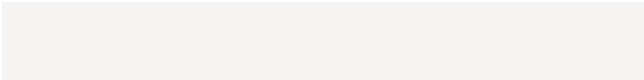




Swinburne Research Strategy

_2025



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Foreword



Swinburne is a young, innovative and future-focused university, ranking in the top 1% of universities worldwide for research excellence. Our strong reputation for excellent, high quality and impactful research attracts exciting opportunities for meaningful and sustained research partnerships with outcomes that make a difference, create value and are a source of pride. We are a university that has always been prepared to do things differently, to be bold, imaginative and distinctive.

Swinburne's Horizon 2025 Strategic Plan defines Swinburne as the university where people and technology work together for a better world. Central to this is our deep, unwavering commitment to research excellence, impact and eminence. Research enables us to deliver real-world outcomes in the form of transformative ideas and innovative technological solutions; it empowers us to translate our findings into industrial transformation, social change, and community and economic benefit.

In pursuit of our Horizon 2025 moon shots, the Swinburne Research Strategy 2025 articulates how our integrated research ecosystem and broad community of renowned experts is powered by a strong culture of collaboration, co-creation and a unique whole-of-system approach. We work together to tackle complex problems and deliver genuine social and economic impact, mobilising expert teams across research disciplines and organisational lines. We continuously build on our enviable track record of collaboration with industry, government, and community organisations, as well as with research colleagues nationally and internationally.

Partnership with industry, government bodies and other external organisations is fundamental to our approach. By 2025, we will be recognised internationally as a partner of choice for impactful research programs aligned with our flagship research areas. We know that successful research partnerships are supported by strong governance processes that are seamless, flexible and transparent. We will focus on building mutual partnerships where value is both created and shared in a way that supports the flourishing of new ideas.

We are dedicated to developing the next generation of researchers and Swinburne is fast becoming an international destination of choice for research students. We offer best-in-class, industry-embedded PhD programs as part of a suite of employment-oriented research training experiences. Research training expands beyond students and into our entire research community, embedding an entrepreneurial culture to grow our research from clever ideas into commercial and economic innovations.

Bringing together technology and humanity is at the heart of everything we do. We offer a deep understanding of the human element that is a critical driver in the creation, adoption, and dissemination of the new technologies we create.

We will continue to build an innovative, diverse and inclusive community of research staff and Doctoral and Masters students at the forefront of their fields. We actively seek staff with a broad variety of expertise and career paths – including industry researchers – united by a passion for impact on our shared future.

In a rapidly changing world of challenge and opportunity, I am excited and optimistic about how our research will bring people and technology together to build a better future.






Professor Karen Hapgood

Deputy Vice-Chancellor, Research
Swinburne University of Technology







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Swinburne's research achievements

University rankings

 Top 250	Academic Ranking of World Universities [ARWU] 2022	 Top 50	Times Higher Education [THE] Young University Rankings 2022	•	•
 Top 300	QS World University Rankings 2023	 Top 10	in Australia for innovative patents per FTE (The Australian Research Magazine 2023)	•	•
 Top 350	Times Higher Education [THE] World University Rankings 2023			•	•

Subject rankings

 #45	in the world for Automation and Control [ARWU Global Ranking of Academic Subjects 2022]	 #83	in the world for Computer Science and Engineering [ARWU Global Rankings of Academic Subjects 2022]	Top 150	in the world for Art and Design [QS World University Rankings by Subject 2023]
 #67	in the world for Space Science [US News ranking]	 #87	in the world for Optics [US News]	#108	in the world for Telecommunications Engineering [ARWU Global Ranking of Academic Subjects 2022]
 #67	in the world for Civil Engineering [ARWU Global Ranking of Academic Subjects 2022]	 #100	in the world for Electrical & Electronic Engineering [ARWU Global Ranking of Academic Subjects 2022]	#130	in the world for Law [ARWU Global Ranking of Academic Subjects 2022]

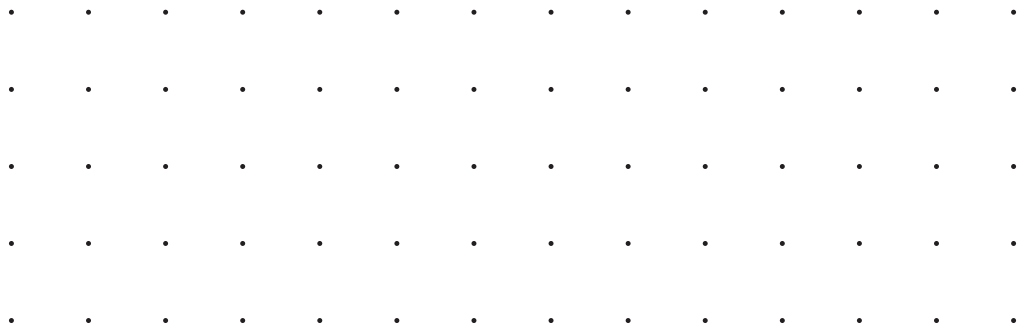
By 2025, Swinburne will:

- Be recognised as a leader in each of our flagship research areas, including being ranked as one of the top 100 universities in the world in our focused subject areas
- Deliver a suite of industry-focused graduate research programs that are considered best practice and a hallmark of Swinburne
- Forge an entrepreneurial culture that creates a pipeline from research discoveries to commercial value and societal benefit
- Attract \$70 million in external research income per year
- Derive 70% of our research funding from industry and other sources (Cat 2-4), including from venture-funded business, innovative start-ups and SMEs.

The next chapter: Swinburne Horizon 2025

Swinburne's bold Horizon 2025 Strategic Plan outlines four aspirational moon shots that will set the university apart from others, with a unique focus on preparing work-ready graduates and industry-engaged postgraduate researchers. These four moon shots, as they relate specifically to our research endeavours, are:





2025 Moon shots



1 Every Swinburne learner gets a work experience

All Swinburne Doctoral and Masters by Research students will have the opportunity to include real industry experience during their degree, including industry-linked projects and built-in research internships. This is made possible by Swinburne's extensive partnerships with innovative companies in Australia and globally.

2 Every Swinburne graduate gets a job

Swinburne's goal is for every graduate 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 PhD graduates to obtain a job through exposure to quality and impactful research, skills development, career support, internships and lifelong learning.

3 Every Swinburne partner gets a tech solution

Our ambition is to be the most industry-engaged university in Australia. Every partner that engages with Swinburne will receive a solution underpinned by technology and research excellence, while being connected seamlessly with Swinburne's innovation and entrepreneurial ecosystem and human capital. Swinburne researchers will continue to collaborate with industry, communities, and government through embedded partnerships to co-create solutions that transform local and global communities.

