The University Of Queensland
AUSTRALIA

CREATE CHANGE

Enterprise Information Technology Strategy 2021-2023

From the Chief Information Officer

I wish to thank the many contributors across the University who provided expertise and guidance to help shape our Enterprise Information Technology (IT) Strategy. It's important that our actions support the University's mission and the diverse requirements of our University community, especially during periods of intense societal change. COVID-19 profoundly impacted and changed the University landscape, and this strategy allows IT to move quickly to achieve outcomes, while giving us latitude and flexibility to respond with agility as the higher education industry continues to evolve.

This strategy builds on the strong foundations laid in 2017-2020. During that time we commenced a number of transformational activities which we will continue to progress in the next three years, such as business process digitisation, cyber security awareness, network enhancements, and information management. In the last three years we also collaborated with organisational units across the University on large scale programs which aim to enhance the digital landscape and enterprise systems, improve student engagement, and automate key University processes.

Our 2021-2023 strategy is based around several key principles, our values and our mission for the future. To support this document, we are developing several discussion papers and key roadmaps which will define the actions and projects IT will undertake in order to realise our strategic vision and support the University.

Context

The world is changing at an astounding rate, and a vast portion of this change is enabled by technology. Information technology can break down barriers, solve complex problems, and make difficult tasks easier. This Enterprise IT Strategy outlines how we will use technology to help the University and its diverse community adapt and excel in our constantly evolving society.

In the past year, we've experienced unprecedented societal upheaval due to the COVID-19 pandemic. The University implemented emergency remote learning, and travel and physical distancing restrictions impacted research opportunities, international study, and in some cases, UQ's ability to achieve its strategic goals. The higher education sector will feel the impact of COVID-19 for some time, and we can expect to see a continued focus on remote learning and business continuity planning, along with a heightened sense of urgency to pursue opportunities. Reductions in international travel will impact our international student and research markets, and create financial constraints that the University must counter by diversifying its offerings and income streams, and retaining domestic students.

IT continues to support the University during the COVID-19 crisis by facilitating remote learning and working, and ensuring key services remain functional while staff and students are off-campus. IT's rapid response highlights how important agile, flexible and innovative IT services are to the University. In the next three years, IT will play a vital role supporting the University as it adapts and evolves in an industry which has been vastly and permanently changed by coronavirus. IT at UQ must navigate budget restrictions while meeting the increasing demand for IT services and digital solutions which are responsive, scalable, resilient and automated. This next period of transition will no doubt challenge IT, however it may also drive innovation, as we develop unique solutions to new problems.

Despite this evolving external environment, IT will continue to support UQ's strategic mission of knowledge leadership for a better world. Within this mission there are four key areas that IT will focus on long-term, to help UQ achieve its mission:

- Create an innovative and digitally-integrated learning experience for students, to produce game-changing graduates.
- Provide superior infrastructure, technology and support to researchers, enhancing their ability to deliver significant solutions to global challenges.
- Use technology to facilitate partnerships and collaboration, to develop a diverse community of knowledge seekers and leaders.
- Embed technology into every aspect of UQ's professional services to build responsiveness, improve productivity and reach key operational objectives.

Looking ahead, it's important that IT proactively responds to changes and challenges on the horizon, some of which may take precedence over strategic objectives. Additionally, with traditional government funding in decline, universities must also diversify their income streams to create sustainable financial bases and generate maximum value from a limited set of resources. UQ will work to enhance research excellence and impacts, and this includes building and maintaining partnerships with industry, government agencies and non-profit organisations. IT will help support the University in this endeavour by creating efficiencies in our professional services, and using technology to facilitate partnerships and enhance our research capability. We will also take a One UQ approach to reviewing, streamlining and centralising core IT infrastructure and systems in order to deliver savings and a more unified IT service.

