Industry Skills Australia

Aviation Industry

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2025 Workforce Plan

JSC | **Jobs and Skills Council**
Transport and Logistics
An Australian Government Initiative

About ISA

Industry Skills Australia (ISA) has been established as the Jobs and Skills Council (JSC) for the Transport Supply Chain industries, 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 almost 30 years of history with Transport Supply Chain industries
- 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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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 Aviation 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 our 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 Aviation 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 Aviation industry.

The Workforce Plan will serve as a dynamic tool for ongoing stakeholder engagement to maintain a deep understanding of current, emerging, and future workforce challenges and opportunities, and inform annual iterations of the Plan. This engagement will help identify skills gaps and shortages across the Transport Supply Chain, including in small, niche, and regional sectors. Collaboration with Jobs and Skills Australia will also provide employment outlooks for each industry sector. These insights will enable a proactive and well-informed approach to workforce planning and the development of targeted strategies to address key industry challenges.

The 2025 Workforce Plan 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 Aviation industry.

Foreword

I am pleased to present the 2025 Workforce Plan for Australia's Aviation Industry, prepared by Industry Skills Australia and overseen by the Aviation Strategic Workforce Planning Committee.

The Committee brings together passionate and experienced Aviation industry leaders to shape the annual Workforce Plan through rigorous research and analysis, and proactive consultation with stakeholders. We have engaged with aviation employers, unions, regulators, professional bodies, government and training and education stakeholders to explore and analyse current challenges facing the industry and identify actions that are needed from industry, government and the national skills system.

Our industry is a significant contributor to the Australian economy. We connect people and businesses across the country and the world, underpinning domestic and international supply chains and facilitating trade and tourism. To ensure the viability and sustainability of the industry, it is imperative that we understand and anticipate future workforce challenges and emerging skill needs.

The 2025 Workforce Plan sets out a series of interrelated challenges and drivers of change for the industry. First among these is an ongoing shortage of workers in key aviation roles. Enhancing the appeal of the industry, attracting and retaining new recruits, and developing clear pathways will be vital for filling essential positions, especially in regional and remote locations across the country. At the same time, the aviation workforce needs to build new skills to support decarbonisation efforts, implement emerging technologies and provide expertise for an emerging Australian space industry. To address identified challenges and capitalise on future opportunities, the industry will need access to quality and cost-effective training aligned to industry requirements and regulations.

Through the identification of proposed actions, the 2025 Workforce Plan provides Industry Skills Australia and Aviation industry stakeholders with a way forward for addressing priority areas through collaboration.

Thank you to all stakeholders who contributed intelligence, insights and ideas to the 2025 Workforce Plan. We look forward to continuing our work with you to collectively shape the future of our industry.

Adrianne Fleming OAM
Chair, Aviation Strategic Workforce Planning Committee

Executive Summary

The Aviation industry connects people and businesses throughout Australia and around the globe through the operation and coordination of aircraft for the transportation of freight and passengers by air. Aviation industry activities can fall into three broad occupational areas:

Flight Operations - planning, executing and managing flights including all aspects of flight coordination and management, from pre-flight preparations to post-flight procedures and safety.

Airport Operations - managing and supporting passengers and freight through airport systems, including security screening, ground operations, and the turnaround of aircraft between flights.

Aviation Rescue - conducting rescue operations and emergency response to ensure the safety of people, crew and aircraft during critical situations.

The Australian Aviation industry currently employs around 71,000 people and is expected to grow by almost 18% in the next decade. By identifying and analysing the key factors that impact the supply and demand of workers in the aviation industry, the Workforce Plan can assist government, industry and enterprises to better understand workforce issues and develop and implement potential solutions.

The **Key Challenges and Drivers** section of the Workforce Plan explores the current labour market dynamics and workforce challenges that are influencing the supply and demand for workers in the Aviation industry. Extensive research and stakeholder consultation has found that:

- Key Aviation roles face ongoing shortages
- National coordination is essential to build Australia's Aviation workforce
- Diversity imbalance hinders industry growth
- High cost of training is a major barrier
- Qualifications need better alignment with industry needs and regulations
- Decarbonisation efforts demand new skills
- New skills are needed for emerging technologies
- Vocational training is critical for Australia's growing Space industry
- Recruitment and funding challenges for General Aviation

The 2025 Workforce Plan has been informed by ongoing engagement with industry stakeholders to gather workforce intelligence and inform evidence based and industry supported actions. The development of annual Workforce Plans allows the Aviation industry to continuously refresh and deepen understanding of the factors that influence workforce supply and demand and ensure the development of strategic responses.

This plan also identifies a number of related existing workforce strategies and initiatives and maps the challenges and drivers to them. Where relevant, the 2025 Workforce Plan will seek to align with, or contribute to, these strategies and initiatives, or collaborate with those responsible in implementing them.

Summary of Actions

The actions in the Workforce Plan have been developed and designed to address some of the key industry challenges and drivers as a priority. Each 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 Actions
Qualifications need better alignment with industry needs and regulations	• **Ground Operations Skills Analysis -** to determine how vocational qualifications can be revised to encompass current and future skills needs.
New skills are needed for emerging technologies	• **Digital Skills –** using DigComp 2.2 as the Digital Framework to review digital skills for a selected number of occupations in our industries.

Industry Challenge/Driver	Actions Complete or Underway
Vocational training is critical for Australia's growing Space industry	• **Air and Space Skills Gap Analysis –** to understand existing and emerging roles and skills needs in the Space Transport and Logistics industry and identify gaps in current VET training products.
Qualifications need better alignment with industry needs and regulations	• **Aviation rescue -** review existing qualifications for search and rescue to enhance their usability across adjacent sectors including emergency services using fixed wing aircraft. • **Cabin crew skills recognition -** review the skill needs of cabin crew across airlines. Investigate the barriers to industry recognition of the Certificate III in Aviation (Cabin Crew). • **Defence Flight Instructor -** identify and bridge recognition gaps between military and civilian aviation training standards. • **Diploma of Aviation (Flight Instructor) Review –** review and update the qualification to include current industry practices and better align it with Civil Aviation Safety Authority (CASA) licensing requirements. • **Remote Pilot Licence (RePL) Alignment –** Align the Certificate III in Aviation (Remote Pilot) with the Civil Aviation Safety Authority's (CASA) Remote Pilot Licence. • **Transport Security Protection –** Update the Certificate II in Transport Security Protection (TSP) to align it with regulatory changes, the latest technologies and current industry practices.
Key Aviation roles face ongoing shortages	• **Improving Careers Information -** develop a comprehensive repository of career information on specific occupations.
National coordination is essential to build Australia's Aviation workforce	• **VET Workforce Project -** aimed at supporting a sustainable VET workforce for the transport sectors (Aviation, Maritime, Rail and Transport and Logistics). A study will be completed, focussing on current and emerging VET workforce issues.

Summary of Future Consultation

The Future Consultation activities identified in this Workforce Plan will be used to inform challenges and drivers in the 2026 Aviation Workplace Plan and potential workforce actions. These include:

Industry Challenge/Driver	Proposed Future Consultation
Key Aviation roles face ongoing shortages	• Promotion of Aviation Industry • Skills Migration
National coordination is essential to build Australia's Aviation workforce	• National Coordination of Training
Diversity imbalance hinders industry growth	• Diversity and Inclusion
High cost of training is a major barrier	• Commercial Pilot Apprenticeship
Qualifications need better alignment with industry needs and regulations	• Diploma of Aviation (Commercial Pilot Licence)
Decarbonisation efforts demand new skills	• Sustainable Aviation Fuels (SAF) and Alternative Fuels
New skills are needed for emerging technologies	• Advanced Air Mobility • RPAS Tiered Competency Requirements
Vocational training is critical for Australia's growing Space industry	• Space Transport Qualification

Actions Complete or Underway
- Air and Space Skills Gap Analysis
- Aviation rescue
- Cabin crew skills recognition
- Defence Flight Instructor Diploma of Aviation (Flight Instructor) Review
- Improving Careers Information
- Remote Pilot Licence (RePL) Alignment
- Transport Security Protection
- VET Workforce Project

Proposed Actions
- Ground Operations Skills Analysis
- Digital Skills

Future Consultations
- Promotion of Aviation Industry
- Skills Migration
- National coordination of training
- Diversity and Inclusion
- Commercial Pilot Apprenticeship
- Diploma of Aviation (Commercial Pilot Licence)
- Sustainable Aviation Fuels (SAF) and Alternative Fuels
- Advanced Air Mobility
- RPAS Tiered Competency Requirements
- Space Transport Qualification

Industry Overview

The Aviation industry plays a critical role in connecting people and businesses throughout Australia and around the globe. It underpins Australia's domestic and international supply chains, creating jobs and facilitating international trade and tourism. The Aviation industry is also a significant contributor to the national economy, generating $63.2 billion in revenue in 2024[1] and employing near 71,000. [2] The Aviation workforce is projected to grow by 10.4% in the next five years to May 2029 and 17.7% to May 2034 (**Figure 1**).[3]

In the 30 years from 1995 to 2025, the number of Australian domestic passengers nearly tripled (180%) while international passengers nearly quadrupled (278%) (**Figure 2**). Forecasts from 2025 onward show strong growth in both segments, with domestic passengers projected to nearly double again from 2025 to 2050 and international passengers forecast to more than double over the same period. By 2050, domestic travel is expected to reach around 237 million passengers, while international travel could near 95 million.[4]

The Aviation industry comprises the operation and coordination of aircraft for the transportation of freight and passengers by air, fire mapping, aerial spraying and drone operations. General Aviation (GA) activities support a wide range of other industries and create varied opportunities for employment in the Aviation industry. Examples of the diverse services provided through GA include air ambulance, delivery of medical supplies, inspection and protection of powerlines and phone towers in bushfires, support for law enforcement operations, monitoring of endangered species and habitats, safe movement of ships with marine pilot transfers, border security and surveillance, mail, freight and passenger services to remote communities and stations, scientific research and flights, scenic tourism, and sport and recreational aviation.

WE WILL SEE
continued growth in passenger numbers

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1 IBISWorld Industry Wizard 2024.
2 Australian Bureau of Statistics, Labour force survey: Detailed, November 2024, Jobs and Skills Australia (JSA) trend data
3 Jobs and Skills Australia. Employment projections produced May 2024 to May 2034
4 Bureau of Infrastructure and Transport Research Economics. (2024). Australian aviation forecasts: 2024 to 2050

Figure 1: Aviation Industry Workforce, 2002 - 2034
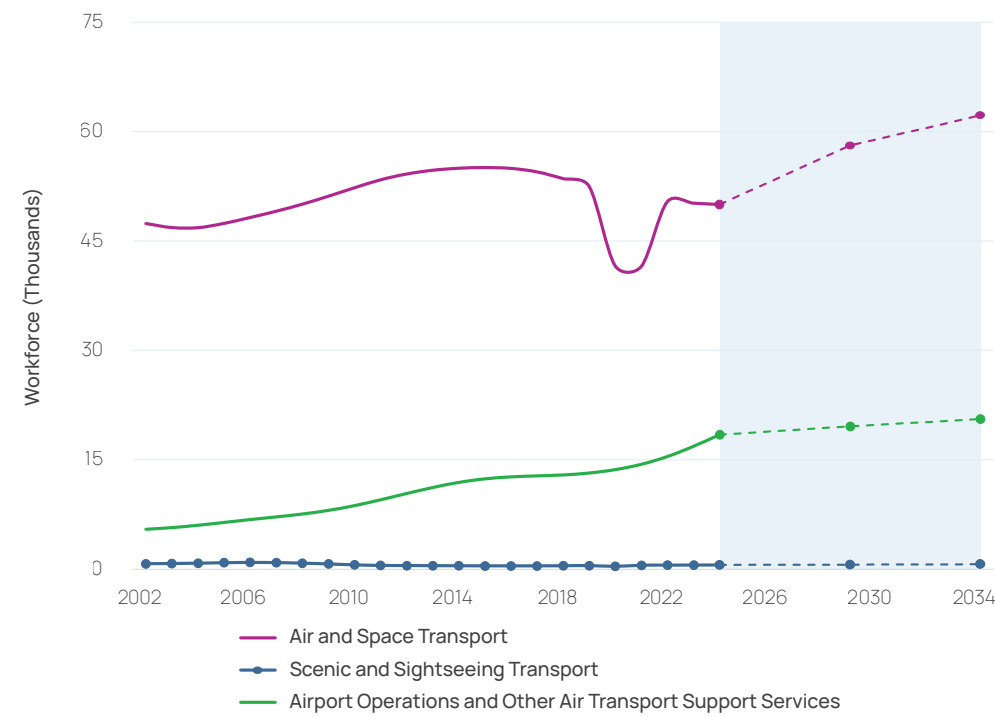
Source: JSA Labour Force Trending (Nov 2024), JSA Employment Projections (2024 to 2034)

we will see continued
employment growth

Figure 2: Domestic and International Passengers, 1995 - 2050
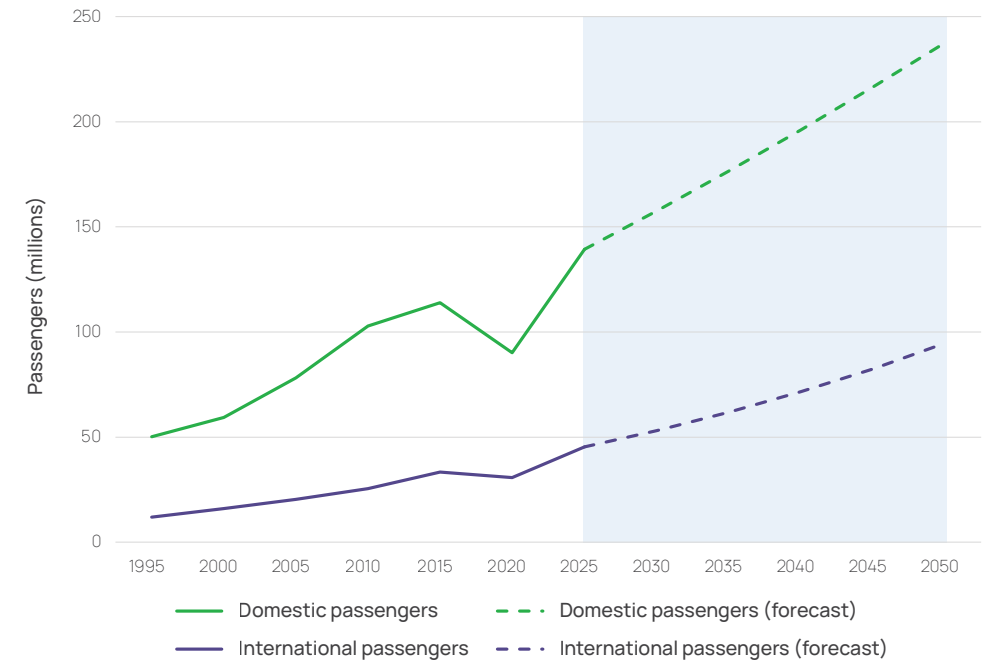
Source: BITRE 2024, Australian aviation forecasts – 2024 to 2050, Tables 6.1 and 6.3

AVIATION BUSINESS NO.

2483

| **26** with 200+ employees | **104** with 20-199 employees | **2,353** with 0-19 employees |

28,545
REGISTERED DRONES IN AUSTRALIA

AIRPORTS IN AUSTRALIA
160

GDP CONTRIBUTION $B 2024
23.5

AVIATION INDUSTRY ESTIMATED ANNUAL REVENUE $B 2024
63.2

BUSINESS DISTRIBUTION BY STATE %

- 2.13%
- 26.86%
- 11.44%
- 4.99%
- 29.84%
- 22.07%
- 1.09%
- 1.57%
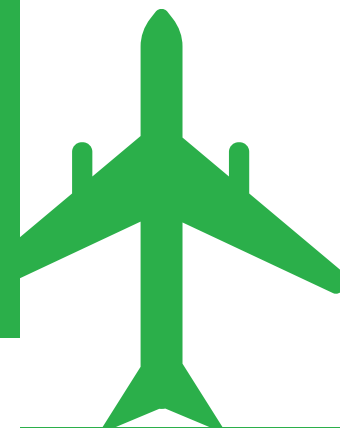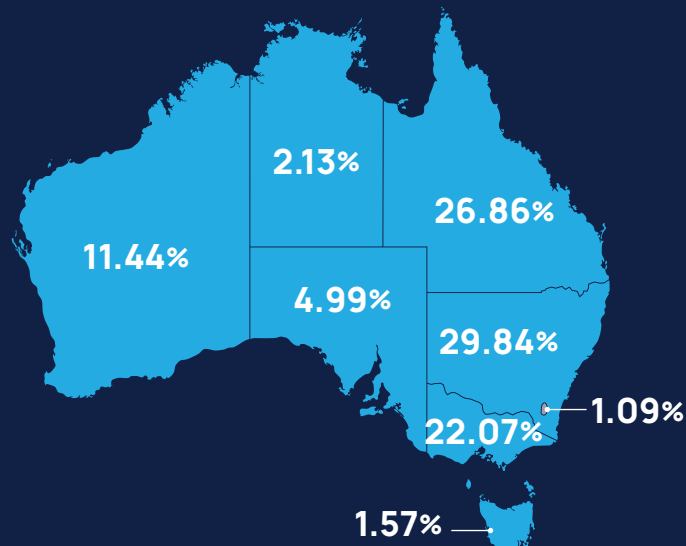
PASSENGERS ON DOMESTIC COMMERCIAL FLIGHTS
59.11 MILLION

REGIONAL AIRPORTS CARRY
40%
OF ALL DOMESTIC PASSENGERS

DOMESTIC FREIGHT TASK GROWTH (PROJECTED TO 2025-2030)
10.30%
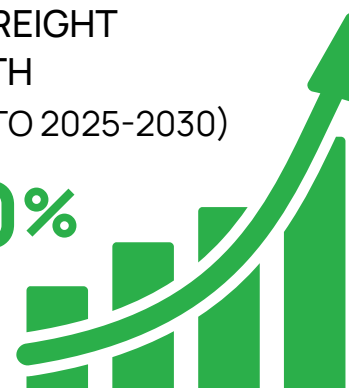
MEDIAN AGE
46
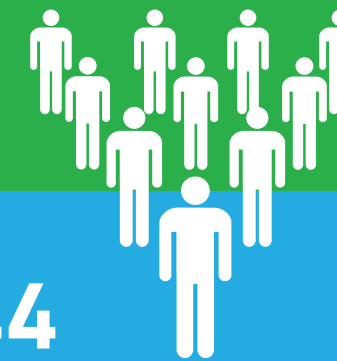
WORKFORCE‡
70,944

- **27%** Female
- **1.2%** Aboriginal & Torres Strait Islander
- **0.5%** With a disability

REGISTERED TRANING ORGANISATIONS (RTO)
111

WORKERS WITH VOCATIONAL EDUCATION
41%
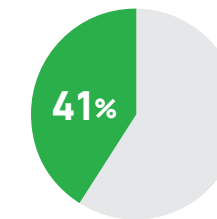
WORKFORCE DISTRIBUTION

- 2.1%
- 27.5%
- 10.7%
- 4.8%
- 33.3%
- 1.4%
- 18.8%
- 1.5%

RESIDENTIAL DISTRIBUTION OF WORKERS

- **10%** Remote
- **44%** Regional
- **46%** Major cities

Legend:
- Major cities
- Regional
- Remote
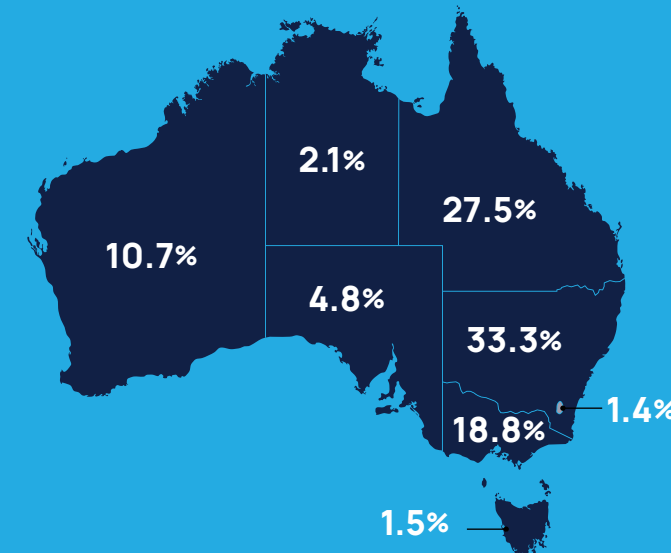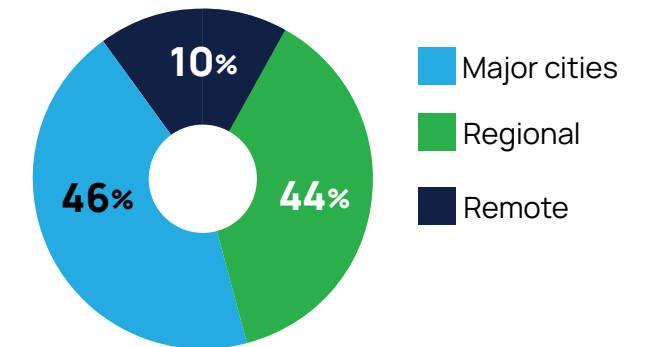
TOP 5 OCCUPATIONS*

1	Aeroplane Pilot	8136
2	Flight Attendant	6092
3	Aircraft Baggage Handler and Airline Ground Crew	4008
4	Air Traffic Controller	1589
5	Helicopter Pilot	1106

* Please note that the exact number of Baggage Handlers and Flight Attendants cannot be confirmed. The statistics are from 2021 Census data which was significantly impacted by COVID and our stakeholders have confirmed the actual number is significantly higher than this reported figure.

