

Swinburne Horizon 2025

_The next chapter of our story





The Keck Observatory in Hawaii. Swinburne is the only Australian university with guaranteed remote access to its twin telescopes.

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Front cover QR code: scan to launch Horizon 2025 online.

Writing Swinburne's next chapter together



Swinburne is a young university with a long history. We are a small university with big dreams, a Victorian university with global ambitions.

For the higher education and vocational education sectors, 2021 is likely to be a year of recovery. Yet for Swinburne, it is first and foremost, a year of opportunity, renewal and change. The future has been redefined – it requires a step change and considerable momentum to tackle the challenges ahead.

We are in the right place to do this. Enriched by our past achievements and resilient in the face of the global pandemic, we now have an opportunity to reflect, regroup and embark on the next chapter of Swinburne's unique story. A shared and meaningful purpose, and the collective determination and commitment to achieve our destiny can take us forward.

Swinburne Horizon 2025 draws upon our understanding of future challenges as well as many great ideas contributed by our staff and students through *Swinburne Unlimited* and discussions right across the university. It is based on empirical evidence and an understanding of the evolving environment in which we operate. Indeed, our next chapter is already under way, with many of the activities it calls for in train and building momentum, always in alignment with our strategic directions.

With this new strategic plan, we choose to build Swinburne as **the prototype of a new and different university** – one that is truly of **Technology, of Innovation and of Entrepreneurship, and proud of it**. A university that unwaveringly supports seamless education pathways between all forms of school and post-secondary education; tertiary or vocational. As a dual sector university, this is our unique advantage – every layer of education is essential to our aspirations.

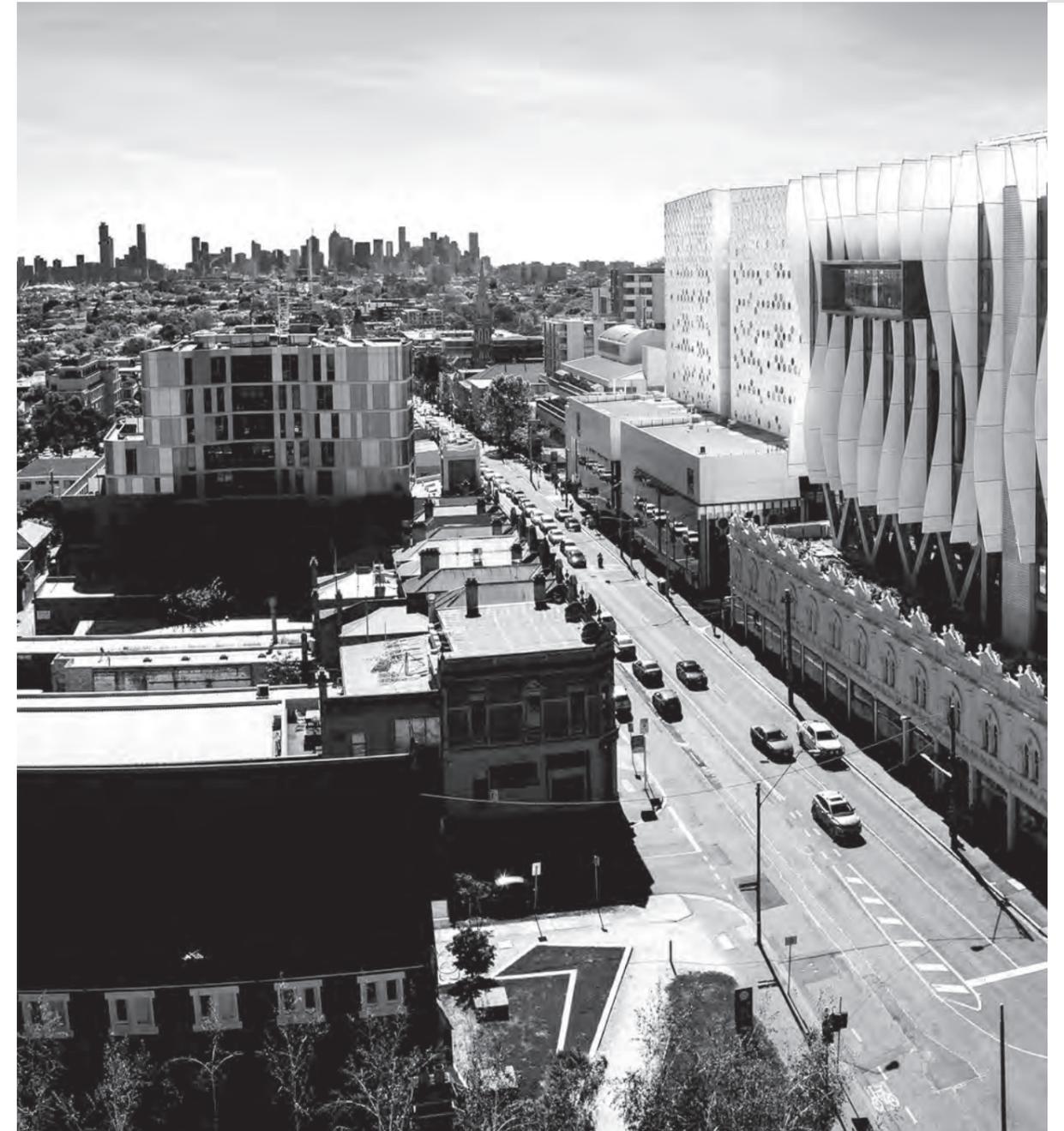
We will play a distinct role in contributing to society's increasing need for transformative technology and for the human capital and talent to leverage it. In everything we do, we affirm our dual purpose, from vocational programs to PhDs, in our flagship research and startup creation.

