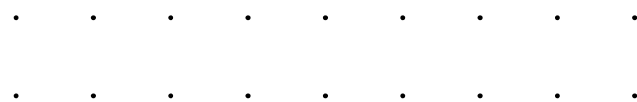




Jobs and Skills Australia Employment White Paper Submission Swinburne University of Technology

People and technology working together to
build a better world

[swinburne.edu.au](https://www.swinburne.edu.au)



Guide to our submission

Swinburne University of Technology welcomes the opportunity to take part in the discussion that will shape the future of jobs and skills in Australia.

As one of Australia's six dual-sector universities, we understand the challenges of building a strong, sustainable workforce that is low-carbon, digitised and adaptable to changing needs.

Context

This submission outlines Swinburne University of Technology's credentials and the pathways we offer students, as well as our unique connection to some of the biggest industries operating in Australia.

Our university is a Science, Technology, Engineering and Maths (STEM) specialist institution, focused on entrepreneurship and innovation, and developing solutions for a technology-driven world. Our purpose is to build a sustainable world, and we teach students in key disciplines to build a just society, including nursing, teaching, social science, childcare and trades-based education. Our model, as the prototype of a new and different university, ensures that all our programs include capabilities in tech. This is our point of difference; it is how Swinburne builds human capability for the next generation of work.

Swinburne's View

We deliver hands-on, tech-rich education, connecting our students to the living, working world. From this vantage point, the submission will cover a series of key recommendations that Swinburne believes can position students, employers and employees for the future of work. These are:

1. Understanding and investing in future workers and supporting existing workforces that will taper off over the next 15-20 years
2. Defining the skills we need to compete globally, while addressing shortages domestically
3. Investing in new technology research to build industry from the ground up
4. Harnessing fee-free TAFE to work better for industry, government and the taxpayer
5. The criticality of online learning for learners and employers

Preamble: Who is Swinburne University of Technology?

More than 110 years ago, Swinburne first opened its doors with a simple premise: to provide education to a section of society otherwise denied further education. In 1992, we gained university status, becoming Swinburne University of Technology.

As a university, we are 30 years young but anchored in a rich history. Our commitment to transform education and support learners from diverse backgrounds remains as strong today as it was more than a century ago.

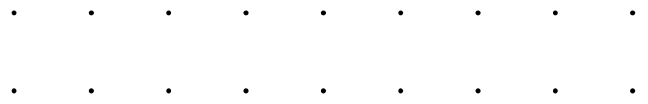
It is our goal to ensure students achieve their full potential in a tech-rich future. Our 2025 vision of people and technology working together to build a better world builds on our foundations and history as a technology leader. Our focus on creating and harnessing technology sets us apart.

We take our students outside the conventional classroom and into the real world. Their future-readiness comes from hands-on experience, interactions with industry leaders, and learning by doing.

Driven by our pioneering research and focus on making a real-world impact, we are transforming our global and local communities with technology at the core.

We are at the forefront of emerging technologies, thanks to our research-led innovation, and being the Australian champion and leading voice of advanced manufacturing and Industry 4.0 and 5.0.

Our commitment to students is simple. Whether in higher education or vocational education, at the start of the journey or at the level of mastery, we'll help them achieve their full potential in a technology-driven future.



What we teach

As a dual-sector university, we provide both higher education degrees and vocational education courses. We offer courses in a broad range of disciplines including arts and humanities, aviation, built environment and architecture, business, design, education, engineering, English language and study skills, film and television, games and animation, health sciences, occupational therapy, nursing, biomedical sports science, psychology, information technology, law, media and communications, and science. Swinburne has six schools delivering undergraduate and postgraduate courses:

- School of Business, Law and Entrepreneurship
- School of Design and Architecture
- School of Engineering
- School of Health Sciences
- School of Science, Computing and Engineering
- Technologies
- School of Social Sciences, Media, Film and Education

Swinburne also provides pathways and vocational education courses for the development of practical and job-ready skills, and the opportunity to progress to a higher education qualification:

- Swinburne College
- VET Department of Business, Design, Media and ICT
- VET Department of Health, Science and Community
- VET Department of Trades and Engineering Technologies.

Our close ties with industry provide students with opportunities for valuable workplace experiences during their studies. Industry representatives inform, shape and challenge the curriculum. We continue to lead the sector in our approach to work placements and industry links, offering a consistent and comprehensive Work Integrated Learning program.

