Department of Treasury
Langton Crescent
PARKES ACT 2600

30 November 2022

RE: Employment White Paper Consultation

Thank you for the opportunity to provide input into the Employment White Paper consultation process. The September 2022 Jobs and Skills Summit was a welcome initiative of the Albanese Government in response to the urgent skills shortages facing the Australian economy and particularly the technology sector. The AIIA looks forward to working with government as part of the Digital and Tech Skills Compact to put forward innovative solutions together with the Association's employer, higher education and VET members.

About the AIIA

The Australian Information Industry Association (AIIA) is Australia's peak representative body and advocacy group for those in the digital ecosystem. We are a not-for-profit organisation to benefit members, and AIIA membership fees are tax deductible. Since 1978, the AIIA has pursued activities to stimulate and grow the digital ecosystem, to create a favourable business environment for our members and to contribute to Australia's economic prosperity.

We do this by delivering outstanding member value by:

• providing a strong voice of influence

• building a sense of community through events and education

• enabling a network for collaboration and inspiration; and

• developing compelling content and relevant and interesting information.

We are unique in that we represent a the diversity of the tech ecosystem from small and medium businesses, start-ups, universities and digital incubators through to large Australian companies, multinational software and hardware companies, data centres, telecommunications companies and technology consulting companies.

100-word summary and introduction

The technology sector is critical to Australia's economic future and productivity, with the majority of well-paying jobs and growing industries today reliant on digital skills and digital literacy. While Higher Education holds incumbent status as a training and recruitment pathway of choice, graduates will be insufficient in number to fill a gap of 27,000 technology workers per annum. Returning migrants must be a supplementary focus, but in themselves will be insufficient to meet supply. Re-skilling mid-career professionals, upskilling the current workforce and attracting workers from declining industries will be key to filling demand, as well as ensuring strong and diversified pathways of talent beginning from school-age.

Productivity
Seeding the digital skills of the future across every element of the economy is a crucial element of realising productivity gains. The Covid-19 pandemic highlighted the extent to which technology can facilitate the productivity of the economy despite global disruption and

unprecedented paradigm shifts in the way Australians live and work.

A resilient digital backbone and transformative digitisation of businesses is crucial as a guarantee of our productivity for decades to come. The momentum created by the elevated focus on digital platforms that saw Australians through the height of the pandemic must be not only maintained but accelerated to achieve the Federal Government's aim for Australia to become a leading digital economy by 2030 and realise important productivity gains. As in non-digital industries, the appropriate application of automation and artificial intelligence into digital supply chains will be a key means by which emerging technology results in productivity gains within digital-facing industries and frees human labour up to focus on higher-order thinking and meaningful non-repeatable processes.

As Dr. Stephen King of the Productivity Commission has said: *"Technologies such as artificial intelligence, robotic automation and big data analytics could revolutionise how businesses operate and help lift Australia's productivity growth by reducing costs, improving the quality of goods and services, and increasing product choice for consumers."*[1]

The productivity dividend from digital innovations has resulted in a 6.5% increase in economic activity, equivalent to an additional $126 billion in gross domestic product (GDP) to the economy. In the 2020–21 financial year, the ICT sector contributed nearly $56 billion in GVA to the Australian economy.[2]

