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

Program Architecture 2 (PA2)

PA2 delivers outcomes that enable the sustainability and relevance of UQ's portfolio of offerings to provide maximum value for students; staff, employers and the broader UQ community. A significant undertaking across all faculties, PA2 will enable a streamlined framework that facilitates the continuous evolution of UQ offerings to deliver quality programs that maximise graduate outcomes and employability.

Furthermore, the simplification of UQ's program structure and associated processes, policies and procedures aims to improve the student experience, knowing that some students can find current policies and rules complex and difficult to navigate. This process was implemented in accordance with the ongoing Australian Qualifications Framework review and will be extended to postgraduate programs in 2021.

PA2 has developed and implemented a management dashboard tool for reviewing and analysing offerings; and new program and course design policies enabling a consistent university-wide review of offerings. Resultant curriculum changes are designed to deliver the best possible graduate outcomes in response to the changing needs of the future workforce and to make it easier for students to identify learning opportunities and efficiently plan their study.

The successful implementation of a new curriculum management system, Jac, provides a single information source about programs, plans and courses. By sharing data with other systems, Jac will prevent double entry of information, enable automation of several downstream processes, and improve governance and management efficiency.

PA2 will continue to enhance the student experience in 2021, with further work planned to provide opportunities for updating the electronic course profile system, automating program planning, checking progression, and processing credit.

New and enhanced programs

In 2020, UQ introduced several new programs in response to local and international demand, including:
- Bachelor of Biotechnology
- Bachelor of Biotechnology (Honours)
- Bachelor of Computer Science (Honours)
- Bachelor of Computer Science/Bachelor of Business Management
- Bachelor of Computer Science/Bachelor of Commerce
- Bachelor of Computer Science/Bachelor of Laws (Honours)
- Bachelor of Computer Science/Master of Cyber Security
- Bachelor of Computer Science/Master of Data Science
- Bachelor of Design
- Bachelor of Engineering (Honours)/ Bachelor of Design
- Bachelor of Environmental Science
- Bachelor of Environmental Science (Honours)
- Graduate Certificate in Mental Health Nursing
- Graduate Diploma in Mental Health Nursing
- Master of Urban Development and Design.

Twenty-two programs ranging from associate degree to higher doctorate level were also discontinued.

UQx, the University's provider of Massive Open Online Courses (MOOCs), launched several new programs, including the one-year Professional Certificate in Foundations of Modern Mining, which was developed in collaboration with industry and Curtin University and designed for mining workers. UQx's MOOCs attracted a record 17,420 verified enrolments in 2020.

UQ's first shorter form credentials policy was endorsed in 2020 with a number of system changes ready for early 2021 enrolment.

Mental health strategy

Delivering on the objectives of the *UQ Mental Health Strategy (2018–2020)* saw the promotion of the wellbeing of students and staff in a 'whole of university' approach to supporting the UQ community. The well-established framework, with practical measures to assist, ensured UQ was able to respond to 2020's unprecedented challenges, helping guide resources and early-intervention measures to maximise capacity to respond to psychological distress and crises as the year progressed. Evaluation of the strategy also commenced.

Embedding Aboriginal and Torres Strait Islander culture into the curriculum

Delivering on the Reconciliation Action Plan saw the University's Teaching and Learning Committee establish a working party to progress more widespread embedding of Indigenous knowledges and perspectives into the curriculum.

1.7 Explore opportunities to make our academic calendar more flexible.

UQ2U blended learning

UQ2U supports the development of high-quality online and high-value on-campus active blended learning experiences that meet the needs of students – offering greater flexibility, improved outcomes and personalised learning, while simultaneously uplifting the capability and capacity of UQ's academic community. In 2020, due to the COVID-19 pandemic's impact, the UQ2U program team extended its support and expertise in digital course design and learning technologies to the broader UQ academic community while maintaining existing project engagements. UQ2U courses currently reach more than 30,000 student enrolments through the redesign of more than 70 courses, and focus on developing genuine partnerships between academics, tutors, students, eLearning designers, project managers, eLearning officers, learning advisers and librarians.

