Faculty of Science and Engineering Strategy

2026–2030

MACQUARIE University
SYDNEY·AUSTRALIA

Acknowledgement of Country

The Faculty of Science and Engineering acknowledges the Wallumattagal Clan of the Dharug nation, the traditional custodians of the land upon which Macquarie University stands. We pay our deepest respects to Elders past and present, and recognise their enduring connection to Country, culture and community.

We honour the knowledge traditions of Australia's First Nations peoples, whose stewardship of land and learning has shaped this continent for tens of thousands of years. In all we do, we commit to listening to, learning from and partnering with First Nations communities – locally and nationally – to advance reconciliation, mutual respect and shared prosperity through education, research and enterprise.

Foreword

FROM THE EXECUTIVE DEAN FACULTY OF SCIENCE AND ENGINEERING

The strength of our faculty lies in our people: the students, educators, researchers and partners who turn ideas into impact. As Executive Dean, it gives me great pleasure to introduce the *Faculty of Science and Engineering Strategy 2026–2030*. Through a process of extensive consultation, our strategy has been designed to translate Macquarie University's ambitions into focused actions across science and engineering.

Our vision is clear: to be a globally impactful, innovative and resilient Faculty of Science and Engineering, purposefully driven by quality and productivity, with strong and sustained connections to national and local industry.

We pursue this vision at a moment of profound change – and real opportunity.

Artificial intelligence is reshaping society – transforming how we discover knowledge, how we teach and how we work together – presenting the challenge of harnessing its efficiency while preserving the foundational skills that underpin deep expertise. Accelerating climate impacts and continued biodiversity decline are among the defining challenges of our time. The window to meet agreed climate and conservation targets is narrowing. This makes rigorous, trustworthy science more important than ever. Breakthroughs in genomics, AI-enabled diagnostics and biomedical engineering, set against heightened global health demands, make this a critical moment for translating bioinnovation into real-world impact. And surging growth in computing and engineering has created nationwide skills shortages that we want to meet through a distinctive, industry- and society-relevant curriculum that produces work-ready graduates.

We are uniquely positioned to respond: With the Macquarie Park Innovation District at our doorstep, we have an extraordinary proximity advantage for partnership and translation. We will build deeper connections locally and nationally and leverage our international networks fully to maximise our impact and reputation.

Moreover, the case for fundamental science has never been stronger. Even as funding schemes increasingly favour applied and industry-led research, and government investment in universities declines, fundamental science remains the wellspring of knowledge discovery and step-change innovation. It remains central to our identity, and we will grow it thoughtfully.

In a time of uncertainty, we will not retreat into caution: We will be more adaptable in how we solve complex challenges, more deliberate in where we focus our resources, and more ambitious in the opportunities we pursue.

This strategy commits us to invest where we can achieve genuine distinction. In the fundamental and applied sciences, we will pursue excellence with conviction. In engineering and computing, we intend to be among the top universities nationally in the areas where we can build enduring scale. Across all disciplines, we will champion the highest standards of integrity and ensure our graduates remain the graduates of choice.

We will also change the way we work: We will create an enduring partnership with our high-performing community, enabling their success and supporting each and every member to lead from where they are as they aspire to a better future. I warmly invite our colleagues, students, partners and community to join us.

The opportunities before us are significant. We will pursue them with clarity, with purpose, and with confidence, building a faculty whose impact endures well beyond this strategy and the decade ahead.

Professor Samuel Muller
EXECUTIVE DEAN
FACULTY OF SCIENCE AND ENGINEERING

FSE Strategy 2026–2030

The Faculty of Science and Engineering (FSE) is committed to driving impactful innovation and excellence in education, research and community engagement. Through the FSE Strategy 2026–2030 we translate our ambitions into actionable priorities tailored to meet the dynamic challenges of our time. Our focus remains steadfast on delivering measurable outcomes that benefit students, researchers, industry and society at large.

Our strategic framework is informed by and integrates with the University's core strategies and enabling plans: *Macquarie University Operating Plan 2025–2030*, *The Macquarie Advantage*, *Research Strategy 2035*, *Indigenous Strategy 2026–2030* and the *Service Excellence Framework*. The FSE Strategy 2026–2030 provides a framework to support the development of school and research department strategies, ensuring that University-wide aspirations and local delivery pull in the same direction.