In creating a new cohort of graduates for the future, Swinburne continues to refresh its curriculum and foster active learning. A key part of transforming our approach to learning is the implementation of our learning management system, Canvas. In 2019, we became the first university in Australia to achieve Adobe Creative Campus status, enabling students to excel in digital literacy and enhance their employability. Swinburne has also become one of the fastest growing providers of online education in Australia, opening our doors to students who would otherwise not have had an opportunity to undertake tertiary education.



What we research

Technology and innovation are at the heart of Swinburne. Our researchers have a reputation for high-quality research with strengths in astronomy, space and aerospace, physics, engineering, materials science, quantum physics, computer science and information technology, design and innovation, health sciences, neurosciences, and mental health. Swinburne is at the forefront of Industry 4.0 and 5.0 transformation. With a \$135 million industrial digitalisation grant from Siemens, we are committed to advancing the implementation of our Industry 4.0 Initiative. Our work in this area was recognised in 2019 with the Australian Business Award for Business Innovation.

Our approach to commercialisation

At Swinburne, we are courageously advancing entrepreneurship and innovation as a mindset and driving towards commercialisation as an expected outcome. We do this by helping entrepreneurs (whether they are students, researchers or partners) to create market-led ventures across our three flagship research areas – space and aerospace technology, innovative planet, and health and medical technology. We ensure entrepreneurs, researchers, students and the university all share in the benefits of these new ventures.

Swinburne also has a suite of intensive team-based programs to grow skills and accelerate high-potential projects towards an impactful and/or commercial outcome across validation, scale and growth avenues. Through this full range of innovation education and industry-ready services and programs, Swinburne is not just creating the future workforce, we are helping staff, students, and alumni create the future itself.

Our students – domestic and international

Swinburne offers courses in 10 fields of education attracting a broad demographic of students who choose to study in tailored ways aligned to their personal needs.

Swinburne engaged with over 50,000 students in 2021 with 34,539 EFTSL enrolled in higher education and vocational education courses. The Higher Education cohort comprised 73% domestic and 27% international students. The Vocational Education cohort comprised 92% domestic and 8% international students.

The domestic Higher Education cohort has a significant proportion of students who have chosen to study full time (54% headcount). The domestic Higher Education students also draw from diverse backgrounds and equity groups, including 18% low SES, 20% regional and remote, and 1.3% indigenous. The age profile of the online domestic Higher Education students varies significantly from traditional on-campus students, with 80% of online students above the age of 24.

2021 – Swinburne Students

data extracted from 2021 Swinburne Annual Report

	Domestic Students	International Students (on-campus)	International Students (offshore)	Sarawak	Total Students
Higher Education Students	19,004	3,688	1,222	2,263	26,177
Vocational Education Students	7,698	300	364	-	8,362
Total	26,702	3,988	1,586	2,263	34,539

	On-campus (Australia)	Online^	Sarawak	Offshore
Higher Education Students	14,481	8,211	2,263	1,222
Vocational Education Students	5,566	2,069	-	727
Total	20,047	10,280	2,263	1,949

- Presented as EFTSL
- ^ Includes workplace, distance venues and online delivery. Inclusive of SOL, Hawthorn Online and CSP-funded Open Universities Australia.

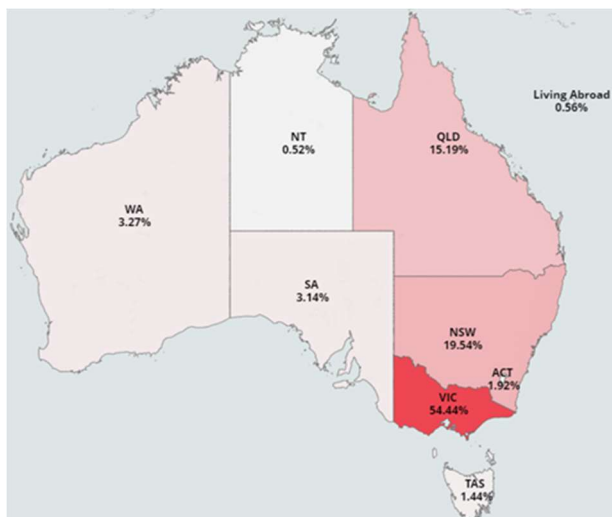
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Our online presence

In 2022, 12,927 students (continuing and new) enrolled with Swinburne Online. Our courses were established to reach a cohort of students previously under-served by traditional study models and we continue to attract a high proportion of mature age students nationally, with significant cohorts of low SES, regional and remote students.