Across the globe, technology has increased both information accessibility and the number of competitors within the higher education sector. This has created a myriad of challenges for the University that IT is best placed to respond to. Our aim is to use technology to enable world-class learning experiences that will give the University a competitive edge and produce game-changing, highly

employable graduates. It's important that IT enhances the on-campus experience while providing avenues for flexible learning, and we will continue to support digital innovation in teaching and learning to achieve this goal. In particular, we will focus on staff and student collaboration, providing tools for co-creation which will benefit the University and enrich the experience for our students. We will also explore innovative technologies like augmented reality, smart campus technologies, collaborative tools, artificial intelligence (AI) and machine learning (ML) to enhance student learning, research capabilities, business processes and automated decision making.

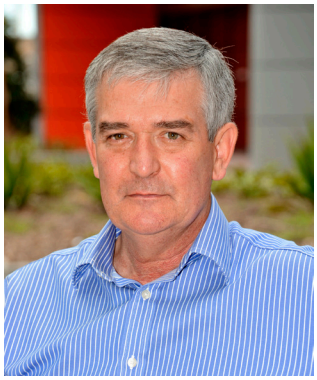
The importance of data continues to grow globally. At UQ, data delivers insights, enables decision making, increases efficiency and improves the student experience. Looking ahead, we can expect a higher demand for automation, artificially intelligent processes, fast service delivery and targeted engagement activities, all of which are powered by data. The University will depend on IT to deliver quality data to the right people and systems at the right time, and IT will explore data science and advanced analytics to further support this aim. As UQ becomes increasingly data-centric, the University will also rely on IT to protect the privacy and security of its data. IT will continue to prioritise cyber and data security, with a focus on community awareness, best practice, risk minimisation and governance controls.

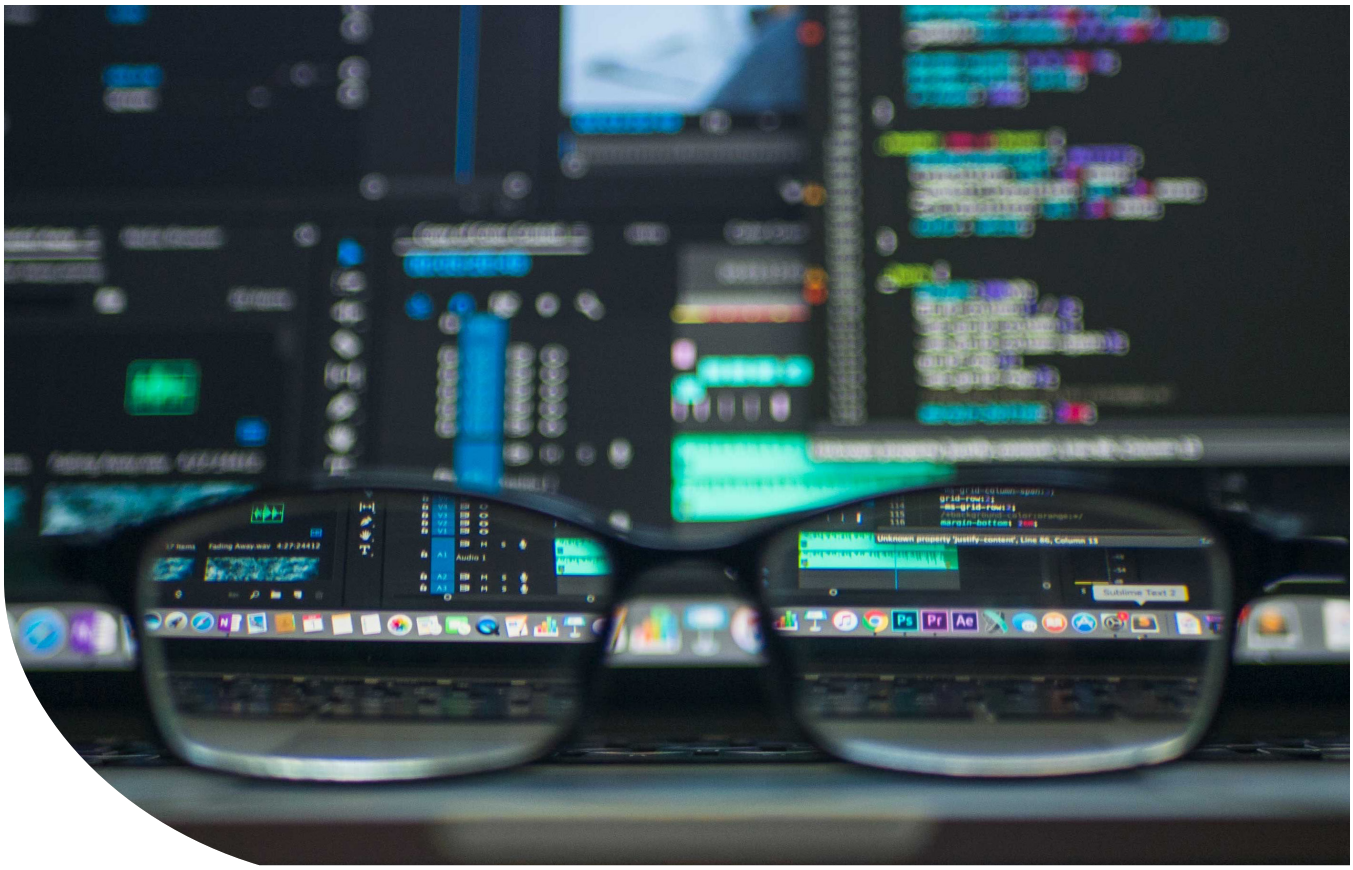
The University's strategy calls upon us to embrace a One UQ culture, with an emphasis on collaboration, supporting our people, and driving innovation. Our ability to collaborate (both internally and externally) will become vitally important in the next 3-5 years. In research, collaboration tools can improve research outcomes, increase our capacity for local and global partnerships, and give our researchers platforms to share and discuss their work without geographical barriers. Collaboration tools also have the capacity to change the way we work and the way our students learn. As part of our Enterprise IT Strategy, we will work to provide collaboration tools that can benefit the entire UQ community.