Defined, renowned and inspired by technology and innovation, Swinburne can be the most industry-engaged university. We can continue to improve industry engagement to a point where it pervades our culture and the way we deliver education and research. In partnership with organisations and government, we will co-create the technology solutions and the talent required to implement them. High quality work-based learning will be vital in connecting our learners, irrespective of their background, with industry, government and community to realise their full potential in a tech-rich future.

It is time for us to start on this exciting journey. I am confident we will work together and explore exciting new possibilities. Please join me as we write the next chapter of Swinburne's story, together.

Pascale Quester
Vice-Chancellor and President
Swinburne University of Technology

With this new strategic plan, we choose to build Swinburne as the prototype of a new and different university – one that is truly of Technology, of Innovation and of Entrepreneurship, and proud of it.





Why we need to change

External disruptive forces in the higher education and vocational landscape are transforming the future of education. Sector wide, the recapping of the higher education system, rising costs of education and limited government funding, have conspired to limit our capacity for domestic growth. Technology change, easily accessible learning content and the future *world of work*, are forcing universities and vocational institutes to rethink their place in the educational ecosystem.

The digital disruption, whereby its impact was accelerated by the pandemic, is profoundly transforming the *world of work* and will continue to do so in the coming years. The jobs of today will change or disappear, while entirely new industries are created. For many industries, the skills gap will be existential, challenging their ability to remain competitive.

Industries are emerging from the COVID-19 pandemic into a world of physical distancing with major changes in consumer behaviour and preferences. Manufacturers are reconfiguring and digitally enabling supply chains, while service-based organisations are adopting digital-first customer experiences and focusing on implementing contactless operations.

Similarly, as industry leaders around the world become increasingly aware of the potential effects of climate change on business operations, greater concern for social purpose and environmental impact are also becoming clear. This often reflects increased pressure from internal and external stakeholders, including employees, regulators, investors and customers.

The future of work will require different capabilities, driving the need for *upskilling* and *reskilling*.

Blessed with a dual sector foundation, Swinburne is well positioned to play a critical role in supporting this profound societal shift, in partnership with industries, government and community.

Evidently, Swinburne has experienced challenges in recent times, and the travel bans imposed by the pandemic have further compromised our financial sustainability. We must re-energise and create new offerings to generate a genuine competitive advantage. 2021 is a moment in history where we can – and must – dream big. We must seize the opportunities arising from disrupted learning practices, increased demand for lifelong learning, and a thirst for knowledge and skills in STEM.