Shorter form credentials

Following preliminary investigations in 2019, UQ developed an Alternative Credential framework for governance, a system for delivery that will provide a seamless interface for stakeholders, and a collaboration that aims to increase the global recognition of UQ's offerings.

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 leading healthy lives, building better bioeconomies, achieving resilient environments and livelihoods, designing technology for tomorrow, and transforming societies, we will be outwardly focused, while at the same time working across disciplines internally.

Key performance indicators
Research impact

An improvement in our global reputation

Times Higher Education Academic Reputation Survey results[1]

	2018	2019	2020
Research reputation votes: UQ rank within Go8	5	6	6

An increase in normalised citations

Category Normalised Citation Impact (CNCI) score[2]

	2014	2015	2016	2017	2018	2019[3]
UQ's rank within Go8 for CNCI score	2	2	4	6	6	7
UQ's Go8 rank on the proportion of publications that sit in the top 10 per cent globally[4]	2	2	2	3	5	5

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

Competitive Grants Category 1 research income[5]

	2014	2015	2016	2017	2018	2019
UQ's national rank	2	2	2	2	2	1

Rank in the Top 65 global universities across all influential rankings

UQ's position in global university rankings

	2016	2017	2018	2019	2020	2021
Academic Ranking of World Universities (ARWU)[6]	55	55	55	54	54	n/a
Times Higher Education World University Ranking[7]	=60	=60	65	69	66	62
QS World University Ranking[8]	=46	=51	=47	48	47	46
Performance Ranking of World Scientific Papers[9]	43	41	43	40	39	n/a
U.S. News Ranking[10]	52	52	45	42	42	=36

1   Source: *Times Higher Education* Datapoints.
2   Source: Incites Dataset within *Web of Science* and is based on a rolling 6-year window; the document types included in this metric are Article, Review or Conference Paper.
3   Figures for 2019 are preliminary. Data will be finalised in mid-2021.
4   Based on performance around citations; source *Incites*.
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 and project management framework

Following the establishment of the Central Research Platforms in 2018; and a Project Governance and Management Framework in 2019; governance, assurance, monitoring and oversight of UQ's infrastructure portfolio was further effected in 2020. The main achievement was the presentation of a Plant Growth CRP proposal, and the continued work on drafting industry engagement plans.

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

Research Week
Although Research Week and the associated Research Capability Showcase were cancelled in 2020 because of the pandemic, several opportunities normally provided to celebrate and connect UQ researchers and showcase their research achievements continued. Highlights included UQ's involvement in the launch of the Engagement Australia Excellence Awards, the continuation of UQ Industry Connect, and the hosting in virtual format of the UQ Three Minute Thesis competition.

Global Change Institute (GCI)
The Global Change Institute is a transdisciplinary institute that brings together researchers from across the University to work with industry, government and the community to tackle global grand challenges. The Global Change Research Network (GCRN) program was launched and received 27 applications from across UQ's faculties and institutes. Four GCRNs were awarded and a further 7 have been identified as 'pipeline GCRNs'. In 2020, a new GCI Director was recruited.

▶ Related initiatives for 2.2	
1.4 Science Precinct	pg 21
3.4 CX program	pg 28
4.3 Co-leveraging to build research capacity and capability	pg 30

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

The University of Queensland – Indian Institute of Technology Delhi Academy of Research (UQIDAR)
UQ and the Indian Institute of Technology Delhi (IIT-D) are working together to develop a substantial transnational collaborative research program with the flagship initiative of a joint-PhD program.

During 2020, work was impacted by the pandemic, which resulted in delays in student commencements. However, business development activities and the establishment of industry partnerships have continued to progress, following the appointment of a new CEO in July. By January 2021, student numbers will reach 50 students.

