshore Energy. (2023). Carisbrooke Shipping to trial hydrogen engine on board one of its vessels
- <sup>29</sup> Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (2023). Maritime Emissions Reduction National Action Plar





Source: DCCEEW (2022), Australian Energy Statistics, Table E



SAF (Sustainable Aviation Fuel) is expected to play a significant role in the decarbonisation of the aviation industry to 2050.<sup>30</sup> Also, electric, hydrogen-electric, and hydrogen powered fixed wing aircraft are considered the most attractive long-term solution to full industry decarbonisation, but the implementation may take some time.<sup>31</sup> Rail transport using electricity is projected to double by 2050 from 12% in 2020.<sup>32</sup> Battery electric trains and hydrogen fuel cells are emerging options to displace the existing diesel fleet in the coming decades.

The Australian Government has committed to more than \$525 million to invest in regional hydrogen hubs and \$500m for electric vehicle charging infrastructure and hydrogen highways,<sup>33</sup> creating new jobs in regional areas. In Australia, about a quarter of businesses have reported an increasing need for emerging skills related to the green economy.<sup>34</sup>

Every country and sector contribute to emissions, either directly or indirectly, through day-to-day production and consumption. Integrating new technologies in diversification programs, reskilling, and redeployment programs may help address the socioeconomic impacts of digitalisation.<sup>35</sup>

## Workforce Supply Challenges and Diversity, Inclusion

The 2023 JSA's Skills Priority List (SPL) shows that 36% of occupations are in national shortage and about 5% higher than 2022 (31% of occupations).<sup>36</sup> JSA's Annual Jobs and Skills Report 2023, showed that occupations with a strong gender imbalance were more likely to be in shortage (**Figure 3**). The rise in shortages reflects the cumulative impacts of recruitment challenges, stemming from a persistently tight labour market which began tightening from late 2021. Addressing diversity and inclusion is essential for tackling skills shortages among transport occupations, where diversity is notably lacking. Australian businesses are investing in staff training, developing skills, and attracting young people and women into traditionally male-dominated industries and occupations.<sup>37</sup> Fostering equality, diversity and inclusion in industries is about challenging traditional mindsets and adopting more innovative work practices to attract and retain more diverse workforces.<sup>38</sup>

<sup>30</sup> Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. (2023). Scenario Analysis of the Future of Australian Aviation

- <sup>31</sup> Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. (2023). Scenario Analysis of the Future of Australian Aviation
- <sup>32</sup> CSIRO. (2023). Pathways to Net Zero Emissions An Australian Perspective on Rapid Decarbonisation
- <sup>33</sup> Australian Trade and Investment Commission. (2020). Transition to net zero
- <sup>34</sup> AiGroup. (2022). 2022 Skills Survey: Listening to Australian businesses on skills and workforce needs
- <sup>35</sup> McKinsey. (2022). The net-zero transition
- <sup>36</sup> JSA. (2023). Skills priority list
- <sup>37</sup> Infrastructure Magazine. (2023). Gender diversity is critical to addressing our sector's skills shortages
- <sup>38</sup> McKinsey. (2023). Diversity Matters Even More: The Case for Holistic Impact

Figure 3: Occupational Shortages by Gender Balance



Source: National Skills Commission, Skill Priority List 2021 and 2022; Jobs and Skills Australia, Skills Priority List 2023

In the Transport industry, a shortage of truck and bus drivers is reported across every state and territory in Australia according to the latest Skills Priority List.<sup>39</sup> The presence of truck and bus drivers on the national Skills Priority List for 2 years is a strong indication of the current and future demand for this occupation.<sup>40</sup> There is also a reported shortage of deck officers, engineers and ratings across Australia. With a current global shortfall of 35,020 officers, projected to rise to 55,685 by 2027, Australia's seafarer demand is unlikely to be met solely through migration.<sup>41</sup>

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,<sup>42</sup> or air traffic control staff.<sup>43</sup> The pilot shortage has impacted regional airlines even more severely.<sup>44</sup> While skills shortages are not new in rail, the current convergence of challenges and threats to workforce capability means this will be a critical issue for the industry over the next three years.<sup>45</sup> The rail industry has also reported occupational shortages in key roles such as train drivers, controllers, or signalling technicians.<sup>46</sup>

- <sup>41</sup> Department of infrastructure, transport, communications and arts. (2023). Strategic fleet taskforce report
- <sup>42</sup> Financial Review. (2023). The 'alarming' workforce trend causing flight delays. February.
- <sup>43</sup> The Sydney Morning Herald. (2023). Airlines call for action on air traffic controller shortage as flight delays continue. August
- $^{\rm 44}$   $\,$  Simple Flying. (2023). Rex flying solo to fix Australian pilot shortage. May
- <sup>45</sup> Australasian Railway Association. (2023). 2023/24 Strategic plan
- $^{\rm 46}$  Australasian Railway Association. (2022). Building Australian Rail Skills for the Future

<sup>&</sup>lt;complex-block>

<sup>&</sup>lt;sup>39</sup> JSA. (2023). Skills priority list

<sup>&</sup>lt;sup>40</sup> JSA. (2023). Skills priority list



## **Skills Development**

The Vocational Education and Training (VET) system today remains an effective and efficient way of imparting the skills needed for employment. Workbased learning models will be more important in the future as technology-driven changes need to be quickly transmitted across industries and around workplaces.<sup>47</sup> However, barriers such as perceptions of the VET sector<sup>48</sup> and a growing shortage of vocational trainers impacts on the attractiveness of the sector and on learner outcomes.<sup>49</sup>

Delivering VET in regional and remote Australia to deal with occupational shortages faces several barriers, <sup>50</sup> including:

- a lack of high-quality training facilities
- up-to-date training equipment
- a lack of RTOs

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- appropriately qualified trainers/assessors
- increased costs of training delivery
- numeracy and digital literacy
- the need for cultural competency in working with First Nations communities.

Additionally, one of the biggest challenges to achieving successful outcomes with disadvantaged groups is the high rate of attrition in attendance as a result of other factors such as health, housing, transport and family issues.<sup>51</sup> The lack of appropriate housing in particular

was highlighted by stakeholders as a significant barrier to support the future workforce in regional and remote Australia.  $^{\rm 52}$ 

The National Skills Agreement reflects a commitment by the Commonwealth, state and territory governments by investing \$12.6 billion to support the VET sector with capacity to deliver skills for critical and emerging industries.<sup>53</sup> Creating greater flexibility within the VET system can yield better results by attracting more learners and leading to improved learner outcomes.<sup>54</sup> Supporting this approach, the Australian Universities Accord Final Report<sup>55</sup> outlines the importance of VET and higher education to meet the nation's skill demands and ensuring fair access to high-quality education.

Skills Ministers have agreed to progress some early changes to the current standards for RTOs which will come into effect from March 2024, including;

- New and updated training products from the updated Training and Education (TAE) training package.
- Enable people who hold an educational degree to be engaged as trainers/assessors.
- Allow people actively working towards the Certificate IV or Diploma to deliver training/ assessment under supervision.
- Enable broader use of industry experts.
- Align the changes to Fit and Proper Person requirements.
- Implement minor amendments towards validation, language, and inclusion of wellbeing services to educational and support services.

- Parliament of Australia. (2023). Inquiry into the Perceptions and Status of Vocational Education and Training. Terms of Reference.
- Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System
- <sup>10</sup> Tabatha, G. & Andrahannadi, U. (2023). VET delivery in regional, rural and remote Australia: barriers and facilitators, NCVER
- <sup>51</sup> Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System
- <sup>52</sup> Regional Australia Institute (2023). Against the odds Realising regional Australia's workforce potential. Retrieved from https:// regionalaustralia.org.au/Web/Shared\_Content/Smart-Suite/Smart-Library/Public/Smart-Library-Viewer.aspx
- 53 Department of Employment and Workplace Relations. (2023). National skills agreement Reforming the national VET system
- <sup>54</sup> The Regional Australia Institute. (2023). 2023-2024 Federal Government Pre-Budget Submission.
- <sup>55</sup> Australian Government. (2024). Australian universities accord final report

Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System

### Conclusion

The intersection of digital technology, decarbonisation, and workforce challenges marks a transformative era for Australia's transport sectors. Rapid digital advancements are significantly altering the economic landscape, bringing the prospect of automationrelated job displacement and new employment opportunities. Government and industry commitments to decarbonisation are also reshaping transportation's future. Addressing workforce issues, particularly in remote areas, and prioritising diversity and inclusion are key to industry growth and innovation. The VET system is central to this shift, adapting to industry needs and ensuring a future-ready skilled workforce.

