THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

Information and Communications Technology (ICT) Plan

2003-2007

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Introduction

Most organisations have made alterations in the way they conduct business as a result of the significant changes made possible by information and communications technology (ICT).

Information and communications technology in universities has

- underpinned the daily methods of work and communication of staff and students
- facilitated speedy information access
- influenced and continues to influence research and learning practice
- supported a variety of innovations and experiments in teaching, and
- changed and continues to change 'back-office' systems and processes.

Educause surveys members annually about campus IT challenges. In 2003, the top 10 issues singled out by university staff, in order of priority were

1 IT funding strategies
2 administrative systems/enterprise resource planning (ERP) system
3 security management and identity management
4 maintaining and upgrading network and IT infrastructure
5 faculty (staff) development, support and training
6 IT strategic planning
7 Web services/Web-based systems
8 distributed learning/teaching and learning strategies
9 enterprise-level portals
10 online student services

These issues are important for major universities around the world. All these issues are being addressed at The University of Queensland and require investment of resources, both human and financial. The ICT Plan and Framework sets priorities for development and guides the direction of that future investment.

Professor Margaret Gardner

Deputy Vice-Chancellor (Academic)

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Information and Communications Technology (ICT) Plan

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The University of Queensland is committed to providing leading edge information and communications technology services and infrastructure to enhance the quality of learning, teaching and research.

This will be demonstrated by:

- Using eLearning to support more flexibility in teaching and learning for students and staff and to enhance interaction among them;
- Supporting the University's researchers in the virtual research community across its campuses and across the globe;
- Ensuring flexible, personalised, user-friendly systems for access to information and services for staff, students and external audiences;
- Building robust information and communications technology planning, support and infrastructure across the units and sites of the university; and
- Enhancing the reputation of the University through community partnerships with information and communications technology.

goal 1 Using eLearning to support more flexibility in teaching and learning and to enhance interaction among students and staff

New technologies provide staff and students with opportunities to develop new learning experiences and learning communities. To date the major changes that information technology has brought to teaching and learning have augmented rather than transformed practice. They have added to the way face-to-face teaching is conducted.

The University remains committed to providing a campus-based experience and face-to-face interaction in teaching for the majority of its undergraduates and postgraduates. It also remains committed to using information and communications technology to augment high quality learning and teaching.

A challenge is to use the opportunities provided by information and communications technology to transform rather than merely augment teaching and learning experiences. A second and related organisational challenge is to provide eLearning support that is able to be integrated with existing quality learning and teaching – to ensure that all staff, not only an enthusiastic and small band of 'early adopters', engage with new opportunities.

In particular, information and communications technology can be used to provide:

- Access to specialised resources and people beyond the campus to enrich and broaden courses and programs;
- Opportunities to build learning communities that span real and virtual space and time;
- Curriculum enrichment by developing new resources and learning experiences for students; and
- Flexible teaching and learning spaces that encourage independent and peer group based learning and support new learning and teaching experiences.

Objective

To provide information and communications technology that supports flexible learning and teaching and enhances staff and student interactions.

Strategies

1 Identify training needs for staff and students in relation to new and existing uses of information and communications technologies in teaching and learning and provide appropriate programs to meet needs identified

2 Ensure attention to development of support and training that engages with all teaching and learning staff

3 Identify appropriate standards for access and connectivity for effective teaching and learning, ensure implementation and benchmarking outcomes against those of acknowledged leaders

4 Identify minimum provision and future needs in relation to connectivity for students to on and off-campus sources of information

5 Develop, manage and maintain appropriate flexible teaching and learning materials to support the Teaching and Learning Enhancement Plan through provision of eLearning systems, facilities and resources

6 Provide and support a central learning management system that allows development of new resources and experiences for students in, as well as beyond, the classroom

7 Provide effective access to on-line teaching and learning resources and digital objects

8 Investigate the likely needs of the "classroom of the future", identify technologies to provide high quality virtual 'face-to-face' interaction and develop an implementation plan

9 Identify minimum standards for teaching and learning spaces to use information and communications technologies effectively

goal 2 Supporting the virtual research community

Research in all fields depends on information and communications technology for access to data and information resources, for analysis and presentation of results and for communication between researchers.

Some research is dependent on highly specific information and communications technology such as high performance computers. Such equipment is usually funded through specific research grants, but also depends on the overall quality of the university's information technology and communications infrastructure for its performance.