WORKFORCE NEARING RETIREMENT (AGED 56-66)
15.7%

QUALIFICATION ENROLMENT 2023
7,427

See page 73 for sources

See page 73 for sources

Key Challenges and Drivers

A. Key Aviation roles face ongoing shortages

The Aviation sector is continuing to experience significant workforce shortages in critical roles.[5] These shortages challenge industry growth and have potential to impact safety standards. Current shortages are compounded by difficulty in attracting and retaining a qualified workforce, particularly in regional and remote areas of Australia.

In addition to impacting General Aviation, this issue is also affecting rotary-wing aircraft operations, including specialised helicopter services such as search and rescue, medical evacuation and offshore transportation, where pilots and maintenance engineers require specialised skills.[6]

Occupational shortages are most acute for pilots, flight instructors, flight attendants, LAMEs and ground crew

Table 1: Aviation Occupations in Shortage by State/Territory

Occupation title	2021	2022	2023	2024
Aeroplane Pilot	NT	NT, WA	AUST	AUST
Air Traffic Controller			VIC	ACT
Air Transport Professionals nec		NT	AUST	AUST
Aircraft Baggage Handler and Airline Ground Crew		AUST	AUST	AUST
Aircraft Refueller			VIC	
Flight Attendant			AUST	AUST
Flying Instructor		WA	AUST	AUST
Helicopter Pilot			NT	NT

Source: Occupational Shortage List (14 February 2025)
AUST: All States and Territories

Current demand for **pilots** exceeds the available supply. The shortage has been driven by a rapid expansion of the global Aviation industry that has seen a significant increase in passenger numbers and airline fleet. Compounding the challenge is the looming retirement of many experienced pilots and the difficulty of replacing them. Time-consuming and costly training and certification processes deter potential candidates from pursuing a career as a pilot or even completing their pilot training, an issue that is even more pronounced in regional areas where financial support for training and employment opportunities is more limited. Helicopter systems are becoming increasingly complex, requiring younger pilots to gain more experience to operate them effectively, which poses a significant challenge. The use of technologies such as Virtual Reality (VR) can help gauge the interest of the younger generation and attract them to the industry by providing immersive and engaging training experiences.

Pilot scarcity is exacerbated by a shortage of **flight instructors**. General Aviation flight training has been declining in Australia for several years and was experiencing a shortage of instructors and trainers even prior to the COVID pandemic.[7] Shortages are driven by the time and cost involved in achieving the required qualification to become a certified flight instructor. The training pipeline for instructors is also impacted by qualified instructors being drawn into more highly paid commercial pilot roles. The shortage is especially pronounced for senior instructors, flight examiners, and airline check and training captains.[8]

Industry stakeholders report a high turnover of **flight attendants** due to low wages, working conditions and limited career pathways. In 2024, flight attendants were added to the Australian Apprenticeship Priority List as a priority occupation.[9] Intense media attention on aviation incidents and accidents highlights the critical role that cabin crew play in an emergency as first responders. The occupation requires a broad range of skills including safety, first aid, conflict management, teamwork and cultural awareness, which are all critical aspects of the job. To attract suitable recruits into flight attendant roles, the occupation requires a stronger emphasis on its critical safety and first responder functions. Flight attendants acquire a wide range of highly transferable skills which can improve job mobility if there are clearly defined pathways to facilitate career progression.

The shortage of cabin crew can also cause operational challenges such as cancellations, delays, and disruptions which impact roster availability and stability. The Flight Attendants' Association of Australia and other stakeholders have requested a review of the Certificate III in Aviation (Cabin Crew) and further industry consultation to investigate the barriers to industry use of this qualification and opportunities for revision to meet industry needs.[10] Improving the public perception of the role as being a professional career with potential for career progression can help attract more people to the role, especially more men. ISA is currently conducting a Cabin Crew Skills Gap Analysis project to identify and propose potential solutions.

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5   ABC News. (2024). Experts warn Australia is facing an aviation skills shortage after COVID-19 pandemic

6   Jobs and Skills Australia. (2025). Occupation shortage list

7   Regional Affairs and Transport Legislation Committee. (2022). Australia's general aviation industry

8   Rural and Regional Affairs and Transport Legislation Committee. (2022). Australia's general aviation industry

9   2024 Australian Apprenticeship Priority List. (2024). Minister of Employment and Workplace Relations Portfolio. Media Release. Jan 1st, 2024

10   Submission of the Flights Attendants' Association of Australia to the Aviation Green Paper. (2023). Flight Attendants' Association of Australia. Nov 2023

Licensed Aircraft Maintenance Engineers (LAMEs) are crucial for ensuring aircraft safety and airworthiness. However, the combination of an ageing workforce, low numbers of new entrants, wages and rigorous training requirements have resulted in a shortage of LAMEs in the Australian Aviation industry. The occupation has been in shortage in nearly all states and territories for at least four consecutive years,[11] with an average of 136 job ads per month in 2024.[12] From 2016 onwards, an average of 152 aircraft engineer licences[13] have been issued annually, contrasting starkly with the average of 297 licences issued per year over the preceding decade.[14] Shortage of LAMEs results in operational challenges such as delayed aircraft maintenance at airports. Degree-qualified aviation engineers are also needed to maintain new technologies. Universities and the VET sector can play a crucial role in promoting skills shortages in design and manufacturing, thereby addressing the industry's evolving demands.

Although ABS data indicates that there were 11,890 Aircraft Maintenance Engineers in Australia in 2024,[15] this does not distinguish between licensed and unlicensed engineers. Similarly, CASA data does not provide an accurate reflection of LAMEs available in the workforce. The CASA annual report indicates that there are 9,891 licence holders as of 2023/24, but these licences are perpetual, and not an indication of the actual licence holders who are currently working.[16]

There are different pathways to becoming a LAME including a self-study training and examination pathway. Embarking on the journey to become a LAME through self-study pathway is challenging, primarily due to the limited availability of comprehensive guidelines and resources. Unlike structured educational programs offered by accredited institutions, self-study lacks a clear roadmap, with unstructured study support and lack of alignment between the recommended reading materials and examination questions. High-quality study materials, such as textbooks, manuals, and online courses, are essential for mastering the technical aspects of aircraft maintenance, but appropriate resources are either inadequate or difficult to access for self-study candidates. Additionally, practical experience is crucial for developing the hands-on skills required for aircraft maintenance, yet self-study candidates may struggle to find opportunities for practical training, as access to aircraft and maintenance facilities is typically restricted to students enrolled in accredited programs. Understanding and complying with CASA's regulatory requirements is another critical aspect of the certification process that self-study candidates may find difficult to navigate. There needs to be clear and detailed guidelines for certification, comprehensive study guides, online courses, and a repository of up-to-date study materials plus mentorship programs and networking opportunities. This can be achieved by stronger collaboration between training providers and CASA to provide support for self-study pathway candidates to ensure their success which can benefit the whole industry.

Ground operations crew and **security screening personnel** are also experiencing workforce shortages which have strained airport operations and capacity to maintain optimal safety and security for passengers.[17] Ground operations crew along with security screening officers constitute a large portion of the aviation workforce. The exact number of Baggage Handlers or Airport Security Screening Officers cannot be confirmed since they are only available at 6-digit ANZSCO level, but the Aviation industry has only two occupational categories at the 4-digit ANZSCO level. The current statistics from 2021 Census data were significantly impacted by COVID and our stakeholders have confirmed the actual number is significantly higher than Census data. In December 2024, the Occupation Standard Classification for Australia (OSCA) 2024 replaced the ANZSCO system. This change, implemented by the Australian Bureau of Statistics (ABS) aims to improve occupational data classification. Security Screening Officers has now been assigned a new OSCA code. The relative insecurity of these jobs has added to recruitment difficulties[18] as the high rate of turnover limits the ability to build the core competencies and skills needed for a sustainable workforce. Implementation of employee incentives linked to training and upskilling can be helpful to improve retention. These are highly skilled roles which require skills such as situation awareness, conflict resolution, security training and regulatory compliance. Changes in regulations will also impact training requirements. These challenges are especially more pronounced in regional airports which will need more resources to recruit and train their workforce to ensure safety and risk mitigation. It is equally important to develop career pathways for these roles to help with retention and career progression. Many current airport employees have entered the field indirectly, often transitioning from roles in the transport industry or local government. Pathways to positions in areas such as terminal operations, security, or ground handling are less structured. As articulated by the Australian Airports Association, creating and promoting clearer career pathways for the diverse roles within airports can enhance workforce attraction and retention, provide opportunities for upskilling existing staff, and align training programs more closely with industry requirements.[19]

Initiatives proposed in the Australian Government's Aviation White Paper – Towards 2050[20] support a vision for an agile and skilled aviation workforce. The initiatives include:

- Streamlining training and accreditation pathways for LAMEs, including modular licensing, recognition of overseas licences and improving alignment between CASA licensing and VET qualifications (Initiative 18)

- Setting expectations for large Australian airlines to train and employ newly qualified pilots rather than relying solely on recruiting experienced pilots from other aviation businesses (Initiative 19).

As identified in the Aviation White Paper, the industry has a significant role to play in training and employing newly qualified pilots and will need to put arrangements in place to upskill them for a long and sustainable career path. For the LAMEs workforce, the modular licensing initiative introduced by CASA will be a welcome first step in addressing workforce shortages, but further work is needed. There needs to be more funding available for self-funded LAMEs pathways with flexible learning options to attract more people to maintenance roles. The industry also needs to attract younger people to this career through engaging with schools and establishing school-based programs. ISA will continue to collaborate with the adjacent Jobs and Skills Council, Manufacturing Industry Skills Alliance, on the LAMEs shortages.

Australia is experiencing a significant shortage of **air traffic controllers** as identified by Jobs and Skills Australia's Occupation Shortage List. This shortage, exacerbated by high turnover rate and retirement age, is causing disruptions in service provision, including frequent delays and cancellations which impact the efficiency and reliability of air travel. The industry needs to adopt a more strategic approach to attracting and retaining air traffic controllers, ensuring that the workforce is adequately supported and sustainable for the future. Strategies to mitigate this shortage include enhancing recruitment efforts, improving retention strategies through better work conditions and benefits, investing in advanced air traffic technologies , collaborating with educational institutions and schools to promote careers in aviation, and reviewing the relevant qualification to improve quality and alignment with industry needs. By focusing on these areas, the industry can build a more resilient and capable air traffic control workforce, ensuring the safety and efficiency of Australia's airspace management.

To attract a new generation of workers to Aviation roles, ISA's survey respondents highlighted that wages and work conditions need to be competitive with other industries. The survey also indicated that opportunities for pilot job sharing could assist with talent retention. The respondents suggested the importance of supporting pilot and maintenance roles to transition to roles in uncrewed systems and Advanced Air Mobility technologies, assisting in retaining the workforce and leveraging existing expertise.

ISA's roundtable discussions and consultations have confirmed that recognising foreign licenses can offer a temporary solution to workforce challenges, provided the regulator establishes appropriate arrangements to facilitate this process. However, achieving long-term stability will require a coordinated and sustainable approach to attraction and retention.

Actions Complete or Underway:
- Improving Careers Information

Future Consultation:
- Promotion of Aviation Industry
- Skilled Migration

11   Occupation Shortage List. (2024). Jobs and Skills Australia
12   Jobs and Skills Australia. (2025). Internet Vacancy Index
13   Civil Aviation Safety Authority. (2024). Annual report 2023-2024
14   Regional Aviation Association of Australia. (2022). Aircraft maintenance engineer shortage – crisis and opportunities
15   Australian Bureau of Statistics, Labour force survey: Detailed, November 2024, Jobs and Skills Australia (JSA) Trend data.
16   Civil Aviation Safety Authority. (2024). Annual Report 2023-2024
17   Australian Financial Review. (2022). Airports say jobs shortages 'could persist'

18   Parliament of Australia. (2022). Rural and regional affairs and transport references committee
19   Australian Airport Association. (2023). Response to Aviation White Paper
20   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Aviation White Paper – Towards 2050

B. National coordination is essential to build Australia's Aviation workforce

The Aviation industry in Australia does not have a nationally coordinated approach for promoting aviation careers to address the challenge of workforce attraction and retention. Although various workforce development initiatives have been implemented across the country, these efforts are fragmented and lack the coherence needed to address the industry's pressing needs.[21]

Without a unified approach for addressing workforce challenges, the industry cannot best identify and maximise opportunities for innovation and collaboration between stakeholders that would enable the Aviation industry to attract and retain talent.

Local and regional initiatives that operate in isolation from each other do not have the opportunity to share best practice and resources and miss the broader reach and impact that a coordinated effort could achieve.[22] This isolation can lead to inefficiency and unnecessary duplication of investment and resources while hindering the ability to learn from successful programs. Without a coherent central framework, there is also a risk that initiatives are misaligned with industry needs, hampering efforts to address skill gaps and meet evolving industry demands.

As the demand for skilled professionals in aviation continues to grow, the industry needs a coordinated approach that will foster awareness about available opportunities and career pathways in Aviation.

Investment in national mentoring programs has been identified by large airlines as an effective means of using existing talent to support workforce development.[23] Industry stakeholders have suggested that there is a need for greater understanding of airport specific workforce roles and skill needs.[24] Further research should focus on the range of roles at airports and consider the impact of technological change and changes to skills and training.

The Australian Government[25] has noted that establishing clear training and career pathways is pivotal for encouraging more individuals to pursue careers in the Aviation industry. Career pathways serve as transparent roadmaps, guiding individuals on how to progress within the industry, outlining the qualifications and skills required for each career step. Early engagement and collaboration between industry, training organisations and schools will be essential to inspiring students and raising awareness about diverse career pathways. This approach has proven particularly effective in Queensland where students engage with the industry via training providers and the industry can achieve higher retention rates due to the motivational impact of such initiatives.

All these efforts and initiatives require a nationally coordinated approach to help ensure optimal outcome towards a sustainable workforce pipeline. This can be achieved by concentrated collaboration among key industry stakeholders.

Actions Complete or Underway:
- VET Workforce Project

Future Consultation:
- National coordination of training

C. Diversity imbalance hinders industry growth

Increasing diversity and inclusion in the Aviation industry is crucial for tackling skills shortages by ensuring that the industry is drawing from the widest possible pool of potential workforce entrants. Greater diversity brings more varied perspectives, skills and experience into the workforce, which benefit organisations by fostering more innovative work practices, creative solutions and better problem-solving. This can be especially valuable in the Aviation industry where safety is paramount.

Many roles in the Aviation industry are male dominated. The LAMEs workforce has a notable gender imbalance (93.2% male).[26] Lack of diversity in the industry contributes to occupational shortages by deterring a range of potential recruits. Cohorts that are underrepresented in the workforce encounter barriers to entry due to a lack of role models in the industry, gender-based capability assumptions, and limited access to career information.

The Australian Government's Aviation White Paper – Towards 2050[27] supports a vision for greater diversity in the aviation workforce. Initiative 20 in the White Paper[28] proposes establishing a new Gender Equity Charter with the Aviation industry that commits to employment targets for women in senior and operational roles and eliminates gender pay gaps.

Broadening workforce participation can be challenging for employers who may need to adapt generational attitudes and expectations to create appealing and supportive work environments that align with the values and career aspirations of new entrants without compromising safety and efficiency.

Although the industry has implemented a range of initiatives to increase diversity and inclusion in the workforce, further action is needed to address the gender imbalance in the Aviation industry by attracting women to critical roles, especially in engineering and piloting, and providing resources and strategies to support their career development. Targeted campaigns need to have a mechanism to help ensure these initiatives translate into aviation careers. Employers also need to promote information about aviation careers and create an inclusive environment through education and cultural change to attract a more diverse workforce.

21 Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Aviation White Paper – Towards 2050

22 McKinsey. (2023). Short-haul flying redefined: The promise of regional air mobility

23 Qantas Group. (2023). Qantas group submission to the Aviation Green Paper 2023

24 Australian Airport Association. (2023). Response to Aviation White Paper

25 Australian Government. (2023). Aviation Green Paper Towards 2050

26 Australian Bureau of Statistics (2023, quarterly average) Labour Force Survey, EQ08 - Employed persons by Occupation unit group of main job

27 Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Aviation White Paper – Towards 2050

28 Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Aviation White Paper – Towards 2050

The promotion of women in aviation is critical to meeting future industry workforce needs through increased labour force participation, building a sustainable talent pipeline and fostering diversity of thought and skills in the workplace.

- Qantas Group Submission to the Commonwealth Government's Aviation Green Paper 2023

Since 2019, the Women in Aviation Industry Initiative,[29] funded by the Australian Government, has supported a range of initiatives to encourage females into careers in Aviation. These include awareness and outreach activities targeting school students, leadership forums to drive cultural change, and programs to build inclusion skills for flight instructors. Further action will continue under the initiative to 2026 with a focus on identifying opportunities around leadership and culture, visibility and awareness, collaboration and continuous improvement.[30] This will include developing and providing resources to help women build careers in the industry and improve their economic security.[31]

Individual employers have also invested in initiatives to improve gender balance and diversity in the workforce. These include scholarships for female and First Nations students, career education and outreach, and representation targets for recruitment. Gender disparity is also reflected in remuneration practices, with the aviation industry showing a considerable gender pay gap of 37.2% in average total remuneration (**Figure 3**).

Figure 3: Median Gender Pay Gap in Total Earnings for the Aviation Industry

Source: WGEA Industry Data Explorer 2024, Data Explorer Industry Results 2023

WE HAVE A
considerable gender pay gap

Industry stakeholders have identified a significant underrepresentation of women in technical roles at airports. On average only 8% of technical roles at airports are filled by women, while women hold around 35% of management and professional roles.[32] Workforce diversity initiatives need to focus beyond pilots and aviation engineers to also encompass other roles at airports such as Aerodrome Reporting Officers and Ground Operations crew.

Industry stakeholders have identified opportunities for increasing industry participation by First Nations people and others from underrepresented groups. Job roles that are in shortage and have low barriers to entry are ideal entry points into the industry. The Australian Airports Association has reported that many safety and regulatory roles are difficult to fill at airports in regional and remote Australia.[33] Airfield Reporting Officers (AROs) are essential to ensuring safe airfield operation and compliance with CASA regulatory requirements. Supporting First Nations people in regional and remote areas to achieve an ARO credential is one way to provide meaningful employment 'on country' and address an occupational shortage.

To support First Nations people into the Aviation industry, industry stakeholders have recommended that the Australian Government work with the sector to establish, build and fund intensive First Nations mentoring programs.[34] Supporting First Nations recruits with dedicated retention, training and career progression strategies and initiatives, helps ensure that talented First Nations employees are attracted to roles in the aviation industry and set up for long term success.

Australian Government collaboration with First Nations people is exploring opportunities for First Nations people in the emerging sector of drone operation.[35] In 2024, a series of policy conversations identified recommendations to guide future action in this area.[36] The recommendations focus on enhancing accessibility and support for First Nations people, simplifying registration and accreditation processes, reducing regulatory burdens, and increasing First Nations trainers.[37]

Future Consultation:
• Diversity and Inclusion

29   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. Women in the Aviation industry initiative

30   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. Women in the Aviation industry initiative

31   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2023). Women in the Aviation industry initiative - Next phase strategic action plan.

32   Australian Airport Association. (2023). Response to Aviation White Paper.

33   Australian Airport Association. (2023). Response to Aviation White Paper

34   Virgin Australia. (2023). Virgin Australia Group submission in response to the Aviation Green Paper

35   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). First Nations drone policy project

36   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). First Nations drone policy partnerships – Group workshop outcomes report

37   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). First Nations drone policy partnerships – Group workshop outcomes report

D. High cost of training is a major barrier

The cost of training in the Aviation industry, including training for pilots, is significantly higher than the cost of training in other industries (**Figure 4**). To meet regulatory requirements, Aviation training includes mandatory flight hours which have a significant impact on total tuition fees.

