

Student Residences Project

Through extensive market research and analysis, it was confirmed that the University is in need of developing additional on-campus, purpose-built student accommodation to supplement the current offerings and provide students with further accommodation choices. The project is currently in the feasibility stage and it is anticipated that a final business case will be available during the second half of 2019 for consideration by Senate.

Student Life Plan

Preparing graduates for life's uncertainties defines the student experience at UQ—graduates who embody curiosity, passion and a hunger for learning throughout their lives. A Student Life Plan seeks to help students engage with that experience by improving accessibility, services and opportunities, fostering wellbeing, and engendering a sense of belonging with UQ and its community.

The University has embarked upon the process of adopting a UQ Student Life Plan, which will act in tandem with a UQ Teaching and Learning Plan. Together, these two plans will guide enhancement of the UQ student experience, and support UQ's Strategic Plan and Student Strategy. The *UQ Student Life Plan 2018–2021* will be where UQ records its goals, approaches, and actions that guide our collective commitment to helping our students with life during their studies.

The Plan focuses on aspects of student life that have the highest impact for large numbers of students. It will naturally highlight areas for development and improvement, but also capture the tremendous efforts already made by staff and students.



Work began on the development of two new student recreational complexes at the St Lucia campus in 2018.

▶ Related initiatives for 1.5	
1.1 Employability framework	pg 17
1.2 Student Strategy	pg 17
1.4 Teaching and Learning Plan	pg 19
4.2 Childcare	pg 29

1.6 Adjust our approach to the development of educational offerings so that there is a greater focus on the whole program.

Online master's degree

In October 2018, UQ launched a fully online postgraduate coursework program through the edX platform, the Online Master's Degree (OMD) in Leadership in Service Innovation. This program adopts a cross-disciplinary perspective aimed at developing the transformational mindset needed for leaders in a rapidly changing world. The program is a natural progression to UQ's activities in the eLearning space, following the popularity of its MOOCs and four MicroMasters, which have achieved more than 2.5 million course registrations.

New and enhanced programs

In 2018, UQ introduced several new programs in response to local and international demand:

- Bachelor of Advanced Business (Honours)
- Bachelor of Computer Science
- Graduate Certificate in Magnetic Resonance Imaging and Positron Emission Tomography
- MicroMasters in Sustainable Energy, and Corporate Innovation (via UQx)
- Master of International Relations/ Master of Peace and Conflict Studies
- Master of Entrepreneurship and Innovation
- Master of Development Economics/ Master of Economics and Public Policy
- Master of International Economics and Finance/Master of Commerce.

The Bachelor of Engineering (Honours)/ Master of Engineering became accessible from first year; the Master of Engineering and Master of Engineering Science offered majors for the first time, including in Fire Safety Engineering; and a Mining Leaders Program, a blended learning professional development program offering credit and pathways towards the existing Graduate Certificate in Executive Leadership and MBA qualifications, was launched.

▶ Related initiative for 1.6	
5.4 HDR administration	pg 34

1.7 Explore opportunities to make our academic calendar more flexible.

Program Architecture Review

The Program Architecture project, launched in 2018, aims to enhance the UQ student experience by reviewing and simplifying program structures and teaching-related policies and procedures. This will enable a more flexible and sustainable approach to program design in order to foster greater responsiveness to a changing world and greater interdisciplinary collaboration. It will be achieved through the delivery of a streamlined portfolio of programs and courses underpinned by rules and policies that are enabling, consistent and transparent. In addition, the work undertaken will examine the extent to which a simplified program architecture can be designed to enable a more agile program structure with an increased potential for interdisciplinarity, including the possible integration of cross-cutting courses and other kinds of innovative learning activities.

Expected benefits include:

- improving retention and progression
- improving timetabling and facilitating the transition to a flexible academic calendar
- improving the quantity and quality of student interaction with staff
- fewer student appeals based on administrative error
- more timely and accurate responses to student enquiries
- automated advice based on consistent policies
- greater support for complex learning needs and mental health
- greater emphasis on program learning outcomes that equip students with core skills vital for future success.