Aligning these elements is crucial for Australia to effectively navigate and leverage these major trends.





## Additional training and support is required for middle managers to understand their changing workforce. Increased focus on psychological safety as a WHS issue. Stakeholder feedback

## Key Challenges and Drivers

## A. Occupational and Skills Shortages

The Australian rail industry faces significant workforce capability challenges across the coming decade and beyond. An estimated \$154 billion is proposed to be invested in Australia's rail networks over the next 15 years<sup>56</sup>, however, public debt levels and major cost escalation on existing and planned projects has introduced uncertainty to the infrastructure pipeline and may result in the cancelation of some projects<sup>57</sup>.

The National Transport Commission (NTC) and the Australasian Railway Association (ARA) commissioned Oxford Economics Australia to update quantitative rail workforce capability modelling last completed in 2018 and published in the <u>ARA Skills Capability</u> Study. The <u>updated report</u> states: *"The ongoing surge in railway construction activity is being driven by metropolitan rapid transit projects in the major capital cities. The value of work yet to be done is currently at unprecedented levels while additional projects and stages add further to the future pipeline. The large volume of railway construction activity raises the risk of delays, as the industry may not have the capacity to deliver this level of work on time. This may result in a 'stronger for longer' tide of work, rather than the projected 'tsunami' over the next 5-8 years."* 

Despite some uncertainty about the infrastructure pipeline, the rail industry will need new workers to fill a range of critical job roles. Additional workers required to build and operate new infrastructure will compound existing attraction and

<sup>&</sup>lt;sup>56</sup> Australian Rail Market Outlook – Australasian Railways Association – December 2022

<sup>&</sup>lt;sup>57</sup> Determining the Future Demand, Supply and Skills Gap for Australia's and New Zealand's Rail Workforce: 2022-2032. Prepared by Oxford Economics Australia for the National Transport Commission and the Australasian Railway Association - November 2023

retention challenges in an economy at close to full employment. This is exacerbated by competition between industry sectors for skilled workers, disruptions to skilled migration due to the pandemic, rapid changes in technology, and an aging workforce.

Online advertisements for rail workers have grown around 28.7% per year from 2020 to 2023<sup>58</sup>, with numbers doubling (113%) over the four years <sup>5</sup> (**Figure 4**). The ARA's Building Australian Rail Skills for the Future Reports: *"Occupations that will experience shortages included train drivers, controllers, track workers, signalling engineers and technicians, maintenance workers, electrical technicians and tunnellers and trainers and assessors", and further notes that <i>"there is an emerging shortage of specialised skills in emerging areas including automation, data analytics and digital skills"* <sup>59</sup>.

Figure 4: Rail Workers and Online Job Ads, 2006 - 2023



Source: ABS Labour Force/Jobs and Skills Australia (2023). Internet Vacancy Index, three-month moving average

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. Several 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.

The workforce and skills the rail industry will need to support movement toward decarbonisation is still uncertain. Initial work in the heavy haul and freight rail sectors indicates clearly that many more electrical skills, as well as new skills associated with battery electric solutions and other alternate fuel sources, will be required <sup>60</sup>.

As illustrated in **Table 1**, rail occupations have been in shortage for several years across Australia, being particularly extreme in Western Australia and Victoria. The Skills Priority List data further suggests that future demand will be 'At economy-wide average' across the most common rail occupations (**Table 2**),<sup>61</sup> however, this is in the context of historic shortages in all occupations and consequently, a high national average. Rail Operators report shortages are often more extreme in specific locations. Some regional areas are experiencing a significant challenge attracting workers, with lack of local housing and services such as child care contributing to the challenge.

**Table 1:** Count of current and consecutive years of shortage

Occupation	AUS	ACT	NSW	NT	SA	TAS	VIC	WA	QLD
Train Driver	1		1	1	1	1	1	3	1
Railway Track Worker	1		1		1	1	3	1	1
Tram Driver	1						1		
Train Controller	1		1		1		1	2	1
Railway Signal Operator								2	1
Railway Track Plant Operator	2	2	3	2	2	2	2	2	2

Source: Skills Priority List (20 December, 2023)

<sup>61</sup> Jobs and Skills Australia (2023). 2023 Skills Priority List

<sup>58</sup> Jobs and Skills Australia (2023). Jobs and Skills Australia (2023). Internet Vacancy Index, three-month moving average

<sup>&</sup>lt;sup>59</sup> Building Australian Rail Skills for the Future – Australasian Railways Association – March 2022

<sup>&</sup>lt;sup>60</sup> The Rail Workforce: An Analytical Overview. Completed by the UK's National Skills Academy for Rail (NSAR) for the Australasian Railway Association (ARA). December 2023

Occupation	2006	2011	2016	2021	Ave. Growth <sup>62</sup>	Future demand*
Train Driver	8429	9980	9979	11198	1.91%	Below average
Railway Track Worker	3215	4064	4132	4757	2.65%	Average demand
Tram Driver	1069	1222	1294	1591	2.69%	Below average
Train Controller	876	1083	1241	1263	2.47%	Average demand
Railway Signal Operator	1544	1318	1107	1203	-1.65%	Average demand
Railway Station Manager	749	615	746	925	1.42%	Average demand
Railway Track Plant Operator	219	306	211	395	4.01%	Below average

Table 2: Top Employing Rail Occupations, Growth and Demand

Sources: ABS Census, Skills Priority List (20 December 2023)

The total workforce gap across Australia is expected to initially peak in 2026-7 before falling as the current wave of major projects begins to move to completion; however, the gap is expected to increase again by 2032 due to the impact of an aging workforce.<sup>63</sup> New South Wales, Queensland, and South Australia are anticipated to experience workforce shortages across the entire period. <sup>63</sup> It should be noted that a large proportion of the current workforce gap is related to construction of new infrastructure which falls outside of Industry Skills Australia's coverage and will be picked up in the workforce plans of other Jobs and Skills Councils (e.g. related to civil construction, electrical work and manufacturing). However, once projects are completed additional rail operational workers will be required.

From a skill level perspective, the biggest gap predicted is for roles at the Australian Qualification Framework (AQF) level 4, which covers roles such as train drivers, train controllers and planners. In addition, AQF level 7, people with Bachelor's degrees such as engineers and IT specialists, will be in short supply <sup>64</sup>.

The median age of rail workers in Census 2021 was 46 years old, with approximately 21.4% between 57 and 66 years old becoming eligible to retire in the next 10 years.<sup>68</sup> The share of workers above 60 has tripled from 5.3% in 2006 to 15.4% in 2021 (**Figure 5**). Less than 5% of workers are under 25 years of age<sup>65</sup>. Urgent action is required to address the looming retirement cliff anticipated around 2030.



- <sup>22</sup> Compound Annual Growth Rate (CAGR) has been employed to estimate the average annual growth in employment over intercensal periods.
- <sup>63</sup> Determining the Future Demand, Supply and Skills Gap for Australia's and New Zealand's Rail Workforce: 2022-2032.
- <sup>54</sup> The Rail Workforce: An Analytical Overview. Completed by the UK's National Skills Academy for Rail (NSAR) for the Australasian Railway Association (ARA). December 2023
- <sup>65</sup> Australian Bureau of Statistics (2021) '2021 Census Employment, income and education', TableBuilder



Source: ABS Census 2006 to 2021

Further research and consultation will be conducted to inform the development of future strategies, it includes:

- Future Rail Skills Research and consultation to identify and prioritise work required to support future rail skills requirements. For example: skill and knowledge requirements for new locomotive fuel types; how future leadership capacity and capability might be planned and developed.
- Collaboration between JSCs that cover Rail occupations Establish a regular dialogue between relevant JSCs and key stakeholder groups to ensure there is a whole of sector examination of rail workforce needs.
- **Skilled Migration** investigate the current temporary and permanent skilled work visas, including how they are meeting the needs of the workforce and addressing shortages.

## **B. Workforce Diversity**

Workforce shortages are compounded by underrepresentation of some groups in the rail workforce. Females account for only 10.9% of Rail operational workers<sup>66</sup> (**Figure 6**) as opposed to 27% in the rail industry more broadly.<sup>67</sup> However, proactive measures to enhance female participation are demonstrating positive outcomes. This is reflected in the narrowing gender pay gap within the rail sector, which, at 14.3%, is significantly lower than the national average of 21.7% in the fiscal year 2022-23.<sup>68</sup> This underscores a concerted effort to rectify gender disparities and foster a more equitable workplace environment in the rail industry.