Wages growth
Upskilling workers and encouraging both existing workers, school leavers and migrants into digitally skilled roles and pathways will grow wages as a result, with digital literacy and digital skills strongly positively correlated with higher wages across numerous studies.
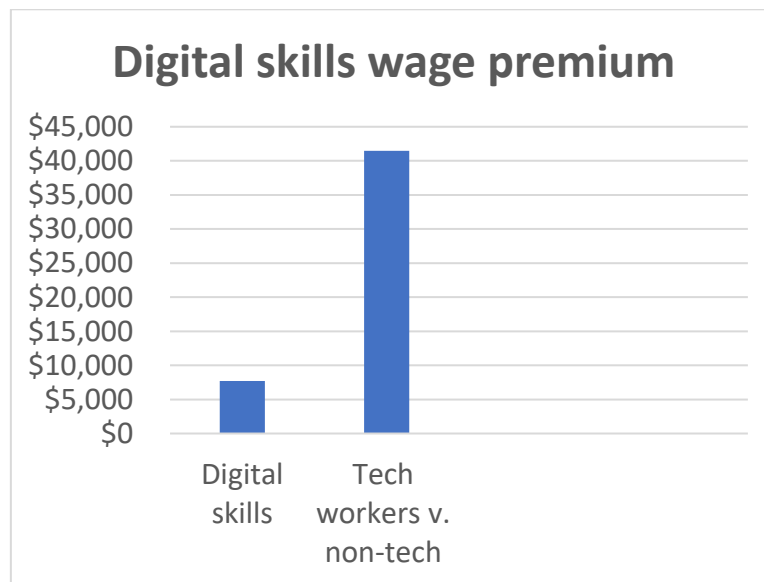
AIIA Infographic 2022

It has been found that learning a digital skill is equivalent to an additional $7,700 increase in wages per worker, per year.[3] The 2020-21 Professionals Australia ICT Remuneration Report

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[1] https://www.pc.gov.au/inquiries/current/productivity/interim2-data-digital/productivity-interim2-data-digital.pdf
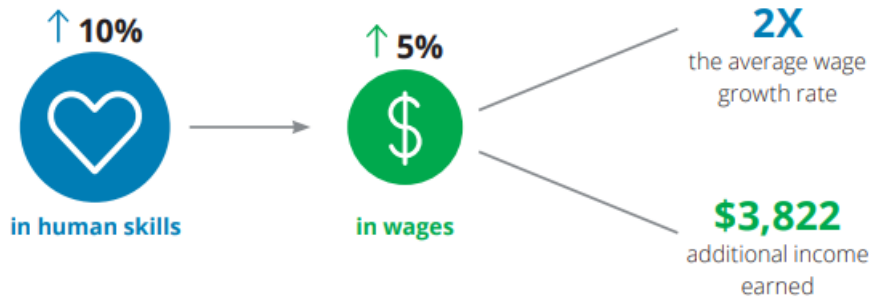
[2] https://www2.deloitte.com/au/en/pages/economics/articles/australias-digital-pulse.html

[3] https://ia.acs.org.au/article/2022/your-tech-skills-worth-an-extra--7-700-a-year.html

found a median base salary of $115,000 amongst ICT workers and a median total package of $131,400.[4] This is compared with a median base salary of $90,324 in 2021 in Australia.[5]

- Deloitte Access Economics has found a wage premium associated with human skills, of which digital literacy is one of the four most in-demand human skills.[6]

Figure E.1 Dollar impact on wages for a 10% increase in human skills

↑ 10%

in human skills

→

↑ 5%

$

in wages

2X
the average wage growth rate

$3,822
additional income earned

Source: Deloitte Access Economics (2019)

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A July 2020 report by the Chief Scientist of the CSIRO found a higher proportion of Information Technology graduates than the total STEM graduate cohort had an income in the highest bracket—35% of bachelor graduates and 52% of doctoral graduates had an income of $104,000 or above.

4
https://members.professionalsaustralia.org.au/documents/ICT/Remuneration_Report/20_21_ICT_Employmen t_Remuneration_Report.pdf
5
https://www.google.com/search?q=median+base+salary&oq=median+base+salary&aqs=chrome..69i57j46i67i 175i199j0i67i457j0i402j0i67j69i61l2j69i60.1632j0j7&sourceid=chrome&ie=UTF-8
6 Deloitte Insights 2019, The path to prosperity: Why the future of work is human.
7 https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-premium-skills-deakinco-060120.pdf

