

## 5 Filling skills needs and building our future workforce

### Main points

- Addressing skills shortages and proactively building a strong and skilled labour force will be fundamental to achieving full employment and productivity growth.
- Responding to the challenges of workforce shortages and the significant forces shaping the economy will require substantial growth in the high-skilled workforce.
- Importantly, workforce planning grounded in data and insights from industry and educators can drive a responsive skills and training sector.
- Some industries that are growing rapidly are facing acute skills shortages and require tailored workforce solutions to ensure we can meet future skills needs, including investments in domestic skills and training complemented by targeted migration pathways.
- Building a highly skilled workforce will require more collaboration across higher education, vocational education and training, industry and governments, and a culture of lifelong learning.

Australia's skilled workforce is a competitive advantage for our economy. It has allowed us to build a large, sophisticated services sector and underpinned world-leading mining and agricultural industries. Most importantly it has allowed us to raise living standards over time.

To sustain this success, we need to continue to invest in people's skills so they can adapt to the changing needs of our economy. Workers will need to have strong foundation skills, including interpersonal and problem-solving skills, to meet growing needs for sophisticated soft skills. To respond to the significant forces shaping the economy, we will need to build the workforce required to meet demand for care and support services, realise the opportunity of the net zero transformation and capture the productivity benefits presented by new technologies.

Managing this workforce transition will require a whole-of-government response. Strategic planning is needed to ensure efficient delivery of infrastructure, services and housing as the workforce grows. Factoring in these requirements will facilitate a smoother transition and prepare us to meet our future skills needs.

The Government is focused on building adaptable and resilient systems to respond to forces shaping Australia's economy, and in turn to develop adaptable and resilient people who can continually learn and reskill in order to catch up and keep up with labour market needs. However, this will not be enough. Each of these significant forces will also require their own, targeted response.



## 5.1 Our objective is to fill skills needs and build our future labour force

The mix of skills required in the labour force is changing as Australia's economy evolves. This reflects the changing nature of work. An adaptable and more highly skilled and educated workforce will be required to meet the challenges and the opportunities of an uncertain future. Workers are likely to change occupations 2.4 times on average over the next two decades.<sup>1</sup> It is also likely there will be more growth in jobs that need higher-level skills, which means workers will require higher levels of post-school education and training.<sup>2</sup> Projections produced by Victoria University for Jobs and Skills Australia (JSA) show that over the next ten years, more than nine out of ten new jobs expected to be created will require post-secondary qualifications.<sup>3</sup> Around 44 per cent of jobs will require a vocational education and training (VET) qualification, and around half (48 per cent) will require a bachelor's degree or higher qualification. In the current labour market, as of May 2023, around 51 per cent of jobs require a VET qualification, while 35 per cent require a bachelor's degree or higher.<sup>4</sup> The future labour market will demand ongoing rebalancing of the types of skills delivered across the tertiary sector.

An adaptable workforce means workers have both a strong core skillset relevant to all jobs and a well-developed set of specialist skills applicable to emerging work needs. A changing industry mix will demand different specific skills. For example, the net zero transformation will see new industries emerge and grow, while the rising demand for care and support services will drive expansion of the health care and social assistance industry. To upskill for the fast-paced evolution of roles and the changing industry mix, workers need an adaptable skills system which is responsive to demand.

While it is impossible to perfectly predict the exact form of the jobs and tasks of the future, it is possible to anticipate the broad areas where labour demand will grow rapidly, so that targeted solutions can be developed. Labour demand is expected to be strong in areas where significant forces are shaping the economy. Projections produced by Victoria University for JSA show that digital and technology jobs will grow by 21 per cent by 2033, while the care and support economy is expected to grow by 22 per cent by 2033.<sup>i</sup> Projections produced by Deloitte for JSA show that the occupations key to the clean energy workforce will need to increase by around 30 per cent by 2033 to deliver the net zero transformation.<sup>ii</sup> This represents an increase of around 213,000 workers. The clean energy supply workforce alone is projected to increase by around 127 per cent.<sup>iii</sup>

These forecasts indicate the scale and nature of the skills challenges we need to meet, and demonstrate how central effective workforce development is to Australia's broader objectives. For example, growth in jobs in the care and digital economies will outpace Australia's projected population growth over the coming decade. Meeting this demand will be key to ensuring the provision of high-quality care, and ensuring Australia can seize the productivity growth opportunities digital technologies present. Similarly, the pace at which Australia can develop a clean energy workforce will

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i Digital and technology jobs are calculated based on the combined growth of 20 occupations identified in Tech Council of Australia's (2022) Australia's Tech Jobs Opportunity report. The projections do not include tech-related jobs which are included in the Government's commitment to 1.2 million tech-related jobs. The care and support economy is calculated by JSA based on 19 occupations in six industries, spanning early childhood education and care, residential aged care and disability and other care.

ii Table 5.1 provides a list of occupations.

iii JSA defines the clean energy supply workforce as the workers whose employment relates directly to the generation of renewable energy and includes hydro-electricity generation, hydrogen, offshore wind generation, wind generation and solar generation.



impact Australia's ability to capture the economic opportunity presented by the net zero transformation. Rising to these challenges will require a strategic approach to growing the overall labour force in priority areas and building supply of specialist skills.

### 5.1.1 Tertiary education needs to deliver the skilled workers for the jobs of the future

High-quality and responsive education and training systems are pivotal to creating a resilient workforce. Businesses need workers with occupational expertise and strong employability skills who can adapt and shift across tasks as required. To support businesses, the education system must equip people with the capabilities and skills necessary to respond to changes in the labour market. Many of these skills are initially developed in early childhood and developed further through school years, as discussed in Chapters 4 and 6.

In addition to supporting people to develop these core occupational and employability skills, the education system needs to provide the further technical and specialist skills for participation in the future labour market. The following factors will be beneficial:

- effective – but not overly prescriptive – forecasts
- a tertiary system responsive to these needs
- better aligning participation in education and training with skills needs.

### 5.1.2 Forecasting skills needs helps the tertiary sector respond to changing demands

Predicting exactly which skills will be needed, and where they will be needed, is hard to do with perfect accuracy. Many occupations in the labour force today did not exist 30 years ago. Emerging industries and the spectrum of occupations will continue to expand. For example, in 2015 there were only 450 people employed as data scientists. Just four years later there were 3,210, an increase of nearly 500 per cent.<sup>5</sup> Telehealth is another example: between 2018 and 2022, the number of internet job listings mentioning telehealth increased by over 600 per cent.<sup>6</sup> Unsurprisingly, there was an increase in job listings mentioning telehealth during the COVID-19 pandemic, but the rate has continued to climb since then. Telehealth has now become an enduring way of people gaining easy access to services and medicines they need regardless of location.

Despite the difficulty of accurately forecasting detailed labour market shifts, there are broad trends that can be identified and there are ways to predict the specific skill sets needed. This is particularly important for beginning the process of educating people in more technical areas that will be in demand. For example, the Department of Employment's projections over the five years to November 2019 accurately forecast that the largest employment growth would come from the health care and social assistance industry, even though the size of the shift was underestimated.<sup>7</sup> National Skills Commission (now JSA) projections to November 2026 (Chart 5.1) show similar expected growth.

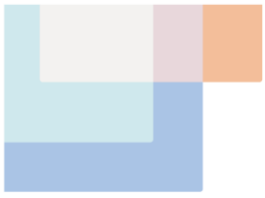
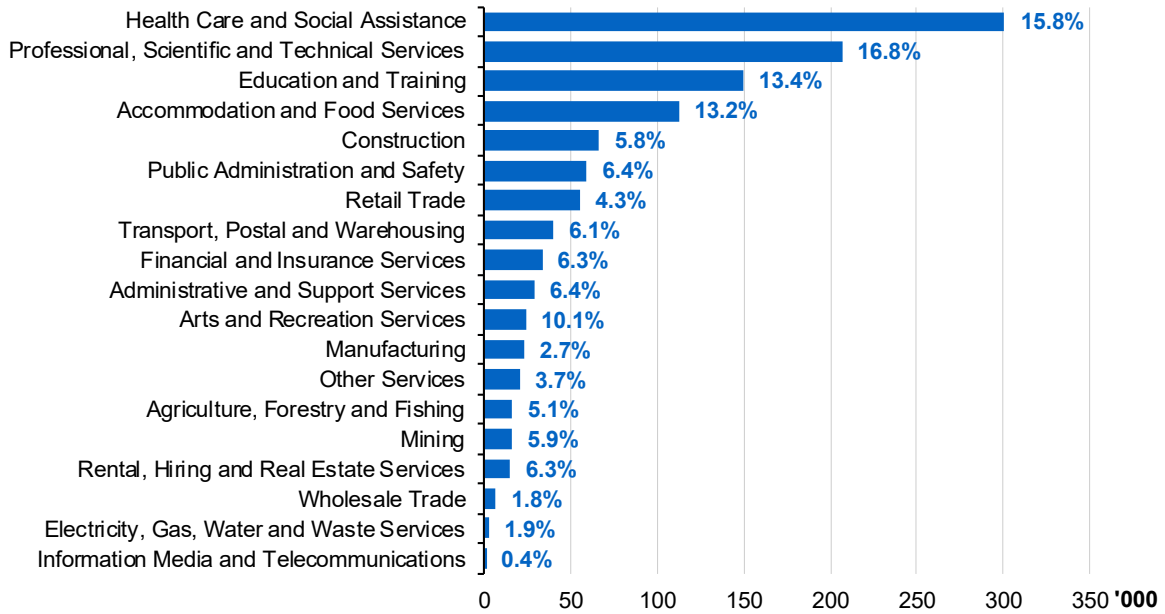


Chart 5.1 Projected employment growth by industry, November 2021 to November 2026

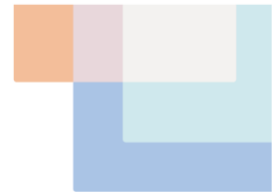


Source: National Skills Commission, 2021 Employment Projections.

Note: Bars refer to projected change in employment (thousands). Percentages refer to the percentage growth for each industry.

It is reasonable to expect continued employment growth in the health care and social assistance industry given the ageing population and rising demand for quality care and support services. It is also reasonable to expect increased use of digital and advanced technologies and the net zero transformation creating large demand for workers. Demand can be predicted with enough confidence to guide planning by businesses, tertiary education institutions and people making education and training decisions. The defence industry is another example where future workforce needs can be predicted with some degree of confidence (Box 5.1).

We are building strong capabilities to do this predictive work through JSA and industry-led Jobs and Skills Councils (JSCs). JSA will play a critical role in providing independent advice and information on current, emerging and future skills needs. JSA's work will provide insights into the direction of growth in certain industries and emerging trends, how the nature of work is changing and what types of skills will be required to capitalise on future labour market opportunities. JSA will work with tripartite stakeholders to shape education and migration policy settings accordingly – an approach often used internationally across a range of policy areas.<sup>8</sup>



### Box 5.1 Workforce growth to protect Australia's security and national interests

Skilled workers in Defence and supporting industries underpin the Australian Defence Force's work to protect Australia's national interests and advance our security and prosperity. We will need skilled workers in industry with both vocational and higher education qualifications and some with additional defence-related skill sets. In addition, Defence projects that it will need to grow its workforce by approximately 18,500 personnel by 2040.<sup>9</sup>

Australia's Defence industry will also need to grow significantly to deliver on the priorities included in the Defence Strategic Review. For example, at its peak, building and sustaining nuclear-powered submarines in Australia will support up to 8,500 direct jobs in the industrial workforce. Project management, security, mechanical operations, mechanical engineering, engineering management, electrical engineering, systems engineering, and project cost and scheduling are areas identified as priorities, especially in South Australia.

The SA Defence Industry Workforce and Skills Taskforce is an example of a collaboration between governments and the defence industry that aims to drive implementation of measures to develop the highly skilled defence workforce we need to deliver current and future defence projects.

## 5.1.3 An education and training sector more responsive to skills needs

When schools, the vocational education and training sector, higher education and other private education providers are effective at meeting skills needs, they expand opportunities for employment and support economic growth. Improving the responsiveness of these systems to industry demand is central to ensuring Australia can realise the opportunities presented by a changing economy.

### Vocational education and training

The VET system is a major pathway to deliver the future workforce. To prepare for the significant forces of the rising demand for quality care and support services, increased use of digital and advanced technologies and the net zero transformation, a more coordinated approach to the VET system by government and industry is needed. This includes making sure that students are presented with tertiary education choices that raise awareness of the career opportunities provided by VET pathways. VET and higher education must be presented as options with different but equally rewarding career paths to secure, fairly paid jobs.

States and territories have responsibility for VET delivery, which means training offerings are significantly supported by the states and can vary across the nation. The Australian Government also provides funding to support VET. Better national coordination on VET skills is underway, and shared system stewardship supported by a stronger evidence base through the five-year National Skills Agreement currently under negotiation, will lift the quality and relevance of teaching, increase the supply of workers for priority skills areas and improve student employment prospects.