Macquarie University Operating Plan

Macquarie Advantage

Macquarie University Research Strategy

Macquarie University Indigenous Strategy

Macquarie University Service Excellence

Our strategy has been designed to translate Macquarie University's ambitions into focused actions across science and engineering.

The FSE Strategy 2026–2030 comes to life through three pillars: our education, our research and our community – each carrying an ambition for where the faculty wants to be in 2030. Beneath each ambition sit the priority areas that reflect our strengths and areas of opportunity. We pursue those priorities through strategic programs: focused long-term bodies of work that cut across the priorities and will be delivered through practical activity streams. Five measures of success have been agreed for each pillar, comprising high-level strategic indicators and related five-year targets that signal progress to achieving our objectives.

A suite of enabling initiatives underpin all three pillars. Paving the way for deeper strategic program work success, they have been designed to clear barriers and improve day-to-day operations across our faculty.

A detailed implementation plan sets out our actions, milestones and delivery teams.

Our education

Our education is experiential, purposeful, impactful and collaborative.

PRIORITY AREAS

- Work-ready graduates of choice
- Distinctive industry- and society-relevant curriculum
- Flexible and sustainable education delivery

STRATEGIC LEAD

Deputy Dean Education and Employability

Our research

Our research is outstanding and delivers innovative solutions for a flourishing Australia and planet.

PRIORITY AREAS

- Digital frontiers and intelligent systems
- Sustainable technologies and planetary health
- Bioengineering and health innovations

STRATEGIC LEAD

Deputy Dean Research and Innovation

Our community

Our community is ambitious, high-performing and enabled for success.

PRIORITY AREAS

- Empowered and supported staff
- Inclusive and collaborative culture
- Leadership in change and agility

STRATEGIC LEAD

Faculty Executive Director

Enabling initiatives

Remove barriers and improve day-to-day operations, paving the way for success in all areas of the faculty

Our Education

This pillar exists to ensure that every student who enters our faculty leaves transformed. Graduates are equipped not only with deep disciplinary expertise but also with the confidence and capability to apply it to the complex challenges shaping the world. We are creating an educational experience that prepares graduates to lead and thrive in the evolving world of work. In doing so, we reinforce the essential value of higher education by delivering visible impact for industry, communities and society.

Priority areas

WORK-READY GRADUATES OF CHOICE
Developing work-ready graduates through deep disciplinary expertise applied in authentic, real-world learning, with work-readiness scaffolded across the whole degree and graduates equipped to articulate the value they bring

DISTINCTIVE INDUSTRY- AND SOCIETY-RELEVANT CURRICULUM
Delivering distinctive curricula that is research-informed, shaped by industry and community partnerships, and experienced as a coherent Experiential, Purposeful, Impactful and Collaborative (EPIC) learning journey, anchored to real-world challenges, focused on value for students and staff

FLEXIBLE AND SUSTAINABLE EDUCATION DELIVERY
Ensuring that the way we deliver our education is inclusive and adaptable to diverse student needs, meeting students where they are, while maintaining hands-on science, technology, engineering, mathematics and medicine (STEMM) learning, supported by recognition of teaching excellence and targeted investment in staff capability

Strategic programs

CHAMPIONING STUDENT SUCCESS
Creates the conditions for every student to belong, engage, progress and succeed; delivers a coherent faculty-wide approach to transition, support and partnership; and strengthens the student experience from entry to graduation

EMPOWERING ALL EDUCATORS
Creates the conditions for consistently excellent education; defines what high-quality teaching looks like; builds staff capability to deliver the EPIC vision; and positions professional and technical staff as key partners in EPIC delivery

PARTNERING FOR FUTURE-READY GRADUATES
Embeds industry, alumni and community into learning at scale; ensures every student works on real problems with real partners; and delivers graduates with future-ready capabilities

DESIGNING PURPOSE-BUILT COURSES
Creates coherent EPIC learning journeys that connect inquiry, capability, assessment and real-world application across the whole degree; and ensures students clearly see the purpose, progression and impact of their learning

Our education will deliver a new EPIC education model: sector-leading student success, coherent curriculum architecture, structurally embedded industry partnerships and a teaching workforce that is skilled, supported and empowered.