▶ Related initiative for 1.7	
1.6 Online master's degree	pg 20

REVIEW OF ACTIVITIES

2. Enhancing our high-quality research by improving our capacity to **collaborate** to achieve greater **impact**

While rightly proud of our research excellence, over the coming years we need to ensure that our research remains collaborative and continues to achieve great impact. To succeed in our focus areas of enabling healthy ageing, ensuring food security, supporting a resilient environment, developing technology for tomorrow, and positively transforming society, we will be outwardly focused, while at the same time working across disciplines internally.

KEY PERFORMANCE INDICATORS

RESEARCH IMPACT

An increase in normalised citations

Category	2012	2013	2014	2015	2016	2017 ²
UQ's rank within Go8 for CNCI score ²	2	2	2	2	6	6
UQ's Go8 rank on the proportion of publications that sit in the top 10 per cent globally ⁴	2	2	2	2	2	4

Rank in the top 3 in Australia on national competitive grants income

Competitive Grants Category 1 research income ⁵	2012	2013	2014	2015	2016	2017
UQ's national rank	3	2	2	2	2	2

Rank in the Top 65 global universities across all influential rankings

UQ's position in global university rankings	2014	2015	2016	2017	2018	2019
Academic Ranking of World Universities (ARWU) ⁶	85	77	55	55	55	n/a
Times Higher Education World University Ranking ⁷	63	65	=60	=60	65	69
QS World University Ranking ⁸	43	=43	=46	=51	=47	48
Performance Ranking of World Scientific Papers ⁹	56	45	43	41	43	n/a
U.S. News Ranking ¹⁰	-	47	52	52	45	42

An improvement in our global reputation

Times Higher Education Academic Reputation Survey results ¹	2016	2017	2018
Research reputation votes: UQ rank within Go8	5	4	5

1 Source: Times Higher Education Datapoints.
2 Source: Incites Dataset within Web of Science and is based on a rolling six-year window; the document types included in this metric are Article, Review or Note.
3 Figures for 2018 are preliminary. Data will be finalised in mid-2019.
4 Based on performance around citations.
5 Source: Department of Education.
6 Source: Academic Ranking of World Universities.
7 Source: Times Higher Education.
8 Source: Quacquarelli Symonds.
9 Source: National Taiwan University.
10 Source: U.S. News.

2.1 Build a One UQ approach to acquiring, maintaining and utilising research infrastructure.

Research infrastructure model

In 2018, UQ transformed how internal and external researchers identify and access research infrastructure. For increased strategic operations and greater visibility, the University's research infrastructure was centralised and renamed as Central Research Platforms, a framework able to support future high-end research infrastructure and equipment. UQ is currently in the process of selecting a software solution that will give researchers and external collaborators ease of access to UQ's research infrastructure resources.

Transferring research data

A tangible step-change in supporting the research community is the reduction in time to transfer data generated by our research community. In 2018, UQ became the first university in Australia to install a 100 gigabit per second network switch, which will enable our Lattice Light Sheet Research Project to handle the large volumes of data expected to be generated by a revolutionary new microscope being installed at the Institute for Molecular Bioscience. The Lattice Light Sheet Microscope data collection—a new modality for 4D imaging of live biological specimens, ranging from individual molecules to small organisms—is expected to generate up to seven terabytes of imaging data per day. To move one terabyte of data at the present rate (one gigabit per second) can take approximately two hours; however, the upgraded links will reduce that transfer time to just over one minute.

▶ Related initiatives for 2.1	
1.3 IT capital investment	pg 18
5.2 IT governance	pg 32

2.2 Actively encourage internal collaboration between researchers from different disciplines and organisational units.

Research networks

Greater collaboration across and between different disciplines and organisational units allows our researchers to better tackle the increasingly complex challenges facing society. These global grand challenges increasingly require multi-disciplinary, multi-institutional, multi-sector solutions.

