Ai GROUP SUBMISSION

Expert Review of Australia's vocational education and training system

JANUARY 2019

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About Australian Industry Group

The Australian Industry Group (Ai Group) is a peak industry association in Australia which along with its affiliates represents the interests of more than 60,000 businesses in an expanding range of sectors including: manufacturing; engineering; construction; automotive; food; transport; information technology; telecommunications; call centres; labour hire; printing; defence; mining equipment and supplies; airlines; and other industries. The businesses which we represent employ more than one million people. Ai Group members operate small, medium and large businesses across a range of industries. Ai Group is closely affiliated with more than 50 other employer groups in Australia alone and directly manages a number of those organisations.

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INTRODUCTION

The Australian Industry Group (Ai Group) welcomes the opportunity to comment on the Expert Review of Australia's vocational education and training system. The central importance of vocational education and training to the Australian economy is well recognised. Within the context of more rapid industry change in recent years Ai Group believes the long-held key desirable features of a national training system must be renewed and strengthened: industry led and driven, nationally consistent, outcomes focussed, timely and quality assured. The system's strength has been forged by its community education role in addition to its development of both entry level and existing workers for Australia.

Ai Group has structured its submission according to the Terms of Reference for the Review. While these Terms are specific to the VET sector Ai Group believes that VET sector issues and solutions, in many instances, intersect with the higher education system. Our responses therefore discuss, where relevant, the tertiary sector as a whole, the nexus between the sectors and the need for greater coherence between the sectors around key features.

A number of recommendations have been drawn:

- Investigate the establishment of a national independent coordinating agency to provide overall policy coherence for tertiary education.

- Establish a more equitable funding arrangement for tertiary education with the first priority to address the decline in the funding for the VET sector.

- The Commonwealth and COAG should address declining investment in VET and increasingly uneven investment across jurisdictions, by examining the possibility of moving towards a nationally funded and nationally operated tertiary education system.

- Implement joint functionality between ASQA and TEQSA for data standards, ICT systems, a national unique student identifier and staff exchanges.

- Invest in a renewed national skills forecasting system that incorporates increased regularity of reporting and assessments of competencies that can be mobilised to perform tasks related to a job.

- Implement a national workforce strategy that provides industry-relevant workplace opportunities for students by coordinating partnerships between industry and the tertiary education sectors.

- Review Commonwealth employer apprenticeship incentives to include high skill (Diploma-level) traineeships that are Non-NSNL non-priority occupations.

- Encourage new employers of apprentices or employers with a poor track record of apprenticeship completions to participate in a workshop for apprentice supervisors to become eligible for Commonwealth incentives.

- Facilitate direct industry and employer engagement by establishing a national body to oversee the apprenticeship system, including the Skilling Australians Fund. The oversight would include programs for which each state has powers to declare apprenticeships and determine funding levels.

- Facilitate better availability of digital skills training for existing workers. There should be funding for skill sets for those already qualified and in the workforce. The availability and suitability of skill set training should become more widely known.

- Industry Reference Committees should be tasked with reviewing training packages to ensure entry level qualifications contain core digital skills at a level appropriate for a transforming economy and contain enterprise skills that will facilitate adaptability to a changing work environment.

- Provide incentives for employers to work with VET providers to implement workforce re-skilling plans.

- Build capability for continuous learning in individuals through the competency frameworks of VET qualifications.

- Collaborate with state governments through COAG to establish funding for skill sets for workers who have already completed an appropriate entry level qualification.

- Examine ways in which skill sets and units of competency can be fast-tracked through the endorsement framework.

- Build work-based learning experiences into career education across the full range of VET-related occupations.

- Continue support for the National Career Education Strategy through the Quality Schools resource package and reforms.

- Provide resources to schools to establish new and enhance existing partnerships with local business and enterprise to grow the provision of apprenticeships and traineeships, and offer incentives to employers to allow greater workplace learning opportunities.

- To help reduce youth unemployment, vocational education and training options should be more actively promoted to students most at-risk from disengagement from school.

- The VET system should be underpinned by a national foundation skills strategy that incorporates a new workplace LLN program to support at-risk cohorts.

- Introduce trials that test the boundaries between VET and higher education and provide for more seamless movement between the two sectors.

1. The Review will have regard to VET funding, policy and regulatory settings and how they can be optimised to support both school leavers and workers to maximise the achievement of relevant skills and employment outcomes from the VET sector.

a) Policy

Australia is experiencing a significant movement towards universal participation in tertiary education, which includes both the VET and higher education sectors. School completion, while necessary, is no longer considered sufficient for effective participation in the economy and society. Between 2005 and 2015 the proportion of the workforce holding a bachelor degree or higher qualification increased from 23 to 31 per cent while the holding of VET qualifications increased from 26 to 32 per cent. In the same decade to 2015 the proportion of the workforce without post-school qualifications fell from 42 to 32 per cent.[1] Tertiary education is vitally important for the development of the highly skilled workforce the economy needs.

In recent years there has been a significant shift by young people into higher education rather than VET. Participation has been growing significantly in higher education for both the 15 - 19 year-old students and the 20 – 24 years of age students, especially since 2008. In the VET sector both of these age cohorts grew until around 2012, but they have been in decline since thus creating a significant imbalance.[2] This development of a binary system is characterised by seriously unbalanced participation between the sectors. The recent dramatic falls in VET have also been accompanied by declining funding levels which seriously jeopardise the sector. While recognising the distinct features of each sector, more needs to be done to make overall provision more coherent and connected.

It is essential to address the decline in participation and funding in the VET sector and to restore a better balance between higher education and VET. There have been some indications that there may well be an oversupply of some higher education graduates in some fields. The demand-driven funding system has been more responsive to the labour market than previous mechanisms. Skills shortages for professional occupations have been reduced to only five occupations. On the other hand, there are thirty technical and trade occupations currently in skill shortage which could be addressed by a re-invigorated VET system.[3]

There is a lack of overall policy direction and governance of the system. Consideration needs to be given to the formation of a central and independent coordinating agency to provide common approaches across the sectors and levels of government. For policy coherence an independent co-ordinating agency is required to engage in consistent, continuous and longer-term strategy development led by a board comprising representatives from key industry and societal sectors to ensure the articulation of views needed for the effective development and monitoring of a national tertiary education strategy. An independent co-ordinating agency and any resulting national strategy requires the inclusion of both higher and vocational education.

[1] Noonan P., A new system for financing Australian tertiary education, Mitchell Institute, September 2016.
[2] Noonan P., A new system for financing Australian tertiary education, Mitchell Institute, September 2016.
[3] Norton A., To fix higher education we also need to fix vocational education, The Conversation, September 5, 2018.

Recommendation:

Investigate the establishment of a national independent coordinating agency to provide overall policy coherence for tertiary education.

b) Funding

Australia's VET system is critical to ensuring industry has the skilled workforce it needs to grow and to compete internationally. It provides the technicians, the tradespeople, the supervisors and the para-professionals that form a large part of Australia's workforce. The Department of Jobs and Small Business estimates that occupations requiring Skill Levels 2 to 4 (commensurate with qualifications ranging from Certificate II to Advanced Diploma) currently make up 50.8 per cent of the workforce. These occupations are expected to grow by 6.3 per cent over the next five years[4].

It is deeply concerning that the funding of the VET system continues to be inadequate, in terms of both the level and composition of its funding.

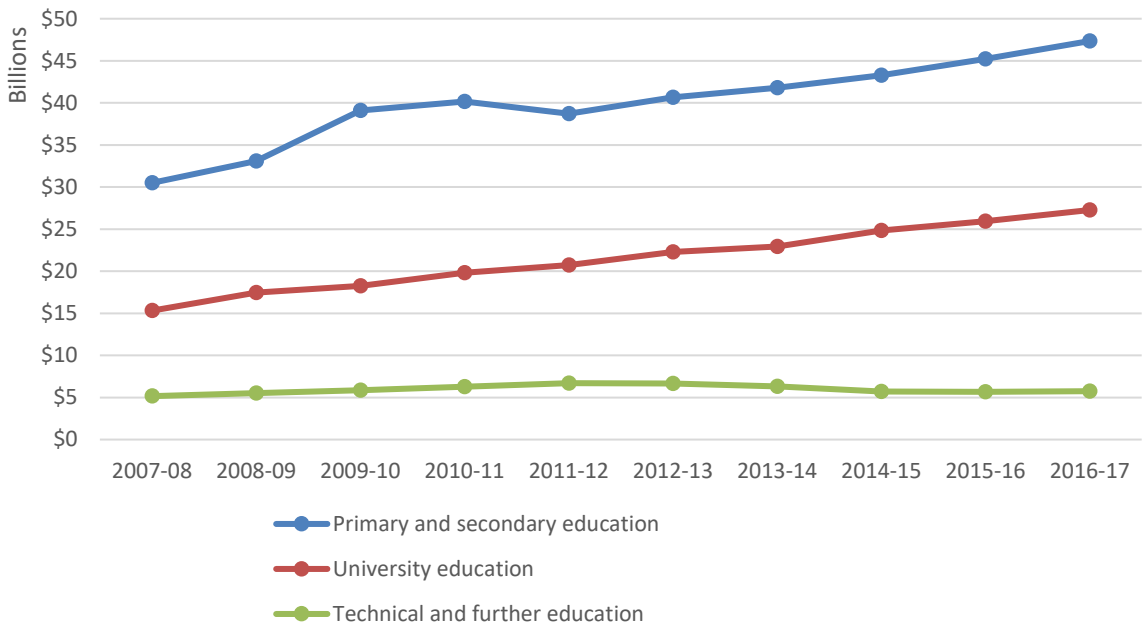
Firstly, the levels of total VET funding are not sufficient to meet existing and future skills needs of the workforce. The level is too low in absolute terms and relative to the funding arrangements in both the higher education and school sectors. The growth in occupations estimated by the Department of Jobs and Small Business is not reflected in the stagnation in funding over the past decade. It also contrasts with steady growth in funding for other sectors of education.