This transformation cannot be limited to our curriculum and research. Our support office, processes and organisational capabilities are equally vital, as well as investment in areas that contribute to our financial sustainability and brand equity. We cannot return to old ways of working and legacy practices.

A major step change is needed to become a truly responsive, deliberate and evidence-based institution like no other: Swinburne University of Technology.

Our 2025 vision

As a dual-sector university of technology, born of a technical college, we are proud of Swinburne's technology DNA, and of our national and global standing. Our contribution to technology, entrepreneurship, innovation and the STEM disciplines, and our track record of meaningful industry and community engagement, are natural manifestations of the legacy initiated by the vision of our founders George and Ethel Swinburne in 1902.

This early part of the 21st century is a new age of disruption and transformation. Building on our strengths will position us well to embrace the opportunities of a technology-rich future. By following the road less travelled and by opting for the orthogonal, rather than the parallel, trajectory, we are imagining the **prototype of the new and different Australian university we aspire to be.**

We commit to taking big strides and aspire for 'moon shots' rather than 'incremental steps'. In the 1960's, putting a man on the moon captured the imagination of the world. It represented the ultimate human ambition and garnered the focus and energy of all who worked on that project. Equally powerfully, our moon shots will embolden and energise our staff and partners, enabling us to focus and invest in what we know can make a real difference in the world.

And so, we commit to re-inventing ourselves as we pursue and realise the **Swinburne vision** of:

People and technology working together to build a better world.

Our renewed vision is the essence of our tech identity.

For us, technology is not an end in and of itself. Instead, it is technology's capacity to enable social, environmental, economic and cultural good that is intrinsically valuable. When industry and community partners turn to universities for technology solutions and future innovation, they also seek the human capital and talent required to help drive their own business outcomes.

The critical need of industries, many yet to be created, is behind our **purpose: to create tomorrow's technology and the human capital and talent required for a digital, tech-rich future.**

Swinburne Unlimited identified transversal elements to infuse our learning, research and enterprise. In a post-pandemic world, our staff and students wanted us to be **personalised, engaged, innovative, tech-biased, global, inclusive and diverse, as well as sustainable.** These are key differentiators of our 2025 vision and enable us to identify our own moon shots.

The next chapter of our story is already taking shape (figure 1). We are Swinburne University of *Technology* and proud of it. We are committed to a differentiated university proposition in education and research, so that:

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1. Every Swinburne learner gets a work experience
 2. Every Swinburne graduate gets a job
 3. Every Swinburne partner gets a tech solution
 4. Swinburne is the prototype of global best practice
-

The achievement of our 2025 moon shots depends on our capacity to work collectively, always, as *One Swinburne.*



2025 VISION People and technology working together to build a better world

2025 MOON SHOTS

We are Swinburne University of Technology and proud of it

SWINBURNE
UNIVERSITY

Personalised

Engaged

Innovative

Tech-biased

Global & diverse

Sustainable

1 Every Swinburne learner gets a work experience

2 Every Swinburne graduate gets a job

3 Every Swinburne partner gets a tech solution

4 Swinburne is the prototype of global best practice

One Swinburne



2025 Moon shot 1

Every Swinburne learner gets a work experience

Mastery through practice – **learning by doing** is our pedagogy of choice. It will define how we teach, assess and engage with students and industry. We will become **curators of rich learning experiences** and **genuine coaches of learning**, overcoming the boundary between work and study. All Swinburne learners, in higher education and vocational, will experience high quality industry-based practical learning, across all course stages through to completion. We will serve the education needs of increasingly diverse cohorts by establishing deeper collaborations and strategic partnerships with large-scale corporations, deploying our digital assets across higher and vocational education, leveraging technology platforms and recognising the opportunity for self-paced learning.

Every student, for all Swinburne undergraduate courses, at all stages, will experience Work Integrated Learning (WIL), including an industry placement, internship or industry-linked project as a core component.