At the core of our education is a commitment to broadening participation across our diverse student cohort. We are committed to engaging students from underrepresented backgrounds, including Indigenous, low-SES, regional, disability and first-in-family communities. We ensure that all students across campuses, pathways and transnational education contexts experience a supportive environment, tailored opportunities and a strong sense of belonging.

Underpinning our education is the Experiential, Purposeful, Impactful and Collaborative (EPIC) teaching and learning framework. It defines transformative learning journeys that emphasise rigorous hands-on experiences, sustained relevance and purposeful application to real-world challenges.

Activity streams

CHAMPIONING STUDENT SUCCESS
- Launching student success
- Students as partners
- The FSE experience standard

EMPOWERING ALL EDUCATORS
- Defining and embedding 'Students First' teaching quality
- Building staff capability through applied professional development
- Scholarship, innovation and evidence-informed teaching
- Technical and professional staff as EPIC enablers

PARTNERING FOR FUTURE-READY GRADUATES
- Real work, real problems, real partners
- Partnership infrastructure and activation
- Experiential learning and internship growth
- Academic capability, quality and sustainability

DESIGNING PURPOSE-BUILT COURSES
- EPIC learning journeys
- Capability and assessment for learning
- Course management and robustness

Measures of success

Within five years, every student, regardless of background, starting point, location or mode of study, will experience a coherent, purposeful and transformative EPIC learning journey that builds genuine capability and a strong Macquarie Advantage. Supported by qualified, empowered and future-focused staff, our student success, teaching quality, graduate outcomes and educator capability will improve year-on-year, reaching or exceeding sector benchmarks while scaling sustainably across our full education offering.

We will measure this pillar's success through:
1. student success, belonging and widening participation
2. teaching quality and student experience
3. educator capability and qualifications
4. curriculum coherence and industry relevance
5. graduate capability and employability.

Our Research

Outstanding research requires people, freedom, infrastructure and partnerships. The our research pillar represents the faculty's commitment to investing in these conditions to ensure a flourishing Australia and planet. By prioritising collaboration, research integrity and equitable access to opportunities, we will create an environment where innovation thrives and discoveries are made.

Priority areas

DIGITAL FRONTIERS AND INTELLIGENT SYSTEMS
Advancing trustworthy AI, data science, cybersecurity, quantum, photonics, semiconductors and autonomous systems as research frontiers, with tools and platforms that elevate research across the faculty

SUSTAINABLE TECHNOLOGIES AND PLANETARY HEALTH
Protecting ecosystems and enabling nature-positive solutions for liveable cities, clean energy, food systems and biosecurity, through world-leading ecological, environmental and engineering research, informed by Indigenous knowledges

BIOENGINEERING AND HEALTH INNOVATIONS
Developing innovative biomedical and health technologies, and advanced biotechnology solutions for biofabrication, waste valorisation and remediation

Strategic programs

DRIVING DISCOVERY TO EXCELLENCE
Creates a deliberate pathway from early-stage discovery to competitive funding success and public visibility; provides stage-gated seed funding for exploratory and interdisciplinary work; wraps professional support around competitive grants, prizes and major bids; and ensures the faculty's research reaches the audiences that matter

INVESTING IN OUR RESEARCHERS
Builds a deliberate pipeline from undergraduate to professor; converts high-performing students into graduate research candidates; grows and diversifies the cohort; supports early-career researchers through their transition to independent research; develops an Indigenous STEMM pipeline with Walanga Muru; retains homegrown talent; and recruits strategically

PARTNERING FOR SCALE AND IMPACT
Builds institutional infrastructure for sustained partnerships that grow in depth over time; deepens linkages with strategic university partners through dedicated champions and researcher mobility; builds industry, government and community partnerships that progress to multi-year programs and co-funded positions; and diversifies the funding base through philanthropy, commercialisation and research endowments

ENABLING OUTSTANDING RESEARCH
Ensures every researcher has the capability, infrastructure and standards to work at the highest level; delivers career-spanning development from graduate researcher to professor; consolidates digital research infrastructure with dedicated technical support and systematic AI integration; and embeds research integrity as standard practice across the research life cycle

Our research will deliver nationally competitive research performance, diversified funding, a growing talent pipeline and distinctive positioning in sovereign capability areas aligned to national priorities.