Analysis of the trends in real expenditure across the various sectors reveals a highly imbalanced situation. Higher education expenditure has grown very rapidly with a 52.6 per cent increase over the ten-year period from 2005-6 to 2015-16, despite some levelling off in the final year. Similarly, school sector expenditure has increased by 30 per cent over the same period with some slowing in the final year. In the VET sector, the situation is the reverse. Expenditure has fallen by 4.7 per cent over this period. The level is now lower than at the beginning of the period. Not only is overall VET expenditure in decline but the gap with higher education expenditure is increasing.[5]

[4] Department of Jobs and Small Business, Industry Employment Projections, 2018.

[5] Pilcher S and Torii K., Expenditure on education and training in Australia 2017, Mitchell Institute, December 2017.

Chart 1: Government Expenditure on Education



Source: ABS Government Finance Statistics, Education, Australia, 2016-17

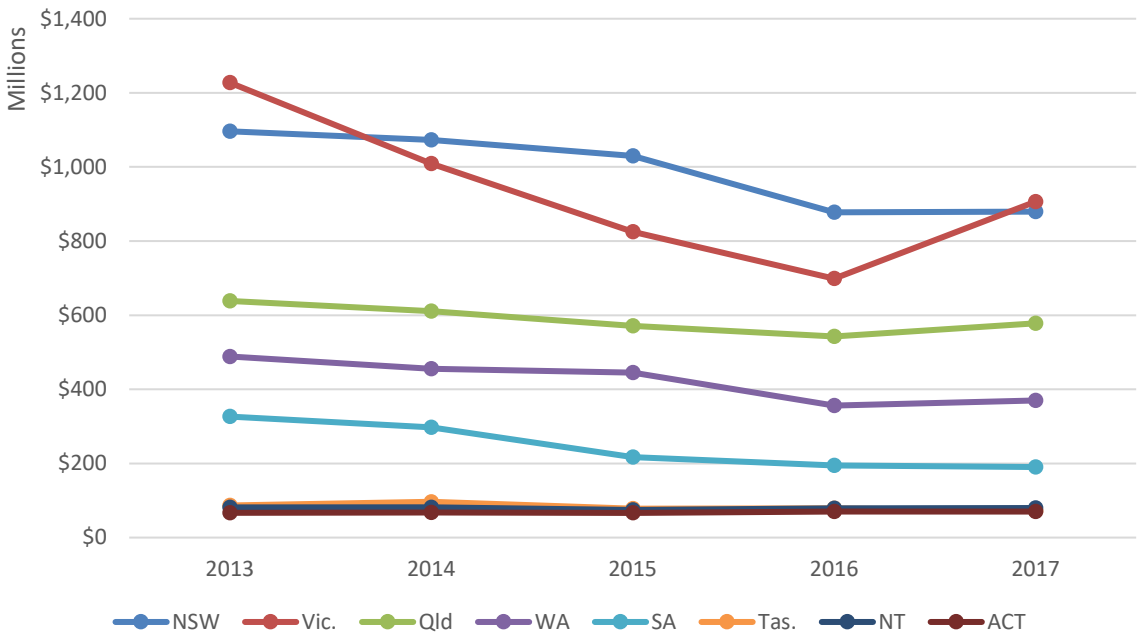
The second problem is the composition of public funding for VET, or more precisely, the shared contributions of the Commonwealth and the States/Territories. The funding by the jurisdictions has fallen in absolute terms since 2013 and also relative to Commonwealth expenditure, although there was an increase in 2017 due largely to Victoria. A recent finance report from the NCVER highlights a continuing decline in government expenditure which amounts to a 15 per cent decrease between 2012 and 2016.[6]

The relative funding shares between the Commonwealth and the jurisdictions vary significantly. These differences have been aggravated by the introduction of differential student training entitlement funding models by all states and territories. The jurisdictions have used in-built flexibility parameters resulting in differences in the eligibility requirements, the courses eligible for an entitlement, course subsidy levels, the quality requirements of providers, and the information provided to students.[7]

[6] Financial information 2017, NCVER, November 2018.

[7] Kaye Bowman and Suzy McKenna, NCVER, Jurisdictional approaches to student entitlements: commonalities and differences, 2016

Chart 2: State Government Expenditure on Education



Source: NCVER, Financial information 2017

The shared funding arrangements are impacting on the effectiveness of the VET system. Different mixes of Commonwealth and States and Territories funding and different ways of funding each VET system are causing confused messages for employers engaging with the system, particularly those operating nationally. In some instances, within individual state systems the needs of industry, businesses and students have not been met.

The Ai Group believes that genuine national funding of tertiary education including VET must be established. By addressing and clarifying the excessively complex and duplicative Commonwealth and State/Territory roles and responsibilities in the training system, a genuinely national training system may be possible.

Recommendations:

Establish a more equitable funding arrangement for tertiary education with the first priority to address the decline in the funding for the VET sector.

The Commonwealth and COAG should address declining investment in VET and increasingly uneven investment across jurisdictions, by examining the possibility of moving towards a nationally funded and nationally operated tertiary education system.

c) Regulation

The majority of Australian VET providers are regulated through the national VET regulator, the Australian Skills Quality Authority (ASQA). However, there are two other regulators: the Victorian Registration and Qualifications Authority (VRQA) and Western Australia's Training Accreditation Council (TAC). This complicates the achievement of a simplified governance structure for quality and the system needs to move to a single national regulator.

The existence of different regulators for higher education and VET sectors is problematic for providers operating in both systems because of the increased regulatory burden. This does little to promote diversity of providers across the sectors. As a consequence, there have been advocates for a single regulatory body for Australian VET and higher education to decrease this burden and to enable a more diverse training market.[8] While this appears to be a neat solution there are several difficulties and challenges associated with this, including pedagogical and industry relations challenges. Perhaps a more effective approach is to retain TEQSA and ASQA while developing common or joint functionality in data standards, ICT systems, a national unique student identifier and staff exchanges.[9]

Recommendation:

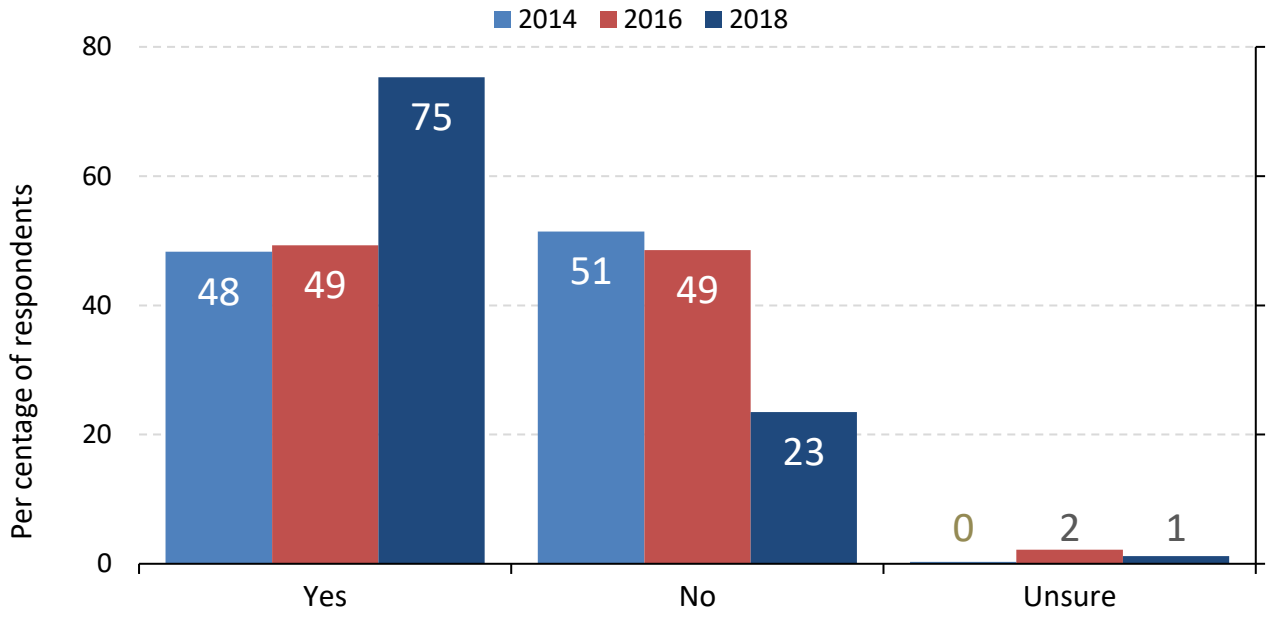
Implement joint functionality between ASQA and TEQSA for data standards, ICT systems, a national unique student identifier and staff exchanges.

[8] See for example Callan and Bowman, Lessons from VET providers delivering degrees, NCVER, 2015.
[9] NCVER Submission to Business Council, 19 January 2018.

2. It will examine skills shortages in VET-related occupations, in particular any tension between VET outcomes and the needs of industries and employers, and what might be done to better align these.

Major workforce skill changes are in large part responsible for current skills shortages. The skills supply has been unable to adequately match the needs via our education and training sectors. While the OECD[10] has reported that Australia's skill shortages are on par with global skill shortages, recent Ai Group research has found this to be a major pressure point for businesses.[11] Employers are experiencing greater challenges finding the skills they need, with the per centage reporting skills shortages increasing over four years to 75 per cent in 2018.

Chart 3: Current experience of skills shortages



Source: Ai Group, Workforce Development Needs Survey, 2018

Employers report that these shortages include VET-related occupations. They experience difficulties recruiting technicians and trades workers with STEM capabilities as well as professionals.[12] Occupations experiencing skills shortages for the first time in Ai Group's survey include those needing skills in business automation, big data and artificial intelligence solutions.