Authenticity in learning relates to real-world experiences and interactions with industry and community. We will build upon our current engagement with WIL practitioners in industry and community to: 1) invite professionals to teach via the establishment of the *Swinburne Professor of Professional Practice (S3P)*, 2) enabling our learners to partake in WIL for full course credits and, 3) facilitate authentic assessments reflecting industry and community practice.

Work Based Learning (WBL) will continue to be an underlying and inherent aspect of our vocational courses, with an expansion of industry-focused skill sets. We will provide authentic industry or workplace participation, with experience for our learners provisioned by educational or industry facilitators – or both. Some industry experiences will be through educational taster programs, industry guest speakers or industry informed curriculum.

We will become the **leading provider of digital literacy support and professional development** to government and corporate learners through our enterprise-wide Business-to-Business (B2B) initiative, **locally and globally** wherever the need for digital and technology upskill is established. This will require coordinating and integrating Swinburne's B2B strategy around an industry-driven, customer value proposition. It will require focus

on selected market-relevant product/solution specialisations.

Our *campus of the future* will reflect the evolving needs of our learners and the imperative to continuously engage with the diverse groups we serve. From intuitive customisation to sector leading production quality, we will deliver a seamless digital and on-campus experience that will make us **leaders of the blended delivery model**. Our personalised **just-in-time and on demand education delivery** will equip our learners with the ability to be independent, innovative and enterprising contributors to their employer's success or to their own start-up enterprise.

This approach to digital innovation and engagement will make us the **most digitally-accessible university in Australia**. Wrapping our vocational education and digital literacy arms around different types of learners will help carry underrepresented groups, such as Australian Indigenous peoples, low socioeconomic status and regional learners, over the digital threshold. Our social remit and vocation remain on applying technology to equip and engage people productively with the digital world and prepare them to thrive in a digital, tech-rich future.

Concurrently, we need our campuses to create compelling experiences, with peers, staff and industry partners. We want to imagine new spaces to facilitate personal development and a deep sense of belonging where people congregate together to network, partner and learn from each other.

Our campus environments will internconnect virtual, mobile, online and physical spaces. Investment in technologies and digital capability will be audience-centric that reflect

their desired experiences and impacts. However, our campus will remain fundamentally as a space for human connection and development. Against the backdrop of cutting-edge buildings, a seat on the lawn can nurture a learner's connections in the virtual world, just like a place to get coffee can expand personal networks and promote research collaborations and partnerships.

By making tangible our conviction that the world of work and the world of study should be better

interconnected, our learning by doing philosophy will be aided by shared facilities, co-invested working spaces and areas to spark innovation and collaboration with industry and professional partners. Instilling a sense of belonging will translate in learner engagement and success, and bring our Alumni back to our campuses at Hawthorn, Croydon, Wantirna and Sarawak.



2025 Moon shot 2

Every Swinburne graduate gets a job

We will go beyond delivering 'job-ready' graduates.

Our 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 continue to support our graduates to obtain a job immediately and in the medium term through career support and life-long 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.

Our education model requires that we co-create our curricula with partner employers to ensure that it is relevant and addresses the skills of the future. Our partner employers will guide the development of **essential graduate attributes**, including digital literacy, to enhance employability prospects as well as educate and mentor our learners and alumni.

We will develop our learner's **Professional Purpose** to build employability skills and capabilities, by leveraging our purpose-driven pedagogy and digital student experience platform. This aligns a learner's professional future to their personal values, societal outlook and aspirations. All Swinburne courses will incorporate elements of Professional Purpose, and act as a gateway for vocational engagement and pathway, further study, and postgraduate and broader alumni return-to-learn.

We shall develop and grow our capacity to **take new ideas from lab to market**, by investing in partnerships, commercialising our intellectual property, and/or engaging in the industries of tomorrow. Capitalising on our strengths in **industry connection, entrepreneurship, design thinking and innovation**, we will design a commercialisation program. This will assist our tech and science students to expand their network, build a business case and explore the opportunity to bring their ideas to market. Also open to Small and Medium Enterprises (SMEs) and other innovators, the program will spawn multiple business cases and broker relationships between our innovators (staff or students), across Research, Higher Education and PAVE, venture capitalists and funding bodies.