4 Swinburne is the prototype of global best practice

Swinburne will step up to the global stage and be the prototype of a new model of university with a distinct and innovative profile that is fit for a digital future. We will maintain awareness of traditional indicators of research quality and emerging measures of research impact, while embedding future-focused research best practice indicators to support and measure our success.



Swinburne's future-focused Research Strategy 2025

Swinburne's future-focused research and innovation combines science, technology and innovation with humanity to deliver genuine, collaborative and sustainable social, environmental and economic impact.

As a university of technology, our research and innovation is focused on realising the benefits of a digitally-enabled future, with particular attention to the social impact and human enablement of technological transitions and developments.

We conduct research across the continuum of fundamental and basic research, through to applied and commercial research innovation. We invest in key enablers and co-creation to deliver the technology and human capital that is required to generate genuine, collaborative and sustainable environmental, social and economic outcomes. There are four pillars to our Research Strategy:

Research excellence

- Focused on our flagship research priorities with world-class capabilities and infrastructure
- Lead large, ambitious, multidisciplinary and collaborative projects and initiatives
- Ongoing commitment to high quality, impactful research that enhances our reputation worldwide.

Globally connected

- Best practice leader in the University-Industry Innovation Network (UIIN), a group of like-minded institutions who are driving research-industry innovation and talent development
- Drive major global research partnerships in Swinburne's flagship research priority areas
- Growth in high quality international joint publications.

Impactful research

- Every partner – from SMEs to multinational companies, government agencies and community organisations – will receive an innovative technology-led solution that drives the results they need
- Strong alignment with industry and government roadmaps that influence public policy and enhance the public discourse on issues that matter for our future
- Entrepreneurial culture that creates a pipeline from research discoveries to commercial value and societal benefit.

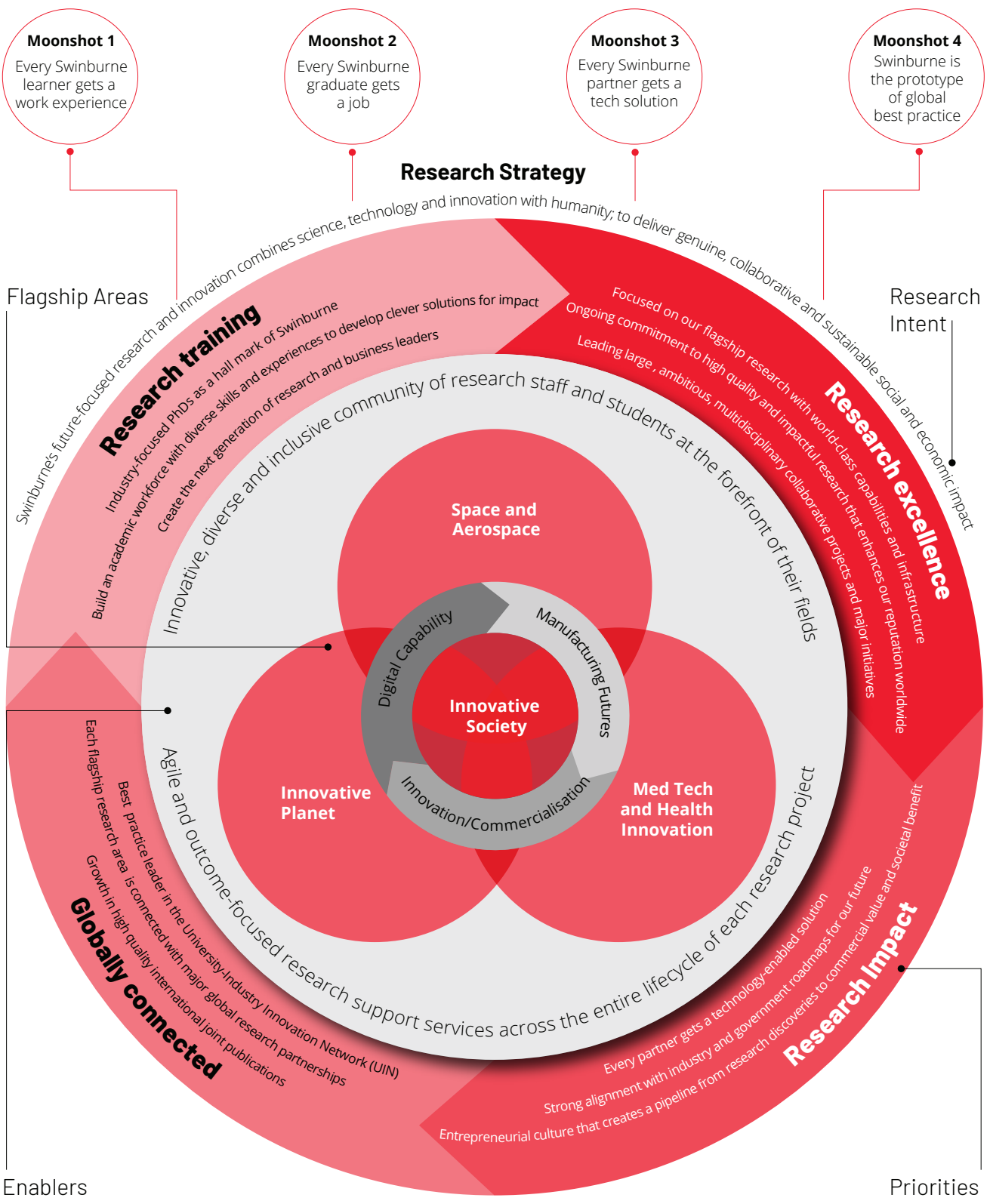
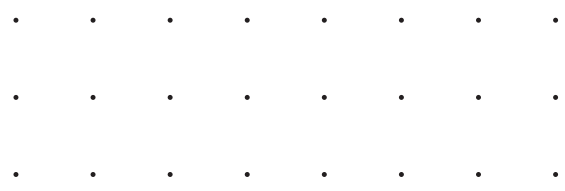
Research training

- Industry-focused PhDs as a hallmark of Swinburne
- Build an academic workforce with diverse skills and experiences to develop clever solutions for impact
- Create the next generation of research, business and societal leaders.

There are three key enablers to ensure that the Swinburne Research Strategy 2025 is well supported:

- Swinburne's innovative, diverse and inclusive community of research staff and graduate researchers are at the forefront of their fields, encompassing fundamental discovery research through to applied R&D and innovation expertise. This includes best practice support for Indigenous researchers and Indigenous research topic areas
- Agile and outcome-focused research support services across the entire lifecycle of each research project
- Integration of research across the university's education and innovation ecosystems.