IT will also focus on supporting and developing our team, as we continue to build a more responsive, agile and flexible approach to working. This involves creating pathways for existing staff to expand their skills, and further developing an innovative, agile environment to retain and attract outstanding team members. Shifting our skills profile will allow IT to deliver complex projects to ambitious timescales, and provide leadership to the UQ community. This shift in skills is also connected to our transition away from custom-built systems toward cloud and managed services. In the next three years we aim to move away from operations and maintenance of custom systems, toward transformational and innovative activities that will better support the University's strategic vision.

Rob Moffatt,

Chief Information Officer





Our vision

UQ's digital environment is integrated and completely responsive to the University's diverse and ever-changing needs. Technology is embraced comprehensively across UQ, and information technology delivery is a critical service that supports and enhances the University's ability to achieve its strategic goals and vision for the future.

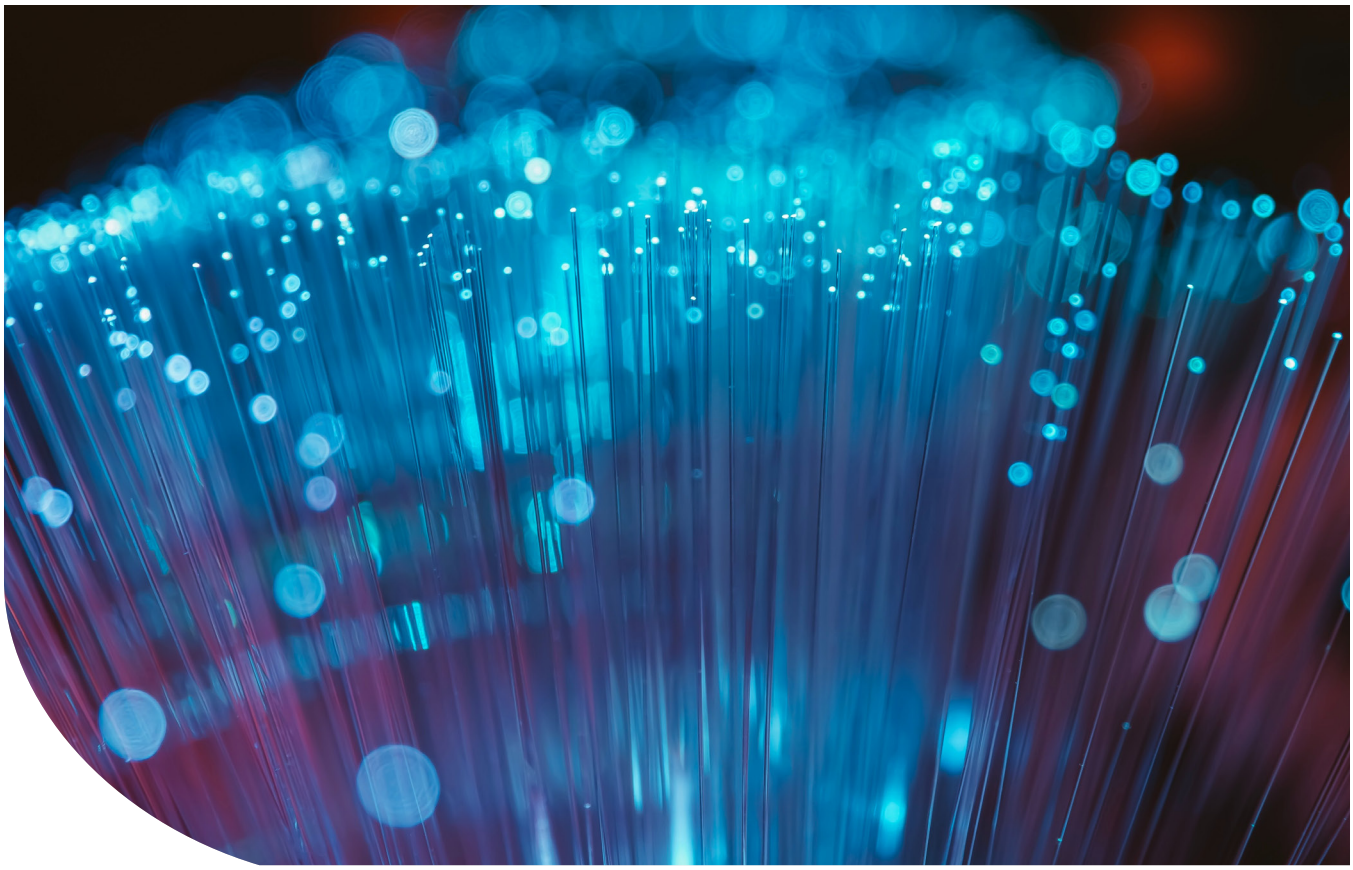
Our mission

Information Technology (IT) will partner with the University to deliver innovative IT solutions, seize opportunities and meet challenges faced by the University. The University will trust IT to lead conversations about information technology, and manage IT services that protect and meet UQ's needs.

Our information technology principles

IT staff contribute to UQ's success on a daily basis, and the following principles guide them to align their efforts with the University's strategic goals and expectations. IT will:

- **Be responsive:** Take an agile, collaborative and adaptive approach to working that allows us to make strategic business decisions and deliver flexible, innovative solutions that meet the University's changing needs.
- **Continuously improve:** Support and nurture our staff, and develop an operating philosophy that allows us to meet UQ's needs while streamlining and unifying IT systems and support. IT will focus on realising and measuring benefits, supporting the University to increase efficiencies, and meet strategic objectives.
- **Demonstrate leadership:** Provide technical expertise and guidance on new technologies, solution design and IT systems that will help the University achieve strategic goals. IT will take a considered approach to managing UQ's information and technology, balancing security risks against the delivery of the University's key objectives.
- **Utilise data ethically:** Ensure that appropriate members of the UQ community can find, use and analyse UQ's data effectively, ethically and securely to deliver value for the University. Privacy and security are a priority for the UQ community, and we will continue to reduce risks and minimise security threats, while safeguarding the community's privacy and UQ's information assets.



Our goals

Our goals form the basis of the Enterprise Information Technology Strategy and will help us achieve our vision. While the priorities under each goal may evolve as the University's priorities change, the following goals will remain constant over the next three years.