A major challenge to meeting skills needs is lifting course completion rates, especially for priority cohorts. For students who commenced a VET qualification in 2018, the completion rate for all students was 47.6 per cent. For students with disability, it was 41.8 per cent and for remote students 40.7 per cent. Completion rates for Aboriginal and Torres Strait Islander students were even lower at 34.5 per cent.<sup>10</sup> A dedicated and collaborative national effort is required to trial new approaches to support these priority groups and make sure more people benefit from a tertiary education.



## Higher education

While Australia has a quality higher education system, it will need to become increasingly responsive to meet the needs of a changing economy. To ensure graduates are equipped with the most relevant and up-to-date skills, higher education will also need to increase collaboration with industry and business. Evidence highlights the effectiveness of combining formal learning with work-related experience for improving student outcomes.<sup>11</sup> Greater use of work-integrated learning will support this goal as well as improving higher education teaching. A more student-focused approach is needed to ensure students get the full benefit of their education and have the skills they need to enter the labour force. This includes supporting students to make good choices about their education so they can make the best of future opportunities.

Relative prices have not always provided an effective incentive for students to choose one degree over another. The Job-ready Graduates (JRG) package is one example of an ineffective student incentive scheme in higher education. Early evidence suggests the JRG package has had little to no impact on students' degree selection.<sup>12</sup> While student contributions for society and culture degrees more than doubled, applications to admissions centres for these degrees increased by 3.1 per cent in 2021, and direct university applications increased by 63.2 per cent.<sup>13</sup> The JRG package failed to recognise that student interest is one of the major drivers of course selection.<sup>14</sup> While it is difficult to convince students to take courses outside their area of interest, students can be influenced towards different courses within their areas of interest.<sup>15</sup> The 'publicity effect' can impact course selection, through positive or negative media or promotion of future employment prospects.<sup>16</sup> For example, marketing campaigns in the United States and United Kingdom which promote teaching as a career have proved effective.<sup>17</sup> Given that students' career choices are heavily shaped by parents and those around them, marketing campaigns can influence both the student and those who advise them.<sup>18</sup> Up-front payments to support work and study can also incentivise course choice. For example, bursaries or scholarships have been shown to be an effective incentive for high-achieving school-leavers and mid-career professionals to choose a teaching career.<sup>19</sup> These methods offer alternative approaches to using course fees as an instrument for shaping student choice.

## Helping school leavers make good career choices

High-quality career advice needs to balance supporting students to pursue their interests and aspirations with information about future job and earning prospects. Providing high-quality careers information about emerging labour market opportunities is a more effective way of directing students to gain particular skills. Although predicting what will happen in the future with complete certainty is fraught, articulating national priorities and long-run trends can help people make decisions that align with labour market needs. It will be important that information on future opportunities is accurate to avoid adverse outcomes. For example, considerable attention has been given to the increasing need for STEM skills. However, employment outcomes across STEM fields of study can differ significantly.<sup>20</sup>

Creating clear pathways into and across tertiary education is an important step towards improving student experiences by helping match courses of study with interests and career aspirations. The information provided by the workforce planning function of JSA will be vital for helping individuals make informed decisions about study and work. Information on available courses and potential labour market outcomes are spread across many platforms and links to careers information are inconsistent.<sup>21</sup>



## 5.1.4 The migration system can better target skills needs

By complementing domestic skills and training pathways, migration can play a role in addressing short-term skills shortages and bringing new expertise to Australia. To maximise the benefits of skilled migration, we need to select the migrants who can best contribute to lifting long-term prosperity while ensuring that they can effectively match into jobs they have the skills for. In both of these areas, Australia can do better.

### There is significant scope to better align migration with domestic skills needs

Temporary migrants are concentrated in the lower-skilled portion of the labour market. This is because two of the largest uncapped temporary migration visas are Working Holiday Makers and Students. Together with the Pacific Australia Labour Mobility (PALM) scheme, this skews the industries that migrants work in towards those with a higher proportion of jobs that have low barriers to entry and lower skills requirements.

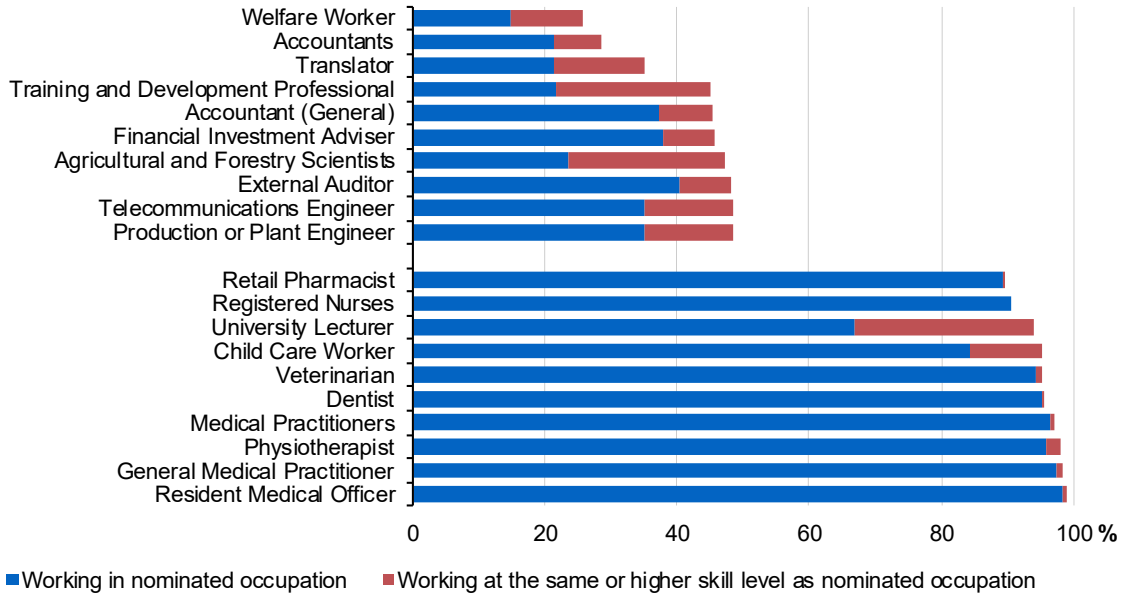
As a result, temporary migrants selected on a skills basis make up a small proportion of our temporary migration system. Students and New Zealand citizens, who are not selected on a skill-based criteria, make up about 60 per cent of people holding a temporary visa. Australia only actively shapes a very small proportion of its migrant intake, with the overwhelming majority of migrants arriving in Australia for non-work purposes but then participating in the labour market. This creates tension between the objectives of specific visa classes, for instance balancing student work rights with study requirements.

Ensuring Australia becomes the destination of choice for migrants with in-demand skills can be progressed by replacing outdated, inflexible occupation lists that do not meet our skills needs, with an improved new core skills occupation list. Updating Australia's classification of occupations to keep pace with market changes is challenging. It particularly lags new and emerging occupations which are among the most productive and of greatest interest to employers. This leaves gaps when assessing the current and future workforce skills mix. A notable example is the absence of data scientists for many years from the Australian Government's system for classifying occupations – one of the fastest growing occupations in Australia. In the future, constructing a flexible and responsive occupation list offers the opportunity to better reflect the current state of the labour market and identify the skilled migrants that are most needed.

There is also scope to better use the skills that migrants bring to Australia. Nearly a quarter of permanent skilled migrants are working in a job beneath their skill level.<sup>22</sup> This could reflect a range of reasons, including challenges navigating licensing systems, completing top-up qualifications, and working through Australian recruitment processes. Discrimination and unconscious bias among employers can also adversely impact migrant employment outcomes.<sup>23</sup> Some occupations exhibit particularly poor results for migrant skills matching. Migrant engineers and accountants stand out among the occupations not matching well into their nominated occupation (Chart 5.2).



Chart 5.2 Share of permanent migrants working in nominated occupations or at higher skill level nominated occupations with highest and lowest shares



Source: Treasury; Home Affairs Continuous Survey of Australia’s Migrants, 2023 to 2021.

Note: These values are weighted and include nominated occupations with more than 100 observations over the sample period.

These occupation-level results are supported by data from the 2016 Census indicating that migrants are more highly qualified than Australian citizens in all eight major occupational categories (Chart 5.3).<sup>24</sup> Some of this can be explained by Australian citizens having more years of experience in roles that can compensate for lower qualification attainment. However, the persistence of this trend in all occupation groups highlights the opportunity to better match migrants into jobs. This is reflected by the experience of migrant women, who are more likely to be ‘secondary’ visa holders and can have greater difficulty getting their qualifications recognised and finding work to match their skills.<sup>25</sup>

Skills mismatch may also explain some of the significant differences in the performance of specific visa classes. Employer sponsored and skilled independent migrants contribute the most to the economy over their lifetime. Other skilled visa classes, such as the Business Innovation and Investment visa and state nominated visa stream do not perform well.<sup>26</sup> To maximise the opportunities of the migration system Australia needs to do better at matching migrants with roles that suit them.



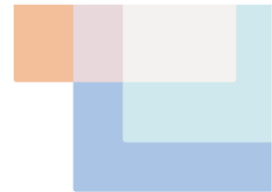
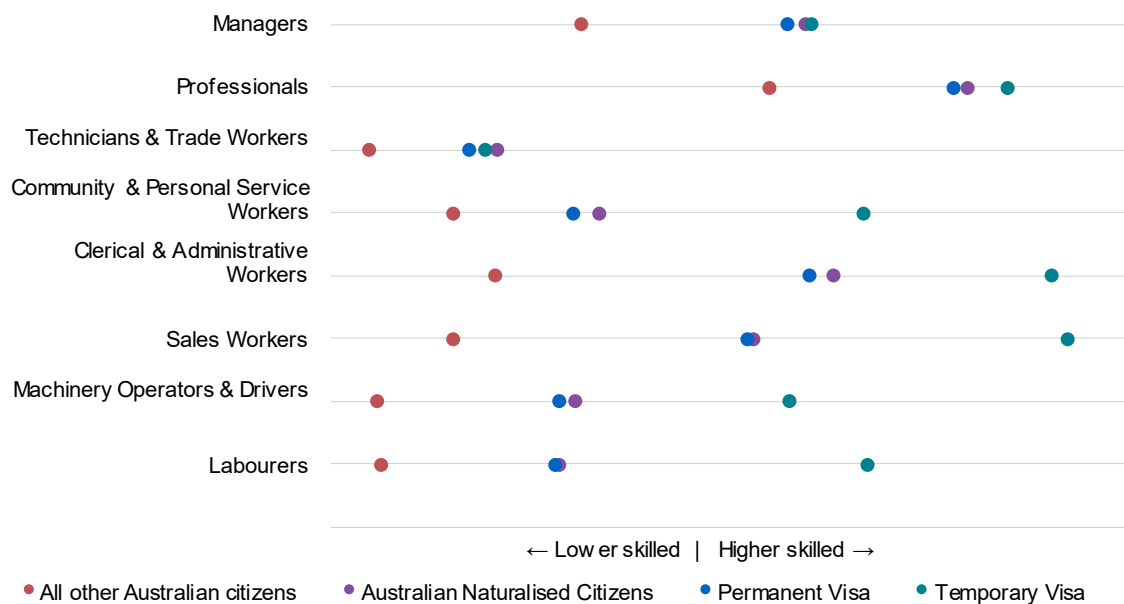


Chart 5.3 Migrant and Australian skill level matching by occupation categories



Source: Flinders University analysis of Multi-Agency Data Integration Project (MADIP), 2023; ABS Census, 2016.  
 Note: Population aged 25 to 54 years old, primary and secondary visa applicants. 2016 data was used for this analysis because of the COVID-19 disruptions caused to migration in 2021.

One improvement to lessen the likelihood of skills mismatches for migrants is better supporting international students transition to in-demand areas of the workforce. Some students transition better than others, and this is influenced by a range of factors, such as visa rules, citizenship status, lack of networks, the skills assessment system, and English language ability.<sup>27</sup> Reforms to the migration system to help students better transition out of study into areas of skills shortage and to ensure strong English language skills are likely to improve job outcomes for this cohort.

## 5.2 Taking tailored approaches to critical shortages

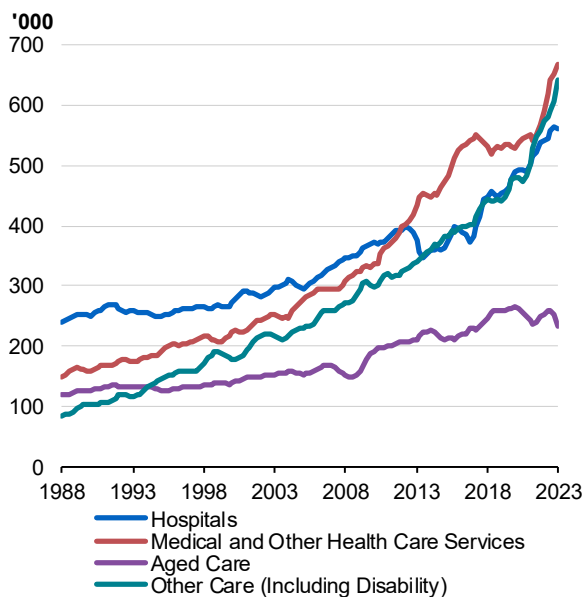
The significant forces shaping the labour market will create pronounced demand for workers. A larger care sector workforce will be needed to support the rising demand for quality care and support services. The technological and digital transformation will require more tech and digital skills across the board as well as some highly skilled specialist workforces in fields such as Artificial Intelligence (AI) and robotics. The net zero transformation also presents opportunities as Australia transitions away from high-emissions industries towards renewable energy and low-emissions technology. Each will need a tailored response to effectively build the workforce and respond to future skills needs.