Figure 6: Female employment share 2000 - 2023



Source: ABS 6291.0.55.003 - Labour Force, Australia, Detailed (four-year rolling average)

<sup>66</sup> Australian Bureau of Statistics, Detailed Labour Force Survey, EQ08 - Employed persons by Occupation unit group of main job, November 2023 (annual average of original data)

<sup>&</sup>lt;sup>67</sup> Australian Bureau of Statistics, Detailed Labour Force Survey, EQ06 - Employed persons by Industry group of main job, November 2023 (annual average of original data)

<sup>68</sup> Workplace Gender Equality Agency. Data Explorer. Retrieved 06/03/2024, from https://www.wgea.gov.au/data-statistics/data-explorer



First Nations Australians represent 3.3% of workers, and there are very negligible numbers of people with a disability (**Figure 7**).<sup>69</sup>

Figure 7: First Nations people and Workers with Disability, 2006 – 2021



Source: ABS Census 2006 to 2021

All other industries are in competition with rail for workers, so there is a strong need to draw upon these under-represented labour pools, and for rail to grow its own skills. It is important to recognise that new entrants cannot replicate the skills and productivity of an experienced retiring worker with decades of experience, hence, robust skilling regimes must be in place.

The rail sector needs to better promote itself to potential new entrants as a desirable industry to work. The green and technology credentials of the sector continue to grow which should appeal to younger candidates. In addition the rail sector's gender pay gap performance should appeal to female candidates. Rail employers would benefit from highlighting these aspects of working in the sector.

<sup>&</sup>lt;sup>69</sup> Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

In July 2023, the National Transport Commission (NTC) and Australasian Railway Association (ARA) 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 available in both VET and higher education.

The ARA has launched a Work in Rail website to promote professional opportunities and career pathways available in rail, and to link employers with job seekers. Similarly, the NTC launched the National Rail Skills Hub in December 2022, which provides career pathways information and a suite of training resources. The resources were developed by Australian Industry Standards (which has transitioned under JSC arrangements to be Industry Skills Australia) 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 training and mentoring of the future rail workforce, and with the promotion of rail as a rewarding career path.

It is recognised that collaboration between the rail industry, education and government is the only way that workforce capability and capacity challenges can be addressed. Diversity targets during recruitment are often achieved but support and inclusion for individuals can be lacking once they start their employment. Stakeholder feedback

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Further research and consultation will be conducted to inform the development of future strategies, it includes:

• Approaches to entry level rail skills - research examples of programs used by the rail and similar sectors to attract, train and retain underrepresented groups and produce a curated collection of case studies to be used by employers as a resource.

## C. Digital Capability

The future of the rail sector is digital. Digitisation of rail enables the delivery of benefits to passengers, freight users, broader society and to the rail industry itself. Digital signalling and train control solutions lead to:

- Increased capacity & better performance
- Enhanced safety
- Asset and system optimisation
- Improved passenger experience
- Accelerated economic growth
- Improvement in environmental outcomes
   and increased sustainability

Digitisation presents an opportunity for transformative changes in the rail industry. The value proposition recognises the need to ensure that the Australian workforce has the appropriate skills to facilitate a smooth transition and stresses the need for industry and the skills system to work collaboratively to find solutions.

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.

It is broadly accepted that very few jobs in the rail sector have not been required to engage with introduction of digital technologies such as the computers and mobile devices used in modern workplaces. The Digital Skills in Rail report<sup>70</sup> commissioned by the NTC 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 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 occupations
   such as ICT Business Analyst
- Data Communication: covering occupations such as ICT Support Engineer, Customer Service Manager
- Data Security: covering occupations such as 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 in rail gualifications that may need to be updated to better reflect the digital skills required by rail workers. Of those units, 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. The affected units are present in 77% of Rail gualifications. Further analysis conducted by Industry Skills Australia has identified that 253 gualifications 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. Amending the identified units would have a broad reaching impact on RTOs and their students. If the digital skills requirements for rail workers continue to increase it is likely this may impact the skill and knowledge levels required for some occupations, and subsequently, the AQF levels of associated qualifications. The proposed analysis should begin to plot any progression.

Industry Skills Australia will conduct a pilot project to analyse Rail digital skills for select occupations using the <u>Australian Digital Capability Framework</u> and the Digital Occupational Profile tool (described in the

#### Digital Capability for Workforce Skills - Final Report 2022).

Collaboration across Jobs and Skills Councils is required to agree on a model for describing digital skills in training packages that is replicable across industry sectors to facilitate development of transferrable digital skills.





Proposed initial action:

• **Digital skills in rail**– Phase 1. This project will create Digital Occupational Profiles for five key rail occupations, then map requirements to the relevant qualifications to identify and prioritise any amendments that may be required.

Further research and consultation will be conducted during Phase 1 to inform the second Phase of the project, and also to inform the development of other future strategies.

<sup>&</sup>lt;sup>70</sup> Digital Skills in Rail – Deloitte Financial Advisory Pty Ltd.

## D. Interoperability's Impact on Labour Mobility

Australia's rail networks have developed independently across different jurisdictions, resulting in a lack of national interoperability. This is reflected across 29 different networks using three different rail gauges and 11 separate signalling systems (**Figure 9**). 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 NTC commissioned development of a blueprint for nationally recognised entry level rail skills training. Industry Skills Australia was part of the project reference group and participated in all 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.



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Figure 9: Australia's Rail Network Components

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 RIM/operator requirements for new projects.
- 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/assessment resources for each jurisdiction/ network, as well as Trainer/Assessor shortages, are hampering the efficient delivery of training/assessment.

The final Blueprint proposes the following components (work will be split into two phases):



Phase 1 Development work proposed for	· 2024	<b>Phase 2</b> To be guided by the outputs of Phase 1		
National Rail Skills Mutual Recognition Principles	Validation and moderation guidance for competency	Guidance for the development and delivery of rail skills	Rail skills curriculum providing publicly accessible entry-	Governance group with industry, education,
(National Guidelines &	assessment	training and assessment	level rail training programs	regulators and government



National Code of Practice)

The components are designed to work in harmony and to leverage existing work programs, reforms and activities that are underway in the sector. Together, they will:

- establish overarching principles and a framework for mutual recognition that will enable and steer future reform activities, with both non-regulatory and regulatory pathways available
- bring together key stakeholders to take ownership and steward reform, while sharing knowledge to identify, share and lift practices across the sector
- set an industry-driven benchmark for validation and moderation, giving industry greater confidence in the consistency of outcomes delivered by the education sector
- help harmonise training and assessment practices in order to provide industry with greater confidence in the education sector; and
- provide greater opportunities for all people to participate in rail, enable greater consistency across training and assessment practices, and set a pathway towards a national curriculum.

The three Phase 1 components will provide an industry supported training and assessment quality framework to lift industry confidence and facilitate mutual recognition across RIMs. Outputs will be published in a dedicated TLI Training Package Companion Volume. The two Phase 2 components will implement the quality framework developed in Phase 1.

Nine Units of Competency considered foundational for key roles across the industry have been identified. Mutual recognition of these entry-level skills will provide greater workforce mobility, interoperability across networks, and productivity for the sector as a whole. Validation and prioritisation of the units will be undertaken during Phase 1.

Proposed initial action:

• **Rail mutual recognition** – Phase 1. Development of a TLI Training Package Companion Volume to support Mutual Recognition of Entry Level Rail Skills.

Further research, consultation and planning will be conducted during Phase 1 to inform the second Phase of the project, and also to inform the development of other future strategies.



## E. Skills System Blockages

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 five RTOs with the qualification on scope.<sup>71</sup> Hence there are very thin markets for many rail qualifications, with stakeholders reporting limited capacity for delivery in regional areas see **Appendix A** for details on RTO scope for all rail qualifications).

Enrolments in TLI rail qualifications are provided in **Figure 10** below (See **Appendix A** for detailed enrolment data from 2018-22):

Figure 10: Enrolments in Rail Qualifications at each AQF Level (2022)



Source: NCVER Total VET Activity, 2022

The Certificate II in Rail Infrastructure represented nearly 77% of all TLI rail qualification enrolments in 2022.<sup>72</sup> Whilst it is acknowledged that high levels of enrolments in the Certificate II are largely due to it being the easiest to deliver utilising available funding, further research is required to determine how enrolments at levels other than AQF 2 might be lifted. 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 often preferred at AQF level 3 and above. It is also noted that for some occupations Skill Sets provide a more efficient entry to the sector than completing a whole qualification (e.g. the Track Inspection Skill Set). It is also known that a significant motivator to use the VET system in rail is compliance where individual units rather than full qualifications satisfy industry and/or regulatory requirements.