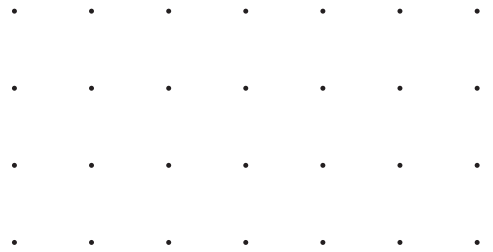
Swinburne's Research Ecosystem

Swinburne is aligning, integrating and empowering our research activities across the university.

The Research Ecosystem model is cross-disciplinary, collaborative and committed to real-world impact. We are a broad community of researchers with recognised expertise and leadership in our fields, with a common commitment to excellent, impactful research that benefits society.

Our flagship research areas are targeted yet diverse, underpinned by world-leading researchers, state-of-the-art facilities, and strong industry and government partnerships. Swinburne's Research Platforms are aligned with respective flagship research areas; however, they also provide important capability support to the other flagship research areas. The university's innovation and commercialisation activities are also centrally embedded into the Research Ecosystem.

Swinburne has a vision for a sustainable future society and better world, and our Research Ecosystem will enable us to get there.



Flagship research areas

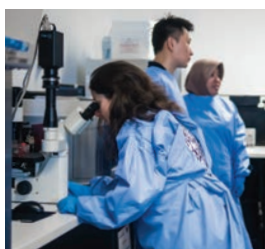
1



Space and Aerospace

Our global reputation in astrophysics, supercomputing and space aligns with expertise in space technology, aerospace, advanced materials, optical and quantum communications, engineering and instrumentation, visualisation and satellite data analysis, and future air mobility.

2



Medical Technology and Health Innovation

Our skills in mental health and brain science, combined with our expertise in co-design and clinical translation of medical technologies (MedTech) contributes to impactful outcomes in digital health, mental health, assistive technology, medical devices, biomedical science and engineering, clinical and allied health, and MedTech manufacturing.

3



Innovative Planet

We have a passion for sustainability and are dedicated to achieving a carbon neutral world by 2050 or earlier. Our research brings together sustainable materials, clean energy and hydrogen, the circular economy, and smart energy management, with social sciences and humanities, contributing to the creation of a sustainable future.

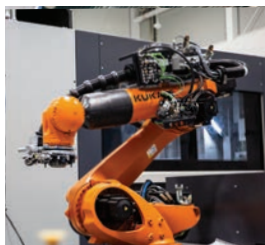
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Innovative Society

We lead social innovation in the digital economy by combining the wealth of social sciences and behavioural sciences with our expertise in cutting-edge design, technology development, data analytics, business and communications. We drive innovative social practice through novel methods, data, and people networks. We work at the intersection of social challenges and technological potential, striving for greater social equity and digital inclusion.

5



Manufacturing Futures

We position ourselves at the junction of design, business, engineering and information systems. By integrating advanced manufacturing and design into the global value chain to capture the benefits of advanced manufacturing, Industry 4.0 and digital twins, we are securing Australia's industrial future.

6



Digital Capability

We develop and utilise digital research technologies that push above and beyond traditional business and industry boundaries – secure communications, artificial intelligence, data science and analytics, and quantum computing. We aim to be an international leader in digital research technology solutions with a focus on significant partnerships that have strong social and economic impact.

Research excellence

Research excellence is at the core of our mission. To achieve this, we will focus on supporting our people, developing our network of partnerships, and boosting our performance to ensure that our research is high quality, published and shared to ensure our work is translated into value for Swinburne, our partners and our community.



Focused on our flagship research areas with world-class capabilities and infrastructure

Our unique research ecosystem means that the full capacity of our research community contributes to Swinburne's research excellence and outcomes in a collaborative, concentrated effort. We will build research capacity, industry connections and the human capital to make an impact in each flagship area, mobilising the broad range of disciplines and researchers in our research community.

We will align our future research infrastructure investments in critical research equipment, facilities and capabilities within our flagship areas as well as our graduate research training efforts.

Leading large, ambitious, multidisciplinary collaborative projects and major initiatives

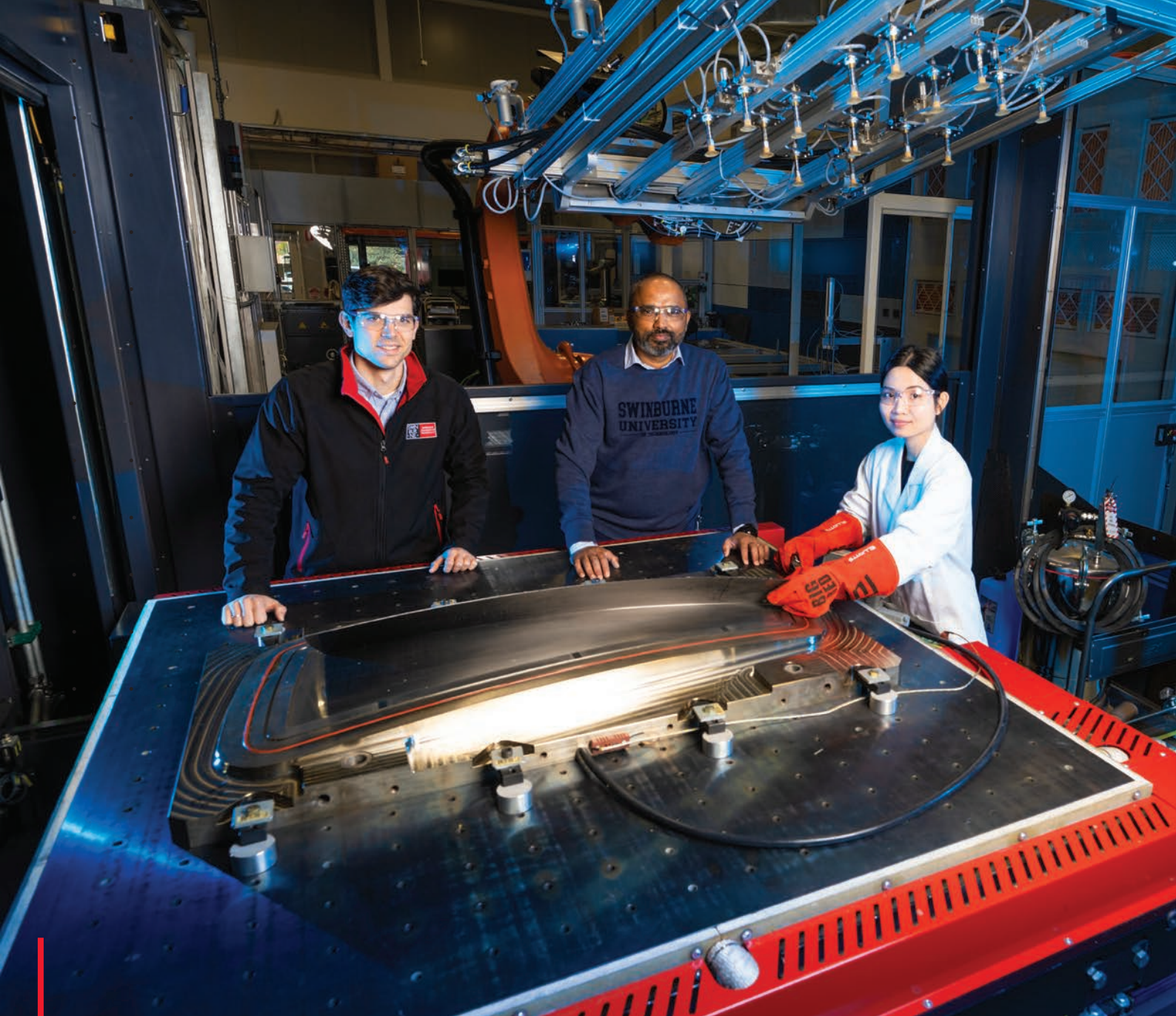
Swinburne's research culture looks beyond discipline boundaries and traditional approaches to projects, seeking complex research challenges that require unique, multidisciplinary approaches and combine science, technology and innovation with social and economic analysis and outcomes.