1. ***Enhance UQ's research, teaching and learning capabilities*** by developing sector-leading IT solutions that meet the needs of the UQ community, at a cost that UQ can sustain.

2. Continue the transition to an ***agile, responsive way of working.*** We will engage with and support the University, providing leadership and guiding decisions on information technology to help UQ achieve its goals.

3. ***Digitise the UQ environment*** to improve service delivery, increase operational efficiencies and deliver valuable, integrated services to the University community.

4. Manage UQ's information to ensure it is ***inherently valued, trusted, and used ethically and effectively*** by appropriate members of the UQ community.

5. Adopt a holistic, broad-based and sustainable approach to cyber security encompassing technology, processes and people. ***Reduce and manage cyber security risks*** to enable effective research, teaching and community engagement.

6. ***Adopt a One UQ approach*** to delivering valuable, streamlined IT services that are easy to use and meet the diverse needs of the UQ community.

1 Enhance UQ's research, teaching and learning capabilities by developing sector-leading IT solutions that meet the needs of the UQ community, at a cost that UQ can sustain.

Information technology is intrinsic to society – it influences the way we communicate, live, learn and work. To keep pace in a dynamic and challenging higher education environment, UQ will rely on technology to enable a borderless campus with flexible learning options and an intuitive online experience. IT will work with the DVCA's and DVCR's portfolios to create digitally integrated learning and research environments, and enhance our community's ability to collaborate and deliver solutions to globally significant challenges.

Information Technology will:

1.1 Enhance the University's ability to work digitally using a minimal number of systems that are stable, personalised and easy to use.

1.2 Enable research collaborations with industry partners and researchers from across the globe through the provision of technology, streamlined and secure data storage, and high capacity communications networks.

1.3 Identify, trial and operationalise technologies (such as augmented reality) that have the potential to enhance the student experience or our research capability.

1.4 Preference technologies or systems that students are likely to encounter after graduation.

1.5 Work with the DVCA's portfolio to enhance the University's learning management systems and increase staff digital literacy to ensure students receive outstanding learning experiences in a hybrid mode of online and on-campus teaching (commencing 2021).

1.6 Partner with the Institute for Teaching and Learning Innovation (ITaLI) and the Library to enable the Digital Learning Capability Roadmap and provide an enhanced, seamless student experience.

1.7 Support UQ to enable shorter form credentials (commencing 2021).

1.8 Ensure new content and systems are accessible and compliant with WCAG 2.1 where possible.

1.9 Increase access to centralised research computing and storage resources, and continue to invest in UQ's Research Data Manager to meet demand and ensure that UQ researchers continue to work in a sector-leading environment.

1.10 Enhance the network's speed to a minimum of 100Gbps in research intensive locations by 2022, improving data utilisation and resource sharing in fields such as data mining, video editing, data imaging and high performance computing.

1.11 Form partnerships across the DVCR's portfolio, ITS and the Library to facilitate research collaborations, enhance research infrastructure and increase UQ's research computing capability.

1.12 Identify opportunities to work closely with industry partners to build strategic relationships that support UQ's competitive advantage or deliver efficiencies.

Creating multi-dimensional learning experiences

Information Technology Services (ITS) collaborated with the Faculty of Health and Behavioural Sciences (HABS) to bring augmented reality into classrooms. Students from Dentistry, Nursing, Midwifery and Occupational Therapy courses trialled the Microsoft HoloLens headsets, which use augmented reality to create an immersive and engaging learning environment. The feedback from these pilot sessions was overwhelmingly positive, and in 2020 the Dentistry and Nursing programs began using HoloLens to supplement and enhance students' learning experiences.

Click to read about digital enablement at UQ >>>

2 Continue the transition to an agile, responsive way of working. We will engage with and support the University, providing leadership and guiding decisions on information technology to help UQ achieve its goals.

Across the IT industry, we have witnessed a shift away from custom systems and software, toward cloud services and vendor-managed platforms which offer increased agility and flexibility. In the next three years, IT at UQ will continue transitioning to a more responsive and innovative way of working. We will enhance our skillset and become technical leaders to deliver valued, flexible and high-performing IT systems within an integrated technology landscape.