As can be seen in **Appendix A**, completions for 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, assessors and subject matter experts to support training/assessment. 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. Industry Skills Australia will work with industry and RTOs across the first half of 2024 to quantify specific capacity and capability gaps, with the intention of scoping and gaining stakeholder commitment to conducting a range of pilot projects to improve access to quality rail training and assessment.

The NTC Rail Skills Hub offers a suite of online training and assessment resources (developed by Australian Industry Standards, the previous Skills Service Organisation) provided free for rail RTOs. So far 18 RTOs have accessed one or more of the resources. Evaluation conducted by the NTC has indicated a high level of satisfaction with the resources. Industry Skills Australia will work with the NTC to 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 include:

- high level specialist unit/s 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

<sup>&</sup>lt;sup>71</sup> Training.gov.au (as at 20 December 2023)

<sup>&</sup>lt;sup>72</sup> NCVER VOCSTATS < https://www.ncver.edu.au/research-and-statistics/vocstats>, extracted on December 2023

- Skill Sets to cover different Train Driver specialisations (e.g. freight, urban electric, country passenger, steam locomotive, heritage motive power)
- battery electric locomotives being introduced for heavy haul and freight.

Further industry consultation will be conducted to validate these suggested needs and to scope development projects if required.

Training products and pathways (including schoolbased 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.

To address these training system challenges, industry and RTOs need to build capability and capacity 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.

The vast majority of VET in the rail sector is delivered by enterprise or private RTOs which means training almost always occurs whilst in employment. Capacity to develop/deliver entry level skills prior to employment for new entrants may assist with occupational shortages. Industry should also actively engage with TAFE to improve access to rail training. The establishment of a Rail Centre of Excellence is a concept some key stakeholders are advocating for to improve the quality and consistency of training outcomes. However, significant government and industry investment in training facilities would be required for TAFE to become an effective provider of rail skills training.

Pro active leadership is required from Commonwealth and State Governments through skills system funding to respond to this critical challenge. Collaboration across JSCs will also be required to ensure complementary approaches are taken to rail manufacturing, construction, maintenance and operations because these functions span four JSCs.

Further areas for research and consultation that will be conducted to inform the development of future strategies includes:

- Trainer and Assessor capability (Driver trainers) -Consultation with industry stakeholders to scope a project to increase the pool of Rail Trainers and Assessors (particularly Driver Trainers) in the sector.
- Training Product development validation and scoping -Stakeholders have suggested during consultation the need for some new training products. Further consultation is required to validate the need for the proposed training products. In addition, a review of underutilised units and qualifications will be completed.
- Pathways between education sectors Document rail education pathways from VET in Schools, to and across VET Sector qualifications, and to/from/across Higher Education qualifications. Also identify where Skill Sets and micro credentials might be best used.

Training is still seen as a 'poor cousin' to operations and not the driver of operational capability that it is. Finding and funding adequate training resources remains a constant battle and ongoing frustration.

Stakeholder feedback

## **Proposed Actions**

The 2024 Workforce Plan identifies the following proposed actions developed in consultation with industry to address the sector-specific and cross-sector issues.

Table 3: Proposed Actions to Address Challenges and Drivers

DIGITAL SKILLS IN RAIL		
Labour Market Dynamics	Proposed Action/Strategy	Key stakeholders
<ul> <li>Issues:</li> <li>C. Digital capability</li> <li>Rail sector is undertaking digital transformation with the introduction of new digital and automated technologies.</li> <li>Some Training Products (Qualifications and Units of Competency) do not accurately describe digital skills.</li> <li>Need to avoid excessive and/or unnecessary churn in Training Products.</li> <li>Symptom: Skills Shortage</li> </ul>	<ul> <li>Activity:</li> <li>Conduct a pilot project to analyse Rail digital skills for select occupations using the Australian Digital.</li> <li>Capability Framework and the Digital Occupational Profile tool. The work will be conducted in two phases:</li> <li>Phase 1: Digital Occupational Profiling and qualification impact analysis:         <ul> <li>What are the skills and where are they found</li> <li>Analysis of impact of changing Units and qualifications (aim to maximise benefit to industry, but minimise training product churn)</li> <li>Prioritise any training product development/maintenance required.</li> </ul> </li> <li>Phase 2: Describing the digital skills in units and qualifications:         <ul> <li>Review of the identified units including determining broad principles for how digital skills may be better reflected in Units of Competency.</li> <li>Collaboration across JSCs to agree on a model for describing digital skills in training products to facilitate development of transferrable digital skills.</li> </ul> </li> <li>Phase 1: Digital Occupational Profiling for top 5 Rail occupations and prioritisation of Training Product work based on impact analysis</li> <li>Phase 2: Principles for how digital skills should be reflected in training products and update of identified training products in line with priority schedule.</li> <li>Impact:         <ul> <li>Training product facilitate improved training and assessment of transferrable digital skills that match industry requirements.</li> <li>Impact of training product development/maintenance work provides maximum benefit for industry, whilst minimising the impact of training product churn for RTOs</li> </ul> </li> </ul>	<ul> <li>Rail SWPC</li> <li>Rail Infrastructure Managers</li> <li>Rail Operators</li> <li>Rail Contractors</li> <li>Rail equipment suppliers</li> <li>ARA</li> <li>NTC</li> <li>RTBU</li> <li>AMWU</li> <li>STAs</li> <li>RTOs</li> <li>Other JSCs</li> </ul>

RAIL MUTUAL RECOGNITION		
Labour Market Dynamics	Proposed Action/Strategy	Key stakeholders
<ul> <li>Issues</li> <li>D. Interoperability's impact on labour mobility</li> <li>Lack of interoperability across jurisdictions and rail networks impacts skills mobility.</li> <li>Different Rail Infrastructure Managers are not currently recognising training and assessment completed in other domains which creates unnecessary and costly retaining.</li> <li>Symptom</li> <li>Occupational and Skills Shortages</li> </ul>	Activity:         Implement the Mutual Recognition Blueprint developed by the NTC in 2023. Work will be conducted in two Phases:         • Phase 1: Development of a TLI Training Package Companion Volume to support Mutual Recognition of Entry Level Rail Skills including: <ul> <li>National Rail Skills Mutual Recognition Principles (National Guidelines &amp; National Code of Practice)</li> <li>Validation and moderation guidance for competency assessment</li> <li>Guidance for the development and delivery of rail skills training and assessment</li> </ul> <li>Phase 2: To be guided by the outputs of Phase 1         <ul> <li>Rail skills curriculum providing publicly accessible entry-level rail training programs</li> <li>Governance group with industry, education, regulators and government</li> </ul> </li> <li>Components:         <ul> <li>TLI Training Package Companion Volume to support Mutual Recognition of Entry Level Rail Skills.</li> <li>Harmonised training and assessment practices</li> <li>Mutual recognition of skills across domains</li> </ul> </li> <li>Impact:         <ul> <li>Reduced duplication of training and assessment (cost and time savings)</li> <li>Improved industry confidence in the education sector</li> <li>Improved worker mobility</li> </ul> </li> <li>Timing:         <ul> <li>Phase 1: March - December 2024</li> <li>Phase 2: January - based on priority determined in Phase 1 analysis</li> </ul> </li>	<ul> <li>Rail SWPC</li> <li>RIMS</li> <li>Rail Operators</li> <li>Rail Contractors</li> <li>ARA</li> <li>NTC</li> <li>RTBU</li> <li>AMWU</li> <li>STAs</li> <li>RTOs</li> <li>Rail Industry Safety and Standards Board (RISSB)</li> <li>Office of the National Rail Safety Regulator (ONRSR)</li> <li>VET Regulators</li> </ul>

## Proposed Action Schedule

Pilot project to analyse Rail digital skills (Phase 1)

Mutual Recognition Blueprint (Phase 1)

Proposed

Feb 2024

Oct 2024

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## Future Research and Consultation

Additional engagement, research and consultation activity has been identified to assist in the development of future strategies or initiatives to inform the 2025 Workforce Plan. These focus areas cover the key themes associated with our challenges and drivers and are not an exhaustive list as industry may raise additional issues as we work with them in 2024.