## 5.2.1 Meeting demand for care services

### The care and support economy is rapidly growing

The healthcare and social assistance industry is the fastest growing part of the labour market.<sup>28</sup> Over the past 50 years, the demand for care and support services has grown significantly, and this is reflected in the growth in the care workforce (Chart 5.4). In 1966, 2½ per cent of the workforce was in a care occupation. This has increased to ten per cent of the workforce today and this growth is expected to continue.<sup>29</sup> Victoria University projections for JSA show the share of total employment in the health care and social assistance industry will increase from 15.2 per cent in 2023 to 16.7 per cent in 2033.<sup>30</sup> This is supported by analysis in the 2023 Intergenerational Report, which projects the care and support sector will almost double as a share of GDP over the next 40 years, increasing from around eight per cent of GDP today to around 15 per cent in 2062–63.<sup>iv</sup> Were employment to grow in line with the sector’s GDP share, then the workforce will also double over the next 40 years (Chart 5.5).<sup>31</sup>

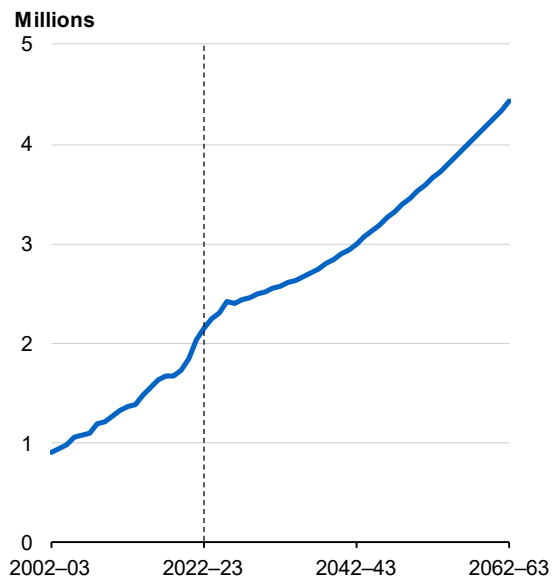
Chart 5.4 Growth in the care and support sector workforce



Source: Treasury; ABS Labour Force, Detailed, Australia, May 2023.

Note: Employment groupings based on the ANZSIC subdivisions for the Health Care and Social Assistance division. Annual moving average applied to quarterly data.

Chart 5.5 Care and support sector employment



Source: Treasury; ABS Labour Force, Detailed, Australia, May 2023.

Note: Assumptions for modelling are listed in the 2023 Intergenerational Report (IGR).

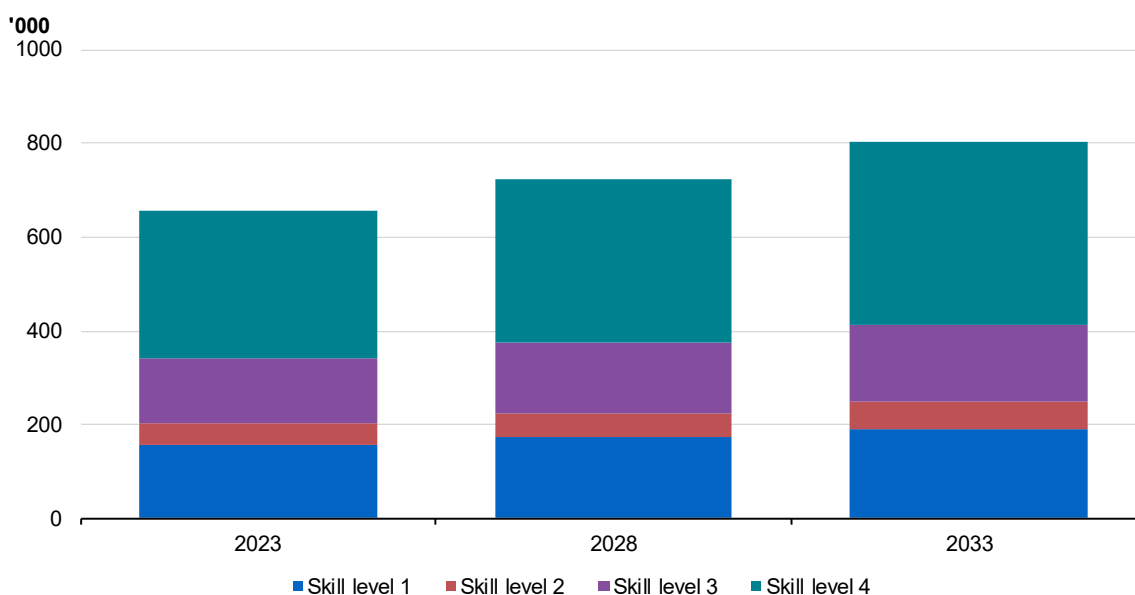
iv The 2023 Intergenerational Report uses a different methodology from JSA to calculate the care and support sector.



Analysis undertaken by JSA shows that the care workforce is broad. In May 2023 there were around 657,200 paid care and support workers employed across 19 occupations and six industries. The care and support workforce spans early childhood education and care, residential aged care and disability and other care.<sup>v</sup> The largest occupation within the care workforce is personal care workers, followed by child carers.<sup>32</sup>

The size of the growth of the care workforce over the coming years is therefore likely to be a significant challenge. Over the last five years, growth in the paid care and support workforce has been three times faster than total employment across the economy. Australia’s ageing population and increased uptake of formal care services are contributing to increased demand. Analysis based on Victoria University projections indicates that the care and support workforce will grow from around 657,200 workers today to 801,700 workers by 2033. The demand for workers is likely to be higher than this. In particular, strong demand is likely for workers with Skill Level 4 qualifications, commensurate with a Certificate II or III, who already make up half the workforce (Chart 5.6). The significant opportunities for lower-skilled workers will benefit those looking to enter the labour market, re-enter the labour market, or shift sectors. This is because the training required for entry for many roles is likely to be less onerous than other higher skill level occupations.

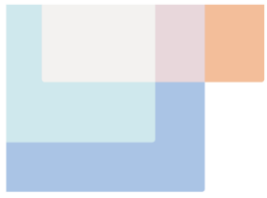
**Chart 5.6 Projected growth in the care workforce by skill level**



Source: Victoria University projections for Jobs and Skills Australia, 2023.

Note: Skill Level 1 is commensurate with a Bachelor’s degree or higher qualification; Skill Level 2 is commensurate with an Advanced Diploma or Diploma; Skill Level 3 is commensurate with a Certificate IV or III (including at least two years’ on-the-job training); Skill Level 4 is commensurate with a Certificate II or III; Skill Level 5 is commensurate with a Certificate I or secondary education.

<sup>v</sup> JSA analysis of the care and support workforce includes the following occupations: child carers, child care centre managers, early childhood (pre-school) teachers, education aides, welfare support workers, personal care workers (formally classified as aged and disability carers), nursing support and personal care workers, diversional therapists, enrolled and mothercraft nurses, Indigenous health workers, social professionals, registered nurses, nutritional professionals, occupational therapists, physiotherapists, podiatrists, audiologists and speech pathologists, nurse managers and health and welfare service managers.



However, there will remain a significant number of higher-skill roles within the care and support sector that will need trained workers. This will require greater collaboration between the higher education and VET sectors, as well as leveraging on-the-job training. Targeted education is needed to support workers to be continuously upskilled throughout their careers. This allows them to adjust to changing care needs but also to allow them to grow their career within the sector and take advantage of the diverse roles and opportunities it offers. The early educators, health and human services JSC, HumanAbility, is working to ensure the needs of the care industry are reflected in qualifications and training packages.

To meet this demand, a wide range of actions will need to be taken, including improving attraction and retention in the sector, expanding training opportunities, and investing in technology and new models of care to enable carers to spend more of their time on care. Government has a significant role to play in aligning the training, education and migration systems with this workforce goal, as well as evolving the way it engages in the funding and procurement of care services.

## Improving attraction and retention

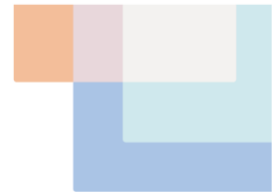
The starting point for building the future care workforce is ensuring the jobs are secure and fairly paid. Turnover in the care workforce is high. For example, for personal care workers, 59 per cent spent three years or less in the occupation.<sup>33</sup> Turnover is higher for young people, with 24 per cent of personal care workers aged 44 and under spending just one year in the occupation.<sup>34</sup> This is due to a range of factors, including high workloads, concerns about service quality, pay, work conditions and concerns about career progression opportunities. To address retention issues and encourage workers who have left the sector to re-enter, the care workforce needs to create jobs which offer safe workplaces, secure work and opportunities for a rewarding career.

Ensuring pay and conditions reflect the value of care and support work is critical. In May 2018, 95 per cent of care and support workers earned pay rates below the Australian average.<sup>vi,35</sup> Lower pay reflects the gendered undervaluation of work by women in the care and support economy.<sup>36</sup> In the 2022–23 Annual Wage Review decision, the Fair Work Commission (FWC) identified significant issues concerning the potential gendered undervaluation of work in female-dominated industries and occupations. The FWC will undertake work to identify occupations and industries where there is potential pay inequity and gender undervaluation of work to underpin consideration of issues in the 2023–24 Review.<sup>37</sup> In addition, to address lower rates of pay in aged care, in November 2022 the FWC granted a 15 per cent interim wage increase for aged care workers. This decision helps recognise the value of the care sector and helps make it more attractive for future workers.

Training to enter care professions needs to be accessible and attractive. Training places should be readily available, especially in regional areas and for in-demand specialities. Further, opportunities need to be available for on-the-job learning and for qualifications to be gained with practical experience. However, before prospective workers even enter the profession, they face financial barriers to participation. Many qualifications in the care workforce require workplace placements or practicums which are unpaid. Additional upfront costs such as transport, child care, and forgoing unpaid work during placements can result in students changing courses or withdrawing from study entirely.

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vi Note this statistic uses an older definition of the care and support economy used by JSA.



Demand for care and support workers has been met overwhelmingly by women. The care and support workforce is highly gender segregated, with women accounting for 76.5 per cent of employment in the health care and social assistance industry. Attracting more men and diverse cohorts into care and support professions will also be important to address shortages in the sector. In addition, the draft National Care and Support Economy Strategy highlights the importance of delivering culturally appropriate care for all people. An increasingly diverse Australian population will require a diverse workforce, as this enhances capability in meeting the varied needs of patients.

## Managing regional workforces

Attracting more workers is particularly important to address the growing demand for quality care in the regions. The ageing population in regional areas, combined with thin markets, means tailored solutions need to be developed to meet growing care needs. It will be critical to attract more workers to regional areas, deliver more training in regional locations and enable people who can and want to work more hours in regional areas to do so. There are also opportunities to make more efficient use of existing care and support workers, by allowing them to deliver more multidisciplinary care. In addition, technology-enabled service delivery such as telehealth is an effective way of improving access to healthcare professionals in regional areas. While not the single solution to address delivery gaps, telehealth can support increased access to services such as mental health.

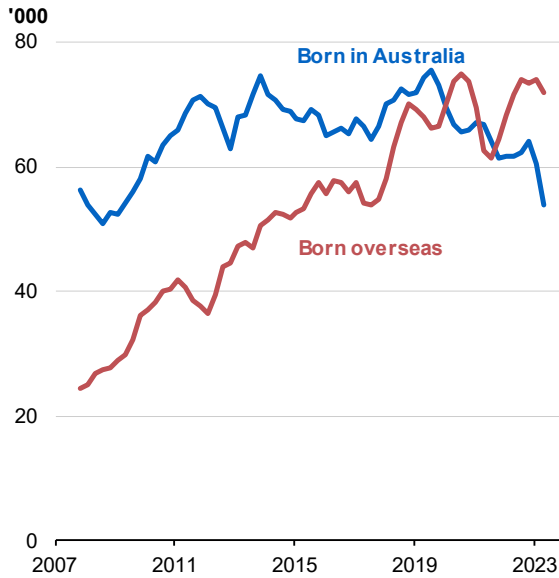
## Using migration to complement the local care workforce

Well-designed migration settings can complement the domestic workforce in the care sector. Migrants make up large portions of the care workforce, especially in aged care (Chart 5.7).<sup>38</sup> Occupations with a higher share of new entrants to the care and support economy who were born overseas include registered nurses in aged care (40 per cent), nurse managers (34 per cent), personal care workers (31 per cent) and nursing support and personal care workers (30 per cent).<sup>39</sup> Overall the health sector is an example of successful permanent skilled migration.

A large proportion of migrants working in the health care and social assistance industry are on skilled visas.<sup>40</sup> However, large numbers of migrants in other visa categories also contribute to this workforce, with 19.4 per cent of migrants in the industry on family or New Zealand visas, and eight per cent on student, working holiday, humanitarian or other temporary visas (Chart 5.8).