2025 Moon shot 3

Every Swinburne partner gets a tech solution

We are increasingly facing urgent challenges on how communities, cities and citizens interact with the environment, requiring businesses and government to embrace the fourth industrial revolution – Industry 4.0. Many of these challenges are attributable to human behaviour.

Research, science and technology together with an understanding of human behaviour, can lead to the development of new models for a workforce and innovation ecosystem.

Strong internal collaboration and partnerships with industry, communities, government and other tertiary institutions will involve our research in the early formulation of problem solving, to co-create transformative technology solutions and influence policy to shape societal transformation. Simply, when our partners come to us with a problem, they will receive a technology solution.

We will concentrate our efforts in flagship areas where we are world leaders and have the potential to be the industry partner of choice. These include, **Space and Aerospace Technology, Innovative Planet and Medical Technology** (figure 2).

Our **Research Institutes, Centres and Schools**, as well as core capability in **Advanced Manufacturing and Design**, will play pivotal roles in Swinburne (research, higher education and PAVE) working closely with industry, business and the community, to create positive social and economic change, on local and global scales.

For our Higher Degree by Research students, our degree will allow for a professional stream, working with companies and organisations to problem solve and deliver business solutions. These **industry PhDs will become the hallmark of Swinburne**, based on the European model successfully in place in Germany and France, and the Engineering Doctorates of the UK.

Our flagship research areas will be:

Space and Aerospace Technology

Research and education into space technologies and their terrestrial applications has extraordinary potential for both economic and social impact. Australia has the potential to be a global leader in space research and technology, and we can play a major role in this by advancing new knowledge. Swinburne, in close partnership with the smart satellite cooperative research centre and our industry partners can work on the frontiers in manufacturing structural materials to support space and satellite technologies.

Working with aerospace manufacturers and their supply chains, Swinburne will ensure that Victoria and Australia are at the cutting edge of aerospace manufacturing. This is critical for the emerging market of electric vertical take-off and landing vehicles (eVTOL) where Victoria has developed strategic international partnerships. Our Industry 4.0 Testlab for Composite Additive Manufacturing created jointly with CSIRO is perfectly positioned to address the challenge posed by the manufacture of lightweight materials at high volumes and low cost.

Innovative Planet

In line with our Sustainability Strategy, and in response to the United Nations Sustainable Development Goals (UNSDG), Swinburne has committed to be carbon neutral by 2025. Our research community is dedicated to decoupling economic growth from the accelerated use of materials. Our Smart Cities research institute will be focused on smart and sustainable cities and will bring together research focused smart energy management, clean energy, low carbon mobility and design.

In partnership with CSIRO, Swinburne will develop a Hydrogen Refuelling Research Facility in 2021. This facility will be connected to a matching facility to be built by Germany's ARENA 2036, a research facility that brings industry on campus at the University of Stuttgart and partners with the giants of industry in Germany including Siemens, Bosch, Mercedes, Porsche and BMW. Through this partnership, Swinburne will showcase Australian innovations by our researchers who are exploring the efficient use of solar energy to power hydrolysers to produce hydrogen to Original Equipment Manufacturers (OEMs) in Europe. A fleet of hydrogen powered Toyota Mirai will be fuelled by this facility in Clayton, Victoria.

Medical Technology

Swinburne's Medical Technology Platform (MedTech) will integrate digital tools, clinical and end-user insights to build a new end-to-end platform. This will support the development of products and services tailored to meet the clinical, social and employment needs of end-users and the growth of Victoria's MedTech sector.

Swinburne is uniquely placed to bring together design, digitalisation and an understanding of human need and movement to create new assistive technologies. This can be of service to the National Disability Insurance Scheme (NDIS) and prepare the nation for an increasingly ageing population. Through digitalisation we will develop cost effective, personalised assistive technologies which we will clinically evaluate, with the aid of Swinburne's cutting-edge capabilities in virtual and augmented reality.