## A. Occupational and Skills Shortages

#### **Future Rail Skills**

Collaboration between the ARA, NTC, RTBU and ISA to identify and prioritise responses for future rail skills requirements (e.g. skill and knowledge requirements for new locomotive fuel types). This will include targeted research, industry roundtables and broad consultation to identify and prioritise a schedule of work to be included in the Rail Workforce Plan.

Additional research and consultation will be conducted to consider how future leadership capacity and capability might be planned and developed.

#### Collaboration between JSCs that cover rail occupations

Establish a regular dialogue between relevant JSCs (T&L, manufacturing, electrical and construction) and key stakeholder groups to ensure there is a whole of sector examination of rail workforce needs, and implementation of collaborative responses where required.

#### **Skilled migration**

In consultation with industry stakeholders, we will investigate the current temporary and permanent skilled work visas, including the recent transition from the Temporary Skill Shortage (TSS) visa to the new Skills in Demand (SID) visa, reviewing how they are meeting the needs of the workforce and addressing shortages.

## **B. Workforce Diversity**

#### Approaches to entry level rail skills

Research examples of programs used by the rail sector (and sectors with similar challenges, e.g. construction, mining and aviation) to attracting, training and retaining underrepresented groups. Compile a curated collection that can be published as an industry resource that identifies good practice for increasing capability, capacity and diversity in the workplace.

Based on the above research, work with employers and education/training providers to identify and scope opportunities to pilot attraction and/or entry level training programs for identified under-represented groups.

## C. Digital Capability

#### Rail Digital Skills Phase 2

Phase 1 of this body of work will identify Phase 2 outputs through analysis and consultation during Phase 1 of the project.

### D. Interoperability's Impact on Labour Mobility

#### **Mutual Recognition Phase 2**

Phase 1 of this body of work will inform Phase 2 outputs of the project. Consultation throughout the project will consider both Phase 1 outputs, as well as information required to plan Phase 2.

## E. Skills System Blockages

**Trainer and Assessor capability (Driver trainers)** Consultation with industry stakeholders to scope a project to increase the pool of Rail Trainers and Assessors in the sector. There is a particular need for Driver Trainers and the project should primarily focus on them. Consultation and engagement will include: identifying any resource development required; delivery model to be used including sourcing trainers and assessors to deliver; and, enterprises interested in participating in the program.

## Training Product development validation and scoping

Stakeholders have suggested during consultation the need for some new training products. Further consultation is required to validate the need for the training products listed below. If the need is validated work will be scoped and prioritised.

- Unit/s covering: infrastructure diagnostic vehicles, remote heavy haul to rail, autonomous trains, electronic signalling, battery electric locomotives, and transition of qualified engineers from other fields
- Skill Sets to cover different Train Driver specialisations
- Coverage of sustainability and environmental skills/ knowledge in Units of competency
- Current coverage of 'workers obligations under the Rail Safety Act'.

A review of underutilised units and qualifications, and qualifications with poor completion rates, will also be completed to determine reasons.

#### Pathways between education sectors

Expand previous work undertaken by Australian Industry Standards in the Seamless Future Rail Skills project to document rail pathways from VET in Schools, to and across VET i Sector qualifications, and to/from/across Higher Education qualifications. Also identify where Skill Sets and micro credentials might be best used.

## Approach to Consultation

Transport and Logistics industries are characterised by extremely high numbers of industry stakeholders at a national and state level, each with different perspectives and priorities. The sectors are highly diverse, comprising businesses ranging from complex national and global companies through to a multitude of small one and two person businesses. Over 99% of enterprises within our coverage are small business.

Not all of these stakeholder groups will want to engage in the workforce planning process. As part of our user-centred approach, we will work with our stakeholder groups and individual stakeholders to determine the level of involvement they would like and to what degree. If and when a stakeholder's focus shifts, we will adjust our engagement with them accordingly.

A listing of key stakeholder groups with which we will engage, including industry bodies and government related entities, can be found at **Table 4**.



Table 4: Key Stakeholder Groups

STAKEHOLDER GROUPS	KEY STAKEHOLDER IDENTITY
INDUSTRY	<ul> <li>Enterprises</li> <li>Industry peaks</li> <li>Industry associations</li> <li>Innovation sector</li> <li>Unions</li> <li>Occupational licensing/regulatory bodies</li> <li>Professional bodies</li> </ul>
INDIVIDUALS	<ul> <li>Existing workers</li> <li>Apprentices/trainees</li> <li>Learners</li> <li>Job seekers</li> </ul>
VET SYSTEM	<ul> <li>Registered Training Organisations</li> <li>Individual VET practitioners</li> <li>Jobs and Skills Councils</li> <li>Industry Training Advisory Bodies (and equiv.)</li> <li>VET regulators</li> <li>Training Product Assurance Body</li> </ul>
SCHOOLS SECTOR	<ul> <li>Secondary schools</li> <li>Individual teachers</li> <li>Secondary education authorities</li> <li>Careers associations</li> </ul>
HIGHER ED.	Universities
GOVERNMENTS	<ul> <li>Dept. of Employment and Workplace Relations</li> <li>Jobs and Skills Australia</li> <li>National Careers Institute</li> <li>NCVER</li> <li>Dept. of Inf, Trans, Reg. Dev, Comms and the Arts</li> <li>Regional Australia Institute</li> <li>Regional Development Australia</li> <li>State Training Authorities</li> <li>National Transport Commission</li> </ul>

Consultation and engagement with different groups of stakeholders will inform ongoing development of our Workforce Plans, including deepening our understanding of key workforce drivers and challenges, expanding our breadth and depth of data sources, filling evidence gaps, validating and providing context to workforce data, and developing effective actions/strategies to address workforce drivers and challenges.

The following key elements will form part of our consultation and engagement approach.

#### Industry Skills Australia Committees

ISA is establishing a range of mechanisms to provide input and advice into the Workforce Plans.

#### Strategic Workforce Planning Committees

The Strategic Workforce Planning Committees (SWPCs) are responsible for the development of the Workforce Plans, with a focus on identifying, forecasting and responding to workforce challenges, opportunities and emerging skills needs. They will shape and prioritise our actions through their Workforce Planning advice. The SWPCs comprise leaders from each major industry to ensure buy-in and leadership from across the industry (geographic, sector and business scale).

Our Strategic Workforce Planning Committee, comprising representatives of industry and unions, is a key mechanism for the collection and validation of industry intelligence, as well as strategy development.

#### Industry Advisory Council

ISA's Industry Advisory Council (IAC) will provide advice on leading trends from adjacent industries/client industries (e.g., online retail and its transformation of logistics). The IAC comprises of senior supply chain executives and industry leaders from a range of industries where supply chain effectiveness is core business or a key contributor to productivity.

It operates as a dynamic advisory mechanism to the Board and SWPCs by providing cutting-edge business intelligence and strategic insights from across the economy.

#### Industry Engagement

Broader industry stakeholder engagement will involve consulting with stakeholder groups in **Table 1**.

Commencing from the development of the Year 2 Workforce Plan that is due in April 2024, we will implement a full cycle of industry consultation as per **Figure 11** below.

#### **JSC Engagement**

ISA will engage and collaborate with the other Jobs and Skills Councils on shared workforce planning and skills development priorities. We will also consult and advise when ISA-led workforce planning strategies will impact on another JSC's scope of work, such as the usage of imported units and workforce development.