Figure 11.10: Personal annual income of Information Technology graduates working full-time and part-time, by field, gender and level of qualification
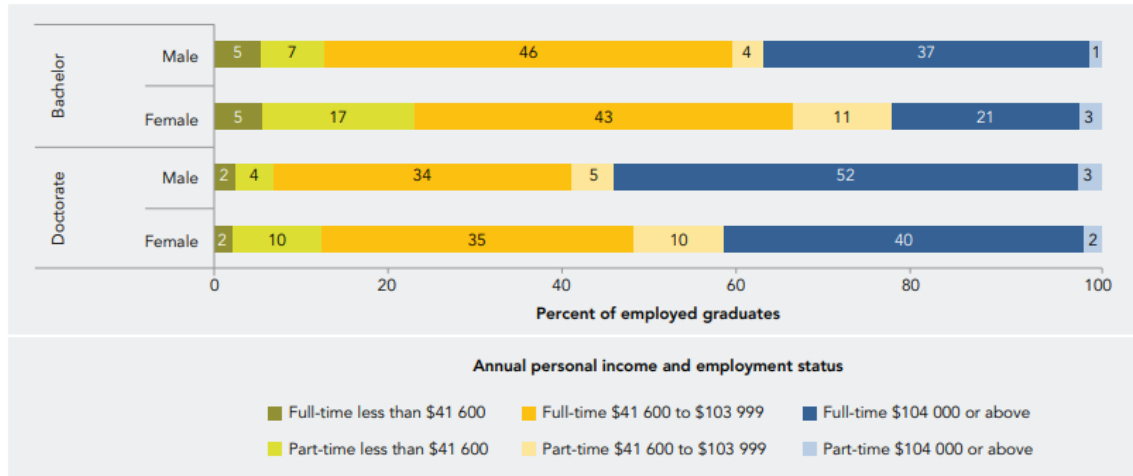
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Future of Work: Energy transition and tackling climate change

As referred to in the Productivity Commission's fourth Interim Report, *A competitive, dynamic and sustainable future*, the maturity of negative emissions technologies and cost-effective carbon abatement technology will be crucial to realising a digitally advanced net-zero economy.[9] As further noted in the fourth Interim Report,[10] sustainable future, an even, economy-wide approach to decarbonisation will necessitate more than just a pillar of 'green jobs', 'clean energy jobs' or a 'green sector' within the economy, but will also need to decarbonise entire industries and jobs of every kind, upskilling workers in emissions reductions, emissions tracking, and abatement across industries. The role of data analytics and digital technology will be crucial in the task of building a productive, decarbonised digital economy, where emissions, offsets and abatement efforts are measured and understood.

Over $20 billion of government investment in low-emissions technology solutions has the potential of reducing net emissions by 85%.[11] The jobs to go with these solutions and the skills to leverage these government investments will be pivotal.

Future of Work: Workforce adaptability and emerging industries

The ICT sector today employs over 900,000 Australians, with this number projected to grow to 1 million workers by 2024.[12]

According to a report by the RMIT, 87% of jobs in Australia require broader digital skills.[13]

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[8] P.164, https://www.chiefscientist.gov.au/sites/default/files/2020-07/australias_stem_workforce_-_final.pdf
[9] https://www.pc.gov.au/inquiries/current/productivity/interim4-business
[10] p. 82
[11] https://unfccc.int/sites/default/files/resource/Australias_LTS_WEB.pdf
[12] https://www2.deloitte.com/au/en/pages/economics/articles/australias-digital-pulse.html
[13] https://online.rmit.edu.au/insights/2021?gclid=CjwKCAjwvMqDBhB8EiwA2iSmPNp7fG4Tku1VgcA_2y6moJp-KbVGgL94065BIw8JG9Q_k8C5DiNYAxoCF_oQAvD_BwE