It is important that our researchers across all discipline areas seek sustainable funding to support our ambitious research agenda. We encourage and support our staff to apply for peer-reviewed national and international competitive grants and research funding. We will support our researchers by taking a structured development approach to ensure research proposals and pitches are high quality and competitive. These projects will enable the creation of new knowledge that will make significant contributions to each discipline, which in turn leads to future ideas, innovations and impact.

Ongoing commitment to high quality and impactful research that enhances our reputation worldwide

Swinburne is proud to be ranked in the top 1% of universities worldwide – in 2022, we were in the top 250 in the Academic Ranking of World Universities (ARWU) and top 300 in the Times Higher Education (THE) World University Rankings and QS World University Rankings. We are now able to shift our focus to key subject rankings aligned with our flagship research areas. We are already in the top 50 worldwide for Automation and Control (ARWU subject ranking) and in the top 100 for Space, Optics, Computer Science, Civil Engineering and Electrical Engineering, with many other subjects in the top 250 worldwide.

We will continue to encourage high quality research outputs, including publications and non-traditional research outputs where applicable. Publications should be in the highest quality journals and outlets possible. Discipline-focused strategies and a rigorous but supportive culture of internal peer review will enable our researchers to achieve these outcomes. We will share the outcomes of our work with stakeholders and the broader community. We will develop measures of impact that do not just rely on publication records and reward our researchers for excellence in creating it.



At the forefront of Industry 4.0

Swinburne-CSIRO Industry 4.0 Testlab facility (L-R: Professor Boris Eisenbart, Jimmy Thomas and Tuyen Tran) pictured with a carbon fibre layup of a satellite petal ready to be cured in the Industry 4.0 Testlab's fully automated composite part production process.

Our reputation for excellence and impact has already attracted many highly cited (HiCi) researchers to Swinburne. They are at the heart of a stable and integrated network, driving excellence in their specialised area of expertise and collaborating with our academic staff. They play a key role in mentoring our Higher Degree by Research students and connecting them to their influential discipline networks, as well as mentoring the next generation of Swinburne HiCi researchers.

We will complement these measurements of research excellence by entering into the Times Higher Education Impact Rankings, which uses the United Nations' Sustainable Development Goals (SDGs), to assess our progress and impact towards an innovative planet and society in research, teaching, outreach and stewardship.



What does success in research excellence by 2025 look like?

- **Consolidating our overall top 300 position in the ARWU, THE and QS rankings**, to reflect our respected position in the top 1% of universities worldwide
- **Increasing the number of subjects ranked in the top 50 and 100** aligned with our flagship research areas
- **Research excellence funding (HERDC Category 1): \$20 million per annum**
- **Our staff featuring prominently in HiCi researcher lists and the top 2% of researchers worldwide**
- **Nature and Science papers increasing annually** with an expanding group of Swinburne authors
- **Our researchers are widely recognised via academic and industry awards**
- **Each flagship research area is supported by outstanding, iconic research infrastructure that Swinburne either owns or accesses**, such as the Factory of the Future, Supercomputer 'Ngarrgu Tindebeek', WM Keck Telescope, NanoLab, National Industry 4.0 Testlab for Composite Additive Manufacturing, Neuroimaging facility, Volumetric Motion Capture Lab, Aikenhead Medical Discovery Centre, Australian Synchrotron, Stawell Underground Physics Lab, MCN, ANFF, etc
- **Swinburne Chief Scientist is a valued source of well-informed strategic advice for** research-related roadmaps and policies, spanning universities, government and industry.

How will we achieve this?

- **Embed our network of HiCi researchers** and develop the next generation of research leaders whose careers have taken off at Swinburne
- **Develop discipline-focused strategies to increase our publications, citations and research impact** including journal articles in prestigious research outlets (Nature and Science) and Q1 and Q2 journals, as well as high quality non-traditional research outputs
- **Initiate a structured approach to develop high quality and competitive grant applications**, from early proposal development to staff training on writing compelling grants, through to grant submission compliance
- **Promote the unique profile of Swinburne's Chief Scientist** by engaging with media, industry forums, professional bodies, chambers of commerce, state and federal governments on the intersection of science, technology and policy
- **Nominate our outstanding researchers for significant external prizes and awards** via a structured process
- **Review our current research infrastructure facilities** – those we manage and those we have access to – to identify future needs and maintain our research infrastructure at the required standard.

What will change by 2025?

- Swinburne will enter the Times Higher Education Impact Rankings for the first time
- Our focus will shift from overall university rankings to specific subject rankings aligned with our flagship research areas
- The number of lead and senior author papers in the most prestigious journals in each discipline will increase
- Our success rate for competitive research grant funding will improve as a result of our well-planned and compelling grants proposals
- Investment in research infrastructure facilities will be strategic and aligned with our Research Ecosystem.

Swinburne's Chief Scientist, Professor Virginia Kilborn

In 2021, Swinburne University of Technology appointed Professor Virginia Kilborn as the inaugural Swinburne Chief Scientist, and the first ever Chief Scientist appointment at an Australian university.

Professor Kilborn is a leader of Swinburne's scientific community and is known as a champion of women in science, technology, engineering and mathematics (STEM). The position of Swinburne Chief Scientist provides leadership in science within and outside the university, driving scientific relationships and policy with government, industry and schools. The key focus areas for the Chief Scientist are in science research, education, policy development, and equity and diversity, concentrating on excellence and impact within Swinburne and the broader national science community.