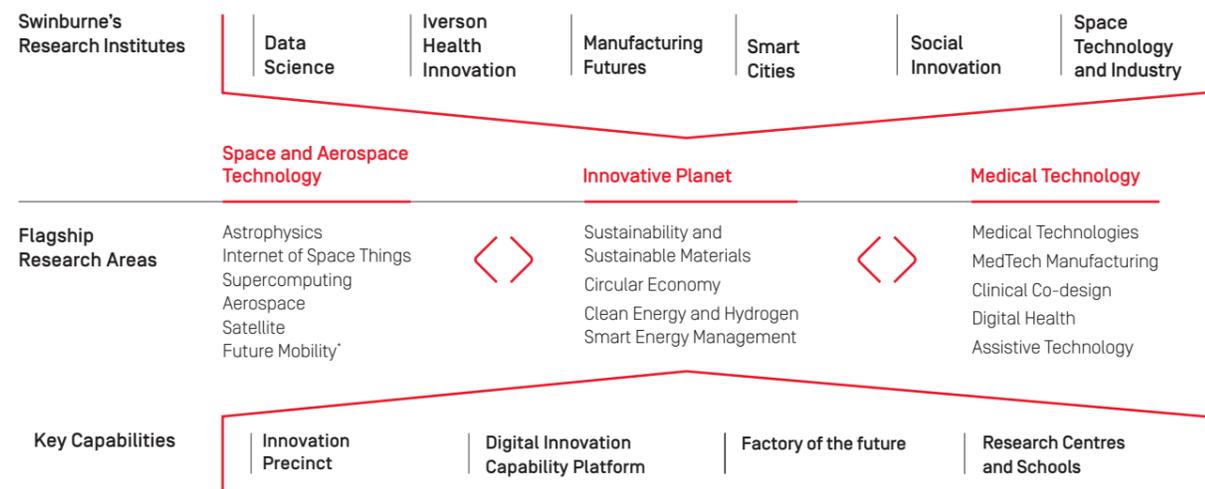


Figure 2: Path towards Swinburne's 2025 Research ecosystem
*Future Mobility: Electric vertical take-off and landing vehicles (eVTOL), Unmanned Aerial Vehicles (UAV), personal air vehicle (PAV)

2025 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.

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.

We will maintain our position in the top 300 of the Academic Ranking of World Universities (ARWU), by supporting our Highly-Cited researchers and by making deliberate choices in our research focus. Our research ambitions will be supported by the expansion and formalisation of an existing network of globally renowned university institutions that share our enthusiasm for serving existing industries and sectors, to problem solve, innovate and create the industries and sectors of the future. Through deep partnerships with other industry-focused universities across the globe, we will lead the establishment of a global **Top Ten Tech university network** that will add value to our industrial partnerships by forging new business to business relationships facilitated by our research.

Our presence internationally in selected locations will see an expansion of our recruitment network through agents, partners and directly, by growing our offshore staff and leveraging strategically selected co-delivery partners. Our goal is to **diversify and de-risk our recruitment market portfolio** by establishing and nurturing strategic partnerships that drive onshore recruitment. To leverage the transnational education (TNE) delivery of our programs in partner-financed facilities and locations in Australia and abroad (currently FPT Vietnam, INTI Malaysia and Nawaloka Sri Lanka with plans to expand to ten by 2025) we will encourage and incentivise onshore completion to ensure financial sustainability and revenue diversification.

It is critical for these partnerships to contribute towards the enhancement of our **brand equity and reputation**. Potential major target countries to be explored for expansion of education delivery include India, Indonesia (East Kalimantan), Europe and more specifically eastern Europe, particularly around Professional and Business to Business (B2B) offerings at scale, development of new postgraduate courses and vocational education using digital assets, curriculum licencing and technologies.

Our **Sarawak, Malaysia** campus will be further developed as our South East Asian campus to recruit students seeking a more affordable Swinburne undergraduate experience. In coming years, it will also become a PhD hub for neighbouring countries who cannot afford to send large cohorts of students (including their own staff) to study for three or four years in Australia. The co-investment in Higher Degree by Research scholarships by governments and companies of various developing countries in our domains of expertise and world leading research, will have a multiplier effect on our research capability and productivity.