Figure 4: The Ten Most Expensive Vocational Courses in Australia
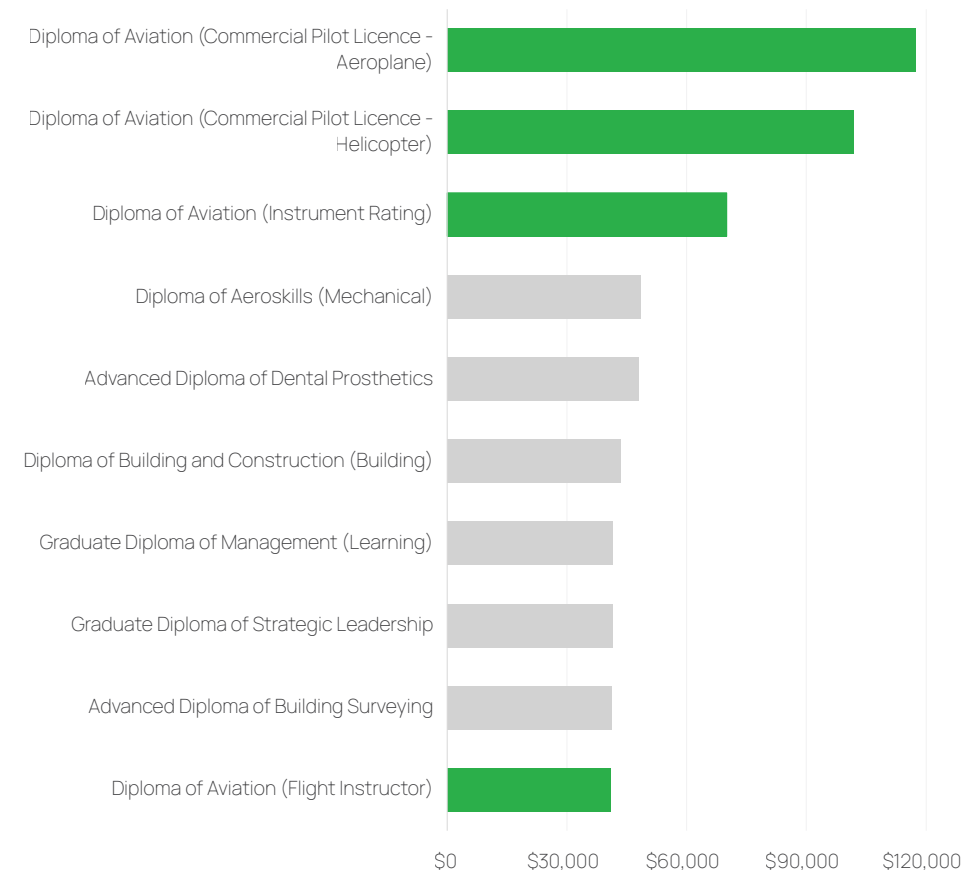
Source: yourcareer.gov.au, Estimated fee (upper bound), February 2025

WE HAVE

expensive aviation training

Aviation training is often funded by individual learners through personal savings and loans. Some training providers offer payment plans or financing options that help learners to manage the cost of tuition. Airline sponsorships, government programs and scholarships are also available to assist with the cost of training, but more support is needed to make training accessible and create opportunities for less experienced pilots to enter the industry.

Industry stakeholders report that regulatory change that allows greater use of simulation technology and virtual delivery of competency-based training can help to reduce pilot training costs. Such changes would make training more affordable for new workforce entrants, in line with the Australian Government's vision for a skilled, secure and productive aviation workforce outlined in the Aviation White Paper – Towards 2050.[38]

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38 Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024).

Apprenticeships and government funding for priority occupations can make training more accessible, especially for pilot and flight instructor roles that have very high training costs.[39] Industry stakeholders have emphasised the need for government funding through apprenticeship programs or VET loans for Aviation occupations in shortage. Reducing the cost of training would provide more opportunities for people to access training, especially for those from underrepresented cohorts. Responses to the ISA stakeholder survey indicate that government support and funding should be targeted at individuals, rather than institutions, to enable them to search for the most affordable and suitable course without being limited by government funded courses that may not be as convenient. Employers will also need to invest in training and skills development for their current and future workforce. Survey responses highlight the potential of the VET system for training future pilots in a much shorter and cost-effective manner.

Industry stakeholders have proposed several solutions to overcome the barrier of high training costs. These include:

- removing the 20% one-off levy on VET Student Loans for pilot students across all jurisdictions as this fee has a disproportionate impact on high-cost pilot qualifications[40]
- expanding the funding available for training and training allowances for employers to train and upskill the workforce, particularly with respect to technical trades[41]
- reducing the HECS debt for pilots and other priority aviation roles working in regional areas with the loan reduction linked to length of time served in a regional area
- increasing government investment in aviation apprenticeship programs or establishing apprenticeship programs for occupations in shortage to incentivise engagement by employers and apprentices and making the programs accessible to a broader range of people.[42]

Future Consultation:
- Commercial Pilot Apprenticeship

Aviation White Paper – Towards 2050

39 ICAO. (2024). Next generation of aviation professionals (NGAP) strategy

40 Qantas Group. (2023). Qantas group submission to the Aviation Green Paper 2023. Pg. 115

41 Qantas Group. (2023). Qantas group submission to the Aviation Green Paper 2023. Pg. 114

42 Virgin Australia. (2023). Virgin Australia Group submission in response to the Aviation Green Paper. Pg. 23

E. Qualifications need better alignment with industry needs and regulations

Better alignment between qualifications and licensing requirements will improve the consistency of training for aviation professionals and establish a uniform and reliable basis for recognising individual competency and professionalism.[43]

Vocational training needs to be better aligned with industry standards and licenses

With around 40% of aviation workers holding a VET qualification (**Figure 5**), the VET sector plays a crucial role in supplying the required workforce for the aviation industry.

Figure 5: Educational Attainment of Aviation Workers (2006-2021)
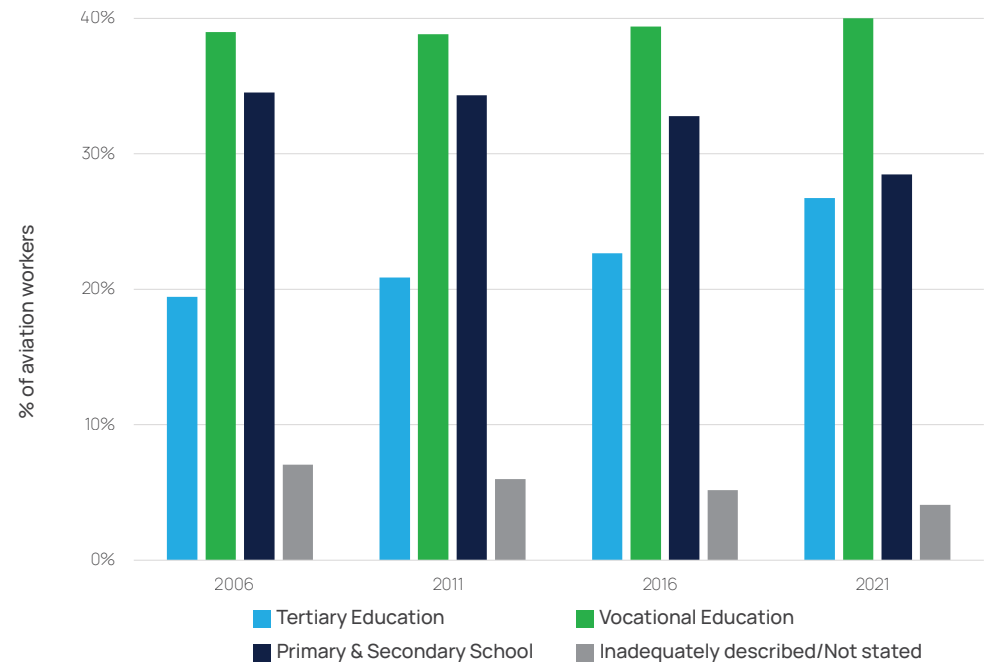
Source: ABS, Customized Census Data (2006, 2011, 2016, 2021)

VOCATIONAL EDUCATION PLAYS A
critical role

In a highly regulated industry where safety and compliance are critical, specific and up-to-date skills and knowledge are required in many roles.[44] In ground operations, workers are responsible for aircraft safety procedures and emergence response, but some training programs do not reflect the latest industry standards and practices. The gap between training and industry requirements leaves some recruits needing extensive on-the-job training, which increases costs for employers and delays the integration of new staff into their roles. Survey responses have highlighted that training needs to match industry needs and funding models should provide the best value for students.

43   ICAO. (2024). Next generation of aviation professionals (NGAP) strategy
44   ICAO. (2024). Next generation of aviation professionals (NGAP) strategy

Industry stakeholders have reported the following areas for better alignment with industry needs and licensing requirements:

• Air Traffic Controller qualification needs to be better aligned with International Civil Aviation Organisation (ICAO) standards.

• The Diploma of Aviation Commercial Pilot Licence needs revision for better alignment with Civil Aviation Safety Authority (CASA) licensing requirements. This qualification provides skills and knowledge for performing commercial pilot duties, but it does not fully cover the requirements for gaining a CASA licence as a commercial pilot requires additional study to attain a Commercial Pilot Licence (CPL).

• Drone related qualifications could be aligned with the CASA Remote Pilot Licence (RePL). The ISA stakeholder survey indicates that vocational training requirements for Remotely Piloted Aircraft Systems (RPAS) are evolving rapidly. Keeping an industry-led approach is important for drone qualifications.

• The industry indicates that AMEs and LAMEs qualifications need to be better aligned with CASA Part 66 maintenance licensing. Manufacturing Industry Skills Alliance is currently undertaking a project to do so.

A skills review can help ensure training meets industry needs

In-house training is frequently used to train cabin crew and ground operations staff. Because this training does not use nationally recognised qualifications, it can lead to skills gaps, lack of transferability between workplaces, and increased on-the-job training costs for gap training.

Industry stakeholders have suggested that a skills review should be conducted to ensure qualifications meet industry needs. The recognition and inclusion of transferable skills in aviation training has potential to support industry entry pathways for workers from adjacent industries into aviation roles that are in high demand.

Industry-aligned training will create clearer career pathways

Qualifications that are outdated or not well aligned with industry needs are less engaging for participants and fail to adequately prepare them for roles in the aviation workforce. When students have not acquired knowledge and skills that align with current industry standards and practice, additional employer investment is required to retrain new recruits.

Proposed Actions:
• Ground Operations Skills Analysis

Actions Complete or Underway:
• Aviation Rescue
• Cabin Crew Skills Recognition
• Defence Flight Instructor
• Diploma of Aviation (Flight Instructor) Review
• Remote Pilot Licence (RePL) Alignment
• Transport Security Protection

Future Consultation:
• Diploma of Aviation (Commercial Pilot Licence)

F. Decarbonisation efforts demand new skills

The adoption of Sustainable Aviation Fuels (SAF), hydrogen, and electric aircraft will require new skills for operation and maintenance.[45] Airlines are modernising their fleets as a considered step towards a more sustainable Aviation future.

The Aviation industry is adopting decarbonising technologies and systems to meet its environmental goals.[46] The introduction of SAFs, alternative fuels such as hydrogen, and electric aircraft means that new skills will be required in the workforce to operate and maintain the new technologies efficiently and safely.

However, the transition to sustainable fuels will take time in the Aviation industry.[47] According to recent projections, emissions from domestic aviation will continue to grow about 1% per year in the fifteen years to 2040 (**Figure 6**). While alternative fuel technologies are not expected to become commercially viable before 2030, they will play an important role in reducing emissions.

Figure 6: Domestic Aviation Emissions in the Baseline Scenario, 2005 - 2040
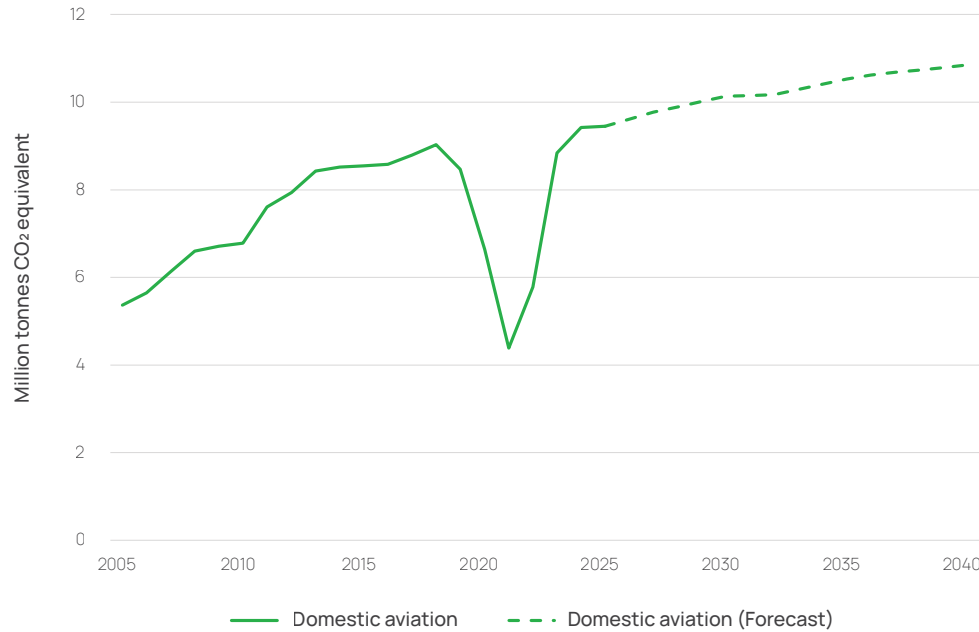
Source: DCCEEW (2024) Australia's emissions projections 2024

Legend: Domestic aviation — Domestic aviation (Forecast)

Large investment is required to transition aircraft, airports and fuel logistics infrastructure to sustainable fuels in the near term.

Australian airlines are also modernising their fleet with investments in new, more fuel-efficient aircraft to support the achievement of emission reduction targets.[48] Transitioning to SAF-type aircraft can become more feasible for businesses with the implementation of supports or loan schemes, enabling a smoother and more affordable transition.

AVIATION EMISSIONS

forecast to grow

Hydrogen aviation has potential, but infrastructure gaps must be addressed

Hydrogen aircraft could serve more markets, but the extensive infrastructure changes that are required will slow their adoption and limit their impact until around 2050. A transition to hydrogen-powered aircraft will require new infrastructure for fuel storage, handling, and refuelling – and the development of expertise in safely handling hydrogen for ground crew and maintenance personnel.[49]

Training must evolve to support the shift to electric propulsion systems

Electric aircraft will play a role in reducing aviation emissions. These aircraft will be used for commuter and some regional flights as the energy density of batteries improves.[50] However, these short-haul flights account for only 3-4% of industry emissions.

Electric propulsion systems differ significantly from traditional jet engines, requiring new skills for maintenance and operation.[51] Identifying the skills needed for these new technologies is a crucial task.

ISA survey results indicate that the transition to electric propulsion systems necessitates the aviation workforce to acquire new technical skills. This requirement extends beyond pilots to include maintenance personnel and ground crew, who will need training in electric propulsion systems, battery management, and system diagnostics.

Consequently, it is essential to design specialised training or collaborate with industry groups to develop certification courses that address the unique skills required for electric aviation technologies

Sustainable Aviation Fuel (SAF) is the most immediate solution for reducing Aviation emissions

SAFs will be the most significant contributor to Aviation industry decarbonisation. They are safe, technically feasible and compatible with current aircraft and infrastructure. The International Air Transport Association (IATA) estimates that SAF will provide 65% of the emissions reductions needed for the aviation industry to reach net zero by 2050.[52]

SAF can be used in existing aircraft with minimal modifications, but its production, certification, and integration into current supply chains requires specialised knowledge and skills. Technicians and engineers must be trained in handling, testing, and maintaining aircraft systems that use SAF, ensuring compatibility and safety standards are met.

Future Consultation:
• Sustainable Aviation Fuels (SAF) and Alternative Fuels

45 Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2023). Scenario Analysis of the Future of Australian Aviation
46 Australian Government. (2023). Aviation Green Paper Towards 2050
47 McKinsey. (2024). How the aviation industry could help scale sustainable fuel production
48 Qantas Group. (2022). Qantas group - climate action plan

49 Airports Council International. (2025). Concept of Operations of Battery and Hydrogen-Powered Aircraft at Aerodromes
50 Hamilton Locke. (2024). Decarbonising aviation: The flight plan to a low carbon future
51 European Commission's Directorate-General. (2023). Alliance for zero-emission aviation – Progress report
52 Qantas Group. (2023). Developing a SAF industry to decarbonise Australian aviation.

G. New skills are needed for emerging technologies

The aviation sector is experiencing significant technological advancements, particularly with the advent of Advanced Air Mobility (AAM) and the evolving use of Remotely Piloted Aircraft Systems (RPAS).[53] Reflecting this shift, the number of Remote Pilot Licence (RePL) holders has more than doubled over the past five years, rising from 14,940 in 2019 to 37,441 in 2024 (**Figure 7**). The impact of these innovations is expanding rapidly, encompassing applications ranging from agricultural monitoring to complex infrastructure inspections. Their widespread uptake for multiple applications is set to revolutionise the Aviation industry, necessitating new skills and competencies that are not yet fully identified.

Figure 7: Remote Pilot Licence Holders Over Time

Source: CASA, RPAS and AAM Strategic Regulatory Roadmap, 2024
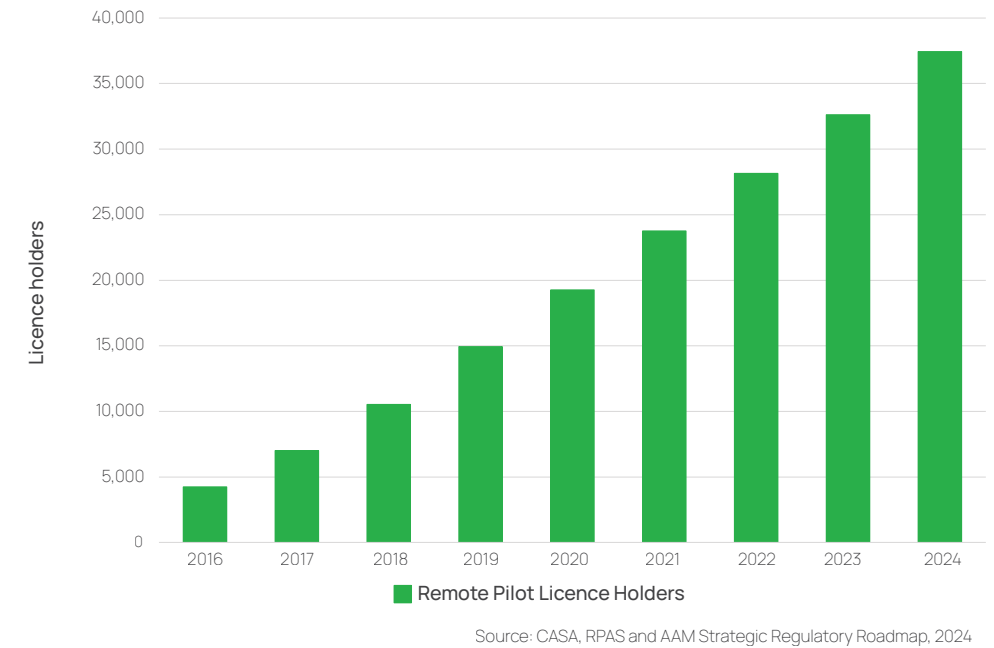
Uncrewed technologies are reshaping the skills needed in the Aviation industry

Operating AAM and RPAS in complex environments demands advanced technical skills and a deep understanding of the regulatory landscape. However, the exact skills needed to effectively manage and operate AAM are still being defined, posing a significant challenge for workforce development. As AAM is an emerging technology, the industry needs to conduct a comprehensive skills analysis to identify training needs, pathways and how to prepare the workforce for the successful integration of AAM. Nationally recognised competency standards will be required for AAM operations, maintenance, and safety in alignment with CASA regulations and evolving Uncrewed Traffic Management (UTM) frameworks. As AAM technologies advance, the absence of standardised training through accredited qualifications will present a challenge for current professionals transitioning into new roles and for new recruits entering the sector. A systematic analysis of skills requirements is needed to identify current and emerging AAM roles and training needs including operational as well as manufacturing and design components of AAM technologies in collaboration with the industry and training providers in both VET and Higher Education sector. This has been corroborated by both ISA survey results.

CASA has developed the RPAS and AAM Strategic Regulatory Roadmap which aims to integrate emerging aviation technologies and systems into Australia's airspace and civil regulatory framework safely and efficiently. The roadmap identifies medium-term activities to review and implement standard training and licensing requirements for people involved in RPAS and AAM to ensure they have the right skills and knowledge to operate these systems safely and efficiently.[54] As drones have a wide range of applications in different industries and sectors, the qualifications and training need to be fit for purpose to cater for specific drone applications. The VET sector is ideal for providing such training in a time and cost-efficient way.

In December 2024, the Australian Government released an Uncrewed Traffic Management Action Plan that focuses on safely integrating drones and other uncrewed aerial systems into national airspace.[55] It aims to establish a robust framework for efficient operations, enhanced safety, supporting innovation, and fostering economic growth, ensuring alignment with global standards for advanced air mobility. National policy, standards and regulatory requirements that arise from the implementation of the Action Plan will influence and inform the training and licencing solutions that are needed by this emerging sector in future.