"There has never been a more important time to be involved in science. As we step into the critical challenges of our nation and the world, the scientific voice must be more present. I am proud to represent that voice and continue to spearhead the great work that fellow scientists are performing at Swinburne and more broadly."

Professor Virginia Kilborn

Swinburne Chief Scientist

Research impact



Swinburne’s Horizon 2025 Strategic Plan has a specific ambition to be the “most industry engaged university in Australia”. Research partnerships are central to this ambition. We have built a reputation for dynamic and successful industry-research partnerships, but there is capacity to make this an even stronger distinctive element of Swinburne’s research and innovation ecosystem.

Every partner gets an innovative technology-enabled solution

Swinburne’s approach to partnered research projects and initiatives commences with actively listening to the challenges and issues facing our partners. Our goal is to adopt joint problem solving to create technology-enabled solutions using our recognised research expertise and capability.

We seek strategic research partners aligned to our flagship areas of research focus, where we can create mutual value through research support, graduate research projects and internships, and commercialisation. We engage effectively with SMEs and start-ups to deliver projects with large potential for impact and growth. We also seek to develop more impactful research projects that are larger in scale, and consequently more efficient, to deliver greater value across the entire value chain.

Our understanding of real-world issues, needs and opportunities is also enabled by industry advisory boards who provide guidance to our research leadership team and to each flagship research area. We are active contributors to national and international government, research and industry forums and networks.

We work closely with business to ensure that research with commercial potential is identified. We co-create value from our research and share in the outcomes.

With a multidisciplinary structure in place, we have the unique ability to provide our partners with a tailored team of relevant experts to assist in solving an identified problem.

Strong alignment with industry and government roadmaps for our future society

Swinburne is well positioned to capitalise on both state and Australian government priorities for established and emerging industry sectors. Our Victorian Higher Education State Investment Fund initiatives are an exemplar, focusing on opportunities to develop and grow research capability and activity aligned with the priority industry sectors of medical technology, hydrogen, advanced air mobility and supercomputing. Swinburne is poised to engage as a strong research partner in the next iteration of major programs such as the National Reconstruction Fund, National Manufacturing Priorities, Australian Medical Research and Innovation Priorities, Australia’s Space Roadmap and the National Quantum Strategy. The development of these major strategic initiatives are significant undertakings, bringing together research expertise with support teams across the Research, Innovation and Enterprise, and the Global Engagement portfolios.

We ensure close ties with industry directions through our industry advisory boards for our Research Institutes and Platforms, as well as for many of our research centres. In addition, the Swinburne Industry Advisory Committee and the Technology Innovation and Value Creation Committee provide strategic advice to aid future planning and alignment.

Swinburne has an opportunity to play a more significant role in supporting the Australian Defence Force’s goal to “protect and detect”. We will articulate our research capabilities, aligned to the Defence STaR Shots, and strategically grow our capacity to engage in defence projects as a trusted partner.





Entrepreneurial culture that creates a pipeline from research discoveries to commercial value and societal benefit

Our refreshed research ecosystem approach, embedding innovation and commercialisation at the heart of what we do, positions Swinburne to be a key contributor to the Australian Government's University Research Commercialisation Agenda and related entrepreneurial initiatives. We will seek new sources of research funding that derive from value creating activities in start-ups, new ventures and our existing commercialisation portfolio. Converting Swinburne's innovative ideas into commercial start-ups and businesses will benefit Australia's economy, driving further re-investment in Swinburne's research from our portfolio of start-ups and spinouts.



Getting to the heart of anorexia

Associate Professor Elisabeth Lambert is an expert in reading electrical nerve impulses recorded using a technique called microneurography. She is studying why anorexia sufferers experience cardiovascular complications.



What does success in research impact by 2025 look like?

- We are aligned with significant government and industry roadmaps and integrate these into our future directions
- We co-invest with our research partners when there is a clear path to sharing value
- 70% of our research income comes from industry and external partners (Cat 2-4)
- Swinburne has a strong pipeline of new start-ups and high-value licences evolving from our innovative research
- Our engagement with defence opens new opportunities for our research community in disciplines such as artificial intelligence and cyber security, smart materials, quantum sensing, space technology, social sciences, law, health and medical technology
- Swinburne is considered a national leader in research engagement and is regularly requested to provide input into major government and industry policy and roadmap position papers
- Swinburne's research papers and reports are co-authored with industry.

How will we achieve this?

- **Establish six key strategic industry partners, aligned with our six flagship research areas**, where we can create significant impact
- **Grow our industry and other external income (HERDC Cat 3)** by concentrating our efforts on our flagship research areas and positioning ourselves to respond quickly to new opportunities
- **Establish a new Defence Engagement team**, focusing on research and including dual-sector education, training and skills. This team will develop a structured and professional way to connect and engage with the defence industry, including responsible investment and security requirements as needed
- **Reinvigorating our approach to industry engagement, research contracts and project management** to ensure seamless business engagement that ensures Swinburne secures a fair share of the value we create
- **Invest in skills development for our staff** in writing compelling industry pitch proposals, articulating the outcomes and benefits that will flow from investment
- **Supporting innovators and ideas through the delivery of innovation and commercialisation programs** and connection to programs led by the Innovation and Enterprise portfolio
- **Enable the ongoing development of multidisciplinary research teams** drawing on expertise from across the university to enable meaningful engagement with the complex societal challenges of today and the future.

What will change by 2025?

- Swinburne will have six key strategic industry partners in place, aligned with our flagship research areas
- Industry and other external income (HERDC Cat 3) will have grown 1.5x the current level
- New Defence Engagement team will be established, signalling a new "Defence Ready" stance for Swinburne, supported by DISP accreditation
- A pipeline of research innovations being supported via commercialisation programs led by the Innovation and Enterprise portfolio.





Swinburne's Defence Readiness Strategy – detect and protect

Swinburne seeks to be a trusted partner of the Australian Defence Force to detect potential threats and to protect Australian defence force personnel with operations on land, sea, air and space. We will be ready to respond to an increasingly complex and dynamic defence landscape.

Our Research Ecosystem encompasses cyber and physical systems and is strongly aligned with the Department of Defence's Science, Technology and Research (STaR) Shots:

- Space and Aerospace: satellite technology and payloads, earth observation, aerostructures and drones, quantum position navigation and timing
- Manufacturing Futures: innovative carbon fibre composites, materials designed for extreme conditions
- Digital Capability: Artificial intelligence, cyber security, optical and quantum communications and 5G networking
- Innovative Planet: lighter, stronger materials, sustainable construction, autonomous vehicles
- Med Tech and Health Innovation: medical and assistive devices, allied health, nutrition and gut microbiome, criminology, psychology and mental health
- Innovative Society: design, design thinking, ethics and law, criminology, leadership and entrepreneurship.