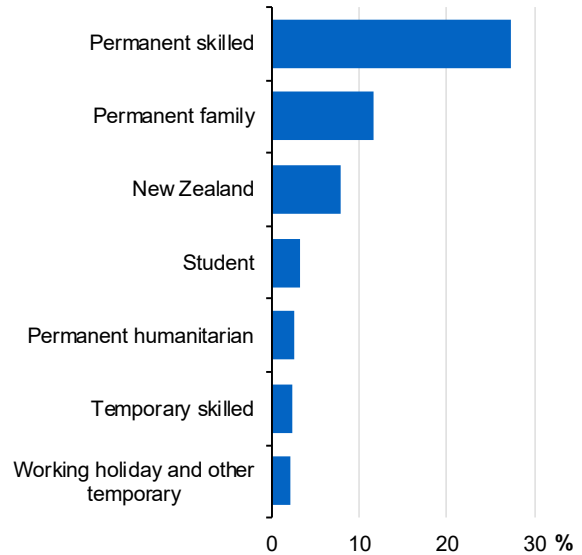
**Chart 5.7 Migrant status of care workers in residential aged care**



**Source:** Treasury analysis of ABS Labour Force, microdata, May 2023.

**Note:** Four quarter average. In 2021, 85 per cent of residential age care workers born overseas arrived in Australia aged 18 years or older: Treasury analysis of 2021 Census.

**Chart 5.8 Share of migrants in health care and social assistance**



**Source:** Mackey, W., Coates, B. & Sherrell, H., *Migrants in the Australian workforce*, (Grattan Institute 2022).

**Note:** Remaining share arrived before 2000 or were born in Australia. Permanent visa group are those who held a permanent visa between 2000 and 2016. Data on visa group is not available for migrants who arrived before 2000.

There is scope to improve how we bring migrants into the care sector. Currently, there are significant regulatory barriers to recruiting skilled migrants. Common feedback from internationally qualified health practitioners is that the process is lengthy, burdensome, complex and expensive. For example, the Medical Board of Australia only recognises six competent authorities in five countries, while New Zealand recognises 23, the United Kingdom over 30 and Canada eight.<sup>41</sup>

Processes are repetitive and information is difficult to find. Those who wish to work in the Australian healthcare industry must be registered with the relevant health practitioner board. These boards oversee the registration processes for physicians, pharmacists, nurses, midwives, physiotherapists, and other health professionals – independent of the skilled visa assessment process. It can take an international health graduate looking to come to Australia over a year, often longer, to register.

### Better using the available workforce

The high prevalence of casual work and multiple job holders in the care sector adds complexity to skills shortages and has implications for delivering quality care. In February 2021, around 28 per cent of the care and support workforce were casual workers, compared with 19 per cent of the total Australian workforce.<sup>42</sup> Aged care, disability support and veterans’ care workers are nearly twice as likely as other workers to hold multiple jobs.<sup>43</sup> This can limit job security for some workers who would prefer more stable work and has flow-on impacts for attraction and retention in the sector. Casual work and the prevalence of working multiple jobs can also have an adverse impact on the efficiency



with which the care workforce is used, particularly when there are shortages. For example, there are challenges with rostering when there is a mix of part-time permanent and casual staff, often working at multiple care facilities to earn a living wage.<sup>44</sup>

Care and support markets have unique drivers and competitive forces, which have significant implications for the care sector labour market. In 2021–22, the National Disability Insurance Scheme had over 500,000 participants and around 325,000 workers.<sup>45</sup> In the aged care sector, the Commonwealth Home Support Program has around 840,000 users and 76,000 staff, home care had over 216,000 users and 80,000 staff, and residential aged care supported around 245,000 residents and over 277,000 total staff.<sup>46</sup> These different parts of the care sector often demand the same skills and can compete for the same workers. To ensure different parts of the care sector can grow together, the Government must be careful to consider the care workforce as a whole when setting policy, to ensure best use of the available workforce.

### Improving care delivery models

When care is delivered more efficiently, it expands the service capacity of the available workforce. Improving integration and coordination of primary care services can improve health outcomes and reduce costs by preventing unnecessary hospitalisations. In aged care, effective home care services can be a high productivity approach to delivering care, as living independently for longer can result in lower labour requirements and lower costs than residential aged care, as well as greater benefits to patients.

Better integration of technology and use of data in existing care settings also presents an opportunity to improve the quality of care. One example is My Health Record, which is a comprehensive data sharing system spanning the whole health and care sector. My Health Record ensures carers have up-to-date and readily accessible information about their clients to deliver more tailored and timely care. By reducing time spent on administrative tasks, technology can free up workers to spend more time with their patients. This improves quality of service, allowing workers to add value where their skills are needed most, especially as 23.8 per cent of occupations in the care and support workforce require a bachelor's degree or above.<sup>47</sup> Training workers to use new technologies will be crucial to help capture quality-enhancing productivity gains.

The Government makes significant investments into the care economy, spending over \$160 billion on aged care, NDIS and health expenses in 2022–23.<sup>48</sup> The way the Government buys these services has a large impact on access, service quality and choice for consumers, and wages and job quality for workers. The different sectors of the care economy are accessed, funded and regulated separately, with some providers delivering similar services under different regulatory regimes. Opportunities to purchase services in a way which encourages efficiency can help improve overall care delivery models. There are also opportunities to improve the delivery of care through regulatory harmonisation, especially in removing barriers to moving between different parts of the care system. For example, different worker screening arrangements across sectors and states make it difficult for workers to work across different sectors including aged care, disability support and veterans' care.<sup>49</sup>

## 5.2.2 Building the workforce we need for the net zero transformation

Building a clean energy workforce is a critical enabler of Australia's net zero ambitions. Reducing emissions by 43 per cent by 2030 and achieving net zero by 2050 will reshape the skills needed in our economy. The pace at which Australia can develop and efficiently deploy a clean energy workforce will



also be key to unlocking the industrial opportunities and potential productivity growth presented by this economic transformation. Building the clean energy workforce also forms part of a broader strategy to build a nature positive economy.

## Demand for clean energy workers

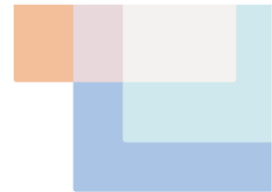
The net zero transformation is accelerating. By April 2021, the pipeline of new clean energy projects committed to and underway alone was estimated to require 28,649 full-time equivalent jobs.<sup>50</sup> Shortages are also being reported as a key challenge in the sector.<sup>51</sup> Between 2012 and 2020, job ads for roles in wind and solar industries increased nearly four-fold in Australia.<sup>52</sup> This indicates significant potential for further growth in clean energy jobs as the net zero transformation progresses. Globally, the rate of transition from emissions-intensive to non-emissions intensive jobs has increased nearly 10-fold since 2005.<sup>53</sup>

JSA analysis has found that to reach net zero, a mix of critical clean energy jobs and supporting jobs will be required. Deloitte projections for JSA show that the specific clean energy supply workforce is projected to increase from around 15,000 workers in 2023 to 34,000 workers in 2033.<sup>vii,54</sup> The net zero transformation is also increasing demand for workers in a wide range of related industries, beyond core clean energy jobs. For example, employment in the National Electricity Market is forecast to increase by 19,000 jobs from 2023 to reach 63,000 jobs in 2039.<sup>55</sup> Deloitte projections for JSA show occupations key to the clean energy workforce will need to increase by around 30 per cent, or around 213,000 workers, by 2033 (Table 5.1). We will need almost 43,000 more electricians in the next ten years alone.

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vii JSA defines the clean energy supply workforce as the workers whose employment relates directly to the generation of renewable energy and including hydro-electricity generation, hydrogen, offshore wind generation, wind generation and solar generation.





**Table 5.1 Projected change in employment by occupations key to the clean energy workforce, 2023 to 2033**

Occupation	Growth, level	Growth, %
Telecommunications Trades Workers	19,000	100
Electronics Trades Workers	19,000	73
Electrical Engineering Draftspersons and Technicians	7,000	58
Agricultural and Forestry Scientists	3,000	33
Structural Steel Construction Workers	8,000	33
Construction Managers	38,000	31
Airconditioning and Refrigeration Mechanics	9,000	29
Urban and Regional Planners	5,000	28
Other Engineering Professionals	4,000	27
Electricians	43,000	26
Plumbers	26,000	26
Industrial, Mechanical and Production Engineers	9,000	23
Electrical Engineers	5,000	17
Civil Engineering Professionals	13,000	17
Engineering Managers	5,000	17

Source: Deloitte projections for Jobs and Skills Australia, 2023.

To meet demand for clean energy workers, Australia will need to attract new and more diverse workers to the sector and broaden the talent pool. Women are underrepresented in the clean energy workforce, as are First Nations people and people with disability.<sup>56</sup> This reflects in part the lower participation rates of these groups in overall trade occupations. Targeted action is needed to bring in more workers from these groups to address critical shortages and ensure all Australians can benefit from the transformation to net zero. Migrants will also form a significant part of this transformation, with the acceleration of the renewable transition requiring Australia to attract global expertise.

### Occupational transitions and the demand for new skills

In combination, the growth in sectors involved with decarbonising the Australian economy, such as solar and wind farms, will provide opportunities for workers in emissions-intensive occupations to change jobs or upskill. Many of the skills needed to decarbonise already exist in our economy. Trades, technicians and other workers needed to support the net zero transformation are already employed in other sectors of the economy, such as in mining and construction. In a majority of emissions-intensive occupations, workers already have the skills to transition to clean industry jobs.<sup>57</sup> In fact, compared to many other countries, Australia has high levels of clean energy skills in the workforce, and a high share of emissions-intensive jobs that are able to effectively transition to clean energy jobs.<sup>58</sup>

While there will be opportunities to transfer skills to new clean industries, some form of training will often be required to ensure the workforce is equipped with the specialist knowledge to be safe and productive. Skilling the clean energy sector will require diverse qualifications across the tertiary system. Most jobs will require existing broad-based qualifications that teach fundamental or core skills (for example Certificate III in Electrotechnology or a Bachelor of Electrical Engineering). To deliver specialist knowledge, ‘top-up’ or elective courses may be required, whether through post-graduate qualifications or short courses. Finally, new qualifications may be needed for emerging occupations



where a larger range of specialist skills will be required. Powering Skills Organisation is one of the new JSCs responsible for the energy, gas and renewables sector. The organisation will bring a strategic industry perspective to the development of training products and help to address these workforce challenges.

Finding skilled VET teachers to teach new energy qualifications is an additional challenge. Wages need to be competitive with those offered by industry, and industry experts face additional training requirements to teach and assess in VET. In addition, the existing TAFE teacher workforce is older than the general workforce, with 27 per cent of public sector VET teachers aged 60 years or over.<sup>59</sup> Workforce challenges will need to be resolved in the education sector itself, for it to effectively support the broader labour market.

The transformation to net zero provides an opportunity for specific collaboration across the tertiary sector and with industry and governments. Dual-sector tertiary providers and the TAFE Centres of Excellence, proposed under the upcoming National Skills Agreement, are two mechanisms for addressing the net zero transformation collaboratively. Centres of Excellence could develop deep expertise in wind, solar, smart energy systems or hydrogen, and build partnerships with industry to develop innovative training courses. The pace of the transformation means new models of course design and new types of qualifications should be prioritised. The forthcoming JSA Clean Energy Capacity Study will look at how different transition scenarios affect future workforce needs, and how these opportunities can be shared across regions and all cohorts in society. It will also identify the education, training and migration pathways required for the transformation to net zero.

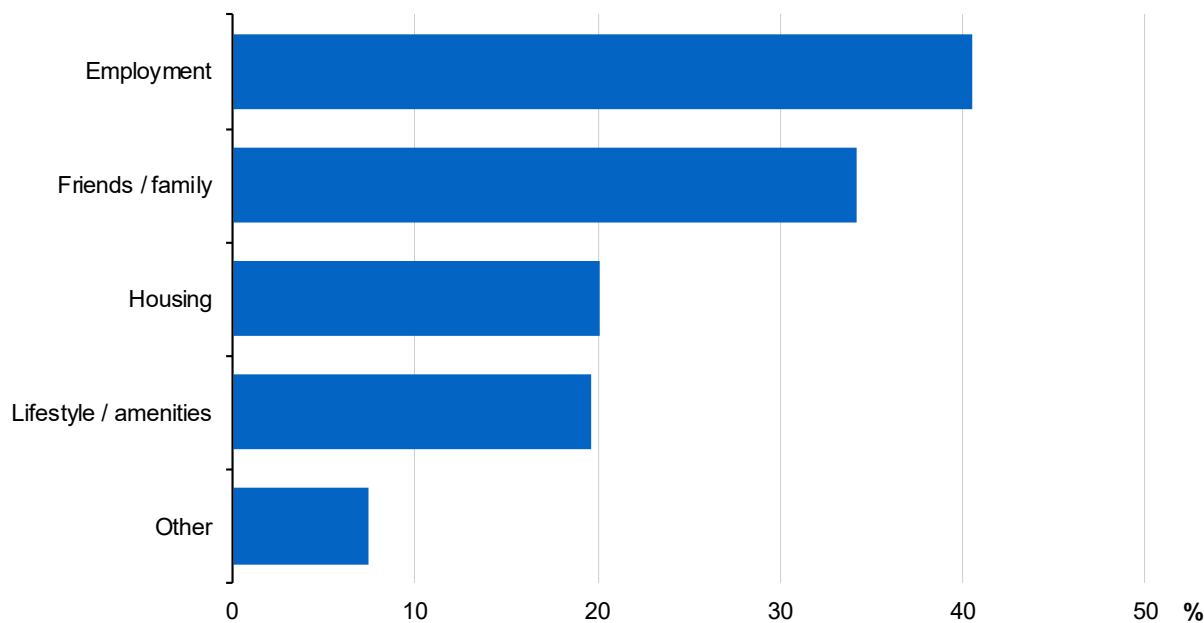
## Changes in regional opportunities

Much of the transformation to net zero will be concentrated in regional areas. Eighty per cent of facilities covered by the Safeguard Mechanism are located in just eight regions, reflecting the significant regional concentration of decarbonisation and clean energy growth opportunities. Many of these regional areas have lower industrial diversity, a higher concentration of related emissions-intensive industries and lower adaptability, so may be more exposed to adjustment risks. JSA projects that growth in employment from the net zero transformation is likely to be stronger in regional Australia than metropolitan Australia. The Net Zero Authority will ensure that highly impacted regional areas receive targeted support to ensure they benefit from the transformation.