UQ–University of Exeter (QUEX Institute)
The Universities of Queensland and Exeter continued to grow their existing partnership through the QUEX Institute (QUEX). QUEX aims to strengthen research and industry collaboration, and to influence public policy. Since 2018, QUEX has enrolled 29 joint PhD scholars, launched 26 grant schemes, and held 2 international symposia and one virtual symposium. The collaboration has secured $24 million in external funding and published 34 joint publications. In 2021, QUEX will focus on 3 interdisciplinary themes: healthy living, global environmental futures, and digital worlds and disruptive technologies.

▶ Related initiatives for 2.3	
2.2 Global Change Institute	pg 24
2.4 Research partnerships	pg 24
3.1 Partnerships Framework	pg 27
6.3 Enhancing capability	pg 37

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

Research partnerships
Through the challenges of the pandemic period, UQ continued to work with our established industry partners and to forge new relationships. Overall, the number of agreements through the Research Partnerships Office was more than 4,300 in 2020, approximately 10 per cent higher than the 2019 total of 3,952, and significantly higher than 2018's 3,569.

The COVID-19 vaccine project sponsored by the Coalition for Epidemic Preparedness Innovations, with funding support from the Queensland and Australian Governments, was a highlight of the year. In addition to government support, more than 2,500 individual major and smaller donors supported this multiparty collaboration involving over 70 industry and research partners in Australia and across the globe. Regrettably, production of the vaccine will not be going beyond Phase 1 trials.

UQ Industry 4.0 TestLab
In partnership with Siemens Australia and the Federal Government, the UQ Industry 4.0 Energy TestLab was launched in November with the aim of enhancing global knowledge on electricity networks. This facility is part of a national network of 5 other Australian university Industry 4.0 TestLabs, each with a different focus area.

UQ Industry Connect
Following its launch in 2019, this new initiative proceeded with a range of virtual events with partners in 2020. Its goal was to create a pathway for forming strategic industry-UQ partnerships by ensuring that industry has access to a simple, coordinated entry point to support collaboration discussions and interaction with UQ's wide range of expertise and infrastructure. Four streams were created: Engagement, Capability, Innovation and Leadership. As a result of these workshops, a Memorandum of Understanding was signed with Infosys and a research agreement with Stanwell.

Dow Centre partnership
Throughout 2020, the UQ Dow Centre continued to make strong progress in delivering innovative and scalable solutions toward a more sustainable future. The Centre participated in collaborative research projects with the Future Fuels CRC, the Flexible Printed Batteries CRC-P, the Fight Food Waste CRC and the Andlinger Center for Energy and the Environment at Princeton University. The UQ Dow Centre continues to refine its mission and focus on significantly impacting sustainability and the economy through key research themes of energy transitions, low-carbon energy and materials, and the circular economy.

Cooperative Research Centre on Transformations in Mining Economies
A national consortium led by UQ and the University of Western Australia secured $30 million from the Australian Government to help regional communities transition to sustainable futures after their local mines close. The funding forms part of a total 10-year investment of $135.4 million supporting mining communities to create sustainable community and development opportunities. The consortium formed a Cooperative Research Centre on Transformations in Mining Economies (CRC-TiME) with hubs in both Queensland and WA, and with 75 partners including BHP, Rio Tinto, Deswik, Decipher, the State Governments of WA, Queensland and the Northern Territory, as well as researchers from 8 universities and the CSIRO.

▶ Related initiatives for 2.4	
1.1 Entrepreneurship Strategy	pg 18
2.3 UQIDAR, QUEX	pg 24
4.6 Western Civilisation	pg 32
6.2 New opportunities	pg 37

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.

In a challenging year with closed borders and restricted people movement, the UQ Graduate School maintained HDR commencements at 912 candidates (95 per cent of expected target) and supported over 800 conferrals.

HDR industry placements
HDR placements adapted quickly to new ways of working as a result of the COVID-19 pandemic. A shift was made to enable remote placements, to ensure the many HDR candidates who undertook international or interstate placements were not disadvantaged. Despite the additional hurdles, the Graduate School organised more than 55 placement opportunities. Placements were undertaken within government, industry and the not-for-profit sectors and provided HDR candidates with an opportunity to further develop and translate their transferable skills.