Information and communications technology has made possible an increased scale of research in many areas. While some research has need for specialised infrastructure and equipment on the relevant campus, other research involves collaboration by researchers across many locations using resources or equipment made available through information and communications technology. This may involve something as 'simple' as email communication and sharing of analysis or as complex as "grid computing" such as the Large Hadron Collider, "an experimental high-energy physics project… [which will allow] a research collaborator to analyse data from one of the several collider experiments"(Bruce, 2003:29).

The challenges for the future are:

- Ensuring high quality access to and support for communications among researchers across campuses and countries;
- Providing access to information and resources both locally and internationally;
- Ensuring network bandwidth, capabilities and facilities to support areas of specialised research strength and emerging needs; and
- Supporting leading edge research information and communications technology in strategic priority areas.

Objective

To ensure that information and communications technology and services are able to provide researchers with high quality access to other researchers and resources across the globe.

Strategies

1 Ensure that identification of areas of research priority includes recognition of implications for information and communications technology infrastructure

2 Ensure the network backbone supports high quality research communications and information exchange across campuses as well as across the globe

3 Provide support for engagement with other major research institutions and industry to provide access to facilities and resources

4 Provide support for existing collaborative research endeavours

5 Support developments in research data and information access and provision across libraries

6 Monitor and report on developments in information and communications technology to support enhanced research access

goal 3 Ensuring flexible, personalised systems

Universities are engaged in a broad range of activities, centred on their core mission of teaching and research. They employ a range of applications to support teaching and research, from the student systems through timetabling to payroll and from research grant systems through to those of the library.

These systems, many of them largely invisible to staff and students, support major aspects of the University's work. Some of the current systems and applications in use at The University of Queensland are represented in Figure 1 (page 9). Added to these is the dependence of staff and students on major communications systems such as email.

The University has had as an objective for these systems for some time – the provision of a user-friendly website and search interface. Considerable work has been undertaken in providing as few authentication points as possible for students and staff for use of the many systems they may need. This work has been facilitated by the development of a student portal and more recently a staff portal. All these developments make links between the many applications and systems in use in the University.

The University has also been engaged in making a range of services available on-line. The SI-net system for student enrolment, the ESS for staff, as well as the Cybrary, are significant examples of applications that bring services to the desktop of a student or staff member and improve the timeliness and effectiveness of the service provided. Directory services and authentication systems underpin the ability to identify users and to provide the links to information and services for individuals.

The University also continues to develop information for use by external audiences, both as a marketing and communication tool, and as a community outreach activity.

Despite developments to date, the objective outlined above remains relevant for further development of services that meet the needs of a diverse and large group of staff and students.

The challenges are to provide:

- Single authentication by a particular category of user, such as a staff member or a student, or potentially an alumnus to the systems and resources provided for them;
- 'Personalisation' of resources and information for use by students and staff;
- Directory services supporting targeted access for particular categories of staff and students;
- Management information that supports decision-making across a large and devolved group of managers;
- Effective on-line services for staff and students, including an effective email system available both on and off-campus; and
- Support for access to the internet for staff and students, in order to make effective use of online services and information.

Objective

Develop integrated systems that support easy, personalised access to information and services for staff and students, and other authorised users, and to external audiences.

Strategies

1 Identify and benchmark standards for access, useability and interoperability and security of corporate systems

2 Monitor the effectiveness of the university website and portals for staff and students

3 Ensure implementation of "best practice" in provision of access to services and information

4 Develop a plan for key services to be provided online to staff and students

5 Complete and review implementation of directory services and authentication systems

6 Undertake reviews of major corporate systems on a regular cycle to ensure best practice and effective integration

7 Support development of management information and knowledge management systems and reporting to include all major corporate systems to facilitate ease of use by decision-makers across the university

8 Review support provided for access to email and internet based services for staff and students, paying attention to groups who are disadvantaged in terms of access

goal 4 Robust planning, support and infrastructure

The University backbone, UQNet, and bandwidth are crucial to all the information and communications technology systems and services on which staff and students rely.

The University has identified those campuses (among its more than 50 research and teaching and learning sites) that form part of the core network for the purposes of central funding. The core network will be brought to an appropriate standard. However this leaves the issue of the standard of connection to other sites. Variations in standard affect the overall performance of the University's network. There are also related issues about the standard currently available within each campus from building to building.

In order to deliver the performance necessary to support the demands of systems and staff and students, planning for the maintenance and upgrade of the network over time will be put in place. Planning for maintenance and replacement of other information and communications technology systems and access is also required.

The Asset Management Plan of the University provides a planning framework for major information technology and communications infrastructure. However the range of desktop computers for students and staff across organisational units, the technology in use in teaching and learning spaces, and other provision across the many units of the University also require planning for installation, management maintenance, replacement and upgrade of software. The increased dependence on this technology makes more effective planning critical to the achievement of objectives in relation to research and teaching and learning.