## WORKFORCE PLAN CYCLE (2025)

Figure 11: Full Workforce Plan Development Cycle

PROCESS & INDICATIVE TIMING	کی کرکی DATA COLLECTION & DRAFTING Jun - Jul 2024	INITIAL CONSULTATION Aug - Sep 2024	DRAFTING & CONSULTATION Oct 2024 - Jan 2025	SIGN OFF, SUBMISSION & PUBLICATION Feb- Mar 2025	IMPLEMENTATION & MONITORING April 2025 onwards
KEY STEPS	<ul> <li>Consolidate intelligence gathered from implementation and monitoring</li> <li>Undertake further research and consultation where required</li> <li>Refresh &amp; review baseline data, previous year's megatrends, and new qualitative reports</li> <li>Consolidate input from SWPC, other ISA committees and key stakeholders</li> </ul>	<ul> <li>Prepare Industry Skills Priorities Paper for initial stakeholder input</li> <li>Confirm Industry Skills Priorities with SWPC and key stakeholders</li> <li>Consult with stakeholders on Industry Skills Priorities Paper</li> <li>Analyse and respond to feedback</li> <li>Undertake further research/ consultation as required</li> </ul>	<ul> <li>Prepare first draft of the Workforce Plan, including proposed actions</li> <li>SWPC review draft, provide input and advice on proposed actions and priorities</li> <li>Release draft Workforce Plan on ISA website for public consultation</li> <li>Moderate, consolidate and analyse feedback</li> <li>Update Workforce Plan based on feedback</li> </ul>	<ul> <li>SWPC review, validate and sign off final Workforce Plan</li> <li>Submit Workforce Plan to DEWR for formal approval</li> <li>Prepare and submit proposed actions</li> <li>Publish and promote Workforce Plan and activities/projects on ISA website</li> </ul>	<ul> <li>Undertake promotion, build collaboration across stakeholders to deliver Workforce Plan priorities</li> <li>Implement approved actions</li> <li>Monitor and evaluate activity/project progress/outcomes</li> <li>Engage stakeholders to monitor the responsiveness of the national skills system</li> </ul>
WHO WE CONSULT	<ul> <li>Strategic Workforce Planning Committee</li> <li>Industry</li> <li>VET System</li> <li>Schools Sector</li> <li>Higher Education</li> <li>Individuals</li> </ul>	<ul> <li>Strategic Workforce Planning Committee</li> <li>Governments</li> <li>Industry</li> </ul>	<ul> <li>Strategic Workforce Planning Committee</li> <li>Governments</li> <li>Industry</li> <li>VET System</li> <li>Schools Sector</li> <li>Higher Education</li> <li>Individuals</li> </ul>	<ul> <li>Strategic Workforce Planning Committee</li> <li>Governments</li> </ul>	<ul> <li>Industry</li> <li>VET System</li> <li>Schools Sector</li> <li>Higher Education</li> <li>Governments</li> </ul>
HOW WE CONSULT	<ul><li>Meetings</li><li>Webinars</li><li>Emails</li><li>Surveys</li></ul>	<ul> <li>Internal meetings and input from SWPC</li> <li>Internal meetings</li> </ul>	<ul><li>ISA website</li><li>Webinar</li><li>Email and social media</li></ul>	<ul> <li>ISA website</li> <li>Webinar</li> <li>Email and social media</li> <li>Meetings</li> <li>Conference presentations</li> </ul>	<ul> <li>ISA website</li> <li>Webinar</li> <li>Surveys</li> <li>Conference presentations</li> <li>Meetings</li> </ul>

Bold - key points of consultation with stakeholders

## Existing Workforce Strategies and Initiatives

Our implementation of the research, consultation and activities outlined above will be informed by existing workforce strategies and initiatives. Where relevant, we will seek to align our work with, or contribute to, these strategies and initiatives, or collaborate with those responsible for implementing them.

Below is a mapping of the workforce strategies and initiatives that we have identified as relevant to the Rail Industry and the key issues and evidence gaps 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:

MAPPING KEY:

- A. Occupational and Skills Shortages
- B. Workforce Diversity
- C. Digital Capability

D. Interoperability's Impact on Labour Mobility

E. Skills System Blockages

Table 5: Existing	Workforce Strategies	and Initiatives
I GOIG OF EXISTING		
J	J	

Title	Mapping	Description	How it will impact/inform the WFP
National Rail Action Plan National Transport Commission (NTC)	A, B, C, D, E	The National Rail Action Plan (NRAP) draws together governments and industry to maximise benefits from the current record infrastructure investment. Includes sections covering Workforce and Harmonisation & Standardisation, as well as a schedule of 12 recommended actions. Workforce components of the plan are broad reaching to support building the capacity and capability of the rail workforce. Provides the basis for further consultation and analysis to prioritise review of existing training products.	<ul> <li>A number of NRAP priorities are directly addressed in this workforce Plan and its proposed actions, including:</li> <li>Digital Skills</li> <li>Interoperability</li> <li>Workforce capability and diversity</li> <li>There is potential for cross JSC collaboration because the NTC report covers units in multiple training packages</li> </ul>

Title	Mapping	Description	How it will impact/inform the WFP
Future Digital Skills in Rail NTC This report was completed for the NTC by Deloitte in 2023 and shared with ISA but has not been publicly released.	С	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	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 JSC collaboration because the NTC report covers units in multiple training packages
National Rail Skills Hub NTC	A, B, D	Promotes careers in rail and provides career path information. Supports development of entry level rail skills. Training and assessment resources available for rail RTOs (digital format). It aims to build rail workforce capacity and capability, and support RTO capability.	ISA will likely contribute more content for the site, based on engagement with the NTC. The Skills Hub is intended as a permanent repository, but consideration of its future ownership will need consideration when Skills Hub funding ends. ISA may be an option to take it on.
Mutual Recognition Blueprint NTC This Blueprint completed for the NTC by Infrastructure Skills Advisory in 2023 was shared with ISA but has not been publicly released	D	The Blueprint was developed based on extensive consultation with RIMs, Rail Operators, Rail Contractors, Peak Bodies, JSCs, Unions, STAs, RTOs and Industry and Vet Regulators. It sets a pathway to achieving the mutual recognition of entry-level rail training courses across Australia. It provides a model that can be applied to greater ranges and levels of courses in the future.	The blueprint is proposed for implementation in the 'Proposed actions' section of this Workforce Plan.
ARA Skills Capability Study - 2018 ARA And the subsequent Determining the Future Demand, Supply and Skills Gap for Australia's and New Zealand's Rail Workforce: 2022-2032 ARA & NTC	A, B, C, D, E	The first report is a workforce capability analysis for the rail industry based on planned and forecast rail infrastructure development in Australia and New Zealand over the next 10 years. The second report prepared by Oxford Economics Australia for the NTC and ARA published in 2023 updates and expands on the first.	Provides detailed analysis conducted by the Oxford Economics that has been be drawn upon in developing actions to identified challenges.

Title	Mapping	Description	How it will impact/inform the WFP
Building Australian Rail. Skills for the Future ARA	A, B, C, D, E	<ul> <li>Provides strategies to alleviate the growing shortage of skills facing the rail industry. It covers:</li> <li>Determination of rail skills demand.</li> <li>Promotion and development of rail career pathways.</li> <li>Strategies for ongoing skills development to ensure an effective supply chain.</li> </ul>	Provides detailed analysis conducted by the ARA that can be drawn upon in developing actions to identified challenges.
Work in Rail ARA	Α, Β	<ul> <li>Promotes careers in rail and supports development of entry level rail skills.</li> <li>Provides: <ul> <li>Rail career and career path information.</li> <li>Rail employer directory.</li> </ul> </li> </ul>	Supports building rail workforce capacity and capability. ISA will ensure our work supports and is complimentary to this ARA initiative.
Rail Industry Worker ARA	A, B, D	<ul> <li>Provides:</li> <li>National competency management program for Australian rail industry workers.</li> <li>Competency frameworks for vocations.</li> <li>Approved RTO lists.</li> <li>Supports building: <ul> <li>Rail workforce capacity and capability</li> <li>Industry confidence in the training system</li> </ul> </li> </ul>	RIW uses units of competency from the TLI Training Package. ISA will work with the ARA and Industry to ensure units used are fit for purpose.
Women in Rail Strategy ARA	В	<ul> <li>Promotes rail as an inclusive and diverse industry without barriers that is recognised as an employer of choice for women. Includes initiatives related to:</li> <li>Industry knowledge</li> <li>Organisational impact</li> <li>Professional development</li> <li>Promotion of rail to women</li> </ul>	Assists industry to build a diverse and inclusive workforce. Builds rail workforce capacity and capability. Will support development of strategies to address recruitment and retention challenges.
Gender Diversity Data Report 2024 ARA		Report on outcomes of a gender diversity survey conducted by the ARA in 2023.	Provides additional data collected directly from industry that will assist responses targeting improving female representation in the sector.