By 2025, we will

- **Establish a Defence Engagement team and recruit an experienced Director of Defence Research**, who will connect Swinburne's capabilities to respond to the needs of the Australian Defence Force
- **Support our researchers to collaborate with defence partners**
- **Strategically develop new capabilities and recruit new research leaders to meet future defence needs**, including new research leaders in quantum sensing, quantum computing and nuclear physics
- **Establish key partnerships and initiatives that align with significant alliances (AUKUS, QUAD) and our Research Ecosystem.**



Value Creation Strategy

Swinburne Innovation and Enterprise is the university's dedicated portfolio for driving multi-lateral value creation from innovation, technology, entrepreneurship, and workforce training and development. Working closely with Swinburne Research and academics from across the university, the portfolio champions industry research engagement, strategic partnership management, design innovation, research and intellectual property commercialisation, professional education design and delivery, and staff and student programs that bridge the interface between business and the university.

Powered by Swinburne research excellence and an innovation culture, our Value Creation Strategy sets the ambition to catalyse the creation of value for our partners, and for Swinburne to share in the value created. By 2025 our innovation ecosystem will be a seamless value chain where valuable research and intellectual property are identified and protected to create a pipeline of opportunities that suit commercial pathways to impact. With this strategy, we have created the means to invest in commercialising this pipeline, leveraging Swinburne Ventures Limited and our investor networks, as well as the capacity to develop investable propositions from our research. We will build outcomes such as licences, options, assignments and spinout ventures, alongside commercial partnerships with startups and large companies that allow Swinburne to create impact at scale and enhance our reputation as a university where technology, innovation and entrepreneurship thrive alongside world-class research and teaching.

Dr Werner van der Merwe

Vice President (Innovation and Enterprise)



Globally connected



Our research is globally engaged and relevant, but we foresee new ways to expand and grow our global research partnerships and international reputation. We will continue to work in partnership with the Swinburne Global team to develop research partnerships with reputable international universities, organisations and networks with complementary expertise, particularly for graduate research training.

Best practice leader in the University-Industry Innovation Network (UIIN)

Swinburne will become a best-practice leader within the University Industry Innovation Network, a network of like-minded international institutions who seek to become prototypes of a different type of university. UIIN connects innovative universities around the world, cultivating next generation innovators with cutting-edge skills for a technology-enabled future. The network also facilitates high-level leadership and innovation summits, sharing best practice in research, development and commercialisation.

Each flagship research area is connected with a major global research partnership

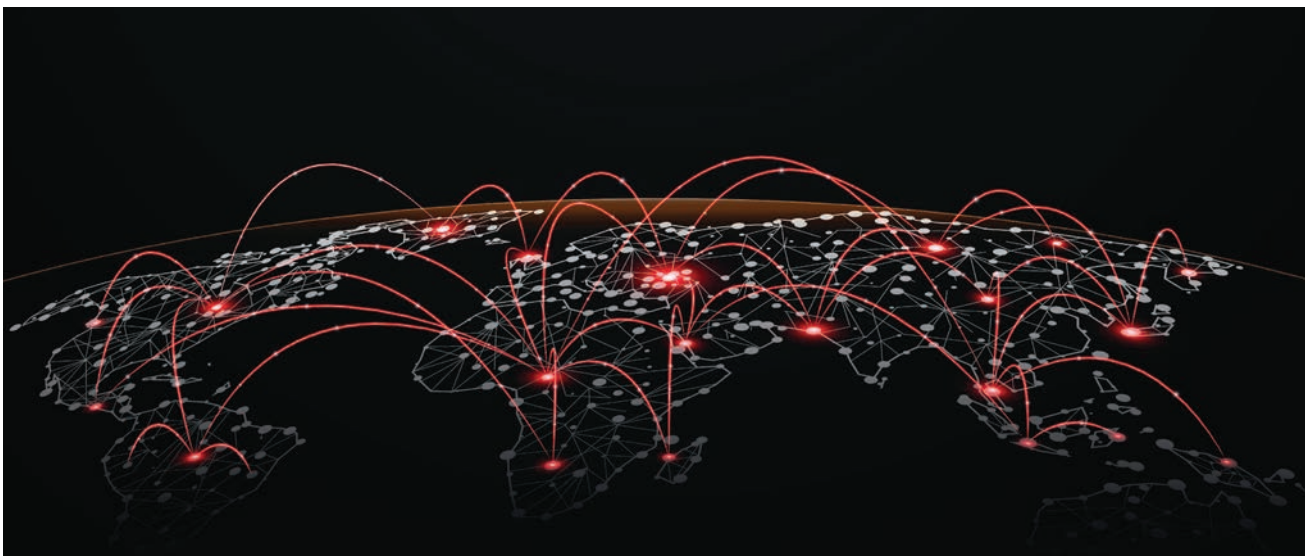
Swinburne will expand our diverse and important international research partnerships, aligned with our Research Ecosystem. Notably, many of our partnerships are with international companies, adding depth to our partnerships with international universities. We will continue important partnerships on advanced manufacturing with ARENA2036 and University of Stuttgart, establish joint research centres focused on graduate research training, and grow relationships with a range of international industry internship partners.

Mobilising our Sarawak Campus as an Asia Pacific research training hub

Research training at our Sarawak campus will expand the range of options for research projects and study locations available in the Asia-Pacific region, reflecting our identity as a global university. Sarawak will become a PhD hub for neighbouring countries who cannot afford to send large cohorts of graduate researchers (including their own staff) to study for three or four years in Australia. Aligned with our areas of world-leading expertise, investment in higher degree by research scholarships by governments and companies in developing countries will have a multiplier effect on our research capability and productivity. We will work closely with governments in the region to welcome and grow the cohort of future research leaders they need, supported by national and international scholarship schemes, including enhancing government skill development programs in the Asia Pacific.

Growth in high quality international joint publications

Working with international partners brings new perspectives and expertise to the research problems we tackle and strengthens the quality of the outcomes we produce. We will focus on international research collaborations which build on our mutual capabilities, and which are most likely to result in high quality joint publications, including co-authored by HDR graduate researchers and early career researchers.



What does success in globally connected research by 2025 look like?

- **We are an established best practice member of UIIN**, sharing our leading innovations, learning from others and collaborating on research projects of common interest
- **Swinburne’s Sarawak campus in Malaysia will be a graduate research training hub**, supporting graduate researchers from across Asia-Pacific, with scholarships supported by international companies and governments
- **Our Sarawak and partnered PhD programs in priority regions will be aligned with our flagship research areas**
- **Publications from international research partnerships are in quality journals and attracting above average citations in their field.**

How will we achieve this?