Information Technology will:

2.1 Lead and supervise the design and implementation of information technologies to ensure that they are well integrated, secure and meet organisational objectives.

2.2 Commence a program to define and clearly communicate roles and responsibilities within and outside IT to support an effective information technology ecosystem at UQ.

2.3 Preference cloud delivery first, balancing functionality against complexity, cost and value. Only construct and customise systems if doing so creates a competitive advantage.

2.4 Manage and oversee technology solutions on behalf of the University, regardless of whether they are operated internally or by a third party.

2.5 Actively engage in and contribute to University decisions. Shift our mindset towards business outcomes and lead conversations about technology to deliver significant value.

2.6 Collaborate with the Library and key University partners to develop a strategy for managing learning resources and information assets across research, teaching and learning and professional services.

2.7 Identify and implement extensible enterprise platforms that enable efficiency and facilitate integration with other systems and platforms.

2.8 Build our vendor management and solution architecture capabilities, to improve our ability to work responsively and implement vendor-managed services.

2.9 Implement IT solutions in stages to begin realising benefits earlier.

2.10 Support our IT staff and provide opportunities for learning and skills growth to create technology leaders and enablers.

Increased agility through effective communication

Teams in both ITS and the Library use Agile project delivery practices, and in 2019 the ITS Enterprise Support Systems (ENTSS) team implemented 'Sprint Reviews'. Sprint Reviews are held every three weeks and allow ENTSS to present completed and in-progress features to key customers from other organisation units, and any other stakeholders they may be collaborating with. This process has improved knowledge sharing and transparency, and gives key stakeholders an opportunity to provide feedback. ENTSS will continue to refine their way of working, focusing on testing, change communications and project closure.

3 Digitise the UQ environment to improve service delivery, increase operational efficiencies and deliver valuable, integrated services to the University community.

In the next three years, UQ's enterprise application landscape will undergo major transformation. IT will champion the University's digital presence, providing a simple, secure and easy-to-use environment with a set of core enterprise-grade tools. There are also significant opportunities to further integrate UQ systems and workflows, remove paper-based processes and enhance key enterprise applications in order to create efficiencies and improve the ease-of-use of our systems. Throughout this transformation period, IT will ensure that all digitisations, enhancements and implementations deliver benefits to the UQ community and create a digital environment representative of a global top 50 research university.

Information Technology will:

3.1 Provide a platform, guidance and support to enable the digitisation or automation of all key business processes, allowing process owners to generate efficiencies throughout the University.

3.2 Implement an enterprise-level collaboration system that gives staff and students modern tools to work and collaborate effectively (commencing 2021).

3.3 Immediately commence service rationalisation to decommission surplus or duplicate tools and increase efficiency, automation, and enhance the UQ community's digital experience.

3.4 Engage with the UQ community to ensure IT solutions, tools and services meet their needs.

3.5 Consolidate UQ's student application systems to improve productivity and deliver a competitive advantage to student recruitment (commencing 2021).

3.6 Improve academic integrity and reduce administrative tasks by implementing eAssessment technologies and improving marking and grading systems.

3.7 Digitally enhance the on-campus experience with smart technologies.

3.8 Improve the quality of our data and optimise our processes by applying machine learning to enhance data-driven decision making.

3.9 Use technology to support professional services, increase productivity, meet operational targets and improve UQ's efficiency position in relation to industry benchmarks.

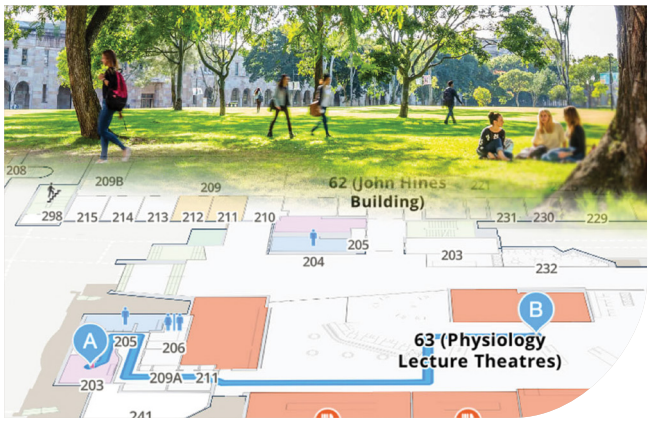
3.10 Explore and leverage existing functionality within UQ's finance platform to enhance financial management (commencing 2021).