Skills shortages are a mixture of technical shortages, skills mismatches and skills quality gaps.[13] Ongoing skills alignment between education and training provision and industry needs more regular skills forecasting to collect better information. The development of broad sets of competencies in demand rather than qualifications would assist with skills assessment and anticipation and help workers to identify specific skills in demand. [14]

Moving forward improvement actions need to be underpinned by closer partnerships between industry and all education and training sectors. Rapidly changing work environments and skills are

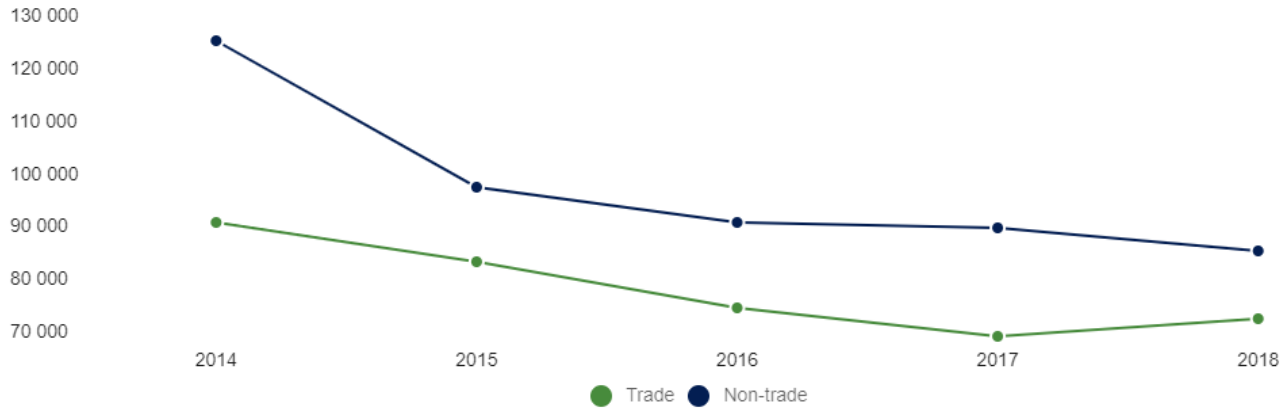
[10] OECD, Getting Skills Right Australia, 2018
[11] Australian Industry Group, Skilling: a National Imperative, 2018
[12] Australian Industry Group, Skilling: a National Imperative, 2018
13 S. Richardson, What is Skill Shortage?, NCVER, 2007.
14 Getting Skills Right Australia, OECD, 2018

best served by learning that is connected to and closely reflects workplace skill needs, such as work-based and work integrated learning models. Increasingly, where learning experiences are not in the workplace they must be designed to reflect a company's workplace; to be engaging and social, and to be anchored by outcomes and assessments.[15] The European Commission's twenty guiding principles for WBL, provide a solid framework for workplace collaboration in all education and training sectors.[16]

The apprenticeship system is the foremost work-based model that links employers to the VET sector. However, the number of apprenticeship commencements has been declining since 2012, when the Commonwealth Government revised its incentive scheme[17]. The most recent data from the NCVER indicates that there were 269,720 apprentices and trainees in-training as at 30 June 2018. This represents a fall of 1 per cent compared to the June 2017 level. Overall commencements fell by 0.6 per cent during the period, however trade commencements increased by 4.6 per cent while non-trade commencements fell by the same number[18].

The data is showing that the gradual decline in apprenticeships in trade occupations since 2014 may be showing signs of improvement, at least in some states. It also shows that the steep decline in non-trade occupations, mainly traineeships, continues to decline and will plateau at a new level well below what was recorded before 2012.

Chart 4: Apprenticeship and traineeship commencements – Australia June 2014 – June 2018



Source: NCVER, Apprentices and trainees 2018: June quarter - Australia

Disaggregation of the data reveals a more nuanced situation. Training rates in some of the key industrial trades increased yearly from 2014 to 2018. This reflects infrastructure and related projects, i.e. construction-based trades. Automotive and engineering trades also increased in the past 12 months. However, printing, hairdressing and food trades continue to decline. This demonstrates improvement in some key areas, but also shows the need for targeted government invention in others.

In non-trade occupations, the biggest declines in commencements since 2012 have been for hospitality workers (60.5 per cent), clerical and administrative workers (74.3 per cent) and sales workers (77.2 per cent). Commonwealth incentives for existing workers and for qualifications higher

15 Seven gamification strategies for corporate training, The Tech Edvocate, https://www.thetechedvocate.org
[16] Twenty guiding principles for effective WBL, European Commission, 2015
[17] Australian vocational education and training statistics: historical time series of apprenticeships and traineeships in Australia, from 1963, NCVER, 2018
[18] Apprentices and trainees 2018: June quarter – Australia, NCVER, 2018

than Certificate IV in these occupations were withdrawn in 2012. In other non-trade occupations that are identified as priority (predominantly carers and aides) and retain some of these incentives, commencement numbers have declined by only 28.5 per cent since 2012. It is possible that a broader identification of priority occupations may improve commencement numbers for high skill occupations. These could include Diploma-level traineeships in technical occupations that develop STEM skills and para-professional occupations that develop management skills.

One example is the Diploma of Applied Technologies, which underpins the Industry 4.0 Higher Apprenticeship Project piloted by Ai Group and focuses on high level digital skills for technicians in manufacturing and other sectors. The pilot has proved very successful, with a second intake commencing in Victoria in 2018. Victoria and South Australia have now approved and funded the qualification as a traineeship and other states are considering applications. An incentive for employers would help defray the higher cost of training and encourage early adopters to employ Higher Apprentices. This will in turn make the training viable for training providers in each state.

The introduction of the Skilling Australians Fund has the potential to make a difference in the number of apprenticeship commencements despite Victoria and Queensland not participating.[19] The potential of this initiative would be significantly enhanced through direct projects with industry, which would also increase the likelihood of national approaches.

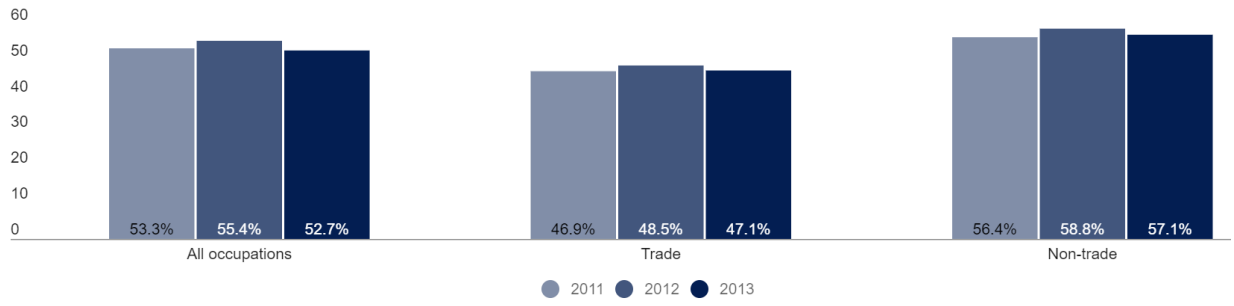
More new employers must be encouraged to engage with the apprenticeship system if it is to grow. The recent announcement to trial incentives for employers in regional and rural communities who have not previously employed an apprentice or have not employed an apprentice for three years is a positive step, including the intention to include group training in the trial.

The recent announcement to provide incentives to employers of apprentices aged 21 – 24 years is also likely to boost apprentice numbers.

Completion Rates

The danger of boosting commencement numbers is that it may lead to poorer completion rates[20]. Completion rates for apprenticeships have been poor for many years. NCVER's latest annual completion data was released on 5 July 2018 and show national completion rates at 52.7 per cent for all occupations and 47.1 per cent for trades.

Chart 5: Australian contract completion rates for commencement in 2013



Source: Completion and attrition rates for apprentices and trainees 2017, NCVER

[19] https://www.education.gov.au/skilling-australians-fund

[20] Econometric Analysis of the Australian Apprenticeships Incentives Program, Deloitte Access Economics 2012

Most employers that take on apprentices operate small businesses. These employers need to be supported to help their apprentices complete. They need help to improve their recruitment practices and help to improve how they manage their apprentice after they commence, including understanding their obligations. Professional development workshops for apprentice supervisors have been trialled at different times with positive results, however they have not always reached those employers who need help the most. Encouragement for new employers, or employers with a poor track record, to attend a workshop to be eligible for incentives could help extend the intended audience. Some countries, including Germany, the Netherlands and Switzerland make targeted training mandatory for apprentice supervisors.[21]

Group training is a potential provider of support for employers. Collectively, group training is the largest employer of apprentices in Australia, employing almost 25,000 apprentices and trainees across the country. Group training organisations (GTOs) have been operating for nearly 40 years and provide important support for SMEs. GTOs will rotate apprentices to different work-sites so they gain broad exposure to skills that smaller companies cannot offer and they can guarantee continuity of employment for apprentices and trainees when companies operating on short-term projects cannot. GTOs assist with recruitment, provide mentoring support and specialise in helping disadvantaged people into apprenticeships and traineeships.

National oversight

A national body is needed to manage the implementation of new measures including overseeing national consistency and ensuring programs and arrangements meet current and future workforce needs. Confronted with similar apprenticeship issues, the UK has established an independent and employer-led body, the Institute for Apprenticeships, to regulate the quality of apprenticeships in the context of anticipated rapid expansion of the program.[22] It is timely for Australia to review the governance arrangements for apprenticeships with a view to providing a genuinely national approach.

This national body could provide oversight of the Skilling Australians Fund, determine which apprenticeships become eligible for financial incentives and manage the rollout of professional development for employers.

Recommendations:

Invest in a renewed national skills forecasting system that incorporates increased regularity of reporting and assessments of competencies that can be mobilised to perform tasks related to a job.

Implement a national workforce strategy that provides industry-relevant workplace opportunities for students by coordinating partnerships between industry and the tertiary education sectors.

Review Commonwealth employer apprenticeship incentives to include high skill (Diploma-level) traineeships that are Non-NSNL non-priority occupations.

[21] OECD, Seven Questions about Apprenticeships: Answers from International Experience, 2018

[22] https://apprenticeships.blog.gov.uk/2017/11/23/the-institute-for-apprenticeships-breaking-the-chain/

Encourage new employers of apprentices or employers with a poor track record of apprenticeship completions to participate in a workshop for apprentice supervisors to become eligible for Commonwealth incentives.

Facilitate direct industry and employer engagement by establishing a national body to oversee the apprenticeship system, including the Skilling Australians Fund. The oversight would include programs for which each state has powers to declare apprenticeships and determine funding levels.

3. It will consider expected changes in future work patterns and the impact of new technologies and how the VET sector can prepare Australians for those changes and the opportunities they will bring.