THE NUMBER OF REMOTE PILOT LICENCE HOLDERS IS

growing rapidly

enhance safety and efficiency in uncrewed Aviation

In Australia, the current licensing system for uncrewed systems is not tiered when compared to crewed systems. The Remote Pilot License (RePL) is the primary certification available. While RePL is considered satisfactory, the industry has called for a more robust tiered competency framework for those operating more complex drones in challenging environments. This has potential to impact safety and operational efficiency.

With a tiered competency approach for RPAS, the industry can have a better understanding of the level of skills and knowledge required for RPAS systems based on their categories. This will also enable the industry to develop career pathways where additional training will lead to a higher-level licensing and better career progression. ISA survey respondents confirmed the need for a review of the RPAS competency requirements for improved safety outcomes, enhanced regulatory efficiency, increased accessibility, and ensure relevance to industry use cases. CASA has developed a detailed work plan to keep standards current over the period next decade, and the work already underway by CASA in close collaboration with industry to improve the RePL.

Artificial intelligence is reshaping Aviation with smarter operations, security and passenger experiences

The Australian Government's Aviation White Paper recognises that, when implemented responsibly, artificial intelligence (AI) has potential to deliver positive outcomes for the Aviation industry and consumers.[56] The integration of AI into aircraft and aviation systems can improve safety and efficiency. AI also has the potential to transform airport operations by streamlining baggage handling and security screening, resulting in a better experience for passengers with optimised queues, reduced wait times and strengthened security.[57]

The operation of these systems, especially in complex environments, demands advanced technical skills and a deep understanding of the regulatory landscape.

Proposed Action
- Digital Skills

Future Consultation:
- Advanced Air Mobility
- RPAS Tiered Competency Requirements

A tiered RPAS competency approach can

53   CASA. (2024). RPAS and AAM strategic regulatory roadmap

54   CASA. (2024). RPAS and AAM strategic regulatory roadmap.

55   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Uncrewed Aircraft Systems (UAS) Traffic Management (UTM)

56   Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts. (2024). Aviation White Paper – Towards 2050

57   International Airport Review. (2024). Baggage trends shaping the aviation industry

H. Vocational training is critical for Australia's growing Space industry

Australia's strategic location, highly skilled workforce, and world-class research facilities position the nation to leverage a rapidly expanding space sector—growing at an estimated 6% each year to 2030 (**Figure 8**). The Australian geography provides opportunity for rocket and satellite launches, operating ground stations for spacecraft communication and tracking, and remote sensing capabilities for earth observation.[58]

Figure 8: Employment growth in Satellite Communications and Astronautics

Source: IBISWorld 2024, Industry Wizard, Satellite Communications and Astronautics in Australia

THE NUMBER OF SPACE INDUSTRY WORKERS IS

forecast to grow

The Australian space industry is attracting an increasing number of companies that are developing and implementing cutting-edge technologies and services for space logistics. In 2024, the Australian Government issued the first ever Australian launch permit for a commercial orbital rocket that will be launched from Abbot Point, Queensland in 2025.[59]

The logistical and licensing challenges overcome by launch vehicle startup, Gilmour Space,[60] to progress their launch project demonstrates the potential for growth in this sector, and the need to develop a skilled workforce. However, there are currently no nationally recognised qualifications or specific industry training options available for emerging space industry roles.

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58   International Space Exploration Coordination Group. (2024). Global exploration roadmap
59   Australian Space Agency. (2024). First Australian commercial orbital launch permit issued
60   Space News. (2024). Gilmour Space secures license for first orbital launch

Clear vocational pathways can strengthen career opportunities in Space transport and logistics

As the industry expands, Australia's expertise will remain central to its progress. However, the specific skills and roles required in air and space transport are yet to be fully defined. To address this, ISA has recently undertaken a Space Transport and Logistics Skills Gap Analysis. The research has indicated that since space transport is a burgeoning industry, the specific nature of emerging jobs is yet to be fully known. However, there are specific areas where the vocational sector can help with future skilling the workforce by either developing new skills or contextualising the existing ones to cater for the space transport industry. These areas include inventory maintenance particularly for dangerous, sensitive or restricted goods; handling, storage, packaging and transporting of space-related goods; knowledge of the requirements and regulations around imports and exports of space items; and the commercial and security constraints related to returns, repairs and recycling space-related goods.

There is no training currently available within Australia that provides nationally recognised qualifications to enable practical skills development and the job-readiness needed for current and anticipated roles within the space industry. Developing nationally accredited training that can be delivered via schools or training organisations can be a significant step in recruiting the future workforce. The ISA stakeholder survey confirmed that incorporating space-related training into existing aviation training pathways and qualifications will be a positive step forward.

Actions Complete or Underway:
• Air and Space Skills Gap Analysis

Future Consultation:
• Space Transport Qualification

I. Recruitment and funding challenges for General Aviation (GA)

General Aviation (GA) in Australia is a vital component of the country's aviation ecosystem and plays an important role in supporting other industries and the dispersed Australian community.[61] GA encompasses a broad range of activities, including flight training, agricultural aviation, emergency medical services, aerial surveying, and recreational flying. The sector is pivotal in disaster relief efforts, offering rapid response capabilities during emergencies such as bushfires and floods.[62] This diversity underscores its importance in enhancing connectivity, especially in remote and regional areas where commercial airlines may not operate. However, GA in Australia faces significant challenges, particularly in terms of funding, skill development, and attraction and retention of the workforce.[63] Misconceptions about life in regional areas hinder the recruitment of qualified staff. Additionally, funding fleet replacement is challenging, and airport operating costs have increased significantly in the past year, making it difficult to maintain affordable pricing. Establishing a resource for career advisors and students to understand available industry careers could help address these issues. ISA stakeholder survey respondents suggested that general aviation careers require high visibility and targeted advertising to attract new pilots.

Limited amenities and high living costs hinder regional workforce retention

Recruiting and attracting personnel to regional and remote areas presents a significant challenge for GA. While there is growing demand for pilots, engineers and maintenance technicians in regional and remote areas, detracting factors such as limited housing availability, higher living costs, restricted access to essential services, and fewer lifestyle options make it difficult to draw workers to these areas.[64] ISA stakeholder survey responses suggested that providing subsidies can help attract more regional workers to these areas.

Funding challenges undermine the safety and growth of regional airports

Many regional airports, which are the backbone of GA operations, struggle with inadequate funding. This reduces their attractiveness as employment options and hampers their ability to maintain and upgrade infrastructure, impacting the safety and efficiency of operations. Addressing the deterrents of regional living will be essential for securing the skilled workforce needed to maintain efficient and sustainable aviation operations in these locations.

Better alignment between VET and CASA licensing and defined career pathways are vital for General Aviation growth

Aligning VET qualifications with CASA licensing is important to the sustainability of the general aviation sector. The General Aviation Strategy 2024[65] notes that there have been encouraging recent developments in this area with CASA's modular licensing proposal. However, industry stakeholders remain concerned that progress has not being made as rapidly as the sector requires to meet pressing workforce needs.[66]

Advanced Air Mobility requires targeted programs to support workforce readiness

AAM and other new technologies have profound implications for the skills and workforce within the General Aviation sector. The regional and remote routes are logical targets for the initial introduction and testing of new aviation technologies. AAM requires targeted programs to support the workforce and benefit General Aviation and regional areas in Australia.

Table 2: Strategic Initiatives of the General Aviation Strategy 2024

1	Training Pathways for Critical Skills
2	Airport and Infrastructure Facilities
3	General Aviation Sector Economic Review
4	Building on CASA's General Aviation Workplan and Program of Improvement
5	Airspace for General Aviation Operations
6	Reposition for New Technologies, Design and Manufacturing

Proposed Actions

The 2025 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

Ground Operations Skills Analysis		
Labour Market Dynamics	**Proposed Action/Strategy**	**Key Stakeholders**
Driver/Challenge: E. Qualifications need better alignment with industry needs and regulations **Symptom** • Skills shortage	**Activity:** To identify current ground operations industry practices, job role tasks and responsibilities, including the use of new and emerging technologies, and existing gaps to determine how vocational qualifications can be revised to encompass current and future skills needs. **Components:** Research and consultation with key stakeholders, including employers and training providers, focusing on identifying key tasks and responsibilities for each ground operations job role and review the suitability of the national qualifications. The research will also determine if new Units of Competencies or Skill Sets will need to be developed to accommodate new and emerging skills. **Impact:** This project will determine how to align the qualifications with current industry practices and to boost their industry recognition and help build pathways into closely affiliated roles to improve job mobility. **Anticipated timing:** July 2025 – June 2026	• CASA • Major airlines and airports • Registered Training Organisations • Industry enterprises • Industry peak bodies/associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

61 General Aviation Advisory Network. (2023). General Aviation Strategy 2024

62 Australian Aviation. (2025). MAF's vital role in Arnhem Land: Providing lifesaving services and supporting education

63 General Aviation Advisory Network. (2023). General Aviation Strategy 2024

64 National Housing Supply and Affordability Council. (2024). State of housing system

65 General Aviation Advisory Network. (2023). General Aviation Strategy 2024. Pg. 20

66 General Aviation Advisory Network. (2023). Submission to Terms of Reference, Aviation White Paper

Digital Skills

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders

Key challenge/driver
G. New skills are needed for emerging technologies
 	
Symptom:
Skills shortage
	Activity:
	Using DigComp 2.2 as the Digital Framework to review digital skills for a selected number of occupations in our industries.
	
	Components:
	• Develop a Digital Occupational Profile (DOP) template based on DigComp 2.2 to assist in identifying the digital skills found within our industries occupations .
	• Use the DOP template to undertake a review of selected occupations
	  ○ Coordinate working groups of industry experts to review selected occupations within our industries to identify digital skills using the DOP.
	  ○ Coordinate a review across our training packages with respect to the impact of digital transformation using information from the European Skills, Competences and Occupations (ESCO) to compare to the Australian Digital Skills identified from the completed DOPs.
	
	Impact:
	• Identify how digital technology developments, are likely to change the profile of skills in demand .
	• Identify where future-focussed upskilling and reskilling pathways need to be established and opportunities for establishing them.
	• Outcomes can be used to inform training product design, training delivery and support a systematic approach to the analysis of skills supply and demand.
	• Identify where there is a case for specific training package development of qualifications, skill sets and units of competency that responds to changes in skills profiles and job roles driven by digital technology developments.
	  ○ Training qualifications and units that facilitate improved training and assessment of transferrable digital skills that match industry requirements .
	  ○ Impact of training product development/maintenance work provides maximum benefit for industry, whilst minimising the impact of training product churn for RTOs.
	
	Timing:
	2025 - 2027
		• JSCs
		• Registered Training Organisations
		• Industry enterprises
		• Industry peak bodies/ associations
		• Industry unions
		• State/territory training authorities
		• State/territory industry advisory bodies

Actions Complete or Underway

The following provides an update on ongoing actions aimed at addressing the challenges identified in the 2024 Workforce Plan, many of which remain relevant in 2025.

Air and Space Skills Gap Analysis

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: H. Vocational training is critical for Australia's growing Space industry **Symptom** Skills shortage	**Summary:** To understand existing and emerging roles and skills needs in the Space Transport and Logistics industry and identify gaps in current VET training products. **Impact:** The project report has recommended skill needs to inform this emerging market. For further details visit the ISA Website.	• 58 organisations involved in Space Transport and Logistics along with 56 contacts in the Higher Education sector were approached for interview.

Aviation Rescue

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** Review existing qualifications for search and rescue to enhance their usability across adjacent sectors including emergency services using fixed wing aircraft. **Impact:** Updated training qualifications and units of competency to support greater training applicability across multiple sectors for fixed wing and rotary aircraft. For further details visit the ISA Website.	• CASA • Registered Training Organisations • Industry enterprises • Industry peak bodies/ associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Cabin Crew Skills Recognition

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** The project will review the skill needs of cabin crew across airlines. It will investigate the barriers to industry recognition of the Certificate III in Aviation (Cabin Crew). **Impact:** By identifying the barriers that prevent industry from using the qualifications and making changes to the qualifications the project can benefit both the industry and individuals pursuing vocational qualifications, reducing costs and facilitating smoother transitions between airlines. For further details visit the ISA Website.	• CASA • Registered Training Organisations • Industry enterprises • Industry peak bodies/ associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Defence Flight Instructor

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** Identify and bridge recognition gaps between military and civilian aviation training standards. This project involves collaboration between CASA, the Defence Aviation Safety Authority (DASA), and industry stakeholders and will support the Aviation industry's capacity to meet growing demand for skilled pilots. **Impact:** Streamlining the transition process to ensure that the expertise of defence flight instructors can be effectively integrated into civilian aviation. For further details visit the ISA Website.	• CASA • Defence Aviation Safety Authority • Defence • Registered Training Organisations • Industry enterprises • Industry peak bodies/associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Diploma of Aviation (Flight Instructor) Review

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** The flight training industry faces significant challenges due to a shortage of instructors and trainers, particularly experienced staff such as senior instructors and flight examiners. The project will review and update the qualification to include current industry practices and better align it with Civil Aviation Safety Authority (CASA) licensing requirements. **Impact:** Closer alignment with the CASA's licencing, standards, and resources will enable consistency in training outcomes and reduce costs for learners. For further details visit the ISA Website.	• CASA • Registered Training Organisations • Industry enterprises • Industry peak bodies/associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Improving Careers Information

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: A. Key Aviation roles face ongoing shortages **Symptom** Under attractive occupation	**Summary:** To address attraction and retention challenges in the Aviation industry, this initiative develops a comprehensive repository of career information on specific occupations. **Impact:** • Combat negative industry perceptions and misconceptions about available roles. • Informed students with a comprehensive list of qualifications and training programs available for each role including higher education qualifications and training programs. For further details visit the ISA Website.	• Aviation Strategic Workforce Planning Committee • CASA • State and territory licensing authorities • ITABs/Advisory Bodies • Registered Training Organisations • Industry enterprises • Industry peak bodies/associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Remote Pilot Licence (RePL) Alignment

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** Align the Certificate III in Aviation (Remote Pilot) with the Civil Aviation Safety Authority's (CASA) Remote Pilot Licence. **Impact:** Enhance industry recognition of the Certificate III qualification by ensuring it supports training for skilled and compliant drone operators. For further details visit the ISA Website.	• CASA • Registered Training Organisations • Industry enterprises • Industry peak bodies/associations • Industry unions • State/territory training authorities • State/territory industry advisory bodies

Transport Security Protection

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: E. Qualifications need better alignment with industry needs and regulations **Symptom** Skills shortage	**Summary:** Update the Certificate II in Transport Security Protection (TSP) to align it with regulatory changes, the latest technologies and current industry practices. **Impact:** Fit for purpose qualifications to support better alignment to industry need. For further details visit the ISA Website.	• Civil Aviation Safety Authority • Aviation Enterprises • Industry Associations • Unions • RTOs

VET Workforce Project

Labour Market Dynamics	Project Details	Key Stakeholders
Challenge/Driver: B. National coordination is essential to build Australia's Aviation workforce **Symptom** Skills shortage	**Summary:** The VET Workforce Project is a Commonwealth funded initiative being led by the ten Job and Skills Councils with the aim to build and support a secure and sustainable VET workforce. The Australian Government, in collaboration with Jobs and Skills Australia has developed a VET Workforce Blueprint (the Blueprint) to support a high quality and sustainable workforce. The VET Workforce Blueprint has been developed in collaboration with states and territories to provide a roadmap to grow, support and sustain the VET workforce. To continue and further support the work VET Workforce Blueprint, Industry Skills Australia is undertaking a project that will concentrate on vocational education providers in the transport sectors (Aviation, Maritime, Rail and Transport and Logistics) to complement and contribute to the opportunities and actions included in the Blueprint. **Impact:** ISA will deliver a workforce study comprising the following components: • Understanding the VET Workforce • VET workforce roles and needs • VET workforce pathways and pipelines • Future and emerging VET Workforce Issues For further details visit the ISA Website.	• Registered training organisations • Training regulators • Australian Education Union • State/territory training authorities • State/territory industry advisory bodies • Industry enterprises • Industry peak bodies/associations • Jobs and Skills Australia • Department of Employment and Workplace Relations

Timeline of Activities

2024   2025   2026   2027

Proposed Action   Action Underway   Completed Action
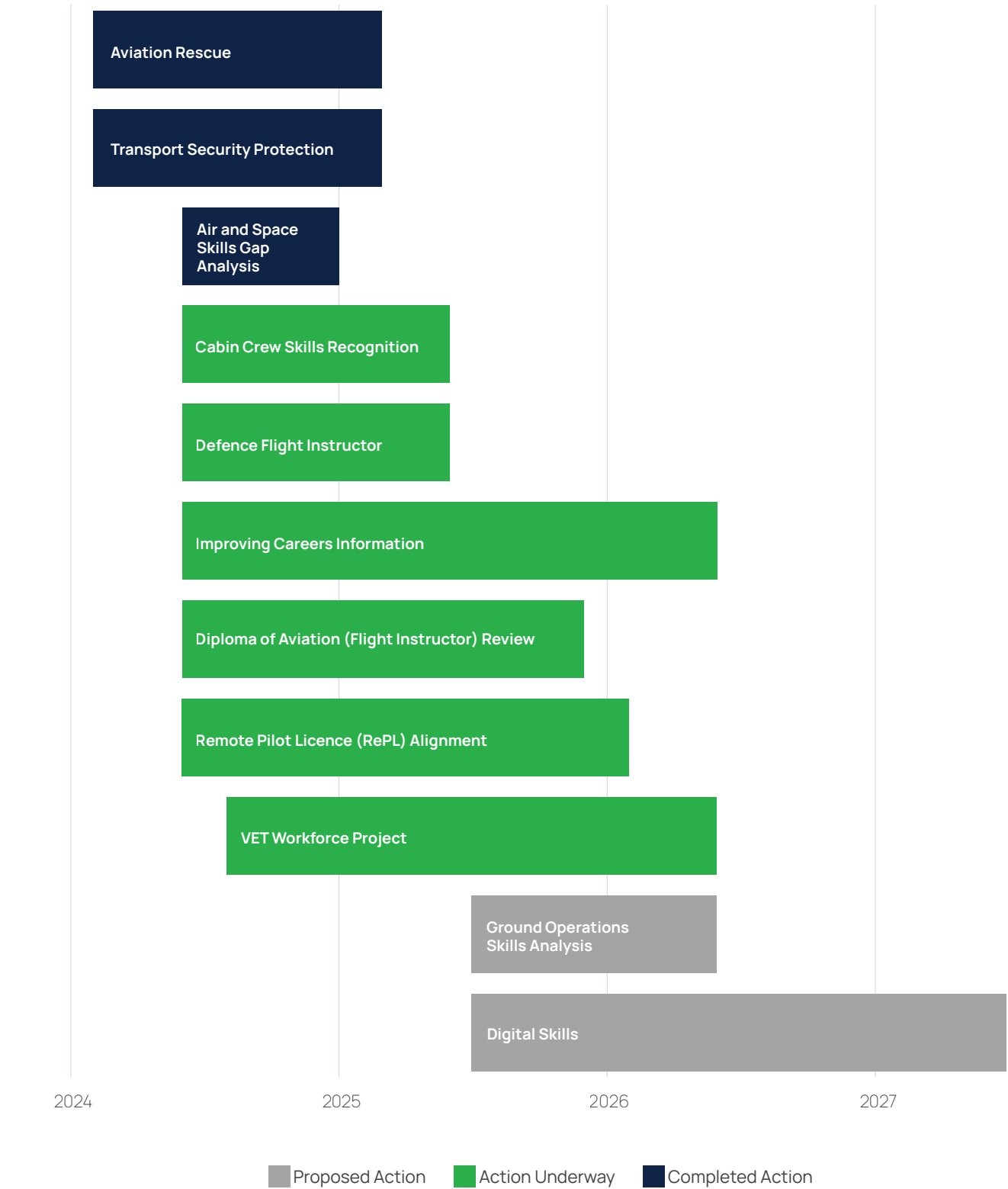
Future Consultation

Additional engagement 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 2025:

A. Key Aviation roles face ongoing shortages

Promotion of Aviation Industry

ISA will explore effective ways to promote the industry and highlight the professional nature of work and the current and future career opportunities in the industry. A key focus will be raising awareness among school children to create motivation and encourage students to consider careers in the aviation industry, especially via VET pathways which provide a cheaper and faster opportunity to becoming a pilot. This can also include establishing partnership between industry and schools to promote aviation industry and career guidance programs.

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. Addressing the critical skills shortages in the aviation industry, especially in maintenance and engineering roles, will require a more robust approach to skilled immigration.