- **Align our global research partnerships** with our Research Ecosystem and successful partnerships to date, including graduate student completions, joint international publications, journal paper citations and financial sustainability
- **Proactively manage our existing global memberships to create new opportunities**, including our memberships of ARENA2036, UIIN, and other international industry bodies and chambers of commerce
- **Develop a pipeline of global partnerships supported by external funding** from universities, governments, and industry partners
- **Nurture national and international collaborations** that enhance our research capabilities, provide high quality research training, and produce high quality joint publications.

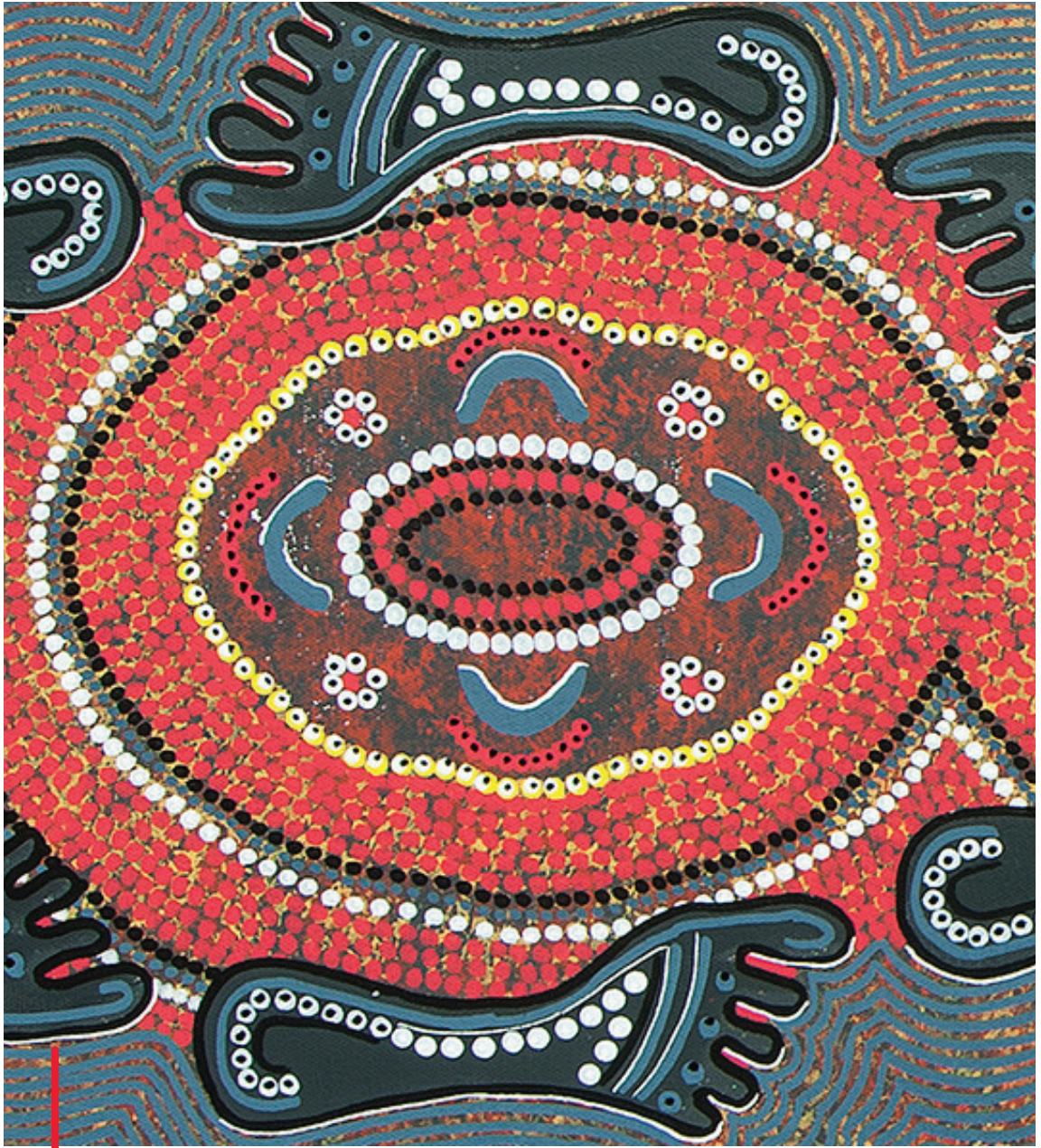
What will change by 2025?

- **Our global research partnerships** will each contribute impactful research to support our research ecosystem and develop our capabilities
- **Active membership of existing global networks such as ARENA2036, UIIN, and other international industry bodies and chambers of commerce**
- **Our global partnerships** with universities, governments, and industry partners make a significant contribution to national priorities and our Cat3 income.



RAP Artwork

Gathering Knowledge. This painting depicts the continuous cycle of footprints on a never-ending journey travelling around Swinburne's campuses, which are located on Wurundjeri land. Artist: Arbup Ash Peters



Indigenous Research Strategy

Swinburne is committed to self-determining, collaborative, innovative, impactful, and reciprocal research and enterprise partnerships with Aboriginal and Torres Strait Islander peoples, communities, organisations, businesses and entrepreneurs.

Our aim is to provide high-impact research and partnerships creating positive change for Indigenous peoples, our students, staff, and the wider Australian community. We commit to research projects that directly support Indigenous peoples' engagement in higher education studies, employment, and career progression through Swinburne's Reconciliation Action Plan.

Our National Centre for Reconciliation Practice leads national academic, industry and community understanding of reconciliation, and contributes to national systemic change in reconciliation.

Our Moondani Toombadool Centre (MTC) conducts research projects with Indigenous organisations, industry groups and other universities focused on contributing to Australia's economic and social objectives.

Research training

Swinburne offers a best-in-class, industry-embedded graduate research program as part of a suite of employment-oriented research training experiences.

Industry-focused HDR graduates as a hallmark of Swinburne

Aligned with Swinburne's moon shots, our Higher Degree by Research (HDR) graduates have a profound impact across all sectors and are a critical part of our Research Ecosystem. Our existing HDR students want more opportunities for industry engagement. We will enhance our industry-embedded PhD programs where globally competitive candidates undertake externally-engaged research projects. Industry engagement for HDR students will span collaborative projects, internships, mentoring programs and opportunities to participate in industry research seminars, forums and events. This will increase the employability of our graduate researchers and enhance their student experience. These industry PhDs will become a hallmark of Swinburne, based on the successful German and French model, and Engineering Doctorates in the UK.