Clean energy projects have already demonstrated they can play an important role in driving regional economic transition and renewal. For example, following the closure of South Australia's last brown coal-fired power plant, the Leigh Creek coal mine, and the Atrium steel mill in 2016, the areas of Port Augusta, Whyalla and Port Pirie responded by pursuing renewable energy projects in solar power and wind.<sup>60</sup>



Chart 5.9 Main reasons for moving between regions



Source: Treasury analysis of HILDA waves 2 to 21.

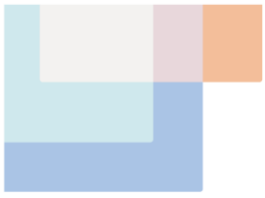
Note: Moving between regions is defined as moving 50km or more. Respondents can select more than one reason. Moving for housing reasons includes voluntarily moving properties, as well as involuntarily moving.

Some workers may choose to move to these regions for new employment opportunities – moving for employment is the most common reason people chose to move between regions (Chart 5.9). However, we also need to invest in all regions’ ongoing prosperity. Many people living in regional areas working in emissions-intensive industries want to continue living in those communities. Supporting the continued strength of these regions will require a strategic plan and a more coordinated, location-specific and proactive approach. This includes encouraging different industries to operate in the regions, ensuring dynamic supply chains and a flow of new investment. Workers will also need adaptable skills and access to employment and training support to take advantage of new clean energy industries. In addition, there is a need for Government to work with employers in emissions-intensive industries to ensure clear planning and support for workers.

### 5.2.3 Expanding digital expertise

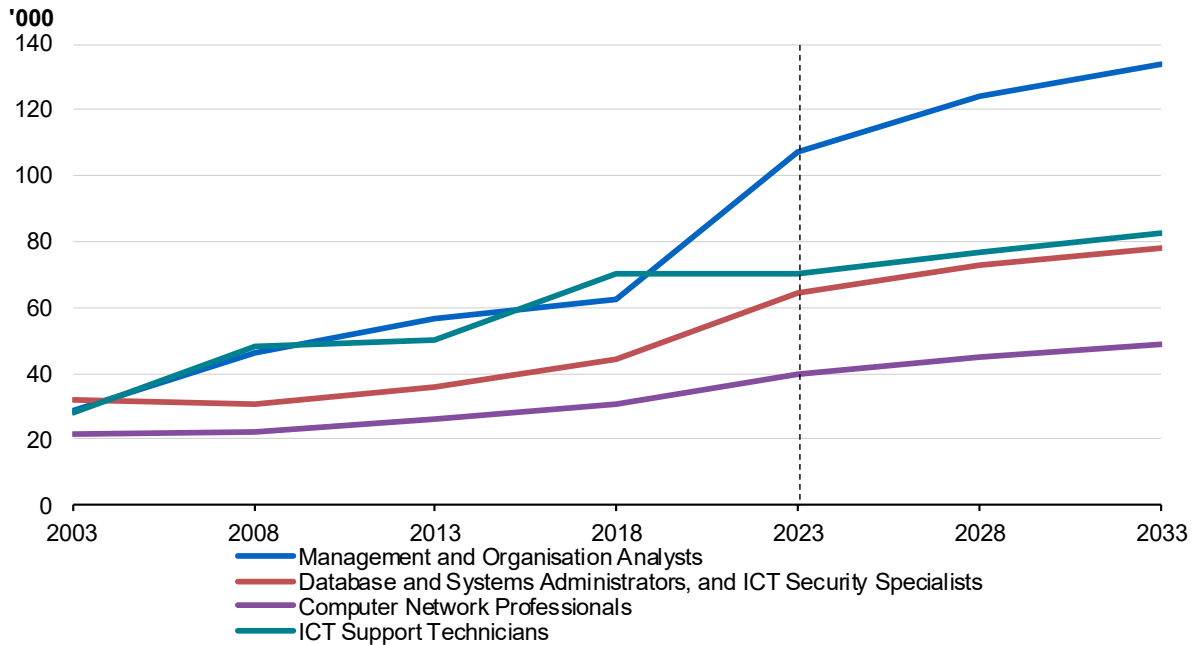
Digital and tech skills are becoming increasingly important to the Australian economy. Now embedded in most jobs, they are essential for creating an adaptable workforce and supporting productivity growth. They expand opportunities for regional workers and connect Australia with global markets. Access to the right digital and tech skills also unlocks innovative improvements to business operations, allows Australia to produce world-leading digital products, and ensures Australia has the skills required to support its strategic and security interests.

To realise these benefits, the Government and the Tech Council of Australia have a shared commitment to achieve 1.2 million people in tech-related jobs by 2030.<sup>61</sup> Victoria University projections for JSA show tech occupations will grow by 12 per cent over the next five years to 2028,



and by around 21 per cent over the ten years to 2033.<sup>viii</sup> Particularly strong five-year growth rates are projected for occupations such as management and organisation analysts (16 per cent), computer network professionals (14 per cent) and database and system administrators, and ICT security specialists (13 per cent) (Chart 5.10).

**Chart 5.10 Growth in selected digital and tech jobs**



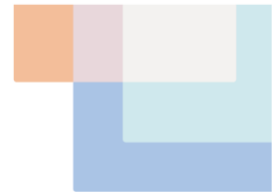
**Note:** Figures for 2003–2018 are ABS May quarter employment. Figures from 2023 onwards are Victoria University projections for JSA. Projections are not based on the historical series presented in this chart.

**Source:** ABS Labour Force, Australia, Detailed, May 2023; Victoria University projections for Jobs and Skills Australia, 2023.

Australia’s education and training system will need to evolve to support this demand for digital and tech skills. Businesses reported in 2019–20 that a lack of skills and knowledge was one of the top barriers to adoption of digital technology.<sup>62</sup> Encouraging people to make mid-career transitions into tech roles will be an important part of addressing gaps in the skilled labour force. People move into technology roles from a range of different occupations, but most commonly from information and organisation professions.<sup>63</sup> Attracting skilled migrants from overseas with relevant digital and technology skills will also help to grow Australia’s technology workforce.

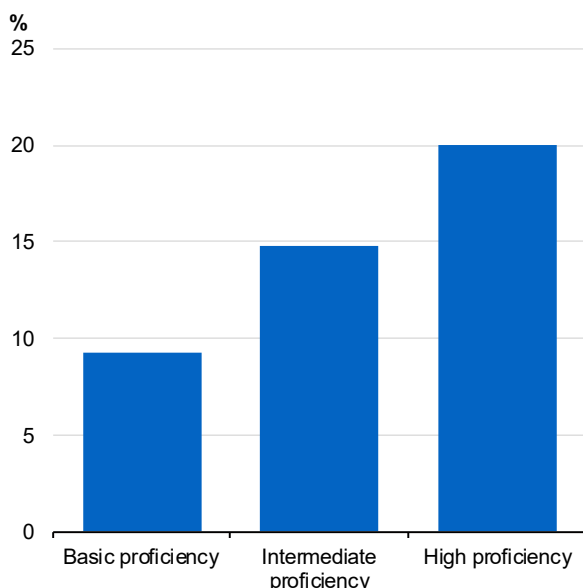
New forms of education and training will be required to build digital and tech skills in the workforce and address immediate skills needs. For example, the New South Wales Institute of Applied Technology – Digital is a partnership between government, industry, universities and TAFE to develop skills across the in-demand areas of big data, cyber security, cloud computing, software development and AI. A purpose-built facility at the Meadowbank TAFE is designed to deliver short courses in IT that respond to industry’s fast-evolving needs.

viii Note JSA tech occupations do not include tech-related jobs which are included in the Government’s commitment to 1.2 million tech-related jobs.



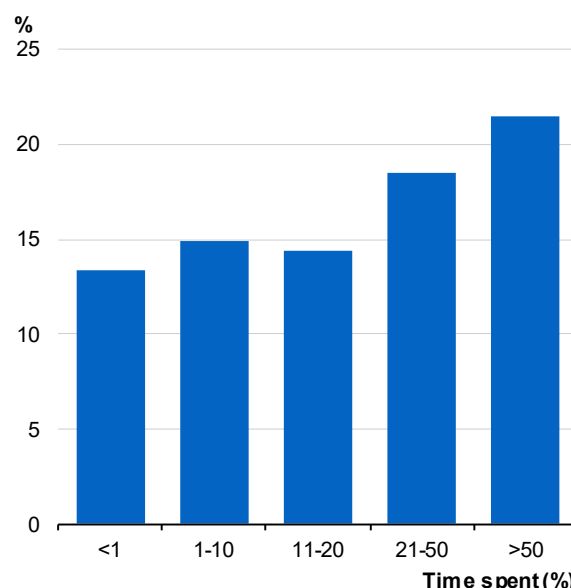
Improving our understanding of the digital and tech skills required for different jobs and understanding what digital skills every worker should have will be essential to meet the needs of industry. JSA’s Australian Skills Classification shows digital engagement is required at various levels of complexity and importance.<sup>64</sup> Occupations requiring a high proficiency in digital engagement are projected to increase by a greater proportion than occupations requiring intermediate or basic proficiency (Chart 5.11). JSA analysis also identified that occupations that spend more than 50 per cent of their time on data and digital tasks are projected to grow at a faster rate than all other occupations (Chart 5.12). This is driven by growth in ICT Support and Test Engineers and Computer Network Professionals which are projected to be some of the fastest growing occupations over the next five years.<sup>65</sup>

**Chart 5.11 Average projected employment growth of occupations by digital engagement proficiency levels**



**Source:** Jobs and Skills Australia Employment Projections, 2023; Australian Skills Classification, 2022; JSA Analysis.  
**Note:** Projections are average 10-year employment growth, 2023 to 2033.

**Chart 5.12 Average employment growth of occupations by time spent on data and digital skills**



**Source:** Jobs and Skills Australia Employment Projections, 2023; Australian Skills Classification, 2022; JSA Analysis.  
**Note:** Projections are average 10-year employment growth, 2023 to 2033.

To meet future workforce demands, training programs for digital and tech skills will need to get better at attracting diverse high-school graduates. For information technology subjects, girls make up less than a quarter of total Year 12, undergraduate university and VET enrolments.<sup>66</sup> This is why the Government’s Diversity in STEM Review has been tasked with looking at what barriers diverse cohorts face in pursuing STEM qualifications at university. It is also examining what can be done to improve attraction and retention of diverse cohorts of Australians to tertiary STEM courses, including through increasing collaboration between universities, VET and industry.



Given the rapid pace at which digital and tech skills needs evolve, education and training providers need to continue to engage effectively with industry on the focus and design of relevant courses. Equipping students with foundation problem solving and analytical skills, irrespective of specialisation, is an important part of building resilience and adapting to technological change. The Future Skills Organisation, one of the newly established JSCs, is working with employers and training providers in the finance, technology and business sectors to make training more relevant, agile and responsive. The Future Skills Organisation will be supported by workforce analysis undertaken by JSA. Supplementing the expertise of JSCs with evidence from JSA will best ensure future course design is matched to labour market need.

## 5.3 Improving education system outcomes

The education system is central to our goal of meeting skills needs and building our future labour force. Lifting the level of educational attainment across the Australian population requires action across all levels of the education life cycle. To increase the number of people with post-school qualifications, students must be set up by an effective school education to succeed and complete their tertiary qualifications. The tertiary system must also adjust to meet future workforce needs, by providing greater support for disadvantaged students and increasing collaboration with industry and with other parts of the tertiary system. Finally, a culture of lifelong learning, supported by greater workplace training, will ensure people are equipped with the training to take advantage of future opportunities in the labour market.