- 79% are female
- 24% live regionally/remote
- One third are in their 20s, one third are in their 30s and 25% are over 40.



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Our global presence

Swinburne has a long-standing commitment to global engagement, both on its campuses in Australia and overseas. A growing cohort of international students study on-campus, drawn in particular from South Asia and Southeast Asia.

Swinburne also provides a suite of opportunities for domestic students to undertake an international study experience, whether on exchange, through a study tour or by doing an international internship or overseas work experience opportunity.

Swinburne has also developed a range of teaching partnerships to widen participation in its courses and to reach new cohorts of students in Australia and overseas. Swinburne was one of the first universities to establish a branch campus in Southeast Asia with the intention of globalising its operations.

Founded in partnership with the Sarawak State Government in Kuching (East Malaysia), Swinburne Sarawak celebrated its 21st anniversary in 2021 and is a key driver of the university's strong international reputation.

More recently, Swinburne has established the Swinburne Vietnam Alliance Program, a transnational education partnership with FPT University in Vietnam, closely affiliated with the major telecommunications group, FPT Corporation. Known as Swinburne Vietnam, this partnership provides opportunities for undergraduate students in business, IT and computer science, and media and communications to undertake Swinburne degrees at teaching locations in Hanoi, Danang and Ho Chi Minh City. Now in its fourth year of operation, enrolments in Swinburne Vietnam have shown strong growth.

Another key element of the University's global footprint relates to its research activity, where Swinburne has secured partnerships for research collaboration with leading higher education institutions across the globe, including Europe and South Asia. The University has also successfully deployed a joint/partnered PhD model where international research students are jointly supervised by Swinburne and partner university academic staff.



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Horizon 2025

Our strategic plan, Horizon 2025, establishes Swinburne as the prototype of a new and different university – one that is truly of technology, innovation and entrepreneurship, and proud of it.

To realise this vision, Swinburne commits to taking big strides and aspires for bold ‘moon shots’ rather than incremental change.

Our moon shots aim to embolden and energise our staff, students and partners, enabling us to focus and invest in what we know can make a real difference in the world



Moon shot 1: Every Swinburne learner gets a work experience

All Swinburne undergraduate learners will experience work integrated learning and real industry experience during their degree, including paid placements, internships or industry linked projects. This is made possible by Swinburne’s extensive partnerships with leading Australian and global organisations. Learning by doing will define how we teach, assess and engage with students and industry. We will become curators of rich learning experiences, overcoming the boundary between work and study.

Moon shot 2: Every Swinburne graduate gets a job

Swinburne’s goal is for every Swinburne tertiary and vocational graduate, including our alumni, to be a job taker or a job creator in a future world of work defined by technology, innovation and entrepreneurship. We will support our graduates to obtain a job through career support and lifelong learning. Our commitment is to connect learners and alumni with employers through networks and platforms, and to provide the career development, skills and support to engage and succeed in a tech-rich future.

Moon shot 3: Every Swinburne partner gets a tech solution

When our partners come to us with a problem, they will receive a technology solution. Swinburne will concentrate its efforts in flagship areas where the university is a world leader and has potential to be the industry partner of choice including space and aerospace technology, sustainable solutions to create an innovative planet, and medical technology and health innovation. Underpinned by leading digital technology platforms, Swinburne researchers are collaborating with industry, communities and government through embedded partnerships to co-create technology solutions to transform our world.

Moon shot 4: Swinburne is the prototype of global best practice

Swinburne will step up to the global stage, in research, education delivery and student recruitment. Swinburne will be the prototype of a new model of university that is fit for purpose in a digital future that is very different from the past. Swinburne will look forward, not backwards, in the way it thinks, operates and evolves. We want a Swinburne qualification to place our students ahead of others because they hold the best credentials you can have in a tech-led world.

Planning for the future of work and wrapping up industries of the past

Much of what comes next for the future of work in Australia will be determined by how successfully we assist the industries of the past and their employees to transition with the appropriate skills.

Since the beginning of this century Australia experienced a steady decline in the manufacturing sector. There's been a surge in green technology and a move away from the use of dirty fossil fuels.