TOTAL AUSTRALIAN JOBS AND TECH SKILLS

Other

87%

Digital jobs
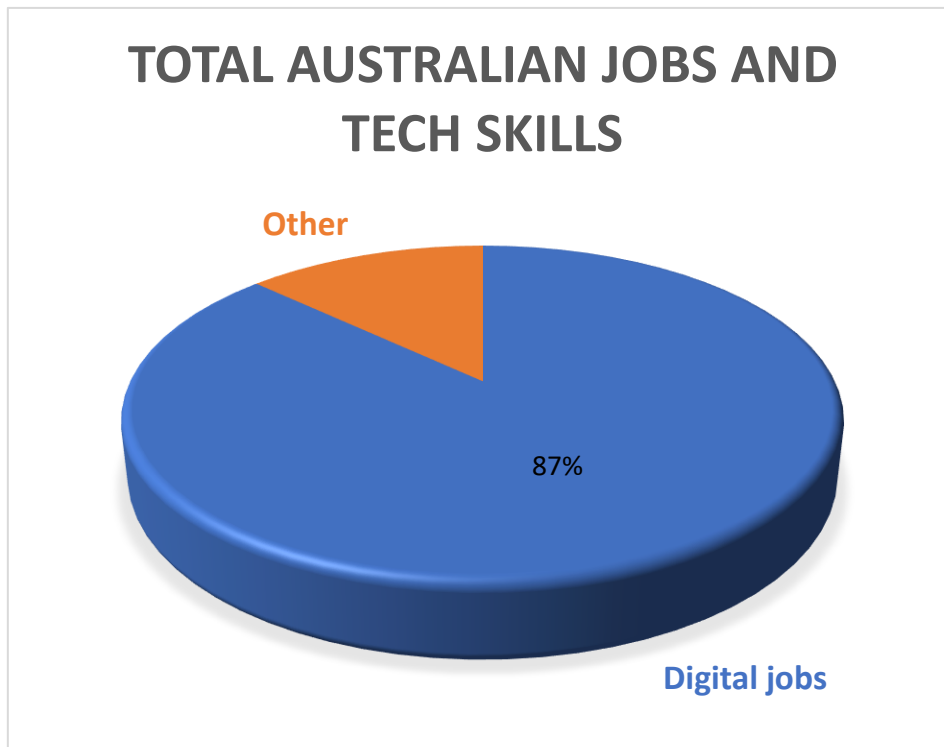
ICT workers represent 6.7% of the total workforce today increasing to 8.5% by 2027 which is a growth rate of 5.5%, far exceeding the growth of the average Australian workforce (this equates to ICT workers constituting the 6th largest workforce).[14]

The largest industries with tech workers are professional, scientific and technical services (113,604), financial services (76,733), public administration and safety (73,736), education (28,231) retail (26, 118), manufacturing (23,756) and healthcare and social assistance (21,953).[15]

Emerging areas such as quantum technology, which is being addressed by the Government's National Quantum Strategy, will require workforce plans and embedding at the curriculum level, together with exposure to the Internet of Things (IoT), AI/Machine Learning, and blockchain.

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[14] https://www.acs.org.au/insightsandpublications/reports-publications/digital-pulse2022.html, p.13
[15] ABS customised report (2022) as reported in p.10 of the ACS/Deloitte Digital Pulse Report

SUMMARY AND KEY FINDINGS

Business confidence in the economy has **weakened** in 2022.

Lack of skills remains a **critical hand brake on growth** for the tech sector. Of concern is the fact that many companies are responding by increasing the **offshoring** of work.

Government has a **strong role** to play in addressing the **skills deficit**.

AI skills demand is up by 8% and there has been a 9% increase in companies using AI in their business.

Industry has growing concerns regarding the increase in regulatory red-tape.

The education sector is not meeting industry needs: the amount of upskilling that industry must undertake for tech graduates to ensure job readiness is increasing, with only 5% of respondents assessing that graduates were job-ready.

Excitingly, 44% of Australian tech companies surveyed are looking to expand business overseas or increase exports: an increase of 26%.