In 2018 the University Senate approved a new type of organisational entity, the research network. Research networks facilitate collaborative multi-disciplinary research that has a direct societal benefit. Members of a research network share a common research goal but come from various faculties and institutes, facilitating collaboration across disciplines and bringing diverse perspectives. The resulting entities will profile the research strengths of the University in an accessible and visible way that will be easily discoverable to potential collaborators and partners.

▶ Related initiatives for 2.2	
3.4 CX implementation	pg 26
4.3 Early Career Researcher development	pg 29



UQ Vice-Chancellor and President Professor Peter Høj and IITD Director Professor V Ramgopal Rao signing the historic UQID-CoR agreement in Delhi, formalising a mutual goal to build diverse and sustainable partnerships across the Indian Ocean.

2.3 Actively pursue strategic and high-quality international collaborations in research and education.

The University of Queensland – Indian Institute of Technology-Delhi College of Research (UQIDAR)

In September 2018, UQ signed an agreement with the Indian Institute of Technology-Delhi College of Research (IITD) to establish the Academy of Research (UQIDAR), which aims to leverage shared resources and expertise across industry, government and academia between nations. The key feature of the partnership is a joint PhD program involving all UQ faculties and research institutes. UQIDAR scholars will typically spend three years at IITD and one year at UQ, although some students will spend three years at UQ and one year at IITD. The Academy is expected to graduate more than 360 students within the next 10 years, with approximately 50 due to begin their programs in 2019.

UQ–University of Exeter (QUEX)

The UQ and University of Exeter partnership, through the QUEX Institute, has progressed significantly since the agreement was signed in June 2017. The first cohort of the joint PhD program commenced with five students at each of the universities, while another 10 students have been awarded places in the 2019 round. A QUEX Institute

Board was formed to guide the strategic direction of the partnership and act as a selection committee for QUEX Institute grant programs, including the Initiator Grants Scheme and Professional Services Fellowship Scheme. The *QUEX Institute Partnership Implementation Plan 2018–2020* was also developed and endorsed.

Joint doctoral supervision

UQ signed new joint doctoral supervision agreements with The Technical University of Munich, Germany, during the year and with Sao Paulo State University (UNESP), Brazil, as important mechanisms to support increased research collaboration with these key partners. UQ has been selected as one of UNESP's strategic partners for the Print-CAPES, a new funding program for the internationalisation of Graduate Programs and Research in Brazil. The focus of the program is on the mobility of PhD students and faculty to foster the impact of the research produced in the country. The implementation of the Print-selected projects began in November 2018, with a running time of four years.

In April 2018, the Universidade de Sao Paulo (USP) also invited UQ to be a key strategic partner for the CAPES–Print Program, and an agreement is currently being drawn up.

▶ Related initiatives for 2.3	
1.1 Siemens software grant	pg 17
3.1 New partnerships committee	pg 25
6.3 Enhancing capability	pg 36

2.4 Actively encourage researchers to partner with industry, government and the community both within Australia and internationally.

Dow Centre partnership

Thanks to a \$10 million investment by The Dow Chemical Company, the University established the UQ Dow Centre for Sustainable Engineering Innovation in 2014, creating a hub of excellence for collaborative research, with three flagship programs: Rapid switch, Low carbon dioxide iron making, and Low carbon dioxide hydrogen and fuels.

Throughout 2018, the Dow Centre made strong progress across these three programs, and also advanced important research to develop next-generation fertilisers that decrease environmental degradation; develop thin, flexible printed batteries for use in everyday products; and explore affordable, reliable



Siemens Australia Chairman and CEO Jeff Connolly, Queensland Premier Anastacia Palaszczuk and UQ Vice-Chancellor and President Professor Peter Høj announcing the Siemens-UQ partnership at UQ St Lucia.

and sustainable energy systems to effect change in impoverished communities in developing nations.

The Dow Chair in Sustainable Engineering Innovation, a prestigious research and teaching position in the School of Chemical Engineering, was also created. The Centre also received a \$1.5 million donation from the Trevor and Judith St Baker Family Trust to fund the Tritium Visiting Fellow, a postdoctoral research position that will focus on advancing the performance, economics and uptake of electric mobility.