Universities, particularly dual-sector universities, are the cornerstone of preparing Australians for the emerging industries and jobs our country needs to continue to be habitable. Through our deep industry links and community consultation, Swinburne play a key role in building the knowledge and skills-based economy. Swinburne's position as a vocational and higher education leader is essential to building the human capital our world needs for the rest of this century and beyond, and our tech-based research focus provides a unique and important resource to the nation.



At Swinburne, we are investing in the research and education pathways necessary to transition successfully. We believe that the following industries will require extensive workforces in the future, equipped with new skills and a different approach to working:

- **Hydrogen Economy**, including transitioning heavy transport to green hydrogen
- **Advanced Air Mobility**, including advanced composite materials and unmanned aerial vehicle design and development. This includes applying these technologies to Australia's unique challenges including floods, bushfires, maintenance of widespread infrastructure and delivery of critical supplies and services to rural and remote areas
- **Space Technology** including space instrumentation and sensors for earth observation and astronomy, and the data science analytics skills required to handle the scale of the data
- **Medical Technology** and assisted living aids to enable independent living for as many people as possible, focused on co-design and clinical translation of medical technologies. MedTech manufacturing will require skills in digital health, mental health, assistive technology, biomedical science and engineering, and clinical and allied health
- **Advanced Manufacturing and Design**, supporting the manufacturing and construction sectors to design, build and export new designs, products and materials
- **Robotics and Industry 4.0**, including the capability to attract new large-scale manufacturing investment
- **Optical Communications**, to be ready for the new wave of communication technology that will supersede radiofrequency space communications
- **Advanced Composite Materials** to support sustainable transport, aviation and construction and reduce climate impact
- **Innovation Skills and Training** to support the next generation of entrepreneurs

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Online education and the ever-evolving nature of work

Beyond the existing skills shortages, continued advancements in AI and robotics mean that technology will likely replace a large portion of workers, create entirely new jobs and impact on how the majority of jobs are performed.

In Australia for example, McKinsey estimates that 25-46% of current work activities could be automated by 2030, affecting 3.5-6.5 million FTE positions, with 1.8-5 million workers needing to change professions. This is already influencing the amount of study and key skills needed by workers throughout their careers.

In particular, more workers need to continuously upskill throughout their careers – a departure from the conventional model of a worker acquiring the majority of key skills prior to starting a career. Deloitte, for example, anticipates that individuals may have to update their skills six times throughout a 30-year career.

This trend is expected to have a positive impact on demand for online degrees, as many workers will need formal qualifications to upskill and will be in the mature age segment, which gravitate towards online study.

These predictions create opportunities for Australian universities and Government to increasingly address growing skills shortages and upskilling needs with quality-driven, agile online learning. In addition, online degree curriculums can equip students with the right knowledge and skills for the future of work.

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CASE STUDY: Victorian Hydrogen Hub and a National Hydrogen Skills Roadmap

In February 2021, Swinburne University of Technology launched the Victorian Hydrogen Hub (VH2), funded through the Victorian Higher Education State Investment Fund. VH2 and its founding partners— CSIRO and Germany's ARENA 2036— bring together researchers, industry partners and business to test, trial and demonstrate new technologies, pushing the boundaries of what hydrogen can deliver through sustainable manufacturing practices.

A key component of VH2 is the development of a hydrogen skills and training roadmap designed to provide government and industry with detailed analysis of sectors and job roles that will be affected by the production and use of hydrogen as an energy source, both now and in the future.

The Hydrogen Skills Roadmap addresses jobs and skills requirements that are fundamental to supporting Australia's green hydrogen economy. There is a deadline, political and physical, on the use of fossil fuels in Australia's transport industry.

While the rise of electric vehicles (EVs) is beginning to transform passenger transportation, green hydrogen provides an alternative source of renewable energy that not only disconnects from the electricity grid but uses a natural element to our collective advantage.

The Roadmap makes a series of recommendations regarding the need to upskill Australians in new green technology:

- Hydrogen content to be introduced to primary and secondary school curricula to facilitate engagement and preparedness from the next generation
- Hydrogen subjects and industry engagement programs to be included in higher education and integrated into courses across engineering, science, commerce, law, and business degrees
- National hydrogen train-the-trainer program to be designed and implemented in collaboration with industry
- A national suite of industry-informed hydrogen micro credentials to be developed and made available that address immediate training needs
- Further research to be undertaken to analyse specific skill sets within the gas and hydrogen economy
- A Hydrogen Skills Centre to be established to leverage research and grow skills and knowledge

More information can be found about the roadmap at swi.nu/vh2roadmap

CASE STUDY: Swinburne is reimagining work integrated learning for the future of work: The Centre for the New Workforce

Recognising the growing national deficit in skills, governments, employers and education institutions are understandably focused on addressing this gap and preparing graduates for emerging opportunities in the future of work.