AIIA Member Survey Key Findings[16]

The AIIA's 2022 Digital State of the Nation Survey found that only 5% of AIIA members believe the education system produces job-ready graduates, and almost half (49%) indicated that further training is required by graduates for them to be job-ready.[17]

Meanwhile, one study found that roughly 90% of job advertisements posted by major technology companies required a university degree.[18] Greater consideration of applicants with relevant VET qualifications or microcredentials informed by genuine skills-based hiring would allow employers to select from a larger talent pool.

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[16] https://aiia.com.au/publications/aiia-member-survey-digital-state-of-the-nation-2022/

[17] AIIA Digital State of the Nation Survey (2022) https://aiia.com.au/publications/aiia-member-survey-digital-state-of-the-nation-2022/

[18] https://hbr.org/2022/02/skills-based-hiring-is-on-the-rise

There should be awareness-raising among the employer committee encouraging hiring practices to centre on flexible demonstration of skillset, not rigidity around qualifications. Culturally, there must be a shift of internal policies away from necessitating hiring candidates with traditional degrees and ensuring HR practices are fluid, engaged with hiring managers and the most forward-thinking elements of business and not unduly affected by rigid KPIs or internal policy compliance.

The AIIA is committed to promoting an openness to self-taught or differently experienced tech professionals amongst its members. Sourcing talent from unorthodox but technologically-engaged settings, such as hackathons and gaming competitions, is a mental and cultural shift that must be effected.

Moving the focus from the number of years of experience to the type and quality of experience and the aptitude and attitude that frames that experience will be key to meeting labour gaps in the market.

Upskilling, reskilling, skilled migration and growing the pipeline into the technology sector and technology-dependent sectors all form part of the skills shortage puzzle. As acknowledged on page 56 of the Report, digitally skilled workers play an important enabling role in businesses of all kinds: *"many of these specialist workers are not employed by technology companies, or even consultancies that advise on digital and data solutions, but instead by businesses in other industries."*[19] For greater productivity, investing in workforce capability is essential. Higher education outcomes, including employment outcomes, must directly address the skills shortages affecting Australia.[20] This requires nimble, innovative educative models, where industry and employer requirements can be reverse-engineered in agile timeframes through industry-academia partnerships and work-integrated learning.

Notably the experience and know-how of international students is often lost as graduates return to their home countries, and the AIIA has used the Tech Skills Roundtable process instituted by Minister Husic in 2022 to suggest, in light of digital skills shortages, that international student work rights be extended and made more flexible to meet industry demand.

Technology vendors, their customers, partners, vendor training and existing programs of government support must be better connected so vendors can play their part in delivering in-demand skills to customers, especially as industry certifications are useful, respected by employers and valuable to reskilling professionals, including mid-career women, who do not wish to spend years out of the workforce in order to make a career pivot. A proliferation of frameworks, schemes and pathways has the capacity to present as formidably complex, so an ongoing review of the AQF will be essential.

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[19] P.56, *Australia's data and digital dividend* Interim Report – 5-yearly productivity review
[20] P. 20, AQF Review, 2019.

With IT graduates less than 9,000 people per year,[21] upskilling and reskilling more people into technology roles and retaining current technology workers will be critical to sustainable growth in the technology workforce.

Encouraging and enabling workers to transition to technology roles, particularly by increasing digital skills, will be key to growing the technology workforce. The 55 years and above demographic is a large pool of future workforce, with the technology sector welcoming the additional $4000 working credit granted to Aged and Veterans Pensioners following the Jobs and Skills Summit.[22]

Government should consult with Indigenous-owned ICT businesses to equip Indigenous workers with in-demand digital skills, a largely untapped demographic group. Further, by working with regional students and businesses to diversify the employment pipeline into tech careers and galvanising the focus on women in STEM and women in tech, both among students, parents and women returning to the workforce or seeking to increase hours to full-time work, will be important components to success. Emphasising to girls and women the soft skills and human skills that play a key role in IT roles, including cyber security, will be educative aspects that prevent a dynamic of self-exclusion.