## Appendix A Reference Data and Charts



## **Employment and Distribution**

Figure 12: Employment Status 2023



Table 6: Distribution and Growth of Rail Workers by Residence



Residence	% of workers (2021)	Growth (since 2016)
Major City	60.3%	27.5%
Regional	24.3%	10.1%
Remote	11.0%	-4.7%
Transitory <sup>1</sup>	4.3%	25.4%

Sources: ABS Census, 2016 and 2021

Source: JSA, NERO 2023

## Training

## Please refer to 'Training system data' for a list of relevant VET qualifications associated with the charts.



Figure 13: Commencing Rail Qualification Enrolments, 2018 - 2022

Source: NCVER Total VET Activity

Figure 14: Rail VETiS Students, 2022



MORE THAN A THIRD (34.8%) OF RAIL ENROLMENTS IN 2022 WERE RECORDED IN VIC VETIS STUDENT ENROLMENTS HAVE INCREASED BY

750% IN THE LAST 5 YEARS



Figure 15: Share of Qualification Enrolments by Diversity Measures

Source: NCVER Total VET Activity

THE SHARE OF FEMALE STUDENTS HAS NEARLY DOUBLED FROM 6.5% IN 2015 TO **11.6%** IN 2022. FIRST NATIONS STUDENTS HAVE ALSO INCREASED SUBSTANTIALLY FROM 3.6% TO **6.1%** IN 2022. THE SHARE OF STUDENTS WITH A DISABILITY HAS REMAINED ROUGHLY CONSTANT, AT **2.5%** OF THE TOTAL Figure 16: Apprenticeships/Traineeships Share of Total Enrolments



Source: NCVER Total VET Activity

IN SA, RAIL APPRENTICESHIPS/TRAINEESHIPS ACCOUNTED FOR OVER **A THIRD** AND **A FIFTH** OF ENROLMENTS IN THE PAST TWO YEARS, RESPECTIVELY

## **Training System Data**

#### **Qualification Enrolments**<sup>73</sup>

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
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)

<sup>&</sup>lt;sup>73</sup> NCVER VOCSTATS <https://www.ncver.edu.au/research-and-statistics/vocstats>, extracted on December 2023

#### Qualification Completions<sup>74</sup>

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
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

<sup>&</sup>lt;sup>74</sup> NCVER VOCSTATS < https://www.ncver.edu.au/research-and-statistics/vocstats >, extracted on December 2023

#### Number of RTOs scoped to deliver Rail Qualifications<sup>75</sup>

Qualification	RTO count
TLI21921 Certificate II in Track Protection	10
TLI22321 Certificate II in Rail Customer Service	2
TLI23221 Certificate II in Shunting	8
TLI27121 Certificate II in Rail Infrastructure	33
TLI27221 Certificate II in Rail Track Vehicle Driving	5
TLI30521 Certificate III in Passenger Train Guard	1
TLI29921 Certificate II in Rolling Stock Maintenance	0
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
TLI41222 Certificate IV in Motor Vehicle Driver Training	37
TLI42422 Certificate IV in Rail Safety Management	1
TLI42622 Certificate IV in Train Driving	19
TLI47121 Certificate IV in Rail Infrastructure	3

<sup>75</sup> Training.gov.au (as at 20 December 2023)



## **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 correspond with the way in which the industry describes itself. The table below describes job roles in terms that industry will recognise. We have 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. Job roles that have no clear ANZSCO alignment are identified with a dash, '-'.

Occupational Area	ANZSCO Occupation Titles	Job Roles
1. Rail Operations	149412 Railway Station Manager, 149413 Transport Company Manager, 712918 Train Controller, 233311 Electrical Engineer, 639412 Transport Conductor	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
	712918 Train Controller	Area Controller, Light Rail Controller, Network Control Officer, Network Controller, Train Controller, Tram Controller
	149412 Railway Station Manager, 899917 Railways Assistant, 451799 Travel Attendants nec	Customer Service Attendant/Assistant, Passenger Service Officer, Senior Customer Service Assistant/Officer, Station Assistant/Officer, Station Manager, Train Buffet Operator, Train Conductor, Station Masters
	731311 Train Driver, 731312 Tram Driver	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
2. Rail Infrastructure	821611 Railway Track Worker, 721914 Railway Track Plant Operator	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
	721914 Railway Track Plant Operator	Track Machine Driver, Track Vehicle Operator/Driver
	712917 Railway Signal Operator	Mechanical Rail Signaller
3. Safety	-	Rail Safety Incident Investigator
	-	Rail Safety Manager
4. Rolling Stock Maintenance	899917 Railways Assistant, 821611 Railway Track Worker	Maintenance Worker, Assistant to a Tradesperson, Maintenance Worker, Trades Assistant, Track Examiner

## Stakeholder Survey Summary

The stakeholder survey was conducted between December 2023 to January 2024 and was designed to test the identified challenges and drivers and to capture proposed strategies from industry. There were 20 rail industry respondents, with the highest number of participants coming from Victoria followed by New South Wales.

#### Stakeholder Consensus on Workforce Issues



#### Impact on organisations

Survey participants were queried about the impact of the identified drivers and challenges on their organisations. The following presents a summary of these key insights.

A. Investment will Exacerbate Workforce Shortages Difficulty in attracting new talent due to restricted training access, outdated employment expectations, and intense competition for skilled workers, especially during infrastructure investment surges.

B. Digital Skills are Essential for Rail Workers The growing importance of digital fluency for all employees in the face of rail digitisation, despite other training areas being prioritised.

C. Interoperability Challenges are

Impacting Labour Mobility

Inconsistent training and qualifications across the industry hinder labour mobility and lead to increased costs and effort due to the lack of standardisation.

D. The Training System is Struggling to Meet Skills Needs High costs of setting up training facilities, difficulty sourcing SMEs for training roles, and the nontransferability of enterprise-specific qualifications.

#### **Proposed solutions**

Respondents were asked for recommended solutions to tackle the identified drivers and challenges. Below is a summarised overview of these recommendations.

A. Investment will Exacerbate Workforce Shortages

- Encourage industry to provide greater incentives for skilling trainers and allow learners to access funded pre-vocational training.
- Conduct a comprehensive analysis to create an achievable workforce plan, dictating funding and mitigation strategies.
- Launch initiatives to start training drivers, engineers, technicians, and trainers, and establish a national commitment to upskilling staff.

B. Digital Skills are Essential for Rail Workers

- Prioritise on-the-job learning digitised for record-keeping, with the use of portable simulators for flexible learning.
- Include digital literacy as a core unit in all railrelated qualifications and support middle managers in digital skills training.
- C. Interoperability Challenges are Impacting Labour Mobility
- Aim for greater harmonisation of rail systems, network rules, and training competencies to increase skill portability and reduce training redundancy.
- Adopt a consistent licensing program and national licensing approach to enhance labour mobility across states.
- D. The Training System is Struggling to Meet Skills Needs
- Collaborate with industry to develop centres of excellence for specific training and make training for trainers more attractive.
- Industry-wide review of the training system to ensure it meets current and future needs, including the greater use of technology in training delivery.

#### Other key drivers

Respondents were invited to discuss any other significant drivers and challenges influencing skills and workforce development within their sector. The following provides a summary of these critical issues.

- Lack of a unified approach in addressing key occupations and emerging workforce needs across the rail industry such as locomotive manufacture, rail infrastructure construction, and electrical rail signalling.
- Balancing social inclusion policies with the need to promote employment among women and maintain diversity, especially in the later stages of large projects.
- Insufficient ongoing support and access to training, lack of 'talent pools', and limited rail-related content in education programs.
- Aging workforce, cannibalisation of skilled workers without investing in training, and the need for updated training programs to match technological advancements.

## Public Consultation Summary

Draft Workforce Plans were published on the Industry Skills Australia website in March 2024 and feedback was invited from nearly 1400 Rail subscribers.

The following table describes the main feedback themes and how they were responded to in the Workforce Plan.

FeedbackTheme	Response in the Workforce Plan
<b>Definition of 'rail industry' used in the Workforce Plan.</b> The workforce plan covers rail sector occupations under Industry Skills Australia's coverage, but does not cover other rail sector occupations related to construction, manufacturing and electrical signalling which fall within the scope of other JSCs. Concerns that due to this the workforce plan wasn't identifying industry-wide challenges, not providing solutions and actions that could achieve whole of sector outcomes.	It has been made very clear in the Industry Overview section, and supported through additional information in Appendix A, which occupational areas are, and are not, covered within the Workforce Plan. An action was added to the plan to establish a regular formal dialogue between relevant JSCs (T&L, manufacturing, electrical and construction) and key stakeholder groups to ensure there is a whole of sector examination of rail workforce needs, and implementation of collaborative responses where required.
Accuracy of some data. Aligned to the theme above, it was suggested that some of the workforce data misrepresents the entirety of the sector, and by extension its actual workforce dynamics. Sources and currency of some data were also questioned. In addition limitations of current ANZSCO classification were raised as a reason some data doesn't provide an accurate base for industry to adequately respond to challenges.	Where possible, the scope of data has been indicated, and additional information to reference whole of sector data as well (including explanation). Where additional data sets have been suggested that contradict ABS sources, additional information has been added to reference intelligence gathered directly from Industry. An explanation of data limitations, including current lack of ANZSCO definition, have been included in Appendix A.
<b>Rail sector use of VET.</b> Feedback was provided on reasons for the lack of uptake and poor completion rates of Rail qualifications in the TLI Training Package. Also suggested the sector needs to make better use of TAFE for potential new entrants (currently most training is delivered whilst in employment by Enterprise and Private RTOs).	Content on how industry uses the VET system was strengthened, including reference made to TAFE's potential role in entry level training. An action was added to the plan to examine reasons for poor completion rates.
<b>Inclusion of Higher Education.</b> It was suggested that coverage of higher education was insufficient.	Content on industry initiatives with higher education added. An action was added to expand on the pathways work that was done by Australian Industry Standards in the Seamless Future Rail Skills project to cover pathways between VET and Higher Education.