We are committed to driving a collaborative research culture across disciplines, ensuring the highest levels of research integrity; equitable access to opportunity; a high-quality graduate researcher experience; deliberate investment in early-career researchers whose work drives so much of the faculty's research vitality; and genuine attention to wellbeing and productive scholarship, sustained by a supportive, collegial environment.

Our ambition is guided by three priority areas, reflecting the alignment of our collective strengths with Australia's national priorities and global needs.

Activity streams

DRIVING DISCOVERY TO EXCELLENCE
- Seed funding for exploratory research
- Grant, prize and major bid support
- Researcher visibility and showcase

INVESTING IN OUR RESEARCHERS
- Growing the pipeline
- Indigenous STEMM pipeline
- Retaining homegrown talent
- Strategic recruitment

PARTNERING FOR SCALE AND IMPACT
- Strategic university partnerships
- Industry, government and community partnerships
- Diversifying the funding base

ENABLING OUTSTANDING RESEARCH
- Researcher capability and career development
- Research platforms and infrastructure
- Research integrity, ethics and responsible conduct

Measures of success

Within five years, we will be recognised for research excellence across our three priority areas, with impact, funding, partnerships and talent metrics growing year-on-year to support ambitious, curiosity-driven and translational research at scale.

We will measure this pillar's success through:
1. research excellence and impact
2. competitive and external funding growth
3. partnership depth and reach
4. research talent and retention
5. research culture, capability and collaboration.

Our Community

This pillar is built on a simple conviction: When people are empowered, included and developed, everything else follows. This extends beyond staff to the students, graduate research candidates and external partners who are integral to who we are and how we work. By recognising that empowered individuals drive collective success, our community fosters an inclusive environment where collaboration, belonging and personal development are the norm.

Priority areas

EMPOWERED AND SUPPORTED STAFF
Removing friction so staff can do their best work

INCLUSIVE AND COLLABORATIVE CULTURE
Fostering a culture where belonging, wellbeing and genuine collaboration are the norm

LEADERSHIP IN CHANGE AND AGILITY
Building leadership and adaptability at every level

Strategic programs

LEADING FROM WHERE YOU ARE
Builds leadership capability, from student representative and graduate researcher through to senior executive; establishes a shared language, structured development, mentoring and inclusive pathways; and invests in current leaders alongside emerging ones

SHAPING OUR FUTURE
Ensures we recruit and plan with intention; establishes a clear workforce vision connected to faculty priorities; brings consistency, fairness and transparency to recruitment; and equips hiring managers for rigorous, inclusive evaluation

PARTNERING FOR SHARED PURPOSE
Breaks down the barriers between academic and professional staff so we work as one faculty, one University and one community of partners; builds the structures and recognition that encourage every contributor to strengthen the whole; and creates two-way feedback channels that keep that contribution flowing both ways

Our community will deliver sector-leading engagement, a constructive operating culture, a diverse leadership pipeline at every career stage, and a workforce planned with intention.

Through bold leadership, genuine collaboration and targeted support, the faculty is investing in our people and the environment they need to excel. From removing systemic barriers to cultivating leadership at every level, our community champions an ambitious faculty that leads with purpose and creates sector-leading outcomes for education, research and engagement.

By prioritising the wellbeing, capability, and connectedness of our members, our community strengthens the faculty's ability to meet the challenges of tomorrow and deliver visible, sustainable impact on a global scale.

Activity streams

LEADING FROM WHERE YOU ARE
- Shaping a shared language of leadership
- Building leadership capability
- Developing people where they are from day one
- Diversifying who leads and how

SHAPING OUR FUTURE
- Planning our workforce with intention
- Making recruitment consistent, fair and transparent
- Building hiring manager capability and confidence

PARTNERING FOR SHARED PURPOSE
- Building expertise and making it visible
- Creating the structures to work well together
- Recognising and rewarding partnership

Measures of success

Within five years, every person – regardless of role, career stage or background – is valued, visible and set up to succeed, with engagement, equity and workforce planning metrics improving year-on-year and meeting/exceeding sector benchmarks.