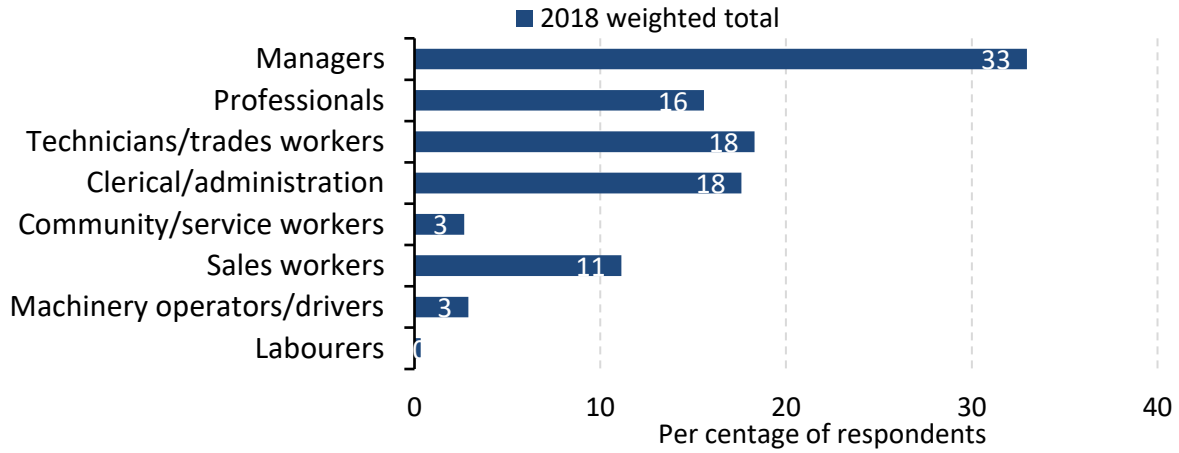
Automation is disrupting the skills that education and training systems strive to supply. It is leading to reallocations of employment between roles, tasks, sectors and regions. Changes to skill requirements in industry are occurring at all levels of the workforce. The workforce needs to be able to operate with emerging new technologies and systems and engage in more complex work and relationships in environments that are constantly changing.

As automation is increasingly adopted by industry, it is recognised that capital deepening and increased competitiveness can be achieved by not only replacing workers with machines, but by building innovative capital – developing well-educated and well-skilled workers. For innovation to occur, physical capital must be complemented by qualified workers.[23]

Labour demand is shifting towards higher level and more cognitive skills for which many workers are not adequately trained and it is contributing to the hollowing out of middle level skill jobs. It is demanding, as a threshold requirement, that all workers have mastered enduring concepts of digital literacy to be enabled to adjust to new ICT.[24] OECD research has found 38 per cent of Australian adults only have basic ICT skills that allow them to browse and email.[25] More advanced digital workers need to evaluate, configure and use complex digital systems and yet more advanced skills are needed to build digital technologies.[26]

Ai Group's 2018 workforce development needs survey asked employers about the priorities in their workforce for digital technology training and development, and changes anticipated or caused by its rollout.[27] Managers are the largest priority (33 per cent), followed by technicians and trades workers and administration staff (both 18 per cent). Professionals were rated next at 16 per cent.

Chart 6: Priority for digital technology training and development



Source: Ai Group, Workforce Development Needs Survey, 2018

[23] European Commission, The Future of Work: empowering people, Social Agenda No. 53, November 2018, http://europa.eu/!Qb38gF

[24] Hajkowicz, S, Reeson, A, Rudd, L, Bratanova, A, Hodgers, L, Mason, C, & Boughen, N, Tomorrow's Digitally Enabled Workforce, Commonwealth Scientific and Industrial Research Organisation, 2016

[25] OECD, Survey of Adult Skills First Results: Country Note Australia, 2016

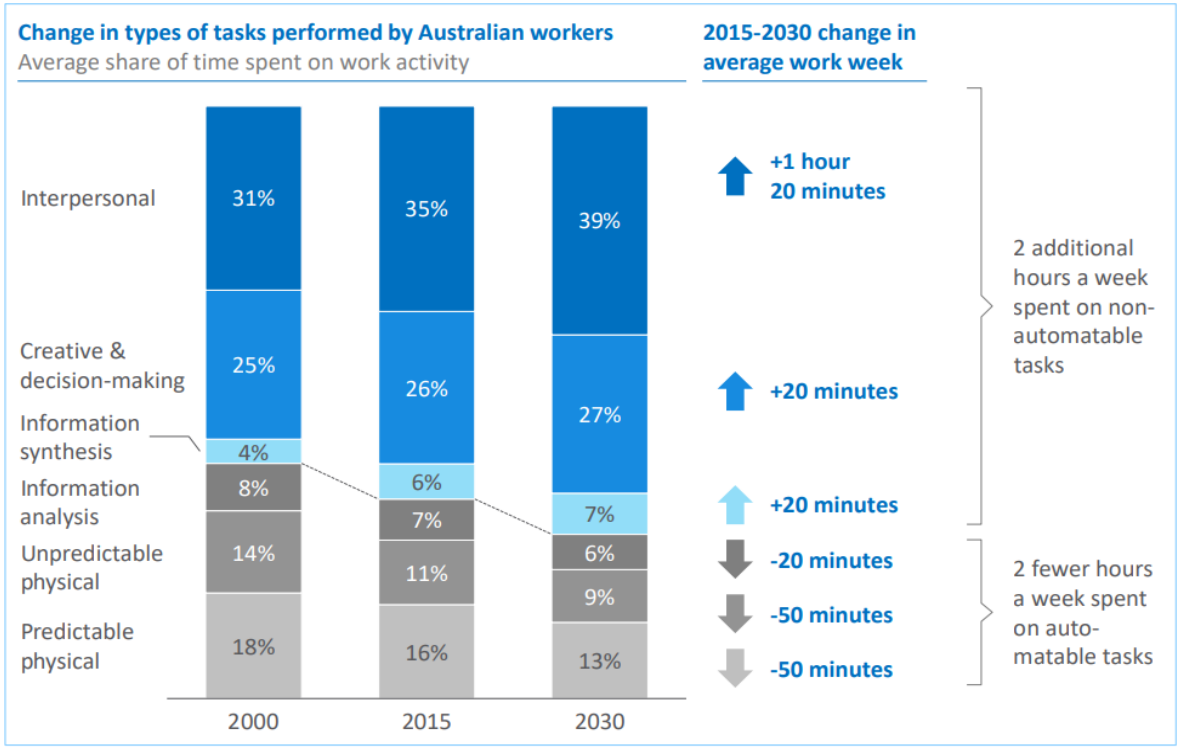
[26] Digital Skills for Tomorrow's World, UK Digital Skills Taskforce, 2014

[27] Australian Industry Group, Skilling: a National Imperative, 2018

The new workplace increasingly relies on a more complex operational and organisational structure relating to decision making, coordination, control and support services. This means there are significantly higher demands placed on all members of the workforce in terms of managing complexity and higher levels of abstraction and problem solving. Employees are needing to act more often on their own initiative and be able to organise their own work.[28] Enterprise skills (such as advanced reasoning, design thinking and social interaction) need to be coupled with technical skills to build a broader set of capabilities for application in different environments.

AlphaBeta research has found task level changes have meant less time spent on routine and manual tasks and more time on interpersonal, creative and decision-making tasks (Chart 7).[29] The research also uncovered new tasks altered by technology changes and process improvements.

Chart 7: Change in types of tasks performed by Australian workers



While the share of high skill work increases, the share of low-skilled work is decreasing.[30] However low skilled workers will still be required as the digital economy evolves. These workers will have an advantage over machines where they have the capacity to adapt to situations. Machines are less able to react to unexpected circumstances and communicate on that basis.

The VET sector must produce graduates with the knowledge and skills demanded by the emerging labour market: high level technical, enterprise/transferable and sound digital capabilities.

For the VET sector, strategies are needed to help those already in the workforce to adapt to new ways of working, and to help prepare new entrants to work in an environment that is very different to how work has been organised in the past.

[28] Key Issues for Digital Transformation in the G20, OECD, 2017
[29] Mapping Australian workforce change, AlphaBeta, 2018
[30] Committee for Economic Development of Australia, Australia's future workforce, 2015

For existing workers, digital skills are the foremost requirement to work with new technologies. These will range from basic digital literacy to more advanced skills to program, develop applications and manage networks. Existing workers do not necessarily need additional qualifications to acquire these skills. There are already many units of competency and skill sets relating to digital skills. The issue for the VET sector is how to make these opportunities more accessible to the workforce, in terms of knowing what is available where and when, and financially accessible. State governments will often not subsidise training that is not part of a full qualification.

For new workers, digital skills will also be a priority, but other enterprise skills will be needed. Entry level qualifications will need to cover problem solving, creativity, initiative and other skills that will help them adapt to a changing work environment.

Digital skills in entry level qualifications will need to be at higher levels than currently available. The NCVER'S working paper, *Developing appropriate workforce skills for Australia's emerging digital economy*, indicates the VET system contains a significant amount of digital training content spread across different units of competence and training packages. This research considered a sample of eleven training packages.[31] This table shows the total number of units of competency in each training package and the number that contain some digital skills content. The Paper notes however that a large number of the units are elective rather than core to the qualifications. Given their growing importance, a shift to core status for many of these units could enable digital integration with other competency development.