### 5.3.1 School education opens pathways into further learning and work

The importance of school education, and in particular completing Year 12, is clear. Completing Year 12 provides a 30 per cent earnings boost, the most significant annual earnings increase for an additional year of education.<sup>67</sup> Completing Year 12 also raises the likelihood of being employed (Chart 5.13) and facilitates pathways into tertiary education, which will become increasingly important for the jobs of the future. However, Year 12 or equivalent attainment is not achieved equally across society. Some groups such as First Nations people and people with low English proficiency are less likely to have finished Year 12, limiting their skills development and their ability to gain a secure, fairly paid job (Chapter 6). The importance of school and post-school further education pathways for future productivity is discussed further in Chapter 4.

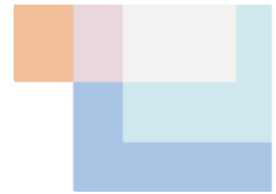
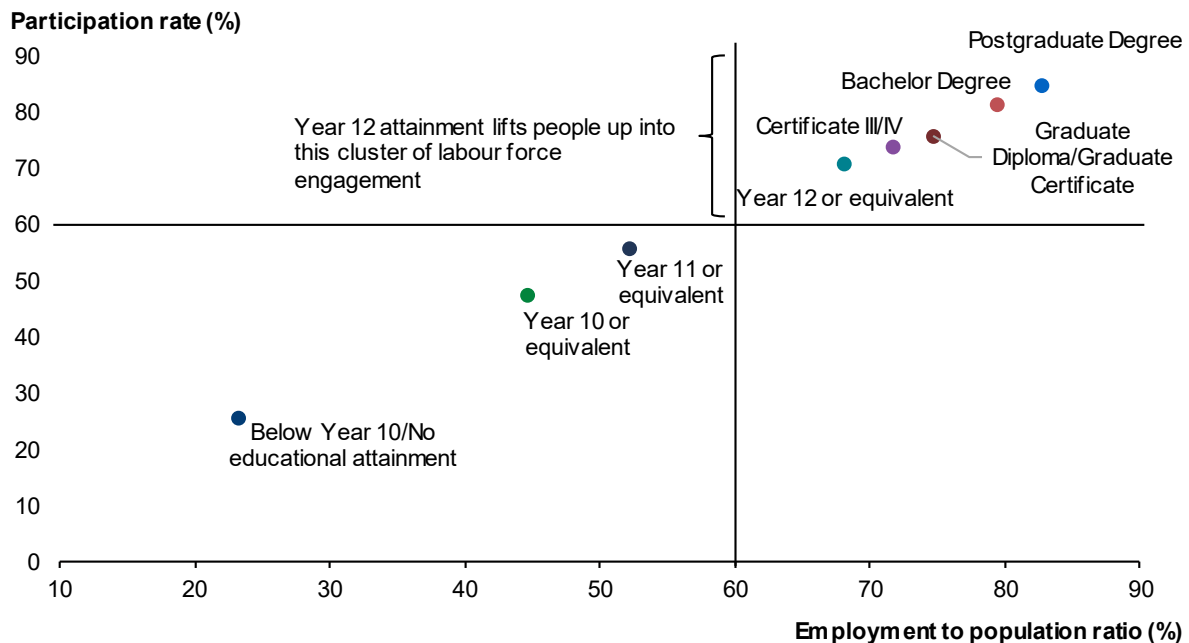


Chart 5.13 Participation rates and employment to population ratios for different levels of educational attainment, February 2023



Source: ABS Labour Force, Australia, Detailed, May 2023.

There is an opportunity to lift the educational attainment of Australians who face historical, cultural and systemic barriers that hinder their ability to reach their full learning potential. Supporting additional learning needs of disadvantaged students and schools can improve student outcomes. Addressing this disadvantage at the schooling stage will support greater numbers of students to progress to tertiary education and take advantage of the higher skilled jobs of the future.

### 5.3.2 Growing the workforce of the future

As highlighted earlier in this chapter, more than nine out of ten new jobs created in the next ten years are expected to require a post-school qualification. Almost half of the new jobs will require a bachelor’s degree or higher qualifications, and 44 per cent will require a VET qualification.<sup>68</sup> However, the gains from tertiary education are not being shared equally among the population. While 44.6 per cent of Australians aged 25 to 34 had a bachelor’s degree or above in 2022, and 73 per cent had a Certificate III or above, this is not true for all cohorts.

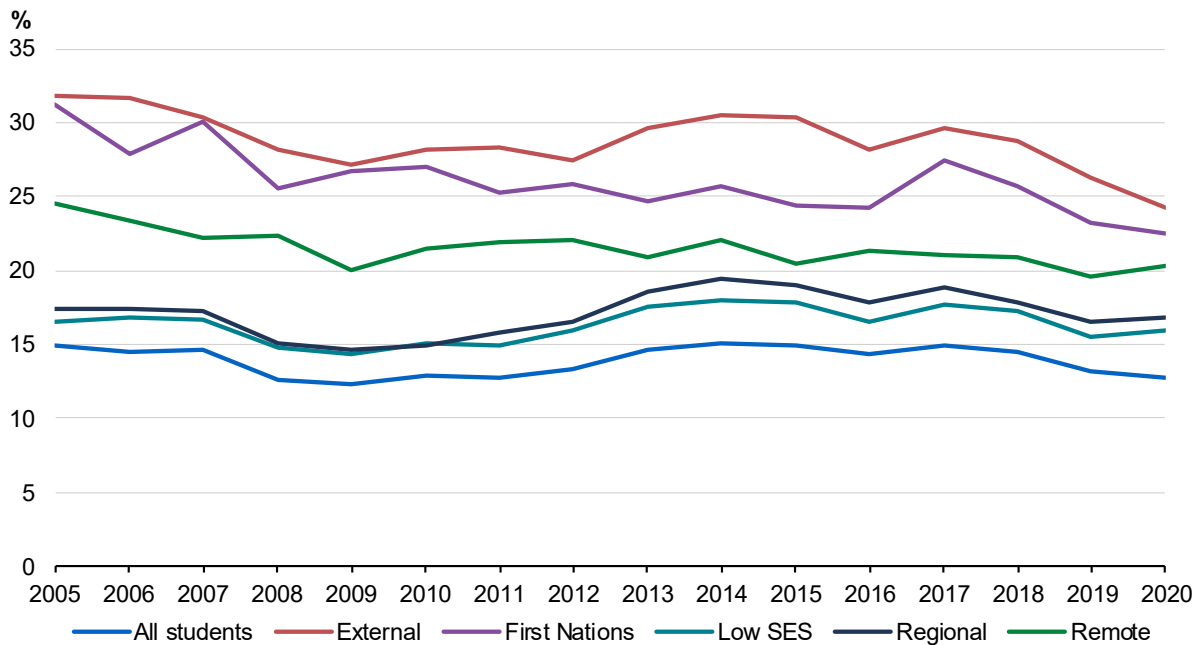
People from major cities are more than twice as likely to attend university as those in regional and remote areas.<sup>69</sup> The proportion of people with disability aged 20 or over with a bachelor’s degree is only 17 per cent despite 34 per cent having completed Year 12 or equivalent.<sup>70</sup> Among all Australians aged 15 and over, only 7.4 per cent of First Nations Australians, 15.2 per cent of regional and remote Australians and 17.3 per cent of Australians in low socioeconomic areas (SES) have a bachelor’s degree or above.<sup>71</sup>

The attrition rate for underrepresented groups also tends to be higher than the total population, particularly for people who study off-campus and First Nations students (Chart 5.14). The goal of



higher education reform must be ‘growth for skills through greater equity’.<sup>72</sup> To increase tertiary education attainment rates, reforms must address challenges such as attracting more students from backgrounds currently underrepresented in higher education and improving quality of teaching and learning.

**Chart 5.14 Higher education attrition rates for selected cohorts**



Source: Higher education statistics, Department of Education, 2022.

Note: Students refers to domestic Bachelor’s degrees. External refers to mode of attendance which does not require on-campus attendance.

## Setting ambitious targets for tertiary attainment

The future labour force will require significant growth in the tertiary educated workforce. In 2008, the Bradley Review set a target that 40 per cent of Australians aged 25 to 34 should have a bachelor’s or higher degree, and a participation target that 20 per cent of undergraduates should be from low SES backgrounds. The first target has been met, but the second has not, with participation rates for low SES students barely increasing since the target was set.<sup>73</sup> As part of the National Agreement for Skills and Workforce Development, the Government also set targets for attainment in VET. These were to halve the proportion of Australians aged 20 to 64 without a Certificate III or above, and to double the number of diploma and advanced diploma completions.<sup>74</sup> Neither of these have been met.<sup>75</sup>

To meet the tertiary qualification needs of the future workforce, we will need a different focus which better reflects the skills needs of the future. We also need new approaches to ensure Australia can meet targets for low SES students and other groups underrepresented in higher education. This will require a mix of VET and higher education delivery. The Australian Universities Accord Panel is considering new attainment targets which recognise that more of the jobs of the future will require post-school qualifications, and targets which support greater access and participation for students from underrepresented backgrounds.





As highlighted in Table 5.2, lifting the tertiary attainment of certain groups has considerable potential to add to the skilled labour force. For example, if those from regional and remote areas had the same attainment of bachelor’s degrees as the national average, this would represent around 360,000 additional higher qualified workers.<sup>76</sup> The Universities Accord Panel’s interim report proposes an ambitious target of 55 per cent of 25 to 34 year olds having higher education qualifications by 2050.<sup>ix</sup> It estimates that reaching this target will require an extra 300,000 students to be in Commonwealth supported places by 2035 and an extra 900,000 students in Commonwealth supported places by 2050.<sup>77</sup>

**Table 5.2 Approximate number of people from underrepresented groups which would need a higher level of qualification to reach the national average**

	Regional/remote	First Nations	Low English levels
<b>Bachelor’s degree</b>	360,000	70,000	60,000
<b>Bachelor’s degree or higher</b>	590,000	100,000	110,000
<b>Certificate III &amp; IV or higher</b>	390,000	100,000	210,000
<b>Year 12, Certificate III or equivalent attainment or above</b>	800,000	120,000	90,000

Source: ABS Census, 2021.

Note: These figures are rounded and based on indicative calculations intended to demonstrate scale. Cross-over between the different population groups has not been taken into account.

A significant share of increased tertiary attainment will need to be met through an increase in enrolments by students from underrepresented backgrounds. In 2021, around 17 per cent of total domestic undergraduate students were from a low SES background, around 19 per cent were from regional and remote areas and two per cent were First Nations students.<sup>x,78</sup> All of these groups remain underrepresented in higher education.<sup>79</sup> To achieve 55 per cent higher education attainment and parity across underrepresented students, the Universities Accord Panel’s analysis found that 60 per cent of the additional students in the system will need to be from low SES backgrounds, while 46 per cent will need to be from regional areas, seven per cent from remote areas and 11 per cent from First Nations communities.<sup>80</sup>

## Elevating VET pathways

Meeting workforce needs will also require an increase in the number of people with VET qualifications. VET is a crucial source of skills in the labour market. Analysis from JSA shows that over the year to May 2023, 52 per cent of total employment growth has been in skill level two to four occupations where VET qualifications are the primary pathway.<sup>81</sup> The expected increase in higher education as a proportion of the tertiary sector has not diminished the central role of VET.

However, perceptions and attitudes about VET pathways and lack of awareness about rewarding career pathways can contribute to people choosing higher education over a vocational qualification. This has consequences for students whose expected returns to training would be greater from VET than higher education, and for shortages of in-demand vocational occupations.<sup>82</sup> The VET pathway is

ix These targets were informed by analysis from Oxford Economics Australia.

x Low SES uses SA1 (2016 SEIFA) classification, regional and remote uses 2016 ASGS classification.



often not seen as equal to a university pathway, and students are often not provided with enough information or encouragement to undertake VET in Year 11 or 12 or post-school.<sup>83</sup>

Providing VET pathways in schools is one way to connect students to opportunities and elevate its attractiveness as an educational pathway. School-mediated work-based learning helps students gain important career insights and empowers them in a way that cannot be replicated by off-the-job training.<sup>84</sup> VET in schools has been associated with a 14 percentage point increase in school completions and a 13 percentage point increase in the probability of pursuing further VET studies followed by entry into the labour market earlier than people pursuing other pathways.<sup>85</sup>

As well as elevating VET as a pathway, we can help to address critical shortages by ensuring students are completing their qualifications. Completion rates for apprenticeships have been declining steadily over time. Only 55.8 per cent of the 2018 national apprenticeship and trainee cohort successfully completed their apprenticeship.<sup>86</sup> Small and medium-sized businesses in particular can find it difficult to commit to and support an apprentice or trainee due to a lack of resources compared to large employers. Group training organisations (GTOs) – whose role is to employ apprentices and trainees and place them with host businesses – can play a critical role in supporting both apprentices and small and medium-sized employers. Apprenticeship and traineeship completion rates from GTOs are generally higher compared to apprentices and trainees hired directly by small and medium employers.<sup>87</sup>

Attracting more students to VET is of particular importance for trade qualifications, as labour market shortages are most common for technician and trade workers occupations, with 47 per cent of occupations in shortage in 2022. JSA also found that shortages of technicians and trades workers are often persistent over time.<sup>88</sup> However, completion rates for trade apprenticeships are low – for 2018 commencements, trade completion rates were 53.4 per cent.<sup>89</sup> Completion rates in trades are even lower for women (46.2 per cent), people with disability (42.6 per cent) and First Nations people (42.6 per cent).<sup>xi, 90</sup>

While student enrolment and commencement is important, relatively high attrition rates highlight that students facing disadvantage will need greater support to complete their studies. Education and training providers have an important role to play in supporting students. To successfully complete an apprenticeship, apprentices need personalised support and mentoring to manage mental health and navigate workplace issues.<sup>91</sup>

### 5.3.3 Quality skills and training that meet industry needs

As well as ensuring enough people complete tertiary education and training, qualifications need to be underpinned by skills that equip people for the workforce and are relevant to industry needs.