Industry 4.0 Energy Testlab

In December 2018, UQ was advised it had been successful in applying for an Industry 4.0 Energy Testlab. Industry 4.0 refers to the fourth industrial revolution involving the connection of the physical world with the digital world and its impact on industry. The Testlab is to be one of six across Australia—an initiative of the Industry 4.0 Advanced Manufacturing Forum funded by the Australian Government and hosted by the Australian Industry Group. Each Testlab is focused on a particular industry sector and will provide a physical space where businesses and researchers can trial, explore and showcase Industry 4.0 technologies.

▶ Related initiatives for 2.4	
1.1 Entrepreneurship and Innovation (E&I) Strategy	pg 16
1.1 Siemens software grant	pg 17

2.5 Develop a more consistent approach to higher degree by research (HDR) training with a focus on ensuring students build research, transferable and professional skills.

Industry Cohort PhD Program

The Graduate School provides strategic HDR scholarships to facilitate greater connectivity and involvement with industry and end-user partners. Projects are designed in partnership with industry and involve a cohort of students working on projects that are aligned with the interests of the industry partner and are consistent with an engagement and impact agenda. The partnership with Boeing, which resulted in the establishment of the Boeing Research and Technology–Australia Technology Centre at St Lucia, is an example of this. The main features of this strategy include advisory teams that feature staff from the industry end-user, collaborative funding arrangements, and placement opportunities for HDR students.

HDR oral examination implementation

UQ is committed to producing high-quality, adaptable research graduates and leads the sector with its implementation from 2018 of mandatory oral examinations (Viva Voce). HDR candidates at UQ now participate in an oral examination with two expert external advisers, in addition to an examination of a thesis, to ensure that UQ graduates not only produce quality research outputs but also communicate their knowledge and contribution to research.

▶ Related initiatives for 2.5	
1.1 Career Development Framework	pg 17
5.4 HDR administration	pg 34

2.6 Invest in the development of systems and processes for the storage and publication of research data, including the capability for this to benefit future researchers.

UQ Research Data Manager (UQRDM)

This project within the Research Management Business Transformation program is providing UQ researchers and higher degree by research students with a platform to securely store, share, re-use, collaborate on, and manage their projects' research data.

UQ commenced the expansion, augmentation and consolidation of storage services through the 'One Storage' service, which enables UQ to future-proof research and corporate storage requirements, while reducing the hardware footprint with a simplified technology stack. High-speed corporate storage is now in place, alongside high-speed research cache storage used by the UQRDM service.

▶ Related initiative for 2.6	
5.3 Research Management Business Transformation Program	pg 33



In July 2018, Dow Chair in Sustainable Engineering Innovation's Professor Chris Greig commenced two years as the Andlinger Visiting Fellow in Energy and Environment at Princeton University, representing UQ to lead the Rapid switch initiative.

2.7 Develop flexible models to effectively utilise the institution's intellectual property.

UniQuest

UniQuest is Australia's leading university commercialising entity, managing UQ's intellectual property. It consistently benchmarks in the world's top five per cent for university-based technology transfer offices.

Since 1984, UniQuest has built, commercialised and managed an extensive intellectual property portfolio, including more than 1500 patents and 100 companies resulting from university-based discoveries. In August, UniQuest celebrated 100 startups with an award ceremony at Customs House.

Since 2002, UniQuest and its spin-out companies have raised more than \$700 million to help take UQ technologies to the market. More than \$625 million in commercialisation revenue has been generated by UniQuest for UQ. Gross sales of products using UQ technology licensed by UniQuest total more than US\$17 billion since 2007.

Among others, UniQuest was responsible for commercialising the HPV vaccine Gardasil®.

the Triple P – Positive Parenting Program, the image correction technology used in most of the world's MRI machines, and a potential new treatment for pain through spin-out company Spinifex Pharmaceuticals Pty Ltd—a biopharmaceutical company acquired recently in one of Australia's largest ever biotech deals. At present, UniQuest has four molecules and two devices in clinical trials.