Support for LAMEs Self-study Pathway

The Industry Skills Alliance will consult with the aviation industry and the Manufacturing Industry Skills Alliance to determine how best self-study LAMEs can be supported through their journey to ensure their success. As a part of this consultation, ISA aims to better understand the type of support, materials, and training products required to aid self-study candidates in their certification journey.

B. National coordination is essential to build Australia's Aviation workforce

National Coordination of Training

ISA will consult with the industry to determine the best approach for a nationally coordinated approach to training and skills development in the aviation industry. This is aimed at advancing the Australian aviation industry through cutting-edge research, training, education, and mentoring initiatives to foster collaboration among employers, training providers, and key stakeholders.

C. Diversity imbalance hinders industry growth

Diversity and Inclusion

Industry Skills Australia will actively engage with aviation industry stakeholders to thoroughly identify underrepresented cohorts. ISA will consult with stakeholders involved in initiatives such as Women in the Aviation Industry Initiative to leverage the existing activities or propose new ones. The Australian Federation of Air Pilots (AFAP) and the Australian and International Pilots Association (AIPA) are key stakeholders to engage with in this regard. Diversity is important across all the industry and not only a few select occupations. Through extensive consultations, ISA aims to gain valuable insights into diversity challenges faced by the industry in different occupations and existing barriers to entry for underrepresented groups. ISA will also highlight and investigate the role of employers in investing in their workforce development and increasing diversity.

D. High cost of training is a major barrier

Commercial Pilot Apprenticeship

ISA will consult with the industry to explore the need for the establishment of a national pilot apprenticeship program. This will involve research and consultations with peak industry associations, unions, and state ITABs to assess the feasibility of this initiative and define its key elements. Aligned with the Aviation White Paper's policy direction, this initiative encourages large employers to recruit and train pilots, fostering workforce growth and skill development.

E. Qualifications need better alignment with industry needs and regulations

Diploma of Aviation (Commercial Pilot Licence)

ISA will consult with the industry to determine the best way to align the Diploma of Aviation (Commercial Pilot Licence - CPL) with CASA's CPL, creating a streamlined pathway between vocational qualifications and industry licensing requirements. In line with the Aviation White Paper's recommendations, the initiative ensures that aviation training meets national regulatory standards, fostering workforce readiness and consistency.

ISA will consult with the industry to explore the necessity and feasibility of aligning the Diploma of Aviation (CPL) with CASA licensing requirements.

F. Decarbonisation efforts demand new skills

Sustainable Aviation Fuels (SAF) and Alternative Fuels

Through a proactive approach, ISA will undertake further consultation with targeted stakeholders to comprehensively grasp the nature of the changes and the skills required by the implementation of SAF and alternative fuels. ISA aims to propose targeted strategies that equip the workforce with the necessary skills to work safely with SAF and alternative fuels.

G. New skills are needed for emerging technologies

Advanced Air Mobility

ISA will conduct further consultation and collaboration efforts with the aviation sector, focused particularly on the transformative changes introduced by Advanced Air Mobility. ISA seeks to comprehensively understand the dynamic nature of these developments including design and manufacturing components of AAA. Recognising that such innovations bring forth unique workforce challenges, we aim to identify the precise skills required by this evolving landscape. ISA will also investigate and consult with stakeholders including higher education sector to assess the best way to identify AAM required skills and knowledge needs through a systematic Skills Analysis project.

RPAS Tiered Competency Requirements

ISA will continue to consult with the industry to explore the benefits of having a tiered approach to RPAS competency requirements. The current competency requirements do not cover the complexity of new systems and the tasks that can be performed by them. Having a more robust competency framework allows for better identification of the required skills and training and can also provide a clear pathway for new entrants. While the current RePL is satisfactory enough, CASA has plans to improve current standards in close collaboration with industry continuously over the next decade. ISA will consult with CASA and other relevant stakeholders including the higher education sector to assess how best the industry can propose a robust framework to CASA for consideration. This will support industry growth and ensuring regulatory alignment with evolving operational needs.

H. Vocational training is critical for Australia's growing Space industry

Space Transport Qualification

ISA will consult with the industry to determine the need for a space-related qualification. The purpose is to establish a nationally accredited qualification for the space transport sector in collaboration with the Manufacturing Industry Skills Alliance or other relevant Joint Skills Committees (JSCs). ISA will engage in research and consultations with key space industry stakeholders to determine the qualification's content and appropriate level, ensuring it meets sector-specific needs. This initiative helps address workforce requirements, supports emerging technologies, and strengthens Australia's role in the global space transport industry.

Megatrends

Megatrends are overarching, transformative shifts that impact the economy, workforce, and global environments. These trends shape the future landscape of industries, influencing business operations, innovation, and strategic planning. Four key megatrends have been identified as having profound impacts and driving long-term changes across the Aviation, Maritime, Rail and Transport and Logistics industries.

Occupational and workforce shortages

Workforce shortages are a critical megatrend affecting all areas of the Transport Supply Chain, disrupting operations and limiting business growth. The Aviation, Maritime, Rail and Road Transport industries are struggling to attract and retain skilled workers. This growing challenge is driven by an aging workforce, changing job expectations and increased competition from other industries. To address this, there must be a strong focus on raising awareness about the wide range of careers available, from technical and operational roles to digital and managerial positions. Developing clear, accessible career pathways and training programs is essential to boost attraction, support retention and future-proof the industry workforce.

Automation and new technologies

Automation and new technologies are rapidly reshaping the Transport Supply Chain, enhancing operational efficiency and safety. Key developments include the rapid growth in autonomous vehicles, drones and automated port and warehouse operations. Artificial intelligence (AI) is increasingly used to optimise operations, improve maintenance planning and manage complex supply chains. The growing reliance on digital platforms and connected devices, from real-time tracking systems to cloud-based logistics management tools, is transforming day-to-day operations. As a result, there is strong demand for building the digital skills capability of the workforce, including in the use of new technologies, data analytics and cyber security. This megatrend is fundamentally redefining roles, workflows and the capabilities needed.

Diversity

Diversity is an emerging megatrend across the Transport Supply Chain, with increasing efforts to build more inclusive and representative workforces. Many parts of the industry have historically attracted limited segments of the population, resulting in a narrow talent pool. By actively promoting diversity and inclusion, the industry can open employment and career opportunities to a broader range of people, helping to address long-term workforce shortages. Inclusive hiring practices, workplace culture improvements and targeted outreach programs are essential to attract new talent and create environments where all individuals can thrive. Embracing diversity strengthens innovation, resilience and the overall sustainability of the Transport Supply Chain.

Sustainability

Sustainability is a major megatrend transforming the Transport Supply Chain, driven by the need to reduce environmental impact and meet global climate goals. The shift toward alternative and environmentally friendly fuels, such as hydrogen and biofuels, is gaining momentum. There is also increased adoption of electric and autonomous vehicles and vessels, battery-powered equipment, and low-emission aircraft. These technologies not only lower carbon emissions but also improve energy efficiency. The successful implementation of these innovations requires significant upskilling across the workforce to ensure compliance with evolving regulations and to safely operate, maintain and handle new systems, machinery and fuels. Sustainability is reshaping industry standards, operations and workforce capabilities for the long term.

Approach to Consultation

The Transport Supply Chain industries are extremely diverse, comprising businesses ranging from complex national and global companies through to small one and two person businesses. Over 99% of enterprises within our coverage are small businesses.[67]

Our consultation approach is aligned with the needs of stakeholders, ensuring their voices are heard and their concerns meaningfully reflected in the Workforce Plan. Through rigorous engagement using diverse methods and platforms, we gather valuable insights that inform actionable strategies and effective responses to workforce drivers and challenges.

This inclusive process not only strengthens the quality of this Workforce Plan, but also ensures it delivers tangible benefits to our stakeholders. By embedding stakeholder input at every stage, we foster shared ownership and build workforce solutions that are both relevant and impactful.

The following key elements highlight some of the engagement mechanisms used in the development of this Workforce Plan, demonstrating our commitment to transparency, collaboration and continuous improvement.

Strategic Workforce Planning Committees

The Strategic Workforce Planning Committees consist of senior industry leaders from across Australia's Transport Supply Chain industries - Aviation, Maritime, Rail, Transport and Logistics. Each Committee leads the development of their respective national Workforce Plan, with the goal of building a world class Transport Supply Chain workforce. Their focus is on identifying workforce challenges, emerging skills needs, and the responses needed from industry, government, and the national skills system.

Industry Advisory Council

The Industry Advisory Council (IAC) is a high-level, tripartite mechanism that brings together a range of industries with the single goal of building a resilient and agile supply chain workforce. Made up of senior supply chain executives and industry leaders from a range of sectors and organisations, it operates as a dynamic advisory mechanism to the Board and SWPCs by providing world-class business intelligence and strategic insights from across the economy.

The IAC provides advice on cutting-edge trends in technology adoption and automation; immediate and emerging skills and workforce development priorities; opportunities for cross-industry collaboration and solutions; and responses required by the national skills system, industry and governments.

Technology Futures Taskforce

The Technology Futures Taskforce (TFT), established by ISA, comprises experts in the innovation and technology sector, specialising in supply chain technologies. Its activities are focused on identification of technologies likely to automate skills and job roles and trigger structural change in the workforce.

The TFT is an advisory mechanism to the Board and SWPCs by providing intelligence and insights on technology impacts for our sectors.

Supply Chain Leaders' Summit

Our 2024 Supply Chain Leaders' Summit brought over 150 participants to Parliament House, including industry leaders, union representatives, parliamentarians and government officials, to explore the current and future workforce planning and development challenges facing Australia's Transport Supply Chain industries.

With many critical issues common across Aviation, Maritime, Rail, Transport and Logistics, this event provided valuable input into our activities and workforce plans.

Industry engagement

Diverse stakeholder views and insights are captured through extensive engagement activities to keep people involved and informed. These include industry roundtables, presentations and participation at industry conferences and events, enterprise site visits, one-on-one meetings, webinars, website updates, monthly e-newsletters and social media.

Cross JSC engagement

Cross JSC collaboration is a proactive and ongoing effort to address shared workforce planning and skills development priorities. This includes open consultation and coordination when workforce planning strategies may impact the scope of work or stakeholders of another Jobs and Skills Council.

Roundtables

The metropolitan and regional roundtables offer a unique opportunity to gather firsthand insights from a diverse array of stakeholders. These include employers, key Transport Supply Chain stakeholders, local Chambers of Commerce, Regional Development Australia and Local Jobs and Skills organisations.

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67   Australian Bureau of Statistics. (2024, August 27). Counts of Australian businesses, including entries and exits, July 2020 - June 2024

Key Stakeholder Groups

INDUSTRY
- Enterprises
- Unions
- Industry associations
- Innovation sector
- Industry peaks
- Occupational licensing/ regulatory bodies
- Professional bodies

INDIVIDUALS
- Existing workers
- Apprentices/trainees
- Learners
- Job seekers

VET SYSTEM
- Registered Training Organisations
- Individual VET practitioners
- Jobs and Skills Councils
- Industry Training Advisory Bodies
- VET Regulators
- Training Product Assurance Body

SCHOOLS SECTOR
- Secondary schools
- Individual teachers
- Secondary education authorities
- Careers associations

HIGHER ED.
- Universities

GOVERNMENTS
- Department of Employment and Workplace Relations
- Jobs and Skills Australia
- National Careers Institute
- National Centre for Vocational Education Research (NCVER)
- Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts
- Regional Australia Institute
- Regional Development Australia
- State Training Authorities
- National Transport Commission

Engagement Coverage

Roundtables

Roundtables are one of the mechanisms used by ISA to actively consult and engage with industry at a grassroots level across Australia. It is important that Australia's metropolitan, rural, regional and remote voices are heard to ensure that all industry challenges and opportunities are identified and reflected in the Workforce Plan. Roundtables enable the training system to better understand and anticipate the shifting skill needs of Australia's supply chains and shape meaningful responses that work at the local level. This, in turn, assists the overall capability of the training system to meet industry's needs. Other methods of engagement include, conference events and presentations, newsletters, articles in industry publications, social media, meetings (both face-face and virtual) and enterprise site visits.

ISA conducted 17 Roundtables in prominent metropolitan and regional transport & logistics hubs throughout Australia, bringing together key stakeholders from industry, Government departments, unions, training providers and employment service providers. Each roundtable provided intelligence about workforce priorities, key blockages, and potential high-impact solutions unique to their respective region, as well as the many challenges and opportunities common across all areas.

Stakeholder feedback:
The main challenge overall is attraction and retention of workers, not only to industry, but also to some regions. Common themes identified included:

1. Workforce attraction and retention
- Workforce shortages, competition for workers, ageing workforce and low wages
- Careers are often shaped by personal preferences and societal influences (family, peers, advice)
- Poor perception vs. reality of particular jobs and industries
- Younger generations have different expectations (e.g., flexibility) and COVID-19 changed workplace expectations
- Regional, cultural and personal circumstances affect workforce participation
- Seasonal work limits year-round stability and attraction
- Career transition challenges and low visibility of occupational mobility
- Lack of national career promotions and visibility of career pathways and job mobility options
- Poor retention rates due to multiple external and internal factors.

2. Skills development and job readiness
- Disconnect between qualifications and graduate outcomes with job-readiness and industry needs
- High cost of training for employers and students
- Limited training options in regional/remote areas
- Outdated or rigid training models that lack innovation and flexibility
- Shortage of trainers and assessors and inadequate use of Subject Matter Experts (SMEs) in training delivery, especially in regional areas
- Emerging technologies drive new skill requirements and job transitions
- Lack of funding /subsidies for specific qualifications.

3. Migration and skilled labour access
- Complex, lengthy and costly skilled migration processes
- Overseas qualifications and experience often don't align with local standards
- Quality and safety concerns with recognising foreign credentials
- Skilled migration could fill gaps in the short term, but current system poses significant barriers.

The following challenges are common across some regions, not all, that will require unique, local and targeted responses:
- Lengthy training time to have work-ready staff
- Access to community/social services such as childcare and housing availability
- Access to public and affordable transport
- Crime is impacting industry significantly in some regions, including ability to attract workforce or to gain required employment checks
- Internet connectivity.

Solutions and opportunities
- Increase usage of group training or labour hire organisations to assist with developing a 'job ready workforce'
- Working with local migrant and First Nations communities and support services
- Increase visibility and promotion of career pathways across supply chain industries
- Encourage investment in employee upskilling and development
- Offer financial support or subsidies for workforce training and education
- Introduce more flexible and innovative delivery models
- Include occupations experiencing shortages on the Australian Apprenticeship Priority List.

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 to 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 Aviation 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.

MAPPING KEY:

A - Key Aviation roles face ongoing shortages	**B** - National coordination is essential to build Australia's Aviation workforce	**C** - Diversity imbalance hinders industry growth
D - High cost of training is a major barrier	**E** - Qualifications need better alignment with industry needs and regulations	**F** - Decarbonisation efforts demand new skills
G - New skills are needed for emerging technologies	**H** - Vocational training is critical for Australia's growing Space industry	**I** - Recruitment and funding challenges for General Aviation (GA)

Title	Mapping	Description	How it will impact/inform the WFP
Aviation White Paper	A, B, C, D, E, F, G, I	The White Paper sets the long-term policies to guide the next generation of growth and innovation in the aviation sector. The focus is on: • initiatives to help the aviation sector decarbonise • streamlining training and accreditation pathways for LAMEs, including modular licensing, recognition of overseas licences and improving alignment between CASA licensing and VET qualifications • setting expectations for large Australian airlines to train and employ newly qualified pilots rather than relying solely on recruiting experienced pilots from other aviation businesses • establishing a new Gender Equity Charter that commits to employment targets for women in senior and operational roles and eliminates gender pay gaps • regeneration and support for Australia's general aviation sector • balanced approach for consultation on and management of issues like aircraft noise, airport development planning and changing security requirements	The Paper has helped us prioritise workforce planning and initiatives to address workforce shortages, decarbonisation, general aviation, diversity, national coordination, skills for emerging technologies and high cost of training of the industry. ISA has reviewed the recommendations of the White Paper and prioritised workforce initiatives and projects for 2025.
Australian Civil Space Strategy 2019–2028	H	To diversify the economy, triple the size of Australia's space sector and grow an additional 20,000 jobs by 2030. To transform and grow the Australian space industry over 10 years. There are four main components: • promoting international engagement • cultivating national capability • ensuing safety and national interest and fostering innovation	ISA has undertaken a Space Transport and Logistics Skills Gap Analysis. The research has indicated that there are specific areas where the vocational sector can help with future skilling the workforce by either developing new skills or contextualising the existing ones to cater for the space transport industry. The strategy will inform our approach towards workforce planning for air and space transport to identify new roles and skills that can be addressed via the VET sector. We will also consult with Manufacturing Jobs and Skills Council to assess the interconnections between space transport and the manufacturing sector and how they impact the required skills and knowledge for the workforce
Uncrewed Traffic Management Action Plan	A, G	• In December 2024, the Australian Government released an Uncrewed Traffic Management Action Plan that focuses on safely integrating drones and other uncrewed aerial systems into national airspace. • National policy, standards and regulatory requirements that arise from the implementation of the Action Plan will influence and inform the training and licencing solutions that are needed by this emerging sector in future.	The paper will inform the advice provided to the Aviation Strategic Workforce Planning Committee to identify skills and initiatives required for safely integrating drones and other uncrewed aerial systems.
Sustainable Aviation Fuel Funding Initiative	E, F, G	The Australian Renewable Energy Agency (ARENA) has announced total funding of $33.5 million across five projects under the SAF Funding Initiative launched in 2023 to support the development of domestic SAF production to support aviation decarbonisation, with more investments to be announced beyond the previously allocated $30 million.	This initiative is based on Australia's Bioenergy Roadmap. The paper will inform the advice provided to the Aviation Strategic Workforce Planning Committee to identify skills and initiatives required for the transition of the Aviation industry to green energy.

Title	Mapping	Description	How it will impact/inform the WFP
Women in the Aviation Industry Initiative	A, C	The initiative funds a range of activities to increase visibility and awareness of the sector among young girls and women in collaboration with industry partners. The initiative includes activities such as: • forums to support emerging women leaders in aviation. • outreach activities among school students. • programs for flight instructors to foster leadership and inclusion and targeting school students.	This initiative will inform future consultation to either leverage existing diversity initiatives or develop new ones to increase awareness and participation of women and other underrepresented groups in the aviation industry. ISA will consult with stakeholders to better understand the barriers to diversity and propose actions to address them.
General Aviation Strategy	A, E, G, I	The General Aviation Strategy 2024 aims to foster a sustainable general aviation sector that supports the national economy and community well-being. • AAM and other new technologies has profound implications for the skills and workforce within the General Aviation sector.	This initiative will inform future consultation to develop the GA sector and understand the need for new skills. The paper will inform the advice provided to the Aviation Strategic Workforce Planning Committee to identify skills and initiatives required for General Aviation sector.
Fee Free TAFE	A, D, I	To address skills shortages and delivery fee-free TAFE and vocational education places for students to train, retrain or upskill. • $1 billion 12-month Skills Agreement to deliver 180,000 Fee-Free TAFE and vocational educational places from January 2023. • Additional $414.1 million will be committed for a further 300,000 TAFE and vocational educational courses to be made fee-free from Jan 2024 is currently in negotiation. National priorities include: • sovereign capability • First Nations Australians • young people (17-24) • people who are out of work or receiving income support payments • women undertaking study in non-traditional fields. • certain categories of visa holders.	Medium/High – Fee Free TAFE in partnership with States and Territories have provided funding for the development of aviation skills. The summary of funded initiatives will form part of the advice on funded pathways for aviation Strategic Workforce Committee.