#### Lifting the quality of teaching and learning

Lifting the relevance and quality of training in VET must be a priority in meeting future skills needs. VET qualifications that are up to date and support safety and quality in training outcomes make it easier for employers to recruit and develop the skilled workers they need and provide students with a pathway to secure, fairly paid work. Placing TAFE at the centre of the VET sector and elevating it as an example of best practice will improve the quality of teaching and learning across the wider VET sector.

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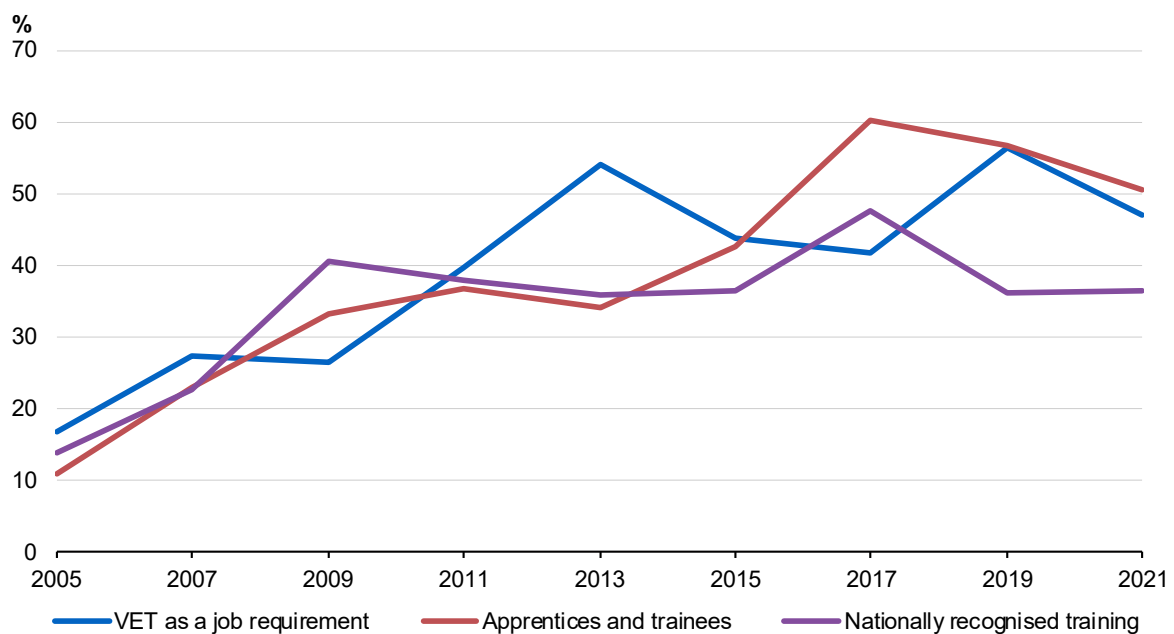
xi Completion rates are for 2018 commencing cohort in trade occupations. Total completion rate for this cohort was 53.4 per cent.



Through an enhanced leadership role in the sector, TAFEs can lift the quality of VET by trialling innovative teaching and learning approaches, developing new curriculum and course materials, and supporting VET workforce initiatives.

Training providers need to be supported to deliver quality training, including through a capable workforce, learning resources and facilities. This is important for TAFEs, which typically deliver priority subjects that would not otherwise be offered by private providers and training in unprofitable areas or thin markets. Lifting the quality of VET delivery is particularly needed in a range of courses where existing training is not meeting employer needs. Employer satisfaction with nationally recognised training has fallen from 83.1 per cent in 2013, to 78.7 per cent in 2021.<sup>92</sup> Satisfaction is lower for employers using apprentices and trainees, at 74.2 per cent. Falling employer satisfaction can in part be explained by perceptions of training quality. For example, 50.6 per cent of employers of apprentices and trainees said training was poor quality or low standard (Chart 5.15).

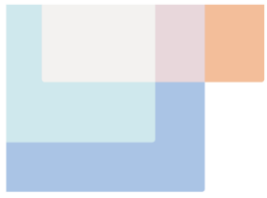
**Chart 5.15 Employers who cited training as poor quality or low standard as a reason for dissatisfaction with training**



Source: NCVET Employer's Use and Views of the VET System, 2021.

Concerns about training quality and relevance are not uniform but need to be addressed to increase industry and student engagement and trust. Greater collaboration with industry, universities and governments on national economic priorities would support high-quality learning. This could include creating curriculum and applied learning opportunities that directly respond to skill demands and increasing partnerships with industry. This will be a focus of the tripartite JSCs and the Qualifications Reform Design Group established by the Government in August 2023.

More can also be done to promote high-quality learning and teaching in the higher education system through a greater focus on students. Evidence suggests variability in teaching practices across higher education is leading to disappointment for some students.<sup>93</sup> A more student-centred model of delivery



and support, combined with more innovative curriculum and assessment design and delivery, is needed to ensure students receive a high-quality education.

A core difference between higher education and VET is the ability to self-accredit courses. In higher education, providers can apply to self-accredit courses of study, which allows providers significant autonomy to update courses and qualification content. In VET, accredited courses must be independently assessed by the Australian Skills Quality Authority or a state regulator. This does not allow for the same level of flexibility to meet new industry or local labour market needs.

While the majority of VET providers deliver high-quality training, there is a small number of private VET providers, particularly those who deliver international education, who may be enrolling non-genuine students. Removing lower-quality, non-compliant providers from the tertiary education sector would safeguard its reputation for quality. Similarly, removing information barriers for domestic and international students to enable them to choose high-quality providers will improve the integrity of the system and opportunities for students.

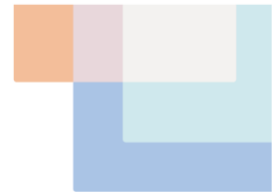
## Creating industry-relevant training

An important part of making sure the skills taught in the education and training system are relevant for the workforce is direct engagement with industry. JSCs are an example of working with industry to elevate its voice and ensure training delivers better outcomes for learners and employers. The Government has established ten JSCs across industries including agribusiness, manufacturing, energy, gas and renewables, and finance, technology and business. The JSCs will identify skills needs for their sectors, map career pathways, develop contemporary VET training products and improve training and assessment practices. They will also work with JSA, drawing on its workforce analysis, to create a consistent understanding of the skills landscape and how gaps can be addressed.

JSCs will also have a role in qualifications reform. VET qualifications reform aims to build on the existing strengths of the VET system and ensure it is relevant to labour market needs and adapting to the challenges and opportunities facing the economy.

Innovative and new qualifications will be a vital part of meeting industry needs. The development of 'higher apprenticeships' – which combine structured on-the-job training through apprenticeships with study leading to degree-level qualifications – could provide opportunities for students to obtain higher-level skills. This has the potential to engage more people in tertiary education and address the skills needs of employers. Higher apprenticeships would allow students to develop more specialised higher-level skills tailored to emerging skills needs, such as digital or cyber technology and advanced manufacturing, not offered under traditional apprenticeship models.

Students engaging with industry and getting early exposure to workplaces can improve graduate outcomes and skills matching.<sup>94</sup> Work-integrated learning generally refers to putting skills learnt through study into practice in a work setting, can count towards credit, and mostly leads to a qualification. Work-based learning – learning skills on the job as part of a qualification – also provides an accessible option for students who face financial barriers to education and training. A Universities Australia study found that in 2017, 37.3 per cent of students participated in work-integrated learning. However, just as some student cohorts face barriers to accessing education, they also face barriers to accessing work-integrated learning. Participation rates were lower for First Nations students (31.1 per cent), students from low SES backgrounds (27.8 per cent) and remote students (27.2 per cent).<sup>95</sup>



### 5.3.4 Promoting ongoing and workplace learning

Lifelong learning supports labour market dynamism. As people participate in a more diverse range of roles during their careers and live longer, they will increasingly need to upskill and reskill to adapt to changing skills needs brought about by structural change.<sup>96</sup> Regular retraining as a central and habitual part of participating in the workforce is the key to building transferable skills. Encouraging a culture of lifelong learning for businesses and individuals will create a more flexible workforce which can more effectively harness future labour market opportunities. This is especially important given Australia's relatively low overall management capability (as discussed in Chapter 4). Productivity gains for businesses from upskilling managers could be three times higher than for upskilling workers.<sup>97</sup>

As well as greater uptake of lifelong learning, there needs to be greater recognition and a more rigorous regime of prior learning and experience. Improved recognition of skills can facilitate learners moving through and across the tertiary system and leads to better job matching. For example, many people with caring responsibilities can have breaks in their education and work lives. During this time delivering unpaid care, they may develop valuable skills that should be recognised when they enter the labour force. Improved recognition of these skills will support them back into the workforce and better help match people into appropriate jobs. Recognition of prior learning also facilitates labour force participation by people following less linear career pathways.

The benefits of increased lifelong learning for business are significant. Employers benefit from a more productive workforce that can adapt, make best use of digital technology and investments, and innovate. Work-related training can bridge skills gaps by providing employer-specific skills and improve employee satisfaction and retention. There is a role for government in ensuring appropriate frameworks and information, as well as for employers who can play a leading role in workplace training and skills development and supporting their employees to grow throughout their careers.

#### Workplace learning is important in upskilling the labour force

Workplace learning plays a critical role upskilling people across their careers and helping employers build the skills they need in their workforce. However, Australia ranks in the bottom half of OECD countries for improving the use of workers' skills.<sup>98</sup> Australia also lags behind peers in the United States, Canada and England for participation in adult education and training.<sup>99</sup> Less than a third of Australian workers currently participate in work-related training each year and a quarter of all employees in Australia reported unmet demand for training.<sup>100</sup> Industry experience supports these findings, with a survey undertaken by the Business Council of Australia finding that 72 per cent of people had not been offered any training or professional development by their employer in the past two years.<sup>101</sup>

The highest prevalence of workplace training is in industries such as health care and social assistance where ongoing training is often required as part of occupational accreditation.<sup>102</sup> Workers are more likely to complete workplace training if they already have high levels of educational attainment, work at a larger employer and are from a high SES background.<sup>103</sup> These patterns of training limit opportunities for occupational mobility and career progression for people with lower educational attainment and those working in smaller businesses, and slow the diffusion of new innovations and technologies, reducing productivity (Chapter 4). Participation in workplace training is also lower among those who work part-time, which is likely to reinforce disparities between men and women in the workforce given women are more likely to work part-time.<sup>104</sup> There is a case for a greater focus on the role of business in promoting targeted and work-relevant upskilling for these cohorts, especially in areas of evolving digital and tech skills needs, and new technologies such as robotics and AI.



The low level of workplace training is attributable to barriers faced by both workers and employers. For workers, the main barriers to formal and informal adult education and training have consistently been time and financial constraints.<sup>105</sup> However, between 2016–17 and 2020–21, there was also a significant increase in a lack of available courses being reported as a barrier. People in regional and remote Australia were almost twice as likely as those in major cities to report their main barrier to learning as lack of course availability. This reflects the lower level of access and provision of education for those living outside major cities.

Businesses may face similar barriers, including the cost of providing training and allocating time for an employee to spend on training during the workday. Some businesses may be concerned about investing in the skills of their staff if they are not sure an employee will stay with the firm, or if upskilling their staff makes them more likely to be recruited by other employers. Stakeholders raised mixed employer experiences of training and that for some employers, training provision can be impacted by commercial factors which vary with the business cycle.

## Action is needed to address barriers to workplace training

To improve uptake of workplace training and adult learning, attention should be given to the quality and relevance of the training provided. Making businesses aware of courses which more effectively target their skills needs is the first step to encouraging businesses to offer more training. For example, employers may require a better understanding of how specific training may support them to upskill staff to work with AI, or encourage use of within-workplace training delivery. The increased prevalence of online delivery of training will assist employers to provide more workplace training. Rates of online learning more than doubled from 19 per cent in 2016–17 to 55 per cent in 2020–21.<sup>106</sup> For individuals, building a greater awareness of the different opportunities and benefits of upskilling will be crucial. However, there are considerable challenges and barriers in the tertiary system that prevent students from returning to study or from moving between VET and higher education.

Non-formal training can be a faster, cheaper and more flexible way to acquire knowledge. While not formally recognised, non-formal training can provide skills in line with changing skills demands as it does not require a lengthy approval process to develop the training package. There is scope to better integrate support for upskilling while people are currently working, particularly for workers who are likely to make the transition to new roles in the net zero transformation. There is also an opportunity to provide better skills support as part of employment services.