Focused on the future, we are resolute in imagining a different and better way to operate as a peak performing university within the changing environment. We will be deliberate in stopping activities that do not add value and invest towards improving the mission critical things we need to do. We shall leverage our capacity for design thinking and digital frameworks to become leaner and more agile, so we can move forward at pace. Clarity, simplicity and efficiency will be pursued. This will apply to enrolment, building timetables and setting teaching periods. Our processes will be user friendly, intuitive and learner centric – always. We will have the courage to say no, particularly to initiatives that do not align to our moon shots or require significant investment with low returns that could compromise our financial sustainability.

One Swinburne

Working as *One Swinburne* will deliver an integrated, seamless experience spanning both digital and physical worlds.

Our people will be driven by a shared sense of purpose; **to create tomorrow's technology and the human capital and talent required for a digital, tech-rich future**. The successful delivery of our 2025 moon shots relies on us working as One Swinburne - a critical element for our collective performance. We must become a model of responsiveness and quality by instilling accountability, as well as earning and promoting trust in our people. We do believe that people and technology can work together to make Swinburne a better university to learn from, work for and grow with. The Swinburne approach is to get things done in a bold, imaginative and distinctive manner, consistent with the different type of university we want to be.

To truly be *One Swinburne* we must focus on the elements of our systems and processes that are holding us back or keeping us apart. *Swinburne Unlimited* revealed too many platforms and systems that are not connected and require costly and inefficient manual processes. Our future decision making will be driven by our data management capabilities to provide a single source of truth, supporting decisions with trusted, empirical evidence that is visible to everyone. We must ensure we **have a strong foundation to enable us to launch into the future**. We prioritise 'fixing the basics' to enable us to deliver on our vision and exhibit the discipline to challenge the value of what we do. Importantly, we shall seek to select and implement systems that are flexible,

inter-connected and streamlined, to avoid the unnecessary burden of manual reconciliation between various areas.

To maximise our 2025 potential and market differentiation, we are redefining the **research and teaching nexus** as a university matter, rather than an individual pursuit. We will welcome and celebrate our staff contributions by aligning to their strengths and embracing diversity in how our people contribute, recognising and rewarding excellence. Outstanding educators will be rewarded and encouraged to focus on life changing, exceptional teaching. Our **Swinburne Education Academy** will be comprised of leading teaching staff who can build communities of practice and mentor those with similar career ambitions in education. Our top talented Highly-Cited researchers will continue to demonstrate great influence in their field and boost our global presence by generating world-leading research and mentoring Early Career Researchers to follow in their path.

Our schools are the custodians of their disciplines and will remain as our fundamental academic units, delivering the teaching and research outcomes we have collectively decided to embrace. We shall trust them to engage in the rich multi-disciplinary conversations required to develop the programs and research solutions of the future, unbridled by additional layers of management and unwelcome administrative burden. Our dedicated vocational teachers will be able to dedicate their time to

the achievement of competencies in their learners. Our highly professional staff will support the running of the institution at the peak performance level required of a tough competitive environment.

As *One Swinburne*, we also recognise our academic and professional staff, students and community have rich life experiences, orientations and backgrounds. We value this **diversity** and are committed to an **inclusive** culture. We trust our people and empower our leaders to make decisions in line with the One Swinburne principle. Knowing that they will always act in the best interest of the university to drive the 2025 vision.

Working as *One Swinburne* will deliver an integrated, seamless experience spanning both digital and physical worlds. We will foster a digital culture that brings to life the campus of the future, fostering positive interactions between learners, colleagues, ecosystem partners and the community. This will be facilitated by high-tech (technology) and high-touch (people) delivery to attract learners, staff, alumni, industry, government and community, both on and off campus.

United in our purpose, dedicated to our vision, deliberate in our actions and undaunted by the challenges ahead, we share a sense of pride in the Swinburne University of Technology we can build together: A truly unique university fit for the future – now!