Finally there is very little to be gained from physical assets and software if staff and students are unable to use the equipment and systems provided in a way that enhances their work. Green (2003:40) argues, "we are in the middle of a significant transition from product-based IT problems to service-based IT problems". This challenge involves the provision of effective user support through training and/or IT staff.

The University must then

- Plan for and implement a standard across the UQNet and its other sites that meets the needs of the future;
- Encourage a planning regime that ensures minimum standards in terms of provision of information and communications technology are met for staff and students;
- Ensure that staff and students are provided with access to training to support them in the effective use of information and communications technology; and
- Critically review user support needs in relation to information and communications technology.

Objective

To ensure planning is in place to provide leading edge infrastructure and effective performance and use of information and communications technology in an ethical, legal and secure framework.

Strategies

1 Ensure a regular and effective planning process for implementation and management of ICT infrastructure and services at faculty and divisional level

2 Ensure that all staff are provided with effective support and development of skills and knowledge to maximise use of information and communications technology

3 Benchmark information and communications technology provision and use across the University, and with other universities, to allow the identification and adoption of best practice in user support and training

4 Develop a cohesive information and communications technology community across the University where all areas work together to provide cost effective services

5 Develop a plan for future development of UQNet and its relationship to other core university sites

6 Develop and maintain a security framework for UQNet

7 Develop business continuity/disaster recovery plans across UQ

goal 5 Enhance the reputation of the University through community partnerships

The University has an enviable reputation in the wider community for the services it provides in internet security to the Australian and Global community, in network management of both regional university networks and ISP services and in its library services to alumni and Queensland schools.

Objective

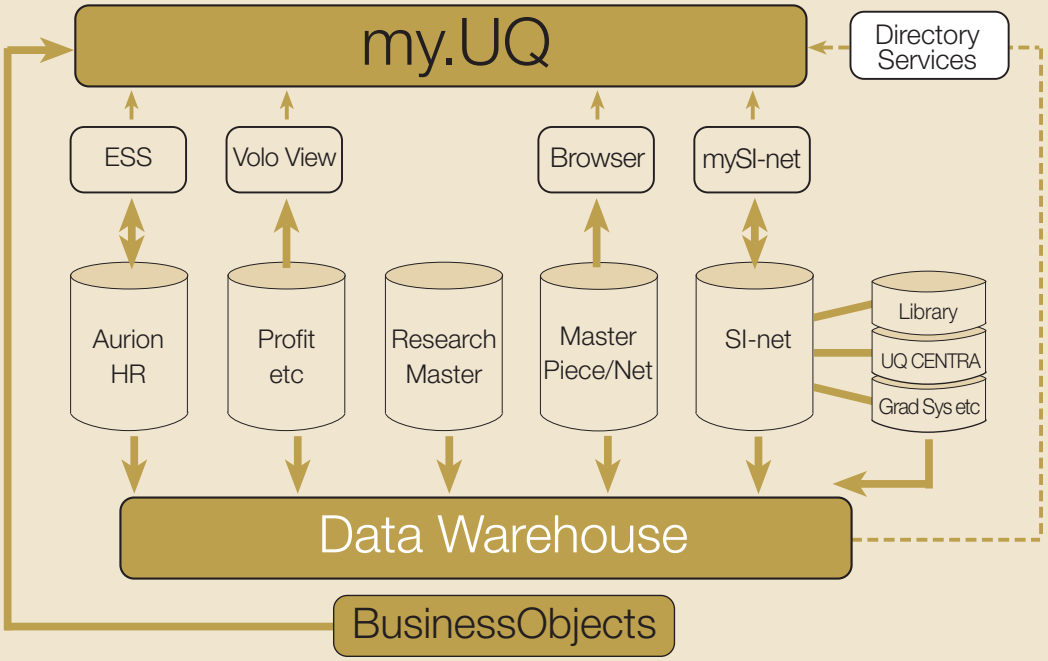
Enhance the University's standing in education, research and the wider community through services provided by AusCERT, UQconnect, QRNO and library initiatives such as UQL Cyberschool.

Strategies

1. Review the nature of internet-band services to UQ Alumni
2. Develop AusCERT to provide the national CERT services for Australia, based at the University
3. Develop the Queensland Regional Network Organisation (QRNO) to build a Queensland Research and Education Network (QREN)
4. Continue to extend the services of UQL Cyberschool

Figure 1

Current systems and applications in use, please refer Goal 3 (page 6).



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