A shift to microcredentials and short courses will support transitions and re-skilling workforces, preventing the need to take years out of one's current paying job to upskill.
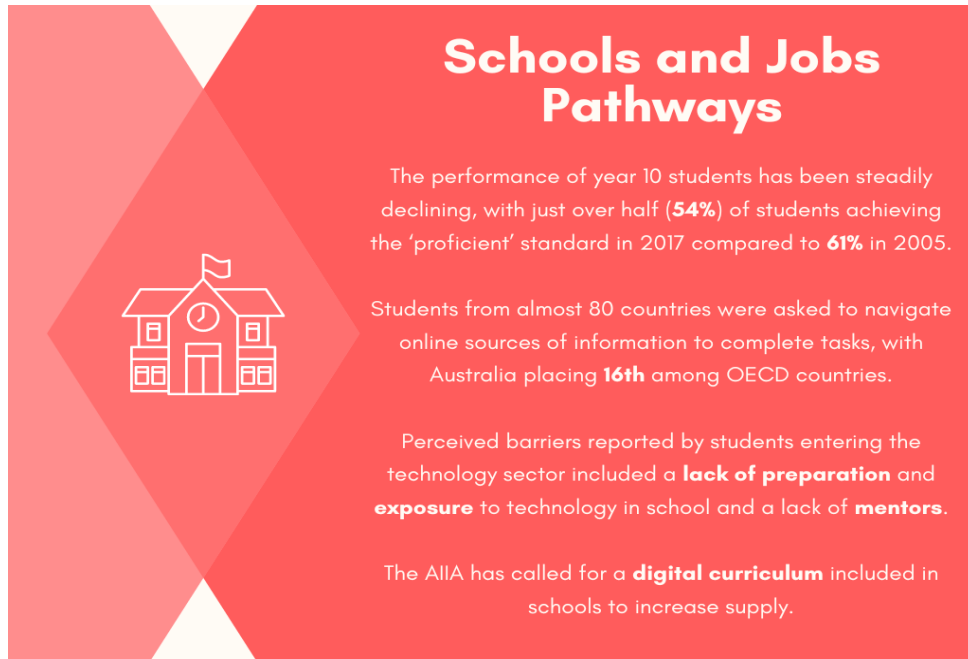
With 87% of jobs requiring digital skills, improving digital skills will be critical to enabling this transition and improving the productivity of the workforce generally.

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There is an acute need for a digital curriculum and embedded exposure to technology in schools over and above the current approach to ICT in the classroom. This needs to include exposure to emerging technologies such as quantum technology and artificial intelligence. Engaging with parents, especially in regional areas traditionally underrepresented in STEM fields, must be a renewed focus.

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[21] https://www.statista.com/statistics/909349/australia-domestic-students-completions-in-ict-university-by-state/

[22] https://www.pm.gov.au/media/giving-older-australians-option-work-and-earn-more

Schools and Jobs Pathways

The performance of year 10 students has been steadily declining, with just over half (**54%**) of students achieving the 'proficient' standard in 2017 compared to **61%** in 2005.

Students from almost 80 countries were asked to navigate online sources of information to complete tasks, with Australia placing **16th** among OECD countries.

Perceived barriers reported by students entering the technology sector included a **lack of preparation** and **exposure** to technology in school and a lack of **mentors**.

The AIIA has called for a **digital curriculum** included in schools to increase supply.

Schools and Jobs Pathways Infographic: AIIA (2022)

Note: Digital Apprenticeships

Noting industry capacity to take on interns and apprentices is often limited, government must incentivise and equip industry to take on larger cohorts of digital apprentices, including by working with industry to ensure the right programs and mechanisms are in place. The AIIA is committed to working with other industry representatives and the Federal Government as part of the Digital and Tech Skills Compact to develop a successful, incentivised and well-targeted digital apprenticeship scheme to address these barriers.

