



# RAIL INDUSTRY

**INDUSTRY SKILLS PRIORITIES PAPER - 2023**



## About Industry Skills Australia

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

Owned and led by industry, our 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 20 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 products.

# Purpose of the Industry Skills Priorities Paper

The purpose of this paper is to seek feedback from industry stakeholders on a summary of the key industry and skills-related trends that have been identified for the Rail Industry. The main themes in this paper are drawn from desktop research, and targeted industry consultation since ISA commenced operations, and by drawing on our deep industry engagement over previous years in June 2023. This information, along with feedback from stakeholders will be used by ISA in the development of the 2023 Rail Industry Initial Workforce Plan and to prioritise work on the Rail Training Products.

In the 2023 Initial Workforce Plans, JSCs are required to include a scan of each industry sector to identify key workforce challenges, identify existing workforce strategies/measures, and outline planned industry engagement that will inform a more comprehensive 2024 Workforce Plan, including a schedule of proposed initiatives in response to identified workforce challenges.

## Consultation questions

1. Are the identified issues/priorities correct?
2. Is there any additional information/context related to the identified issues that needs to be included in the Workforce Plan?
3. Are there any other key issues (existing or emerging) affecting skills and workforce development in the sector? What is driving these issues?
4. Are there any existing initiatives responding to workforce challenges that are achieving good results and could be used in other settings?

## How to provide feedback

Stakeholders are invited to submit their comments on the key themes and issues outlined in this paper by close of business on **Friday 28 July 2023**.

It is acknowledged that the information provided about industry skills priorities in this paper is deliberately brief. The purpose of this paper is to validate and confirm consultation and research findings to date.

Responses and requests for further information should be emailed to:

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# About the Rail Industry

The Rail industry comprises the operation, coordination and transportation of passengers and freight by rail. It includes operation, coordination and maintenance of rail vehicles, track and infrastructure. The activities of the industry can be categorised into four (4) occupational areas:

- **Rail Operations** - managing, operating, co-ordinating and supporting services for rail vehicles.
- **Rail Infrastructure** - managing and maintenance of rail infrastructure which includes tracks, signals, stations, yards, and other supporting facilities.
- **Safety** - implementing safety protocols, conducting regular inspections and maintenance, training personnel on emergency, human factors and fatigue procedures to ensure the safety of passengers and 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.

The industry employs over 40,000<sup>1</sup> people and comprises private and public operators; passenger and freight operators; track owners and managers; manufacturers and suppliers that operate in urban, regional and rural areas of Australia. It also employs or contracts others from peripheral industries when required, including but not limited to, civil construction, engineering and labour hire companies. The average age of workers in the rail industry is 44.9 years<sup>2</sup>, with women making up 20.7% of the workforce<sup>3</sup>.

## Notes

- i. Significantly expanded statistical data will be provided in the 2023 Initial Workforce Plan
- ii. 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.

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<sup>1</sup> Australian Bureau of Statistics (2023) Labour Force Survey

<sup>2</sup> Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

<sup>3</sup> Australian Bureau of Statistics (2023) Labour Force Survey

# Key issues and drivers affecting the Rail workforce

## Rail infrastructure investment will exacerbate workforce shortages

New workers will be needed to fill a range of critical job roles as an estimated \$155 billion is invested in Australia's rail networks over the next 15 years. These additional worker requirements will compound existing challenges with attraction, retention and an aging workforce. The industry is already experiencing a shortage of Train Drivers, Controllers, Signalling Electricians, Specialist Rail Engineers, WHS and Cyber Security professionals, Maintenance Workers and Rail Industry Trainers and Assessors. As the rail system expands significantly, workforce capacity will be further hampered by shortages of a broad range of skilled workers required to design, build and run the rail system.

The Australasian Railway Association (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. ISA will work with stakeholders to support this and other initiatives that assist in attracting under-represented groups to the sector (for example, school leavers, women and First Nations people), and to address any barriers to entry for these groups.

Training products and pathways (including school-based training and entry level and technical Skill Sets) need to better support industry's ability to respond to workforce capacity challenges and skills shortages across construction, operation and maintenance of rail infrastructure.

In accordance with Skills Ministers' priorities, we will ensure all Transport and Logistics Training Product development projects include the identification of transferable skills from other industry sectors and create more accessible pathways into rail for skilled workers.

## Digital skills are now essential for all workers

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

Analysis commissioned by the National Transport Commission (NTC) identified 114 units of competency that appear in Transport and Logistics Training Product qualifications, which may need to be updated to better reflect the digital skills required by rail workers. Of those units, 65 are Transport and Logistics Training Product units, and 49 are imported units. The analysis suggests that 23 Transport and Logistics Training Product units will need significant change, and a further 42 expected to change slightly as a result of digitisation.