Table 1: Distribution of digital skills containing unique units of competency across training packages

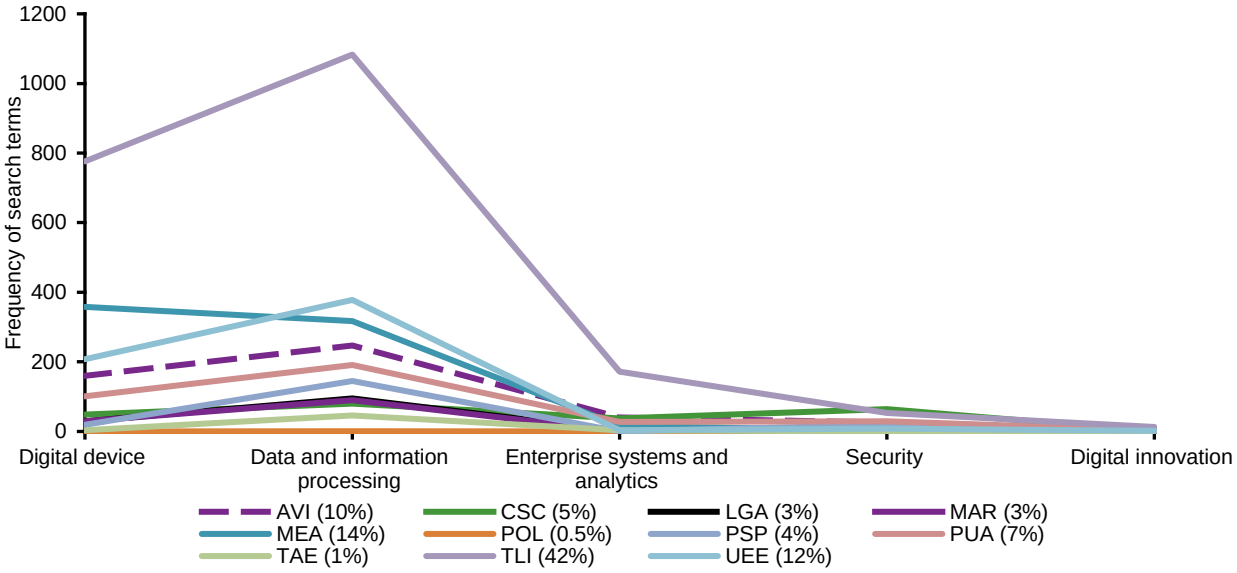
Training package	Total units	No. of units containing digital skills search terms
TLI – Transport and Logistics Training Package	706	241
UEE11 – Electrotechnology Training Package	612	54
PUA12 – Public Safety Training Package	431	75
PSP – Public Sector Training Package	396	28
MEA – Aeroskills Training Package	262	117
LGA – Local Government Training Package	223	40
AVI – Aviation Training Package	212	98
MAR – Maritime Training Package	199	39
Pol – Police Training Package	141	3
CSC – Correctional Services Training Package	95	51
TAE – Training and Education Training Package	54	10
Total	**3331**	**758**

Source: NCVER, Developing appropriate workforce skills for Australia's emerging digital economy, 2017

While this analysis indicates a significant presence of digital skills, most of the content refers to digital device use and information processing rather than other types of digital skills. This is perhaps surprising given the assumption of the increasing importance of digital skills to the workforce and the economy. This lack of a focus on skills relating to enterprise systems and analytics, security and digital innovation suggests that the digital skills description occurred at the lower levels of basic operations. Whether this indicates an assumption that higher skills occupations already have the necessary skills, digital skills still need to be integrated at higher levels.

[31] Gekara V. et al: Developing appropriate workforce skills for Australia's emerging digital economy: working paper, NCVER, Commonwealth of Australia, 2017.

Chart 8: Distribution of digital skills across training packages



Source: NCVER, Developing appropriate workforce skills for Australia's emerging digital economy, 2017

This research also notes that the training packages lack skills related to social media, social networks, big data analytics, online collaboration, online security, data breach, digital risk and process innovation.[32]

Recommendations:

Facilitate better availability of digital skills training for existing workers. There should be funding for skill sets for those already qualified and in the workforce. The availability and suitability of skill set training should become more widely known.

Industry Reference Committees should be tasked with reviewing training packages to ensure entry level qualifications contain core digital skills at a level appropriate for a transforming economy and contain enterprise skills that will facilitate adaptability to a changing work environment.

[32] Gekara V. et al: Developing appropriate workforce skills for Australia's emerging digital economy: working paper, NCVER, Commonwealth of Australia, 2017, page 32.

4. The Review may consider the flexibility of qualification structures, particularly for mid-career workers, and for industries seeking rapid deployment of new skills.

With technological change affecting nearly all industries different skills and new practices need to be adopted by existing workers throughout their working lives. Workers more capable of undertaking productive and engaged roles are better able to contribute to innovation in the workplace, while displaced workers represent a clear social and economic cost to Australia.

Australia needs more than the current one-fifth of workers aged 15-64 years to be studying.[33] Linking lifelong learning to workforce productivity is now essential. A 2014 UNESCO statement makes the direct link between lifelong learning and economic growth and prosperity[34]. Without efforts by government, education and training sectors and industry to normalise cultures of continuous learning in the workplace the Australian economy will not prosper to the extent that is necessary for our future.

Because of constant change workers will need to take ownership of their own learning and have the opportunity to undertake training and development as they move through their working lives. A 2018 Deloitte study found that study-interested workers prefer education and training linked closely to their job and industry.[35]

The acquisition of new skills by existing workers and the refreshing of existing skills needs to be available in a range of environments (virtual, physical) and through access to smaller units of learning outcomes. A growing emphasis by education and training sectors on developing capabilities in enquiry, agility, adaptability, creativity and problem-solving will assist future workers in gaining a robust base to build skills through their working lives. It is important that entry level qualifications develop these capabilities.

In terms of re-skilling, Ai Group's research shows that employers are currently prioritising managers for digital technology training and changes anticipated or caused by its rollout.

However, re-skilling extends beyond digital skills development in order to equip workers with the broader capabilities required in more autonomous workplaces. The digital economy requires a cultural change in the way work is done and managed. In the past, much of the role of a senior manager was tied up in expertise and knowledge. Now that is becoming less important and instead it is the ability to locate knowledge, assess how valid it is and then put it to use in collaboration with other people.

Businesses will need to assess their own capabilities and train when necessary using agile VET and higher education partners, as well as their own supervisors, managers and leaders. These companies will develop employees more capable of taking control of their roles, needing less supervision and better able to contribute to innovation in the workplace.

The major outcome from the tertiary education system is the award of qualifications, the recognition of skill and knowledge achievement. Given the rapidly changing nature of the workplace and the subsequent implications for skilling, it is important to reconsider whether Australia is well

[33] ABS, Education and Work, Australia, Cat. No. 6227.0, May 2018
[34] UNESCO, Education Strategy, 2014
[35] Higher Education for a changing world, Deloitte, 2018

served by the current qualifications framework. In this sense it is timely that a review of the Australian Qualifications Framework (AQF) has commenced and may lead to qualification and institutional reforms across the sectoral boundaries of VET and Higher Education.[36]

Preliminary work associated with the AQF review has identified recent developments such as the trend towards micro-credentials and flexible delivery options and mechanisms to assist learners to construct their own programs, sometimes across sectors, to meet individual learning needs. In international terms, some countries are altering the way they view qualifications frameworks. In Europe, for example, there is a movement towards considering qualifications frameworks as a tool to facilitate an agile workforce suited to rapid technological, industrial and social change. [37]

For existing workers who already have qualifications, micro-credentialing is the strategy higher education providers are taking to accredit learning that takes place beyond degrees. The VET equivalent is skill sets. Whatever the term being used, workers acquire skills to adapt to new systems or processes in the workplace or to help move on to a new role. Often these skills are learnt entirely on the job, but often they also need a formal training intervention. For a worker who already has a suitable entry level qualification, there should be no constraint on allowing access to appropriate skill sets. This includes access to government subsidies.

For an employer, understanding how skill sets could enhance their workforce capabilities through a small-scale intervention would be important.

Speed to market for new qualifications, new skill sets and new units of competency are a regular issue for the VET sector. A proposed national qualification needs to be agreed first by an Industry Reference Committee, then approved by the Australian Industry and Skills Committee (AISC) before development work can even commence. The finished product then requires consultation with all state and territory governments before the AISC considers a case for endorsement. The whole process can take years. Skill sets and individual units can be accredited sooner but will still take much longer than the speed disruptive technologies can impact on industry, and how quickly industry needs new skills.

Recommendations:

Provide incentives for employers to work with VET providers to implement workforce re-skilling plans.

Build capability for continuous learning in individuals through the competency frameworks of VET qualifications.

Collaborate with state governments through COAG to establish funding for skill sets for workers who have already completed an appropriate entry level qualification.

Examine ways in which skill sets and units of competency can be fast-tracked through the endorsement framework.

[36] Fowler C and Stanwick J: A chance to be bold and ambitious: make apprenticeships the lynchpin to a better integrated tertiary education sector, NCVER, 2017.
[37] Contextual Research for the Australian Qualifications Framework Review, PhillipsKPA, April 2018.

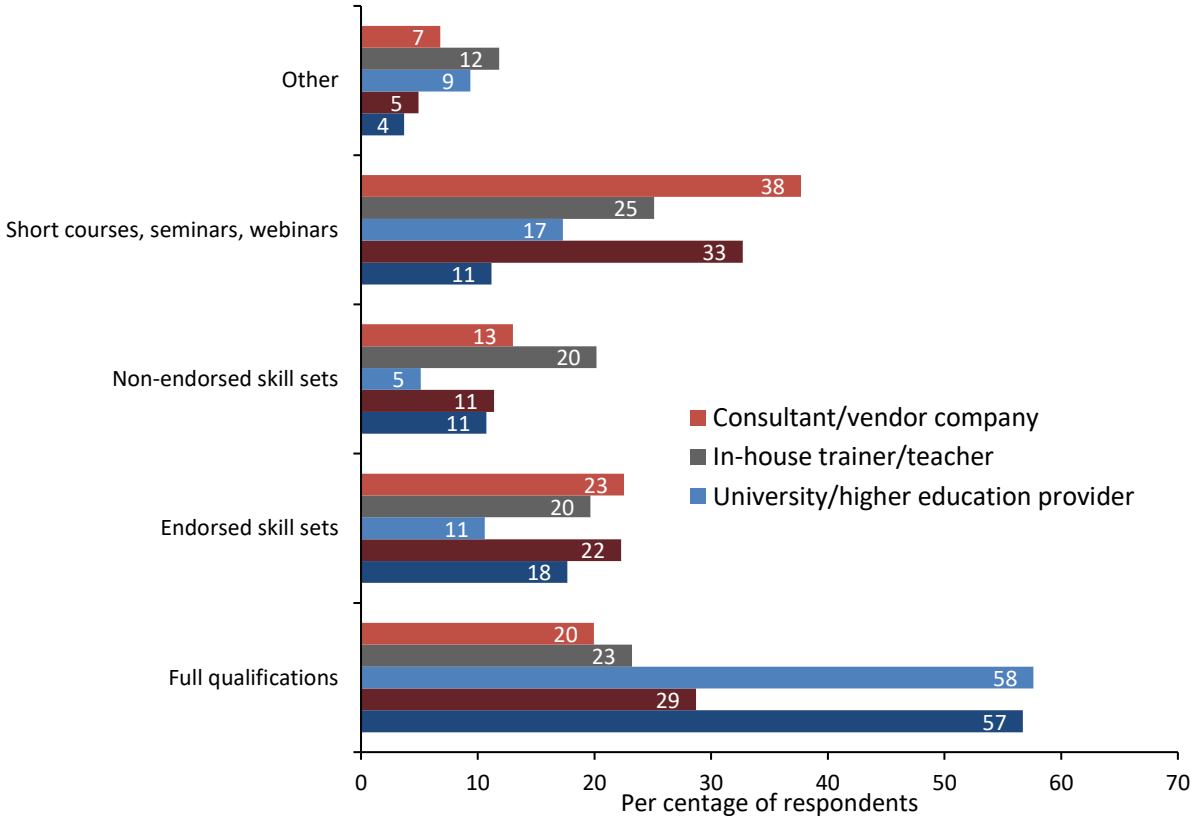
5. The Review may have regard to community perceptions of the effectiveness of the VET sector and the accessibility and utility of information about VET options and outcomes, both for employers and students, including information linking training options to employment outcomes.