Appendices

Appendix A
Reference Data and Charts

Employment and Distribution

Figure 9: Employment Status 2024

Part-time
21%

Full-time
79%
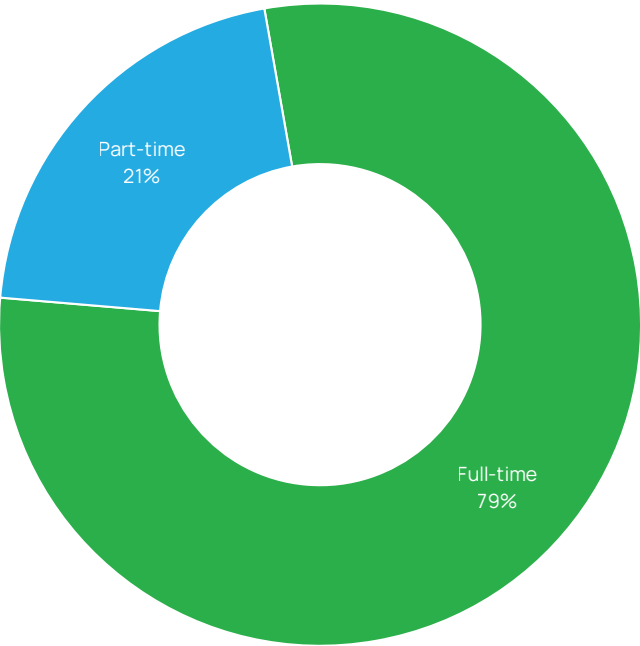
Source: ABS, Nov 2024, Labour Force, Australia, Detailed, Table EQ08 (annual average)

Figure 10: Distribution of Aviation Workers in Australia

20   600   1300
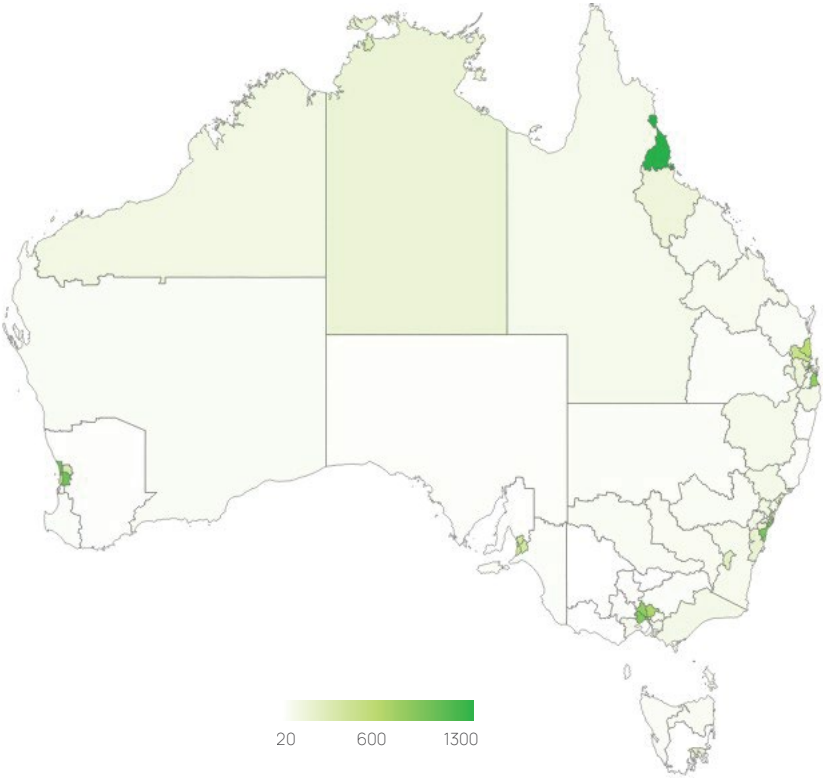
Source: JSA, Feb 2025, NERO, ANZSCO 4 Digit Occupations and SA4 Regions

Occupational Demographics

Figure 11: Age Profile of Aviation Workers by 4-digit ANZSCO Occupations

AIR TRANSPORT PROFESSIONALS *have fewer young workers* (6% UNDER 24) THAN TRAVEL ATTENDANTS (13%), LIKELY DUE TO HIGHER EXPERIENCE REQUIREMENTS. THEIR PRIME WORKING AGE IS 25-54 (76%)
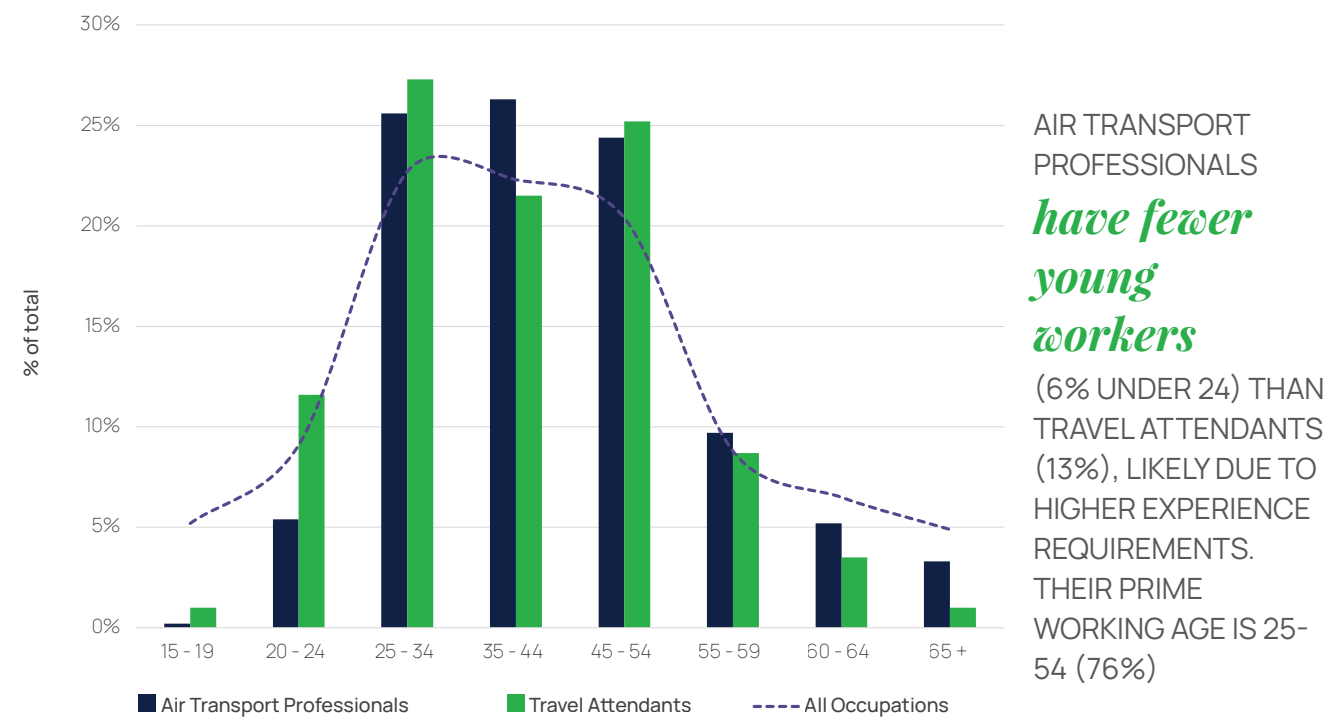
Source: JSA, November 2024, Occupation Profiles Data, Tables 7 and 9

Figure 13: Share of Employees with a Disability in Aviation Workforce, 2006 – 2021

PROPORTION OF EMPLOYEES WITH A DISABILITY IN THE AVIATION WORKFORCE HAS *increased slightly from 0.23% to 0.45%* FROM 2011 TO 2021
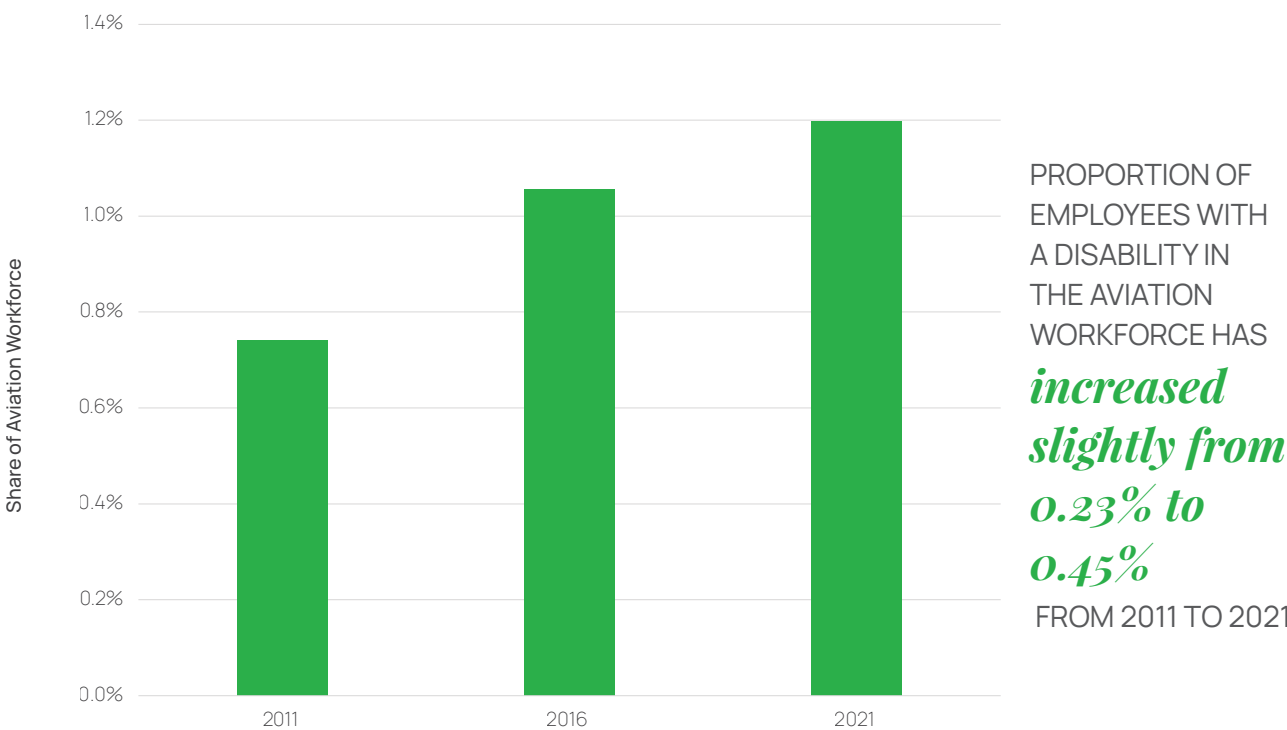
Source: ABS 2021, Census of Population and Housing, 2006 – 2021

Figure 12: First Nations Employees in Aviation Workforce, 2006 – 2021

PROPORTION OF FIRST NATIONS EMPLOYEES IN THE AVIATION WORKFORCE *has more than doubled* FROM 2006 TO 2021
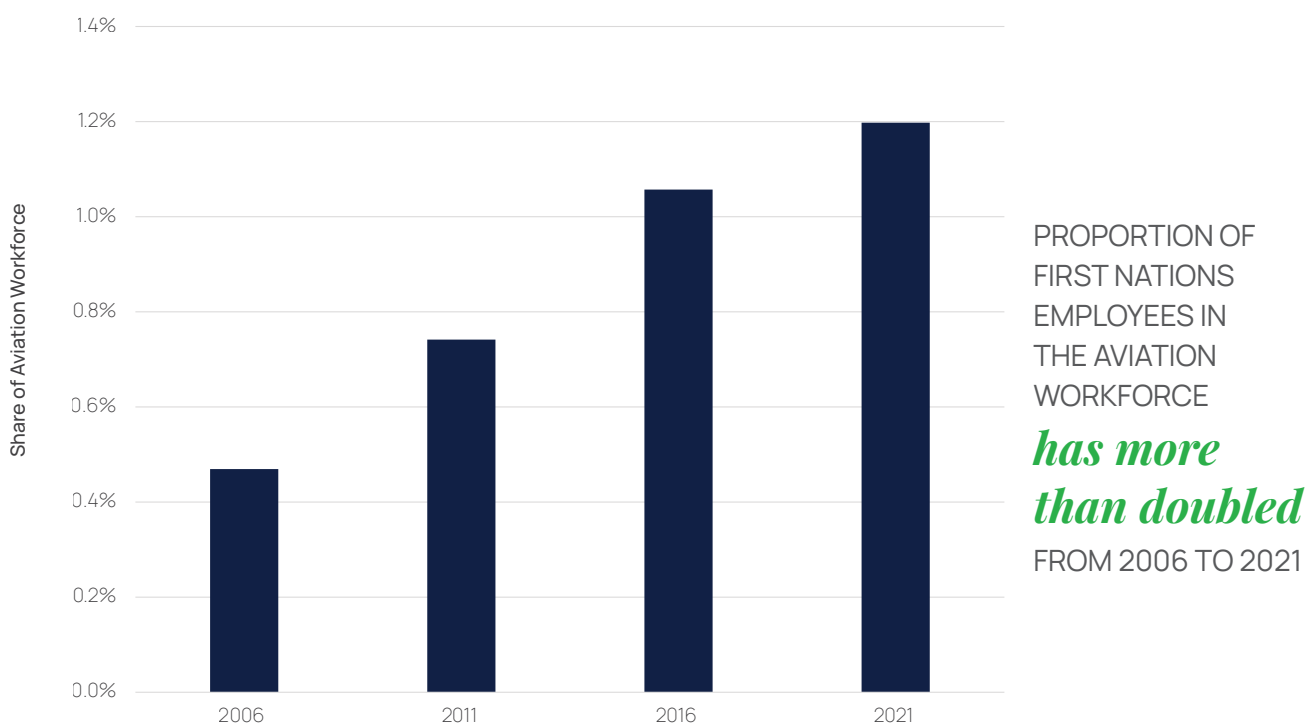
Source: ABS 2021, Census of Population and Housing, 2006-2021

Figure 14: Gender Distribution in the Aviation Workforce (2014–2024)

WOMEN COMPRISED APPROXIMATELY *35% of Aviation workforce on average* OVER THE LAST 10 YEARS
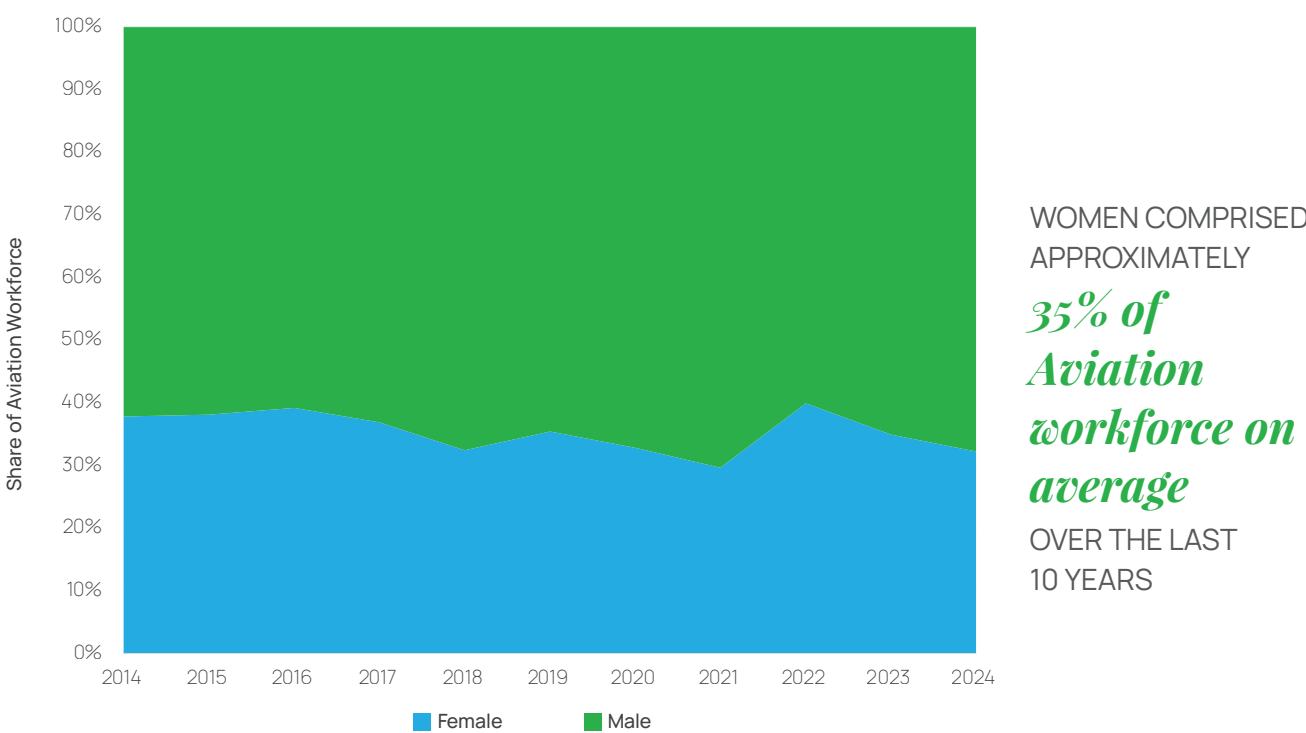
Source: ABS, Nov 2024, Labour Force, Australia, Detailed, Table EQ06

Training

Figure 15: Commencing AVI Qualification Enrolments, 2019 – 2023

ENROLMENTS
IN QUEENSLAND
COMPRISED ABOUT
*42% of all
Aviation
enrolments*
IN 2023
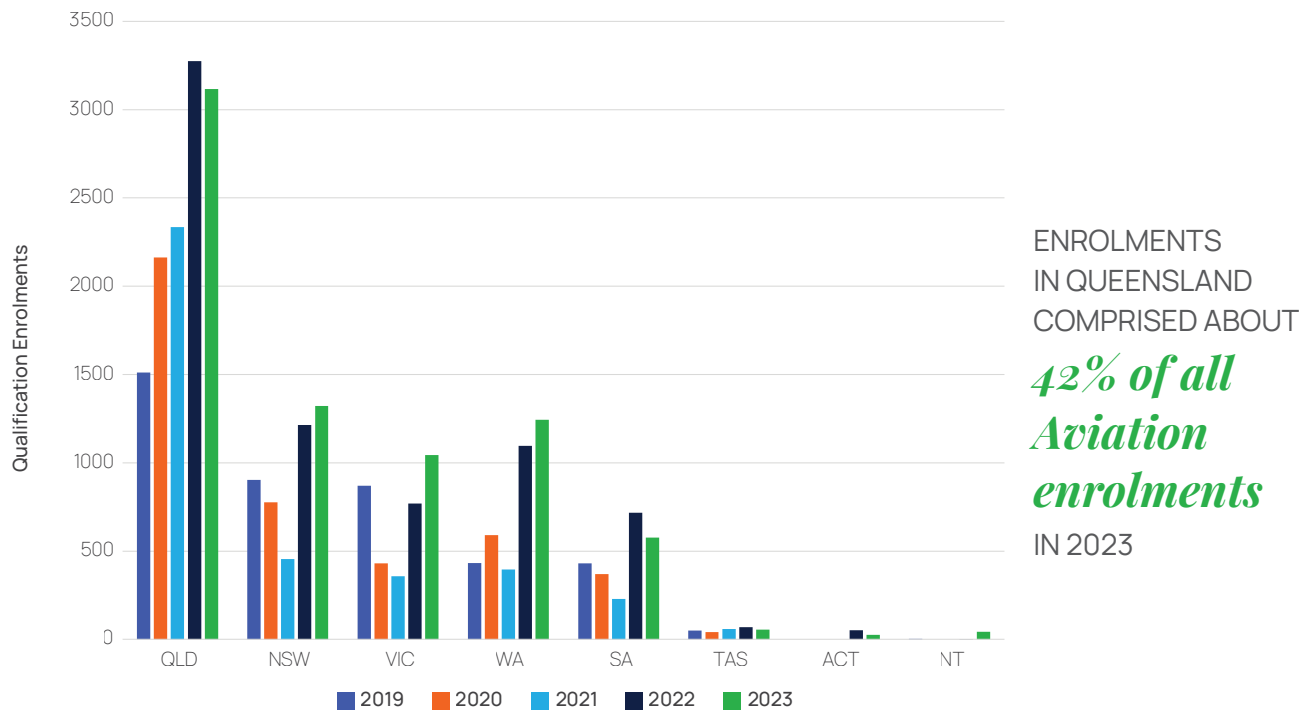
Source: NCVER, Total VET Students and Courses, Extracted March 2025

Figure 16: Aviation VETiS Students, 2013 – 2023

VETiS STUDENT
ENROLMENTS HAVE
*grown more
than tenfold*
OVER THE PAST
DECADE
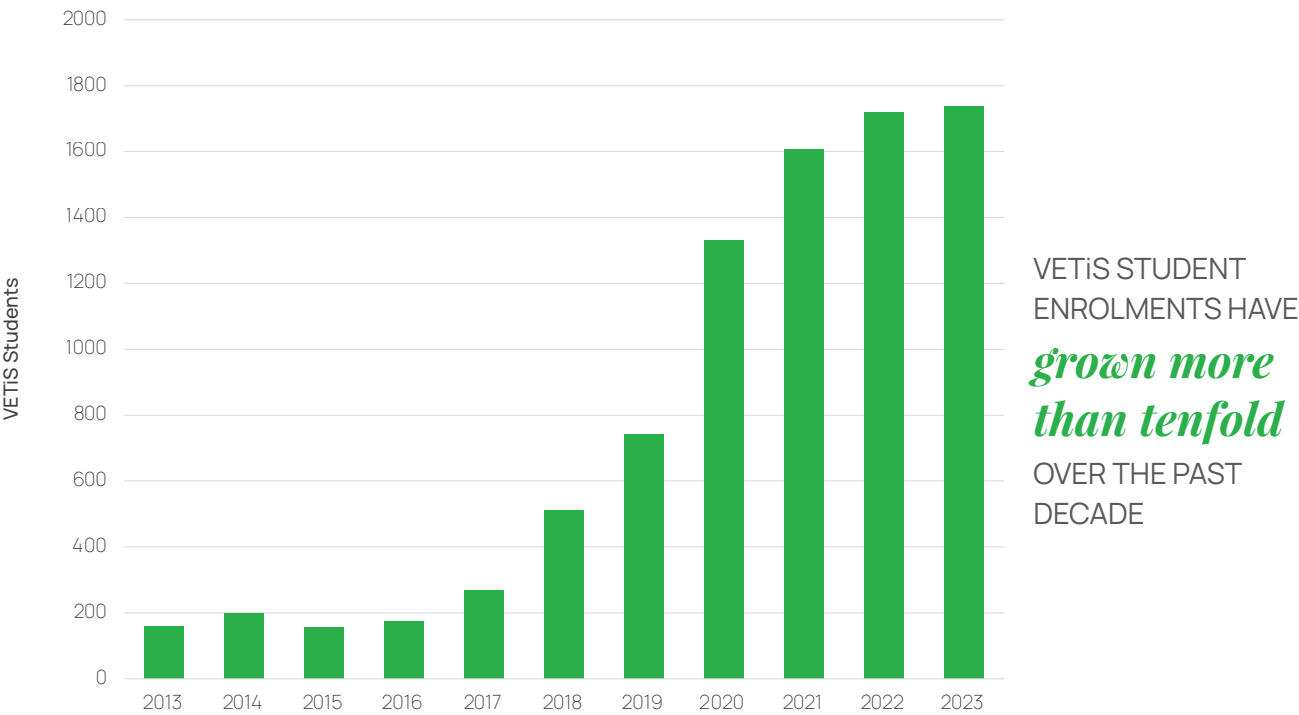
Source: NCVER, VET in Schools, Extracted March 2025