One of the Government's most important roles is ensuring the skills system enables and encourages the workforce and employers to make efficient investments in new skills and training. Supporting the development of shorter and stackable qualifications such as microcredentials is one way of doing this. Microcredentials are shorter than existing Australian Qualifications Framework (AQF) qualifications and build on broader core knowledge and skills. Where they contribute to a larger body of structured and coherent knowledge, they may be aggregated into larger qualifications. New shorter forms of education and training with multiple points of entry and exit will be required to rapidly build skills in the workforce to address immediate skills needs. Qualifications that can take years are not always a viable option for workers and businesses. People may not be able to spend long periods out of work to study for financial reasons, and for businesses, longer qualifications are not timely enough to address short-term needs. As tasks and jobs change at an accelerating pace, tertiary education will need to provide more shorter, stackable and portable qualifications. As these new courses and qualifications are created, employers need to take advantage of the opportunities they present by integrating these courses into the workplace and providing more workplace training opportunities to their employees.



Microcredentials provide a significant opportunity for stackable learning in a timely manner. While there are no comprehensive data on microcredential offerings, they are starting to be incorporated more broadly into Australia's tertiary education system.<sup>107</sup> They have also been delivered through VET for a number of years in the form of skillsets. However, approaches across providers to offering microcredentials are mixed. Uncertainty around the recognition of microcredentials can make it difficult for people to demonstrate the skills they have gained to employers, and hard for both parties to verify the quality. Better acknowledgement and measurement of the different ways people upskill across their lives will be an important aspect of promoting lifelong learning. While short-form qualifications such as microcredentials are not currently recognised under the AQF, there are opportunities to develop innovative methods of demonstrating skills development.

The current credentials system is also decentralised and does not provide a trusted information source for all of a person's qualifications and credentials information. Employers need to be able to quickly and easily verify an employee's credentials, and students and workers need to be able to effectively demonstrate their skills to employers with ease. To realise the benefits of lifelong learning, students and workers also need to be able to move between the VET and higher education systems over their lifetime, which requires more recognition of prior learning and experience. Digital recording of prior learning could support these aims and help to fill critical skills gaps and meet Australia's labour market needs. This would be underpinned by high-quality VET and higher education courses.

### 5.3.5 Better collaboration between VET and higher education

Meeting the skills needs of the future requires a whole-of-tertiary system approach. We have historically viewed higher education and VET as two separate pathways but addressing the skills needs of the future will require more collaboration. The setup of the current separate systems makes it challenging for students to move easily between VET and higher education.<sup>108</sup> This is due to differences in funding, information or regulation, a lack of credit transfer or the perceived status of the different pathways. Reform is needed to help students study and upskill across both VET and higher education over their lifetime, to take advantage of new opportunities presented by structural change as the skills demanded by industry changes. The jobs of the future in care, net zero and digital will need workers trained through both VET and higher education. This will require flexibility and interoperability across the system while acknowledging the relative strengths of each sector and the benefits of diversity.

#### Transitions across tertiary sectors are low, but increasing

Collaboration between VET and higher education is an important part of improving skills development and building our future labour force. People are increasingly engaging in study and work pathways that use both the higher education and VET sectors throughout their lives. VET is an important entry pathway into higher education and is more likely to be used by students from low SES backgrounds, regional students and First Nations students.<sup>109</sup> In 2021, 11.6 per cent of commencing domestic undergraduate students used a VET award or enabling course as the basis for their admission into higher education.<sup>110</sup> This proportion has been relatively stable over the last decade, but the proportion of some cohorts using this pathway has increased. For example, 18.3 per cent of First Nations students and 17.3 per cent of remote students used a VET course as the basis of their admission to higher education (Chart 5.16).<sup>111</sup> The pathway VET provides to the higher education system is also important for people to upskill and further their careers, particularly in priority sectors. For example, there is a well-established pathway for enrolled nurses with a VET qualification to transition to being a registered nurse, which requires a university qualification.

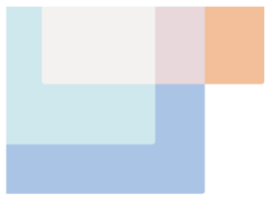
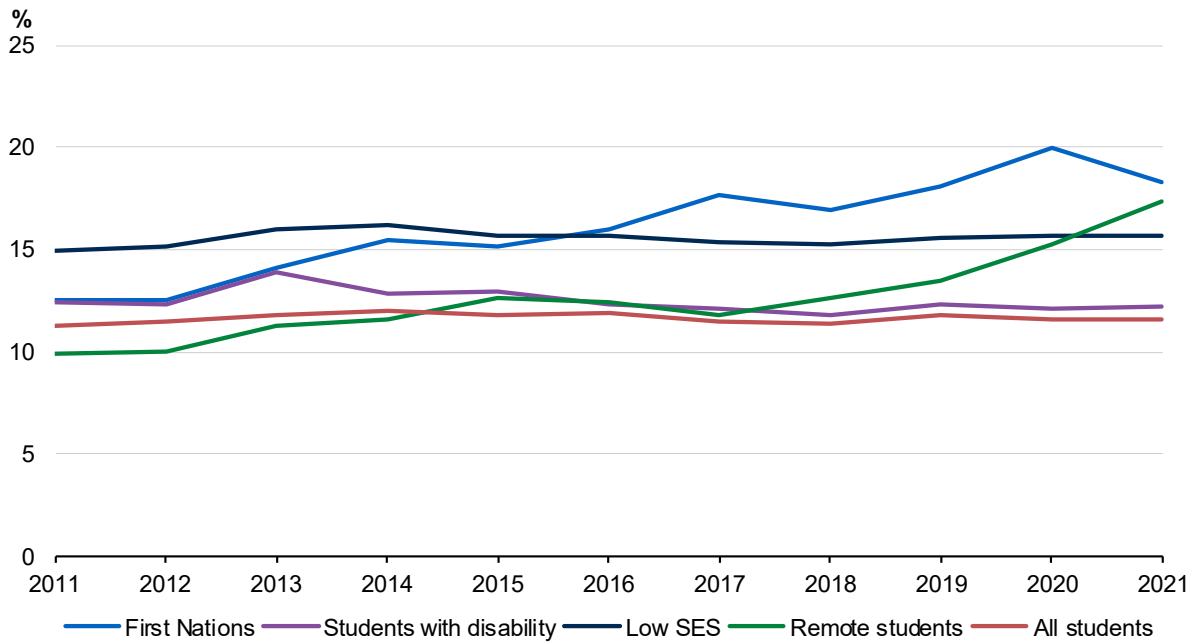


Chart 5.16 Proportion of students entering higher education on the basis of a VET course



Source: Treasury; Department of Education Higher Education Statistics, 2021.

Increasing numbers of people are also undertaking VET qualifications to supplement the skills they gained in their higher education qualification with more job-specific skills.<sup>112</sup> The proportion of VET program enrolments where students have a bachelor's degree or higher has risen from 9.6 per cent in 2018 to 10.8 per cent in 2022.<sup>113</sup> Facilitating more collaboration and seamless transitions between VET and higher education is essential for creating the right skills mix and building the future workforce.

### There are opportunities to make transitions across learning sectors easier

Creating a more flexible and interoperable tertiary education system must acknowledge the relative strengths of each sector and the benefits of diversity. One way to do this is to leverage pathways and occupations where there are existing connections between higher education and VET. For example, there are some careers where students could take either a VET or higher education pathway such as surveyors, graphic designers and medical laboratory technicians.<sup>114</sup> There are also opportunities for one system to complement the other in building on qualifications. Qualifications in the education and health sectors have well-developed pathways between VET and higher education because accreditation is tied directly to requirements within occupations.

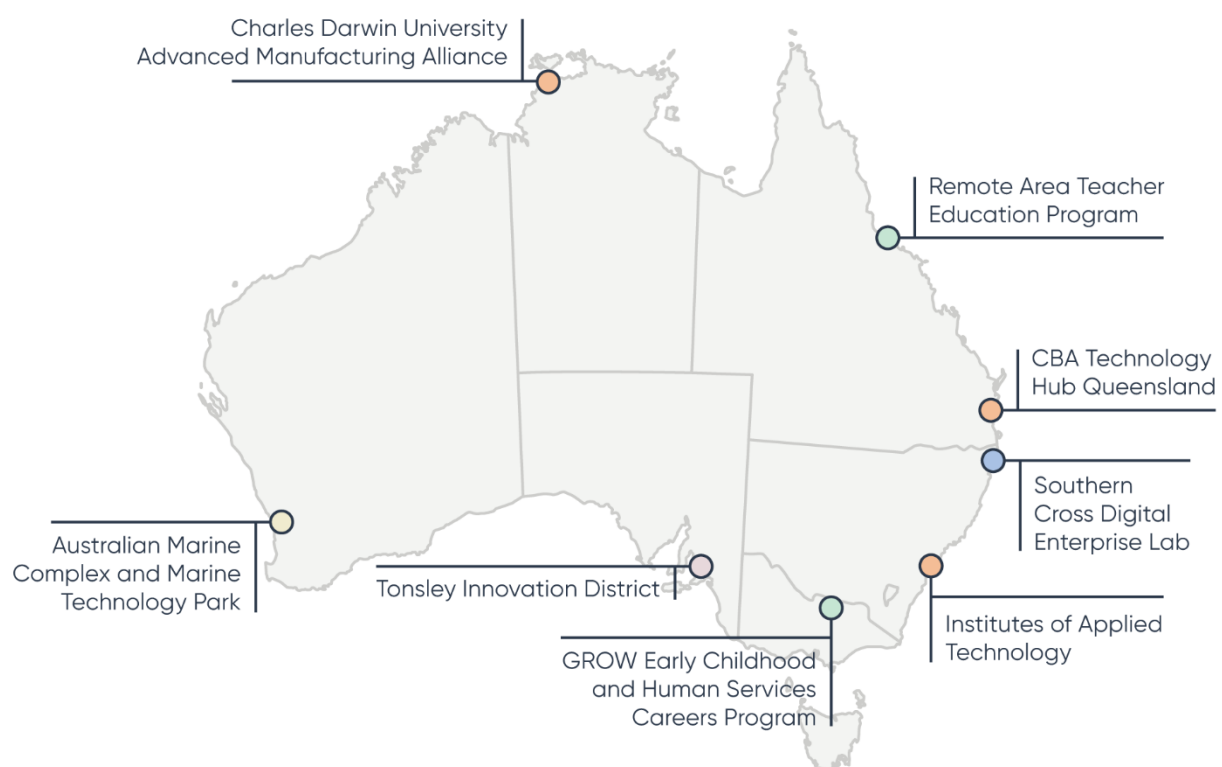
Credit transfer and recognition of prior experience is an important way of improving the connection between higher education and VET. Limited credit transfer can create unnecessary barriers to further skills development and inefficiencies when students have to duplicate their learning experience and extend their time in education and training.<sup>115</sup> As universities are self-accrediting institutions, admission practices and recognition of prior learning can differ significantly across providers. Credit recognition also differs across fields of education.<sup>116</sup> In its current form, the AQF makes qualification levels – and the skills and knowledge developed under them – difficult to understand and does not sufficiently support transitions between VET and higher education. A lack of guidance and clarity in the AQF also contributes to limited credit recognition.<sup>117</sup>





Enhanced collaboration will be vital to delivering high-quality, industry-responsive qualifications. Innovative methods of course delivery in teaching and research, which combine the strengths of VET and higher education and the expertise of industry, can start to bridge the divide between the sectors. In addition, developing or trialling new forms of qualifications will support efforts to increase collaboration. These could be of particular use in areas of national priority, such as clean energy, the care economy and defence.<sup>118</sup> Innovative tertiary collaboration models of teaching and learning are already emerging across the country (Figure 5.1). Further tertiary collaborations including dual-sector models of delivery may also help to elevate the perception and status of VET.

**Figure 5.1 Selected Innovative Tertiary Collaboration Models**



## 5.4 Building the future workforce will require careful planning and collaboration

A greater focus on growing Australia's high-skilled workforce will help to address skills shortages and to achieve productivity growth. Proactive workforce planning can assist to ensure that Australians are gaining skills in priority areas, so they can be prepared to take advantage of emerging opportunities and be resilient to potential challenges.



In the future, Australia's labour market will be increasingly shaped by the rising demand for quality care and support services, increased use of digital and advanced technologies and the net zero transformation. A data-driven approach as to how these forces will shape the economy could help to inform settings for domestic skills and training and for effective migration strategies. Tailored, integrated solutions will be required to ensure we can meet future skills needs in sectors where there are unique challenges in relation to acute shortages.

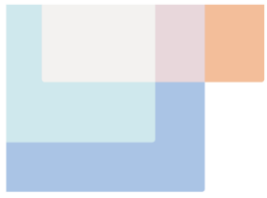
The Government is committed to delivering a high quality and responsive education system. Improving access and outcomes from the tertiary education sector, including through enhanced collaboration, and promoting lifelong learning to assist in preparing our future workforce.



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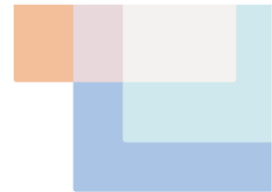


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