Employer perceptions of the VET sector

According to NCVER data, one in three employers had jobs that require vocational qualifications in 2017 with 54.4 per cent of employers using the VET system to meet their training needs and 62.4 per cent of employers with apprentices and trainees using TAFE as the main provider for training. 75.4 per cent said were satisfied that vocational qualifications provide employees with the skills they require for the job.[38]

Ai Group's latest Workforce Development Needs Survey reveals that employers hold a preference for university/higher education providers (58%) and TAFE (57%) to deliver full qualifications as part of their workforce development in 2018. Thirty-eight per cent of employers then showed a preference for short courses, seminars and webinars provided by a consultant or vendor company, and 33 per cent to have those services delivered by a registered training organisation.

Chart 9: Types of training and provider

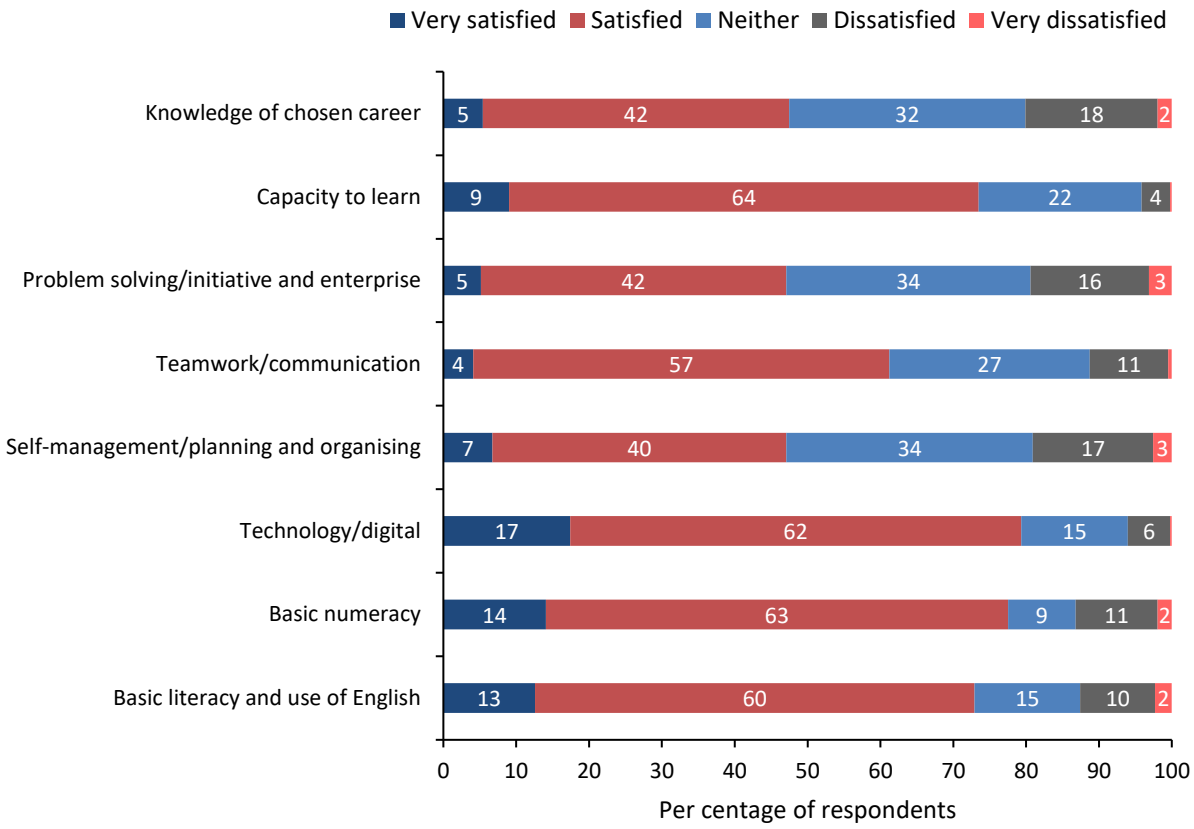


Source: Ai Group, Workforce Development Needs survey, 2018

[38] NCVER (2017), *Australian vocational education and training statistics: employers' use and views of the VET system 2017*, NCVER, Adelaide

In the same survey, employers were asked about their level of satisfaction with vocational education and training graduates. Results were largely positive for these graduates, but one in five employers indicated self-management, planning and organising; knowledge of career; and problem-solving, initiative and enterprise as the three most prominent areas of dissatisfaction. These capabilities can be better developed through work exposure opportunities at school incorporated into career development pathways.

Chart 10: Satisfaction with Vocational Education and Training Graduates



Source: Ai Group, Workforce Development Needs survey, 2018

Employers can find the VET system complex. Research indicates that they will often use an RTO as a 'navigator' to guide them through the complexities.[39] This is a positive aspect, because it fosters good partnerships between employers and providers, however it also highlights how difficult it is for an employer to get independent advice.

Career education

Perceptions of the VET sector need to be regarded within the broader context of general career education. Notwithstanding the considerable difficulties associated with providing appropriate career education for the future workforce, there is a need to overhaul the provision of career education to students, parents and teachers. A VET pathway continues to be regarded as a second

[39] Smith, E, Smith, A, Tuck, J & Callan, V 2017, *Continuity and change: employers' training practices and partnerships with training providers,* NCVER, Adelaide

choice option by many. In recent years this perception has been further clouded by reputational damage caused by a minority group of VET providers.

An over-emphasis on academic success in traditional subjects to gain entry to university means many students are not considering employer-valued vocational education and training options. Even when these options may be better suited to students' talents and interests, and have better job outcomes. Vocational learning pathways tend to result in better employment outcomes.[40]

The Victorian Parliament recently conducted an inquiry into careers advice in Victorian schools.[41] The final report found that a community perception of VET as an inferior alternative to university means that school careers advice can overlook potential labour market and career opportunities supported by vocational education pathways.

It was reported to the Inquiry that 443 000 of the almost 950 000 new jobs created between 2018 and 2022 will require a VET qualification,[42] meaning that misperceptions of the VET sector need to be remedied expeditiously. This is particularly relevant given that many trades will require high-level technology skills and that VET qualifications are required for nine out of ten occupations predicted to be the fastest growing in the next five years.[43]

The report found strong evidence that school career development works best when it has an experiential component that provides a realistic understanding of work, establishes professional networks, and links classroom learning to employment. It highlighted the importance of workplace exposure and work experience through programs such as school-based apprenticeships and traineeships, and VET programs that have work-based learning enmeshed in the learning.

The apprenticeship pathway is a work-based learning model that is highly valued by employers. For some time there has a been a concern that careers teachers do not adequately understand or promote the Australian apprenticeships system compared to university options. An effective way of promoting apprenticeships for those suited to or wanting to try out a trades pathway is through the VET in Schools (VETiS) opportunities available.

VET in Schools and school-based apprenticeships and traineeships are well-established pathways into apprenticeships and other employment outcomes supported by the VET sector. They offer a 'first encounter' with vocational education and training for school students, and their parents, and as such they have an important role to play in ensuring first impressions of the sector are favourable. VET programs need support to ensure they provide quality experiences for students both from their training provider and any employment connection.

Logistical support should be provided to schools to allow them to offer and deliver school-based apprenticeships and traineeships to grow participation in this area from its current 8.4 per cent

[40] Torii, K. and O'Connell, M. **Preparing Young People for the Future of Work**. Mitchell Institute Policy Paper No. 01/2017. Mitchell Institute, Melbourne.
[41] Economic, Education, Jobs and Skills Committee, Inquiry into career advice activities in Victorian schools, Parliament of Victoria, 2017, https://www.parliament.vic.gov.au/eejsc/inquiries/article/3878
[42] Economic, Education, Jobs and Skills Committee, *Inquiry into career advice activities in Victorian schools*, EEJSC Report No. 4, 58th Parliament, August 2018
[43] *ibid*

share in 2017. This can be done through the facilitation of school and employer networks, and by offering incentives to employers to provide opportunities to students. The Victorian Government's *Head Start Apprenticeship* program is designed to make school-based apprenticeships and traineeships more user-friendly for employers, and is a model that could be considered nationally.

Career education should also promote increasing opportunities to link apprenticeship training and other VET qualifications to higher level qualifications including higher education associate degrees and degrees. The report on the PwC Young Workers Index advances the notion of linking vocational and academic learning such as the Degree Apprenticeship programs in the UK. Indeed, one approach revolves around attracting a greater diversity of apprentices and encouraging and supporting high achievers to undertake trade careers.[44] The report highlights that high performers on the Index have a common theme of promoting vocational education and training.[45]

Career advice focussed on the VET sector should give consideration to the streamlining or self-selection by females into gendered career pathways. It has been noted that female students continue to select traditional, gendered vocational educational pathways and invest in general skills, which are portable rather than focused on one vocational trade area that restricts skills portability.[46] This highlights the importance of school-based gender-informed career advice which can increase a student's knowledge of the jobs market and address inequitable social outcomes like the gender pay-gap.