But we need to prepare our students to help their future employers deal with the erosion of value their organisations face arising from disruption – especially in legacy industries. Students are not just highly skilled future productive workers; they are also competent future value creators.

According to the World Economic Forum, to be truly successful in new roles, workers need unique ‘combinatorial skill sets’ at the intersection of human skills, functional and technology skills, knowhow, and experience.

The Centre for the New Workforce, a dedicated research centre located at Swinburne, found that younger workers in Australia have a balanced skills mindset that much more closely aligns to combinatorial skill sets than their older colleagues. However, they need the opportunities to develop this through education.

Creating new knowledge is the highest level of learning. By focusing our learning on how to create value in disruptive environments, we help students develop the knowhow to be effective in the future of work.

Swinburne's Industry 4.0 Associate Degree of Applied Technology is replete with examples of students working side-by-side with industry, helping create new value through innovative technologies and work practices. The award-winning inaugural program was developed in partnership with Siemens and the AiGroup, focused on advanced manufacturing.

Subsequent programs have centred on the finance and building industries. The program is now in partnership with Apprenticeships Victoria, working on Industry 4.0 for the construction industry.

Beyond the advanced technical skills in Industry 4.0, students in this program recognised the need for curiosity, investigation, collaboration, and an ability to develop compelling narratives. They also recognised that continuous learning was essential to evolve their foundational knowledge and functional expertise to tackle more challenging problems as they arose. This is Industry 5.0 in action.

The Centre for the New Workforce's research demonstrates an innovation mindset and value creation behaviours are best honed through real-world disruptive situations, especially through collaboratively diverse settings.

These experiential learning opportunities should be designed through a co-creation process with educators and industry partners, focused on real-world challenges in all industries. Swinburne's work-integrated learning is leading the way to create the next generation talent needed for the future of work.



A 4x9 grid of dots, consisting of 4 rows and 9 columns of small black dots. The dots are arranged in a regular grid pattern, with 9 dots in each row and 4 dots in each column.

Building a workforce for our domestic shortages and to attract global talent

As the world gears up for the fifth industrial revolution, industries and education providers will be competing for talent to deliver new and innovative projects. Governments must fund the development of industry, starting at investment in research that will underpin advances in technology.

The Australian Government has already signalled their intent to invest \$15 billion through the National Reconstruction Fund (NRF) to support seven new industries. Key to the success of the NRF is partnerships and collaboration with other countries pioneering new technologies, research, and innovative technologies. Put simply, Australia needs strong alliances to attract top global talent to advance new industries. Swinburne's view:

1. International student visa requirements post-study must provide students enough flexibility and time to find employment in their field of study. More work needs to be done to break down misconceptions held by employers about international students' competency and ongoing residential status
2. To transform Australia's industries, we must create bilateral partnerships with other nations advancing in the same capability areas

International Student recruitment

While universities have enjoyed international student enrolment in record numbers over the last fifteen years, retention of graduates to the domestic workforce is harder to cement.

Evidence from the International Graduate Outcomes Survey shows that while we are graduating international students in steadily increasing numbers, employment outcomes in their field of study remain well below that of domestic students.

The 2021 survey found that just 65% of undergraduate international graduates were employed, compared with 85% of domestic graduates.

To ensure students are job-ready after their studies (both domestic and international), Swinburne guaranteed a placement, internship or industry-linked project as a core component of all undergraduate courses from 2021.

An audit undertaken in early 2021 confirmed this to be the case for almost all our courses. We are now working to include work integrated learning (WIL) experiences into every stage of every course to fully deliver our WIL vision.