Case Study: Digital Jobs Victoria

Digital Jobs is a Victorian government program that incentivised employers by providing $5000 to take on cadets over 12 weeks. Cadets are given industry-backed training through free training in a high-quality, industry-backed digital course career coaching and technical mentoring to build confidence and job search skills opportunities.[23] Digital Jobs Victoria has had 2,000 participants to date, with the program targeted at older workers who want to move into a tech career.

 - 15,000 applications
 - 90% of intern **hosts would recommend** the program to others
 - 90% said they will be **participating in future rounds** of the program
 - The **participants are very diverse** and a drawn from a wide range of industries:
   - **55% of the participants are female**
   - 65% of the participants speak a language other than English
   - 95% of the participants are tertiary qualified
   - There is good age mix; 55% are 30-39, 29% are 40-49 and 13% are 50 and over.

Migration

23 https://au.hudson.com/job-seekers/victoria-digital-jobs-program/
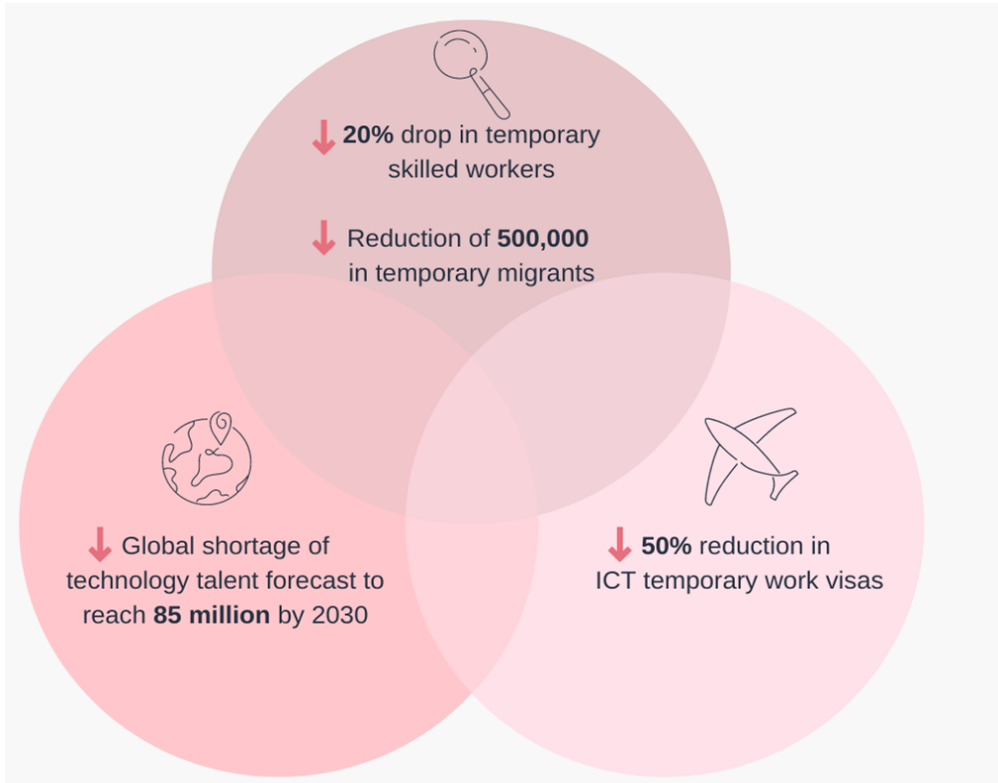
AIIA Infographic 2022

In 2020-21, there was a reduction of 500,000 in temporary migrants and a 20% drop in temporary skilled workers across the Australian workforce when compared to pre-pandemic levels.[24]

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[24] https://grattan.edu.au/report/migrants-in-the-australian-workforce/