Figure 17: Gender Distribution in Aviation Qualification Enrolments

THE SHARE
OF FEMALE
ENROLMENTS
IN AVIATION
QUALIFICATIONS HAS
*increased
from 18% to
27%*
OVER THE LAST
THREE YEARS
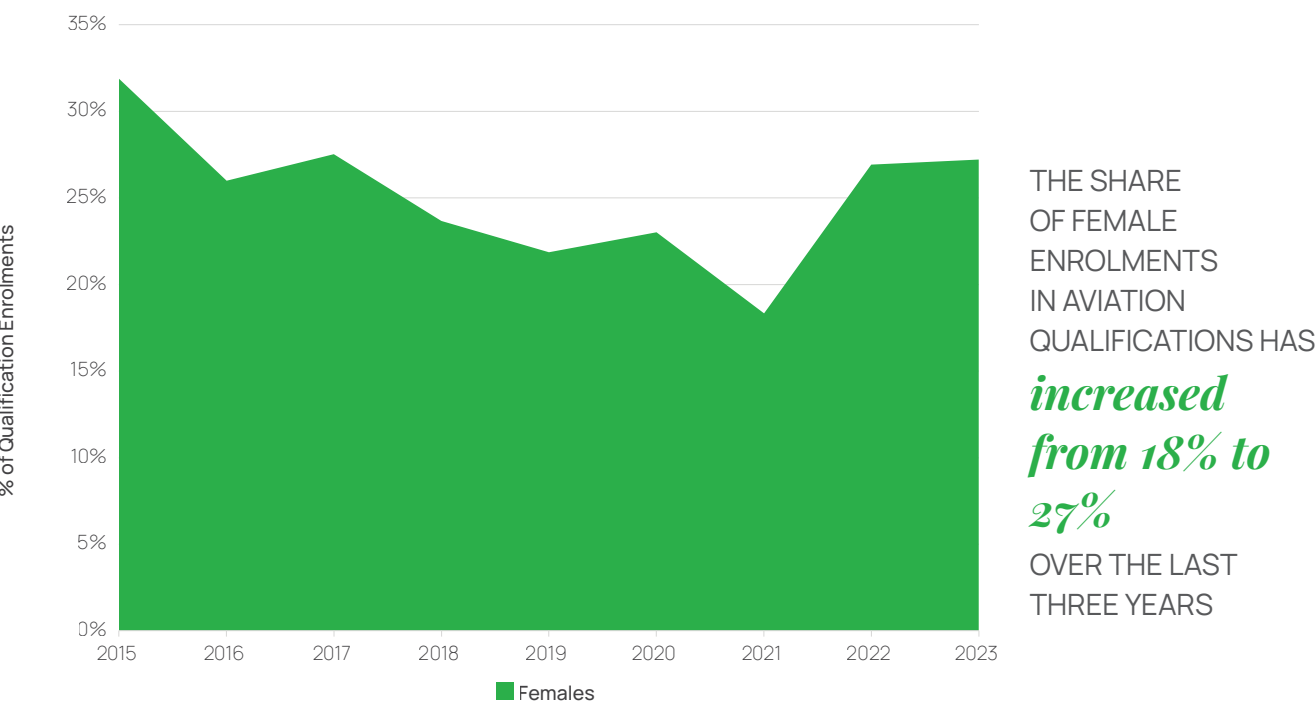
Source: NCVER, Total VET Students and Courses, Extracted March 2025

Figure 18: Share of AVI Qualification Enrolments by Students with a Disability

THE PROPORTION
OF STUDENTS WITH
A DISABILITY HAS
REMAINED STEADY
SINCE 2017,
*averaging
3% of total
enrolments*
IN AVIATION
QUALIFICATIONS
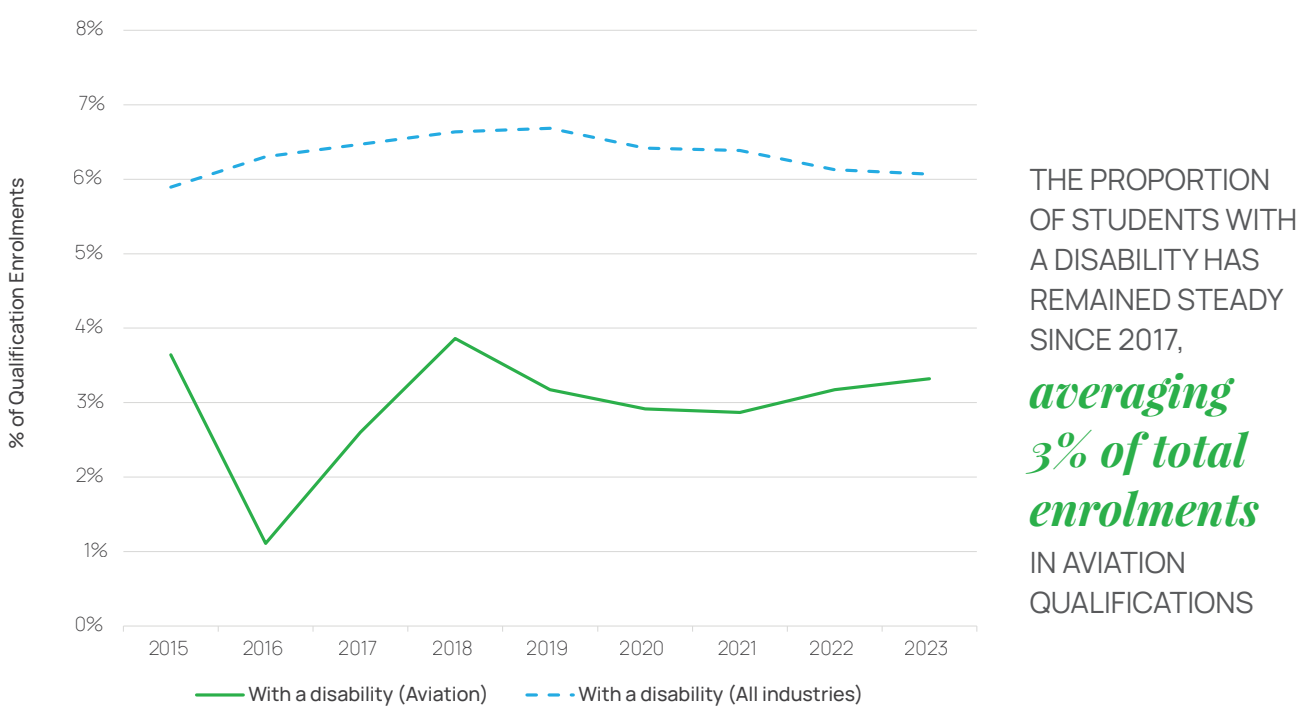
Source: NCVER, Total VET Students and Courses, Extracted March 2025

Figure 19: Share of Qualification Enrolments by First Nations Students
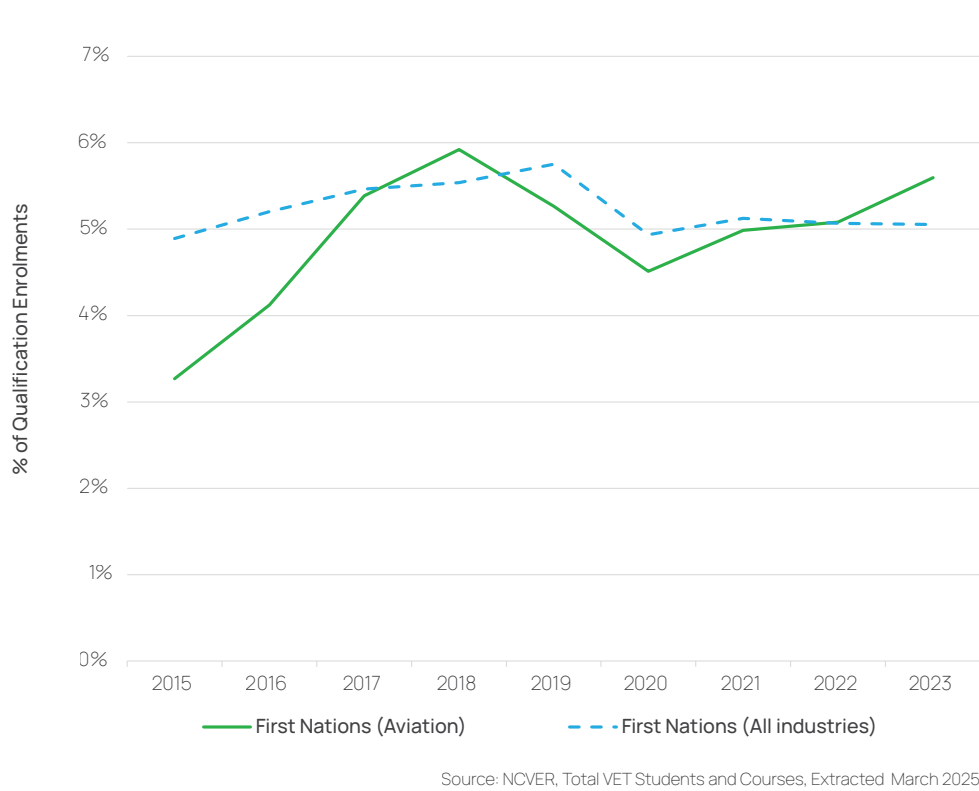
THE PROPORTION OF FIRST NATIONS STUDENTS HAS REMAINED ALMOST STEADY SINCE 2017, *averaging 5% of total enrolments* IN AVIATION QUALIFICATIONS

Source: NCVER, Total VET Students and Courses, Extracted March 2025

Figure 21: Share of Aviation Related Higher Education Enrolments by Equity Group
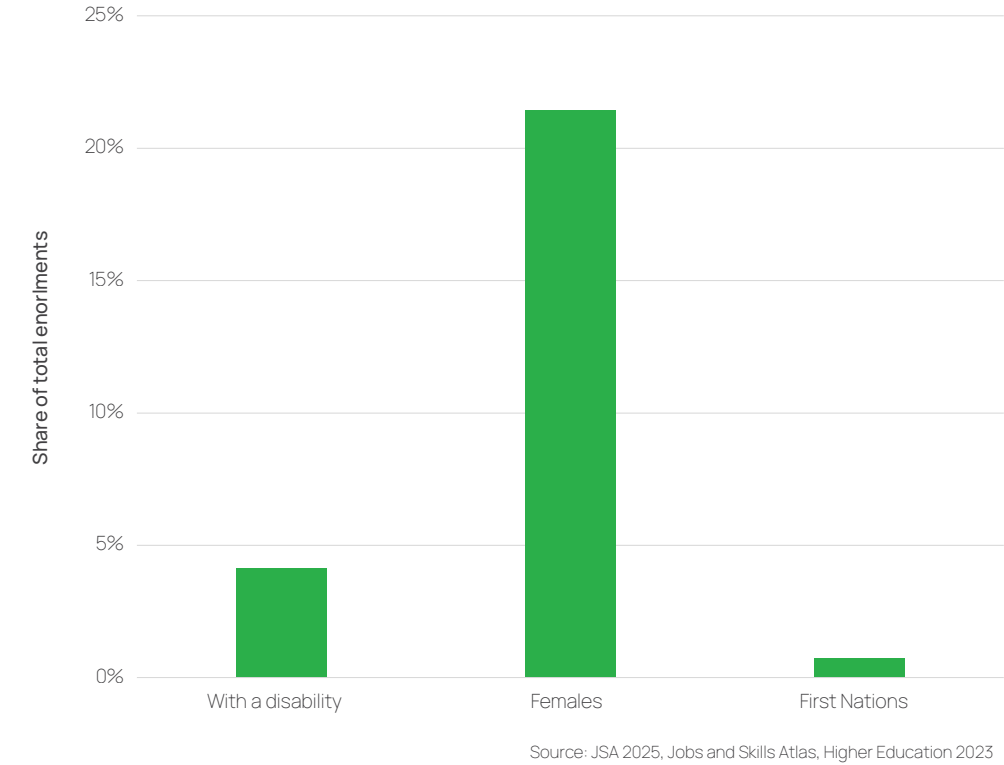
EQUITY GROUPS HAVE *lower representation in higher education qualifications* COMPARED TO VOCATIONAL EDUCATION

Source: JSA 2025, Jobs and Skills Atlas, Higher Education 2023

Figure 20: AVI Apprenticeships/Traineeships Share of Total Enrolments in Each State/Territory
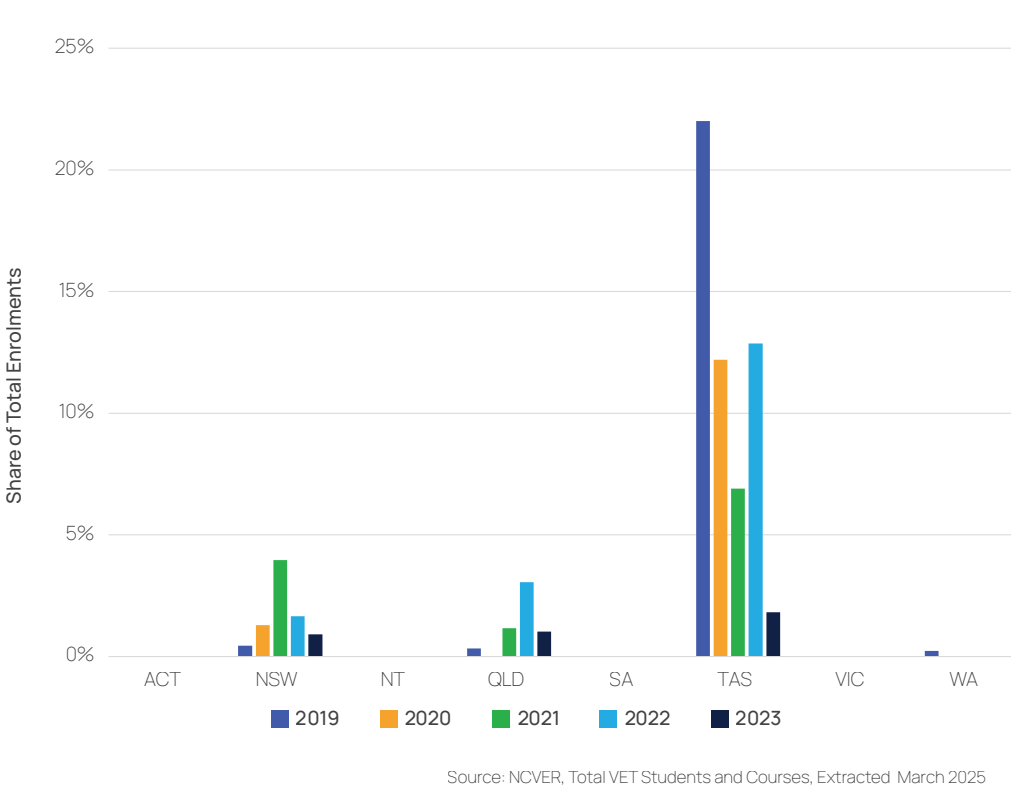
TASMANIA HAS HAD THE HIGHEST PROPORTION OF APPRENTICESHIPS/ TRAINEESHIPS ENROLMENTS SINCE 2019, *accounting for 2% of total enrolments* IN THE STATE IN 2023

Source: NCVER, Total VET Students and Courses, Extracted March 2025

Training System Data

Qualification Enrolments[68]

Qualification	2019	2020	2021	2022	2023
AVI10119 Certificate I in Aviation (Foundation Skills)	0	0	0	0	15
AVI20118 Certificate II in Transport Security Protection	330	120	179	2833	2385
AVI20119 Certificate II in Aviation (Flight Operations-Cargo Services)	8	11	0	0	0
AVI20219 Certificate II in Aviation (Ground Operations and Service)	5	3	0	0	23
AVI30119 Certificate III in Aviation (Aerodrome Operations)	10	19	32	8	0
AVI30219 Certificate III in Aviation (Cabin Crew)	387	440	193	206	255
AVI30319 Certificate III in Aviation (Ground Operations and Service)	351	74	49	130	74
AVI30419 Certificate III in Aviation (Remote Pilot)	994	1545	1822	1770	2087
AVI30519 Certificate III in Aviation (Rescue Crew Officer)	22	19	32	15	1
AVI40119 Certificate IV in Aviation (Air Crew Officer)	127	143	35	61	47
AVI40122 Certificate IV in Aviation (Supervision)	83	28	16	12	13
AVI40422 Certificate IV in Aviation (Remote Pilot-Beyond Visual Line of Sight)	0	0	0	0	0
AVI50115 Diploma of Aviation (Air Traffic Control)	84	6	34	24	52
AVI50119 Diploma of Aviation (Aviation Management)	40	43	17	25	14
AVI50222 Diploma of Aviation (Commercial Pilot Licence - Aeroplane)	1297	1198	733	1187	1362
AVI50322 Diploma of Aviation (Commercial Pilot Licence - Helicopter)	133	131	122	118	162
AVI50419 Diploma of Aviation (Flight Instructor)	66	74	77	147	112
AVI50519 Diploma of Aviation (Instrument Rating)	256	474	385	552	689
AVI59922 Diploma of Aviation (Chief Remote Pilot)	0	0	0	0	0
AVI60219 Advanced Diploma of Aviation (Pilot in Command)	19	75	110	121	143
Grand Total	**4212**	**4403**	**3836**	**7209**	**7434**

Note: enrolment numbers include all versions of the qualification across the years they were available (e.g. AVI20118 Certificate II in Transport Security Protection includes enrolments for AVI20416, AVI20316, AVI20713, AVI20613 and AVI20118.)