## **ANZSCO and ANZSIC Classifications**

This section provides a detailed breakdown of the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and the Australian and New Zealand Standard Industrial Classification (ANZSIC) as they have been used in this document to quantify occupations and industry.

ANZSCO data is presented at two levels of detail. The highest level of detail (6-digit) is available for Census and Skills Priority List data while 4-digit data is available for the quarterly Labour Force data, Employment Projections and the Internet Vacancy Index and others.

ANZSIC data is also presented at two levels of detail. The highest level of detail (4-digits) is available for Census, Counts of Australian Businesses and IBISWorld Industry Class reports, that approximately align to 4-digit ANZSIC while 3-digit data is available or the quarterly Labour Force data, Employment Projections and others.

Note: 'nec' stands for 'not elsewhere classified' and 'nfd' stands for 'not further defined'. If the Census/Survey respondent didn't provide enough information to categorise the occupation/industry at the highest level of detail, 'not further defined' is used and the respondent is still counted.

ANZSCO Code	Title	Level of Detail
149412	Railway Station Manager	6-digit
451799	Travel Attendants, nec	6-digit
639412	Transport Conductor	6-digit
712917	Railway Signal Operator	6-digit
712918	Train Controller	6-digit
721914	Railway Track Plant Operator	6-digit
731300	Train and Tram Drivers, nfd	6-digit
731311	Train Driver	6-digit
731312	Tram Driver	6-digit
821611	Railway Track Worker	6-digit
899917	Railways Assistant	6-digit
7313	Train and Tram Drivers	4-digit
8216	Railway Track Workers	4-digit



ANZSIC Code	Title	Level of Detail
4700	Rail Transport, nfd	4-digit
4710	Rail Freight Transport	4-digit
4720	Rail Passenger Transport	4-digit
470	Rail Transport, nfd	3-digit
471	Rail Freight Transport	3-digit
472	Rail Passenger Transport	3-digit
5010	Scenic and Sightseeing Transport †	4-digit
501	Scenic and Sightseeing Transport <sup>+</sup>	3-digit





## **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).

#### **Occupational Shortage vs Skills Shortage**

In this document, we distinguish between occupational shortages and skills shortages.

- Occupational shortage: This occurs when employers struggle to fill vacancies for a specific occupation or can't find employees with specialised skills needed in that occupation. Essentially, there aren't enough qualified people available to do the job.
- Skills shortage: This refers to a situation where the existing workforce does not possess the right skills to meet the demands of their sector or occupation. It's not about the number of employees, but about the quality or suitability of their skills.

#### **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.

#### **Employment Projections**

Jobs and Skills Australia provides employment projections for specific quarters, spanning from May 2023 to May 2033. In contrast, we use the annual average of employment figures from all quarters to smooth the data. To ensure internal consistency, we apply the projected percentage growth rates to the annual average employment figures from the Labour Force Survey. This method avoids discrepancies that might arise from using the specific employment levels of May 2023, which can differ from the annual average."

#### **Endnotes/Special References**

t Scenic and Sightseeing Transport is an industrial category that covers all transport modes, and the workforce is split proportionately among the transport sectors according to historical Census distributions.

\*Future demand is calculated by Jobs and Skills Australia for each occupation by looking at two things: how many more jobs there will be in the future and how many people will leave their current jobs. Occupations are then given a rating like "Above average," "Average," or "Below average," based on these predictions compared to all other occupations.





## **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 consulted widely and provided 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. Industry Skills Australia will need to determine how better-quality real-time workforce data might be gathered to inform Rail Workforce Planning.

**Appendix A** lists qualification completions; however, these figures should not be compared with enrolment numbers to ascertain completion rates. Instead, completion rates<sup>76</sup> are calculated by the National Centre for Vocational Education Research (NCVER), reflecting the proportion of qualifications that are ultimately completed. It's important to note that these rates are available for all qualifications collectively, but not for specific training packages or individual qualifications.

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

## Appendix B 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 a person's 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

**Occupational 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 a person's existing skill set. Upskilling enhances a worker's 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 to industrial data (ANZSIC)

Sources for infographics on pages 11-12

ABS Counts of Australian Businesses Business No Business distribution by state %

ABS Labour Force 2023 Workforce Female % Workforce distribution"

**BITRE, 2023, Trainline 10** Kilometres of track Rail passenger journeys in 2020-2021"

#### Census 2021

Aboriginal & Torres Strait Islander % With a disability % Workforce with vocational education Median age Workforce nearing retirements (aged 56-66) Top 5 occupations

DITRDCA, Transport Infrastructure Construction dashboard Rail infrastructure built \$b 2022-2023

IBISWorld Industry Wizard GDP contribution \$b 2022-2023 Estimated annual revenue \$b 2023-2024

NCVER, Total VET Activity 2022 Qualification enrolment 2022

NERO 2023 Residential distribution

NTC, National Rail Action Plan Rail infrastructure managers Rail operators including freight & passengers

NTC, Rail Interoperability Framework Rail networks

training.gov.au, RTOs with explicit scope to deliver quals Registered training organisations (RTO)

## Appendix C Methodology

The Workforce Plan adopts a comprehensive approach to understand and address workforce driver and challenges in our industries. Our methodology is designed to be evidence based, industry supported and actionable, ensuring that the insights we generate are both relevant and practical.

## 1. Generating Hypotheses

Initially, we formed "hypotheses" about the workforce. A hypothesis is an idea that is proposed so that it can be tested to see if it might be true. For example, we might hypothesise that the demand for truck drivers is high due to ongoing issues with attracting and retaining employees in these roles. Individual hypotheses are grouped into narrative sections, for example "A. Attraction and retention in the Transport and Logistics sectors". These hypotheses guide our research and analysis, helping us to focus on specific areas of interest.

## 2. Data and Research Support

To validate our hypotheses, we draw on both qualitative and quantitative sources, including labour market reports, academic studies, news articles and a wide variety of data. This step is crucial for grounding our hypotheses, ensuring that the problems we have identified are backed by solid evidence.

### 3. Stakeholder Survey

The stakeholder survey is designed to test our hypotheses with industry. For each hypothesis we:

- measure agreement among stakeholders.
- gain an understanding of how the identified issues are impacting organisations.
- capture suggested responses to the issues.
- identify any additional key drivers not previously considered.

The insights gathered from stakeholders play a pivotal role in shaping the Plan. Their feedback not only tests the relevance of the identified challenges but also enriches the development of Proposed Actions with practical solutions.

### 4. Developing Proposed Actions

A key part of our methodology involves the Labour Market Dynamics and Potential Strategies Mapping tool. This tool allows us to:

- Diagnose our hypotheses as having one or more 'symptoms', symptoms being categories of shortages/ surpluses of skills and workers. These symptoms indicate how the labour supply is meeting demand.
- Identify potential strategies to respond to the identified issues.

• Evaluate existing initiatives, identifying any that are aligned with our hypotheses. This helps to ensure our Proposed Actions complement, rather than duplicate, existing efforts.

### 5. Incorporating Feedback

Prior to public consultation, we seek feedback from the relevant industry SWPC (Strategic Workforce Planning Committees). This step is crucial for ensuring our findings and recommendations are relevant, practical, and aligned with the needs and priorities of industry.

### 6. Public Consultation

A draft of our report is made available for public consultation, allowing a broader audience to contribute their insights and feedback via a feedback form. This phase enables us to fine-tune our challenges/ drivers and validate Proposed Actions through direct engagement with our stakeholders.



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