We will measure this pillar's success through:
1. engagement and belonging
2. leadership capability and culture
3. visibility and collaboration
4. recruitment and retention
5. workforce planning.

Enabling initiatives

A suite of enabling initiatives integrate with strategic programs in FSE Strategy 2026–2030. These are practical changes to how we work day-to-day, carefully designed to remove barriers and to improve operations for everyone, paving the way for deeper strategic program success and lasting impact.

Organised into four domains – in alignment with the University's *Service Excellence Framework* – activation of the enabling initiatives will create an ecosystem where innovation and operational excellence thrive.

Enabling initiatives will deliver improvements across pillars or focus improvements within individual pillars.

	Our education	Our research	Our community
People	Embed Indigenous cultural safety, success and belonging.		
	Standardise educator and researcher induction and onboarding.		
	Establish teaching community of practice and academic development ecosystem.		
	Develop AI capability framework.		
		Establish psychological safety and wellbeing infrastructure.	
			Embed Working Well Together framework.
Process	Review and reform Faculty Workload Model.		
	Enhance the research-teaching nexus.		
	Operationalise EPIC learning framework and embed ongoing course enhancement.	Review research schemes, programs and infrastructure.	Audit and uplift staff communications channels.
	Recognise and resource educational capacity.	Establish Faculty Fellows scheme.	Drive process simplification.
	Embed Universal Design for Learning (UDL) as baseline standard.		
Technology		Uplift digital tools, systems access and platforms.	
	Implement curriculum mapping and design tools.		
Data and Insights	Build data analytics and insights capability.		
	Activate alumni and partnership databases.		

PEOPLE
We invest in our people:
how we organise, support and empower our staff, with clear roles, effective communication and a real commitment to career growth and capability development

PROCESS
We simplify how we work:
well-defined, streamlined and integrated processes that are clearly communicated and improved continuously, so effort goes into the work rather than the workarounds

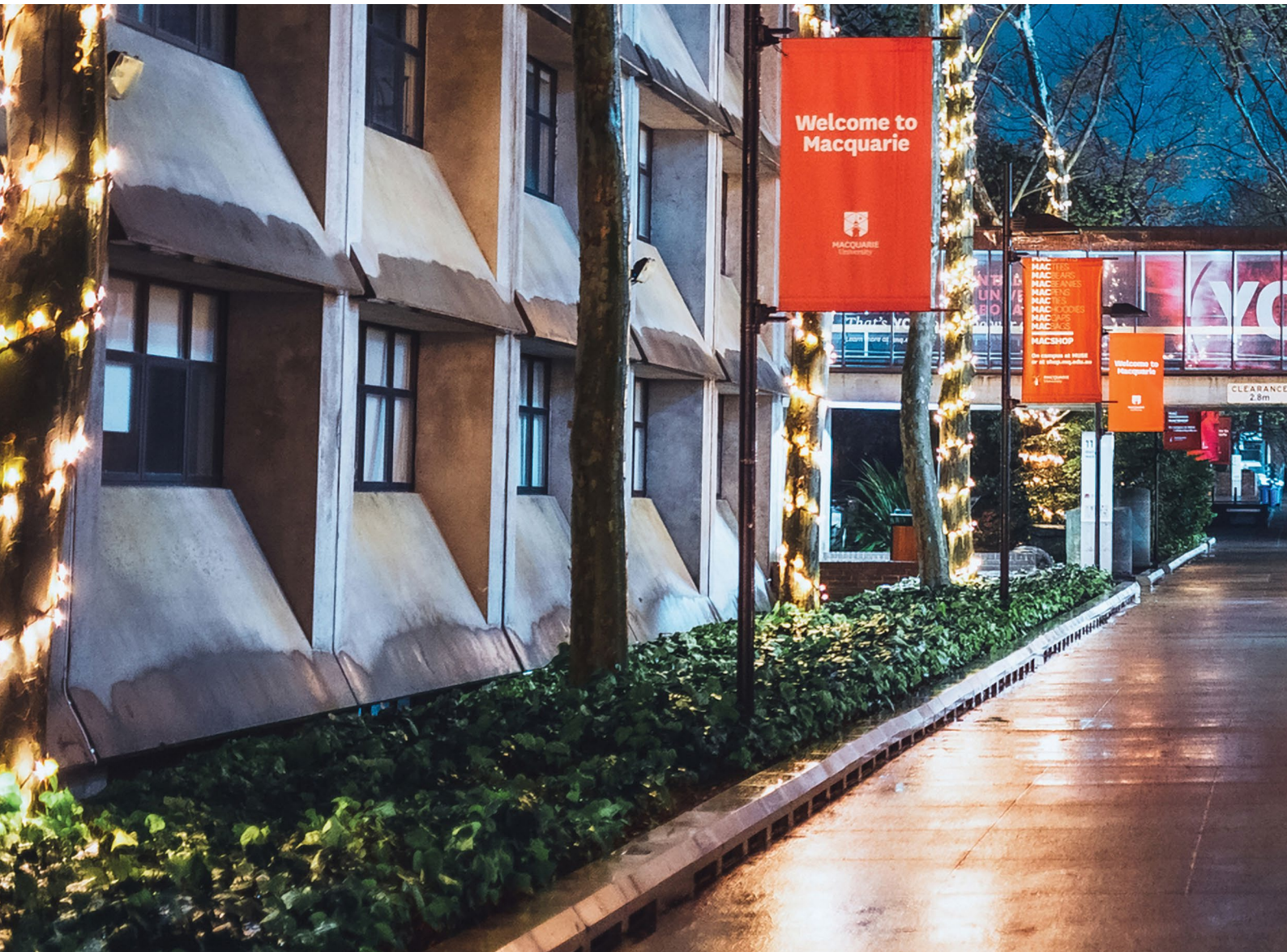
TECHNOLOGY
We give people better tools to do their best work:
systems that work with our people and processes rather than against them, supporting good decisions and reliable delivery