Graph 1.1 Net overseas migration(NOM) - Australia - Historical(a)
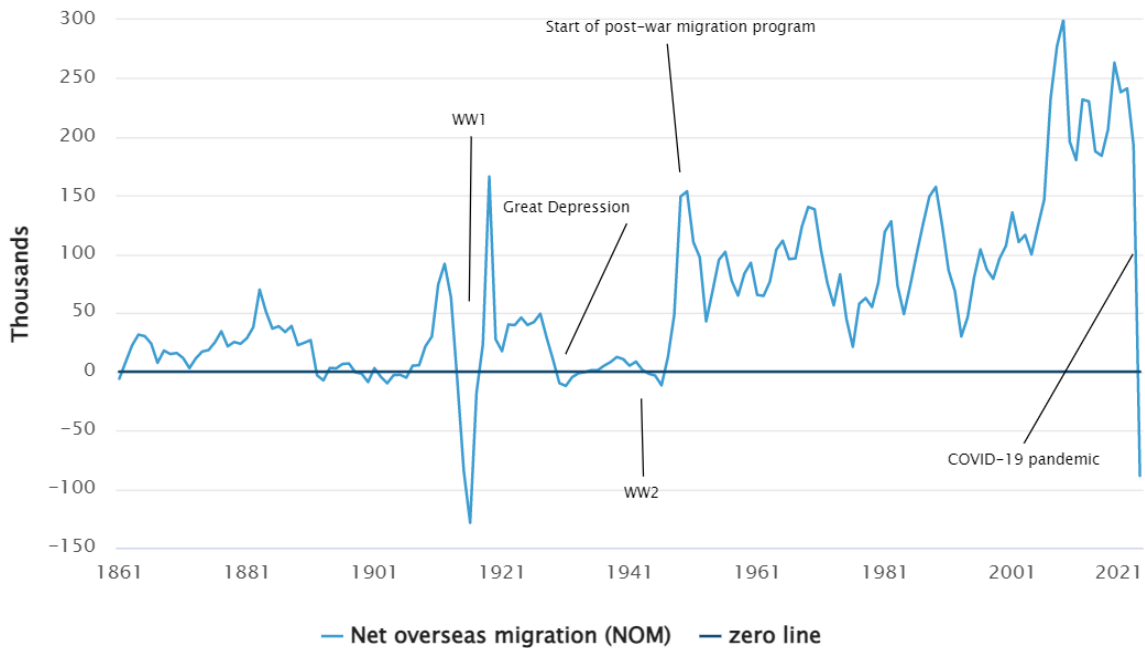
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It will take some time to return to migration levels prior to COVID-19, which will lead to a greater reliance in the short term on IT graduates and people reskilling from other professions.

The 2022 Digital State of the Nation AIIA survey[26] revealed that some businesses may already be turning to international labour to fill current vacancies with members reported a 20% fall in positions acquiring local technology talent in the past year, while more than a third (35%) of businesses surveyed planned to hire overseas staff.

The global shortage of technology talent estimated to reach more than 85 million technology workers by 2030.[27]

Recent work to address the visa processing backlog that build up over the Covid-19 pandemic have been welcome, including announcements in the October 2022 Budget. This must remain a focus of the Government in coming years.

The AIIA thanks Treasury for the opportunity to have input on the Employment White Paper. If you have any questions about the content of this submission, please contact the AIIA via rachel@aiia.com.au.

[25] https://www.abs.gov.au/statistics/people/population/overseas-migration/latest-release
[26] https://35hddx2cwawgt701l2sq0v5c-wpengine.netdna-ssl.com/wp-content/uploads/2022/04/AIIA-Member-Survey-Digital-State-of-the-Nation-2022-1.pdf
[27] https://www.imf.org/en/Publications/fandd/issues/2019/03/global-competition-for-technology-workers-costa

Yours sincerely

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