Government can also assist in removing the remaining barriers for international students entering the Australian workforce:

- Due to international student visa requirements, there is a cap on the number of hours international students can work per week (except during COVID, when the cap was removed). The cap includes unpaid work placements and internships. With the cap set to return, international students may be disincentivised from engaging in work integrated learning, which has a strong role to play in developing their employability and likelihood of positive career outcomes. Recognising that the cap is helpful to keep students focussed on, and engaged in, their studies, we would like an exception to be made for work integrated learning when for credit (whether elective or mandatory)
- Working with industry on breaking the misconception that international students are not as skilled, or as proficient in English as domestic graduates
- Promoting study in Australia must evolve to promoting the ability to work here long term. Without an incentive to stay in Australia, or with barriers to employment in place, we will lose students that we have educated in critical disciplines to their country of origin.

Building and attracting global talent

Advanced STEM skills, particularly in the areas of information technology, artificial intelligence and data analysis, engineering and advanced materials, Industry 4.0, quantum technologies, space and aerospace, and hydrogen, is vitally important for Australia's sovereign capability. At Swinburne, we underpin these STEM disciplines with a focus on innovative society – providing the link back to helping improve life in Australia.

We are creating opportunities to attract Australian talent back home, and new international talent to Australia, through our focus on the future needs of the Australian economy in space technology, advanced air mobility, quantum technology, composite materials, surface engineering, manufacturing, and product design.

We have established a skills roadmap for the hydrogen economy, and a bold plan for advanced air mobility. Our expertise in cold atom quantum technology has attracted ColdQuanta to establish a new office in Australia at Swinburne, mirroring their other locations in Colorado, Chicago and Oxford.

Swinburne's AirHUB is working with Boeing Aerostructures, Marand Engineering and other partners at the CSIRO-Swinburne Industry 4.0 Testlab for Composite Additive Manufacturing to drive innovation. The Testlab is the world's first industrial scale, multilayer 3D printing facility of its kind.

Our manufacturing skills development, particularly for SMEs, is very well developed. Swinburne's Factory of the Future offers Industry 4.0 readiness assessments to help small and medium enterprises (SMEs) introduce digitalisation, enhance their business, and build the skills and the business plan needed for Industry 4.0.

A large white dome-shaped telescope observatory is perched on a dark, rocky mountain peak. The observatory is a prominent white structure with a hemispherical dome. Below the peak, a vast sea of white clouds stretches across the horizon. The sky above is a clear, deep blue, transitioning to a lighter blue near the horizon. In the foreground, a winding road curves along the edge of the mountain. The overall scene is serene and majestic, capturing the isolation and high altitude of the astronomical site.



In part due to the Government's R&D Tax Incentive, Australia has become a popular destination for many R&D activities carried out by big international aerospace manufacturers.

Prominent examples include Boeing's Research and Technology Australia branch – the company's biggest offshore research and development facility – and Lockheed Martin's STELaRLab – its first multidisciplinary R&D facility outside of the US. But there is more to be done.

In less than 12 months, AIR Hub has grown to be one of Australia's largest focused research and applied innovation groups, with over 45 experts, including 20 staff, 20 post graduate students, interns and undergraduate students. An emphasis on diversity has resulted in a dynamic and talented team from 12 nations and an industry leading representation of over 25% women staff and students.

The Victorian State Government's \$12 million seed funding for AIR Hub comes to an end in June 2023. Swinburne believes AIR Hub is a project that can elevate the Australian Government's global ambition to attract and develop talent in an emerging industry.

[Learn more about AIR Hub](#)

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Harnessing fee-free TAFE to work better for industry and for government

The Australian Government’s announcement of 180,000 additional fee-free TAFE places replicates the Victorian Government’s policy of the last four years. The policy aims to ensure that more Australians are trained in areas of critical skills shortages, helping supply rapidly growing industries.

As one of Australia’s only six dual-sector universities, Swinburne has worked with a fee-free TAFE framework. Our observations of the system are that it is:

- 1. addressing social inequity by allowing people to engage in education who otherwise might not have the financial means to do so
- 2. encouraging course engagement in disciplines that are aligned with identified skills shortages and government needs
- 3. allowing people to re-engage in education and training in order to re-skill or upskill

Based on our experience, the drop-out rate can be accounted for by a lack of ‘skin in the game’ from students, as well lower wage outcomes post-qualification.

Swinburne suggests that the scheme, which will need to be delivered via State Governments, could attach the fee-free TAFE places to employers, like apprenticeships. This way, employers and industries with skills gaps can recruit for workers and have them trained while they work or receive an income. This has the potential to reduce cost to government and enables



Online learning is critical for learners and employers

The technology sector has a clear gender diversity issue. The number of women in STEM in Australia is not only low but daunting, when one thinks about progressing innovation in technology. Less than a third of university STEM graduates are women.