DATA AND INSIGHTS
We make what people need easy to find and access:
reliable, accessible quantitative and qualitative analytics that inform decisions, surface insight and let us measure how we're going

Implementation

The FSE Strategy 2026–2030 provides a dynamic and responsive foundation for enhancing our faculty's impact – a living framework, not a fixed plan. Delivery is phased and realistic: early, visible progress in year one, with longer-term transformation built on solid foundations. Each year we review and refresh the strategy in response to what we learn and what changes around us. As work completes, a reserve of ready project ideas is activated to sustain momentum across its five-year life. Where the University already has a program, tool or framework that does the job, we build on it rather than start again.

FSE Strategy 2026–2030 connects strategy with action, keeping us focused on what matters most to our people, students and partners.



HOW THE WORK IS LED

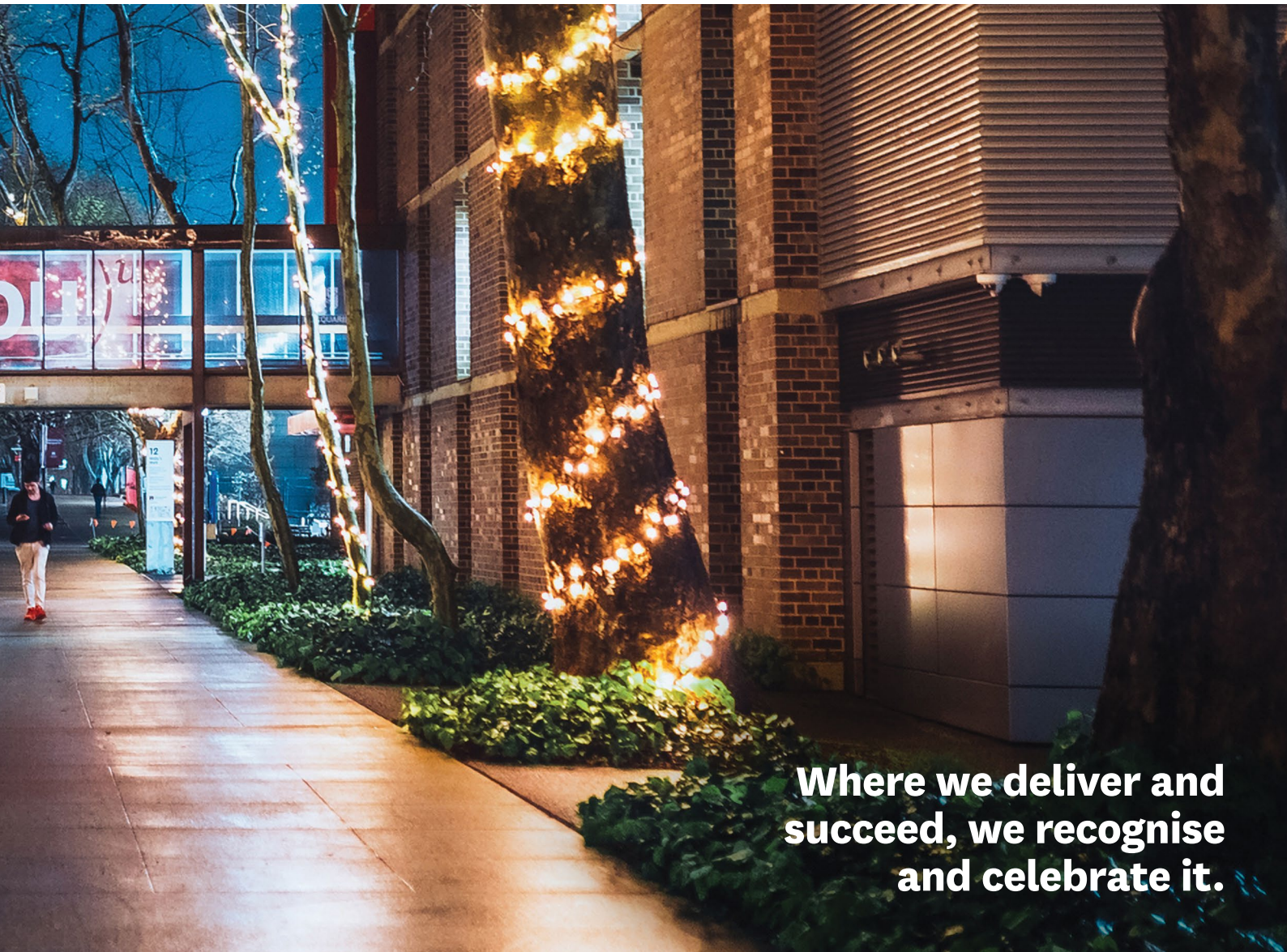
Each strategic program has a lead and each enabling domain – People, Process, Technology, and Data and Insights – a domain coordinator. Change champions support delivery of work packages across activity streams and enabling initiatives. Cross-school representation keeps this grounded in the realities of every school and department, so decisions are informed by the people closest to the work.

HOW WE TRACK PROGRESS