Creating value and efficiencies for the UQ community

The Business Process Digitisation and Automation (BPDA) program established two automation platforms (UniTask and UiPath) to help the University digitise and automate processes, and reduce the administrative costs associated with paper-based, repetitive and manual tasks. The BPDA program has digitised and/or automated 66 processes across areas including finance, student administration, the Graduate School and Health, Safety and Wellness. These automations, which are underpinned by data integration, have improved the staff and student experience through easy-to-use interfaces and the removal of repetitive, mundane tasks. The BPDA program has also reduced administrative overhead and processing times while increasing accuracy and opportunities for monitoring and reporting.

Click to know more about:

- *automation at UQ >>>*
- *application rationalisation >>>*



4 Manage UQ's information to ensure it is inherently valued, trusted, and used ethically and effectively by appropriate members of the UQ community.

UQ's information is a core strategic asset that can be leveraged to deliver value. As the quantity and value of data grows, IT must continue to develop a modern and proactive information management capability. Our transition to a more cloud-based environment will also require us to change the way we enable data integrations. In the next three years, our information management approach must ensure the quality, reliability and integrity of UQ's information, so that it can be appropriately used to gain insights, make decisions and deliver value for the University.

Information Technology will:

4.1 Increase awareness, knowledge and compliance surrounding information management, information quality and ethical information use.

4.2 Capture critical information assets and their metadata by 2023, ensuring that these assets are categorised, protected, located and shared in a controlled manner.

4.3 Identify all information stewards and custodians and work with them to ensure the University governs and manages its information effectively (2021 completion).

4.4 Provide modern tools and governance to enable digital record management, and actively encourage the creation of digital over physical records wherever possible.

4.5 Support the University to develop a data analytics capability to enable personalisation of learning, and provide insights to enhance learning outcomes.

4.6 Manage a large volume and wide variety of data at high speeds while maintaining data integrity and value.

4.7 Enhance data integration capabilities such as real-time data exchange to digitise, automate and personalise services, and improve the University's ability to engage with its stakeholders.

4.8 Establish a master data management capability (starting with identity data) to identify and provide trusted data sources, utilising this capability to enable collaboration and data connectivity across systems (commencing 2021).

Data-driven emergency response

UQ's information management capability has matured over the years, and in 2020 this allowed the University to blend and analyse different data sets to support the COVID-19 emergency response. UQ was able to ethically access and utilise information from a range of sources, including SI-Net, Blackboard, UQ Authenticate, Zoom and the UQ VPN. Insights regarding online activity, campus attendance and enrolment expectations helped UQ make informed decisions in response to COVID-19. Leveraging valuable information assets enabled UQ to support staff and students throughout the crisis and modify UQ's operating model in Semester 1.

Click to read about data and integration >>>

5 Adopt a holistic, broad-based and sustainable approach to cyber security encompassing technology, processes and people. Reduce and manage cyber security risks to enable effective research, teaching and community engagement.

UQ's information technology environment is vast, complex and ever-changing, as we work to deliver innovative technologies and a premium digital experience. The cyber security threat is also constantly growing, and reducing risk will remain a key focus in the next three years. UQ will continue to deliver innovations, balanced against the need to protect UQ's people, information and systems.

Information Technology will:

5.1 Adopt a risk-based approach to cyber security, informed by UQ's business requirements and best practice.

5.2 Proactively identify and manage emerging cyber security threats to decrease the percentage of risks above UQ's cyber security risk appetite.

5.3 Foster a security-oriented culture, where members of the UQ community are engaged and aware of the role they play in reducing cyber security risk.