A welcome development has been the Commonwealth Government's process during 2017 to develop a National Career Education Strategy[47] (the Strategy) to make career education a priority in schools. This has been supported with $3 million of funding under the *Quality Schools, Quality Outcomes* policy to improve career education by working with industry and schools to develop this strategy and to improve the measurement and tracking of students' progress against 21st Century skills.

The resulting draft Strategy acknowledges many of the transition issues already discussed in this submission. These include the awareness of the challenges and needs of the Australian and worldwide economy, the likelihood that a young person will have some 17 jobs in five different industries throughout their working life[48], and that employment is growing in the 'non-routine' industries that require innovation, creativity, problem solving, relationships and responsiveness to changing circumstances[49].

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[44] Higher Apprenticeships, Victoria University, September 2012.
[45] Empowering a new generation, PwC Young Workers Index, October 2016.
[46] Klatt, M.; Clarke, K. & Dulfer, N. (2017), *Working their way to school completion: a snapshot of school-based apprenticeships and traineeships for young Australians*, Journal of Vocational Education & Training, Vol. 69, No. 4, pp.473-494
[47] Department of Education and Training, National Career Education Strategy, Australian Government, December 2016 https://www.education.gov.au/news/national-career-education-strategy
[48] The Foundation for Young Australians (2017): http://www.fya.org.au/2017/06/15/future-future-education-must-acing-test/.
[49] Torii, K. and O'Connell, M. **Preparing Young People for the Future of Work**. Mitchell Institute Policy Paper No. 01/2017. Mitchell Institute, Melbourne.

Similarly, there is recognition based on The Foundation for Young Australians *New Work Order* report series of the need for the education system to support young people for these emerging industry needs and for greater entrepreneurial skills. This will require schools to shift away from preparing students for traditional and linear career paths. Young people will need a portfolio of skills and capabilities, including skills to make career decisions throughout life.[50]

Recommendations:

Build work-based learning experiences into career education across the full range of VET-related occupations.

Continue support for the National Career Education Strategy through the Quality Schools resource package and reforms.

Provide resources to schools to establish new and enhance existing partnerships with local business and enterprise to grow the provision of apprenticeships and traineeships, and offer incentives to employers to allow greater workplace learning opportunities.

[50] The Foundation for Young Australians, The New Work Mindset: 7 new job clusters to help young people navigate the new work order.

6. It may review whether additional support is needed for vulnerable cohorts, including those currently unemployed and at risk of unemployment, or those with low literacy and numeracy skills.

The rate of technological change and a more open and globalised economy are refashioning the skills requirements and repositioning the job prospects of certain demographic cohorts with significant effect, particularly for young people with less developed literacy and numeracy skills. The effects of these emerging economic trends become more pronounced when factors like education attainment, gender, indigeneity, physical and cognitive ability, mental health, and socioeconomic status are considered.

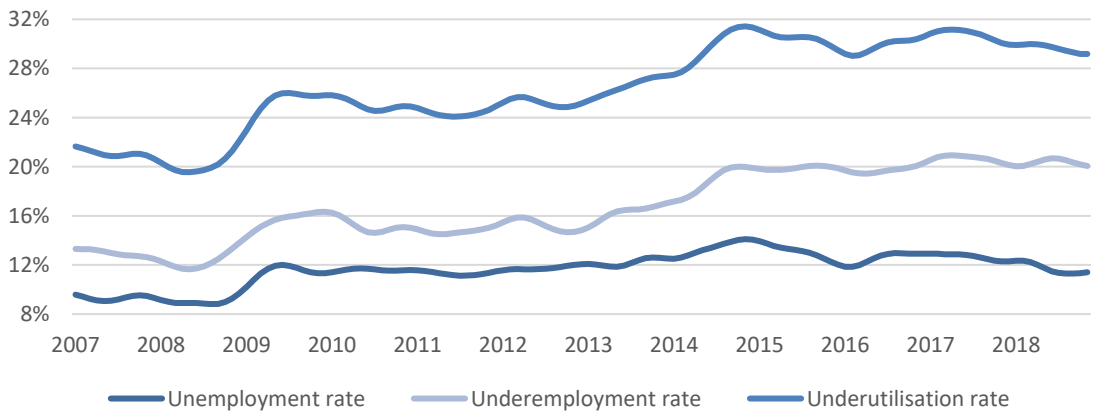
The vocational education and training sector plays an important role in delivering the skills training and workplace learning for those transitioning to the workforce for the first time and has traditionally supported and catered for those most at-risk of unemployment and social disengagement in preparing for work.

Youth unemployment

Australia's youth unemployment trend rate of 11.4 per cent is more than double the overall national unemployment trend rate of 5.1 per cent.[51] While youth employment rates have marginally improved in recent years, particularly over 2018, there is evidence of a growing trend in part-time employment and a corresponding decrease in full-time employment among young people.

More young people are now reporting a desire to work more hours, which is resulting in an increase in the youth trend underemployment rate, currently at 20.1 per cent. This coupled with the unemployment rate represents a significant growth in the underutilisation rate (at 29.2 per cent) of younger persons in the economy, where young women are disproportionately affected more than young men (30.7 per cent and 27.9 per cent respectively).

Chart 11: Unemployment, Underemployment and Underutilisation trend rates for persons aged 15 – 24 years (%) since 2007



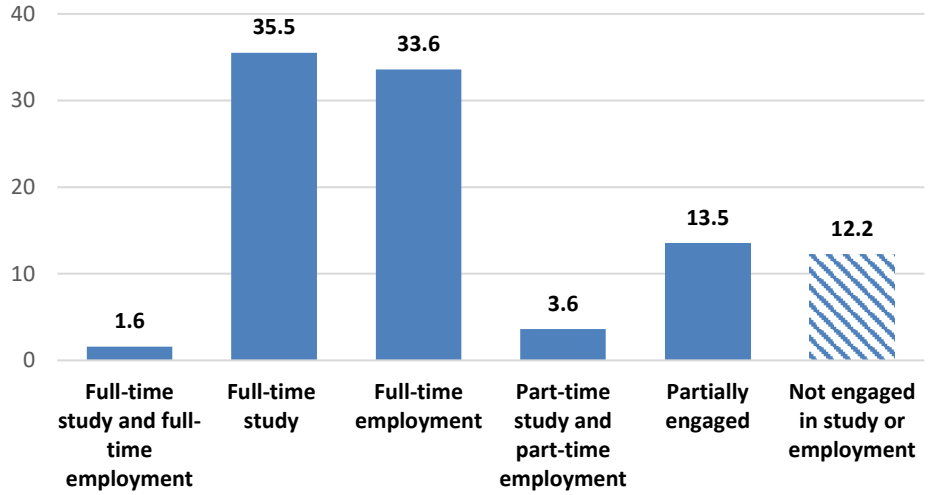
Source: Australian Bureau of Statistics, 6202.0 - Labour Force, Australia, November 2018

[51] Australian Bureau of Statistics, Labour Force, Australia, (cat. no. 6202.0) November 2018.

Young people not engaged in employment, education or training (NEET) face the prospect of a lifetime of social and economic disengagement. The OECD has found that those with a lower secondary educational attainment are over three times more likely to be NEET than those with a tertiary education and represent more than one out of three who are NEET.[52]

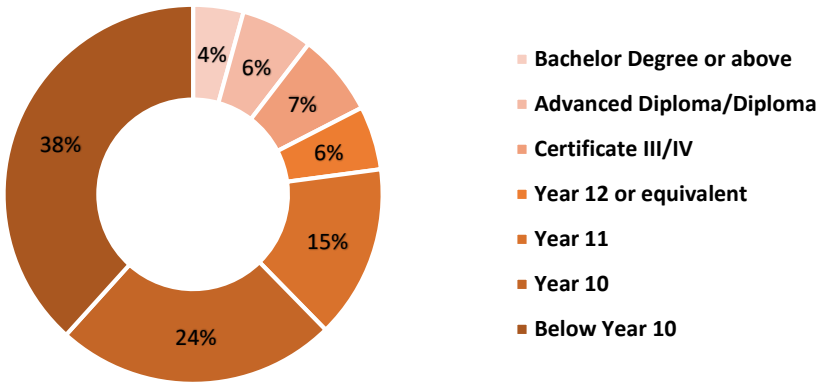
According to the OECD, one in five young Australians between the age of 16 and 24 years spend more than twelve months not in employment, education or training, and longer periods are more frequent for those with lower educational attainment, young women and Indigenous youth.[53] The Australian Bureau of Statistics' 2018 *Survey of Education and Work* reveals that there are presently over 286,000 persons aged 15 to 24 years not engaged in study or employment.[54]

Chart 12: Persons aged 15 – 24 years not in education, training or employment in 2018 (%)



Source: Australian Bureau of Statistics, 6227.0 - Education and Work, Australia, May 2018

Figure 1: Persons aged 15 – 24 years not in education, training or employment by education attainment in 2018 (%)



Source: Australian Bureau of Statistics, 6227.0 - Education and Work, Australia, May 2018

[52] OECD (2016), *Investing in Youth: Australia, Investing in Youth*, OECD Publishing, Paris, p.19.
[53] OECD (2016), *Investing in Youth: Australia, Investing in Youth*, OECD Publishing, Paris, p.20.
[54] Australian Bureau of Statistics, 6227.0 - Education and Work, Australia, May 2018.

The Foundation for Young Australians estimates that having so many young people out of the workforce costs the Australian economy 790 million lost hours of work each year, equating to up to $15.9 billion per annum in lost GDP to the Australian economy.[55]

The Mitchell Institute estimates that the average lifetime fiscal impact on the Australian economy for each early school leaver would be $334,600, and an additional annual social cost of $15,400 for each early leaver, mainly reflected in lower wages.[56]

With each additional year/level of education not only do average wage earnings increase, but more importantly, the prospect of securing employment increases too. In 2016, 80 per cent of those with a Bachelor degree or higher and 75 per cent with an Advanced Diploma or Diploma had secured work compared to 67 per cent and 44 per cent respectively for those who completed only Year 12 or 11 only.[57] In addition, the impact on the mental health and wellbeing of those persons represents a less visible and more personal cost.

In light of this data, it is critically important to keep young people engaged in learning for as long as possible, because for every additional year of education completed there is a smaller likelihood that a young person will fall into the desperate situation of experiencing prolonged periods of unemployment. The VET system plays an important role in providing vocational and career pathways to further study and employment, through programs like VET in Schools and apprenticeships and traineeships, particularly for young people most at risk of disengagement from school.