Career Development Framework (CDF)
The CDF saw more than 98 topics offered in 173 workshops in 2020. With the onset of COVID-19, all workshops were shifted to an online format, and attendance tripled in most cases. As at October 2020, 6,300 attendees had participated in CDF workshops, a 40 per cent increase over the full year of 2019, and had maintained a satisfaction rate of 94 per cent.

Three Minute Thesis (3MT)
The 3MT competition continued to grow, with a record number of more than 300 PhD students competing at UQ alone, and many more at over 900 institutions worldwide. UQ's 3MT was strongly contested in 2020, its thirteenth year of competition. Emma Schimke from the School of Health and Rehabilitation Sciences won with her presentation, *To sleep or not to sleep*.

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)
UQRDM provides researchers and HDR students with integrated research data storage to securely store, share, re-use, collaborate on, and manage their projects' research data. A major milestone was achieved by allowing researchers to publish datasets directly to UQ eSpace from within RDM, facilitating the transition from working data to published data.

In 2020, 3,901 researchers used RDM for the first time; 4,703 new records were created; 5,531 terabytes of data was stored in RDM; UQ researchers collaborated with more than 1,200 external collaborators through RDM; and the Library held 35 RDM training sessions.

UQ Research Management System
2020 saw further development of MyResearch (formerly known as the Research Management System, or RMS), which will provide UQ with an enterprise-wide, integrated research management solution. Being researcher-centric and project-based, it will enable a holistic view of research project management, administration and compliance across the research lifecycle at UQ. The ethics component of MyResearch is due for release at the end of January 2021. Work on MyResearch Projects, the second stage of implementation, progressed in 2020. MyResearch Projects is on track for delivery in early 2022.

Management of research and consultancy

In May 2020, a new suite of policies, procedures and processes was implemented to better manage risks relating to consultancies, secondary employment and internal work. This includes improved financial management of costing and pricing relating to research and consultancy activities. This policy framework complements work undertaken in 2018 and 2019 relating to contract research and grants financial management and the implementation of MyBalance, the research budget management system. This is also an important foundation for further improvements in the management of the research lifecycle through the implementation of a new research management system during 2020/2021.

▶ Related initiatives for 2.6	
5.1 Disclosure and management of interests	pg 33
5.3 Research Management Business Transformation program	pg 34

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

UniQuest

UQ was ranked number one within the Group of Eight universities in the 2020 Survey of Commercialisation Outcomes from Public Research (SCOPR) in measures for the amount of commercialisation revenue received, the number of active startups and the value of equity held by UniQuest in startups formed from UQ intellectual property (IP).

UQ's innovative technologies continued to attract significant global interest in 2020:

– Startup company Inflazome Ltd was acquired by multinational pharmaceutical company Roche in September in the largest deal for a spinout company from an Australian university, with an upfront payment of €380M (AU$617M) plus additional development and regulatory milestone payments. Inflazome is developing potential treatments for a broad range of inflammatory diseases, including inflammatory bowel disease and Parkinson's disease, based on IP developed by UQ researchers in collaboration with Trinity College Dublin.

– Startup company Vaxxas will partner with the US Government to test its high-density microarray patch (HD-MAP) needle-free vaccine delivery technology for pandemic influenza, receiving $30 million from the Biomedical Advanced Research and Development Authority. With the support of the Queensland Government, the company will establish a facility at Brisbane's Northshore Hamilton for the manufacture of products, ensuring that the UQ research continues to be developed in Brisbane. A long-term partnership with Merck & Co Inc has seen the global pharmaceutical company investing $18 million in Vaxxas in a combination of equity funding and option fees.

– In the first 9 months of 2020, UQ's other startups attracted over $27 million in investment to advance their technologies towards the market, bringing the cumulative total raised since 1984 to $776 million.

– The Queensland Emory Drug Discovery Initiative, operated and managed by UniQuest, progressed its pipeline of drug discovery projects based on innovative UQ research, and was awarded competitive funding from the Medical Research Futures Fund to advance the projects in cancer and neurodegeneration to commercialisation.