5.4 Incorporate cyber security risk management and controls within solution design, regardless of whether the solution is operated internally or by a third party.

5.5 Collaborate widely to gain knowledge and strengthen the security capability both at UQ and within the higher education sector.

5.6 Protect UQ's data from security, compliance and reputational risks through effective controls, governance and information management.

5.7 Implement tools, controls and processes to protect information assets and ensure UQ remains within its cyber security risk appetite.

5.8 Increase UQ's cyber security maturity and emerge as an exemplar in the higher education sector for compliance with the Australian University Foreign Interference Taskforce's cyber security guidelines.

5.9 Implement solutions that protect the privacy of our community.

5.10 Respond to incidents immediately and limit the impact to the University and its community.

Protecting the UQ community

In late 2019, ITS implemented multi-factor authentication (MFA) to increase the security of UQ's systems. MFA adds another layer of security to UQ usernames and passwords – even if a criminal actor obtains a UQ username and password, MFA will prevent them from accessing the account. Approximately 80% of malicious data breaches are linked to compromised credentials – MFA therefore significantly reduces UQ's cyber security risk. Over 15,000 staff members now use MFA to authenticate, and this has improved the security controls of more than 150 important University systems including my.UQ, UniFi and MyAurion.

Click to learn more about cyber security at UQ >>>

6 Adopt a One UQ approach to delivering valuable, streamlined IT services that are easily accessible and meet the diverse needs of the UQ community.

IT supports more than 7,000 staff and 52,000 students each year, and as such it's critical that IT delivers services effectively and efficiently. In 2020, IT commenced work to review and rationalise UQ's computer fleet, and in the next three years, IT aims to standardise and streamline our toolsets, while also developing infrastructure to remove the boundaries of the campus environment. These changes will empower the UQ community to make the most of UQ's technology resources, and allow them to work from anywhere, at any time.

Information Technology will:

6.1 Use a consistent toolset to automate and streamline IT processes and enable a One UQ approach to delivering simple, intuitive and valued IT services.

6.2 Manage demand for IT services by enhancing self-service options, enabling remote support across all IT services, and improving our routine processes.

6.3 Improve awareness of and access to services, software and computer resources, allowing the UQ community to personalise their digital experience and select resources from a suite of flexible systems.

6.4 Explore opportunities to better support the use of personal devices through app streaming and virtual desktop technologies.

6.5 Foster a culture of knowledge sharing, communication and collaboration between ITS and other organisational units to improve the quality of project and service delivery.

6.6 Provide a modern communication toolset that is less reliant on fixed-line telephony, and is integrated and intuitive to support a modern workforce who can communicate anywhere at any time (commencing 2021).

6.7 Recognise the University's increasing dependence on technology and ensure that IT services are stable, reliable and effectively monitored. IT will report transparently on system availability.

6.8 Acknowledge the diverse requirements of the UQ community (for example, HDR students) and develop identity management to enable appropriate access to systems and services.

Consolidating our approach to IT service delivery

IT staff across the University continue to collaborate to align IT services, improve the digital environment, reduce risk and deliver efficiencies. This includes everything from standardising desktop purchasing and audiovisual tools, to collaboratively implementing multi-factor authentication and the endpoint security system. In particular, ITS worked with IT staff from the Institute of Molecular Bioscience (IMB) on a number of service alignments, including moving IMB to the UQ VPN, moving key applications to UQ Authenticate, and moving their support services to the Service CRM. These collaborative efforts have improved service, reduced risk and created cost efficiencies, demonstrating that a One UQ approach can deliver results.

Industry key performance indicators

Our success is directly linked to UQ's ability to deliver on its mission and achieve long term strategic goals. The following industry objectives aim to measure IT's overall success in addition to our key principles and goals:

Maintain staff satisfaction with IT within the top quartile of our industry peers.

Increase IT's operational efficiency rate to place within the top quartile of our industry peers.

Increase our percentage of time spent on transformational activities to place within the top quartile of our industry peers.

Improve student satisfaction with learning resources to place within the top quartile of our industry peers.

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