Qualification Completions[69]

Qualification	2019	2020	2021	2022	2023
AVI10119 Certificate I in Aviation (Foundation Skills)	0	0	0	0	13
AVI20118 Certificate II in Transport Security Protection	351	175	122	2078	2000
AVI20119 Certificate II in Aviation (Flight Operations-Cargo Services)	9	9	0	0	0
AVI20219 Certificate II in Aviation (Ground Operations and Service)	0	3	0	0	14
AVI30119 Certificate III in Aviation (Aerodrome Operations)	20	35	37	5	0
AVI30219 Certificate III in Aviation (Cabin Crew)	258	247	107	126	187
AVI30319 Certificate III in Aviation (Ground Operations and Service)	44	61	17	15	82
AVI30419 Certificate III in Aviation (Remote Pilot)	355	1266	1213	1297	1599
AVI30519 Certificate III in Aviation (Rescue Crew Officer)	7	7	9	13	11
AVI40119 Certificate IV in Aviation (Air Crew Officer)	63	98	34	42	36
AVI40122 Certificate IV in Aviation (Supervision)	34	52	10	7	4
AVI40422 Certificate IV in Aviation (Remote Pilot-Beyond Visual Line of Sight)	0	0	0	0	0
AVI50115 Diploma of Aviation (Air Traffic Control)	17	43	49	11	43
AVI50119 Diploma of Aviation (Aviation Management)	17	23	8	5	9
AVI50222 Diploma of Aviation (Commercial Pilot Licence - Aeroplane)	689	777	475	505	694
AVI50322 Diploma of Aviation (Commercial Pilot Licence - Helicopter)	108	102	101	73	73
AVI50419 Diploma of Aviation (Flight Instructor)	78	23	83	118	99
AVI50519 Diploma of Aviation (Instrument Rating)	246	368	376	394	490
AVI59922 Diploma of Aviation (Chief Remote Pilot)	0	0	0	0	0
AVI60219 Advanced Diploma of Aviation (Pilot in Command)	10	37	77	56	141
Grand Total	**2306**	**3326**	**2718**	**4745**	**5495**

Number of RTOs Scoped to Deliver Aviation Qualifications[70]

Qualification	RTO Count
AVI10119 Certificate I in Aviation (Foundation Skills)	3
AVI20118 Certificate II in Transport Security Protection	18
AVI20119 Certificate II in Aviation (Flight Operations-Cargo Services)	0
AVI20219 Certificate II in Aviation (Ground Operations and Service)	3
AVI30119 Certificate III in Aviation (Aerodrome Operations)	1
AVI30219 Certificate III in Aviation (Cabin Crew)	7
AVI30319 Certificate III in Aviation (Ground Operations and Service)	7
AVI30419 Certificate III in Aviation (Remote Pilot)	28
AVI30519 Certificate III in Aviation (Rescue Crew Officer)	8
AVI40119 Certificate IV in Aviation (Air Crew Officer)	8
AVI40122 Certificate IV in Aviation (Supervision)	3
AVI40422 Certificate IV in Aviation (Remote Pilot-Beyond Visual Line of Sight)	2
AVI50115 Diploma of Aviation (Air Traffic Control)	2
AVI50119 Diploma of Aviation (Aviation Management)	6
AVI50222 Diploma of Aviation (Commercial Pilot Licence - Aeroplane)	38
AVI50322 Diploma of Aviation (Commercial Pilot Licence - Helicopter)	9
AVI50419 Diploma of Aviation (Flight Instructor)	14
AVI50519 Diploma of Aviation (Instrument Rating)	37
AVI59922 Diploma of Aviation (Chief Remote Pilot)	0
AVI60219 Advanced Diploma of Aviation (Pilot in Command)	6

Aviation-related University Qualifications[71]

Qualification Type	Course Name
Diploma	Aviation Security Management
Diploma	Aviation Theory
Associate Degree	Aviation (Aeronautics)
Associate Degree	Aviation (Flight Operations)
Associate Degree	Aviation (Management)
Associate Degree	Aviation (Operations Management)
Associate Degree	Aviation (Prof Pilots)
Associate Degree	Aviation (Professional Pilots)
Bachelor	Applied Science (Aviation)
Bachelor	Applied Science (Aviation)/Bachelor|Business
Bachelor	Applied Science (Aviation)/Bachelor|Business (Management)
Bachelor	Applied Science (Honours) (Aviation)
Bachelor	Aviation
Bachelor	Aviation (Commercial Pilot)
Bachelor	Aviation (Flight)
Bachelor	Aviation (Flying)
Bachelor	Aviation (Honours)
Bachelor	Aviation (Management)
Bachelor	Aviation (Management)/Bachelor|Business
Bachelor	Aviation (Pilot Training)
Bachelor	Aviation (Pilot)
Bachelor	Aviation And Piloting
Bachelor	Aviation And Piloting/Bachelor|Business
Bachelor	Aviation Management/Bachelor|Business
Bachelor	Aviation Technology
Bachelor	Aviation/Bachelor|Business

Qualification Type	Course Name
Bachelor	Aviation/Bachelor|Information Technology
Bachelor	Commerce / Aviation (Management)
Bachelor	Engineering (Honours) / Bachelor|Aviation
Bachelor	Laws/Bachelor|Aviation (Management)
Bachelor	Laws/Bachelor|Aviation Management
Bachelor	Science (Aviation)
Bachelor	Technology (Aviation)
Graduate Certificate	Aviation (Human Factors)
Professional Certificate	Aviation (Operational Safety Systems)
Graduate Certificate	Aviation (Piloting)
Graduate Diploma	Aviation And Business
Graduate Certificate	Aviation Management
Graduate Diploma	Aviation Medicine
Master	Engineering (Aerospace And Aviation)
Master	Engineering (Aerospace Engineering And Aviation)
Doctor	Aviation – Research

Aviation Occupational Areas

Industry Skills Australia acknowledges that the ANZSCO/OSCA codes used by the VET system to identify occupations in the Aviation 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/OSCA alignment are identified with a dash, '-'.

Occupational Area	ANZSCO Occupation Titles	OSCA Occupation Titles	Job Roles
1. Flight Operations	231111 Aeroplane Pilot, 231114 Helicopter Pilot	299131 Aeroplane Pilot, 299134 Helicopter Pilot	Commercial aeroplane pilot, Commercial helicopter pilot, Chief Remote Pilot, Deputy Chief Pilot, Senior Base Pilot, Remote pilot
	451711 Flight Attendant	461731 Flight Attendant	Cabin Crew, Flight Attendant
	231113 Flying Instructor	299133 Flight Instructor	Flight Instructor – Grade 2, Flight Instructor – Grade 3, Qualified Flying Instructor
	231112 Air Traffic Controller	299132 Air Traffic Controller	Aerodrome Controllers, Air Traffic Controllers, Approach Controllers, Enroute Controllers
2. Airport Operations	-	591131 Aerodrome Reporting Officer	Aerodrome Reporting Officer, Airport Safety Officer, Airside Operations Officer, Operations Officer, Works Safety Officer (WSO)
	139999 Specialist Managers nec	149931 Airport Manager, 299199 Air Transport Professionals nec	Aerodrome Manager, Aviation Manager, Business Manager, Operations Manager, Safety Manager
	721911 Aircraft Baggage Handler and Airline Ground Crew	741931 Aircraft Baggage Handler and Ground Crew, 461931 Airline Customer Support Worker	Baggage Handler, Baggage Operator, Customer Service, Customer Service Operator, Ground Operations, Ground Operator, Ramp Operator
	-	452241 Security Screening Officer	Air Cargo Examination Officer, Domestic Airport Screening Officer, International Airport Screening Officer
	721911 Aircraft Baggage Handler and Airline Ground Crew	741931 Aircraft Baggage Handler and Ground Crew	Cargo Services Operator, Loadmaster
	733112 Aircraft Refueller	741932 Aircraft Refueller	Aircraft Refueller
3. Aviation Rescue	231114 Helicopter Pilot	299134 Helicopter Pilot	Aviation Rescue Crew officer, Down the Wire Crew Officer, Police, Helicopter Crew Officer, Paramedics and Other Emergency Service Personnel, Rescue Crew Officer (RCO)
	231114 Helicopter Pilot	299134 Helicopter Pilot	Air Crew Officer

Stakeholder Survey Summary

The stakeholder survey was conducted between February and March 2025 and was designed to test the identified challenges and drivers and to capture proposed strategies from industry.

Table 4: Stakeholder Consensus on Workforce Issues

	Challenge/Driver	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
A	A lack of diversity is contributing to occupational shortages		7.7%	15.4%	30.8%	46.2%
A	Occupational shortages are most acute for pilots, flight instructors, LAMEs, and ground crew			7.7%	15.4%	76.9%
B	Aviation's diversity challenges need a unified national response			15.4%		84.6%
B	Overcoming fragmentation is key to a stronger Aviation workforce				15.4%	84.6%
B	Retaining talent is critical to overcoming workforce shortages				7.7%	92.3%
C	Closing the gender gap in Aviation requires targeted action	7.7%		23.1%	30.8%	38.5%
C	Supporting First Nations and underrepresented groups can help address Aviation occupational shortages			38.5%	30.8%	30.8%
D	High training costs limit access to Aviation careers			8.3%	25.0%	66.7%
D	Targeted government support is needed for high-cost Aviation training				8.3%	91.7%
E	A skills review can help ensure training meets industry needs				46.2%	53.8%
E	Industry-aligned training will create clearer career pathways			7.7%	30.8%	61.5%
E	Vocational training needs to be better aligned with industry standards and licences			15.4%	38.5%	46.2%
F	Hydrogen aviation has potential, but infrastructure gaps must be addressed	7.7%		7.7%	53.8%	30.8%
F	Sustainable Aviation Fuel (SAF) is the most immediate solution for reducing Aviation emissions		15.4%	23.1%	30.8%	30.8%
F	Training must evolve to support the shift to electric propulsion systems	7.7%		46.2%	30.8%	15.4%
G	A tiered competency approach can enhance safety and efficiency in uncrewed Aviation	7.7%		30.8%	30.8%	23.1%
G	The growth of Remotely Piloted Aircraft Systems (RPAS) applications requires stronger oversight and training	7.7%	7.7%	15.4%	38.5%	30.8%
G	Uncrewed technologies are reshaping the skills needed in the Aviation industry	7.7%		23.1%	53.8%	15.4%
H	Clear vocational pathways can strengthen career opportunities in Space transport and logistics	8.3%		25.0%	25.0%	41.7%
I	Advanced Air Mobility requires targeted programs to support workforce readiness	8.3%		41.7%	25.0%	25.0%
I	Better alignment between VET and CASA licensing is vital for General Aviation growth			33.3%	16.7%	41.7%
I	Defined pathways are needed to attract new talent to General Aviation			16.7%	16.7%	58.3%
I	Funding challenges undermine the safety and growth of regional airports			8.3%	41.7%	41.7%
I	Limited amenities and high living costs hinder regional workforce retention			16.7%	33.3%	41.7%

Impact on Organisations

Survey participants were asked about how the identified drivers and challenges affect their organisations. Below is a summary of the key insights they provided.

A. Ongoing Workforce Shortages: Widespread skill shortages leading to flight cancellations, delays and operational risks.

B. National Coordination is Essential: Imperative to establish standardised training, clear career frameworks, and stakeholder collaboration to address skill shortages.

C. Diversity Imbalance: Despite initiatives for diversity, challenges remain in converting these efforts into careers, addressing gender biases, and ensuring diverse recruitment.

D. High Cost of Training: High training costs hinder workforce development, affecting recruitment and retention, especially in Advanced Air Mobility (AAM).

E. Alignment of Qualifications: Rapidly evolving drone training requirements and inconsistent skillsets, along with complicated licensing create additional challenges.

F. New Skills for Decarbonisation: The shift to electric propulsion requires new technical skills and specialised training, placing additional demands on already limited resources.

G. Emerging Technologies: Current RPAS training and licensing needs review for safety, efficiency, and accessibility, while slow regulatory response and overlapping regulations hinder progress.

I. General Aviation (GA) Challenges: Addressing misconceptions about regional lifestyles, cost, improving VET and CASA alignment, and implementing targeted AAM programs are crucial to resolving pilot training delays and retention issues.

Proposed Solutions

Participants were invited to suggest solutions for addressing the identified drivers and challenges. Here is a summarised overview of their recommendations.

A. Key Aviation roles face ongoing shortages
- Advocacy to increase funding for affordable LAMEs subjects, make TAFE aviation courses free and accessible, and provide flexible learning options.
- Developing nationally recognised qualifications in alignment with CASA regulations and to promote diversity through STEM outreach and mentorship programs.
- Collaborating with industry leaders to conduct a strategic industry review and create effective training pathways to reduce training time and improve job retention.

B. National coordination is essential to build Australia's Aviation workforce
- Implementing pilot job sharing to retain talent and enhance diversity.
- Adopting international standards for GA engineers, enforcing minimum training standards, and promoting aircraft maintenance careers from an early age.
- Advocacy for government support or funding for intervention to link GA to airline job placements and subsidies.

C. Diversity imbalance hinders industry growth
- Working with First Nations people to understand issues and initiatives to encourage participation and improve career materials for cabin crew roles. Providing better support to women pilots through education and promoting to underrepresented groups.
- Usage of platforms like the Avalon Airshow to promote the industry and support cultural leadership.

D. High cost of training is a major barrier
- Advocacy for government support or funding for high-cost aviation training and simplifying regulatory pathways.
- Encouraging training investment, offering time off for training, and implementing government subsidy schemes and industry training levies to reduce costs and support entry pilots.

E. Qualifications need better alignment with industry needs and regulations
- Working towards better alignment of training outcomes with CASA licensing and industry requirements.
- Establishing clear career progression pathways, standardising recognition of overseas qualifications, and improving communication between GA and Airlines.

F. Decarbonisation efforts demand new skills
- Ensuring infrastructure for transition to SAF type aircraft and updating training curricula to include related skills.

G. New skills are needed for emerging technologies
- Analysing skills needed for roles and training in AAM sector. Improving communication between RPAS and GA operations on airspace and ensure competency-based training for RPAS licensing

H. Vocational training is critical for Australia's growing Space industry
- Integrating space training into GA pathways and maintain communication between CASA and Air Services NOTAMS.

I. Recruitment and funding challenges for General Aviation (GA)
- Creating a resource for career advisors and students to explore industry careers.
- Increase visibility and targeted advertising for general aviation careers. Advocacy for government incentives like tax/debt relief for regional service, better subsidies for regional workers, and harmonised training for recruitment.

Other Key Drivers

Participants were asked to share additional key drivers and challenges affecting skills and workforce development in their sector. Below is a summary of these critical issues.

- Addressing challenges in recognising overseas qualifications for pilots, maintenance engineers, and technicians to improve workforce integration.

- Improving management of pilots' early careers to retain them in the profession. Addressing issues like direct streaming of commercial pilot graduates to airlines and the impact of international student caps on demand.

- Improving connection with future talent pipelines through better coordination and understanding from the government. Increasing involvement of aviation professionals in decision-making.

- Advocacy on the importance of a strong General Aviation (GA) sector.

- To enhance global competitiveness, the aviation sector must adopt a holistic skill development approach, fostering national standards that ensure transferability and industry alignment. This will drive the enthusiasm and positivity needed.

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. While OSCA replaced ANZSCO for use in Australia in December 2024, the underlying data is yet to be updated.

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
231100	Air Transport Professionals, nfd	6-digit
231111	Aeroplane Pilot	6-digit
231112	Air Traffic Controller	6-digit
231113	Flying Instructor	6-digit
231114	Helicopter Pilot	6-digit
231199	Air Transport Professionals, nec	6-digit
451711	Flight Attendant	6-digit
721911	Aircraft Baggage Handler and Airline Ground Crew	6-digit
733112	Aircraft Refueller	6-digit
2311	Air Transport Professionals	4-digit
4517	Travel Attendants	4-digit

ANZSIC Code	Title	Level of Detail
4900	Air and Space Transport	4-digit
5220	Airport Operations and Other Air Transport Support Services	4-digit
490	Air and Space Transport	3-digit
522	Airport Operations and Other Air Transport Support Services	3-digit
501	Scenic and Sightseeing Transport †	3-digit
5010	Scenic and Sightseeing Transport †	4-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/OSCA and ANZSIC.

- ANZSCO (Australian and New Zealand Standard Classification of Occupations) or OSCA (Occupation Standard Classification for Australia) categorises occupations based on skill level and specialisation.

  - In December 2024, OSCA replaced ANZSCO for use in Australia, however, it will take some time for these changes to appear in occupational data or shortage lists.

- 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/OSCA 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.

Endnotes/Special References

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

Water Transport Support Services is an industrial category that is split between the Maritime workforce (port and terminal operations sub-categories) and Transport and Logistics workforce (Stevedoring Services sub-category). This split is based on historical Census distributions.

Data gaps

1. Outside of Census years, the resolution of labour force data is not high. Aviation has only two occupational categories at the 4-digit ANZSCO level. As a practical example, reported shortages in Baggage Handlers or Airport Security Screening Officers cannot be corroborated since they are only available at 6-digit resolution, if at all.

   In December 2024, the **Occupation Standard Classification for Australia (OSCA) 2024**, replaced ANZSCO for use in Australia. OSCA has been established by the Australian Bureau of Statistics (ABS) through a comprehensive review of ANZSCO, conducted between July 2022 and December 2024.

   It will take some time for OSCA occupations to appear in occupational data or shortage lists. Although the number of occupations counted at the 6-digit level will increase from 8 to 12, the Aviation industry will continue to have only two occupational categories at the 4-digit level.

2. The Labour Force survey's representation of the Aviation industry's workforce is significantly undercounted compared to IBISWorld figures. This is primarily due to the unique nature of the industry, which involves both Australian and international employees who meaningfully contribute to workforce totals. Unlike Labour Force data, which only includes Australian employees, IBISWorld figures account for this international presence. This explains much of the discrepancy between the two data sources.

3. **Qualification Completions** should not be compared with enrolment numbers to ascertain completion rates. Instead, completion rates[72] 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.

Sources for infographics

Data	Source
Business No Business distribution by state %	ABS Counts of Australian Businesses
Female %	ABS Labour Force 2024
Domestic freight task growth (projected to 2030)	BITRE Yearbook 2022
Passengers on domestic commercial flights Regional airports carry % of all domestic passengers	BITRE, Domestic Aviation Activity 2023
Registered drones in Australia	CASA Annual Report 2023-2024
First Nations % With a disability % Workforce with VET as highest qualification Workforce nearing retirements (aged 56-66) Top 5 occupations Median age	Census 2006 to 2021
GDP contribution $b 2023-2024 Annual revenue $b 2023-2024	IBISWorld Industry Wizard
Workforce	JSA Labour Force Trending 2025
Residential distribution of workers	JSA NERO 2025 and ABS Remoteness Areas - 2021
Qualification enrolments	NCVER, Total VET Activity 2023
Airports in Australia	ourairports.com
Registered training organisations (RTO)	training.gov.au

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[72]   NCVER 2024, VET qualification completion rates 2023, 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

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/OSCA)

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)
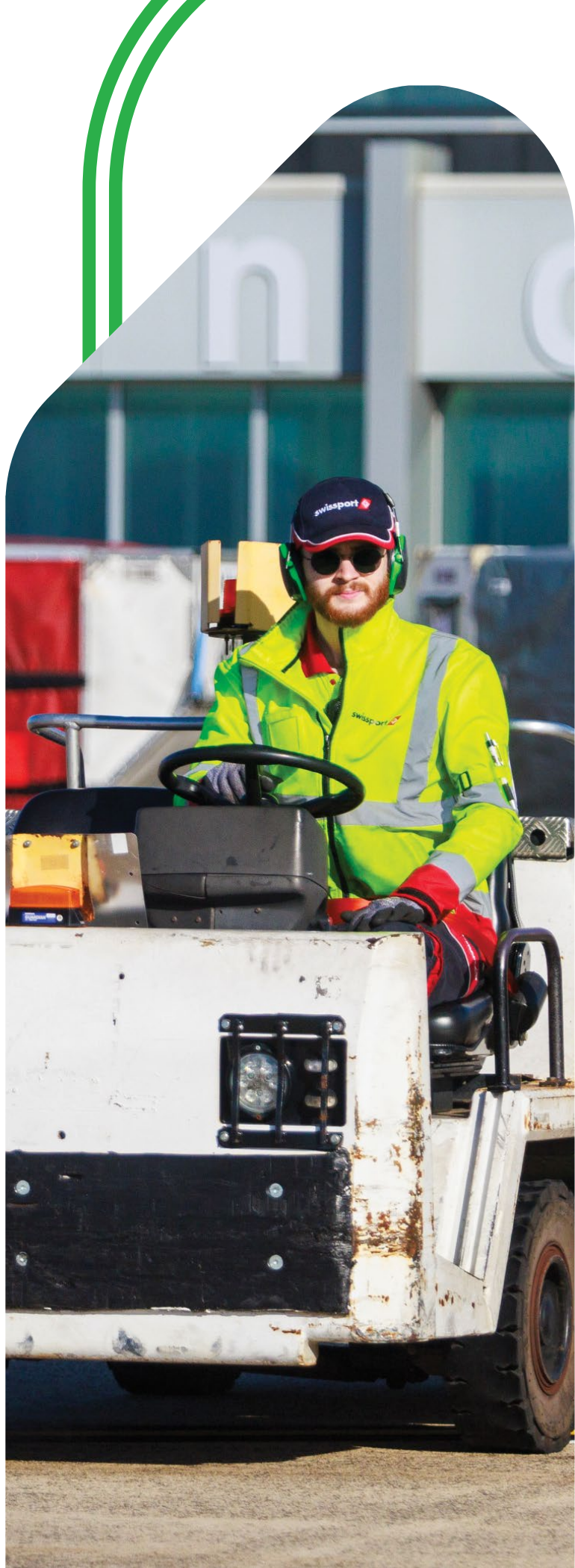
Appendix C
Methodology

The Workforce Plan adopts a comprehensive approach to understand and address workforce drivers 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. Industry Consultation and Issue Identification
Throughout the year, ISA actively engages with industry stakeholders through consultations, roundtable discussions across states, territories, and regional areas, events such as the Supply Chain Leaders' Summit, and participation in relevant conferences and meetings. Insights gathered from these engagements are documented, reviewed, and categorised according to key labour market dynamics, such as skills shortages, occupational shortages, or occupations with attraction and retention issues. This structured identification of issues provides the context necessary to inform hypothesis development.

2. Generating Hypotheses
Using the categorised issues identified through industry consultations and events we develop 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. Industry struggles to attract and retain workers". These hypotheses guide our research and analysis, helping us to focus on specific areas of interest.

3. 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.

4. 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.

5. 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.

6. Incorporating Feedback
Prior to public consultation, our Strategic Workforce Planning Committees (SPWC) identified priority areas for investigation across sectors. This step is crucial for ensuring our findings and recommendations are relevant, practical, and aligned with the needs and priorities of industry.

7. 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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