JKTech

As the technology transfer company for the University's Sustainable Minerals Institute (SMI), JKTech supplies innovative products and services to the global resources industry – including specialist technical consulting in mining, geometallurgy and processing; laboratory services and analysis; professional development and technical training services; and test equipment and simulation software products.

During 2020, a key achievement was the integration of JKTech and SMI's Julius Kruttschnitt Mineral Research Centre (JKMRC) under one management structure. This approach will strengthen the mining value chain and will maintain the critical linkages between research and consulting in order to drive innovation and ensure that clients receive the benefits of new research and expertise in technology-based solutions.

Despite the challenges that materialised as a result of the COVID-19 travel restrictions, JKTech continued to engage with industry partners by providing services remotely as well as remaining connected with the more than 12,000 mining professionals who attended or viewed webinars produced by the combined JKTech, SMI, JKMRC group.

University of Queensland Press (UQP) Quentin Bryce Award

Established in association with UQ, UQP launched a new annual $5,000 prize in February, the UQP Quentin Bryce Award. Bestowed on a book on UQP's list that celebrates women's lives or promotes gender equality, the inaugural winner was *Throat*, a poetry collection written by Ellen van Neervan.

Citizen science

To increase awareness of the Institute for Molecular Bioscience's scientific endeavours, work began in 2020 on the development of 2 apps: the *Cane toad challenge* and *Soils for science*. Both were launched for general community use during the year and have been widely taken up across the state.

▶ Related initiatives for 2.7	
5.1 Disclosure and management of interests	pg 33
6.5 University of Queensland Press (UQP)	pg 38

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.

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

UQ Industry Partnerships Framework

The UQ Industry Partnerships Framework seeks to support engagement with industry partners external to UQ, with the aim of deriving and delivering maximum impact across research, commercialisation, innovation, teaching and learning, and engagement. The term 'industry' applies to an expanding range of external partners including private industry, industry associations, not-for-profits, foundations, and many other sectors of the economy.

The framework is intended to support all UQ units to facilitate successful engagement with UQ's industry partners, with an emphasis on strategic-level partnerships earmarked for central coordination. It aims to ensure industry–partner interactions are approached in a coordinated, timely and responsive manner, thus cultivating mutually beneficial relationships in support of the University's objectives to pursue 'partnered innovation' and 'collaborative partnerships to connect and co-create', as outlined in the *UQ Strategic Plan 2018–2021*. Despite some delays due to pandemic-related budget restrictions, the framework and responsibilities were further clarified during 2020, and development of reporting mechanisms commenced.

Research partnership model

The research partnership model has been very successful in supporting UQ to lift its performance in securing industry funding. During 2020, considerable work was undertaken to build capacity, particularly in security industry research income. Innovation brokers were recruited and these roles located within the Global Change Institute, and the staggered recruitment of key staff to support the research partnerships contract administration model was completed. Work will continue during 2021.

IBM@UQ Centre of Excellence and Innovation

In September, IBM announced the launch of a new collaboration with UQ to address data challenges impacting health, manufacturing and environmental research. Tackling issues associated with significant growth in the amount of data being collected, organised and stored for research purposes, the Centre will also provide a range of new data storage and computer hardware platforms to UQ's Research Computing Centre for experimentation and evaluation.

▶ Related initiatives for 3.1	
1.1 Entrepreneurship Strategy	pg 18
1.4 Science Precinct	pg 21
2.2 Global Change Institute	pg 24
2.6 UQRDM	pg 25

Key performance indicators
Partnerships

Rank first in Australia for attracting research income from industry

UQ research income[1]						
	2014	2015	2016	2017[4]	2018	2019
UQ's national rank on research income from industry	1	2	2	1	2	2

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]						
	2014	2015	2016	2017	2018	2019[3]
UQ's rank within the Go8 for the percentage of publications with an international co-author	4	6	6	4	3	3
UQ's rank within the Go8 for the percentage of publications with a non-academic co-author	5	5	5	5	5	7

[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 2019 are preliminary. Data will be finalised in mid-2021.
[4] Change in previously reported figures due to change in methodology.