Each pillar has five measures of success, baselined in year one and tracked year-on-year against sector benchmarks and to agreed targets. Behind the strategy, a live implementation plan holds the operational detail – costings, activity phasing and prioritisation across short-term (0–1 year), medium-term (1–3 years) and long-term (3–5 years) horizons. Progress is reported transparently through dashboards and yearly summaries to keep colleagues informed. Annual reviews and health checks make sure effort and resources flow to what's working so we stay focused on fewer things, each done well.

HOW YOUR VOICE KEEPS SHAPING IT

The FSE Strategy 2026–2030 was co-designed with staff, students and partners, and stays relevant only if that conversation continues. Periodic surveys ask the people leading and delivering the change, and those affected by it, whether the strategy is working: whether they understand it, feel heard, have the tools and time to engage, and see it holding true over time. This feedback directly shapes what we adjust, activate, pause or retire, so strategic programs, activity streams and enabling initiatives keep responding to real pain points and emerging opportunities rather than assumptions. A standing feedback channel provides opportunity for anyone to raise new ideas or pain points for consideration in the next strategy refresh. Where something isn't landing, we change it.



Where we deliver and succeed, we recognise and celebrate it.

FIND OUT MORE

Macquarie University
Wallumattagal Campus
Macquarie Park NSW 2109
T: +61 (2) 9850 7111

mq.edu.au

PHOTOS: Chris Barlow, Kyisoe Han

CRICOS Provider 00002J
TEQSA Provider PRV12032
FSE37261

MACQUARIE
University
SYDNEY·AUSTRALIA