We will conduct further analysis on the identified units and schedule their review in consultation with industry. This may include determining broad principles for how digital skills might be better reflected in units of competency to ensure they can accommodate future advances in technology without the need for constant changes to units.

## Interoperability challenges also impact labour mobility

Australia's rail networks have developed independently across different jurisdictions, resulting in a lack of national interoperability. This is reflected in the different rail gauges, standards for rolling stock and components, operating rules for rail infrastructure, and for communications and control systems across different networks and jurisdictions. These jurisdictional differences present challenges for labour mobility.

Improving national rail interoperability is a National Cabinet priority and current investment in infrastructure is providing an opportunity to move towards a harmonised network across Australia.

The interoperability challenge is compounded by inconsistent approaches to training and assessment, and lack of mutual recognition of skills/competency across the rail networks which could support transferability of skills between different networks and/or jurisdictions.

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

### **The training system is struggling to meet industry's skilling needs**

Sector stakeholders report that inadequate training facilities, technology and courseware are limiting industry's ability to respond to the prevailing skilling challenges.

Investment from Governments, industry and training providers is required to build the training system's ability to provide training using contemporary systems, rail technology and equipment. Thin markets for some rail units of competency and qualifications mean the development of quality training and assessment resources is often not cost effective. Support to develop industry prescribed resources would improve the supply of training.

The NTC Rail Skills Hub is currently launching a suite of online resources that will be made available to (Registered Training Organisations) RTOs. We will monitor the uptake and impact of these resources and determine if additional resource development, or other VET system capacity building projects, might help industry's response to current challenges.

There is also a critical shortage of appropriately qualified rail industry trainers and assessors. More flexibility in training delivery models, and stronger partnerships between industry and RTOs to provide current technical subject matter expertise will assist the VET system to meet industry's needs.

# Common issues and themes across ISA industry sectors

We have identified four common issues and themes that are impacting the industries supported by ISA.

## Technology and Automation

Automation and digital technologies are revolutionising industries and reshaping business operations. In transport and logistics, [robotics](#), drones and [big data](#) analytics are optimising operations and improving productivity. Autonomous trucks have been recently [trialed](#) in Australia and autonomous vessels trialed in the maritime industry, with some already in [operation](#). The rail sector is operating autonomous trains, using smart devices and conducting automated asset inspections using LiDAR. In the aviation sector, cutting-edge technologies such as uncrewed aircraft systems, [remote digital tower](#) technology, [OneSky](#) and satellite based augmentation systems are being implemented.

Despite these changes, the role of humans in operating and maintaining systems remains highly significant, and workers will need the technical [skills](#) to work safely with these new technologies.

## Sustainability

The adoption of sustainable practices and technologies to reduce Australia's carbon emissions has been gaining pace, and the industries we support are well [positioned](#) to be key enablers of this change. For example, the supply chain sector is relying more on autonomous technology and alternative fuels such as hydrogen to reduce its carbon footprint. Trials for zero-emissions hydrogen fuel-cell battery trucks are already [underway](#) in Australia, as are [trials](#) of alternative fuels in the maritime industry. The aviation industry is working towards the [replacement](#) of ground equipment with hydrogen powered fuel cells, while the rail industry is focused on technologies such as hydrogen or battery electric to phase out diesel trains.

Once again, these changes will require workers to have the skills and knowledge to safely work with these technologies and comply with regulations.



## Workforce Challenges

Australia is grappling with significant labour shortages across many industries, including those supported by ISA. There is both a general [shortage](#) of skills, as well as a slowing down of skilled migration as a result of border closures due to the pandemic. Ongoing impacts are likely to be seen in terms of business operations and the [completion of infrastructure](#) projects.

Globally, organisations have started to prioritise the [attraction and retention](#) of new talents. Similarly, Australian businesses are investing in staff training, developing skills, and attracting [young people](#) and more [women](#) into traditionally male-dominated industries and occupations.

## Industry Skills Development

The Vocational Education and Training (VET) system in Australia is well positioned to supply the skills and knowledge required for the future of work. However, barriers such as [perceptions of the VET sector](#) and shortages of qualified trainers are impacting on the attractiveness of the sector to prospective learners and on learner outcomes. The challenges are even greater in [regional and remote areas](#), where lack of high-quality training facilities, up-to-date equipment and training providers further compound the situation. Establishment of clearer career pathways and articulation arrangements that enable learners to seamlessly transition from the schools sector into VET and onwards to Higher Education are needed to build opportunities for individuals and support the shift to higher skilled job roles.





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