JKTech

As the technology transfer company for the University's Sustainable Minerals Institute (SMI), JKTech provides technical consulting and training services (in mining, geometallurgy and processing), laboratory services, specialist testing equipment, specialised laboratory tests and simulation software products.

Significant activities and achievements during 2018 included:

- JKSimMet software increasing its client numbers to more than 60 per cent of the global market
- JKTech's team completing client work in more than 17 countries
- executing a substantial Rio Tinto global contract covering 17 mine sites to roll out a new blast movement model (Value Based Ore Control) that JKTech is commercialising from SMI research.



The prestigious 2018 Clarivate Analytics 'Highly Cited Researchers' list featured UQ researchers 28 times, with one UQ researcher, Professor David L Paterson, featuring twice. This placed the University second in Australia and on par with prestigious international institutions such as California Institute of Technology and Princeton University. Researchers on the list—including Professor Naomi Wray from UQ's Institute for Molecular Bioscience and Queensland Brain Institute, pictured above—have been identified as the world's most influential and impactful scientists and social scientists through consistently producing top-cited papers within Essential Science Indicators research fields.



UQ's Triple P – Positive Parenting Program has been delivered in 28 countries around the world, in 22 languages – including Farsi, Japanese and Mandarin (photo: Getty Images/GlobalStock).

REVIEW OF ACTIVITIES

3. Building engaged and strategic partnerships with a broad range of local and global networks

Engaging and collaborating with the community, industry, government and other research innovators is critical to UQ's capacity to meet the rapidly changing needs of society. We aim to enhance our approach to external engagement with a partnership framework, customer relationship management system, deeper international connections, diverse income sources and ongoing commercialisation interests.



Research is a vital aspect of the University's business—pictured here is Associate Professor Yasmina Sultanbawa from the Queensland Alliance for Agriculture and Food Innovation working on the commercial potential of food preservation through the Kakadu Plum.

3.1 Build a centralised resource to support, develop and manage significant partnerships guided by a clear partnership framework.

New partnerships committee

In 2018, UQ introduced a new Partnership Framework that adopts a 'One UQ' approach to the development of strategic industry partnerships. Building on the current Partner Engagement Strategy for international higher education institutions, the new framework seeks to ensure a more coordinated approach to building and strengthening collaborations with industry partners and ensuring that UQ maximises opportunities for the whole institution. For UQ's valued industry partners, the framework will streamline the process of engaging with UQ (particularly with first contact), support delivery of services, and ensure that UQ provides a comprehensive, consolidated offering to match to each partner's unique needs. Under the new framework, a Strategic Engagement and Partnerships Committee was established to help coordinate activity related to UQ's strategic industry partnerships. The Committee includes senior representatives from UQ's research, teaching and engagement portfolios to ensure broad representation and connectivity between all functional areas.

KEY PERFORMANCE INDICATORS

PARTNERSHIPS

Rank first in Australia for attracting research income from industry

UQ research income ¹	2012	2013	2014	2015	2016	2017
UQ's national rank on research income from industry	1	2	1	2	2	1

An increase in the proportion of our publications that are co-authored with external international or industry partners

UQ publications with external co-authors ²	2012	2013	2014	2015	2016	2017 ³
UQ's rank within the Go8 for the percentage of publications with an international co-author	4	6	5	6	6	4
UQ's rank within the Go8 for the percentage of publications with a non-academic co-author	7	7	7	7	5	5

¹ Industry includes research income from the following sources: non-Commonwealth schemes, rural R&D, Australian and international organisations, and Cooperative Research Centre (CRC) R&D income received from non-government sources.

² Source: Incites Dataset within Web of Science and is based on a single full year only; the document types included in this metric are Article, Review or Note.

³ Figures for 2018 are preliminary. Data will be finalised in mid-2019.

► Related initiatives for 3.1

1.1 Entrepreneurship and Innovation Strategy	pg 16
1.3 IT capital investment	pg 18
2.5 Industry cohort PhD program	pg 23
5.3 ExCom business transfer from UniQuest	pg 33
6.2 Research pipelines	pg 36