Working with our industry partners, we will co-create HDR projects with embedded research internships. These offer the certainty of industry experience and support government skills and training initiatives. Standalone internships will also be encouraged where an embedded internship is not appropriate within the research project.

Our unique Impact PhD program brings together a team of graduate researchers from across a range of disciplines to work collaboratively on a broad challenge identified by a partner. The students are immersed in the research environment at the university and with the industry partner, learn from each other's projects, and simultaneously grow their communication, leadership and business skills in parallel with their research training. We will expand our Practice PhD programs so that professionals working on innovative projects across industry, government and non-profits with a research component can gain a PhD qualification based on their work without having to step away from their role.

Mindful of our duty of care to HDR students, we will continue to grow and develop our supervisors to ensure that HDR students enjoy and benefit from high quality training.

We will ensure quality supervision in rich research environments by supervisors with strong track records of successful and timely student completions.

Build an academic workforce with diverse skills and experiences to develop innovative solutions for impact

Research training expands beyond research students and into our entire research community, embedding an entrepreneurial culture to support great ideas becoming commercial and social innovations. We will support our researchers to think about innovation and commercialisation opportunities for each project, and to work with end-users at the outset to co-design impactful solutions. We will encourage innovators and ideas through a suite of programs delivered by the Innovation and Enterprise portfolio, and via our best practice academic promotions process which recognises innovation, patents, and IP.

Our PhD and Masters by Research students will enjoy their time and gain valuable experiences beyond their particular project area. Students will receive training in foundations of research integrity (including data management) and will be offered opportunities to develop skills in the innovation process, from patents to start-ups.

Create the next generation of research and business leaders

We will seek to focus our cohort of HDR students in our areas of research strength where they can experience a thriving research environment and high-quality supervision. We do not have a numerical target for the number of HDR students, but rather we will focus on being able to offer secure government and externally funded scholarships to recruit excellent students who are strategically aligned with our Research Ecosystem, enabling them to contribute to solving real-world challenges. Our Sarawak cohort is included in this vision, with supervision provided by both Sarawak- and Australian-based researchers.





What does success in research training by 2025 look like?

- Prospective research students seek out Swinburne for our suite of industry PhDs, including Impact and Practice PhDs and our wide range of industry-sponsored projects
- **75% of new HDR students have externally funded scholarships**, indicating demand for our unique research training approach and expertise
- **More than 50% of PhD students have industry experience as part of their research project**, co-created with industry partners
- **PhD students will be named inventors on patents and co-creating start-ups** to convert their ideas into economic or social impact (in partnership with the Innovation and Entrepreneurship portfolio)
- **Timely thesis submissions:** 90% of our graduate researchers submit their thesis within 3-3.5 years so that they can progress their careers and make an impact.

How will we achieve this?

- **Recruitment of industry-engaged graduate researchers: 50% of new HDR enrolments by 2025 are industry-engaged** as defined by the Australian Government, including being fully funded or co-funded from HERDC category 2-4 funding, involved in Swinburne’s Industry PhD program or undertaking industry projects. We will also encourage students to gain career experience through industry internships
- **Promote externally-funded scholarships** such as ARC Research Training Centres, CSIRO Next Generation Scholars, iPhD, the National Industry PhD and similar schemes which include embedded industry engagement
- **Prioritise externally-funded projects which support HDR projects** for any required Swinburne research co-investment contribution
- **Proactively manage candidature through regular reviews and constructive feedback.** We offer HDR students support to grow their skills and confidence, as well as formalised progress reviews with expert advice from a panel of researchers.

What will change by 2025?

- Our community of graduate researchers at Hawthorn and Sarawak will be sustainably balanced in relation to our university size
- Our suite of industry-engaged HDR programs will be well established and offer options for industry-focused research to every candidate.

3D chain mail as a rapidly-constructed programmable structure

Swinburne School of Design and Architecture PhD student Nabila Afif is undertaking research that focuses on developing a 3D chain mail model as a system for rapidly-constructed and programmable architectural structures.



Research and innovation culture enablers

Swinburne's innovative, diverse and inclusive community of research staff and students at the forefront of their fields

- Developing a quality research and academic workforce that supports excellence, diversity and inclusivity. Proactively guiding, mentoring and supporting our staff from start of career through to seniority by developing the skills and experience appropriate for their career stage and trajectory
- Selective external recruitment will be aligned with the flagship research areas, contribute to our capacity to engage and attract external support, and positively impact university ranking outcomes including subject rankings
- Thriving research community with diversity, inclusion, and equity of opportunity in our recruitment and career development programs, with a specific focus on Aboriginal and Torres Strait Islander researchers and Science Australia Gender Equity (SAGE) program goals
- A best practice academic recruitment and promotion system, supporting a diverse range of careers and career paths spanning teaching, research, leadership, industry expertise and commercialisation.

Agile and outcome-focused research support services across the lifecycle of each research project

- We make it easy for people to connect with Swinburne: we do not expect our partners to understand our structure, or to hunt for expertise. We stand apart by our willingness to create bespoke teams for bespoke problems and use our refreshed ecosystem to align internal resources
- Operating efficiently, effectively and sustainably is fundamental to delivering our research vision. Our research revenue will grow sustainably across all funding types, supported by better research budgeting, improved recovery of indirect costs and a fair and equitable approach to research costs with project partners
- We value our skills and capabilities and will avoid discounting our legitimate research costs unless there is a clear path towards long-term value from our investment
- Ensuring strong institutional foundations through an ethical and open culture of research inquiry where research is conducted in accordance with all compliance and regulatory requirements and public expectations. A robust research policy framework plus awareness, training and education with appropriate systems and processes is in place
- We will upgrade our research management support systems to facilitate best practice in publications management and analysis, including open access research outputs, as well as effective data storage and management.

Integration of research across the university education and innovation ecosystems

- We will adopt a "One Swinburne" approach to research services, empowering our team to develop smooth and efficient research management processes and seamless teamwork between Swinburne Research Services, our Schools, Centres and Departments, and the Innovation and Enterprise team
- We will connect our research expertise with our dual-sector education offerings in higher and vocational education. This will maximise the alignment of our skills and training offerings and ensure our ability to provide the human capital required for a digital, tech-driven future.





Transformative innovation

Professor Beth Webster (left) and Associate Professor Alfons Palangkaraya (right) from Swinburne's Centre for Transformative Innovation analyse industry and business performance while also undertaking research that informs government policy.

FURTHER INFORMATION



+61 3 9214 4859



research@swinburne.edu.au



swinburne.edu.au/research



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The information contained in this course guide was correct at the time of publication, May 2023.

The university reserves the right to alter or amend the material contained in this guide.

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