The problem further increases by the time graduates get a job; women make up only approximately 12% of the engineering workforce and about 28% of the ICT workforce. Similar statistics are recorded around the world, signalling the need for significant effort and government commitment to achieve equality in these industries.

Swinburne University of Technology has taken a proactive approach in improving gender diversity. Over the past few years, the University has initiated several mechanisms to grow and support women in STEM. These include Vice-Chancellor's Women in STEM Fellowships, support towards the government Superstars of STEM Program, as well as the establishment of the Women in STEM club.

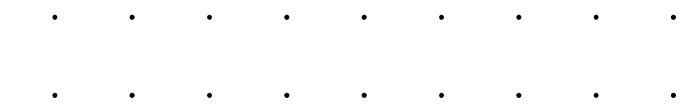
Superstars of STEM

The Superstars of STEM program works supports 60 brilliant women and non-binary experts employed in science, technology, engineering and mathematics over two years to become highly visible media and public role models. The program helps:

- Build the media and public profile of these Superstars of STEM through training in public speaking, media, and communicating with influence and through creating opportunities to practice their newly acquired skills
- Smash imposter syndrome and build confidence in a range of professional settings. Participants learn how to communicate their stories with influence, in their workplaces, in the media and with leaders and politicians
- Directly encourage young people to study and stay in STEM, by providing prominent diverse public role models to inspire them into STEM
- Improve effectiveness over time by seeking feedback from participants and applying the lessons learned

The Swinburne Women in STEM club

The Swinburne Women in STEM club (WISTEM) aims to support students studying science, technology, engineering, and mathematics with an emphasis on women and gender-diverse people. WISTEM attracts, empowers, and celebrates these students while building a community which is supportive, inclusive, and inspiring.



The club does this by celebrating diversity, and collaborating with a diverse range of clubs, organisations and professionals in STEM. The club is a very active community and holds numerous events each semester, while also advertising opportunities for further education and engagement. Across social events, professional events, programs and social media, the Women in STEM club is a way for students to realise their potential, build a network, and prepare for a career in STEM.

Education is crucial to driving sector change in STEM. It requires constructive alignment of women in STEM initiatives and government support. The need for government and universities to work more closely in this area is now more urgent than ever.

There is an opportunity to further expand the online education delivery of STEM and, in doing so, reach mature aged women and disadvantaged groups, who we know are inclined to choose this mode of study over on-campus.

To successfully achieve this expansion, the Government needs to review its funding approach to STEM. It's costly to teach virtually as specialisations require tailored tech stacks to deliver quality-driven learning experiences and employment outcomes. Examples include embedding virtual laboratories, coding rooms and simulations in online environments.

Upskilling to support identified national skills shortages

Our experience has shown that online education reaches non-traditional cohorts due to flexible options around where and when students study and sets them up for career success.

As Australia looks to grow and protect its workforce pipeline and, in doing so, provide opportunities for women and other disadvantaged groups, it's critical to continue to create opportunities for participation in quality-driven online learning.

Swinburne Online predominantly offers courses that align directly with industry shortages outlined in the National and State and Territory Government Skills Priority Lists. For example, the Bachelor of Information Technology, Bachelor of Education (Early Childhood Teaching) and Bachelor of Education (Early Childhood and Primary) courses align with national shortages of early childhood teachers. The career outcomes of the Bachelor of Psychological Sciences align to shortages in clinical, educational and organisational psychologists, all with strong demand.

Currently, 26% of Swinburne's online Psychological Sciences students reside in regional or rural areas, 16.7% of students are low SES, and 49 First Nations students are enrolled.

CASE STUDY: online learning to reskill



Sarah Atkinson (pictured above) lives in regional NSW, runs her own business and is a mother to young children. She recently completed a Bachelor of Psychological Sciences with Swinburne Online.

"For me, to be able to study around the kids, in my own time, was the exact flexibility and freedom I needed. I live regionally, and studying online allowed me to keep working, and still be home with my kids. Plus, there was heaps of support from other students and the teaching staff, and I found the online platform really easy to use. The experience was wonderful, and I plan to return for more study."

The online Bachelor of Education across all disciplines currently has 87 First Nations students enrolled, with 20% low SES, 25% regional and rural, and 63% are students whose parents did not access higher education.

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