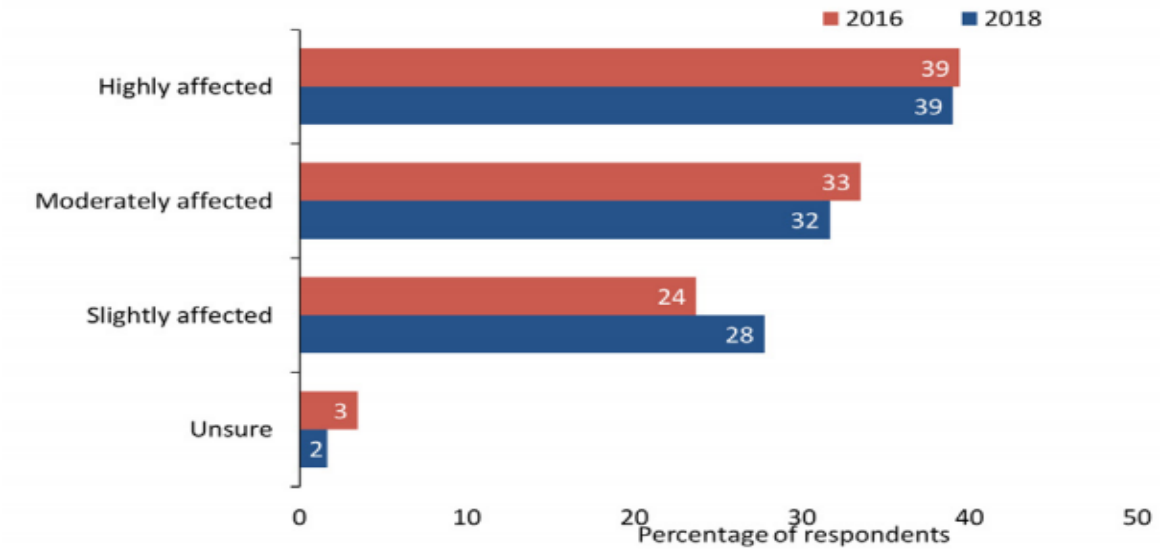
Literacy and Numeracy

Poor literacy and numeracy have a negative impact on productivity, labour mobility and the capacity of the economy to achieve the higher levels of skills needed for the increasingly knowledge-based economy. There remains an urgent need to address the language, literacy and numeracy needs of the Australian workforce.

Ai Group research reveals that low levels of workplace literacy and numeracy are a major concern to employers. The most recent survey indicates that 99 per cent of employers reported that low levels of literacy and numeracy have an impact on their business.[58]

[55] Foundation for Young Australians (2014), *Unlimited Potential*, p.3.
[56] Lamb, S. and Huo, S. *Counting the costs of lost opportunity in Australian education*. Mitchell Institute report No. 02/2017. Mitchell Institute, Melbourne
[57] Lamb, S. and Huo, S. *Counting the costs of lost opportunity in Australian education*. Mitchell Institute report No. 02/2017. Mitchell Institute, Melbourne
[58] Ai Group, Skilling: a National Imperative, 2018

Chart 13: Businesses affected by low levels of language, literacy and numeracy



Source: Ai Group, Workforce Development Needs Survey, 2018

The OECD's Programme for the International Assessment of Adult Competencies (PIAAC) has found that 44 per cent of Australians had literacy skills below the level considered to be the minimum requirement to operate effectively in the workplace and society. This was 55 per cent for numeracy proficiency.[59]

The Ai Group conducted a return on investment to employers participating in a literacy and numeracy support program with very positive results in 2015.[60] In addition to the benefits for participating employees, the positive ROI presented a firm business case for employer investment in workforce literacy and numeracy. There need to be VET-based programs within which they can invest.

A national literacy and numeracy strategy would underpin the provision of such programs by the VET sector. A key component of a strategy is the development and implementation of a new co-contribution program specifically for workplaces. The program could be nationally accredited through the Foundation Skills Training Package adapted to suit particular workplace needs. The use of the Australian Core Skills Framework could be mandatory to measure individual improvement and return on investment measures could be utilised to demonstrate benefits to the employer including direct linkages to productivity. The Ai Group conducted a small pilot study with three workplaces during 2016 based on these approaches with significant success.[61] This combination of measures could be implemented through a larger national pilot program in concert with industry.

Recommendation:

To help reduce youth unemployment, vocational education and training options should be more actively promoted to students most at-risk from disengagement from school.

The VET system should be underpinned by a national foundation skills strategy that incorporates a new workplace LLN program to support at-risk cohorts.

[59] Ai Group, *Tackling Foundation Skills in the Workforce*, January 2016
[60] Investing in Workforce Literacy Pays, Australian Industry Group, August 2015.
[61] Foundation Skills Pilot Program Success, Australian Industry Group, July 2017.

7. The Review may seek out case studies of best practice in VET and consider whether specific trials should be undertaken to test innovative approaches likely to deliver better outcomes.

The Industry 4.0 Higher Apprenticeship project, mentioned earlier in this submission, is an example of best practice which has also highlighted shortcomings in the VET system. The project was funded by the Commonwealth Government through its 'Apprenticeship Training – Alternative Delivery program'. Its purpose was to develop and pilot a higher-level apprenticeship that prepared technicians to work in advanced manufacturing – what has been termed 'Industry 4.0', a reference to the fourth industrial revolution. These apprentices have learnt skills needed to work in the factories of the future – areas like the internet of things, automation, sensors, cloud computing, big data analytics and machine-to-machine communications.

The training undertaken by the apprentices commenced with a Diploma of Applied Technologies. They then articulated to an Associate Degree, and graduates will have the option of moving on to study a Bachelor Degree when the program finishes. The qualifications straddled the VET and higher education sectors, made possible by the participation of a dual sector university (Swinburne University of Technology) in the project. The project is currently wrapping up for the apprentices. Most will go on to full time employment with Siemens Ltd, while three have opted to return to full time study. Siemens have indicated that they will sponsor their study.

The VET-level Diploma developed for the project was established as a Victorian qualification. As mentioned earlier in this submission, this was organised because of the time accrediting a national qualification would have taken.

A further challenge for the pilot has been in expanding it beyond the original participants. Ai Group has promoted the outcomes of the pilot to our members and has received interest for a similar program from across Australia. But funding for training is determined by state governments, and apprentice and trainee declarations are also made by state government agencies. This has entailed separate applications to every state, a time-consuming arrangement that a national body might circumvent.

Another challenge, which has not yet been overcome, is achieving an apprenticeship or traineeship declaration for a higher education qualification. Government agencies will consider applications for VET Diplomas, but university-accredited Associate Degrees are another matter.

A final challenge has been the link between qualifications and industrial awards. Some awards link pay classifications to qualifications and units of competency. This can provide clarity to workers and employers covered by an award, but it also adds another layer of complexity to establishing new qualifications and new units of competency.

Recommendations:

Introduce trials that test the boundaries between VET and higher education and provide for more seamless movement between the two sectors.

8. The Review should have regard to the scope and outcomes from any previous or forthcoming reviews, consultation to date, and inputs made by industry and peak groups.

The Ai Group, as a representative of industry – a central player in the VET system, maintains an active involvement in reviews and reforms of the system and in collecting data that informs the system. Links to some of our more recent, relevant reports and submissions are provided below.

Industry 4.0 Higher Apprenticeships Program
https://cdn.aigroup.com.au/Reports/2018/Industry_4_Higher_Apprenticeship_Program_July_2018.pdf

The Imperative of Higher Apprenticeships
https://cdn.aigroup.com.au/training/The%20Imperative%20of%20Higher%20Apprenticeships.pdf

Skilling: A National Imperative, workforce development needs survey report
https://cdn.aigroup.com.au/Reports/2018/Survey_Report_WFDNeeds_Skilling_Sept2018.pdf

Skills Shortages Research Note
http://cdn.aigroup.com.au/Reports/2018/Skill_Shortages_Research_Note_April_2018_WD.pdf

Developing the workforce for a digital future
https://cdn.aigroup.com.au/Reports/2018/Developing_the_workforce_for_a_digital_future.pdf

Submission to inquiry into education and training in South Australia
http://cdn.aigroup.com.au/Submissions/Education_and_Training/2018/AiGroup_Submission_to_Senate_Inquiry_into_Education_and_Training_in_South_Australia_5Feb_2018.pdf

Submission to inquiry into career advice activities in Victorian schools
http://cdn.aigroup.com.au/Submissions/Education_and_Training/2017/Victorian_Career_Advice_Submission_15.12.2017.pdf

Submission to inquiry into school to work transition
http://cdn.aigroup.com.au/Submissions/Education_and_Training/2017/School_to_Work_Transition.pdf

Submission to inquiry into innovation and creativity: workforce for the new economy
http://cdn.aigroup.com.au/Submissions/Education_and_Training/2016/Ai_Group_Submission_to_HR_Education_Training.pdf

Submission to review of quality of assessment in vocational education and training
http://cdn.aigroup.com.au/Submissions/Education_and_Training/2016/Ai_Group_submission_to_the_quality_of_assessment_in_vet_discussion_paper.pdf

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The Australian Industry Group, Skilling: a National Imperative, 2018.

The Australian Industry Group, Tackling Foundation Skills in the Workforce, 2016.

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Department of Jobs and Small Business, Industry Employment Projections, 2018.

European Commission, Twenty guiding principles for effective WBL, 2015.

European Commission, The Future of Work: empowering people, Social Agenda No. 53, November 2018, http://europa.eu/!Qb38gF

Foundation for Young Australians, Unlimited Potential, 2014.

The Foundation for Young Australians, The future of our future: education must be more than 'acing a test', 2017: http://www.fya.org.au/2017/06/15/future-future-education-must-acing-test/

The Foundation for Young Australians, The New Work Mindset: 7 new job clusters to help young people navigate the new work order, 2016.

Fowler, C. and Stanwick, J., A chance to be bold and ambitious: make apprenticeships the lynchpin to a better integrated tertiary education sector, NCVER, 2017.

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Lamb, S. & Huo, S. Counting the costs of lost opportunity in Australian education; Report 02, Mitchell Institute, 2017.

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